NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

BUDGET ESTIMATES

FISCAL YEAR 2023

CONGRESSIONAL SUBMISSION

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Budget Estimates, Fiscal Year 2023
Congressional Submission

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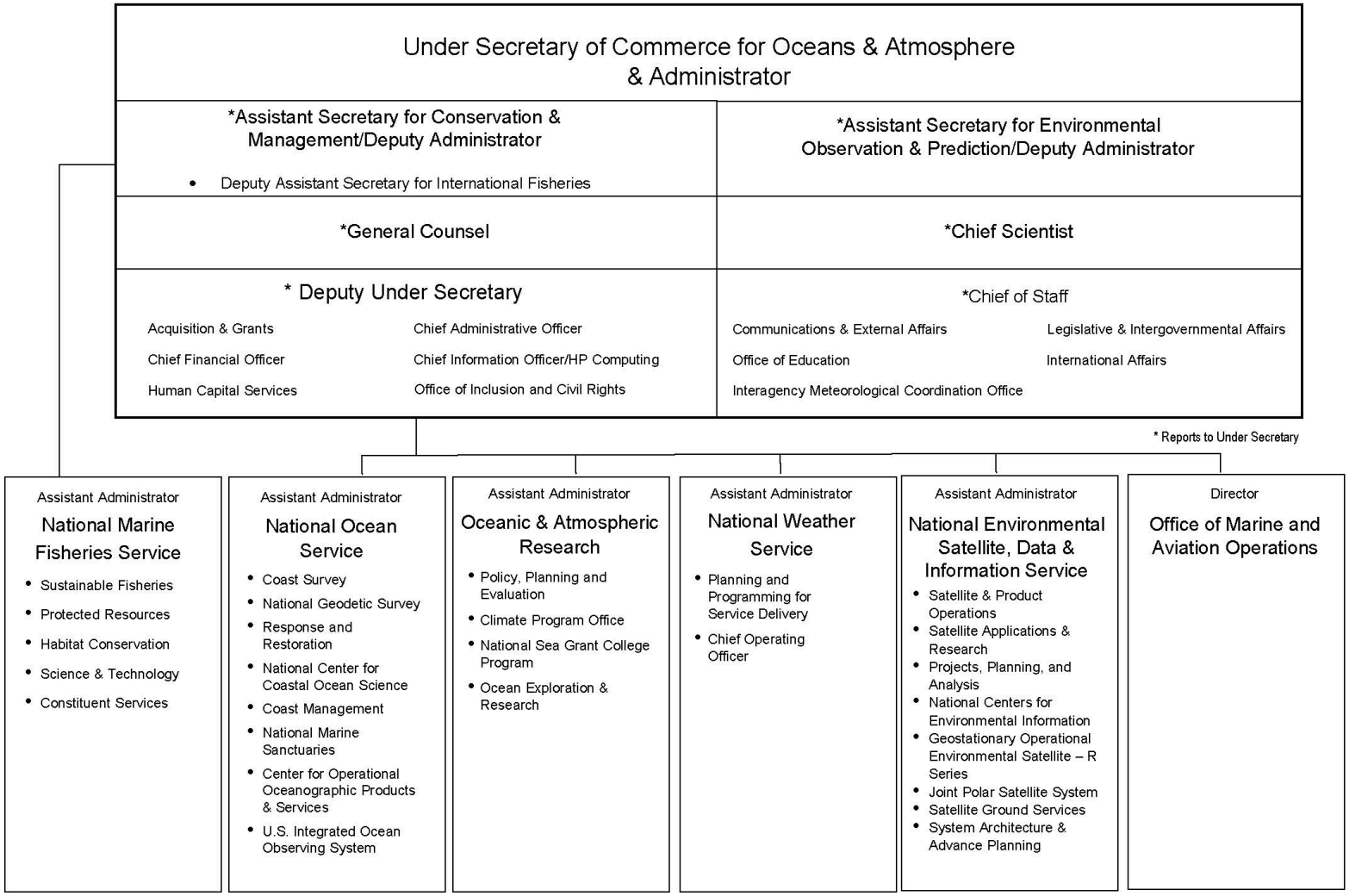
U.S. DEPARTMENT OF COMMERCE

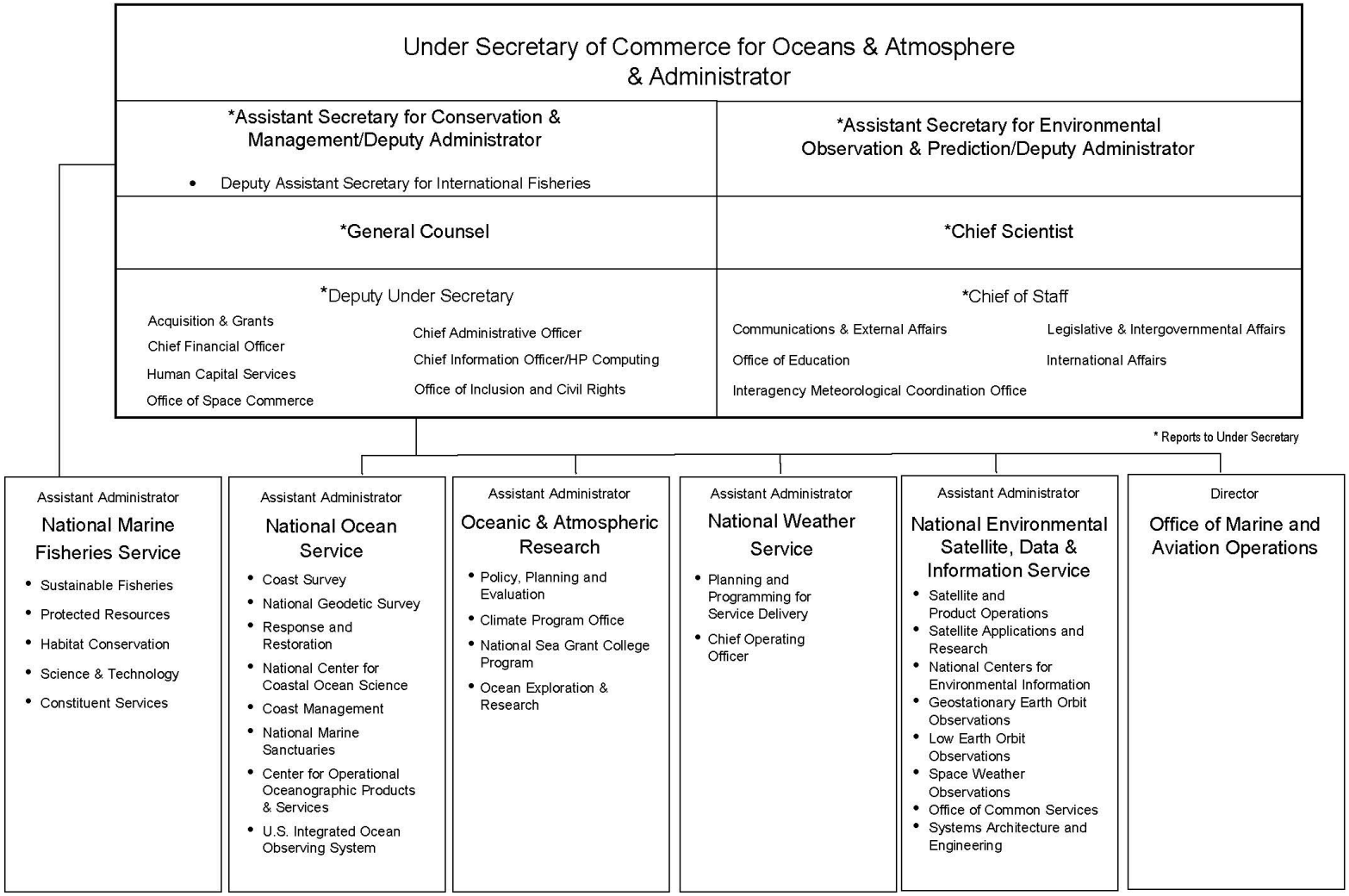
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION



Proposed Organizational Chart

U.S. DEPARTMENT OF COMMERCE

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION



Department of Commerce
National Oceanic and Atmospheric Administration
Budget Estimates, Fiscal Year 2023

EXECUTIVE SUMMARY

For Fiscal Year (FY) 2023, the National Oceanic and Atmospheric Administration (NOAA) proposes a budget of $6,884,137,000 in discretionary appropriations, an increase of $1,444,339,000 from the FY 2022 Annualized Continuing Resolution. In FY 2023, NOAA will continue to support climate resilience by scaling up efforts to develop and deliver climate products and services; foster environmental stewardship and sustainable economic development; and advance diversity, equity, and inclusion in our workforce, partnerships, and communities we serve. Additional investments in satellites will reinforce NOAA's commitment to time-sensitive investments in next-generation systems to expand service delivery of essential earth system data. NOAA will also safeguard and modernize facilities to ensure critical science, service, and stewardship into the future. These investments, in conjunction with the Infrastructure Investment and Jobs Act,[1] will advance NOAA's mission in an integrated manner. More details about these priority NOAA initiatives are provided below.

In FY 2023, NOAA requests $350,372,000 to develop and deliver climate products and services with an emphasis on an earth system approach. This builds on NOAA's existing observations and predictive capabilities, thereby enhancing NOAA's authoritative climate products and services and supporting the full spectrum of missions and applications. This request supports NOAA's "Climate Ready Nation" initiative that seeks to foster a Nation whose prosperity, health, safety, and continued growth benefit from a shared understanding of and action on climate change.

There is increasing demand for NOAA to deliver continually improved products and services and improve our predictions of extreme weather events and climate-related impacts, many of which are underpinned by critical investments that provide a foundation upon which the NOAA mission is built. The U.S. has sustained 310 weather and climate disasters from 1980 to 2021 where overall damages reached or exceeded costs of $1 billion, totaling more than $2.155 trillion. Of these, there were 20 weather/climate disaster events with losses exceeding $1 billion each. This includes exceptional warmth - with December 2021 being the warmest December on record for the contiguous U.S.; the second-largest fire in California history - the Dixie Fire, which consumed nearly 964 thousand acres; the third most active Atlantic hurricane season; the heat dome in the Pacific Northwest; and the deadliest December tornado outbreak on record. These events alone resulted in the deaths of almost 2,000 people and had significant economic effects on the areas impacted. These deadly and costly disasters are also happening more frequently: average time between billion-dollar disasters in the U.S. has dropped to just 18 days, compared to 82 days in the 1980s. In addition, the U.S. could see a rise in sea level of one foot or more on average by 2050 without significant global actions to address climate change. To better support this increasing demand, an increase of $25,000,000 is requested for the Integrated Dissemination Program and an increase of $26,985,000 is requested in support of enhanced fleet operations. The NOAA fleet operates throughout the world supporting a wide array of NOAA

[1] In FY 2022 NOAA received $771.7 million through the Infrastructure Investments and Jobs Act (IIJA; P.L. 117-58) that became available in FY 2022. In FY 2023, NOAA will receive $550 million through the IIJA that will become available in FY 2023. Additionally, NOAA also received $345 million through the Disaster Relief Supplemental Act (P.L. 117-43).

missions. More days at sea and enhancing investments in mission systems will be critical to sustaining fleet readiness and reliability. Additional investment in aircraft flight hours will provide programs across NOAA with increased support for products and services that inform public safety, fuel the economy, and increase understanding of climate-induced impacts on our communities and ecosystems.

NOAA will continue to foster environmental stewardship and sustainable economic development with a particular focus on the New Blue Economy. In FY 2023, NOAA requests $212,466,000 to support new business development framed around an information and knowledge-based approach for multiple sectors of the U.S. economy, including fisheries, transportation, shipping, and recreation. Offshore wind development is rapidly expanding and represents a new use of our marine waters requiring substantial scientific and regulatory review. This request includes an increase of $45,399,000 to support the Administration's goal to generate 30 gigawatts of offshore energy by 2030, while protecting biodiversity and promoting sustainable ocean co-use. This includes the development of social and ecological science to plan and site offshore wind energy development. In addition, NOAA requests $27,044,000 for the surveying and mapping of coastal Alaska to bring the state's mapped data on par with other states and territories; support safe and efficient marine commerce and community-level coastal adaptation; and increase Alaska's ability to maximize maritime transportation and shipping via Alaskan ports. In FY 2023, NOAA requests an increase of $46,287,000 to evaluate the capabilities of phased array radar as a replacement for the current NEXRAD radar network by 2040. NOAA also requests an increase of $77,700,000 for the Office of Space Commerce (OSC) to support the development of a space situational awareness capability for civil and commercial space sectors. In addition, NOAA seeks approval to elevate OSC from NESDIS to NOAA Headquarters to ensure the highest level of visibility and accountability.

In FY 2023, NOAA will also continue to lay the foundation for successfully integrating equity across the workforce and the communities we serve. NOAA requests an increase of $39,192,000 to focus internally on diversity, equity, and inclusion in our workforce, and externally to reach a broader range of Americans in underserved or disadvantaged communities. NOAA will focus $8,700,000 of these funds to staff National Weather Service field offices to meet increasing demand for impact-based decision support services for all communities with the goal of saving lives, livelihoods, and lifestyles.

The FY 2023 request also includes investments for NOAA's satellites and facilities. NOAA requests significant investments to support NOAA's commitment to making crucial, time-sensitive, and cost-effective investments in the Nation's current and next-generation satellite systems. NOAA also requests an increase of $102,700,000 to ensure the long-term viability of facilities that are vital to support NOAA's critical science, service, and stewardship missions.

The NOAA FY 2023 request makes critical investments to further the NOAA mission to prepare for, respond to, and build back better in the face of climate change. This, coupled with a robust approach to integrating diversity, equity, and inclusion, allows us to be well-positioned to make tangible improvements in the communities we serve, particularly those most vulnerable to climate change and its impacts. For current GPRA targets please see the FY 2023/2021 Annual Performance Plan and Report.

Department of Commerce
National Ocean and Atmospheric Administration
FY 2023 PROGRAM INCREASES / DECREASES / TERMINATIONS
(Dollar amounts in thousands)
(By Budget Program, Largest to Smallest)

Increases

Page No In CJ	Appropriation	Budget Program	Title of Increase	Positions	Budget Authority
NOS-70	ORF	NOS	Assessing Place-based Climate Vulnerability for Conservation Action	15	24,063
NOS-19	ORF	NOS	Providing Foundational Ocean and Coastal Mapping and Charting to Support Coastal Climate Resilience	8	14,544
NOS-48	ORF	NOS	Nature-based Solutions to Enhance the Resilience of Coastal Communities and Ecosystems	6	14,500
NOS-27	ORF	NOS	Providing Foundational Ocean and Coastal Mapping and Charting to Support Coastal Climate Resilience	1	12,500
NOS-39	ORF	NOS	Foundational Information for Expansion of Offshore Wind Energy	4	8,719
NOS-75	ORF	NOS	Fostering Ecological Resilience Through Conservation Action	0	2,000
NOS-24	ORF	NOS	Enterprise Infrastructure Solutions (EIS)	0	1,000
NOS-45	ORF	NOS	Enterprise Infrastructure Solutions (EIS)	0	900
NOS-78	ORF	NOS	Enterprise Infrastructure Solutions (EIS)	0	800
NOS-65	ORF	NOS	Enterprise Infrastructure Solutions (EIS)	0	300
NMFS-76	ORF	NMFS	Wind Energy: Scientific Survey Mitigation	42	17,380
NMFS-81	ORF	NMFS	Climate-Ready Fisheries: Advancing Fisheries Survey Capacity for Commercially and Recreationally Valuable Species	6	11,562
NMFS-50	ORF	NMFS	Climate-Ready Fisheries: Climate-Informed Fisheries Assessments and Management Strategies for Changing Oceans	30	10,000
NMFS-25	ORF	NMFS	Species Recovery Grants Program	1	10,000
NMFS-56	ORF	NMFS	Wind Energy: Fisheries Science & Technical Reviews	27	8,669
NMFS-88	ORF	NMFS	Seafood Inspection Program	0	7,500
NMFS-91	ORF	NMFS	Wind Energy: Fisheries Management	37	6,155
NMFS-14	ORF	NMFS	Endangered Species Act Consultations and Marine Mammal Protection Act Permitting	30	5,000

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(Dollar amounts in thousands)
(By Budget Program, Largest to Smallest)

NMFS-19	ORF	NMFS	Wind Energy: Protected Species Environmental Reviews and Science	31	4,476
NMFS-62	ORF	NMFS	Advancing and Improving Territorial Fisheries Science and Management	7	3,000
NMFS-96	ORF	NMFS	Education and Outreach for Diverse Participation in Regulatory and Science Processes	0	2,000
NMFS-68	ORF	NMFS	Community Social Vulnerability Indicators Toolbox	2	1,000
NMFS-100	ORF	NMFS	Workforce Training to Support the Seafood Industry	0	1,000
NMFS-73	ORF	NMFS	Enterprise Infrastructure Solutions (EIS)	0	200
NMFS-123	FDAF	NMFS	Fisheries Disaster Assistance	2	300
OAR-21	ORF	OAR	Sustained Atmospheric Observations Increase	5	20,261
OAR-32	ORF	OAR	Enhancing Regional and Community Resilience by Scaling Up RISA Program and “Climate-Smart” Communities Initiative	3	10,000
OAR-26	ORF	OAR	Global-Nested High Resolution Model Increase	20	10,000
OAR-40	ORF	OAR	Marine Ecosystem Responses to Climate Change Increase	14	10,000
OAR-45	ORF	OAR	Providing Climate Change Projections out to 2050 to Inform Risk Management Increase	3	9,000
OAR-50	ORF	OAR	Precipitation Prediction Grand Challenge Increase	1	7,000
OAR-63	ORF	OAR	Phased Array Radar Research and Development Follow-On Plan	2	6,287
OAR-82	ORF	OAR	Uncrewed Systems Increase	4	4,000
OAR-36	ORF	OAR	Tribal Drought Resilience Initiative	0	3,000
OAR-93	PAC	OAR	Phased Array Radar Research and Development Follow-On Plan	0	40,000
OAR-90	PAC	OAR	Research and Development (R&D) High Performance Computing (HPC)	0	25,000
NWS-44	ORF	NWS	Optimize and Upgrade the Integrated Dissemination Program	0	25,000
NWS-48	ORF	NWS	Enterprise Infrastructure Solutions (EIS)	0	11,400
NWS-33	ORF	NWS	Staffing to Enhance Equitable NWS Decision Support Services	39	8,700
NWS-15	ORF	NWS	Enterprise Infrastructure Solutions (EIS)	0	750

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(Dollar amounts in thousands)
(By Budget Program, Largest to Smallest)

NWS-71	PAC	NWS	Automated Surface Observing System Service Life Extension Program	0	8,040
NWS-66	PAC	NWS	Enterprise Infrastructure Solutions (EIS)	0	470
NESDIS-56	ORF	NESDIS	Advance Core Activities	0	8,000
NESDIS-50	ORF	NESDIS	Satellite and Product Operations Deferred and Extended Maintenance	0	7,500
NESDIS-59	ORF	NESDIS	Ocean Remote Sensing	0	6,505
NESDIS-87	ORF	NESDIS	Improving Local, State, and Regional Climate Services	0	6,300
NESDIS-91	ORF	NESDIS	Climate Data Records	0	6,000
NESDIS-95	ORF	NESDIS	Enhance Enterprise Data Stewardship and Archiving	0	5,300
NESDIS-99	ORF	NESDIS	Sustainment of Cloud Framework for Environmental Data	0	4,900
NESDIS-63	ORF	NESDIS	Advancing Fire Weather Priorities	3	4,000
NESDIS-69	ORF	NESDIS	Coastal Resilience and Water Quality	2	3,236
NESDIS-74	ORF	NESDIS	Expanding Polar Region Integrated Satellite Marine and Ice Information Capabilities	0	2,000
NESDIS-53	ORF	NESDIS	Enterprise Infrastructure Solutions (EIS)	0	1,500
NESDIS-78	ORF	NESDIS	U.S. Group on Earth Observations (USGEO)	0	500
NESDIS-124	PAC	NESDIS	Geostationary Extended Observations (GeoXO)	9	653,829
NESDIS-163	PAC	NESDIS	Space Weather Next	23	145,000
NESDIS-137	PAC	NESDIS	LEO Weather Satellites	8	78,330
NESDIS-170	PAC	NESDIS	Space Weather Follow On	0	28,085
NESDIS-175	PAC	NESDIS	Data-source Agnostic Common Services (DACS)	16	25,007
NESDIS-181	PAC	NESDIS	Data Access and Distribution	8	24,000
NESDIS-188	PAC	NESDIS	Commercial Data Purchase	2	16,000
NESDIS-194	PAC	NESDIS	Joint Venture Partnerships	2	15,000

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(Dollar amounts in thousands)
(By Budget Program, Largest to Smallest)

NESDIS-144	PAC	NESDIS	Polar Operational Environmental Satellites (POES) Extension	0	10,000
NESDIS-200	PAC	NESDIS	Commercial Weather Data Pilot (CWDP)	0	5,000
NESDIS-149	PAC	NESDIS	COSMIC-2/GNSS RO	0	2,208
MS-97	ORF	MS	Office of Space Commerce	15	77,700
MS-40	ORF	MS	Increase Facility Program Capacity	24	5,000
MS-55	ORF	MS	NOAA Open Data Dissemination	4	3,300
MS-101	ORF	MS	Educational Partnership Program Climate Cooperative Science Center	0	3,000
MS-87	ORF	MS	Accelerate NOAA’s Diversity and Inclusion Plan	6	2,900
MS-105	ORF	MS	Engaging New and Diverse Audiences with NOAA Science	4	2,900
MS-36	ORF	MS	Acquisition and Grants Office	13	2,530
MS-60	ORF	MS	NOAA Cloud Program	1	2,500
MS-31	ORF	MS	Strategic Communication and Outreach to Underserved Audiences	9	2,000
MS-110	ORF	MS	Environmental Literacy Grants for Community Resilience Education	0	2,000
MS-65	ORF	MS	Enterprise Infrastructure Solutions (EIS)	2	1,770
MS-92	ORF	MS	Workplace Violence Prevention and Response Program - Racial Equity/Wellness	3	1,692
MS-77	ORF	MS	NOAA Recruiting Program	1	1,500
MS-44	ORF	MS	Implement a Budget Position Management System	0	1,400
MS-47	ORF	MS	Equity Assessment and Implementation Support In Compliance with EO 13985	0	900
MS-51	ORF	MS	NOAA Finance Transaction Processing	7	800
MS-82	ORF	MS	NOAA Facilitation Network	1	600
MS-27	ORF	MS	NOAA Tribal Liaison	2	500
MS-69	ORF	MS	Spectrum	2	500

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FY 2023 PROGRAM INCREASES / DECREASES / TERMINATIONS
(Dollar amounts in thousands)
(By Budget Program, Largest to Smallest)

MS-73	ORF	MS	Strengthen Diversity in NOAA IT	0	400
MS-115	PAC	MS	Northwest Fisheries Science Center Facilities Consolidation and Realignment	0	83,200
MS-118	PAC	MS	NOAA Construction	0	19,500
OMAO-12	ORF	OMAO	Enhanced NOAA Fleet Operations	33	26,985
OMAO-26	ORF	OMAO	Increased Aircraft Operations in Support of Cross-NOAA Climate Objectives	10	5,000
OMAO-36	ORF	OMAO	Grow the NOAA Corps	10	3,136
OMAO-17	ORF	OMAO	Office of Health Services Increase	0	1,200
OMAO-41	ORF	OMAO	NOAA Corps Recruitment	0	900
OMAO-20	ORF	OMAO	Enterprise Infrastructure Solutions (EIS)	0	200
OMAO-53	PAC	OMAO	P-3 Service Depot Level Maintenance	0	5,000
	Total, Increases			560	$1,683,689

Decreases

Page No In CJ	Appropriation	Budget Program	Title of Decrease	Positions	Budget Authority
NMFS-86	ORF	NMFS	Northeast Multispecies Fishery	0	(2,332)
NWS-75	PAC	NWS	Reduce Service Life Extension Program for Next Generation Weather Radar (NEXRAD)	0	(8,040)
NESDIS-156	PAC	NESDIS	Polar Weather Satellites (PWS)	(8)	(252,835)
NESDIS-131	PAC	NESDIS	GOES-R Series	0	(33,500)
OMAO-57	PAC	OMAO	Suspend Aircraft Recapitalization	(4)	(20,000)
	Total, Decreases			(12)	($316,707)

Department of Commerce
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FY 2023 PROGRAM INCREASES / DECREASES / TERMINATIONS
(Dollar amounts in thousands)
(By Budget Program, Largest to Smallest)

Terminations

Page No In CJ	Appropriation	Budget Program	Title of Termination	Positions	Budget Authority
NOS-68	ORF	NOS	Terminate Base Funding for the National Coastal Resilience Fund	0	(34,000)
NWS-60	ORF	NWS	Suspend COASTAL Act Implementation	0	(5,000)
NESDIS-153	PAC	NESDIS	Cooperative Data and Rescue Services (CDARS)	(3)	(13,100)
	Total, Terminations			(3)	($52,100)

Department of Commerce
National Oceanic and Atmospheric Administration
FY 2023 TRANSFER SUMMARY TABLE
(Dollar amounts in thousands)
(Grouped by Title of Transfer, Largest to Smallest)

Page No In CJ	Budget Program	Appropriations	Title of Transfer	Positions	Budget Authority
NESDIS-23		ORF	Office of Space Commerce Transfer to NOAA Mission Support	20	10,000
MS-7		ORF	Office of Space Commerce Transfer from NESDIS	(20)	(10,000)
OMAO-4	OMAO	ORF	NOAA Corps Consolidation Transfer to NOAA Commissioned Officer Corps	57	7,337
	NOS		NOAA Commissioned Officer Corps Transfer from NOS	(24)	(2,926)
NOS-3		ORF	Navigation, Observations, and Positioning	[(18)]	[(2,044)]
NOS-5		ORF	Sanctuaries and Marine Protected Areas	[(2)]	[(563)]
NOS-4		ORF	Coastal Science, Assessment, Response, and Restoration	[(4)]	[(319)]
NMFS-4	NMFS	ORF	NOAA Commissioned Officer Corps Transfer from Fisheries Data Collections, Surveys, and Assessments	(13)	(1,562)
	OAR		NOAA Commissioned Officer Corps Transfer from OAR	(4)	(521)
OAR-8		ORF	Ocean Laboratories & Cooperative Institutes	[(30)]	[(390)]
OAR-7		ORF	Climate Laboratories & Cooperative Institutes	[(2)]	[(261)]
OAR-9		ORF	Ocean Exploration and Research	[(1)]	[(130)]
OAR-10		ORF	Sustained Ocean Observations and Monitoring	[(1)]	[(130)]
	NWS		NOAA Commissioned Officer Corps Transfer from NWS	(5)	(378)
NWS-5		ORF	Central Processing	[(2)]	[(346)]
NWS-4		ORF	Observations	[(2)]	[(324)]
NWS-6		ORF	Analyze, Forecast, and Support	[(1)]	[(54)]
	NESDIS		NOAA Commissioned Officer Corps Transfer from NESDIS	(4)	(553)
NESDIS-24		ORF	Office of Satellite Product Operations	[(2)]	[(277)]

Department of Commerce
National Oceanic and Atmospheric Administration
FY 2023 TRANSFER SUMMARY TABLE
(Dollar amounts in thousands)
(Grouped by Title of Transfer, Largest to Smallest)

NESDIS-25		ORF	Product Development, Readiness, and Application	[(2)]	[(276)]
MS-4	MS	ORF	NOAA Commissioned Officer Corps Transfer from Mission Services and Management	(4)	(661)
MS-5	MS	ORF	Payment to the DOC Working Capital Fund Transfer to Mission Services and Management	0	3,071
MS-6	MS	ORF	Payment to the DOC Working Capital Fund Transfer from Mission Services and Management	0	(3,071)
	NESDIS		JPSS Operational Phase Transfers to	0	62,590
NESDIS-27		ORF	Office of Satellite and Product Operations	[0]	[39,190]
NESDIS-29		ORF	Product Development, Readiness, and Application	[0]	[14,600]
NESDIS-33		PAC	Common Ground Services	[0]	[7,800]
NESDIS-31		ORF	National Centers for Environmental Information	[0]	[1,000]
	NESDIS		JPSS Operational Phase Transfers from	0	(62,590)
NESDIS-26		PAC	Low Earth Orbit	[0]	[(39,190)]
NESDIS-28		PAC	Low Earth Orbit	[0]	[(14,600)]
NESDIS-32		PAC	Low Earth Orbit	[0]	[(7,800)]
NESDIS-30		PAC	Low Earth Orbit	[0]	[(1,000)]
NESDIS-35	NESDIS	ORF	CDARS Operational Phase Transfer to Office of Satellite and Product Development	1	1,300
NESDIS-34	NESDIS	PAC	CDARS Operational Phase Transfer from Low Earth Orbit	(1)	(1,300)
		Total, Transfers		0	0

Department of Commerce
National Oceanic and Atmospheric Administration
NOAA Headquarters Administrative Costs
(Dollar amounts in thousands)

In FY 2022, NOAA's Line/Staff Office Headquarters will use $425,053,353 and 1,370.1 FTE to support general management activities, financial and budgeting, and IT-related expenses, as well as to support facilities and other general operating costs. These funds also include support for service contracts, utilities, and rent charges from the GSA. Specifically, NOAA's Line/Staff Office Headquarters will use administrative funds to support the following:

Headquarters Administrative Support Type	Description	NOS Amount	NOS FTE	NMFS Amount	NMFS FTE	OAR Amount PB	OAR FTE	NWS Amount	NWS FTE	NESDIS Amount	NESDIS FTE	MS Amount	MS FTE	OMAO Amount	OMAO FTE	Total Amount	Total FTE
General Management & Direction/Executive Management	Includes Assistant Administrator's office, public affairs, information services	$11,997,968	36	$15,984,664	42.1	$9,373,771	28.5	$16,493,623	62.12	$11,831,245	37	$37,658,000	127	$2,584,021	10	**$105,923,292**	**342.7**
Budget & Finance	Includes Budget, Finance and Accounting	$3,707,281	17	$7,357,240	26.6	$5,077,256	28.3	$5,636,483	20.08	$7,704,661	25	$58,231,000	211	$2,846,308	14	**$90,560,229**	**341.9**
Facilities/Other Administrative (CAO Functions)	Includes Facilities and Security costs, as well as other CAO related activities	$1,425,838	1	$3,119,091	8	$3,482,244	12	$7,886,304	17.06	$1,798,658	8	$45,337,000	133	$927,453	0	**$63,976,588**	**179.1**
Human Resources	All HR services, including Equal Employment Opportunity	$3,011,600	8	$4,192,516	14.1	$1,937,380	10.8	$6,468,614	26.32	$4,390,411	16	$34,692,000	128	$1,431,989	11	**$56,124,510**	**214.2**
Acquisitions and Grants	Contracts, grants and procurement implementation	$407,282	2	$3,176,414	18.6	$2,000,000	0	$0	0	$586,479	3	$20,297,000	79	$0	0	**$26,467,175**	**102.6**
Information Technology	Includes IT-related expenses and other CIO related activities	$10,129,362	13	$8,154,395	21.6	$2,412,104	7.75	$9,199,821	18.31	$12,753,739	28	$37,499,000	93	$1,853,140	8	**$82,001,561**	**189.7**
Total		**30,679,331**	**77.0**	**41,984,320**	**131.0**	**24,282,755**	**87.3**	**45,684,845**	**143.9**	**39,065,193**	**117.0**	**233,714,000**	**771.0**	**9,642,911**	**43.0**	**425,053,355**	**1,370.1**

*Amounts above do not include NOAA's Direct Bill

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Department of Commerce
National Oceanic and Atmospheric Administration
Research and Development (R&D) Investments
(Dollar amounts in thousands)

The NOAA FY 2023 Budget estimates for R&D investments are the result of an integrated requirements-based strategic planning process. This process provides the structure to link NOAA's strategic vision with programmatic detail and budget development, with the goal of maximizing resources while optimizing capabilities.

The NOAA Research Council - an internal body composed of senior scientific personnel from every Line Office in the agency - developed NOAA's most recent Five-Year Research and Development Plan (FY 2013-2017). This plan guides NOAA's R&D activities and provides a common understanding among NOAA's leadership, its workforce, its partners, constituents and Congress on the value of NOAA's R&D activities.

NOAA requests $1.3 million for investments (excluding equipment and facilities) in R&D in the FY 2023 Budget. The distribution by line offices is provided in the table below.

Line Office	Research	Development	Total R&D (excluding Equipment and Facilities)	Equipment and Facilities	Total R&D with Equipment and Facilities
NOS	113,835	14,764	128,599	0	128,599
NMFS	51,212	20,700	71,912	0	71,912
OAR	503,513	115,813	619,326	116,528	735,854
NWS	11,100	24,873	35,973	0	35,973
NESDIS	69,840	0	69,840	0	69,840
OMAO	36,352	0	36,352	197,892	234,244
MS	0	0	0	58,960	58,960
Total	**$785,852**	**$176,150**	**$962,002**	**$373,380**	**$1,335,382**

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Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

NATIONAL OCEAN SERVICE
Direct Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Navigation, Observations and Positioning																	
Navigation, Observations and Positioning	636	603	162,500	(18)	(18)	6,536	5,566	(2,044)	618	585	172,558	8	6	15,544	626	591	188,102
Hydrographic Survey Priorities/Contracts	24	24	32,000	0	0	0	27	0	24	24	32,027	1	1	12,500	25	25	44,527
IOOS Regional Observations	0	0	40,500	0	0	0	0	0	0	0	40,500	0	0	0	0	0	40,500
Total, Navigation, Observations and Positioning	**660**	**627**	**235,000**	**(18)**	**(18)**	**6,536**	**5,593**	**(2,044)**	**642**	**609**	**245,085**	**9**	**7**	**28,044**	**651**	**616**	**273,129**
Coastal Science and Assessment																	
Coastal Science, Assessment, Response and Restoration	278	263	86,500	(4)	(4)	3,246	2,511	(319)	274	259	91,938	4	3	9,619	278	262	101,557
Competitive Research	3	3	21,000	0	0	0	17	0	3	3	21,017	6	4	14,500	9	7	35,517
Total, Coastal Science and Assessment	**281**	**266**	**107,500**	**(4)**	**(4)**	**3,246**	**2,528**	**(319)**	**277**	**262**	**112,955**	**10**	**7**	**24,119**	**287**	**269**	**137,074**
Ocean and Coastal Management and Services																	
Coastal Zone Management and Services	136	115	46,700	0	0	1,289	1,191	0	136	115	49,180	0	0	300	136	115	49,480
Coastal Zone Management Grants	0	0	78,500	0	0	0	0	0	0	0	78,500	0	0	0	0	0	78,500
National Oceans and Coastal Security Fund	0	0	34,000	0	0	0	0	0	0	0	34,000	0	0	(34,000)	0	0	0
Coral Reef Program	25	25	33,000	0	0	193	248	0	25	25	33,441	0	0	0	25	25	33,441
National Estuarine Research Reserve System	0	0	28,500	0	0	0	0	0	0	0	28,500	0	0	0	0	0	28,500
Sanctuaries and Marine Protected Areas	188	179	56,500	(2)	(2)	2,266	1,705	(563)	186	177	59,908	15	11	26,863	201	188	86,771
Total, Ocean and Coastal Management and Services	**349**	**319**	**277,200**	**(2)**	**(2)**	**3,748**	**3,144**	**(563)**	**347**	**317**	**283,529**	**15**	**11**	**(6,837)**	**362**	**328**	**276,692**
Total, NOS - Discretionary ORF	**1,290**	**1,212**	**619,700**	**(24)**	**(24)**	**13,530**	**11,265**	**(2,926)**	**1,266**	**1,188**	**641,569**	**34**	**25**	**45,326**	**1,300**	**1,213**	**686,895**
Total, NOS - Discretionary PAC	1	1	8,500	0	0	0	0	0	1	1	8,500	0	0	0	1	1	8,500
Total, NOS - Other Discretionary Accounts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discretionary Total - NOS	**1,291**	**1,213**	**628,200**	**(24)**	**(24)**	**13,530**	**11,265**	**(2,926)**	**1,267**	**1,189**	**650,069**	**34**	**25**	**45,326**	**1,301**	**1,214**	**695,395**
Total, NOS - Mandatory Accounts	32	32	52,449	0	0	0	0	(28,021)	32	32	24,428	0	0	0	32	32	24,428
GRAND TOTAL NOS	**1,323**	**1,245**	**680,649**	**(24)**	**(24)**	**13,530**	**11,265**	**(30,947)**	**1,299**	**1,221**	**674,497**	**34**	**25**	**45,326**	**1,333**	**1,246**	**719,823**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

NATIONAL MARINE FISHERIES SERVICE

Direct Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Protected Resources Science and Management																	
Marine Mammals, Sea Turtles, and Other Species	489	402	125,164	0	0	4,596	3,648	0	489	402	133,408	61	46	9,476	550	448	142,884
Species Recovery Grants	4	2	7,000	0	0	12	9	0	4	2	7,021	1	1	10,000	5	3	17,021
Atlantic Salmon	23	22	6,500	0	0	233	185	0	23	22	6,918	0	0	0	23	22	6,918
Pacific Salmon	337	288	67,000	0	0	3,425	2,717	0	337	288	73,142	0	0	0	337	288	73,142
Total, Protected Resources Science and Management	**853**	**714**	**205,664**	**0**	**0**	**8,266**	**6,559**	**0**	**853**	**714**	**220,489**	**62**	**47**	**19,476**	**915**	**761**	**239,965**
Fisheries Science and Management																	
Fisheries and Ecosystem Science Programs and Services	635	506	146,927	0	0	5,828	4,622	0	635	506	157,377	66	50	22,869	701	556	180,246
Fisheries Data Collections, Surveys, and Assessments	478	437	175,927	(13)	(13)	4,900	3,888	(1,562)	465	424	183,153	48	36	28,942	513	460	212,095
Observers and Training	158	110	55,468	0	0	1,116	883	0	158	110	57,467	0	0	(2,332)	158	110	55,135
Fisheries Management Programs and Services	471	434	123,836	0	0	4,791	3,799	0	471	434	132,426	37	28	16,655	508	462	149,081
Aquaculture	38	36	17,500	0	0	378	301	0	38	36	18,179	0	0	0	38	36	18,179
Salmon Management Activities	40	36	62,050	0	0	397	315	0	40	36	62,762	0	0	0	40	36	62,762
Regional Councils and Fisheries Commissions	13	8	41,500	0	0	1,402	1,395	0	13	8	44,297	0	0	0	13	8	44,297
Interjurisdictional Fisheries Grants	2	1	3,365	0	0	7	5	0	2	1	3,377	0	0	0	2	1	3,377
Total, Fisheries Science and Management	**1,835**	**1,568**	**626,573**	**(13)**	**(13)**	**18,819**	**15,208**	**(1,562)**	**1,822**	**1,555**	**659,038**	**151**	**114**	**66,134**	**1,973**	**1,669**	**725,172**
Enforcement																	
Enforcement	257	214	75,000	0	0	2,731	2,168	0	257	214	79,899	0	0	0	257	214	79,899
Total, Enforcement	**257**	**214**	**75,000**	**0**	**0**	**2,731**	**2,168**	**0**	**257**	**214**	**79,899**	**0**	**0**	**0**	**257**	**214**	**79,899**
Habitat Conservation and Restoration																	
Habitat Conservation and Restoration	185	179	57,625	0	0	2,079	1,649	0	185	179	61,353	0	0	0	185	179	61,353
Subtotal, Habitat Conservation & Restoration	**185**	**179**	**57,625**	**0**	**0**	**2,079**	**1,649**	**0**	**185**	**179**	**61,353**	**0**	**0**	**0**	**185**	**179**	**61,353**
Total, NMFS - Discretionary ORF	**3,130**	**2,675**	**964,862**	**(13)**	**(13)**	**31,895**	**25,584**	**(1,562)**	**3,117**	**2,662**	**1,020,779**	**213**	**161**	**85,610**	**3,330**	**2,823**	**1,106,389**
Total, NMFS - Discretionary PAC	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Total, NMFS - Other Discretionary Accounts	2	2	65,349	0	0		0	0	2	2	65,349	2	1	300	4	3	65,649
Discretionary Total - NMFS	**3,132**	**2,677**	**1,030,211**	**(13)**	**(13)**	**31,895**	**25,584**	**(1,562)**	**3,119**	**2,664**	**1,086,128**	**215**	**162**	**85,910**	**3,334**	**2,826**	**1,172,038**
Total, NMFS - Mandatory Accounts	28	28	51,164	0	0		0	(18,205)	28	28	32,041	0	0	0	28	28	32,041
GRAND TOTAL NMFS	**3,160**	**2,705**	**1,081,375**	**(13)**	**(13)**	**31,895**	**25,584**	**(19,767)**	**3,147**	**2,692**	**1,118,169**	**215**	**162**	**85,910**	**3,362**	**2,854**	**1,204,079**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH
Direct Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Climate Research																	
Climate Laboratories & Cooperative Institutes	209	204	75,500	(2)	(2)	1,705	1,528	(261)	207	202	78,472	25	19	30,261	232	221	108,733
Regional Climate Data & Information	28	26	42,500	0	0	476	427	0	28	26	43,403	3	2	13,000	31	28	56,403
Climate Competitive Research	56	53	64,000	0	0	793	710	0	56	53	65,503	18	14	26,000	74	67	91,503
Total, Climate Research	**293**	**283**	**182,000**	**(2)**	**(2)**	**2,974**	**2,665**	**(261)**	**291**	**281**	**187,378**	**46**	**35**	**69,261**	**337**	**316**	**256,639**
Weather & Air Chemistry Research																	
Weather Laboratories & Cooperative Institutes																	
Weather Laboratories & Cooperative Institutes	282	274	85,500	0	0	2,165	1,940	0	282	274	89,605	0	0	0	282	274	89,605
Subtotal, Weather Laboratories and Cooperative Institutes	**282**	**274**	**85,500**	**0**	**0**	**2,165**	**1,940**	**0**	**282**	**274**	**89,605**	**0**	**0**	**0**	**282**	**274**	**89,605**
Weather and Air Chemistry Research Programs																	
U.S. Weather Research Program (USWRP)	10	10	26,500	0	0	263	236	0	10	10	26,999	0	0	0	10	10	26,999
Tornado Severe Storm Research / Phased Array Radar	3	3	14,382	0	0	130	117	0	3	3	14,629	2	2	6,287	5	5	20,916
Joint Technology Transfer Initiative	5	5	13,000	0	0	130	116	0	5	5	13,246	0	0	0	5	5	13,246
Subtotal, Weather and Air Chemistry Research Programs	**18**	**18**	**53,882**	**0**	**0**	**523**	**469**	**0**	**18**	**18**	**54,874**	**2**	**2**	**6,287**	**20**	**20**	**61,161**
Total, Weather and Air Chemistry Research	**300**	**292**	**139,382**	**0**	**0**	**2,688**	**2,409**	**0**	**300**	**292**	**144,479**	**2**	**2**	**6,287**	**302**	**294**	**150,766**
Ocean, Coastal, and Great Lakes Research																	
Ocean Laboratories and Cooperative Institutes																	
Ocean Laboratories and Cooperative Institutes	134	131	36,500	(3)	(3)	1,000	897	(390)	131	128	38,007	0	0	0	131	128	38,007
Subtotal, Ocean Laboratories and Cooperative Institutes	**134**	**131**	**36,500**	**(3)**	**(3)**	**1,000**	**897**	**(390)**	**131**	**128**	**38,007**	**0**	**0**	**0**	**131**	**128**	**38,007**
National Sea Grant College Program																	
National Sea Grant College Program	20	19	75,000	0	0	694	622	0	20	19	76,316	0	0	0	20	19	76,316
Sea Grant Aquaculture Research	4	4	13,000	0	0	124	111	0	4	4	13,235	0	0	0	4	4	13,235
Subtotal, National Sea Grant College Program	**24**	**23**	**88,000**	**0**	**0**	**818**	**733**	**0**	**24**	**23**	**89,551**	**0**	**0**	**0**	**24**	**23**	**89,551**
Ocean Exploration and Research	40	37	43,000	(1)	(1)	540	484	(130)	39	36	43,894	0	0	0	39	36	43,894
Integrated Ocean Acidification	14	14	15,500	0	0	198	178	0	14	14	15,876	0	0	0	14	14	15,876
Sustained Ocean Observations and Monitoring	31	29	45,408	(1)	(1)	516	462	(130)	30	28	46,256	0	0	0	30	28	46,256
National Oceanographic Partnership Program	1	1	3,000	0	0	29	26	0	1	1	3,055	0	0	0	1	1	3,055
Total, Ocean, Coastal, and Great Lakes Research	**244**	**235**	**231,408**	**(5)**	**(5)**	**3,101**	**2,780**	**(650)**	**239**	**230**	**236,639**	**0**	**0**	**0**	**239**	**230**	**236,639**
Innovative Research & Technology																	
High Performance Computing Initiatives	17	16	17,800	0	0	227	204	0	17	16	18,231	0	0	0	17	16	18,231
Uncrewed Systems	0	0	0	0	0	0	0	0	0	0	0	4	3	4,000	4	3	4,000
Total, Innovative Research & Technology	**17**	**16**	**17,800**	**0**	**0**	**227**	**204**	**0**	**17**	**16**	**18,231**	**4**	**3**	**4,000**	**21**	**19**	**22,231**
Total, OAR - Discretionary ORF	**854**	**826**	**570,590**	**(7)**	**(7)**	**8,990**	**8,058**	**(911)**	**847**	**819**	**586,727**	**52**	**40**	**79,548**	**899**	**859**	**666,275**
Total, OAR - Discretionary PAC	1	1	43,500	0	0	0	0	0	1	1	43,500	0	0	65,000	1	1	108,500
Discretionary Total - OAR	**855**	**827**	**614,090**	**(7)**	**(7)**	**8,990**	**8,058**	**(911)**	**848**	**820**	**630,227**	**52**	**40**	**144,548**	**900**	**860**	**774,775**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

NATIONAL WEATHER SERVICE

Direct Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Observations	716	710	231,910	(2)	(2)	8,245	7,262	(324)	714	708	247,093	0	0	750	714	708	247,843
Central Processing	226	223	97,980	(2)	(2)	5,688	5,031	(346)	224	221	108,353	0	0	0	224	221	108,353
Analyze, Forecast and Support	2,930	2,899	537,000	(1)	(1)	22,901	15,629	(54)	2,929	2,898	575,476	39	29	8,700	2,968	2,927	584,176
Dissemination	80	77	78,362	0	0	2,484	2,412	0	80	77	83,258	0	0	36,400	80	77	119,658
Science and Technology Integration	433	421	155,524	0	0	4,810	3,945	0	433	421	164,279	0	0	(5,000)	433	421	159,279
Total, NWS - Discretionary ORF	**4,385**	**4,330**	**1,100,776**	**(5)**	**(5)**	**44,128**	**34,279**	**(724)**	**4,380**	**4,325**	**1,178,459**	**39**	**29**	**40,850**	**4,419**	**4,354**	**1,219,309**
Total, NWS - Discretionary PAC	26	25	103,634	0	0	0	0	0	26	25	103,634	0	0	470	26	25	104,104
Discretionary Total - NWS	**4,411**	**4,355**	**1,204,410**	**(5)**	**(5)**	**44,128**	**34,279**	**(724)**	**4,406**	**4,350**	**1,282,093**	**39**	**29**	**41,320**	**4,445**	**4,379**	**1,323,413**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
Direct Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Environmental Satellite Observing Systems																	
Office of Satellite and Product Operations	295	287	189,099	(1)	(1)	5,071	5,519	40,213	294	286	239,902	0	0	9,000	294	286	248,902
Product Development, Readiness & Application	88	87	28,434	(2)	(2)	1,080	761	14,324	86	85	44,599	5	3	23,741	91	88	68,340
Office of Space Commerce	20	19	10,000	(20)	(19)	0	0	(10,000)	0	0	0	0	0	0	0	0	0
U.S. Group on Earth Observations (USGEO)	0	0	500	0	0	0	0	0	0	0	500	0	0	500	0	0	1,000
Total, Environmental Satellite Observing Systems	**403**	**393**	**228,033**	**(23)**	**(22)**	**6,151**	**6,280**	**44,537**	**380**	**371**	**285,001**	**5**	**3**	**33,241**	**385**	**374**	**318,242**
National Centers for Environmental Information																	
National Centers for Environmental Information	187	165	63,500	0	0	2,086	1,746	1,000	187	165	68,332	0	0	22,500	187	165	90,832
Total, National Centers for Environmental Information	**187**	**165**	**63,500**	**0**	**0**	**2,086**	**1,746**	**1,000**	**187**	**165**	**68,332**	**0**	**0**	**22,500**	**187**	**165**	**90,832**
Total, NESDIS - Discretionary ORF	**590**	**558**	**291,533**	**(23)**	**(22)**	**8,237**	**8,026**	**45,537**	**567**	**536**	**353,333**	**5**	**3**	**55,741**	**572**	**539**	**409,074**
Total, NESDIS - Discretionary PAC	259	229	1,224,924	(1)	(1)	0	0	(54,090)	258	228	1,170,834	57	41	703,024	315	269	1,873,858
Discretionary Total - NESDIS	**849**	**787**	**1,516,457**	**(24)**	**(23)**	**8,237**	**8,026**	**(8,553)**	**825**	**764**	**1,524,167**	**62**	**44**	**758,765**	**887**	**808**	**2,282,932**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

MISSION SUPPORT
Direct Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Mission Support Services																	
Executive Leadership	116	110	27,078	0	0	1,402	763	0	116	110	29,243	11	9	2,500	127	119	31,743
Mission Services and Management	629	598	156,000	(4)	(4)	5,976	6,241	2,410	625	594	170,627	64	50	25,792	689	644	196,419
IT Security	20	19	15,378	0	0	487	528	0	20	19	16,393	0	0	0	20	19	16,393
Payment to the DOC Working Capital Fund	0	0	66,389	0	0	4,945	7,981	(8,016)	0	0	71,299	0	0	0	0	0	71,299
Facilities Maintenance	0	0	5,000	0	0	0		0	0	0	5,000	0	0	0	0	0	5,000
Office of Space Commerce	0	0	0	20	19	0	0	10,000	20	19	10,000	15	11	77,700	35	30	87,700
Total, Mission Support Services	**765**	**727**	**269,845**	**16**	**15**	**12,810**	**15,513**	**4,394**	**781**	**742**	**302,562**	**90**	**70**	**105,992**	**871**	**812**	**408,554**
Office of Education																	
Office of Education	16	16	33,000	0	0	220	231	0	16	16	33,451	4	3	7,900	20	19	41,351
Hollings Scholarship																	
Total, Office of Education	**16**	**16**	**33,000**	**0**	**0**	**220**	**231**	**0**	**16**	**16**	**33,451**	**4**	**3**	**7,900**	**20**	**19**	**41,351**
Undistributed ATBs				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total, MS - Discretionary ORF	**781**	**743**	**302,845**	**16**	**15**	**13,030**	**15,744**	**4,394**	**797**	**758**	**336,013**	**94**	**73**	**113,892**	**891**	**831**	**449,905**
Total, MS - Discretionary PAC	1	1	43,000	0	0	0	0	0	1	1	43,000	0	0	102,700	1	1	145,700
Discretionary Total - MS	**782**	**744**	**345,845**	**16**	**15**	**13,030**	**15,744**	**4,394**	**798**	**759**	**379,013**	**94**	**73**	**216,592**	**892**	**832**	**595,605**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

OFFICE OF MARINE AND AVIATION OPERATIONS

Direct Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Marine Operations and Maintenance	628	596	166,000	0	0	6,905	2,356	0	628	596	175,261	33	25	28,385	661	621	203,646
Aviation Operations and Aircraft Services	72	72	32,000	0	0	1,139	1,153	0	72	72	34,292	10	7	5,000	82	79	39,292
Autonomous Uncrewed Technology Operations	9	9	13,665	0	0	411	282	0	9	9	14,358	0	0	0	9	9	14,358
NOAA Commissioned Officer Corps	288	288	42,000	57	57	666	1,398	7,337	345	345	51,401	10	8	4,036	355	353	55,437
Total, OMAO - Discretionary ORF	**997**	**965**	**253,665**	**57**	**57**	**9,121**	**5,189**	**7,337**	**1,054**	**1,022**	**275,312**	**53**	**40**	**37,421**	**1,107**	**1,062**	**312,733**
Total, OMAO - Discretionary PAC	30	30	120,000	0	0	0	0	0	30	30	120,000	(4)	(4)	(15,000)	26	26	105,000
Total, OMAO - Other Discretionary Accounts	0	0	1,591	0	0	0	0	26	0	0	1,617	0	0	0	0	0	1,617
Discretionary Total - OMAO	**1,027**	**995**	**375,256**	**57**	**57**	**9,121**	**5,189**	**7,363**	**1,084**	**1,052**	**396,929**	**49**	**36**	**22,421**	**1,133**	**1,088**	**419,350**
Total, OMAO - Mandatory Accounts	0	0	30,861	0	0	0	0	143	0	0	31,004	0	0	0	0	0	31,004
GRAND TOTAL OMAO	**1,027**	**995**	**406,117**	**57**	**57**	**9,121**	**5,189**	**7,506**	**1,084**	**1,052**	**427,933**	**49**	**36**	**22,421**	**1,133**	**1,088**	**450,354**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

ORF SUMMARY

LINE OFFICE DIRECT DISCRETIONARY OBLIGATIONS

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
National Ocean Service	1,290	1,212	619,700	(24)	(24)	13,530	11,265	(2,926)	1,266	1,188	641,569	34	25	45,326	1,300	1,213	686,895
National Marine Fisheries Service	3,130	2,675	964,862	(13)	(13)	31,895	25,584	(1,562)	3,117	2,662	1,020,779	213	161	85,610	3,330	2,823	1,106,389
Office of Oceanic and Atmospheric Research	854	826	570,590	(7)	(7)	8,990	8,058	(911)	847	819	586,727	52	40	79,548	899	859	666,275
National Weather Service	4,385	4,330	1,100,776	(5)	(5)	44,128	34,279	(724)	4,380	4,325	1,178,459	39	29	40,850	4,419	4,354	1,219,309
National Environmental Satellite, Data and Information Service	590	558	291,533	(23)	(22)	8,237	8,026	45,537	567	536	353,333	5	3	55,741	572	539	409,074
Mission Support	781	743	302,845	16	15	13,030	15,744	4,394	797	758	336,013	94	73	113,892	891	831	449,905
Office of Marine and Aviation Operations	997	965	253,665	57	57	9,121	5,189	7,337	1,054	1,022	275,312	53	40	37,421	1,107	1,062	312,733
SUBTOTAL LO DIRECT DISCRETIONARY ORF OBLIGATIONS	**12,027**	**11,309**	**4,103,971**	**1**	**1**	**128,931**	**108,145**	**51,145**	**12,028**	**11,310**	**4,392,192**	**490**	**371**	**458,388**	**12,518**	**11,681**	**4,850,580**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

ORF ADJUSTMENTS

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
SUBTOTAL ORF DIRECT OBLIGATIONS	**12,027**	**11,309**	**4,103,971**	**1**	**1**	**128,931**	**108,145**	**51,145**	**12,028**	**11,310**	**4,392,192**	**490**	**371**	**458,388**	**12,518**	**11,681**	**4,850,580**
FINANCING																	
Deobligations	0	0	(17,500)	0	0	0	0	0	0	0	(17,500)	0	0	0	0	0	(17,500)
Unobligated Balance, SOY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, Expiring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, EOY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, Transferred	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from USAID/NOAA PAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, not apportioned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Collections	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rescission	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total ORF Financing	**0**	**0**	**(17,500)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**(17,500)**	**0**	**0**	**0**	**0**	**0**	**(17,500)**
SUBTOTAL ORF BUDGET AUTHORITY	**12,027**	**11,309**	**4,086,471**	**1**	**1**	**128,931**	**108,145**	**51,145**	**12,028**	**11,310**	**4,374,692**	**490**	**371**	**458,388**	**12,518**	**11,681**	**4,833,080**
TRANSFERS																	
Transfer from ORF to PAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from PAC to ORF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from FFPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from P&D to ORF	0	0	(246,171)	0	0	0	0	(102,700)	0	0	(348,871)	0	0	0	0	0	(348,871)
Transfer from CZMF to ORF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from PCSRF to ORF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from FDAF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rescission																	
Total ORF Transfers	**0**	**0**	**(246,171)**	**0**	**0**	**0**	**0**	**(102,700)**	**0**	**0**	**(348,871)**	**0**	**0**	**0**	**0**	**0**	**(348,871)**
SUBTOTAL ORF APPROPRIATION	**12,027**	**11,309**	**3,840,300**	**1**	**1**	**128,931**	**108,145**	**(51,555)**	**12,028**	**11,310**	**4,025,821**	**490**	**371**	**458,388**	**12,518**	**11,681**	**4,484,209**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

PROCUREMENT, ACQUISITION, AND CONSTRUCTION

Direct Discretionary Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
NOS																	
Construction																	
National Estuarine Research Reserve Construction	0	0	4,500	0	0	0	0	0	0	0	4,500	0	0	0	0	0	4,500
Marine Sanctuaries Construction	1	1	4,000	0	0	0	0	0	1	1	4,000	0	0	0	1	1	4,000
Subtotal, NOS Construction	**1**	**1**	**8,500**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**8,500**	**0**	**0**	**0**	**1**	**1**	**8,500**
Total, NOS - PAC	**1**	**1**	**8,500**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**8,500**	**0**	**0**	**0**	**1**	**1**	**8,500**
Total, NMFS - PAC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
OAR																	
Systems Acquisition																	
Research Supercomputing/ CCRI	1	1	43,500	0	0	0	0	0	1	1	43,500	0	0	25,000	1	1	68,500
Research Acquisitions and Management	0	0	0	0	0	0	0	0	0	0	0	0	0	40,000	0	0	40,000
Subtotal, OAR Systems Acquisition	**1**	**1**	**43,500**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**43,500**	**0**	**0**	**65,000**	**1**	**1**	**108,500**
Total, OAR - PAC	**1**	**1**	**43,500**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**43,500**	**0**	**0**	**65,000**	**1**	**1**	**108,500**
NWS																	
Systems Acquisition																	
Observations	0	0	15,700	0	0	0	0	0	0	0	15,700	0	0	470	0	0	16,170
Central Processing	26	25	68,000	0	0	0	0	0	26	25	68,000	0	0	0	26	25	68,000
Dissemination	0	0	9,934	0	0	0	0	0	0	0	9,934		0	0	0	0	9,934
Subtotal, NWS Systems Acquisition	**26**	**25**	**93,634**	**0**	**0**	**0**	**0**	**0**	**26**	**25**	**93,634**	**0**	**0**	**470**	**26**	**25**	**94,104**
Construction																	
Facilities Construction and Major Repairs	0	0	10,000	0	0	0	0	0	0	0	10,000	0	0	0	0	0	10,000
Subtotal, NWS Construction	**0**	**0**	**10,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10,000**	**0**	**0**	**0**	**0**	**0**	**10,000**
Total, NWS - PAC	**26**	**25**	**103,634**	**0**	**0**	**0**	**0**	**0**	**26**	**25**	**103,634**	**0**	**0**	**470**	**26**	**25**	**104,104**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

PROCUREMENT, ACQUISITION, AND CONSTRUCTION

Direct Discretionary Obligations

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
NESDIS																	
Systems Acquisition																	
Geostationary Systems - R	51	47	334,500	(51)	(47)	0	0	(334,500)	0	0	0	0	0	0	0	0	0
Polar Weather Satellites	96	88	657,835	(96)	(88)	0	0	(657,835)	0	0	0	0	0	0	0	0	0
Cooperative Data and Rescue Services (CDARS)	4	3	14,400	(4)	(3)	0	0	(14,400)	0	0	0	0	0	0	0	0	0
Space Weather Follow On	19	13	108,115	(19)	(13)	0	0	(108,115)	0	0	0	0	0	0	0	0	0
COSMIC 2/GNSS RO	2	2	5,892	(2)	(2)	0	0	(5,892)	0	0	0	0	0	0	0	0	0
Common Ground Services (CGS)	42	34	39,287	0	0	0	0	17,139	42	34	56,426	24	18	49,007	66	52	105,433
Projects, Planning and Analysis	16	15	15,945	(16)	(15)	0	0	(15,945)	0	0	0	0	0	0	0	0	0
Geostationary Earth Orbit (GEO)	0	0	10,000	51	47	0	0	334,500	51	47	344,500	9	6	620,329	60	53	964,829
Low Earth Orbit (LEO)	0	0	0	101	92	0	0	614,237	101	92	614,237	(3)	(4)	(175,397)	98	88	438,840
Space Weather Observations	0	0	0	35	28	0	0	114,721	35	28	114,721	23	18	173,085	58	46	287,806
Systems/Services Architecture and Engineering (SAE)	29	27	38,500	0	0	0	0	0	29	27	38,500	4	3	36,000	33	30	74,500
Subtotal, NESDIS Systems Acquisition	**259**	**229**	**1,224,474**	**(1)**	**(1)**	**0**	**0**	**(56,090)**	**258**	**228**	**1,168,384**	**57**	**41**	**703,024**	**315**	**269**	**1,871,408**
Construction																	
Satellite CDA Facility	0	0	2,450	0	0	0	0	0	0	0	2,450	0	0	0	0	0	2,450
Subtotal, NESDIS Construction	**0**	**0**	**2,450**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,450**	**0**	**0**	**0**	**0**	**0**	**2,450**
Transfer to OIG	**0**	**0**	**(2,000)**	**0**	**0**	**0**	**0**	**2,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total, NESDIS - PAC	**259**	**229**	**1,224,924**	**(1)**	**(1)**	**0**	**0**	**(54,090)**	**258**	**228**	**1,170,834**	**57**	**41**	**703,024**	**315**	**269**	**1,873,858**
Mission Support																	
Construction																	
NOAA Construction	1	1	43,000	0	0	0	0	0	1	1	43,000	0	0	102,700	1	1	145,700
Subtotal, Mission Support Construction	**1**	**1**	**43,000**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**43,000**	**0**	**0**	**102,700**	**1**	**1**	**145,700**
Total, Mission Support - PAC	**1**	**1**	**43,000**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**43,000**	**0**	**0**	**102,700**	**1**	**1**	**145,700**
OMAO																	
Marine and Aviation Capital Investments																	
Platform Capital Improvements & Tech Infusion	13	13	25,000	0	0	0	0	0	13	13	25,000	0	0	5,000	13	13	30,000
Vessel Recapitalization and Construction	13	13	75,000	0	0	0	0	0	13	13	75,000	0	0	0	13	13	75,000
Aircraft Recapitalization and Construction	4	4	20,000	0	0	0	0	0	4	4	20,000	(4)	(4)	(20,000)	0	0	0
Subtotal, Marine and Aviation Capital Investments	**30**	**30**	**120,000**	**0**	**0**	**0**	**0**	**0**	**30**	**30**	**120,000**	**(4)**	**(4)**	**(15,000)**	**26**	**26**	**105,000**
Total, OMAO - PAC	**30**	**30**	**120,000**	**0**	**0**	**0**	**0**	**0**	**30**	**30**	**120,000**	**(4)**	**(4)**	**(15,000)**	**26**	**26**	**105,000**
GRAND TOTAL PAC DISCRETIONARY OBLIGATIONS	**318**	**287**	**1,543,558**	**(1)**	**(1)**	**0**	**0**	**(54,090)**	**317**	**286**	**1,489,468**	**53**	**37**	**856,194**	**370**	**323**	**2,345,662**

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PAC ADJUSTMENTS

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
SUBTOTAL PAC DIRECT OBLIGATIONS	**318**	**287**	**1,543,558**	**(1)**	**(1)**	**0**	**0**	**(54,090)**	**317**	**286**	**1,489,468**	**53**	**37**	**856,194**	**370**	**323**	**2,345,662**
FINANCING																	
Deobligations	0	0	(13,000)	0	0	0	0	0	0	0	(13,000)	0	0	0	0	0	(13,000)
Unobligated balance, Expiring end of year	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, EOY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unobligated Balance Adj. SOY (start of year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, Transferred	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Collections	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unobligated balance, Rescission	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total PAC Financing	**0**	**0**	**(13,000)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**(13,000)**	**0**	**0**	**0**	**0**	**0**	**(13,000)**
SUBTOTAL PAC BUDGET AUTHORITY	**318**	**287**	**1,530,558**	**(1)**	**(1)**	**0**	**0**	**(54,090)**	**317**	**286**	**1,476,468**	**53**	**37**	**856,194**	**370**	**323**	**2,332,662**
TRANSFERS																	
Transfer from ORF to PAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from PAC to ORF	0	0	0	0	0	0	0	0	0	0	0				0	0	0
Transfer from PCSRF to PAC	0	0	0	0	0	0	0	0	0	0	0				0	0	0
Transfer to OIG	0	0	2,000	0	0	0	0	(2,000)	0	0	0	0	0	0	0	0	0
Total PAC Transfers	**0**	**0**	**2,000**	**0**	**0**	**0**	**0**	**(2,000)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SUBTOTAL PAC APPROPRIATION	**318**	**287**	**1,532,558**	**(1)**	**(1)**	**0**	**0**	**(56,090)**	**317**	**286**	**1,476,468**	**53**	**37**	**856,194**	**370**	**323**	**2,332,662**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

OTHER ACCOUNTS DISCRETIONARY

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
NMFS																	
Fishermen's Contingency Fund Obligations	0	0	349	0	0	0	0	0	0	0	349	0	0	0	0	0	349
Fishermen's Contingency Fund Budget Authority	0	0	349	0	0	0	0	0	0	0	349	0	0	0	0	0	349
Fishermen's Contingency Fund Appropriations	0	0	349	0	0	0	0	0	0	0	349	0	0	0	0	0	349
Promote and Develop Fisheries Obligations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Promote and Develop Fisheries Budget Authority	0	0	(246,171)	0	0	0	0	(102,700)	0	0	(348,871)	0	0	0	0	0	(348,871)
Promote and Develop Fisheries Appropriation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Coastal Salmon Recovery Fund Obligations	2	2	65,000	0	0	0	0	0	2	2	65,000	0	0	0	2	2	65,000
Pacific Coastal Salmon Recovery Fund Budget Authority	2	2	65,000	0	0	0	0	0	2	2	65,000	0	0	0	2	2	65,000
Pacific Coastal Salmon Recovery Fund Appropriation	2	2	65,000	0	0	0	0	0	2	2	65,000	0	0	0	2	2	65,000
Marine Mammal Unusual Mortality Event Fund Obligations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marine Mammal Unusual Mortality Event Fund Budget Authority	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marine Mammal Unusual Mortality Event Fund Appropriation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries Disaster Assistance Fund Obligations	0	0	0	0	0	0	0	0	0	0	0	2	1	300	2	1	300
Fisheries Disaster Assistance Fund Budget Authority	0	0	0	0	0	0	0	0	0	0	0	2	1	300	2	1	300
Fisheries Disaster Assistance Fund Appropriation	0	0	0	0	0	0	0	0	0	0	0	2	1	300	2	1	300
Subtotal, NMFS Other Discretionary Direct Obligations	**2**	**2**	**65,349**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**65,349**	**2**	**1**	**300**	**4**	**3**	**65,649**
Subtotal, NMFS Other Discretionary Budget Authority	**2**	**2**	**(180,822)**	**0**	**0**	**0**	**0**	**(102,700)**	**2**	**2**	**(283,522)**	**2**	**1**	**300**	**4**	**3**	**(283,222)**
Subtotal, NMFS Other Discretionary Appropriation	**2**	**2**	**65,349**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**65,349**	**2**	**1**	**300**	**4**	**3**	**65,649**
OMAO																	
Medicare Eligible Retiree Healthcare Fund Obligations	0	0	1,591	0	0	0	0	26	0	0	1,617	0	0	0	0	0	1,617
Medicare Eligible Retiree Healthcare Fund Budget Authority	0	0	1,591	0	0	0	0	26	0	0	1,617	0	0	0	0	0	1,617
Medicare Eligible Retiree Healthcare Fund Appropriation	0	0	1,591	0	0	0	0	26	0	0	1,617	0	0	0	0	0	1,617
Subtotal, OMAO Other Discretionary Direct Obligations	**0**	**0**	**1,591**	**0**	**0**	**0**	**0**	**26**	**0**	**0**	**1,617**	**0**	**0**	**0**	**0**	**0**	**1,617**
Subtotal, OMAO Other Discretionary Budget Authority	**0**	**0**	**1,591**	**0**	**0**	**0**	**0**	**26**	**0**	**0**	**1,617**	**0**	**0**	**0**	**0**	**0**	**1,617**
Subtotal, OMAO Other Discretionary Appropriation	**0**	**0**	**1,591**	**0**	**0**	**0**	**0**	**26**	**0**	**0**	**1,617**	**0**	**0**	**0**	**0**	**0**	**1,617**
TOTAL, OTHER DISCRETIONARY DIRECT OBLIGATIONS	**2**	**2**	**66,940**	**0**	**0**	**0**	**0**	**26**	**2**	**2**	**66,966**	**2**	**1**	**300**	**4**	**3**	**67,266**
TOTAL, OTHER DISCRETIONARY BUDGET AUTHORITY	**2**	**2**	**(179,231)**	**0**	**0**	**0**	**0**	**(102,674)**	**2**	**2**	**(281,905)**	**2**	**1**	**300**	**4**	**3**	**(281,605)**
TOTAL, OTHER DISCRETIONARY APPROPRIATION	**2**	**2**	**66,940**	**0**	**0**	**0**	**0**	**26**	**2**	**2**	**66,966**	**2**	**1**	**300**	**4**	**3**	**67,266**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

GRAND TOTAL SUMMARY DISCRETIONARY APPROPRIATIONS

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Operations, Research, and Facilities	12,027	11,309	3,840,300	1	1	128,931	108,145	(51,555)	12,028	11,310	4,025,821	490	371	458,388	12,518	11,681	4,484,209
Procurement, Acquisition, and Construction	318	287	1,532,558	(1)	(1)	0	0	(56,090)	317	286	1,476,468	53	37	856,194	370	323	2,332,662
Fisherman's Contingency Fund	0	0	349	0	0	0	0	0	0	0	349	0	0	0	0	0	349
Pacific Coastal Salmon Recovery Fund	2	2	65,000	0	0	0	0	0	2	2	65,000	0	0	0	2	2	65,000
Fisheries Disaster Assistance Fund	0	0	0	0	0	0	0	0	0	0	0	2	1	300	2	1	300
Marine Mammal Unusual Mortality Event Fund	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medicare Eligible Retiree Health Care Fund	0	0	1,591	0	0	0	0	26	0	0	1,617	0	0	0	0	0	1,617
GRAND TOTAL DISCRETIONARY APPROPRIATION	**12,347**	**11,598**	**5,439,798**	**0**	**0**	**128,931**	**108,145**	**(107,619)**	**12,347**	**11,598**	**5,569,255**	**545**	**409**	**1,314,882**	**12,892**	**12,007**	**6,884,137**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

SUMMARY OF DISCRETIONARY RESOURCES

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Direct Discretionary Obligations																	
ORF Direct Obligations	12,027	11,309	4,103,971	1	1	128,931	108,145	51,145	12,028	11,310	4,392,192	490	371	458,388	12,518	11,681	4,850,580
PAC Direct Obligations	318	287	1,543,558	(1)	(1)	0	0	(54,090)	317	286	1,489,468	53	37	856,194	370	323	2,345,662
OTHER Direct Obligations	2	2	66,940	0	0	0	0	26	2	2	66,966	2	1	300	4	3	67,266
TOTAL Direct Discretionary Obligations	**12,347**	**11,598**	**5,714,469**	**0**	**0**	**128,931**	**108,145**	**(2,919)**	**12,347**	**11,598**	**5,948,626**	**545**	**409**	**1,314,882**	**12,892**	**12,007**	**7,263,508**
Discretionary Budget Authority																	
ORF Budget Authority	12,027	11,309	4,086,471	1	1	128,931	108,145	51,145	12,028	11,310	4,374,692	490	371	458,388	12,518	11,681	4,833,080
PAC Budget Authority	318	287	1,530,558	(1)	(1)	0	0	(54,090)	317	286	1,476,468	53	37	856,194	370	323	2,332,662
OTHER Budget Authority	2	2	(179,231)	0	0	0	0	(102,674)	2	2	(281,905)	2	1	300	4	3	(281,605)
TOTAL Discretionary Budget Authority	**12,347**	**11,598**	**5,437,798**	**0**	**0**	**128,931**	**108,145**	**(105,619)**	**12,347**	**11,598**	**5,569,255**	**545**	**409**	**1,314,882**	**12,892**	**12,007**	**6,884,137**
Discretionary Appropriations																	
ORF Appropriation	12,027	11,309	3,840,300	1	1	128,931	108,145	(51,555)	12,028	11,310	4,025,821	490	371	458,388	12,518	11,681	4,484,209
PAC Appropriation	318	287	1,532,558	(1)	(1)	0	0	(56,090)	317	286	1,476,468	53	37	856,194	370	323	2,332,662
OTHER Appropriation	2	2	66,940	0	0	0	0	26	2	2	66,966	2	1	300	4	3	67,266
TOTAL Discretionary Appropriation	**12,347**	**11,598**	**5,439,798**	**0**	**0**	**128,931**	**108,145**	**(107,619)**	**12,347**	**11,598**	**5,569,255**	**545**	**409**	**1,314,882**	**12,892**	**12,007**	**6,884,137**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

OTHER ACCOUNTS MANDATORY

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
NOS																	
Damage Assessment and Restoration Revolving Fund Obligations	30	30	45,900	0	0	0	0	(29,900)	30	30	16,000	0	0	0	30	30	16,000
Damage Assessment and Restoration Revolving Fund Budget Authority	30	30	5,900	0	0	0	0	100	30	30	6,000	0	0	0	30	30	6,000
Damage Assessment and Restoration Revolving Fund Appropriation	30	30	0	0	0	0	0	0	30	30	0	0	0	0	30	30	0
Sanctuaries Enforcement Asset Forfeiture Fund Obligations	0	0	120	0	0	0	0	0	0	0	120	0	0	0	0	0	120
Sanctuaries Enforcement Asset Forfeiture Fund Budget Authority	0	0	120	0	0	0	0	0	0	0	120	0	0	0	0	0	120
Sanctuaries Enforcement Asset Forfeiture Fund Appropriation	0	0	120	0	0	0	0	0	0	0	120	0	0	0	0	0	120
Gulf Coast Ecosystem Restoration Fund Obligations	2	2	6,429	0	0	0	0	1,879	2	2	8,308	0	0	0	2	2	8,308
Gulf Coast Ecosystem Restoration Fund Budget Authority	2	2	0	0	0	0	0	0	2	2	0	0	0	0	2	2	0
Gulf Coast Ecosystem Restoration Fund Appropriation	2	2	0	0	0	0	0	0	2	2	0	0	0	0	2	2	0
Subtotal, NOS Other Mandatory Direct Obligations	**32**	**32**	**52,449**	**0**	**0**	**0**	**0**	**(28,021)**	**32**	**32**	**24,428**	**0**	**0**	**0**	**32**	**32**	**24,428**
Subtotal, NOS Other Mandatory Budget Authority	**32**	**32**	**6,020**	**0**	**0**	**0**	**0**	**100**	**32**	**32**	**6,120**	**0**	**0**	**0**	**32**	**32**	**6,120**
Subtotal, NOS Other Mandatory Appropriation	**32**	**32**	**120**	**0**	**0**	**0**	**0**	**0**	**32**	**32**	**120**	**0**	**0**	**0**	**32**	**32**	**120**
NMFS																	
Promote and Develop Fisheries Obligations	0	0	7,989	0	0	0	0	459	0	0	7,530	0	0	0	0	0	7,530
Promote and Develop Fisheries Budget Authority	0	0	254,160	0	0	0	0	102,241	0	0	356,401	0	0	0	0	0	356,401
Promote and Develop Fisheries Appropriation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries Finance Program Account Obligations	0	0	17,293	0	0	0	0	(17,293)	0	0	0	0	0	0	0	0	0
Fisheries Finance Program Account Budget Authority	0	0	17,293	0	0	0	0	(17,293)	0	0	0	0	0	0	0	0	0
Fisheries Finance Program Account Appropriation	0	0	17,293	0	0	0	0	(17,293)	0	0	0	0	0	0	0	0	0
Environmental Improvement & Restoration Fund Obligations	0	0	4,652	0	0	0	0	(2,877)	0	0	1,775	0	0	0	0	0	1,775
Environmental Improvement & Restoration Fund Budget Authority	0	0	4,652	0	0	0	0	(2,877)	0	0	1,775	0	0	0	0	0	1,775
Environmental Improvement & Restoration Fund Appropriation	0	0	4,933	0	0	0	0	(3,051)	0	0	1,882	0	0	0	0	0	1,882
Limited Access System Administration Fund Obligations	28	28	14,325	0	0	0	0	532	28	28	14,857	0	0	0	28	28	14,857
Limited Access System Administration Fund Budget Authority	28	28	14,325	0	0	0	0	532	28	28	14,857	0	0	0	28	28	14,857
Limited Access System Administration Fund Appropriation	28	28	14,468	0	0	0	0	412	28	28	14,880	0	0	0	28	28	14,880
Western Pacific Sustainable Fisheries Fund Obligations	0	0	766	0	0	0	0	127	0	0	893	0	0	0	0	0	893
Western Pacific Sustainable Fisheries Fund Budget Authority	0	0	766	0	0	0	0	127	0	0	893	0	0	0	0	0	893
Western Pacific Sustainable Fisheries Fund Appropriation	0	0	776	0	0	0	0	124	0	0	900	0	0	0	0	0	900

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

OTHER ACCOUNTS MANDATORY

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
Fisheries Enforcement Asset Forfeiture Fund Obligations	0	0	2,981	0	0	0	0	51	0	0	3,032	0	0	0	0	0	3,032
Fisheries Enforcement Asset Forfeiture Fund Budget Authority	0	0	(2,019)	0	0	0	0	5,051	0	0	3,032	0	0	0	0	0	3,032
Fisheries Enforcement Asset Forfeiture Fund Appropriation	0	0	3,032	0	0	0	0	0	0	0	3,032	0	0	0	0	0	3,032
North Pacific Observer Fund Obligations	0	0	3,158	0	0	0	0	796	0	0	3,954	0	0	0	0	0	3,954
North Pacific Observer Fund Budget Authority	0	0	3,158	0	0	0	0	796	0	0	3,954	0	0	0	0	0	3,954
North Pacific Observer Fund Appropriation	0	0	3,200	0	0	0	0	800	0	0	4,000	0	0	0	0	0	4,000
Subtotal, NMFS Other Mandatory Direct Obligations	**28**	**28**	**51,164**	**0**	**0**	**0**	**0**	**(18,205)**	**28**	**28**	**32,041**	**0**	**0**	**0**	**28**	**28**	**32,041**
Subtotal, NMFS Other Mandatory Budget Authority	**28**	**28**	**292,335**	**0**	**0**	**0**	**0**	**88,577**	**28**	**28**	**380,912**	**0**	**0**	**0**	**28**	**28**	**380,912**
Subtotal, NMFS Other Mandatory Appropriation	**28**	**28**	**43,702**	**0**	**0**	**0**	**0**	**(19,008)**	**28**	**28**	**24,694**	**0**	**0**	**0**	**28**	**28**	**24,694**
OMAO																	
NOAA Corps Commissioned Officers Retirement Obligations	0	0	30,861	0	0	0	0	143	0	0	31,004	0	0	0	0	0	31,004
NOAA Corps Commissioned Officers Retirement Budget Authority	0	0	30,861	0	0	0	0	143	0	0	31,004	0	0	0	0	0	31,004
NOAA Corps Commissioned Officers Retirement Appropriation	0	0	30,861	0	0	0	0	143	0	0	31,004	0	0	0	0	0	31,004
Subtotal, OMAO Other Mandatory Direct Obligations	**0**	**0**	**30,861**	**0**	**0**	**0**	**0**	**143**	**0**	**0**	**31,004**	**0**	**0**	**0**	**0**	**0**	**31,004**
Subtotal, OMAO Other Mandatory Budget Authority	**0**	**0**	**30,861**	**0**	**0**	**0**	**0**	**143**	**0**	**0**	**31,004**	**0**	**0**	**0**	**0**	**0**	**31,004**
Subtotal, OMAO Other Mandatory Appropriation	**0**	**0**	**30,861**	**0**	**0**	**0**	**0**	**143**	**0**	**0**	**31,004**	**0**	**0**	**0**	**0**	**0**	**31,004**
TOTAL, OTHER MANDATORY DIRECT OBLIGATIONS	**60**	**60**	**134,474**	**0**	**0**	**0**	**0**	**(46,083)**	**60**	**60**	**87,473**	**0**	**0**	**0**	**60**	**60**	**87,473**
TOTAL, OTHER MANDATORY BUDGET AUTHORITY	**60**	**60**	**329,216**	**0**	**0**	**0**	**0**	**88,820**	**60**	**60**	**418,036**	**0**	**0**	**0**	**60**	**60**	**418,036**
TOTAL, OTHER MANDATORY APPROPRIATION	**60**	**60**	**74,683**	**0**	**0**	**0**	**0**	**(18,865)**	**60**	**60**	**55,818**	**0**	**0**	**0**	**60**	**60**	**55,818**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
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NOAA SUMMARY

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
TOTAL Direct Obligations (Discretionary & Mandatory)	12,407	11,658	5,848,943	0	0	128,931	108,145	(49,002)	12,407	11,658	6,036,099	545	409	1,314,882	12,952	12,067	7,350,981
TOTAL Budget Authority (Discretionary & Mandatory)	12,407	11,658	5,767,014	0	0	128,931	108,145	(16,799)	12,407	11,658	5,987,291	545	409	1,314,882	12,952	12,067	7,302,173
TOTAL Appropriation (Discretionary & Mandatory)	12,407	11,658	5,514,481	0	0	128,931	108,145	(126,484)	12,407	11,658	5,625,073	545	409	1,314,882	12,952	12,067	6,939,955
Reimbursable Financing	495	469	387,658	0	0	0	0	(145,658)	495	469	242,000	0	0	0	495	469	242,000
TOTAL OBLIGATIONS (Direct & Reimbursable)	**12,902**	**12,127**	**6,236,601**	**0**	**0**	**128,931**	**108,145**	**(194,660)**	**12,902**	**12,127**	**6,278,099**	**545**	**409**	**1,314,882**	**13,447**	**12,536**	**7,592,981**
Offsetting Receipts	0	0	(12,396)	0	0	0	0	(5,853)	0	0	(18,249)	0	0	0	0	0	(18,249)
TOTAL OBLIGATIONS (Direct, Reimbursable & Offsetting Receipts)	**12,902**	**12,127**	**6,224,205**	**0**	**0**	**128,931**	**108,145**	**(200,513)**	**12,902**	**12,127**	**6,259,850**	**545**	**409**	**1,314,882**	**13,447**	**12,536**	**7,574,732**

Department of Commerce
National Oceanic and Atmospheric Administration
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LINE OFFICE SUMMARY

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
National Ocean Service																	
ORF	1,290	1,212	619,700	(24)	(24)	13,530	11,265	(2,926)	1,266	1,188	641,569	34	25	45,326	1,300	1,213	686,895
PAC	1	1	8,500	0	0	0	0	0	1	1	8,500	0	0	0	1	1	8,500
OTHER	32	32	52,449	0	0	0	0	(28,021)	32	32	24,428	0	0	0	32	32	24,428
TOTAL, NOS	1,323	1,245	680,649	(24)	(24)	13,530	11,265	(30,947)	1,299	1,221	674,497	34	25	45,326	1,333	1,246	719,823
National Marine Fisheries Service																	
ORF	3,130	2,675	964,862	(13)	(13)	31,895	25,584	(1,562)	3,117	2,662	1,020,779	213	161	85,610	3,330	2,823	1,106,389
PAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER	30	30	116,513	0	0	0	0	(18,205)	30	30	97,390	2	1	300	32	31	97,690
TOTAL, NMFS	3,160	2,705	1,081,375	(13)	(13)	31,895	25,584	(19,767)	3,147	2,692	1,118,169	215	162	85,910	3,362	2,854	1,204,079
Oceanic and Atmospheric Research																	
ORF	854	826	570,590	(7)	(7)	8,990	8,058	(911)	847	819	586,727	52	40	79,548	899	859	666,275
PAC	1	1	43,500	0	0	0	0	0	1	1	43,500	0	0	65,000	1	1	108,500
TOTAL, OAR	855	827	614,090	(7)	(7)	8,990	8,058	(911)	848	820	630,227	52	40	144,548	900	860	774,775
National Weather Service																	
ORF	4,385	4,330	1,100,776	(5)	(5)	44,128	34,279	(724)	4,380	4,325	1,178,459	39	29	40,850	4,419	4,354	1,219,309
PAC	26	25	103,634	0	0	0	0	0	26	25	103,634	0	0	470	26	25	104,104
TOTAL, NWS	4,411	4,355	1,204,410	(5)	(5)	44,128	34,279	(724)	4,406	4,350	1,282,093	39	29	41,320	4,445	4,379	1,323,413
National Environmental Satellite, Data and Information Service																	
ORF	590	558	291,533	(23)	(22)	8,237	8,026	45,537	567	536	353,333	5	3	55,741	572	539	409,074
PAC	259	229	1,224,924	(1)	(1)	0	0	(54,090)	258	228	1,170,834	57	41	703,024	315	269	1,873,858
TOTAL, NESDIS	849	787	1,516,457	(24)	(23)	8,237	8,026	(8,553)	825	764	1,524,167	62	44	758,765	887	808	2,282,932
Mission Support																	
ORF	781	743	302,845	16	15	13,030	15,744	4,394	797	758	336,013	94	73	113,892	891	831	449,905
PAC	1	1	43,000	0	0	0	0	0	1	1	43,000	0	0	102,700	1	1	145,700
TOTAL, Mission Support	782	744	345,845	16	15	13,030	15,744	4,394	798	759	379,013	94	73	216,592	892	832	595,605
Office of Marine and Aviation Operations																	
ORF	997	965	253,665	57	57	9,121	5,189	7,337	1,054	1,022	275,312	53	40	37,421	1,107	1,062	312,733
PAC	30	30	120,000	0	0	0	0	0	30	30	120,000	(4)	(4)	(15,000)	26	26	105,000
OTHER	0	0	32,452	0	0	0	0	169	0	0	32,621	0	0	0	0	0	32,621
TOTAL, OMAO	1,027	995	406,117	57	57	9,121	5,189	7,506	1,084	1,052	427,933	49	36	22,421	1,133	1,088	450,354
DIRECT DISCRETIONARY OBLIGATIONS																	
ORF	12,027	11,309	4,103,971	1	1	128,931	108,145	51,145	12,028	11,310	4,392,192	490	371	458,388	12,518	11,681	4,850,580
PAC	318	287	1,543,558	(1)	(1)	0	0	(54,090)	317	286	1,489,468	53	37	856,194	370	323	2,345,662
OTHER	62	62	201,414	0	0	0	0	(46,057)	62	62	154,439	2	1	300	64	63	154,739
TOTAL, DIRECT DISCRETIONARY OBLIGATIONS	**12,407**	**11,658**	**5,848,943**	**0**	**0**	**128,931**	**108,145**	**(49,002)**	**12,407**	**11,658**	**6,036,099**	**545**	**409**	**1,314,882**	**12,952**	**12,067**	**7,350,981**

Department of Commerce
National Oceanic and Atmospheric Administration
CONTROL TABLE
(Dollar amounts in thousands)

LINE OFFICE SUMMARY

FY 2023 Proposed Operating Plan	POS	FTE	FY 2022 Annualized CR	POS	FTE	FY 2022 Calculated ATBs	FY 2023 Calculated ATBs	Technical ATBs	POS	FTE	FY 2023 Base	POS	FTE	FY 2023 Program Changes	POS	FTE	FY 2023 Estimate
ORF Adjustments (Deobligations/Rescissions)	0	0	(17,500)	0	0	0	0	0	0	0	(17,500)	0	0	0	0	0	(17,500)
ORF Transfers	0	0	(246,171)	0	0	0	0	(102,700)	0	0	(348,871)	0	0	0	0	0	(348,871)
PAC Adjustments (Deobligations/Rescissions)	0	0	(13,000)	0	0	0	0	0	0	0	(13,000)	0	0	0	0	0	(13,000)
PAC Transfers	0	0	2,000	0	0	0	0	(2,000)	0	0	0	0	0	0	0	0	0
Mandatory Accounts Excluded	(60)	(60)	(134,474)	0	0	0	0	46,083	(60)	(60)	(87,473)	0	0	0	(60)	(60)	(87,473)
TOTAL, DISCRETIONARY APPROPRIATIONS	**12,347**	**11,598**	**5,439,798**	**0**	**0**	**128,931**	**108,145**	**(107,619)**	**12,347**	**11,598**	**5,569,255**	**545**	**409**	**1,314,882**	**12,892**	**12,007**	**6,884,137**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
Annualized CR, 2022	12,027	11,309	4,086,471	4,103,971
Plus: Inflationary adjustments to base	0	0	237,076	237,076
Plus: Technical adjustments to base	1	1	51,145	51,145
2023 Base	12,028	11,310	4,374,692	4,392,192
Plus: 2023 Program Changes	490	371	458,388	458,388
2023 Estimate	12,518	11,681	4,833,080	4,850,580

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Comparison by program		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	1,174	611,920	1,290	619,700	1,266	641,569	1,300	686,895	34	45,326
	FTE/Obl	1,130	624,534	1,212	619,700	1,188	641,569	1,213	686,895	25	45,326
National Marine Fisheries Service	Pos/BA	2,897	951,136	3,130	964,862	3,117	1,020,779	3,330	1,106,389	213	85,610
	FTE/Obl	2,765	994,183	2,675	964,862	2,662	1,020,779	2,823	1,106,389	161	85,610
Oceanic and Atmospheric Research	Pos/BA	743	565,147	854	570,590	847	586,727	899	666,275	52	79,548
	FTE/Obl	723	579,241	826	570,590	819	586,727	859	666,275	40	79,548
National Weather Service	Pos/BA	4,334	1,087,299	4,385	1,100,776	4,380	1,178,459	4,419	1,219,309	39	40,850
	FTE/Obl	4,296	1,090,189	4,330	1,100,776	4,325	1,178,459	4,354	1,219,309	29	40,850
National Environmental Satellite, Data, & Info Service	Pos/BA	549	287,801	590	291,533	567	353,333	572	409,074	5	55,741
	FTE/Obl	531	295,064	558	291,533	536	353,333	539	409,074	3	55,741
Mission Support	Pos/BA	679	302,788	781	302,845	797	336,013	891	449,905	94	113,892
	FTE/Obl	693	311,652	743	302,845	758	336,013	831	449,905	73	113,892
Office of Marine & Aviation Operations	Pos/BA	883	250,806	997	253,665	1,054	275,312	1,107	312,733	53	37,421
	FTE/Obl	950	269,201	965	253,665	1,022	275,312	1,062	312,733	40	37,421
ORF Financing	Pos/BA	0	0	0	(17,500)	0	(17,500)	0	(17,500)	0	0
	FTE/Obl	0	0	0	0	0	0	0	0	0	0
Total	Pos/BA	11,259	4,056,897	12,027	4,086,471	12,028	4,374,692	12,518	4,833,080	490	458,388
	FTE/Obl	11,088	4,164,064	11,309	4,103,971	11,310	4,392,192	11,681	4,850,580	371	458,388

*FY 2022 Amount does not include funds received through the Infrastructure Investments and Jobs Act (IIJA) ($557.25 million) that became available in FY 2022. It does not include funds received through the Disaster Relief Supplemental Act ($91.984 million). FY 2023 Amount also does not include funds received through the IIJA ($515.584 million) that became available in FY 2023.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actuals		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	11,088	4,164,064	11,309	4,103,971	11,310	4,392,192	11,681	4,850,580	371	458,388
Total Obligations	**11,088**	**4,164,064**	**11,309**	**4,103,971**	**11,310**	**4,392,192**	**11,681**	**4,850,580**	**371**	**458,388**
Adjustments to Obligations:										
Deobligations	0	(68,017)	0	0	0	0	0	0	0	0
Unobligated Balance, SOY	0	(185,442)	0	(17,500)	0	(17,500)	0	(17,500)	0	0
Unobligated Balance, Expiring	0	2,499	0	0	0	0	0	0	0	0
Unobligated Balance, EOY	0	144,204	0	0	0	0	0	0	0	0
Unobligated Balance, Transferred	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, not apportioned	0	0	0	0	0	0	0	0	0	0
Collections	0	(411)	0	0	0	0	0	0	0	0
Total Budget Authority	**11,088**	**4,056,897**	**11,309**	**4,086,471**	**11,310**	**4,374,692**	**11,681**	**4,833,080**	**371**	**458,388**
Financing from Transfers and Other:										
Transfer from ORF to PAC	0	33,272	0	0	0	0	0	0	0	0
Transfer from PAC to ORF	0	(3,333)	0	0	0	0	0	0	0	0
Transfer from P&D to ORF	0	(246,171)	0	(246,171)	0	(348,871)	0	(348,871)	0	0
Transfer from PCSRF to ORF	0	(65)	0	0	0	0	0	0	0	0
Transfer from FDAF to ORF	0	(300)	0	0	0	0	0	0	0	0
Net Appropriation	**11,088**	**3,840,300**	**11,309**	**3,840,300**	**11,310**	**4,025,821**	**11,681**	**4,484,209**	**371**	**458,388**

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Exhibit 6

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF REIMBURSABLE OBLIGATIONS
(Dollar Amounts in Thousands)

Comparison by program		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos./BA	11	27,199	11	34,107	11	24,000	11	24,000	0	0
	FTE/Obl	10	19,435	10	34,107	10	24,000	10	24,000	0	0
National Marine Fisheries Service	Pos./BA	257	114,131	257	85,013	257	95,000	257	95,000	0	0
	FTE/Obl	233	53,501	233	85,013	233	95,000	233	95,000	0	0
Oceanic and Atmospheric Research	Pos./BA	22	95,460	22	129,001	22	50,000	22	50,000	0	0
	FTE/Obl	22	50,594	22	129,001	22	50,000	22	50,000	0	0
National Weather Service	Pos./BA	159	77,605	159	77,100	159	44,000	159	44,000	0	0
	FTE/Obl	159	74,398	159	77,100	159	44,000	159	44,000	0	0
National Environmental Satellite, Data, and Information Service	Pos./BA	26	29,939	26	38,639	26	15,000	26	15,000	0	0
	FTE/Obl	25	45,420	25	38,639	25	15,000	25	15,000	0	0
Mission Support	Pos./BA	20	15,684	20	23,098	20	12,000	20	12,000	0	0
	FTE/Obl	20	28,988	20	23,098	20	12,000	20	12,000	0	0
Office of Marine and Aviation Operations	Pos./BA	0	1,276	0	700	0	2,000	0	2,000	0	0
	FTE/Obl	0	6,281	0	700	0	2,000	0	2,000	0	0
NOAA Wide Support Services	Pos./BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl	0	1,274	0	0	0	0	0	0	0	0
Total	Pos./BA	495	361,294	495	387,658	495	242,000	495	242,000	0	0
	FTE/Obl	469	279,891	469	387,658	469	242,000	469	242,000	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
Direct Discretionary Obligation	4,164,064	4,103,971	4,392,192	4,850,580	458,388
Direct Mandatory Obligation	42,204	52,711	36,711	36,711	0
Reimbursable Obligation	279,891	387,658	242,000	242,000	0
Total Obligations	**4,486,159**	**4,544,340**	**4,670,903**	**5,129,291**	**458,388**
Adjustments and Obligations:					
Federal funds	(233,678)	(293,612)	(194,760)	(194,760)	0
Non-Federal Sources	(33,721)	(94,046)	(47,240)	(47,240)	0
Change Uncollected Customer Pmts from Fed.	41,509	0	0	0	0
Collection	(411)	0	0	0	0
Deobligation/Recoveries	(68,253)	(17,500)	(17,500)	(17,500)	0
Unobligated balance adjusted, SOY (Direct Disc.)	(185,442)	(144,204)	(144,204)	(144,204)	0
Unobligated balance, Expiring	5,620	0	0	0	0
Unobligated balance, EOY (Direct Disc.)	144,204	144,204	144,204	144,204	0
Unobligated balance adjusted, SOY (Mand.)	(39,376)	(27,557)	(5,707)	(5,707)	0
Unobligated balance, transferred to other accounts	0	0	0	0	0
Unobligated balance, EOY (Mand.)	27,557	5,707	0	0	0
Unobligated balance, not apportioned	0	0	0	0	0
Unobligated balance, SOY Reimbursable	(121,874)	0	0	0	0
Unobligated balance, EOY Reimbursable	67,873	0	0	0	0
Rescission	0	0	0	0	0
Total Budget Authority	**4,090,167**	**4,117,332**	**4,405,696**	**4,864,084**	**458,388**
Financing from Tranfers and Other:					
Transfer from ORF to PAC	33,272	0	0	0	0
Transfer from PAC to ORF	(3,333)	0	0	0	0
Transfer from P&D to ORF	(246,171)	(246,171)	(348,871)	(348,871)	0
Transfer from PCSRF to ORF	(65)	0	0	0	0
NOAA Corps Retirement Pay (Mand)	(33,270)	(30,861)	(31,004)	(31,004)	0
Spectrum Relocation Fund (Mand)	0	0	0	0	0
Transfer from FDAF to ORF	(300)	0	0	0	0
Net Appropriation	**3,840,300**	**3,840,300**	**4,025,821**	**4,484,209**	**458,388**

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Exhibit 8

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

	FTE	Amount
Transfer	1	56,090
Adjustment		12,555
Financing		(17,500)
Other Changes		
Annualized Pay raise		14,812
Pay raise		90,484
Awards		0
Full-year cost in 2022 of positions financed for part-year in 2021	0	0
Change in compensable days		(6,520)
Civil Service Retirement System (CSRS)		(291)
Federal Employee Retirement System (FERS)		12,836
Thrift Savings Plan		23,215
Federal Insurance Contribution Act (FICA) - OASDI		588
Health Insurance		5,380
Employees Compensation Fund		(539)
Travel:		
Mileage		12
Per Diem		333
Rental payments to GSA		10,326
GSA Furniture and IT (FIT) Program		273
Working Capital Fund, Departmental Management		14,458
NARA Storage & Maintenance		23
General Pricing Level Adjustment		47,044
Postage		1
Continuous Diagnostics and Mitigation (CDM) Charges		(1,532)
Enterprise Services		21,568
HCHB Utilities		0
Commerce Business System		850
Federal Protective Service		574

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

Grants		2,644
Ship and Aircraft Fuel Costs		228
TriCare		308
Subtotal, other changes	0	237,076
Total, adjustments to base	0	288,221

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	1,214,013	1,278,518	1,325,482	1,364,024	38,542
11.3	Other than full-time permanent	6,034	7,876	8,116	8,116	0
11.5	Other personnel compensation	75,568	69,331	69,245	71,368	2,123
11.7	Military Personnel	39,253	40,581	41,621	43,012	1,391
11.9	**Total personnel compensation**	1,334,868	1,396,306	1,444,464	1,486,520	42,056
12.1	Civilian personnel benefits	473,498	512,146	536,014	548,386	12,372
12.2	Military personnel benefits	8,602	9,000	9,398	10,270	872
13	Benefits for former personnel	28,449	28,954	30,117	30,167	50
21	Travel and transportation of persons	10,151	17,446	17,791	23,956	6,165
22	Transportation of things	13,474	13,643	14,180	16,186	2,006
23.1	Rental payments to GSA	94,541	94,778	105,376	105,606	230
23.2	Rental payments to others	29,929	29,968	31,147	31,890	743
23.3	Communications, utilities, and misc. charges	90,102	78,439	81,614	95,114	13,500
24	Printing and reproduction	3,181	4,162	4,326	4,432	106
25.1	Advisory and assistance services	306,846	265,064	290,386	317,002	26,616
25.2	Other services from non-Federal sources	661,387	587,608	670,394	910,536	240,142
25.3	Other goods and services from Federal sources	136,571	128,828	195,002	208,028	13,026
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	13,310	10,199	10,382	17,184	6,802
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	107,107	99,711	103,404	124,806	21,402

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	33,754	39,539	41,374	56,526	15,152
32	Lands and structures	1,821	164	164	684	520
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	858,602	840,617	843,261	899,089	55,828
42	Insurance claims and indemnities	3	5	5	5	0
43	Interest and dividends	70	104	104	104	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**4,206,268**	**4,156,682**	**4,428,903**	**4,887,291**	**458,388**
	Less Mandatory Obligations	(42,204)	(52,711)	(36,711)	(36,711)	0
	Total Discretionary Obligations	**4,164,064**	**4,103,971**	**4,392,192**	**4,850,580**	**458,388**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	11,088	11,309	11,310	11,681	371
	Other than full-time permanent	0	0	0	0	0
	Total	11,088	11,309	11,310	11,681	371
	Authorized Positions:					
	Full-time permanent	11,259	12,027	12,028	12,518	490
	Other than full-time permanent	0	0	0	0	0
	Total	11,259	12,027	12,028	12,518	490

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
National Ocean Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	140,169	153,089	158,528	161,888	3,360
11.3	Other than full-time permanent	529	1,028	1,049	1,049	0
11.5	Other personnel compensation	3,986	2,837	2,832	2,861	29
11.7	Military Personnel	2,776	2,926	0	0	0
11.9	**Total personnel compensation**	147,461	159,880	162,409	165,798	3,389
12.1	Civilian personnel benefits	51,019	58,008	64,807	66,095	1,288
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	19	28	28	28	0
21	Travel and transportation of persons	1,266	1,958	2,001	2,644	643
22	Transportation of things	642	713	739	877	138
23.1	Rental payments to GSA	11,857	11,998	13,326	13,326	0
23.2	Rental payments to others	1,949	1,844	1,919	1,919	0
23.3	Communications, utilities, and misc. charges	4,183	4,292	4,449	8,429	3,980
24	Printing and reproduction	119	183	189	191	2
25.1	Advisory and assistance services	51,586	44,844	46,418	46,418	0
25.2	Other services from non-Federal sources	87,233	71,027	79,835	128,584	48,749
25.3	Other goods and services from Federal sources	2,327	2,793	2,869	2,869	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	1,078	1,029	1,049	1,049	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	6,760	4,948	5,162	6,211	1,049

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
National Ocean Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	2,999	7,297	7,511	9,099	1,588
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	254,030	248,842	248,842	233,342	(15,500)
42	Insurance claims and indemnities	0	1	1	1	0
43	Interest and dividends	6	14	14	14	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**624,533**	**619,700**	**641,569**	**686,895**	**45,326**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	1,130	1,212	1,188	1,213	25
	Other than full-time permanent	0	0	0	0	0
	Total	1,130	1,212	1,188	1,213	25
	Authorized Positions:					
	Full-time permanent	1,174	1,290	1,266	1,300	34
	Other than full-time permanent	0	0	0	0	0
	Total	1,174	1,290	1,266	1,300	34

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
National Marine Fisheries Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	323,020	331,741	344,271	358,004	13,733
11.3	Other than full-time permanent	2,564	2,687	2,789	2,789	0
11.5	Other personnel compensation	10,754	8,993	8,981	8,981	0
11.7	Military Personnel	1,450	1,562	0	0	0
11.9	**Total personnel compensation**	337,787	344,984	356,042	369,775	13,733
12.1	Civilian personnel benefits	126,154	135,498	138,052	141,585	3,533
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	47	69	69	69	0
21	Travel and transportation of persons	1,826	2,319	2,380	4,206	1,826
22	Transportation of things	2,727	2,190	2,288	2,338	50
23.1	Rental payments to GSA	15,847	15,671	17,426	17,426	0
23.2	Rental payments to others	2,424	2,480	2,576	2,586	10
23.3	Communications, utilities, and misc. charges	17,130	13,344	13,908	14,171	263
24	Printing and reproduction	2,474	3,014	3,137	3,137	0
25.1	Advisory and assistance services	49,775	38,612	44,803	51,975	7,172
25.2	Other services from non-Federal sources	174,594	146,448	175,665	211,929	36,264
25.3	Other goods and services from Federal sources	11,818	10,659	11,263	12,367	1,104
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	93	139	142	772	630
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	13,320	13,459	13,980	15,174	1,194

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
National Marine Fisheries Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	6,420	6,982	7,410	10,761	3,351
32	Lands and structures	801	0	0	520	520
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	230,933	228,976	231,620	247,580	15,960
42	Insurance claims and indemnities	2	0	0	0	0
43	Interest and dividends	10	18	18	18	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**994,183**	**964,862**	**1,020,779**	**1,106,389**	**85,610**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	2,765	2,675	2,662	2,823	161
	Other than full-time permanent	0	0	0	0	0
	Total	2,765	2,675	2,662	2,823	161
	Authorized Positions:					
	Full-time permanent	2,897	3,130	3,117	3,330	213
	Other than full-time permanent	0	0	0	0	0
	Total	2,897	3,130	3,117	3,330	213

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
Office of Oceanic and Atmospheric Research
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	92,230	106,579	110,157	113,910	3,753
11.3	Other than full-time permanent	1,478	1,790	1,849	1,849	0
11.5	Other personnel compensation	2,601	2,943	2,940	3,022	82
11.7	Military Personnel	666	911	0	0	0
11.9	**Total personnel compensation**	96,975	112,223	114,946	118,781	3,835
12.1	Civilian personnel benefits	33,025	36,402	40,570	41,720	1,150
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	61	60	60	60	0
21	Travel and transportation of persons	375	2,684	2,695	2,855	160
22	Transportation of things	1,105	1,337	1,385	1,385	0
23.1	Rental payments to GSA	9,489	8,990	10,020	10,020	0
23.2	Rental payments to others	5,244	5,077	5,280	5,914	634
23.3	Communications, utilities, and misc. charges	10,232	5,188	5,473	5,514	41
24	Printing and reproduction	353	344	360	450	90
25.1	Advisory and assistance services	19,680	18,302	19,163	19,177	14
25.2	Other services from non-Federal sources	65,545	51,710	57,560	68,864	11,304
25.3	Other goods and services from Federal sources	11,074	6,854	7,000	8,549	1,549
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	4,015	5,020	5,115	11,267	6,152
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	9,015	11,295	11,662	12,937	1,275

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
Office of Oceanic and Atmospheric Research
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	7,409	7,718	8,052	14,723	6,671
32	Lands and structures	78	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	305,558	297,370	297,370	344,043	46,673
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	6	16	16	16	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**579,241**	**570,590**	**586,727**	**666,275**	**79,548**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	723	826	819	859	40
	Other than full-time permanent	0	0	0	0	0
	Total	723	826	819	859	40
	Authorized Positions:					
	Full-time permanent	743	854	847	899	52
	Other than full-time permanent	0	0	0	0	0
	Total	743	854	847	899	52

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
National Weather Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	457,777	474,054	491,827	495,283	3,456
11.3	Other than full-time permanent	868	1,246	1,281	1,281	0
11.5	Other personnel compensation	34,436	35,223	35,184	35,184	0
11.7	Military Personnel	693	724	0	0	0
11.9	**Total personnel compensation**	493,774	511,247	528,292	531,748	3,456
12.1	Civilian personnel benefits	185,783	201,125	204,889	206,192	1,303
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	292	371	371	371	0
21	Travel and transportation of persons	1,699	2,798	2,855	4,395	1,540
22	Transportation of things	6,772	7,253	7,531	9,232	1,701
23.1	Rental payments to GSA	31,169	31,536	35,029	35,029	0
23.2	Rental payments to others	12,226	12,742	13,234	13,234	0
23.3	Communications, utilities, and misc. charges	46,935	46,108	47,878	56,028	8,150
24	Printing and reproduction	104	157	163	163	0
25.1	Advisory and assistance services	76,662	70,192	83,544	82,230	(1,314)
25.2	Other services from non-Federal sources	139,628	123,647	158,183	180,433	22,250
25.3	Other goods and services from Federal sources	10,127	7,865	8,523	10,523	2,000
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	369	192	196	196	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	48,074	49,681	51,461	56,911	5,450

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
National Weather Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	9,063	11,542	11,990	11,990	0
32	Lands and structures	27	59	59	59	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	27,464	24,238	24,238	20,552	(3,686)
42	Insurance claims and indemnities	1	4	4	4	0
43	Interest and dividends	21	20	20	20	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**1,090,189**	**1,100,776**	**1,178,459**	**1,219,309**	**40,850**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	4,296	4,330	4,325	4,354	29
	Other than full-time permanent	0	0	0	0	0
	Total	4,296	4,330	4,325	4,354	29
	Authorized Positions:					
	Full-time permanent	4,334	4,385	4,380	4,419	39
	Other than full-time permanent	0	0	0	0	0
	Total	4,334	4,385	4,380	4,419	39

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
National Environmental Satellite, Data, and Information Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	67,293	72,364	73,476	73,915	439
11.3	Other than full-time permanent	235	363	372	372	0
11.5	Other personnel compensation	6,382	6,461	6,454	6,454	0
11.7	Military Personnel	588	553	(0)	(0)	0
11.9	**Total personnel compensation**	74,498	79,741	80,302	80,741	439
12.1	Civilian personnel benefits	24,494	25,511	28,233	28,374	141
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	42	4	4	4	0
21	Travel and transportation of persons	101	753	557	843	286
22	Transportation of things	132	109	114	114	0
23.1	Rental payments to GSA	16,794	16,265	17,881	17,881	0
23.2	Rental payments to others	632	588	612	665	53
23.3	Communications, utilities, and misc. charges	4,695	3,740	3,869	3,870	1
24	Printing and reproduction	44	74	76	80	4
25.1	Advisory and assistance services	67,242	52,150	54,937	54,937	0
25.2	Other services from non-Federal sources	65,087	72,813	71,332	112,342	41,010
25.3	Other goods and services from Federal sources	19,914	21,239	76,657	80,986	4,329
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	7,663	3,729	3,788	3,788	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	2,090	2,333	2,409	3,925	1,516

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
National Environmental Satellite, Data, and Information Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	2,171	2,696	2,774	6,011	3,237
32	Lands and structures	0	106	106	106	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	9,458	9,677	9,677	14,402	4,725
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	7	5	5	5	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**295,064**	**291,533**	**353,333**	**409,074**	**55,741**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	531	558	536	539	3
	Other than full-time permanent	0	0	0	0	0
	Total	531	558	536	539	3
	Authorized Positions:					
	Full-time permanent	549	590	567	572	5
	Other than full-time permanent	0	0	0	0	0
	Total	549	590	567	572	5

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
Mission Support
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	86,591	93,278	97,990	108,200	10,210
11.3	Other than full-time permanent	260	513	523	523	0
11.5	Other personnel compensation	2,719	3,026	3,023	3,082	59
11.7	Military Personnel	661	661	0	0	0
11.9	**Total personnel compensation**	90,231	97,478	101,536	111,805	10,269
12.1	Civilian personnel benefits	32,142	35,296	36,462	39,564	3,102
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	36	60	60	70	10
21	Travel and transportation of persons	143	1,003	1,207	2,004	797
22	Transportation of things	268	195	204	214	10
23.1	Rental payments to GSA	8,562	9,555	10,843	11,073	230
23.2	Rental payments to others	2,260	2,314	2,404	2,450	46
23.3	Communications, utilities, and misc. charges	1,559	1,881	1,979	3,801	1,822
24	Printing and reproduction	66	311	319	329	10
25.1	Advisory and assistance services	32,882	31,771	31,812	40,956	9,144
25.2	Other services from non-Federal sources	51,322	42,298	43,179	119,533	76,354
25.3	Other goods and services from Federal sources	75,162	73,248	82,208	86,251	4,043
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	1	1	21	20
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	1,172	1,457	1,508	1,682	174

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
Mission Support
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	723	1,429	1,600	1,805	205
32	Lands and structures	915	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	26,254	26,378	26,378	34,034	7,656
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	13	19	19	19	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**323,707**	**324,695**	**341,720**	**455,612**	**113,892**
	Less Mandatory Obligations	(12,055)	(21,850)	(5,707)	(5,707)	0
	Total Discretionary Obligations	**311,652**	**302,845**	**336,013**	**449,905**	**113,892**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	693	743	758	831	73
	Other than full-time permanent	0	0	0	0	0
	Total	693	743	758	831	73
	Authorized Positions:					
	Full-time permanent	679	781	797	891	94
	Other than full-time permanent	0	0	0	0	0
	Total	679	781	797	891	94

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
Office of Marine and Aviation Operations
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	46,932	47,413	49,233	52,824	3,591
11.3	Other than full-time permanent	101	248	252	252	0
11.5	Other personnel compensation	14,689	9,847	9,830	11,783	1,953
11.7	Military Personnel	32,419	33,244	41,621	43,012	1,391
11.9	**Total personnel compensation**	94,141	90,754	100,938	107,873	6,935
12.1	Civilian personnel benefits	20,881	20,306	23,001	24,856	1,855
12.2	Military personnel benefits	8,602	9,000	9,398	10,270	872
13	Benefits for former personnel	27,952	28,361	29,524	29,564	40
21	Travel and transportation of persons	4,741	5,932	6,097	7,010	913
22	Transportation of things	1,829	1,846	1,919	2,026	107
23.1	Rental payments to GSA	823	763	851	851	0
23.2	Rental payments to others	5,195	4,924	5,123	5,123	0
23.3	Communications, utilities, and misc. charges	5,368	3,885	4,057	4,100	43
24	Printing and reproduction	21	79	82	82	0
25.1	Advisory and assistance services	9,019	9,192	9,708	21,308	11,600
25.2	Other services from non-Federal sources	77,978	79,664	84,638	88,850	4,212
25.3	Other goods and services from Federal sources	6,148	6,169	6,481	6,481	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	92	89	91	91	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	26,676	16,539	17,223	27,967	10,744

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
Office of Marine and Aviation Operations
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	4,971	1,876	2,038	2,138	100
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	4,906	5,137	5,137	5,137	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	6	12	12	12	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**299,350**	**284,526**	**306,316**	**343,737**	**37,421**
	Less Mandatory Obligations	(30,149)	(30,861)	(31,004)	(31,004)	0
	Total Discretionary Obligations	**269,201**	**253,665**	**275,312**	**312,733**	**37,421**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	950	965	1,022	1,062	40
	Other than full-time permanent	0	0	0	0	0
	Total	950	965	1,022	1,062	40
	Authorized Positions:					
	Full-time permanent	883	997	1,054	1,107	53
	Other than full-time permanent	0	0	0	0	0
	Total	883	997	1,054	1,107	53

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
Annualized CR, 2022	318	287	1,530,558	1,543,558
Less: Other adjustments to base	(1)	(1)	(54,090)	(54,090)
Less: Carryover	0	0	0	0
2023 Base	317	286	1,476,468	1,489,468
Less: 2023 Program Changes	53	37	856,194	856,194
2023 Estimate	370	323	2,332,662	2,345,662

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Comparison by activity/subactivity		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	1	8,428	1	8,500	1	8,500	1	8,500	0	0
	FTE/OBL	1	8,275	1	8,500	1	8,500	1	8,500	0	0
National Marine Fisheries Service	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Oceanic and Atmospheric Research	Pos/BA	1	43,126	1	43,500	1	43,500	1	108,500	0	65,000
	FTE/OBL	1	43,065	1	43,500	1	43,500	1	108,500	0	65,000
National Weather Service	Pos/BA	26	132,388	26	103,634	26	103,634	26	104,104	0	470
	FTE/OBL	26	132,894	25	103,634	25	103,634	25	104,104	0	470
National Environmental Satellite, Data, & Information Service	Pos/BA	250	1,211,060	259	1,224,924	258	1,170,834	315	1,873,858	57	703,024
	FTE/OBL	253	1,224,260	229	1,224,924	228	1,170,834	269	1,873,858	41	703,024
Mission Support	Pos/BA	1	42,954	1	43,000	1	43,000	1	145,700	0	102,700
	FTE/OBL	2	27,603	1	43,000	1	43,000	1	145,700	0	102,700
Office of Marine Aviation & Operations	Pos/BA	19	122,541	30	120,000	30	120,000	26	105,000	(4)	(15,000)
	FTE/OBL	26	68,422	30	120,000	30	120,000	26	105,000	(4)	(15,000)
Other	Pos/BA	0	0	0	(13,000)	0	(13,000)	0	(13,000)	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total	Pos/BA	298	1,560,497	318	1,530,558	317	1,476,468	370	2,332,662	53	856,194
	FTE/OBL	309	1,504,519	287	1,543,558	286	1,489,468	323	2,345,662	37	856,194

* FY 2022 Amount does not include funds received through the Infrastructure Investments and Jobs Act (IIJA) ($180 million) that became available in FY 2022. It does not include funds received through the Disaster Relief Supplemental Act ($52.205 million).

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	309	1,504,519	287	1,543,558	286	1,489,468	323	2,345,662	37	856,194
Total Obligations	309	1,504,519	287	1,543,558	286	1,489,468	323	2,345,662	37	856,194
Adjustments to Obligations:										
Deobligations	0	(17,367)	0	(13,000)	0	(13,000)	0	(13,000)	0	0
Unobligated balance, Expiring end of	0	255	0	0	0	0	0	0	0	0
Unobligated Balance, EOY	0	287,739	0	0	0	0	0	0	0	0
Unobligated Balance Adj. SOY (start of	0	(214,649)	0	0	0	0	0	0	0	0
Unobligated Balance, Transferred	0	0	0	0	0	0	0	0	0	0
Collections	0	0	0	0	0	0	0	0	0	0
Rescission	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	309	1,560,497	287	1,530,558	286	1,476,468	323	2,332,662	37	856,194
Financing from Transfers and Other:										
Unoblig Balance Rescission Adj Appn	0	0	0	0	0	0	0	0	0	0
Transfer from ORF to PAC	0	(33,272)	0	0	0	0	0	0	0	0
Transfer from PAC to ORF	0	3333	0	0	0	0	0	0	0	0
Transfer to OIG	0	2,000	0	2,000	0	0	0	0	0	0
Net Appropriation	309	1,532,558	287	1,532,558	286	1,476,468	323	2,332,662	37	856,194

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Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
Direct Discretionary Obligation	1,504,519	1,543,558	1,489,468	2,345,662	856,194
Direct Mandatory Obligation	20,642	29,798	10,248	10,248	0
Total Obligations	**1,525,161**	**1,573,356**	**1,499,716**	**2,355,910**	**856,194**
Adjustments and Obligations:					
Deobligations	(19,437)	(13,000)	(13,000)	(13,000)	0
Unobligated balance, Expiring end of year	255	0	0	0	0
Unobligated Balance, EOY	287,739	0	0	0	0
Unobligated Balance Adj. SOY Disc	(214,649)	0	0	0	0
Unobligated Balance, SOY Mandatory	(58,618)	(40,046)	(10,248)	(10,248)	0
Unobligated Balance, EOY Mandatory	40,046	10,248	0	0	0
Unobligated Balance, Transferred	0	0	0	0	0
Rescission	0	(39,250)	0	0	0
Total Budget Authority	**1,560,497**	**1,491,308**	**1,476,468**	**2,332,662**	**856,194**
Financing from Transfers and Other:					
Transfer from PAC to ORF	3,333	0	0	0	0
Transfer from ORF to PAC	(33,272)	0	0	0	0
Transfer to OIG	2,000	2,000	0	0	0
Unobligated Balance, Rescission	0	39,250	0	0	0
Net Appropriation	**1,532,558**	**1,532,558**	**1,476,468**	**2,332,662**	**856,194**

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Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

	FTE	Amount
Transfers		(54,090)
Adjustment		13,000
Financing		(13,000)
Total, adjustments to base		(54,090)

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Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	44,542	41,900	41,900	46,718	4,818
11.3	Other than full-time permanent	65	137	137	137	0
11.5	Other personnel compensation	1,217	1,076	1,076	1,073	(3)
11.7	Military Personnel	9	0	0	0	0
11.9	**Total personnel compensation**	45,832	43,113	43,113	47,928	4,815
12.1	Civilian personnel benefits	19,282	18,018	18,018	19,543	1,525
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	2	2	2	2	0
21	Travel and transportation of persons	335	1,140	1,140	1,178	38
22	Transportation of things	79	53	53	53	0
23.1	Rental payments to GSA	5,063	5,250	5,250	6,155	905
23.2	Rental payments to others	32	100	100	100	0
23.3	Communications, utilities, and misc. charges	3,566	3,235	3,235	3,751	516
24	Printing and reproduction	37	27	27	64	37
25.1	Advisory and assistance services	263,079	221,470	221,470	255,748	34,278
25.2	Other services from non-Federal sources	186,295	202,790	183,240	325,710	142,470
25.3	Other goods and services from Federal sources	696,502	892,866	838,776	1,413,804	575,028
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	51,645	19,697	19,697	20,197	500
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	14,367	19,206	19,206	18,933	(273)

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	187,473	89,598	89,598	117,953	28,355
32	Lands and structures	0	3,488	3,488	70,588	67,100
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	51,553	53,276	53,276	54,176	900
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	20	27	27	27	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**1,525,162**	**1,573,356**	**1,499,716**	**2,355,910**	**856,194**
	Less Mandatory Obligations	(20,642)	(29,798)	(10,248)	(10,248)	0
	Total Discretionary Obligations	**1,504,520**	**1,543,558**	**1,489,468**	**2,345,662**	**856,194**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	309	287	286	323	37
	Other than full-time permanent	0	0	0	0	0
	Total	309	287	286	323	37
	Authorized Positions:					
	Full-time permanent	298	318	317	370	53
	Other than full-time permanent	0	0	0	0	0
	Total	298	318	317	370	53

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
National Ocean Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	93	78	78	78	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	2	2	2	2	0
11.7	Military Personnel	0	0	0	0	0
11.9	**Total personnel compensation**	95	81	81	81	0
12.1	Civilian personnel benefits	34	27	27	27	0
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	3	3	3	0
22	Transportation of things	0	5	5	5	0
23.1	Rental payments to GSA	37	31	31	31	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Communications, utilities, and misc. charges	63	3	3	3	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	670	145	145	145	0
25.2	Other services from non-Federal sources	287	1,814	1,814	1,814	0
25.3	Other goods and services from Federal sources	(1)	8	8	8	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	40	100	100	100	0

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
National Ocean Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	2,388	1,965	1,965	1,965	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	4,662	4,317	4,317	4,317	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**8,275**	**8,500**	**8,500**	**8,500**	**0**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	1	1	1	1	0
	Other than full-time permanent	0	0	0	0	0
	Total	1	1	1	1	0
	Authorized Positions:					
	Full-time permanent	1	1	1	1	0
	Other than full-time permanent	0	0	0	0	0
	Total	1	1	1	1	0

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
Office of Oceanic and Atmospheric Research
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	130	116	116	116	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	5	3	3	3	0
11.7	Military Personnel	0	0	0	0	0
11.9	**Total personnel compensation**	135	119	119	119	0
12.1	Civilian personnel benefits	47	40	40	40	0
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	(0)	1	1	1	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	86	3	3	3	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Communications, utilities, and misc. charges	430	663	663	663	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	492	292	292	292	0
25.2	Other services from non-Federal sources	12,086	9,251	9,251	49,251	40,000
25.3	Other goods and services from Federal sources	21,238	22,247	22,247	22,247	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	2,976	2,395	2,395	2,395	0

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
Office of Oceanic and Atmospheric Research
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	1,786	4,294	4,294	29,294	25,000
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,788	4,195	4,195	4,195	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**43,065**	**43,500**	**43,500**	**108,500**	**65,000**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	1	1	1	1	0
	Other than full-time permanent	0	0	0	0	0
	Total	1	1	1	1	0
	Authorized Positions:					
	Full-time permanent	1	1	1	1	0
	Other than full-time permanent	0	0	0	0	0
	Total	1	1	1	1	0

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
National Weather Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	4,959	5,092	5,092	5,092	0
11.3	Other than full-time permanent	6	6	6	6	0
11.5	Other personnel compensation	119	122	122	122	0
11.7	Military Personnel	9	0	0	0	0
11.9	**Total personnel compensation**	5,092	5,220	5,220	5,220	0
12.1	Civilian personnel benefits	2,903	2,982	2,982	2,982	0
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	2	1	1	1	0
21	Travel and transportation of persons	83	403	403	403	0
22	Transportation of things	13	33	33	33	0
23.1	Rental payments to GSA	1,167	1,016	1,016	1,016	0
23.2	Rental payments to others	18	88	88	88	0
23.3	Communications, utilities, and misc. charges	2,196	2,076	2,076	2,546	470
24	Printing and reproduction	0	4	4	4	0
25.1	Advisory and assistance services	13,373	14,476	14,476	14,476	0
25.2	Other services from non-Federal sources	92,196	56,041	56,041	56,041	0
25.3	Other goods and services from Federal sources	2,594	1,535	1,535	1,535	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	62	62	62	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	7,429	14,028	14,028	14,028	0

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
National Weather Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	1,941	1,947	1,947	1,947	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,885	3,716	3,716	3,716	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	2	5	5	5	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**132,894**	**103,634**	**103,634**	**104,104**	**470**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	26	25	25	25	0
	Other than full-time permanent	0	0	0	0	0
	Total	26	25	25	25	0
	Authorized Positions:					
	Full-time permanent	26	26	26	26	0
	Other than full-time permanent	0	0	0	0	0
	Total	26	26	26	26	0

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
National Environmental Satellite, Data and Information Service
SELECT ACTIVITIES BY OBJECT CLASS

(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	35,563	33,021	33,021	38,454	5,433
11.3	Other than full-time permanent	20	90	90	90	0
11.5	Other personnel compensation	916	779	779	779	0
11.7	Military Personnel	0	0	0	0	0
11.9	**Total personnel compensation**	36,498	33,890	33,890	39,323	5,433
12.1	Civilian personnel benefits	14,762	13,467	13,467	15,209	1,742
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	1	1	1	0
21	Travel and transportation of persons	36	618	618	672	54
22	Transportation of things	22	6	6	6	0
23.1	Rental payments to GSA	3,441	3,131	3,131	4,036	905
23.2	Rental payments to others	4	10	10	10	0
23.3	Communications, utilities, and misc. charges	827	449	449	495	46
24	Printing and reproduction	2	9	9	46	37
25.1	Advisory and assistance services	227,518	145,869	145,869	177,647	31,778
25.2	Other services from non-Federal sources	47,017	59,538	59,538	146,105	86,567
25.3	Other goods and services from Federal sources	667,922	862,104	808,014	1,383,042	575,028
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	51,645	19,635	19,635	20,135	500
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	815	846	846	880	34

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
National Environmental Satellite, Data and Information Service
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	134,588	42,860	42,860	42,860	0
32	Lands and structures	0	1,427	1,427	1,427	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	39,148	41,047	41,047	41,947	900
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	15	17	17	17	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**1,224,260**	**1,224,924**	**1,170,834**	**1,873,858**	**703,024**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	253	229	228	269	41
	Other than full-time permanent	0	0	0	0	0
	Total	253	229	228	269	41
	Authorized Positions:					
	Full-time permanent	250	259	258	315	57
	Other than full-time permanent	0	0	0	0	0
	Total	250	259	258	315	57

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
Mission Support
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	381	84	84	84	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	11	2	2	2	0
11.7	Military Personnel	0	0	0	0	0
11.9	**Total personnel compensation**	393	87	87	87	0
12.1	Civilian personnel benefits	102	29	29	29	0
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	125	10	10	10	0
22	Transportation of things	21	1	1	1	0
23.1	Rental payments to GSA	29	2	2	2	0
23.2	Rental payments to others	8	0	0	0	0
23.3	Communications, utilities, and misc. charges	4	1	1	1	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	11,141	480	480	2,980	2,500
25.2	Other services from non-Federal sources	21,102	62,735	43,185	59,285	16,100
25.3	Other goods and services from Federal sources	4,452	6,847	6,847	6,847	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	1,764	514	514	514	0

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
Mission Support
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	9,053	31	31	17,031	17,000
32	Lands and structures	0	2,061	2,061	69,161	67,100
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	50	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	2	1	1	1	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**48,245**	**72,798**	**53,248**	**155,948**	**102,700**
	Less Mandatory Obligations	(20,642)	(29,798)	(10,248)	(10,248)	0
	Total Discretionary Obligations	**27,603**	**43,000**	**43,000**	**145,700**	**102,700**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	2	1	1	1	0
	Other than full-time permanent	0	0	0	0	0
	Total	2	1	1	1	0
	Authorized Positions:					
	Full-time permanent	1	1	1	1	0
	Other than full-time permanent	0	0	0	0	0
	Total	1	1	1	1	0

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
Office of Marine and Aviation Operations
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent compensation	3,416	3,509	3,509	2,894	-615
11.3	Other than full-time permanent	39	40	40	40	0
11.5	Other personnel compensation	163	168	168	165	-3
11.7	Military Personnel	0	0	0	0	0
11.9	**Total personnel compensation**	3,618	3,716	3,716	3,098	-618
12.1	Civilian personnel benefits	1,434	1,473	1,473	1,256	-217
12.2	Military personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	91	105	105	89	-16
22	Transportation of things	22	8	8	8	0
23.1	Rental payments to GSA	303	1,067	1,067	1,067	0
23.2	Rental payments to others	2	2	2	2	0
23.3	Communications, utilities, and misc. charges	45	43	43	43	0
24	Printing and reproduction	35	13	13	13	0
25.1	Advisory and assistance services	9,885	60,209	60,209	60,209	0
25.2	Other services from non-Federal sources	13,607	13,411	13,411	13,214	(197)
25.3	Other goods and services from Federal sources	297	125	125	125	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26	Supplies and materials	1,343	1,323	1,323	1,016	(307)

Exhibit 16A

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
Office of Marine and Aviation Operations
SELECT ACTIVITIES BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
31	Equipment	37,717	38,500	38,500	24,855	(13,645)
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	20	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	5	5	5	0
44	Refunds	0	0	0	0	0
99.9	Total obligations	**68,422**	**120,000**	**120,000**	**105,000**	**(15,000)**
	Personnel Data					
	Full-time Equivalent Employment					
	Full-time permanent	26	30	30	26	(4)
	Other than full-time permanent	0	0	0	0	0
	Total	26	30	30	26	(4)
	Authorized Positions:					
	Full-time permanent	19	30	30	26	(4)
	Other than full-time permanent	0	0	0	0	0
	Total	19	30	30	26	(4)

Department of Commerce
National Oceanic and Atmospheric Administration
ACTIVITY/SUBACTIVITY CHANGE CROSSWALK
Part 1 – 2023 Structure
(Dollar amounts in thousands)

Activity / Subactivity	2023 Direct Obligations*	Proposed Changes
National Environmental Satellite, Data, and Information Service		
Systems Acquisition		
Geostationary Systems - R (GOES-R)	334,500	Move to Geostationary Earth Orbit (GEO)
Polar Weather Satellites (PWS)	657,835	Move to Low Earth Orbit (LEO)
Cooperative Data and Rescue Services (CDARS)	14,400	Move to Low Earth Orbit (LEO)
COSMIC 2/GNSS RO	5,892	Move to Low Earth Orbit (LEO)
Space Weather Follow On (SWFO)	108,115	Move to Space Weather Observations (SWO)
Projects, Planning and Analysis (PPA)	6,606	Move to Space Weather Observations (SWO)
Projects, Planning and Analysis (PPA)	9,339	Move to Common Ground Services (CGS)

* The 2023 Proposed Budget Restructure is done at the FY 2022 Annualized Continuing Resolution funding level and does not include any technical transfers or program changes outlined in the 2023 President's Budget.

Department of Commerce
National Oceanic and Atmospheric Administration
ACTIVITY/SUBACTIVITY CHANGE CROSSWALK
Part 2 – 2023 Structure
(Dollar amounts in thousands)

Activity / Subactivity	FY 2019 Spend Plan	FY 2020 Spend Plan	FY 2021 Spend Plan	FY 2022 Annualized CR	FY 2023 President's Budget
National Environmental Satellite, Data, and Information Service					
Systems Acquisition					
Geostationary Systems - R (GOES-R)	408,380	304,056	334,500	334,500	-
Geostationary Extended Observations (GeoXO)	-	-	10,000	10,000	-
Polar Weather Satellites (PWS)	-	745,000	656,035	657,835	-
Joint Polar Satellite Systems (JPSS)	548,035	-	-	-	-
Polar Follow-On (PFO)	329,956	-	-	-	-
Cooperative Data and Rescue Services (CDARS)	26,539	11,350	14,400	14,400	-
COSMIC 2/GNSS RO	5,892	5,892	5,892	5,892	-
Space Weather Follow On (SWFO)	27,000	64,000	108,115	108,115	-
Projects, Planning and Analysis (PPA)	40,000	31,000	15,945	15,945	-
Common Ground Services (CGS)[1]	58,000	55,707	39,287	39,287	105,433
Systems/Services Architecture & Engineering (SAE)	-	33,990	38,500	38,500	74,500
System Architecture and Advance Planning	4,929	-	-	-	-
Commercial Weather Data Pilot	6,000	-	-	-	-
	1,454,731	1,250,995	1,222,674	1,224,474	
Systems Acquisition					
Geostationary Earth Orbit (GEO)					964,829
Low Earth Orbit (LEO)					438,840
Space Weather Observations (SWO)					287,806
					1,871,408

[1] The FY 2023 President's Budget requests to rename the Satellite Ground Services PPA to Common Ground Services.

Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service
Budget Estimates, Fiscal Year 2023

Executive Summary

For FY 2023, NOAA requests a total of $719,823,000 and 1,246 FTE/ 1,333 positions for the National Ocean Service (NOS), including a net increase of $45,326,000 and an increase of 25 FTE/ 34 positions in program changes.

NOS enables the safe, sustainable, and efficient use of marine and coastal resources across the range of significant U.S. economic sectors. Those sectors include maritime commerce and marine transportation, fishing and aquaculture, energy development, coastal recreation, and inland export and import industries, which depend on the flow of goods through seaports. NOS's products and services sustain livelihoods, reduce risk, and facilitate adaptation to change. Its earth observations and navigation products are used daily by ship pilots, port managers, surveyors, resource managers, and airports. When oil spills, chemical releases, and marine debris damage coastal resources, NOS's scientific expertise is essential to emergency response and long-term recovery.

While coastal and Great Lakes counties represent less than 10 percent of the land area of the U.S., they are home to over 40 percent of our country's population[1]. Supporting them and other communities across the Nation, the U.S. oceans and Great Lakes economy consists of 157,000 business establishments, employing 3.3 million people, paying $132 billion in wages, and producing $307 billion in gross domestic product[2]. While these communities and their economies depend on marine resources, they also face unique environmental threats:

- Coastal storms threaten lives and destroy property
- Tidal flooding damages infrastructure and forces costly adaptations
- Ecological hazards, such as harmful algal blooms, disrupt fishing, water supplies, and tourism
- Production and transport of fossil fuels, while essential to the U.S. economy, creates a constant risk of spills, including catastrophic ones like the Deepwater Horizon oil spill
- The same coastal industries that are the engines of thriving ocean economies also generate port congestion, marine pollution, and navigation hazards

As a result, coastal communities, governments, and businesses need reliable data and tools to help make informed decisions in the face of climate threats. NOS helps people and places prepare for, respond to, and recover from these coastal disasters. NOS

[1] https://oceanservice.noaa.gov/facts/population.html

[2] National Oceanic and Atmospheric Administration (NOAA), Office for Coastal Management. 2020."NOAA Report on the U.S. Marine Economy." Charleston, SC: NOAA Office for Coastal Management. Available at: https://coast.noaa.gov/data/digitalcoast/pdf/econ-report.pdf

provides communities with data, observations, modeling, tools, and training to understand, forecast and respond to the local impacts of climate change, sea level change and coastal flooding, harmful algal blooms, extreme natural events, and changing ecosystem conditions. NOS promotes smart resource management through technical assistance, applied research, and partnership building. NOS also plays a leading role in protecting the Nation's special marine places, including the National Marine Sanctuaries System, the National Estuarine Research Reserve System, and the National System of Marine Protected Areas.

Significant Adjustments:

Inflationary Adjustments
NOAA's FY 2023 Base includes a net increase of $24,795 and 0 FTE/ 0 positions to account for the full funding requirement for certain inflationary adjustments to current programs for NOS activities. This includes inflationary increases for labor and non-labor activities including benefits and rent charges from the General Services Administration.

Technical Adjustments
NOAA requests the following transfers for a net change of $0 and 0 FTE/ 0 positions to the agency:

From Office	Subactivity	To Office	Subactivity	Amount
NOS	Navigation, Observations and Positioning (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$2,044,000 / 18 FTE/18 positions
NOS	Coastal Science, Assessment, Response and Restoration (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$319,000 / 4 FTE/4 positions
NOS	Sanctuaries and Marine Protected Areas (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$563,000 / 2 FTE/2 positions

NOAA requests to transfer $2,044,000 and 18 FTE/18 positions from Navigation, Observations and Positioning (ORF) PPA, $319,000 and 4 FTE/4 positions from Coastal Science, Assessment, Response and Restoration (ORF) PPA, and $563,000 and 2 FTE/ 2 positions from Sanctuaries and Marine Protected Areas (ORF) PPA, for a total of $2,926,000 and 24 FTE / 24 positions to the OMAO NOAA Commissioned Officer Corps PPA, to allow for better alignment of funding and greater transparency over the full cost of the NOAA Corps. With this transfer, funding for all NOAA Corps personnel will reside within OMAO. This increases efficiency within the program by reducing administrative burdens and allows NOAA to better manage personnel requirements consistent with the NOAA Corps Amendments Act of 2020.

Exhibit 3T

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Navigation, Observation, and Positioning
Subactivity: Navigation Observation and Positioning (ORF) Transfer to OMAO NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	40,526	0	45,205
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	1,613	0	1,712
11.7	Military personnel compensation	2,044	(2,044)	0
11.9	Total personnel compensation	44,183	(2,044)	46,917
12	Civilian personnel benefits	16,790	0	17,829
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	1,752	0	1,860
22	Transportation of things	376	0	399
23	Rent, communications, and utilitites	9,284	0	9,859
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	18	0	20
25.1	Advisory and assistance services	0	0	0
25.2	Other services from non-Federal sources	65,062	0	69,089
25.3	Other goods and services from Federal sources	0	0	0
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	2,963	0	3,146
31	Equipment	779	0	827
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	21,293	0	22,612
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	162,500	(2,044)	172,558

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

Exhibit 3T

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Coastal Science and Assessment
Subactivity: Coastal Science, Assessment, Response and Restoration (ORF) Transfer to OMAO NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	28,985	0	31,146
11.3	Other than full-time permanent	381	0	404
11.5	Other personnel compensation	786	0	836
11.7	Military personnel compensation	319	(319)	0
11.9	Total personnel compensation	30,471	(319)	32,386
12	Civilian personnel benefits	11,579	0	12,307
13	Benefits for former personnel	93	0	98
21	Travel and transportation of persons	593	0	630
22	Transportation of things	151	0	161
23	Rent, communications, and utilitites	2,881	0	3,062
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	103	0	110
25.1	Advisory and assistance services	0	0	0
25.2	Other services from non-Federal sources	32,953	0	35,025
25.3	Other goods and services from Federal sources	0	0	0
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	1,418	0	1,507
31	Equipment	666	0	708
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	5,592	0	5,944
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	86,500	(319)	91,938

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

Exhibit 3T

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean and Coastal Management and Services
Subactivity: Sanctuaries and Marine Protected Areas (ORF) Transfer to OMAO NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	20,650	0	22,493
11.3	Other than full-time permanent	80	0	85
11.5	Other personnel compensation	404	0	429
11.7	Military personnel compensation	563	(563)	0
11.9	Total personnel compensation	21,697	(563)	23,007
12	Civilian personnel benefits	8,245	0	8,743
13	Benefits for former personnel	6	0	6
21	Travel and transportation of persons	584	0	620
22	Transportation of things	200	0	212
23	Rent, communications, and utilitites	3,236	0	3,430
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	72	0	77
25.1	Advisory and assistance services	0	0	0
25.2	Other services from non-Federal sources	10,704	0	11,348
25.3	Other goods and services from Federal sources	0	0	0
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	641	0	680
31	Equipment	196	0	208
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	7,443	0	7,892
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
77	Overhead	3,476	0	3,685
99	Total obligations	56,500	(563)	59,908

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

Exhibit 10

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NATIONAL OCEAN SERVICE											
Navigation, Observations and	Pos/BA	602	231,489	660	235,000	642	245,085	651	273,129	9	28,044
Positioning	FTE/OBL	579	237,445	627	235,000	609	245,085	616	273,129	7	28,044
Coastal Science and	Pos/BA	259	105,720	281	107,500	277	112,955	287	137,074	10	24,119
Assessment	FTE/OBL	240	110,176	266	107,500	262	112,955	269	137,074	7	24,119
Ocean and Coastal Management	Pos/BA	313	274,711	349	277,200	347	283,529	362	276,692	15	(6,837)
and Services	FTE/OBL	311	276,913	319	277,200	317	283,529	328	276,692	11	(6,837)
TOTAL NOS - ORF	**Pos/BA**	**1,174**	**611,921**	**1,290**	**619,700**	**1,266**	**641,569**	**1,300**	**686,895**	**34**	**45,326**
	FTE/OBL	**1,130**	**624,535**	**1,212**	**619,700**	**1,188**	**641,569**	**1,213**	**686,895**	**25**	**45,326**
NOS Construction	Pos/BA	1	8,428	1	8,500	1	8,500	1	8,500	0	0
	FTE/OBL	1	8,275	1	8,500	1	8,500	1	8,500	0	0
TOTAL NOS - PAC	**Pos/BA**	**1**	**8,428**	**1**	**8,500**	**1**	**8,500**	**1**	**8,500**	**0**	**0**
	FTE/OBL	**1**	**8,275**	**1**	**8,500**	**1**	**8,500**	**1**	**8,500**	**0**	**0**
Damage Assessment and	**Pos/BA**	**30**	**4,204**	**30**	**5,416**	**30**	**6,000**	**30**	**6,000**	**0**	**0**
Restoration Revolving Fund	**FTE/OBL**	**43**	**144,965**	**30**	**81,621**	**30**	**82,629**	**30**	**82,629**	**0**	**0**
Sanctuaries Asset Forfeiture	**Pos/BA**	**0**	**287**	**0**	**120**	**0**	**120**	**0**	**120**	**0**	**0**
Fund	**FTE/OBL**	**0**	**160**	**0**	**490**	**0**	**120**	**0**	**120**	**0**	**0**
Gulf Coast Ecosystem	**Pos/BA**	**3**	**0**	**2**	**0**	**2**	**0**	**2**	**0**	**0**	**0**
Restoration Fund	**FTE/OBL**	**2**	**6,697**	**2**	**7,619**	**2**	**8,308**	**2**	**8,308**	**0**	**0**
TOTAL NOS	**Pos/BA**	**1,208**	**624,840**	**1,323**	**633,736**	**1,299**	**656,189**	**1,333**	**701,515**	**34**	**45,326**
	FTE/OBL	**1,176**	**784,632**	**1,245**	**717,930**	**1,221**	**741,126**	**1,246**	**786,452**	**25**	**45,326**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Navigation, Observations and Positioning

Goal Statement

Provides foundational navigational, geodetic, and oceanographic data to the public and private sectors to inform decisions that protect life, property and the environment, and ensures the flow of commerce to support growth of the American Blue Economy.

Base Program

The following NOS Offices are responsible for conducting the activities held within Navigation, Observations and Positioning:

- **Office of Coast Survey (OCS)** – is responsible for surveying U.S. waters, establishing maritime boundaries for the U.S. Exclusive Economic Zone (EEZ), and delivering navigation products, services, and marine geospatial data to the Nation. The OCS Director serves as the U.S. National Hydrographer representing the U.S. interests in international fora. https://nauticalcharts.noaa.gov/
- **National Geodetic Survey (NGS)** – manages the National Spatial Reference System (NSRS), delineates the National Shoreline for nautical charts, and sets guidelines for all foundational positioning, geodesy, and coastal mapping activities. https://geodesy.noaa.gov/
- **Center for Operational Oceanographic Products and Services (CO-OPS)** – is the authoritative source for accurate, reliable, and timely tides, water level and currents information. CO-OPS provides the framework for vertical tidal datums across the U.S. and maintains long term sea level trends for the Nation. https://tidesandcurrents.noaa.gov/
- **Integrated Ocean Observing System (IOOS)** is an integrated network of people and technology gathering observing data, developing tracking and predictive tools, and delivering tailored products to regional stakeholders to benefit the economy, the environment, and public safety. https://ioos.noaa.gov/

The data and services provided by these Offices support applications across many NOAA mission areas, including safe and efficient navigation and transportation, coastal resilience, climate readiness, infrastructure, emergency planning and response, place-based conservation and restoration, recreation and tourism, and living marine resource management, among others.

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(Dollar amounts in thousands)

Statement of Operating Objectives

Schedule and Milestones:

OCS

- Conduct 120 hydrographic surveys that provide data for use in electronic navigational charts annually
- Investigate and reconcile 150 chart discrepancies within the Nation's top 60 ports (annually)
- Complete 900 newly reschemed electronic navigational chart cells
- Complete an Advanced Circulation Model coastal water level reanalysis of the east and gulf coasts (FY 2023)
- Implement and coordinate the development of the interagency mapping strategy to map, explore, and characterize the U.S. EEZ, Arctic and sub-Arctic shoreline, and nearshore of Alaska
- Coordinate with Alaska Mapping Executive Committee on the implementation and development of the interagency mapping strategy to map, explore, and characterize the U.S. EEZ, Arctic and sub-Arctic shoreline, and nearshore of Alaska

NGS

- Update seven percent of the National Shoreline and 33 percent of ports identified as having high priority shoreline mapping needs with new aerial imagery and 1,200 square nautical miles of nearshore topographic-bathymetric (topobathy) data from lidar (FY 2023)
- Expand the Foundation Continuously Operating Reference Stations (CORS) Network by building new stations, adopting high-quality stations from Federal partner networks, and upgrading stations to the strict International Global Navigation Satellite System (GNSS) Service standard (FY 2023)

CO-OPS

- Install Microwave Water Level sensors at five National Water Level Observation Network (NWLON) stations to advance the transfer to new technology of the primary water level sensor (FY 2023)

IOOS

- Partner with OAR's Ocean Acidification Program to deploy and operate ocean acidification sensors (buoys, shore stations, gliders) on regional Integrated Ocean Observing System (IOOS) platforms (ongoing)
- Transition demonstrated marine sensor tools and technologies into operations (ongoing)
- Continue the development of a National HAB Observing Network (NHABON) via seven pilot projects and a HAB testbed. Coordinate pilots with NCCOS research goals and activities

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(Dollar amounts in thousands)

Deliverables:

- 2,429 square nautical miles of hydrographic data collected (annually)
- 10,000 new source data applications added to the suite of electronic navigational charts
- Comprehensive annual NWLON maintenance at 80NWLON stations met and sustained (FY 2023)
- One Tidal Current Survey in the Savannah River, Georgia (FY 2023)
- One new Physical Oceanographic Real-Time System (PORTS) established in Brownsville, TX (FY 2023)
- Build out of western Gulf of Mexico region completed and northeast Atlantic national bathymetric source database maintained
- 3D coastal modeling in the Arctic and Pacific regions developed and implemented to support coastal resilience efforts
- Greater than 95 percent of water level data made available to the public (annually)
- Quarterly updates to the U.S. Tide Predictions and Current Predictions (annually)
- Begin to integrate partner in situ coastal water level observations and citizen science-based impact imagery in order to better contextualize flood impacts at the local level
- Highly-accurate gravity-based geoid produced based on Gravity for the Redefinition of the American Vertical Datum (GRAV-D) data (FY 2024)
- Enhanced S-102 high-resolution bathymetry and generated S-104 water level forecast guidance for the Precision Marine Navigation processing and dissemination system (FY 2023)
- Maintain existing levels of glider-based subsurface monitoring in every IOOS regional coastal observing system
- Maintain the network of surface current observing platforms producing real time observations and informing forecasts along the U.S. coastline
- Comprehensive data management and cyberinfrastructure system utilized to enable the dissemination of diverse and distributed ocean observing data, products and services by IOOS
- U.S. shipping and fishing industries strengthened through further exploration and characterization of ocean systems and resources throughout the U.S. EEZ, Arctic and sub-Arctic shoreline, and nearshore Alaska

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(Dollar amounts in thousands)

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base Program	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Navigation, Observations and Positioning	Pos/BA	578	159,088	636	162,500	618	172,558
	FTE/OBL	563	164,122	603	162,500	585	172,558
Hydrographic Survey Priorities/Contracts	Pos/BA	24	31,955	24	32,000	24	32,027
	FTE/OBL	16	32,891	24	32,000	24	32,027
IOOS Regional Observations	Pos/BA	0	40,446	0	40,500	0	40,500
	FTE/OBL	0	40,432	0	40,500	0	40,500
Total Activity	Pos/BA	602	231,489	660	235,000	642	245,085
	FTE/OBL	579	237,445	627	235,000	609	245,085

Navigation, Observations and Positioning

The Navigation, Observations and Positioning subactivity directly supports the American Blue Economy's commerce, transportation, and infrastructure, thus enabling the efficient transportation of over $1.5 trillion[3] worth of products moving through U.S. ports each year. Its activities can be grouped in the following ways:

- Observations and Data Management – Foundational data is essential to plan for and adapt to changing environmental conditions, enabling coastal decision-makers to make informed decisions to prepare their communities from the risks of coastal inundation and the consequences of sea level rise. Coastal resilience data is relied upon by nearly every Federal agency, state, local, and tribal

[3] https://oceanservice.noaa.gov/economy/

government, academic, non-profit, or private sector actor working along our Nation's coasts. Ocean, coastal and geodetic observations and data are the foundation of built infrastructure and the Blue Economy, supporting safe and efficient transportation of air, land, and sea commerce

- Products and Services – Products and services within the Navigation, Observations and Positioning portfolio provide equitable access to foundational data. NOAA provides private and public stakeholders with the tools needed to help monitor and plan for changing coastal and inland conditions. These products and services support NOAA's investment in safe and efficient navigation, preparedness and risk reduction
- Integration and Partnerships – NOAA partners with Federal and state agencies, academic institutions, the private sector, and other organizations to meet its mission mandates, improve its products and services, and deliver benefits to stakeholders. Integration of marine data streams across disciplines, institutions, time scales, and geographies allows for the development of advanced, innovative products and services for the public. NOAA partnerships also focus heavily on training, outreach, and an exchange of knowledge and expertise with its partners. NOAA conducts workshops, hosts constituent forums around the country, and directly engages with industry partners that build on base products to make data, tools, and science accessible to all users

Observations and Data Management

Hydrographic Surveys and Data Management: Complete and up-to-date hydrographic data is central to developing accurate nautical charts, and ensuring the safety of life at sea, and promoting efficient maritime commerce. To this end, OCS conducts hydrographic/seafloor surveys to understand the depth of and habitat features on the seafloor onboard NOAA survey vessels and survey contract vessels (https://nauticalcharts.noaa.gov/about/docs/about/ocean-mapping-capabilities.pdf); additional information on the role of survey contracts in NOS' hydrographic survey capabilities can be found in the description of the Hydrographic Survey Priorities/Contracts subactivity (NOS-12). Using its National Ocean Mapping Strategy to guide the application of its expertise and capabilities, OCS uses smart management, strategic partnerships, and investment in force-multiplying technology to survey the Nation's coasts and oceans (https://nauticalcharts.noaa.gov/learn/docs/hydrographic-surveying/ocs-ocean-mapping-strategy.pdf). Survey priorities are determined using a variety of inputs including the Hydrographic Health Model, which models risk, the top 50 ports according to the U.S. Army Corps of Engineers, and requests from stakeholders (https://nauticalcharts.noaa.gov/publications/national-hydrographic-survey-priorities.html). Once the hydrographic data has been acquired, it undergoes a rigorous quality control process before being used for its various applications (see the Products and Services section below).

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Shoreline Mapping: NGS's Coastal Mapping Program maps and defines the Nation's 95,000-mile shoreline and near-shore bathymetry using tide coordinated, geo-referenced data from aerial photographs, high-resolution satellite imagery, and aerial topobathy lidar (https://geodesy.noaa.gov/RSD/cmp.shtml). These data are essential for nautical charts, the determination of U.S. maritime boundaries such as the EEZ, and are also used in applications such as inundation modeling, benthic habitat mapping, marine debris detection, and coastal zone management (https://oceanservice.noaa.gov/geodesy/aerialphotos/). Furthermore, airborne and satellite data used in shoreline mapping is made available in products that support coastal change analysis, inundation mapping, storm surge modeling and airport obstruction charts (https://www.ngs.noaa.gov/RSD/cmp_data.shtml). Post-incident data collection missions at the coast assist first responders in identifying critical coastal impacts and plan response actions to hurricanes, oil spills, and other extreme events (https://storms.ngs.noaa.gov/).

Continuously Operating Reference Station (CORS) Network: NGS also serves as the US authority in the management of public data from over 1,600 continuous-Global Navigation Satellite System (GNSS) receivers located throughout the U.S. and territories. This information is made publicly available for surveyors and engineers. NOAA has partnered with NASA and the National Science Foundation to establish a network of federally-owned CORS (known as Foundation CORS) using the most modern GNSS receivers and antennas, to contribute to a more consistent worldwide spatial reference frame, improving forecasts of global sea level rise and informing climate resilience planning (https://geodesy.noaa.gov/CORS/).

Gravity Program: NGS observes and analyzes the Nation's gravity field to define a geoid height model - a model of global mean sea level that is used to measure precise surface elevations. Within the Gravity Program, Gravity for the Redefinition of the American Vertical Datum (GRAV-D) is a long-term project to collect airborne gravity data and redefine the geoid height model for the Nation, ultimately reducing height errors in the current vertical reference frame. This system helps communities improve resilience by determining where water flows, allowing them to make accurate inundation models and floodplain maps. In 2019, a socio-economic study found that the NGS Gravity Program alone is worth between $4.2 billion and $13.3 billion over ten years. https://geodesy.noaa.gov/GRAV-D/data_products.shtml

National Water Level Observation Network (NWLON): Accurate water level data is critical for many coastal activities, from navigation and engineering to restoration and preservation. CO-OPS manages over 200 long-term, continuously operating water level stations throughout the coastal U.S., the Great Lakes, and island possessions and territories. The NWLON maintains the Nation's water level reference framework to which all water elevations and marine boundaries are based on. It assesses the impact of changing water levels nationwide, making it the "go to" source for users of navigation, recreation, and coastal ecosystem management. The resulting water level and meteorological information are also used by the National Weather Service to meet its mission for coastal hazards and tsunami monitoring. https://tidesandcurrents.noaa.gov/nwlon.html, https://oceanservice.noaa.gov/facts/nwlon.html

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Physical Oceanographic Real Time System (PORTS®): PORTS® is an integrated system of sensors in and around U.S. seaports that provide commercial vessel operators with accurate and reliable real-time information about environmental conditions. It enhances navigational safety by reducing groundings and collisions for both commercial and recreational vessels by measuring and disseminating real time, quality controlled oceanographic and meteorological data. Managed by CO-OPS, PORTS® data is made available to increase shipping efficiency, with mariners relying on PORTS® data to make critical navigation decisions. https://tidesandcurrents.noaa.gov/ports_info.html, https://oceanservice.noaa.gov/facts/ports.html, https://oceanservice.noaa.gov/navigation/ports/

IOOS Observations, Data Management and Cyberinfrastructure: The U.S. IOOS Office oversees the acquisition, integration, and distribution of ocean, coastal, and Great Lakes data sets including those from the 11 federally certified IOOS Regional Associations (RAs) and their partners. The RAs collect data based upon stakeholder needs and requirements. IOOS ensures that the observations from its federally-certified RAs meet the proper technical standards for data quality, user accessibility and interoperability, enabling modelers, researchers, meteorologists, and other stakeholders to develop new and value-added products. Through the integration of marine data streams, IOOS data management enhances the utility of ocean observations from across the distributed regional network and increases both the discovery and accessibility of ocean information to the public.

Uncrewed Systems: OCS and NGS have been investigating the use of uncrewed systems to provide more efficient and effective hydrographic and lidar aerial survey operations for over 17 years, encompassing a wide variety of system types and environments. Current efforts focus on operational implementation of Uncrewed Surface Vessels (USVs) and Uncrewed Aerial Systems (UAS). USVs provide benefits over crewed launches, in particular with high endurance models that can survey independently for multiple days and in higher sea states. https://nauticalcharts.noaa.gov/learn/autonomous-systems.html

Geospatial Data Management: NOAA provides access to a variety of environmental data products, tools, and models, including those from partner organizations. By storing information in databases and delivering it through open-access mapping applications NOAA ensures its stakeholders - as well as the general public - can easily access and process millions of data files every year. These databases include the National Bathymetric Source and Nautical Charting Database within OCS, the NSRS database within NGS (https://geodesy.noaa.gov/NGSDataExplorer/), the robust Application Program Interfaces (API) and GIS data portals containing real-time and historic CO-OPS data (https://tidesandcurrents.noaa.gov/web_services_info.html), and the IOOS.us National Data Portal (https://ioos.noaa.gov/data/access-ioos-data/).

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Products and Services

Navigational Charts and Precision Navigation: Navigational charts and precision navigation data are critical to ensure safe and efficient maritime navigation. Once solely produced on paper, NOS's OCS now maintains a suite of over 1,700 electronic nautical charts (ENC) covering the entire 95,000 miles of the U.S. shoreline, and 3.6 million square nautical miles within the U.S. EEZ. These ENCs enable full electronic navigation, providing real-time ship positioning as well as collision and grounding avoidance (https://nauticalcharts.noaa.gov/charts/noaa-enc.html). OCS aims further to seamlessly integrate high-resolution bathymetry, high accuracy positioning and shoreline data with forecast data—such as water levels, currents, salinity, temperature, waves, and weather forecasts—to provide enhanced precision maritime navigation. Because it involves many types of data sources, NOAA's Precision Navigation efforts are a collaborative effort across OCS, CO-OPS, NGS, IOOS and even NWS. NOS is working closely with industry partners throughout this entire process to ensure that the service NOAA develops is effective at disseminating precision navigation data. https://nauticalcharts.noaa.gov/learn/precision-navigation.html#:~:text=Precision%20marine%20navigation%20is%20the,narrow%20channels%2C%20or%20other%20hazards

Tides and Water Levels: Accurate tide and tidal current predictions, and water level data are critical for safe and efficient marine navigation and for the protection of infrastructure along the coast. CO-OPS maintains and updates the official U.S. tide and tidal current predictions. Both products contain predictions for over 3,000 locations each. The predictions are available online and include the most accurate, up-to-date and location specific information. CO-OPS also measures local water levels along the coast and in the Great Lakes through the NWLON and related partnerships to determine boundaries for privately owned land, state owned land, the territorial sea, the EEZ, and the high seas. This information is critical to habitat restoration, lakes water level regulation, forecasting, and coastal resilience planning. Access to the complete suite of tides and water level products can be found at https://tidesandcurrents.noaa.gov/products.html.

National Spatial Reference System (NSRS): The NSRS plays a critical role in seamlessly aligning our Nation's significant geospatial investments in mapping and resilient infrastructure. As the common reference framework that defines latitude, longitude, height, scale, and gravity for all geospatial data and positioning activities in the Nation, NSRS is undergoing a modernization effort, led by NGS, to improve its accuracy and accessibility in remote regions of the country. The resulting improved accuracy and accessibility will enable stakeholders, including emergency managers, to better plan for rising sea levels with improved floodplain maps, inundation models, and evacuation routes for coastal disaster preparedness. Equitable access to the NSRS's coordinate and height data is provided through the Online Positioning User Service (OPUS) tool, which is commonly used by surveyors and engineers who are planning infrastructure projects. https://oceanservice.noaa.gov/facts/nsrs.html

Coastal Resilience Planning Products: NOS is the Nation's source for coastal inundation data and sea level trends. With access to NOS's data and online tools and analysis, such as NOAA's Coastal Inundation Dashboard, coastal communities to better plan for and mitigate risk from changing ocean conditions in order to protect people, land, and infrastructure from extreme events and sea level changes. https://tidesandcurrents.noaa.gov/inundationdb/, https://oceanservice.noaa.gov/news/high-tide-bulletin/, https://oceanservice.noaa.gov/hazards/natural-hazards/

Navigation Response Teams/Navigation Managers: Coast Survey's mobile navigation response teams (NRT) are strategically located around the country and remain on call to respond to emergencies, speeding the resumption of shipping after storms, and conducting routine nearshore hydrographic surveys for ports, harbors, and fairways. Regional navigation managers work directly with pilots, mariners, port authorities and recreational boaters to address local issues along the U.S. coast and Great Lakes. (https://nauticalcharts.noaa.gov/customer-service/navigation-response.html, https://nauticalcharts.noaa.gov/customer-service/regional-managers/index.html)

Standards and Product Specifications: NOS also develops national and international standards and guidelines for geodetic reference frames, bathymetry, electronic navigational charts, currents and water level data, and ocean and geodetic observations. In addition, NOS conducts research to improve the resilience of the U.S. positioning, navigation, and timing infrastructure.

Integration and Partnerships

Integrated Ocean and Coastal Mapping (IOCM): IOCM leads the planning, acquisition, integration and sharing of ocean and coastal mapping data and related products for easy public access. Map Once, Use Many Times is the motto of IOCM, who strive to make the best use of collective resources maximizing Federal, state, local and academic investments in ocean mapping. The IOCM team leads the development of standards, like the Standard Ocean Mapping Protocol that requires data acquisition to be incorporated into Federal products like electronic navigation charts. (https://iocm.noaa.gov/)

Ocean Mapping Centers of Excellence: OCS has two-world class cooperative agreements with the University of New Hampshire's Center for Coastal and Ocean Mapping/Joint Hydrographic Center, a 22 year partnership and the newly established Center of Ocean Mapping and Innovative Technologies at University of South Florida that began in FY 2021. These two centers have specialized expertise in the development of new technologies for ocean mapping, application of hydrographic data through tools and models, and training the next generation of hydrographers and ocean mappers. (http://ccom.unh.edu/; https://www.marine.usf.edu/comit/)

IOOS Regional Data Integration: NOAA's U.S. IOOS Office serves two functions:

1) Providing technical and funding support for non-federal regional observing systems
2) Improving compatibility between Federal and regional observations. By enhancing the accessibility and interoperability of ocean data, IOOS enables users of ocean data (resource managers, modelers, researchers, meteorologists, and others) to focus their resources on developing products. IOOS observing platforms, data management, data assimilation, and predictive systems include observations by NOS and NOAA assets, and partner networks which are improving operational oceanography for the Nation (https://ioos.noaa.gov/data/access-ioos-data/; https://ioos.noaa.gov/data/)

In addition to the above listed efforts, additional partnerships exist within the previously listed work with private sector companies, other Federal agencies, academic institutions, executive committees, and state and local governments.

Hydrographic Survey Priorities/Contracts

In FY 2021, NOAA's OCS conducted an analysis that found 53 percent of the U.S. EEZ remains unmapped[4]. Two million square nautical miles of ocean and coastal waters is an immense area, and addressing this gap cannot be achieved with NOAA's current inventory of four hydrographic ships (https://iocm.noaa.gov/seabed-2030/mapping-progress-report2020.pdf). In fact, roughly half of the area collected by Coast Survey each year comes from hydrographic survey contractors. The percentage of the unmapped U.S. EEZ that can be surveyed within these contracts is dependent on what priorities are determined through the Hydrographic Health Model, and the various executive committees[5]. In deeper water, more data can be collected because the multi-beam sonar has a wider swath. OCS has set aside a small amount of funds for matching with states and non-federal partners to increase collaboration and mapping coverage.

Much of the momentum behind these efforts is being driven by new and emerging technologies in areas such as uncrewed systems, artificial intelligence, machine learning, geographic information systems and cloud computing. These advances are enabling the ability to more efficiently, effectively and accurately map the seafloor and provide much needed data to inform decisions vital to resource conservation and our national and economic security. Mapping America's waters is vital to human and marine health, coastal resilience, safe navigation and national security. It is key to sustainable use of ocean resources and better understanding how the ocean influences climate.

[4] https://iocm.noaa.gov/seabed-2030/mapping-progress-report2020.pdf

[5] https://nauticalcharts.noaa.gov/publications/national-hydrographic-survey-priorities.html

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IOOS Regional Observations

U.S. IOOS is a national-regional partnership working to provide critical data, models, and new tools and forecasts to capture the climate change signal in our oceans and Great Lakes, improve safety, enhance the economy, and protect our environment. Integrated ocean information is available to users and stakeholders in coastal communities in near real time, as well as retrospectively, in order to support local decision-making and management activities. Easier and better access to this information is improving our ability to understand and predict coastal events - such as storms, wave heights, and sea level change, and to support commerce, safety, environmental stewardship, and coastal resilience.

The 11 NOAA-certified IOOS Regional Associations (RAs) support observing requirements of local communities and complements Federal ocean observations and models. Data coming from all IOOS partners now adheres to common Federal collection, storage and management standards, meaning it can be integrated with other data, and help make "big data" research and development possible. NOAA supports IOOS RAs through cooperative agreements for operations and maintenance, capital projects, and new sensor technology. IOOS RAs deploy observing assets in accordance with nationally coordinated build-out plans, which identify highest-priority gaps and needs. In the last five years priorities for investment included:

- Regional Ocean and Great Lakes Observing System infrastructure, including buoys, uncrewed underwater profiling gliders, coastal high frequency radar, animal telemetry tags, and sensors that provide the foundational data that informs our understanding of the ocean, coastal climate change, marine hazards, and safe and efficient marine navigation

- Operational ocean and Great Lakes models and predictions that inform mitigation strategies for coastal hazards and extreme weather, as well as resource management of protected areas and fisheries
- Advances in those ocean predictions through the Coastal and Ocean Modeling Testbed, an extramural program among the research community and IOOS RAs designed to develop, test, and transition advances in experimental and operational models and forecasts. The Coastal and Ocean Modeling Testbed supports integration, comparison, scientific analyses and archiving of data and model output needed to elucidate, prioritize, and resolve Federal and regional operational coastal ocean issues associated with a range of existing and emerging coastal oceanic, hydrologic, and ecological models
- Coordinating the collection of and access to marine life observations that were gathered by partners to support place-based and other resource management activities via the interagency-supported Marine Biodiversity Observation Network and Animal Telemetry Network
- The Ocean Technology Transition program to support research, development, testing, and evaluation of new sensor technology and observing strategies. This program sponsors the transition of emerging marine observing technologies, for which there is an existing operational requirement and a demonstrated commitment to integration and use by the ocean observing community, to operational mode

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Navigation, Observations, and Positioning	Pos./BA	618	172,558	626	187,102	8	14,544
	FTE/OBL	585	172,558	591	187,102	6	14,544

Providing Foundational Ocean and Coastal Mapping and Charting to Support Coastal Climate Resilience (+$14,544, 6 FTE/ 8 Positions)– NOAA requests additional funds to survey and map priority coastal areas in Alaska and the U.S. EEZ,, and build out the state's foundational geospatial and water level infrastructure, benefiting local communities and Tribal populations. This is one of two complimentary requests, which together will accelerate the joint state/Federal goals of the Alaska Coastal Mapping Strategy (ACMS), National Ocean Mapping, Exploration and Characterization (NOMEC) goals in Alaska, and Administration priorities to rebuild infrastructure, respond to the climate crisis, and create a sustainable economy by putting contractors and grantees to work surveying and mapping our oceans and coasts using a 'Map Once, Use Many Times' approach. NOS programs will work together to address the data gaps in Alaska and provide foundational information from which to build the region's economy and climate resilience now and into the future.

These funds will be used as following:

- $5,894 to conduct airborne lidar and imagery surveys in ACMS priority areas, with focus on Alaska, and deliver updated shoreline data for use in authoritative NOAA nautical charts and coastal climate mitigation strategies
- $2,000 to develop high-resolution bathymetric datasets through the National Bathymetric Source, re-scheme charts in Alaska for improved electronic navigational charts (ENC)[6], particularly in priority areas identified by the Seascape Alaska campaign, and support better coordination on Federal/state regional ocean mapping under NOMEC, and data archive and stewardship
- $6,650 to establish the foundational geodetic and water level infrastructure necessary to develop a comprehensive Alaska VDatum model to seamlessly integrate water and land datasets, make surveying and mapping more efficient, ensure safe

[6] Enhanced ENCs improve navigation safety by providing real-time ship positioning, as well as collision and grounding avoidance.

marine commerce and facilitate robust coastal community resilience planning, including Foundation Continuously Operating Reference Stations (CORS)

Alongside its complimentary request in Hydrographic Survey Priorities/Contracts, this request builds on recent funding to expand ocean and coastal mapping of the EEZ, Alaska and the Arctic, including bolstering the shipping and fishing economy through safer maritime navigation, ensuring more resilient coastal economies, and data-driven coastal infrastructure development, among others.

Schedule and Milestones:
FY 2023 – FY 2027

- Procure an additional Mobile Integrated Survey Team kit for use on the West Coast and to conduct near-shore surveys on a vessel of opportunity in Alaska (FY 2023)
- Continue to refine mapping priorities with stakeholders and share data standards/best practices (FY 2023 – FY 2027)
- Conduct shoreline data collection in Alaska (FY 2023 – FY 2027)
- Perform geospatial and water level observations in support of VDatum transformation tool (FY 2023 - FY 2027)
- Expand the Foundation CORS network in Alaska (FY 2023 – FY 2027)
- Fill critical short- and long-term water level observation gaps in Alaska (FY 2023 – FY 2027)
- Maintain Alaska ocean and coastal mapping coordination support team (FY2023 – FY 2027)
- Enhance coverage and accuracy of Vdatum for Alaska (FY 2024 – FY 2027)
- Award additional task orders to conduct shoreline data collection in Alaska and/or Arctic (ongoing)

Deliverables:

- 1,250 square miles of topographic-bathymetric lidar data and 2,500 linear miles of shoreline data in Alaska updated per year
- 57 ports analyzed for shoreline change using satellite imagery
- 57 ports updated with new shoreline information through lidar and aerial imagery surveys per year
- Mobile Integrated Survey Team operations in Alaska for near shore survey work
- Up to two critical gaps filled in the National Water Level Observation Network (NWLON) in Alaska (one in FY 2025 and one in FY 2027)

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Performance Measures	2023	2024	2025	2026	2027
Percent of VDatum observations (geodetic and tidal) collected towards creating a TSS grid that supports VDatum model build-out in AK					
With Increase	15	30	45	60	75
Without Increase	3	5	7	9	11
Annual Percent of the National Shoreline updated with current/new aerial imagery and elevation data to improve navigational safety					
With Increase	8.5%	8.5%	8.5%	8.5%	8.5%
Without Increase	7.0%	7.0%	7.0%	7.0%	7.0%
Outyear Costs:					
Direct Obligations	14,544	14,544	14,544	14,544	14,544
Capitalized	589	589	589	589	589
Uncapitalized	13,955	13,955	13,955	13,955	13,955
Budget Authority	14,544	14,544	14,544	14,544	14,544
Outlays	9,017	9,017	9,017	9,017	9,017
FTE	6	8	8	8	8
Positions	8	8	8	8	8

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Navigation, Observations and Positioning
Subactivity: Navigation, Observations and Positioning
Program Change: Providing Foundational Ocean and Coastal Mapping and Charting to Support Coastal Climate Resilience

Title		Grade	Number	Annual Salary	Total Salaries
Physical Scientist		ZP-3/4	2	133,510	267,020
Geodesist		ZP-03	2	112,970	225,940
Cartographer		ZP-03	2	112,970	225,940
Information Technology Management		ZP-3/4	1	133,510	133,510
Physical Scientist		ZP-04	1	154,050	154,050
Total			8		1,006,460
Less lapse	25.00%		(2)		(251,615)
Total full-time permanent (FTE)			6		754,845
2023 Pay Adjustment (4.6%)					34,723
					789,568

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	6
Total FTE	6
Authorized Positions:	
Full-time permanent	8
Total Positions	8

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Navigation, Observations and Positioning
Subactivity: Navigation, Observations and Positioning

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	42,995	40,526	45,205	45,966	761
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	1,629	1,613	1,712	1,741	29
11.7	Military personnel compensation	0	2,044	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	44,624	44,183	46,917	47,707	790
12	Civilian personnel benefits	16,957	16,790	17,829	18,129	300
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	1,769	1,752	1,860	2,331	471
22	Transportation of things	380	376	399	517	118
23	Rent, communications, and utilitites	9,377	9,284	9,859	9,859	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	19	18	20	22	2
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	65,711	65,062	69,089	81,069	11,980
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	2,993	2,963	3,146	3,440	294
31	Equipment	787	779	827	1,416	589
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	21,505	21,293	22,612	22,612	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	164,122	162,500	172,558	187,102	14,544

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Navigation, Observations and Positioning	Pos./BA	618	172,558	618	173,558	0	1,000
	FTE/OBL	585	172,558	585	173,558	0	1,000

Enterprise Infrastructure Solutions (EIS) (+$1,000, 0 FTE/0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

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Schedule and Milestones:
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- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NOAA's current and planned needs
- Transition 100 percent NOAA Legacy GSA inventory to EIS

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2022	2023	2024	2025	2026
Transition of NOAA Telecommunication services to GSA's EIS*					
With Increase	35%	60%	80%	100%	0%
Without Increase	20%	45%	55%	65%	75%
*Assumes full funding of EIS initiatives NOAA-wide					
Outyear Costs:					
Direct Obligations	1000	1000	1000	1000	1000
Capitalized	0	0	0	0	0
Uncapitalized	1,000	1,000	1,000	1,000	1,000
Budget Authority	1000	1000	1000	1000	1000
Outlays	620	620	620	620	620
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Exhibit 15

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Navigation, Observations and Positioning
Subactivity: Navigation, Observations and Positioning

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	42,995	40,526	45,205	45,205	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	1,629	1,613	1,712	1,712	0
11.7	Military personnel compensation	0	2,044	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	44,624	44,183	46,917	46,917	0
12	Civilian personnel benefits	16,957	16,790	17,829	17,829	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	1,769	1,752	1,860	1,860	0
22	Transportation of things	380	376	399	399	0
23	Rent, communications, and utilitites	9,377	9,284	9,859	9,859	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	780	780
24	Printing and reproduction	19	18	20	20	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	65,711	65,062	69,089	69,309	220
25.3	Other goods and services from Federal	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	2,993	2,963	3,146	3,146	0
31	Equipment	787	779	827	827	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	21,505	21,293	22,612	22,612	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	164,122	162,500	172,558	173,558	1,000

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Hydrographic Survey Priorities/Contracts	Pos./BA	24	32,027	25	44,527	1	12,500
	FTE/OBL	24	32,027	25	44,527	1	12,500

Providing Foundational Ocean and Coastal Mapping and Charting to Support Coastal Climate Resilience (+$12,500, 1 FTE/ 1 Positions) – NOAA requests additional funds to survey and map priority coastal areas within the US EEZ. This is one of two complimentary requests, which together will accelerate the joint state/Federal goals of the Alaska Coastal Mapping Strategy, National Ocean Mapping, Exploration and Characterization (NOMEC) goals in Alaska, and Administration priorities to rebuild infrastructure, respond to the climate crisis, and create a sustainable economy by putting contractors and grantees to work surveying and mapping our oceans and coasts using a 'Map Once, Use Many Times' approach. NOS programs will work together to address the data gaps in Alaska and the rest of the Nation providing foundational information from which to build the region's economy and climate resilience now and into the future.

These funds will be used to:

- Acquire and deliver updated bathymetric data, particularly in priority areas identified by the Hydrographic Health Model and the Seascape Alaska campaign, a Federal/state effort to better coordinate on regional ocean mapping under NOMEC
- Explore the use of uncrewed systems particularly in remote locations and shallow water

Alongside its complimentary request in Navigation, Observation, and Positioning, this initiative builds upon recent funding to expand ocean and coastal mapping of the EEZ, Alaska and the Arctic, including bolstering the shipping and fishing economy through safer maritime navigation, ensuring more resilient coastal economies, and data-driven coastal infrastructure development, among others.

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Schedule and Milestones:
FY 2023 – FY 2027

- Continue to refine mapping priorities with stakeholders and share data standards and best practices (FY 2023 – FY 2027)
- Identify mapping priorities and data standards (FY 2023 – FY 2027)
- Award at least 25 percent hydrographic contracts for hydrographic data collection in Alaska and/or Arctic (FY 2023 – FY 2027)
- Leverage leading-edge technology for force-multiply data acquisition (e.g., Uncrewed Surface Vehicle) (FY 2023 – FY 2027)

Deliverables:

- A minimum of an additional 460 square nautical miles of hydrographic survey data collected in Alaska per year
- Increased use of uncrewed systems technologies to collect bathymetric and characterization data

Performance Measures	2023	2024	2025	2026	2027
Hydrographic data acquired annually to support safe and efficient maritime commerce and for community resilience to storms and coastal hazards (Square Nautical Miles)					
With Increase	2,889	2,889	2,889	2,889	2,889
Without Increase	2,429	2,429	2,429	2,429	2,429
Outyear Costs:					
Direct Obligations	12,500	12,500	12,500	12,500	12,500
Capitalized	0	0	0	0	0
Uncapitalized	12,500	12,500	12,500	12,500	12,500
Budget Authority	12,500	12,500	12,500	12,500	12,500
Outlays	7,750	7,750	7,750	7,750	7,750
FTE	1	1	1	1	1
Positions	1	1	1	1	1

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Navigation, Observations and Positioning
Subactivity: Hydrographic Survey Priorities/Contracts
Program Change: Providing Foundational Ocean and Coastal Mapping and Charting to Support Coastal Climate Resilience

Title		Grade	Number	Annual Salary	Total Salaries
Physical Scientist		ZP-2/3	1	92,430	92,430
Total			1		92,430
Less lapse	25.00%		(0)		0
Total full-time permanent (FTE)			1		92,430
2023 Pay Adjustment (4.6%)					4,252
					96,682
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			1		
Total FTE			1		
Authorized Positions:					
Full-time permanent			1		
Total Positions			1		

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Navigation, Observation, and Positioning
Subactivity: Hydrographic Survey Priorities/Contracts

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	1,782	1,734	1,735	1,832	97
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	1,782	1,734	1,735	1,832	97
12	Civilian personnel benefits	677	659	659	696	37
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	30,522	29,607	29,633	41,999	12,366
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	32,981	32,000	32,027	44,527	12,500

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Coastal Science and Assessment

Goal Statement

Conduct applied research and deliver scientific information for disaster response and management, protection, and restoration of ocean and coastal resources and communities. Provide coastal managers information and planning tools to guide communities in managing ocean space, anticipating and responding to climate change, and protecting fisheries and drinking water from harmful algal blooms (HABs) and other contaminants.

Base Program

The work conducted within the Coastal Science and Assessment activity helps with understanding, forecasting, and mitigating the impacts of oil and chemical spills, marine debris, HABs, and climate change on coastal resources; It supports the blue economy by developing tools for siting of wind energy and aquaculture development, green infrastructure, and habitat restoration. Through this activity, NOS provides the Environmental Response Management Application (ERMA®), an online tool that integrates real-time data with mapping to coordinate emergency response to coastal disasters. NOS ecological forecasts enable communities and businesses to plan for and mitigate the impacts of HABs, hypoxia, pathogens, and other ecological threats. Ecological forecasts and vulnerability assessments provide an avenue to mitigate the impacts of climate change, build climate resilience, and provide science tools that inform environmental justice.

The following offices are responsible for carrying out the Coastal Science and Assessment activity:

- **National Centers for Coastal Ocean Science (NCCOS)** – builds the science foundation and vulnerability assessments in support of community and ecosystem resilience to climate change, research, prevention, and forecasting for HAB, hypoxia and pathogens; habitat and species forecasting; and marine aquaculture and offshore wind energy siting science and tool development. Available at: https://coastalscience.noaa.gov/
- **Office of Response and Restoration (OR&R)** – prepares for, evaluates, and responds to threats to coastal environments including oil and chemical spills, releases from hazardous waste sites, marine debris, and natural disasters. When coastal and marine natural resources suffer damages, OR&R assesses the damage and ensures that response, recovery, and restoration actions mitigate harm to those resources and surrounding economies. Available at: https://response.restoration.noaa.gov/

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Statement of Operating Objectives

Schedule and Milestones:

- Provide HAB, pathogen, and hypoxia forecasts that protect communities (drinking water) and support the blue economy (recreation and seafood) in the Gulf of Maine, Chesapeake Bay, Gulf of Mexico, Lake Erie, and the Pacific Northwest (ongoing)
- Increase capacity for long-term coastal planning by improving tools and products for modeling impacts of sea-level rise and assessing vulnerabilities of marshes and beaches to sea level rise and coastal storms (ongoing)
- Protect communities from sea level rise and storm surge by using dredged sediment from nearby navigation channels to create wetlands (ongoing)
- Validate and transition HAB detection and monitoring products to provide identification and toxicity measurements for regional observing networks, states, municipalities and tribal nations (ongoing)
- Provide enhanced data products and tools to inform planning and siting of offshore wind energy (FY 2023 – FY 2025)
- Resolve liability for five natural resource damage assessment cases annually (ongoing)
- Release updates to three publicly available emergency response tools annually (ongoing)
- Train 2,000 emergency responders annually (ongoing)
- Remove 600 metric tons of marine debris annually (ongoing)

Deliverables:

- Partner with Acquisition and Grants Office to ensure timely modification of contracts (FY 2023)
- Continue implementing the laboratory facilities disposition and attrition/workforce restructuring plan (FY 2023)
- Aquaculture operators trained in early detection of algae that are harmful to shellfish, and guidelines for aquaculture monitoring that are consistent nationally, regionally appropriate and environmentally responsible (FY 2023)
- Technical guidance on monitoring coral restoration projects and methods to evaluate restoration success from local to ecosystem scales
- Improved estimates of the social and economic effects and costs of response to HABs in the U.S. (FY 2023 and ongoing)
- Operational forecasts for HABs in Lake Erie and the Gulf of Mexico, and for pathogens forecasts in the Chesapeake Bay, and Pacific Northwest (ongoing)
- Best practices using uncrewed aerial systems to detect change and monitor climate impacts to coastal wetlands (FY 2023)

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

- Increased use of science-based predictions of marsh vulnerability, stakeholder input, and dredge sediment availability to identify options for beneficial use of dredged material to protect shorelines and create habitat (FY 2023 and ongoing)
- Up to two research projects funded annually that address marine debris research priorities (ongoing)

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base Program	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Coastal Science, Assessment, Response and Restoration	Pos/BA	256	84,741	278	86,500	274	91,938
	FTE/OBL	240	89,147	263	86,500	259	91,938
Competitive Research	Pos/BA	3	20,979	3	21,000	3	21,017
	FTE/OBL	0	21,029	3	21,000	3	21,017
Total Activity	Pos/BA	259	105,720	281	107,500	277	112,955
	FTE/OBL	240	110,176	266	107,500	262	112,955

Coastal Science and Monitoring

NOAA's applied research, ecological assessment, and tool development builds the scientific foundation to plan for and manage environmental risks to coastal communities and economies. These activities inform coastal management through research on wind energy and aquaculture siting, natural-infrastructure, habitat mapping and biogeographic assessments; and ecological forecasts and vulnerability assessments. Ecological forecasts for hazards such as HABs and pathogens help communities safeguard drinking water and commercial and recreational fisheries, and forecasting climate impacts help us plan for resilient infrastructure and protected areas. Research on contaminants (including oil, hazardous chemicals, and microplastics) improves disaster response and

restoration. Vulnerability assessments and shoreline stabilization tools help communities prepare for inundation and storms. Increased use of artificial intelligence, machine learning, and remote sensing field observations is expanding our capacity to map, model, and predict impacts of climate change on coastal communities and natural resources.

NOAA intramural research programs have long-standing expertise in key areas that assist critical partners in the emergency and resource management communities. For example, when natural resource damage occurs, NOAA's long-term monitoring datasets establish a baseline of ecosystem conditions that existed before the event for assessing the extent of damages. The research in these areas also enables NOAA to develop resource protection strategies for National Marine Sanctuaries and other NOAA-managed areas.

The NOAA Coastal Science and Monitoring Program has four focus areas:

- **Marine Ecology:** NOAA provides information that communities, state and Federal stewards, and industries (such as aquaculture, energy and tourism) use to make decisions balancing the trade-offs between resource use and conservation
- **Stressor Impacts and Mitigation:** NOAA's research in ecological forecasting, stressor detection, and understanding of stressor impacts on coastal resources help communities protect their water supplies, local fishing and shellfishing industries, public health, and coastal and lakefront tourism
- **Coastal Change:** NOAA research efforts seek to assess, understand, and model the impacts of sea level rise and inundation, ocean acidification, and changing temperatures and precipitation. This knowledge will help coastal communities plan for and adapt to persistent threats from coastal storms, flooding, and rising seas
- **Social Science:** All coastal and marine management decisions affect multiple communities. NOAA's coastal science and monitoring social science portfolio studies connections between people and the environment

The Competitive Research Program funds regional-scale and targeted research and assessment activities through a competitive external grant process in support of NOAA's coastal mission areas. This program maintains the only national grant programs dedicated to research topics under the HAB and Hypoxia Research and Control Act (HABHRCA). Grantee developed detection tools and forecast models for HABs have helped to protect public health and prevent adverse economic impacts from contaminated, unsafe drinking water supplies, and beachgoers' exposure to algal toxins. The grants also address a variety of coastal resiliency issues, including coastal flooding, inundation, sea-level rise, ocean acidification, and the first national map showing how climate change will impact marsh location and health. While most research programs focus on understanding the impact of single stressors on species and ecosystems, CRP is also supporting research that increases our understanding of the combined impacts of multiple

stressors on the function and health of marine ecosystems due to climate change. This information will be used to improve place-based management of marine protected areas and enable the proactive protection of these critical ecosystems under future climate scenarios.

Coordination among NOAA, grantee researchers, and user communities ensures that research findings and new technologies developed through this program are applied to resource management decisions. For example, grantee research protects traditional and subsistence use of natural resources and the health of Tribes and Alaska Native communities by communicating HAB risks and expanding the capacity for Tribes to detect HAB toxins in shellfish. The Gulf of Mexico states use grantee research to assess coastal vulnerability to sea level rise and coastal storms, target land acquisition and habitat restoration projects, and to plan for building adaptation and infrastructure protection.

Increased support for research on vulnerability to and impacts of coastal inundation, flooding, and sea level rise provides information and predictive capabilities to inform community and infrastructure adaptation planning, particularly through expanded use of nature-based solutions and in underserved communities. Expanded partnerships with the Department of Transportation and Army Corps of Engineers are helping more communities evaluate their vulnerabilities and assess the effectiveness of mitigation solutions, resulting in clear guidance on incorporating natural habitat considerations into advanced flood protection strategies, locally tailored information and tools to update city planning, natural resource management, and infrastructure modernization.

The funding currently supports a diverse portfolio of six programs with more than 70 awards to over 120 institutions and over 270 principal investigators in 30 states and territories. Topics include:

- Predicting HAB and developing tools to prevent, detect, control, and mitigate HABs and their impacts
- Developing and evaluating the effectiveness of nature-based approaches to mitigate the effects of sea-level rise and inundation on roads and other surface transportation infrastructure
- Determining the causes and biological impacts of hypoxia (low oxygen) in coastal waters
- Managing coastal ecosystems to mitigate impacts from inundation and coastal storms, assessing the economic value of protecting the communities and infrastructure fusing natural habitats and nature-based approaches
- Understanding species' habitat usage and connectivity to increase the resilience of managed areas to climate and other impacts

- Developing partnerships across NOAA to assess the combined effects of ocean acidification, HABs, and hypoxia on economically and ecologically significant species and habitats

NCCOS extramural research grants are responsible for much of the regional-scale, integrated science that informs Marine Protected Area (MPA) management, coastal flooding and sea-level rise vulnerability and adaptation, and serves as the foundation for innovative HAB control and mitigation techniques.

Emergency Response, Assessment and Restoration of NOAA Trust Resources

Federal, state, and local agencies across the country depend on NOAA's scientific advice and training of responders to minimize harm to natural resources from anthropogenic and natural hazards. These hazards can include oil and chemical spills, vessel groundings, hazardous waste releases, hurricanes, and national security events. NOAA also addresses persistent coastal hazards such as marine debris. NOAA's emergency services include spill trajectory modeling, shoreline cleanup assessment, impacts identification, incident coordination, and information management. NOAA also partners with the Environmental Protection Agency to support first responders with critical on the ground decision support tools across the country and the world. In December 2020, the Great Lakes Environmental Sensitivity Index (ESI) Act of 2020 was signed into law. NOAA has established Federal and state partnerships and contracts to begin updating ESI products for two regions in the Great Lakes within the 180 day requirement.

Disaster Preparedness
In 2017, NOS consolidated its interagency and intergovernmental responder training, preparedness and incident coordination under the Disaster Preparedness Program (DPP). The DPP includes, and will continue to build on, the vision and activities at the Gulf of Mexico Disaster Response Center (DRC), to improve national preparedness for and response to all hazard types. During hurricane seasons, the DPP and the DRC coordinate across all NOS program offices to gather information on NOS mission support, logistical needs, and impacts to NOS personnel and infrastructure. The DPP is also charged with ensuring preparedness across NOS through simulated emergency response drills, training and evaluation for continuous improvement as well as ensuring effective continuity of operations in NOS. As such, the DPP is the central coordination body for NOS mission readiness and situational awareness during all emergencies, including the COVID-19 response. Additional information on the DPP can be found at: https://response.restoration.noaa.gov/disaster-preparedness

After the initial response to an acute or chronic pollution event or grounding, NOAA and other natural resource trustees are responsible for determining the extent of damages to natural resources and for seeking restoration on behalf of the public for the loss

of ecosystem services. NOS' OR&R works with the NOAA Office of General Counsel, Natural Resources Section and the NMFS Office of Habitat Conservation to carry out the NOAA Damage Assessment, Remediation and Restoration Program (DARRP). NOS's role in the DARRP is to assess environmental injury and reduced access to public natural resources from pollution events and ship groundings. NOS also ensures that cleanup actions protect resources from further damage and promote faster recovery. OR&R's work to compensate the public for lost opportunities is a critical piece of ensuring a healthy blue economy; the restoration of previously damaged habitats contributes to resilient coastal communities. Additional information on the DARRP can be found at: https://darrp.noaa.gov/

Through the DARRP, NOAA and co-trustees have secured $10.5 billion for restoration from responsible parties at 320 oil spills, Superfund sites and ship groundings, since 1998. Between October 1, 2021 and February 25, 2022 alone, settlements by NOAA and co-trustees collected $23.6 million for restoration in Louisiana, Pennsylvania, Hawaii, and Texas. These funds are reserved for ecosystem restoration and restoration of recreational use of the damaged resources. Funds are not associated with third party or private claims for property damage and lost business. In addition to securing resources for restoration, NOAA has also ensured that protection and restoration have been integrated into 500+ waste site cleanups to reduce further injuries and promote recovery. These restoration projects put back what was lost, and provide economic benefits in the form of tourism, recreation (fishing, etc.), green jobs, coastal resiliency, property values and quality of life, including in indigenous and disadvantaged communities. There are currently 112 active cases in the DARRP docket; as of February 2022, 42 cases were in active injury assessment and restoration planning, while 72 are in restoration implementation or monitoring. Each case represents an oil spill, chemical spill, hazardous waste site, or ship grounding that may have damaged natural resources or reduced recreational opportunities.

Marine Debris

NOS, through the Marine Debris Program, is the Federal lead for addressing marine debris affecting the ocean and coastal environment and navigation safety in the U.S. Marine debris is an added stressor to the natural environment that impairs ecosystem services and thereby coastal and ocean resilience. The program's scope includes marine debris prevention, removal, research, response, coordination, and monitoring and detection. The program provides funding to partners across the country to prevent, remove, and research marine debris, and awards competitive grants annually. The Marine Debris Program works collaboratively with partners to prepare and respond to marine debris generated by natural disasters, such as hurricanes, floods, and tsunamis. NOAA chairs the Interagency Marine Debris Coordinating Committee (IMDCC), which helps inform and coordinate action across the U.S. Government to more effectively address this issue. NOAA demonstrates international leadership in several key global efforts (e.g., Global Partnership on Marine Litter, Global Ghost Gear Initiative) that coordinate action across governments, private industry, civil

society and other stakeholders to holistically address marine debris. Additional information on the Marine Debris Program can be found at: https://marinedebris.noaa.gov/

In December 2020, the Save our Seas 2.0 Act was signed into law. The Marine Debris Program has actively been working to implement the requirements of this Act. Since 2020, the Program awarded a contract to undertake a required study to evaluate the impacts of derelict fishing gear, and completed a contract with the National Academies of Science on the U.S. contributions to the global plastic waste problem. The Program is coordinating with the IMDCC to develop two required reports and is supporting the establishment of the new Marine Debris Foundation. Additional information on the Marine Debris Foundation can be found at: https://marinedebris.noaa.gov/who-we-are/marine-debris-foundation

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Coastal Science, Assessment, Response and Restoration	Pos./BA	274	91,938	278	100,657	4	8,719
	FTE/OBL	259	91,938	262	100,657	3	8,719

Foundational Information for Expansion of Offshore Wind Energy (+$8,719, 3 FTE/4 Positions) – NOAA requests an increase in funding to develop the social and ecological science to plan and site offshore wind energy development in support of the Administration's effort to deploy 30 gigawatts of offshore wind energy by 2030.

This investment will facilitate smart economic and ecological offshore wind development through expanded data collection for NOAA trust resources including seafloor mapping and biological assessments; in situ observations; predictive models for marine species distribution; and studies of human perceptions and attitudes towards offshore wind within and near potential wind energy areas. In conjunction with the ongoing national mapping strategy, NOAA will work with agency partners and stakeholders to identify priority mapping and data needs; accelerate and expand the development of public facing tools to address those needs (e.g., Marine Cadastre (https://marinecadastre.gov/), OceanReports (https://marinecadastre.gov/oceanreports/), and regional data portals); and inform the planning and siting of wind energy especially in and around special places managed by NOAA. These tools will be developed in consultation with and provided to the Bureau of Ocean Energy Management and others to improve regulatory coordination and stakeholder engagement.

The funding requested for this initiative includes support for enhanced observations, research, modeling, and analyses to understand and mitigate impacts of offshore wind energy development on stakeholders and critical ecosystems. It includes data integration, synthesis, processing, and accelerated development of data products and tools to inform planning and siting of offshore wind energy and increase transparency. It also includes support for robust stakeholder engagement to identify and address potential use conflicts, and to increase NOAA's capacity for permitting and environmental review.

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This effort complements the NMFS Wind Energy: Protected Species Environmental Reviews and Science (NMFS-19), Wind Energy: Fisheries Science & Technical Reviews (NMFS-56), Wind Energy: Scientific Survey Mitigation (NMFS-76), and Wind Energy: Fisheries Management (NMFS-91) requests.

Schedule and Milestones:
FY 2023 – FY 2027

- Engage with NOAA, BOEM and other Federal/state partners to define and advance activities and products (FY 2023 – FY 2024)
- Deliver regional Offshore Wind Opportunity Atlases that provide comprehensive regional marine spatial modeling and characterization of natural and cultural resources, industries, oceanography and climate, and national security assets for a region (e.g., Gulf of Mexico, Southern and Central CA, Northern CA/OR/WA, Pacific Islands) (FY 2023 – FY 2027)
- Develop, host, and disseminate regional high-resolution spatial data products for increased understanding, ecological modeling and conservation of NOAA-managed places and NOAA trust resources, including sensitive habitats and protected species; and other foundational data including ocean infrastructure and ocean uses. In cooperation with NMFS, address spatial and temporal patterns of commercial and recreational fishing industries to support regional marine spatial modeling (FY 2023 – FY 2027)
- Identify patterns and intensity of human activity to address potential use conflicts, and to identify impacts on sensitive natural resources. Expand ecosystem service valuations, and develop standards to quantify citizen perceptions and attitudes towards offshore wind (FY 2023 – FY 2027)
- Organize stakeholder engagement meetings to develop data and information to minimize resource use conflicts in Federal and State waters. Enhance and expand digital public facing tools and to ensure transparency of assessments and enable dissemination of products and associated data. Work with state and regional partners to develop data and expand tools for use in state waters through enhancements of Marine Cadastre and OceanReports (FY 2023 - FY 2027)

Deliverables:

- Regionally synthesized fishing effort data, oceanographic and climatological trends, marine life, and ocean use data
- Developed process for ingesting in situ private sector data in and around wind energy areas through IOOS, Integrated Ocean and Coastal Mapping, and other coordination networks depending upon data types and user needs
- Up to four Regional Wind Atlases delivered that show habitats, species, and human uses relevant to planning and siting offshore wind energy projects

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- New and higher resolution oceanographic data, ocean use data, ocean infrastructure data incorporated into the Marine Cadastre data registry and OceanReports tool
- Expanded functionality and enhanced systems architecture for OceanReports that will enable custom shape upload, user briefcase, automated updates from Marine Cadastre, and new infographics
- Improved current observations, forecast models, and approaches through IOOS to reduce interference on high-frequency radar from wind turbines
- New and sustained agency and industry partnerships to leverage, ingest, and process private sector data
- Management plans for National Marine Sanctuaries, National Estuarine Research Reserves, and other NOAA-protected areas that consider the environmental and social impacts of potential wind energy development
- Improved relationships between BOEM task forces in the Gulf of Mexico, Gulf of Maine, and California and existing regional groups (e.g., Regional Ocean Partnerships, Fishery Management Councils, tribes, Sea Grant Consortia), improving resolution of contentious issues, and raising the level of understanding on emerging issues

Performance Measures	2023	2024	2025	2026	2027
Number of new authoritative data products made available to the public through the Marine Cadastre & OceanReports to inform ocean use planning and siting activities, including for wind energy. (cumulative)					
With Increase	3	6	9	12	15
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	8,719	8,719	8,719	8,719	8,719
Capitalized	0	0	0	0	0
Uncapitalized	8,719	8,719	8,719	8,719	8,719

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Budget Authority	8,719	8,719	8,719	8,719	8,719
Outlays	5,406	5,406	5,406	5,406	5,406
FTE	3	4	4	4	4
Positions	4	4	4	4	4

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Coastal Science and Assessment
Subactivity: Coastal Science, Assessment, Response and Restoration
Program Change: Foundational Information for Expansion of Offshore Wind Energy

Title		Grade	Number	Annual Salary	Total Salaries
Physical Scientist		ZP-3/4	1	133,510	133,510
Program Analyst		ZA-3/4	1	123,240	123,240
Geographer		ZP-3/4	1	133,510	133,510
Marine Biologist		ZP-04	1	133,510	133,510
Total			4		523,770
Less lapse	25.00%		(1)		(130,943)
Total full-time permanent (FTE)			3		392,828
2023 Pay Adjustment (4.6%)					18,070
					410,898

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	3
Total FTE	3
Authorized Positions:	
Full-time permanent	4
Total Positions	4

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Coastal Science and Assessment
Subactivity: Coastal Science, Assessment, Response and Restoration

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	30,201	28,985	31,146	31,557	411
11.3	Other than full-time permanent	392	381	404	404	0
11.5	Other personnel compensation	811	786	836	836	0
11.7	Military personnel compensation	0	319	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	31,404	30,471	32,386	32,797	411
12	Civilian personnel benefits	11,933	11,579	12,307	12,463	156
13	Benefits for former personnel	95	93	98	98	0
21	Travel and transportation of persons	611	593	630	632	2
22	Transportation of things	156	151	161	161	0
23	Rent, communications, and utilitites	2,969	2,881	3,062	3,062	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	500	500
24	Printing and reproduction	107	103	110	110	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	33,962	32,953	35,025	41,971	6,946
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	1,461	1,418	1,507	1,512	5
31	Equipment	686	666	708	907	199
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	5,764	5,592	5,944	6,444	500
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	89,148	86,500	91,938	100,657	8,719

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Coastal Science, Assessment, Response and Restoration	Pos./BA	274	91,938	274	92,838	0	900
	FTE/OBL	259	91,938	259	92,838	0	900

Enterprise Infrastructure Solutions (EIS) (+$900, 0 FTE/0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

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Schedule and Milestones:
FY 2023 – FY 2027

- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NOAA's current and planned needs
- Transition 100 percent NOAA Legacy GSA inventory to EIS

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Transition of NOAA Telecommunication services to GSA's EIS*					
With Increase	35%	60%	80%	100%	0%
Without Increase	20%	45%	55%	65%	75%
*Assumes full funding of EIS initiatives NOAA-wide					
Outyear Costs:					
Direct Obligations	900	900	900	900	900
Capitalized	0	0	0	0	0
Uncapitalized	900	900	900	900	900
Budget Authority	900	900	900	900	900
Outlays	558	558	558	558	558
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Coastal Science and Assessment
Subactivity: Coastal Science, Assessment, Response and Restoration

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	30,201	28,985	31,146	31,146	0
11.3	Other than full-time permanent	392	381	404	404	0
11.5	Other personnel compensation	811	786	835	835	0
11.7	Military personnel compensation	0	319	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	31,404	30,471	32,385	32,385	0
12	Civilian personnel benefits	11,933	11,579	12,307	12,307	0
13	Benefits for former personnel	95	93	98	98	0
21	Travel and transportation of persons	611	593	630	630	0
22	Transportation of things	156	151	161	161	0
23	Rent, communications, and utilitites	2,969	2,881	3,062	3,062	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	750	750
24	Printing and reproduction	107	103	110	110	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	33,962	32,953	35,025	35,175	150
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	1,461	1,418	1,507	1,507	0
31	Equipment	686	666	708	708	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	5,764	5,592	5,944	5,944	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	1	1	0
44	Refunds	0	0	0	0	0
99	Total obligations	89,148	86,500	91,938	92,838	900

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Competitive Research	Pos./BA	3	21,017	9	35,517	6	14,500
	FTE/OBL	3	21,017	7	35,517	4	14,500

Nature-based Solutions to Enhance the Resilience of Coastal Communities and Ecosystems (+$14,500, 4 FTE/6 Positions) – NOAA requests additional funds to provide critical information and predictive capabilities to inform community adaptation planning to coastal inundation under sea level rise. Efforts will also enable the expanded use of nature-based solutions through a stressor-based approach. The Competitive Research Program will direct funds in the following ways.

- Expand competitive research through its extramural grant program Effects of Sea Level Rise (ESLR) which delivers tools to help communities mitigate, plan, and adapt to sea level rise, flooding, and inundation threats
- Support additional communities through the expansion of an ongoing partnership with the Department of Transportation focused on coastal infrastructure; provide an increased number of communities science capacity to evaluate vulnerability and assess the effectiveness of mitigation solutions to inform adaptation planning; evaluate the social and economic value of nature-based solutions to shoreline protection to support climate planning; and inform infrastructure adaptation in underserved communities that are often overlooked in large regional research projects (e.g. arctic Alaska and Puerto Rico)
- Initiate new projects explicitly focused on conducting work with under-served communities, with an emphasis on enhanced environmental justice and increased local science capacity and training. This effort will increase the ability of underserved communities to apply for and gain access to grant funding opportunities. In doing so, NOAA will enhance existing, and develop additional interagency partnerships to provide holistic science and tools to mitigate risk of inundation to ecosystems, infrastructure, and communities
- Increase Competitive Research Program capacity to ensure grant management needs are met and provide appropriate technical oversight needed to facilitate grant recipient work

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Schedule and Milestones:
FY 2023 – FY 2027

- Execute a Federal Funding Opportunity for up to four projects that enable the expanded use of nature-based solutions to mitigate coastal inundation under sea level rise and deliver guidance to support adaptation planning to underserved communities (FY 2023)
- Support at least 14 highly ranked existing coastal resilience grant applications and provide other programmatic assistance to at least 10 states to inform community adaptation planning to coastal inundation including highly underserved communities in Kotzebue (AK) and Puerto Rico (FY 2023 – FY 2027)
- Support at least seven highly ranked surface transportation resilience grant applications and provide other programmatic assistance to projects impacting at least five states to inform surface infrastructure adaptation planning; enhance a current partnership with the Department of Transportation, building upon ongoing efforts to fund research to facilitate adaptation of coastal infrastructure, including in highly underserved communities in arctic Alaska (FY 2023 – FY 2027)
- Execute annual funding opportunities and partnerships to initiate a minimum of five new projects each year to inform the community and regional adaptation and mitigation scenarios using nature-based solutions in at least 30 states and territories, including Great Lakes States (FY 2024 – FY 2027)
- Develop engagement tools including story maps and data visualization[7] for ESLR awards to ensure effective engagement with decision makers in communities (FY 2023 - FY 2027)
- Partner with the Department of Transportations, Federal Highway Administration Sustainable Pavements Team, to apply project findings into 2025 Asset Deterioration Plans (FY 2024 – FY 2026)
- Initiate the first ever effort to deliver national predictions of future marsh proximity and health that consider the biological and physical conditions that drive marsh health and its ability to keep up with rising seas (FY 2023 – FY 2027)
- Work with end users in all states and regions to evaluate new tools with stakeholders and help transfer existing tools across geographies that improve regional stakeholders' ability to use and apply data to inform management decisions (FY 2024 – FY 2027)

Deliverables:

- Research grants supporting at least 30 coastal states or territories, delivering clear guidance on managing natural resources, community adaptation planning, and incorporating more natural habitat considerations into flood protection strategies

[7] Data visualization can be found at (http://www.gomsurge.com/)

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- Local tailored information and tools to update city planning, infrastructure plans, and/or natural resource management planning for at least four underserved coastal communities at risk from inundation impacts now or under sea level rise
- Interactive tools and applications to predict and mitigate sea level rise and inundation that are developed with and used by end-users in the region of the project, guiding decision making
- Robust scientific guidance provided to state Department of Transportation programs on vulnerability to and mitigation of coastal flooding to surface transportation, and the cost effectiveness of those mitigation strategies[8]
- Improved management of coastal marshes through the development of a national approach for predicting marsh health and proximity around the Nation under sea level rise scenarios using an ensemble of models that consider a broad range of approaches, from highly dynamic to elevation based models (via collaborations between NOAA and grant recipients)
- Increased capacity for evaluating nature based solutions in the Delaware Estuary region using advanced model predictions

Performance Measures	2023	2024	2025	2026	2027
Number of projects across all focus areas for the ESLR Program					
With Increase	23	25	25	31	28
Without Increase	10	8	8	7	7
Number of states supported by the ESLR Program[9]					
With Increase	17	19	21	24	30
Without Increase	11	9	9	9	9
Outyear Costs:					
Direct Obligations	14,500	14,500	14,500	14,500	14,500
Capitalized	0	0	0	0	0
Uncapitalized	14,500	14,500	14,500	14,500	14,500

[8] This would be conducted via extramural grants. Examples of related vulnerabilities include loss of subgrade from wave attack, weir flow damage, delamination, failure of subgrade due to prolonged inundation.
[9] Note that multiple projects have the same state representation and are only counted once; though topics may vary. (This performance measure represents all focus areas.)

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Budget Authority	14,500	14,500	14,500	14,500	14,500
Outlays	8,990	8,990	8,990	8,990	8,990
FTE	4	6	6	6	6
Positions	6	6	6	6	6

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Coastal Science and Assessment
Subactivity: Competitive Research
Program Change: Nature-based Solutions to Enhance the Resilience of Coastal Communities and Ecosystems

Title		Grade	Number	Annual Salary	Total Salaries
Environmental Scientist		ZP-04	2	163,293	326,586
Environmental Scientist		ZP-03	2	116,051	232,102
Program Analyst		ZA-04	1	163,293	163,293
Program Analyst		ZA-03	1	116,051	116,051
Total			6		838,032
Less lapse	25.00%		(2)		(209,508)
Total full-time permanent (FTE)			4		628,524
2023 Pay Adjustment (4.6%)					28,912
					657,436

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	4
Total FTE	4
Authorized Positions:	
Full-time permanent	6
Total Positions	6

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Coastal Science and Assessment
Subactivity: Competitive Research

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	1	1	1	658	657
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	2	2	2	2	0
11.7	Military personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	3	3	3	660	657
12	Civilian personnel benefits	1	1	1	251	250
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	11	11	11	11	0
22	Transportation of things	3	3	3	3	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	1,317	1,315	1,316	1,316	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	117	116	116	116	0
31	Equipment	231	231	231	231	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	17,966	17,942	17,957	31,550	13,593
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
71	Overhead	1,379	1,378	1,379	1,379	0
99	Total obligations	21,028	21,000	21,017	35,517	14,500

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Ocean and Coastal Management and Services

Goal Statement

Use place-based, community, and regional approaches to effectively manage coastal and marine resources. Manage our special resources, and empower coastal states and communities with actionable information and resources needed to understand risk and increase resilience of coastal ecosystems and communities. Emphasize collaboration and partnerships across multiple levels of public and private organizations.

Base Program

NOS manages national marine sanctuaries and other Marine Protected Areas (MPAs) that conserve and facilitate sustainable use of special places along our coasts, oceans, and Great Lakes. NOS also equips coastal planners with the scientific tools and skills to better manage the Nation's coastal resources and communities. This includes the interactive Digital Coast web platform, which provides data, tools, and training to inform coastal decisions by both resource managers and local leaders. NOS also works in partnership with and provides funding to local governments, states, non-profit organizations, and other partners to advance coastal management, research, and education and engagement through state and territorial coastal zone management and coral programs, as well as the National Estuarine Research Reserves (NERRs), and the National Coastal Resilience Fund (NCRF) executed in partnership with the National Fish and Wildlife Foundation.

The following program offices carry out the activities within the Ocean and Coastal Management and Services activity:

- **Office for Coastal Management (OCM)** – Enables and guides implementation of the National Coastal Zone Management (CZM) Program and the NERR System (NERRS) under the Coastal Zone Management Act (CZMA), and delivers useful tools, training, and technical assistance through NOAA's Digital Coast, as defined in the Digital Coast Act. The office also administers the Coral Reef Conservation Program (CRCP), and supports regional ocean partnerships of coastal states. In partnership with the National Fish and Wildlife Foundation (NFWF), OCM administers investments of the National Oceans and Coastal Security Fund, grants that increase natural infrastructure to protect coastal communities, while enhancing habitats for fish and wildlife. These activities and programs connect NOAA data and expertise to actions that advance the Executive Order on Tackling the Climate Crisis at Home

and Abroad[10]. The office also supports activities under the Ocean Thermal Energy Conversion Act and the Deep Seabed Hard Mineral Resources Act. (https://coast.noaa.gov/)

- **Office of National Marine Sanctuaries (ONMS)** – is responsible for the stewardship and management of the National Marine Sanctuary System and two marine national monuments: Papahānaumokuākea and Rose Atoll. Within ONMS, the National MPAs Center is responsible for developing and coordinating a national system of MPAs to advance national conservation goals and to identify additional areas in need of protection. (https://sanctuaries.noaa.gov/)

Statement of Operating Objectives

Schedule and Milestones:

- Lead the National CZM Program to develop state- and local-level policies and plans that enhance coastal community resilience; provide improved access to the public; protect or restore coastal habitat, protect or restore coastal habitat (FY 2023 – FY 2027)
- Support designation of new NERR sites in Wisconsin and Louisiana (FY 2023 – FY 2027)
- Conduct research and monitoring of climate change impacts and provide management and adaptation training and technical assistance to local and state officials at 30 National Estuarine Research Reserves nationwide (FY 2023 – FY 2027)
- Collect and deliver additional economic data in the U.S. territories to build out the Economics National Ocean Watch product (FY 2023 – FY 2027)
- Continue efforts to uncover barriers and constraints to serving underserved and minority communities and implement specific and systemic changes to OCM engagement, service delivery, and training (FY 2023 - FY 2027)
- Deliver decision-support tools, training, and technical assistance that enable coastal communities to understand inundation risk and sea level rise scenarios for state and local resilience planning (FY 2023 - FY 2027)
- Develop and disseminate products that translate natural and social science data to inform climate adaptation strategies and related management decisions (FY 2023)
- Implement the Coastal Management Fellowship, the Margaret A. Davidson Fellowship, the Digital Coast Fellowship, and National Coral Reef Management Fellowship programs to grow the next generation of coastal leaders (FY 2023 – FY 2027)

[10] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/

- In partnership with NFWF, fund projects that restore or expand natural ecosystems to increase protection for communities from coastal hazards while enhancing fish and wildlife habitats (FY 2023 – FY 2027)
- Conduct valuation studies for ecosystem services provided by U.S. coral reefs (FY 2023 – FY 2027)
- Train CRCP jurisdiction partners to use the Manager's Guide to Coral Restoration Planning and Design to create coral restoration plans for each of the seven states and territories (FY 2023 - FY 2024)
- Implement best practices to reduce pollutant loadings in U.S. Coral Reef Task Force priority watershed sites and NOAA Habitat Focus Areas and NOAA CRCP key watersheds (FY 2023 - FY 2027)
- Conduct coral reef assessment and monitoring cruises in the Pacific and Atlantic/Caribbean (FY 2023 – FY 2027)
- Conduct research and data collection on Stony Coral Tissue Loss Disease and build capacity for disease detection, prevention and response efforts (FY 2023 - FY 2027)
- Expand certification-type programs for additional national marine sanctuaries and recreational operators (e.g., boating, charter fishing and commercial snorkel and dive operations) (FY 2023 - FY 2027)
- Assess the type, distribution, and intensity of uses in national marine sanctuaries (FY 2023- FY 2027)
- Assess and document status and trends of natural and cultural resources in conjunction with management plan review processes (FY 2023 – FY 2027)

Deliverables:

- Research applied to local decisions, habitat conserved and restored, training and tools developed to improve decision capacities, and supporting science standards for students (on-going)
- Improve coastal resiliency through a collaborative process that engages stakeholders by funding projects on: impacts of climate change on estuaries and coastal communities; mitigation of land use change, ecosystem valuation; and shoreline stabilization (ongoing)
- Data, mapping, tools, and training resources that are more inclusive and accessible made available through Digital Coast to help state and local communities, including underserved communities, plan for the effects of coastal flooding, sea level rise, and climate change (on-going)
- Training or job aids that advance approaches and best practices to understand risk, increase resilience, and adapt to current and future risks from a changing climate (on-going)
- Update Economics National Ocean Watch data product, including new data for each of the U.S. Territories, characterize the economic and job impacts of ocean and coastal activity (FY 2023 – FY 2024)
- Improved coral bleaching forecasts and ocean acidification models (on-going)

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- Management strategies for coral reef protection to understand the impacts of stressors to coral reefs (on-going)
- Completed assessments on management effectiveness of 38 MPAs in priority coral reef sites (31 international Caribbean MPAConnect sites and seven priority sites in domestic coral jurisdictions)
- A voluntary education and recognition program, modeled after the current Blue Star program, for charter fishing operators working in national marine sanctuaries (e.g., Florida Keys)
- Publications on visitation and uses of various national marine sanctuaries
- Assessments of the resources in each sanctuary, pressures on those resources, the current condition and trends, and management responses completing management plan review processes

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base Program	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Coastal Zone Management and Services	Pos/BA	112	45,751	136	46,700	136	49,180
	FTE/OBL	107	46,569	115	46,700	115	49,180
Coastal Zone Management Grants	Pos/BA	0	78,421	0	78,500	0	78,500
	FTE/OBL	0	78,422	0	78,500	0	78,500
National Oceans and Coastal Security Fund	Pos/BA	0	33,966	0	34,000	0	34,000
	FTE/OBL	0	33,986	0	34,000	0	34,000
Coral Reef Program	Pos/BA	25	32,800	25	33,000	25	33,441
	FTE/OBL	29	34,351	25	33,000	25	33,441
National Estaurine Research Reserves	Pos/BA	0	28,472	0	28,500	0	28,500
	FTE/OBL	0	28,381	0	28,500	0	28,500
Sanctuaries and Marine Protected Areas	Pos/BA	176	55,301	188	56,500	186	59,908
	FTE/OBL	175	55,204	179	56,500	177	59,908
Total Activity	Pos/BA	313	274,711	349	277,200	347	283,529
	FTE/OBL	311	276,913	319	277,200	317	283,529

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Coastal Zone Management and Services

NOAA and other agencies possess significant science and data capabilities to support coastal resource management; most decisions that affect the resilience of coastal communities occur at state and local levels. NOAA provides national leadership for the National CZM Program, NERRS, and the National Oceans and Coastal Security Fund; and makes significant scientific expertise, data capabilities, tools, and training available to decision-makers to support state and local decision-making.

National Coastal Zone Management Program

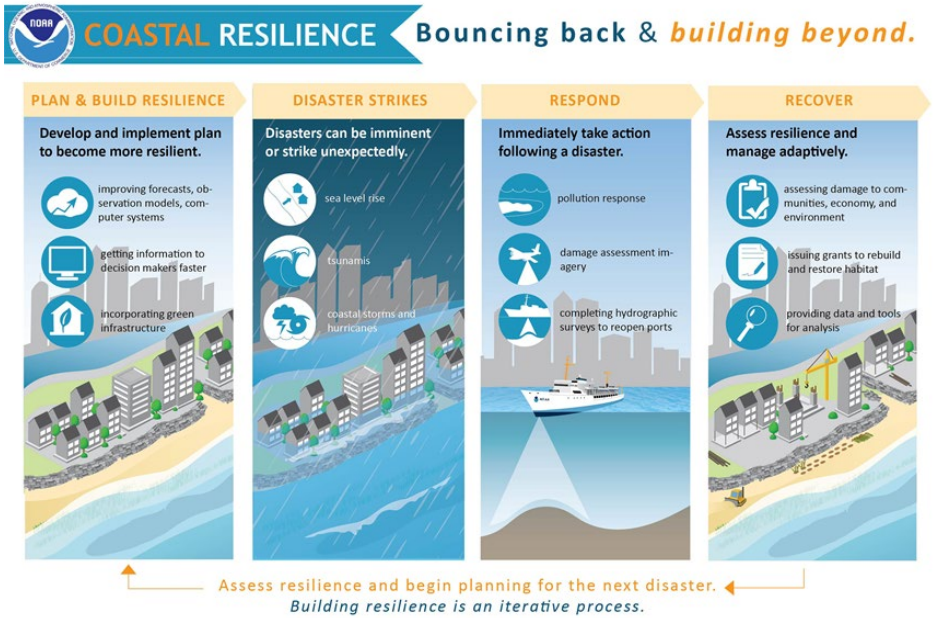
The Nation's coasts are managed through coastal and Great Lakes states' and territories' voluntary partnerships with NOAA. Authorized by the CZMA of 1972, the National CZM Program provides the basis for protecting, restoring, responsibly developing, and managing the use of the Nation's diverse coastal zone. The 34 participating states' comprehensive programs balance competing demands of resource use, economic development, and conservation for approximately 62,000 miles of coastline. This includes developing and implementing strategies to increase coastal community resilience to coastal hazards and climate impacts, managing and conserving valuable coastal ecosystems and their services, and planning and developing coastal access to support community recreation and tourism.

State coastal management programs consider current and future uses in coastal areas, weighing economic, environmental and social considerations. NOAA provides data policy guidance and technical assistance to help states, businesses, and stakeholders navigate complex and interwoven sets of laws and regulations that govern our coastal areas. NOAA also routinely assesses the performance of each state program, measuring progress toward individual state and national program goals and recommending or requiring improvements to those programs. Under CZMA, participating states have the authority to review all Federal activities that have reasonably foreseeable effects on any coastal use or natural resource of their coastal zone towards ensuring that they are consistent with enforceable policies of their state programs.

The Digital Coast Act enables NOAA to provide the training, geospatial resources and decision support tools which provide actionable information and skills needed by the CZM Programs and coastal communities to ensure that they continue to thrive and serve as engines for economic growth. The Digital Coast provides easy access to data, information, tools, and training to help communities address coastal issues, including 5.5 trillion points of lidar, 37 terabytes of imagery, 800,000 square miles of land cover, over 70 tools with over 140 use examples, and 226 learning products. OCM trained more than 2500 coastal professionals in 2020. A NOAA study estimated a cost-benefit ratio of 1:3 for Digital Coast, with net benefits of $25 million[11]. Tools like the Coastal County

[11] https://coast.noaa.gov/data/digitalcoast/pdf/benefits-costs.pdf

Snapshots that depict flood risk and economic impact of the ocean economy contribute to this benefit. In February 2021, non-governmental organization, Resources for the Future, documented the "Societal Value of NOAA's Digital Coast," estimating the value of the Digital Coast Academy at $1.8 to $9.7 million annually. One tool in the Digital Coast portfolio, the Sea Level Rise Viewer, integrates flood projection maps, digital elevation models, and realistic visualizations to show planners and engineers how flooding affects landmarks and infrastructure. The 2021 study[12] above estimated the economic value of using the Sea Level Rise Viewer and Coastal Flood Exposure Mapper in Jackson, Mississippi, to relocate wastewater treatment plants to higher ground and avoid impacts of future flood risks. These plants treat 13 million gallons of wastewater daily, serving five cities including 80 percent of Jackson County's population. Based on the cost of past damages from Hurricanes Katrina and Nate, as well as time saved to complete the study, the organization estimated a one-time benefit of $1.1 million to $2.2 million in 2014 dollars, though these products are used thousands of times annually for a range of uses across the country. Zillow completed a study in 2017 using NOAA's Digital Coast tools that showed six feet of sea level rise would affect 1.9 million homes and $882 billion in real estate value along the East and Gulf Coasts[13].



NOAA's technical assistance resources help states to protect economically significant infrastructure, which is increasingly at risk. A 2019 study by the Congressional Budget Office estimates that losses to the U.S. economy caused by hurricane winds and storm-related flooding, result in annual costs of $54 billion. In California, the CZM Program worked with NOAA to assess flood and seismic vulnerabilities of transportation assets in Alameda and Contra Costa counties. A similar plan developed by Texas coastal management agencies with NOAA assistance will protect critical energy infrastructure and waterborne commerce passing through the Gulf Intracoastal Waterway valued at $25 billion annually. The Georgia CZM program raised a

[12] https://media.rff.org/documents/RFF_WP_21-03.pdf
[13] https://www.zillow.com/research/climate-change-underwater-homes-2-16928/

causeway — the only road to Tybee Island — to mitigate flood risks that it identified using NOAA tools. The road is essential to recreation and tourism in the area.

To ensure equitable delivery of its products and services, OCM assesses its own engagement, service delivery, and training efforts to ensure they enable all coastal communities, especially those with underserved populations, to have the capacity to address coastal hazards. These improvement efforts lead to changes and enhancements that increase the capacity of a wider swath of coastal communities and decision-makers to assess risk, reduce vulnerabilities, and adapt to change with easily accessible coastal data, mapping and visualization, education, and practitioner training.

NOAA's regional efforts complement its state focused partnership programs. Facilitating regional networks of technical experts, decision-makers, and community stakeholders accelerates the development and implementation of science-based climate adaptation strategies. These regional efforts build the skills and capacity needed to address coastal resilience and promote innovation in areas such as resilience finance, risk communication, and the development of equitable resilience solutions that meet local needs.

NOAA's support for regional data sharing and integration will continue to provide ocean-related Federal data and information to the public to inform regional, coastal, and ocean management decision making across the U.S.

Coastal Zone Management Grants
U.S. coastal communities are home to over 128 million people, support 58.3 million jobs, and contribute more than $9.5 trillion to the U.S. economy, accounting for 46 percent of the Nation's economic output. CZM Grants assist states with planning and managing uses in coastal areas, including preparing for and responding to coastal hazards. Over the history of the Program, participating states and territories have partnered to enhance coastal community resilience, support vibrant coastal economies, and address the multiple uses of coastal areas in a way that maximizes benefits for all. In recent years, programs participating in the National CZM Program have completed over 2,600 projects that enhance resilience to coastal hazards; worked with over 3000 communities to grow in a balanced way that protects coastal community character; protected over 69,000 acres of habitat and restored an additional 64,000 acres; created more than 1,000 new sites for the public to access coastal areas; and trained nearly 200,000 coastal decision makers.

National Oceans and Coastal Security Fund
The National Oceans and Coastal Security Fund supports the National Coastal Resilience Fund (NCRF), which is a partnership between the National Fish and Wildlife Foundation (NFWF) and NOAA to enhance the resilience of coastal communities to flooding and inundation by restoring or expanding natural ecosystems, while enhancing fish and wildlife habitats and increasing protection for communities from coastal hazards. These investments will lead to the restoration of hundreds to thousands of acres of habitat,

protection of critical infrastructure from flooding, and job creation in communities across the country. The NCRF provides a means to address the climate crisis and chronic environmental changes such as sea level rise by investing in natural solutions that are in many cases able to adapt to those changes. Hard structural solutions, in contrast, have a finite life, recurring maintenance costs and an increasing susceptibility to the risks of the climate crisis.

National Estuarine Research Reserve System (NERRS)
The NERRS is a national network of state-managed protected areas established under the CZMA. The NERRS is a partnership between participating states and NOAA. Per program regulations, NOAA provides 70 percent of the funding and states provide the remaining 30 percent of the funding for reserve operations, research, monitoring, training and education. NOAA provides national guidance, program oversight, and technical assistance while state agencies and universities perform day-to-day operations and management of individual reserves with input from local partners.

The network of 30 reserves, representative of the variety of estuaries across the country, protects over 1.4 million acres of state-owned estuarine lands and waters. Currently, reserves are located in 24 states and territories. They are economically significant areas that attract recreation and tourism activity, support commercial and recreational fisheries, and provide natural infrastructure for coastal protection and water quality. The NERRS have contributed billions of dollars to the shellfish and seafood industry in participating states and tens of billions of dollars in ocean-dependent industries. Coastal wetlands, such as those protected by the NERRS, provide $23.2 billion in storm protection each year. Additionally, the reserves help communities plan for current and future hazards, ultimately protecting life, property and economy. According to a study by the National Institute of Building Sciences, for each dollar spent on mitigation activities and planning, communities can save six dollars in future recovery costs.

The NERRS conducts research and monitoring of coastal habitats through the Davidson Fellowship Program, the NERRS Science Collaborative Program, and the System-Wide Monitoring Program. The System-Wide Monitoring Program generates long-term datasets on water quality, weather, and habitat conditions and extent to support local and state decision-makers and Federal agencies. The NERRS Science Collaborative and the Davidson Fellowship Program are competitive grant programs supporting projects that contribute to improving coastal resilience to natural and man-made changes. NOAA awards an average of $4.0 million each year in competitive grants that fund user-driven collaborative research, assessment, and transfer activities that address coastal management needs identified by the reserves. Additionally, the NERRS brings the scientific and technical capacity to local and state decision-makers through training, tools, and technical assistance to address management challenges, as well as to teachers and students through instructional and experiential education programs that engage them in their local communities' coastal challenges.

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National Oceanic and Atmospheric Administration
Operations, Research, Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Coral Reef Conservation Program
NOAA's Coral Reef Conservation Program (CRCP) brings together multidisciplinary expertise from across NOAA to conserve and restore coral reefs. The program has partnerships with state, jurisdictional and international coastal resource managers. Coral reefs are among the most biologically diverse ecosystems in the world, providing a range of economic benefits and vital ecosystem services such as food, recreation, marine habitat, medicines, coastal protection, climate regulation, and biodiversity. Tropical coral reefs occur in more than 100 countries and contribute an estimated $2.7 trillion per year in goods and services. They avoided flooding to more than 33 critical infrastructure facilities, including utilities and transportation systems, and indirect damages of almost $700 million in economic activity. Rapid declines in coral reefs have dire consequences for approximately one billion people who depend on coral reefs for their food and livelihoods. Climate change is the main global threat to coral reefs and exacerbates more locally-based threats including water quality decline and unsustainable fishing practices making corals more susceptible to becoming diseased. No matter how remote, climate change threatens every U.S. coral reef.

CRCP integrates coral protection efforts across NOAA and other agencies to address overfishing, harmful fishing practices, ocean temperature changes, ocean acidification, land-based sources of pollution, and other threats. The CRCP Strategic plan is predicated on resilience based management and the following three concepts: an understanding of past, present, and projected future impacts to coral reefs caused by a changing climate; likely social and ecological responses to climate change; and identification and prioritization of management actions to support ecosystem resilience and human well-being. The program's approaches include ecosystem-based management initiatives to build MPA management capacity; monitoring and forecasting of threats to coral reefs; advancing coral restoration research and ecosystem-scale restoration implementation; and partnerships to address and reduce impacts of land-based sources of pollution. Land-based sources of pollution are major threats to coral reef ecosystems. NOAA works with jurisdictions that are upstream of coral reefs to develop 'ridge to reef' watershed management plans. These plans ensure that coral reef ecosystems are integrated into watershed planning processes. In FY 2022, investments will be made to build capacity for stony coral tissue loss disease detection, prevention, and response and advance international partnerships to prevent spread to the Pacific.

Sanctuaries and Marine Protected Areas
National Marine Sanctuaries
NOAA serves as the trustee for a system of 15 national marine sanctuaries and two marine national monuments. These underwater parks range in size from the one square mile Monitor National Marine Sanctuary near Cape Hatteras, North Carolina, to the 582,000 square mile Papahānaumokuākea Marine National Monument along the northwestern portion of the Hawaiian Archipelago. Together these areas encompass over 622,000 square miles of ecologically significant marine habitats and maritime heritage assets (such as

shipwrecks and cultural landscapes). National marine sanctuaries support local coastal and ocean dependent economic activities such as commercial fishing, research and recreation/tourism-related activities.

In 2021, NOAA designated the Wisconsin Shipwreck Coast National Marine Sanctuary, which spans 962 square miles, and includes 36 known shipwrecks, 21 of which are on the National Register of Historic Places, and nearly 60 potentially undiscovered shipwrecks. This new sanctuary quickly follows the 2019 designation of the Mallows Bay-Potomac River National Marine Sanctuary, which was the first national marine sanctuary designated since 2000. NOAA continues to work with interested local communities on several other potential sanctuaries, including the proposed sanctuary in Lake Ontario and the proposed Chumash Heritage Sanctuary. NOAA is also working on the sanctuary designation of Papahānaumokuākea Marine National Monument, as directed by Congress. This area is already protected, though as a sanctuary, management activities in Papahānaumokuākea would expand. New sanctuaries designated with program funds will have broad-based community support, protect and celebrate the Nation's maritime cultural heritage and natural resources, and expand economic development, recreation and tourism, and educational opportunities.

In FY 2021, NOAA expanded the Flower Garden Banks National Marine Sanctuary from 56 square miles to 160 square miles, protecting additional critical habitat in the Gulf of Mexico. NOAA and partners also announced a decades-long coral reef restoration effort, Mission: Iconic Reefs to restore seven iconic reefs in Florida Keys National Marine Sanctuary. The groundbreaking approach aims to revitalize the Florida Keys' highly diverse and economically valuable marine ecosystem on an unprecedented scale, and represents one of the largest ever investments in coral restoration. This effort is collaborative across Federal, state, and local entities and complements NOAA's ongoing Florida Keys Restoration Blueprint and management plan review.

NOAA protects these ecological and cultural assets through community engagement, applied resource protection and management, research and monitoring, education, and public outreach activities. It develops and implements comprehensive management plans to ensure the protection and sustainable use of resources. NOAA tailors each plan to the specific goals of each national marine sanctuary, which in turn reflect the unique resources and needs of each sanctuary's respective community. NOAA's partnerships facilitate research and monitoring and enforce the laws and regulations that protect sanctuary resources. Community engagement is a cornerstone of a site's management. Sites build and rely on volunteer participation and community input to manage the resource.

NOAA works in eight states with Ocean Guardian Schools, which receive grants to work with students on local conservation projects. In FY 2020 and FY 2021, due to the COVID-19 pandemic, in-person outreach efforts were largely canceled. In response, ONMS focused on education and outreach engagement on virtual spaces, and has reached a significant number of students and the public through virtual content, such as 360° underwater virtual reality, and events such as Exploring by the Seat of Your Pants and a

webinar series. As an example, the National Marine Sanctuaries Webinar Series also saw a 449 percent increase in interest from FY 2019 to FY 2020, attracting thousands of live viewers. ONMS expects to increase in person opportunities again beginning in FY 2022.

MPA Coordination
NOAA's MPA Center develops science, policy, and management tools to advance the effective use of MPAs for national conservation and management objectives. The MPA Center coordinates various Federal, state, and tribal MPA programs to better integrate the national system of MPAs, including national estuarine research reserves and national marine sanctuaries. This coordination focuses on developing curricula, training, and virtual tools to improve management capacity of MPA programs around the world. MPAs are being increasingly recognized as a key tool for maintaining and restoring ecosystem resilience in a changing climate. MPAs can also provide long-term protection for "blue carbon" - coastal habitats including salt marshes, kelp forests, seagrasses and mangroves that provide long-term storage for atmospheric carbon and coastal protection. The Center also coordinates internationally with agencies that manage sites, which share migratory species with the U.S. or have similar habitat and management challenges. In FY 2021, the MPA Center led the development of the ONMS Climate Resilience Plan and the establishment of an ONMS Climate Team to advance its implementation in all aspects of sanctuary management.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Coastal Zone Management and Services	Pos./BA	136	49,180	136	49,480	0	300
	FTE/OBL	115	49,180	115	49,480	0	300

Enterprise Infrastructure Solutions (EIS) (+$300, 0 FTE/0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023 – FY 2027

- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NOAA's current and planned needs
- Transition 100 percent NOAA Legacy GSA inventory to EIS

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Transition of NOAA Telecommunication services to GSA's EIS*					
With Increase	35%	60%	80%	100%	0%
Without Increase	20%	45%	55%	65%	75%
*Assumes full funding of EIS initiatives NOAA-wide					
Outyear Costs:					
Direct Obligations	300	300	300	300	300
Capitalized	0	0	0	0	0
Uncapitalized	300	300	300	300	300
Budget Authority	300	300	300	300	300
Outlays	186	186	186	186	186
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean and Coastal Management and Services
Subactivity: Coastal Zone Management and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	13,248	13,285	13,991	13,991	0
11.3	Other than full-time permanent	222	223	235	235	0
11.5	Other personnel compensation	223	224	236	236	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	13,693	13,732	14,462	14,462	0
12	Civilian personnel benefits	5,203	5,218	5,494	5,494	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	411	412	434	434	0
22	Transportation of things	30	30	31	31	0
23	Rent, communications, and utilitites	1,409	1,413	1,488	1,488	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	300	300
24	Printing and reproduction	33	33	35	35	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	19,429	19,483	20,519	20,519	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	229	230	242	242	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	2,833	2,841	2,991	2,991	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
77	Overhead	3,299	3,308	3,484	3,484	0
99	Total obligations	46,569	46,700	49,180	49,480	300

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
National Oceans and Coastal Security Fund	Pos./BA	0	34,000	0	0	0	(34,000)
	FTE/OBL	0	34,000	0	0	0	(34,000)

Terminate Base Funding for the National Coastal Resilience Fund (-$34,000, 0 FTE/0 Positions) – NOAA requests the termination of NOAA funding for its National Coastal Resilience Fund (NCRF), a partnership with National Fish and Wildlife Foundation (NFWF), which will allow NOAA to sustain other key priorities across the agency. NOAA will continue to maintain its partnership with NFWF using $492 million in total NCRF funding received under the FY 2022 Infrastructure, Investments, and Jobs Act (IIJA). Through the IIJA funding, NOAA will continue to administer new and existing cooperative agreements to support restoration, increase and strengthen nature-based infrastructure projects to protect coastal communities from flooding and related hazards while also enhancing habitats for fish and wildlife. The NCRF will continue to provide support for communities most vulnerable to climate impacts, including those who have historically been underserved and often lack access to resources.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean and Coastal Management and Services
Subactivity: National Oceans and Coastal Security Fund

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	0	0	0	0	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	33,986	34,000	34,000	0	(34,000)
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	33,986	34,000	34,000	0	(34,000)

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Sanctuaries and Marine Protected Areas	Pos./BA	186	59,908	201	83,971	15	24,063
	FTE/OBL	177	59,908	188	83,971	11	24,063

Assessing Place-based Climate Vulnerability for Conservation Action (+$24,063, 11 FTE/15 Positions) – NOAA requests additional funding to engage partners, underrepresented communities, Tribes, indigenous, and native communities to invest in priorities within current and potential national marine sanctuaries. NOAA will also strengthen conservation in U.S. waters by increasing capacity for protection, conservation, and stewardship in existing and soon-to-be designated sanctuaries. NOAA will work through the designation process for the five additional sanctuaries currently on the inventory, as well as the Papahānaumokuākea Marine National Monument, for a total of six, taking the Nation one-step closer to its goal of conserving 30 percent of U.S. land and waters by 2030, as outlined in the America the Beautiful initiative, E.O. 148004. ONMS will work to identify gaps in marine protection, and train the next generation of MPA professionals. NOAA will also conduct climate vulnerability assessments, and take action to promote climate resilience, and expand research initiatives to better understand the changing climate in these ecological and cultural resources.

These funds will allow NOAA to expand its conservation and protection across its sanctuary system through research, monitoring, restoration, permitting, community engagement, and interagency partnerships, all for informing locally-driven management decisions. NOAA will increase engagement with communities of color, underrepresented groups, and indigenous and native peoples, in conservation, planning, and outreach across the system. NOAA will also be able expand technology use in sanctuaries to support a myriad of management priorities, including conservation and research activities outlined above, and increased active restoration of natural habitats in national marine sanctuaries and marine national monuments. The vulnerability assessments that ensue will increase NOAA's understanding of the effects of climate change on these special places, including sensitivities of species and habitats to ecological changes, and the rate of change, to inform management strategies to promote resilience.

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023 – FY 2027

- Increase capacity for conservation, education, Indigenous and Native communities coordination, acquisitions, designations, restoration and climate coordination (FY 2023)
- Develop strategies to prevent vessel sinkings and groundings in national marine sanctuaries and marine national monuments and sustainably fund removal of vessels and associated debris (FY 2023 - FY 2024)
- Increase dive capacity for restoration through volunteer training and contracting (FY 2023 – FY 2024)
- Conduct spatial analysis of gaps in marine protection
- Compete NEPA reviews, rulemaking, stakeholder engagement, and community meetings as part of designation process (FY 2023 – FY 2026)
- Create an MPA Academy for training future MPA leaders across Federal, state, and local governments focusing on increasing access to MPA careers by communities of color and underrepresented communities (FY 2023 – FY 2027)
- Provide grants or paid internships for underrepresented students to work with the Sanctuaries (FY 2023 – FY 2027)
- Provide ocean literacy grants to local schools (FY 2023 – FY 2027)
- Address site-specific, system-wide (i.e. infrastructure) and educational aspects of climate change impacts across the system (FY 2023 – FY 2027)
- Expand, plan, and test technology use in sanctuaries for enforcement, monitoring, research, disentanglement and other management priorities (FY 2023 – FY 2027)
- Increase direct restoration of key habitats and species across the system (FY 2023 – FY 2027)
- Create and implement an expanded system-wide business recognition program (FY 2024)
- Expand enforcement through agreements and new technology (FY 2024 – FY 2027)

Deliverables:

- Site management plans with integrated native and indigenous community and climate needs
- Improved user compliance with regulations within sanctuary boundaries via education
- Deliver a cohort of trained MPA leaders across multiple levels of government that reflect the diversity of the communities they represent
- Native and indigenous community and climate needs are integrated into site management plans
- Develop improved, sustained engagement with tribes and indigenous peoples across the system

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

- Understand and address system-wide diversity of staff, advisory councils, and volunteers with a goal of broader inclusivity.
- All sites currently on inventory progress through one or more phases of the designation process
- GIS analysis of U.S. marine waters for various possible protections
- Increased testing and operation of innovative technology to meet system needs
- Establish and sustain a dedicated, centralized dive team supporting all sites

Performance Measures	2023	2024	2025	2026	2027
Percentage of ONMS Sanctuaries with new or updated climate vulnerability assessments					
With Increase	43%	44%	48%	55%	64%
Without Increase	35%	35%	35%	35%	35%
Number of formal partnerships or agreements with tribes, indigenous, and native communities					
With Increase	8	9	12	14	16
Without Increase	8	8	8	8	8
Outyear Costs:					
Direct Obligations	24,063	24,063	24,063	24,063	24,063
Capitalized	750	750	750	750	750
Uncapitalized	23,313	23,313	23,313	23,313	23,313
Budget Authority	24,063	24,063	24,063	24,063	24,063
Outlays	14,919	14,919	14,919	14,919	14,919
FTE	11	15	15	15	15
Positions	15	15	15	15	15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Ocean and Coastal Management and Services
Subactivity: Sanctuaries and Marine Protected Areas
Program Change: Assessing Place-based Climate Vulnerability for Conservation Action

Title		Grade	Number	Annual Salary	Total Salaries
Resource Protection Coordinator		ZA-03	1	119,941	119,941
Education Coordinator		ZA-03	1	119,941	119,941
Climate Coordinator		ZA-03	1	119,941	119,941
Superintendent		ZA-04	2	148,890	297,781
Maritime Heritage Coordinator		ZA-03	2	105,962	211,924
Education Coordinator		ZA-03	1	105,962	105,962
Program Operations Coordinator		ZA-03	1	105,962	105,962
Resource Protection Coordinator		ZA-03	1	109,792	109,792
Research Diver		ZA-02	2	83,372	166,744
Contracts and Grants Specialist		ZA-03	1	119,941	119,941
Indigenous and Native People Coordinator		ZA-04	1	181,060	181,060
Indigenous and Native People Coordinator		ZA-04	1	168,533	168,533
Total			15		1,827,522
Less lapse	25.00%		(4)		(456,880)
Total full-time permanent (FTE)			11		1,370,641
2023 Pay Adjustment (4.6%)					63,050
					1,433,691

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	11
Total FTE	11
Authorized Positions:	
Full-time permanent	15
Total Positions	15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean and Coastal Management and Services
Subactivity: Sanctuaries and Marine Protected Area

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	20,727	20,650	22,493	23,927	1,434
11.3	Other than full-time permanent	79	80	85	85	0
11.5	Other personnel compensation	395	404	429	429	0
11.7	Military personnel compensation	0	563	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	21,201	21,697	23,007	24,441	1,434
12	Civilian personnel benefits	8,056	8,245	8,743	9,288	545
13	Benefits for former personnel	6	5	6	6	0
21	Travel and transportation of persons	571	584	620	770	150
22	Transportation of things	195	200	212	232	20
23	Rent, communications, and utilitites	3,161	3,238	3,430	4,280	850
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	71	72	77	77	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	10,457	10,703	11,348	26,705	15,357
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	627	641	680	1,430	750
31	Equipment	191	196	208	958	750
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	7,272	7,443	7,892	12,099	4,207
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
77	Overhead	3,396	3,476	3,685	3,685	0
99	Total obligations	55,204	56,500	59,908	83,971	24,063

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Sanctuaries and Marine Protected Areas	Pos./BA	186	59,908	186	61,908	0	2,000
	FTE/OBL	177	59,908	177	61,908	0	2,000

Fostering Ecological Resilience Through Conservation Action (+$2,000, 0 FTE/0 Positions) – NOAA requests additional funding for ONMS to increase observations within Sanctuaries and to incorporate more observations - including on climate change, biological resources, living resources and other environmental and human drivers - into sanctuary management plans and condition reports.

ONMS will leverage observations provided by IOOS with a large focus on biological and living resources such as corals, kelp, and reef fish. ONMS will create dynamic, web-enabled condition reports for all Sanctuary sites, which will have the capability to ingest expanded observations gathered by internal partners in the future. ONMS will work collaboratively so that the increase in number of observations, both from external and internal sources, are met with a robust integrated process to successfully convert these into implementable conservation actions, and used to answer key management questions.

Schedule and Milestones:
FY 2023 – FY 2027

- Develop a climate change sanctuary observation plan in collaboration with key internal partners (FY 2023)
- Integrate new IOOS observation data into condition reports (FY 2024 - FY 2027)
- Produce web-enabled condition reports for sites as condition report updates occur (FY 2024 - FY 2027)
- Expand acoustic monitoring program in all relevant sanctuaries (FY 2024 - FY 2027)

Deliverables:

- Increased ability to answer management questions in recently expanded and designated areas
- Increased ability to answer climate change and living resource based management questions across system

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Total number of MPA/Sanctuary/Monument sites where biodiversity and habitat condition and assessments are automatically updated with IOOS Marine Life observations					
With Increase	3	4	5	6	7
Without Increase	3	3	3	3	3
Sanctuary and monument reporting areas that can adequately assess resource condition					
With Increase	80%	80%	82%	84%	86%
Without Increase	80%	80%	80%	80%	80%
Outyear Costs:					
Direct Obligations	2,000	2,000	2,000	2,000	2,000
Capitalized	0	0	0	0	0
Uncapitalized	2,000	2,000	2,000	2,000	2,000
Budget Authority	2,000	2,000	2,000	2,000	2,000
Outlays	1,240	1,240	1,240	1,240	1,240
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean and Coastal Management and Services
Subactivity: Sanctuaries and Marine Protected Areas

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	20,727	20,650	22,493	22,493	0
11.3	Other than full-time permanent	79	80	85	85	0
11.5	Other personnel compensation	395	404	429	429	0
11.7	Military personnel compensation	0	563	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	21,201	21,697	23,007	23,007	0
12	Civilian personnel benefits	8,056	8,245	8,743	8,743	0
13	Benefits for former personnel	6	6	6	6	0
21	Travel and transportation of persons	571	584	620	640	20
22	Transportation of things	195	200	212	212	0
23	Rent, communications, and utilitites	3,161	3,236	3,431	3,431	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	71	72	77	77	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	10,457	10,704	11,348	13,078	1,730
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	627	641	680	680	0
31	Equipment	191	196	208	258	50
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	7,272	7,443	7,891	8,091	200
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
77	Overhead	3,396	3,476	3,685	3,685	0
99	Total obligations	55,204	56,500	59,908	61,908	2,000

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		Personnel	Amount	Personnel	Amount	Personnel	Amount
Sanctuaries and Marine	Pos./BA	186	59,908	186	60,708	0	800
Protected Areas	FTE/OBL	177	59,908	177	60,708	0	800

Enterprise Infrastructure Solutions (EIS) (+$800, 0 FTE/0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023 - FY 2027

- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NOAA's current and planned needs
- Transition 100 percent NOAA Legacy GSA inventory to EIS

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Transition of NOAA Telecommunication services to GSA's EIS*					
With Increase	35%	60%	80%	100%	0%
Without Increase	20%	45%	55%	65%	75%
*Assumes full funding of EIS initiatives NOAA-wide					
Outyear Costs:					
Direct Obligations	800	800	800	800	800
Capitalized	0	0	0	0	0
Uncapitalized	800	800	800	800	800
Budget Authority	800	800	800	800	800
Outlays	496	496	496	496	496
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean and Coastal Management and Services
Subactivity: Sanctuaries and Marine Protected Areas

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	20,727	20,650	22,493	22,493	0
11.3	Other than full-time permanent	79	80	85	85	0
11.5	Other personnel compensation	395	404	429	429	0
11.7	Military personnel compensation	0	563	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	21,201	21,697	23,007	23,007	0
12	Civilian personnel benefits	8,056	8,245	8,743	8,743	0
13	Benefits for former personnel	6	6	6	6	0
21	Travel and transportation of persons	571	584	620	620	0
22	Transportation of things	195	200	212	212	0
23	Rent, communications, and utilitites	3,161	3,236	3,431	3,431	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	71	72	77	877	800
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	10,457	10,704	11,348	11,348	0
25.3	Other goods and services from Federal	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	627	641	680	680	0
31	Equipment	191	196	207	207	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	7,272	7,443	7,892	7,892	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
77	Overhead	3,396	3,476	3,685	3,685	0
99	Total obligations	55,204	56,500	59,908	60,708	800

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Construction

Goal Statement

The NOS Construction activity provides construction and acquisition support for the National Estuarine Research Reserve System (NERRS) and the National Marine Sanctuaries.

NERRS is a Federal-state partnership established under the Coastal Zone Management Act designed to protect and understand valuable estuarine resources through research and education. NOAA funds NERRS construction and land acquisition projects on a competitive basis. For PAC, NERRS funding has been matched 70:30 (Federal: state) for facilities construction and 1:1 for land acquisition. By providing funding to conduct land acquisition and construction projects that support the NERRS mission, NOAA will strengthen protection of key land and water areas, enhance long-term protection of Reserve areas for research and education, and provide for facilities and exhibit construction that meet sustainable design standards.

NOS administers the Nation's system of 15 Marine Sanctuaries and two Marine National Monuments. PAC funding supports capital costs of maintaining the Sanctuary System's facilities and small boat fleet. Vessels for research, monitoring, enforcement and emergency response are essential to site management, especially in areas such as Florida Keys National Marine Sanctuary. Capital funding is critical to ensure these assets remain mission effective and to keep their life cycle costs under control.

Base Program

NERRs are state-owned lands and onsite facilities operated and managed by the states. They provide opportunities for researchers as well as the public to better understand these estuarine areas. Facilities investments at the reserves align with system-wide construction plans that consider requirements for implementing core NERRS programs and external opportunities for partnerships. Construction projects are funded that enhance or sustain opportunities for public access and to increase public understanding of estuarine ecosystems, as well as fund infrastructure that supports reserve programs and staff. States also use these grants to acquire critical habitat within, or adjacent to, reserve boundaries to increase protection, connect habitats to allow for species or habitat migration, maintain system diversity, and provide places for conducting long-term science, education, and demonstration programs.

NOS maintains and repairs a fleet of small boats to access sanctuaries and protected areas for research, monitoring, outreach, and emergency support. Periodic assessments help to determine whether any refurbishments or upgrades are needed to maintain boat safety and legal compliance, mission effectiveness, or extend boats'' service life. Upgrades can include hull form modification,

propulsion system revision and replacement, and upgrades of scientific, navigational, load handling, and auxiliary systems. NOS periodically performs large-scale maintenance, refurbishments, replacements or upgrades to maintain fleet safety, longevity, and mission effectiveness.

The National Marine Sanctuary System's comprehensive facilities plan prioritizes capital investment in facilities, exhibits and collaborative education and visibility projects. In order to establish better understanding and appreciation for sanctuary and other ocean resources by the public, the program develops and maintains a network of exhibits and signage. Whenever possible NOAA develops cooperative centers at existing aquaria, museums and other appropriate facilities to engage the public and environmental decision-makers on conservation issues. Capital requirements for sanctuary facilities include safety improvements, Americans with Disabilities Act upgrades, and capital maintenance.

Statement of Operating Objectives

Schedule and Milestones:

- Publish a Federal funding opportunity to solicit proposals for construction and land acquisition projects (e.g., visitor center and laboratories, dormitories, green upgrades, public access, and critical habitats) across the NERRS (FY 2023 – FY 2027)
- Coordinate review and scoring of proposals to inform selections, and provide final recommendations to NOAA's Grants Management Division (FY 2023 – FY 2027)
- Finalize selection of approximately 10-13 projects and distribute funds to successful applicants (FY 2023 – FY 2027)
- Conduct critical capital construction and acquisition activities for the sanctuary fleet, as well as emergency and required major small boat repairs (ongoing)
- Conduct construction of exhibits and signage across sanctuary system, including with partners (ongoing)
- Conduct major construction and repair activities for owned and leased facilities across the system (ongoing)

Deliverables:

- Construction of NERRS projects and facilities enhancements selected in FY 2021
- Advance construction of ongoing projects at one of four sites: Kihei, HI, Hawaiian Island Humpback Whale Marine Sanctuary; Key West, FL, Florida Keys National Marine Sanctuary; Galveston, TX, Flower Gardens Banks National Marine Sanctuary; or Scituate, MA, Stellwagen Bank National Marine Sanctuary
- Construction of exhibits and signage

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

Comparison by subactivity		2021 Actual Personnel	2021 Actual Amount	2022 Annulaized CR Personnel	2022 Annulaized CR Amount	2023 Base Program Personnel	2023 Base Program Amount
National Estuarine Research	Pos/BA	0	4,500	0	4,500	0	4,500
Reserve Constrution	FTE/OBL	0	4,513	0	4,500	0	4,500
Marine Sanctuaries	Pos/BA	1	4,000	1	4,000	1	4,000
Construction	FTE/OBL	1	3,763	1	4,000	1	4,000
Other NOS Construction	Pos/BA	0	0	0	0	0	0
	FTE/OBL	0	(1)	0	0	0	0
Total Activity	Pos/BA	1	8,500	1	8,500	1	8,500
	FTE/OBL	1	8,275	1	8,500	1	8,500

National Estuarine Research Reserve Construction
NERRSs are state-owned lands and onsite facilities operated and managed by the states. They provide opportunities for researchers as well as the public to better understand these estuarine areas. Facilities investments at the reserves aligned with system-wide construction plans that consider requirements for implementing core NERRS programs and external opportunities for partnerships. States also used these grants to acquire critical habitat within, or adjacent to, reserve boundaries to increase protection and provide places for conducting long-term science, education, and demonstration programs.

Marine Sanctuaries Construction
Boats for research, monitoring, and emergency response are essential to site management, especially in areas such as the Florida Keys National Marine Sanctuary (FKNMS). NOS maintains and repairs a fleet of small boats to access protected areas for research,

monitoring, outreach, and emergency support. Periodic assessments help to determine whether any refurbishments or upgrades are needed to maintain boat safety and legal compliance, mission effectiveness, or extend boats' service life. Upgrades can include hull form modification, propulsion system revision and replacement, and upgrades of scientific, navigational, load handling, and auxiliary systems. NOS periodically performs large-scale maintenance, refurbishments, or upgrades to maintain craft safety, mission effectiveness, or to extend a boat's service life. In FY 2021, ONMS launched two new boats, the R/V Storm Petrel in Olympic Coast National Marine Sanctuary and the Leatherback in FKNMS, replacing similar, aging boats in the same locations ensuring our mission in those sanctuaries can continue as planned.

In order to establish better understanding and appreciation for sanctuary and other ocean resources by the public, NOAA develops and maintains a network of exhibits and signage. Whenever possible, NOAA develops content and exhibits as cooperative centers at existing aquaria, museums and other appropriate facilities to engage the public and environmental decision makers on conservation issues. In FY 2021, ONMS completed the multi-year repair and replacement of the Boathouse and Pier site at the Stellwagen Bank National Marine Sanctuary. This Boathouse and Pier site is home to the RV Auk, a key sanctuary vessel, and had been damaged by Nor'easters in recent years.

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	30	30	5,416	81,621
2023 Adjustments to base:				
less: Obligations from prior year balances	0	0	0	0
plus: Technical ATBs	0	0	584	1,007
2023 Base	30	30	6,000	82,629
plus: program changes	0	0	0	0
2023 Estimate	30	30	6,000	82,629

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Damage Assessment and Restoration Revolving Fund	Pos/BA	30	4,204	30	5,416	30	6,000	30	6,000	0	0
	FTE/OBL	43	144,965	30	81,621	30	82,629	30	82,629	0	0
Total: Damage Assessment and Restoration Revolving Fund	Pos/BA	30	4,204	30	5,416	30	6,000	30	6,000	0	0
	FTE/OBL	43	144,965	30	81,621	30	82,629	30	82,629	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	43	144,965	30	81,621	30	82,629	30	82,629	0	0
Total Obligations	43	144,965	30	81,621	30	82,629	30	82,629	0	0
Adjustments to Obligations:										
Federal funds	0	0	0	0	0	0	0	0	0	0
Offsetting collections, mandatory	0	(19,242)	0	(40,000)	0	(10,000)	0	(10,000)	0	0
Change in uncollected payments, Fed	0	0	0	0	0	0	0	0	0	0
Recoveries	0	(2,373)	0	(20,000)	0	(20,000)	0	(20,000)	0	0
Unobligated balance, adj. SOY	0	(165,155)	0	(239,460)	0	(273,255)	0	(273,255)	0	0
Unobligated balance transferred (from DOI)	0	(193,452)	0	(50,000)	0	(50,000)	0	(50,000)	0	0
Unobligated balance, transferred (to ORF)	0	0	0	0	0	0	0	0	0	0
Unobligated balance, unapportioned	0	0	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	239,460	0	273,255	0	276,626	0	276,626	0	0
Total Budget Authority	43	4,204	30	5,416	30	6,000	30	6,000	0	0
Financing from Transfers:										
Appropriation (previously unavailable)	0	(197)	0	(242)	0	(342)	0	(342)	0	0
Transfer from DOI	0	(4,249)	0	(6,000)	0	(6,000)	0	(6,000)	0	0
Appropriation temporarily reduced	0	242	0	342	0	342	0	342	0	0
Net Appropriation	43	0	30	0	30	0	30	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Damage Assessment and Restoration Revolving Fund

Goal Statement

The Damage Assessment and Restoration Revolving Fund facilitates the spill response, damage assessment, and natural resource restoration activities of the National Oceanic and Atmospheric Administration.

Base Program

A National Oceanic and Atmospheric Administration (NOAA) Damage Assessment and Restoration Revolving Fund was established under Section 1012(a) of the Oil Pollution Act for the deposit of sums provided by any party or governmental entity for response to discharges of oil or releases of hazardous substances, for assessment of damages to NOAA trust resources resulting from those discharges and releases, and for the restoration of the injured natural resources.

Through the Revolving Fund, NOAA does the following:

- Retains funds that are recovered through settlement or awarded by a court for restoration of injured natural resources and retains reasonable costs of conducting spill response and damage assessments that are recovered by NOAA through negotiated settlement, court award, or other reimbursement.
- Ensures funds deposited shall remain available to the trustee, without further appropriation, until expended to pay costs associated with response, damage assessment, and restoration of natural resources.

The NOAA Damage Assessment and Restoration Revolving Fund facilitates and sustains: (1) natural resource damage assessment while the Departments of Commerce and Justice seek full reimbursement from potentially responsible parties; and (2) restoration, replacement, or acquisition of the equivalent of injured or lost natural resources, including resources of National Marine Sanctuaries and National Estuarine Research Reserves, tidal wetlands and other habitats, for which NOAA is trustee. These program functions are conducted jointly within NOAA by the Office of General Counsel, NOS, and NMFS.

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
11.1	Full-time permanent	1,803	1,014	1,027	1,027	0
11.3	Other than full time permanent	1	1	1	1	0
11.5	Other personnel compensation	25	14	14	14	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	**Total personnel compensation**	1,829	1,029	1,042	1,042	0
12.1	Civilian personnel benefits	695	378	383	383	0
12.2	Military personnel benefits	0	0	0	0	0
21	Travel and transportation of persons	128	72	73	73	0
22	Transportation of things	7	4	4	4	0
23.1	Rental payments to GSA	17	10	10	10	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Comm., util., misc. charges	18	10	10	10	0
24	Printing and reproduction	1	1	1	1	0
25.1	Advisory and assistance services	483	272	275	275	0
25.2	Other services from non-Federal sources	24,112	13,589	13,757	13,757	0
25.3	Other goods and services from Federal sources	97	54	55	55	0
26	Supplies and materials	105	59	60	60	0
31	Equipment	48	27	27	27	0
41	Grants, subsidies and contributions	117,422	66,114	66,930	66,930	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	6	6	6	6	0
44	Refunds	0	0	0	0	0
99.9	**Total Obligations**	144,965	81,621	82,629	82,629	0

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base Program	2023 Estimate	Increase/ Decrease from 2023 Base
Federal Funds	0	0	0	0	0
Offsetting Collections Mandatory	(19,242)	(40,000)	(10,000)	(10,000)	0
Recoveries	(2,373)	(20,000)	(20,000)	(20,000)	0
Change in uncollected payments, Fed	0	0	0	0	
Less unobligated balance, SOY	(165,155)	(239,460)	(273,255)	(273,255)	0
Plus unobligated balance transferred	(193,452)	(50,000)	(50,000)	(50,000)	0
Plus unobligated balance, EOY	239,460	273,255	273,626	273,626	0
Total Budget Authority	4,204	5,416	6,000	6,000	0
Transfers:					
Appropriation previously unavailable	(197)	(242)	(342)	(342)	
Transfer from DOI	(4,294)	(6,000)	(6,000)	(6,000)	0
Appropriation temporarily reduced	242	342	342	342	0
Net Appropriation	0	0	0	0	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	43	30	30	30	0
Other than full time permanent	0	0	0	0	0
Total	43	30	30	30	0
Authorized Positions:					
Full-time permanent	30	30	30	30	0
Other than full time permanent	0	0	0	0	0
Total	30	30	30	30	0

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DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Sanctuaries Enforcement Asset Forfeiture Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	120	490
2023 Adjustments to base:				
less: Obligations from prior year balances	0	0	0	0
plus: Technical ATBs	0	0	0	(370)
2023 Base	0	0	120	120
plus: program changes	0	0	0	0
2023 Estimate	0	0	120	120

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Sanctuaries Enforcement Asset Forfeiture Fund	Pos/BA	0	287	0	120	0	120	0	120	0	0
	FTE/OBL	0	160	0	490	0	120	0	120	0	0
Total: Sanctuaries Enforcement Asset Forfeiture Fund	Pos/BA	0	287	0	120	0	120	0	120	0	0
	FTE/OBL	0	160	0	490	0	120	0	120	0	0

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Sanctuaries Enforcement Asset Forfeiture Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	0	160	0	490	0	120	0	120	0	0
Total Obligations	0	160	0	490	0	120	0	120	0	0
Adjustments to Obligations:										
New offsetting collections	0	0	0	0	0	0	0	0	0	0
Recoveries	0	0	0	0	0	0	0	0	0	0
Unobligated balance, SOY	0	(243)	0	(370)	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	0	0	0	0	0	0	0	0	0
Unobligated balance, transferred	0	0	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	370	0	0	0	0	0	0	0	0
Unobligated balance, unapportioned	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	0	287	0	120	0	120	0	120	0	0
Financing from Transfers:										
Appropriation previously unavailable	0	(1)	0	(7)	0	(7)	0	(7)	0	0
Appropriation temporarily reduced	0	7	0	7	0	7	0	7	0	0
Net Appropriation	0	293	0	120	0	120	0	120	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Sanctuaries Enforcement Asset Forfeiture Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Sanctuaries Enforcement Asset Forfeiture Fund

Goal Statement

The Sanctuaries Enforcement Asset Forfeiture Fund receives proceeds from civil penalties and forfeiture claims against responsible parties, as determined through court settlements or agreements, for violations of NOAA sanctuary regulations.

Base Program

Penalties received are held in sanctuary site-specific accounts from year to year, as the funds are spent on resource protection within the sanctuary site where the penalty or forfeiture occurred. Funds are expended for resource protection purposes which may include all aspects of law enforcement (from equipment to labor), community oriented policing programs, and other resource protection and management measures such as the installation of mooring buoys or restoration of injured resources.

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Sanctuaries Enforcement Asset Forfeiture Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full time permanent	0	0	0	0	0
11.2	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	**Total personnel compensation**	0	0	0	0	0
12.1	Civilian personnel Benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	160	490	120	120	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
99.9	**Total Obligations**	160	490	120	120	0

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Sanctuaries Enforcement Asset Forfeiture Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base Program	2023 Estimate	Increase/ Decrease from 2023 Base
Less recoveries	0	0	0	0	0
Less unobligated balance, SOY	(243)	(370)	0	0	0
Less unobligated balance, adj SOY	0	0	0	0	0
New offsetting collections	0	0	0	0	0
Plus unobligated balance, EOY	370	0	0	0	0
Plus unobligated balance, transferred	0	0	0	0	0
Total Budget Authority	286	120	120	120	0
Transfers:					
Appropriation previously unavailable	(1)	(7)	(7)	(7)	0
Appropriation temporarily reduced	7	7	7	7	0
Mandatory Appropriation	293	120	120	120	0

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DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	2	2	0	7,619
2023 Adjustments to base:				
less: Obligations from prior year balances	0	0	0	0
plus: Technical ATBs	0	0	0	689
2023 Base	2	2	0	8,308
plus: program changes	0	0	0	0
2023 Estimate	2	2	0	8,308

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Gulf Coast Restoration Fund	Pos/BA	2	0	2	0	2	0	2	0	0	0
	FTE/OBL	3	6,697	2	7,619	2	8,308	2	8,308	0	0
Total: Gulf Coast Restoration Fund	Pos/BA	2	0	2	0	2	0	2	0	0	0
	FTE/OBL	3	6,697	2	7,619	2	8,308	2	8,308	0	0

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	3	6,697	2	7,619	2	8,308	2	8,308	0	0
Total Obligations	3	6,697	2	7,619	2	8,308	2	8,308	0	1,851
Adjustments to Obligations:										
New offsetting collections	0	(6,027)	0	(6,429)	0	(8,308)	0	(8,308)	0	0
Change in Uncollected Payments	0	0	0	0	0	0	0	0	0	0
Recoveries	0	(89)	0	(150)	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(1,621)	0	(1,040)	0	0	0	0	0	0
Unobligated balance, EOY	0	1,040	0	0	0	0	0	0	0	0
Total Budget Authority	3	0	2	0	2	0	2	0	0	0
Financing from Transfers:										
Transfer from Other Accounts	0	0	0	0	0	0	0	0	0	0
Appropriation temporarily reduced	0	0	0	0	0	0	0	0	0	0
Net Appropriation	3	0	2	0	2	0	2	0	0	0

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Fund

Goal Statement

The Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Fund provides funding for the NOAA RESTORE Act Science Program. The purpose of this program is to initiate and sustain an integrative, holistic understanding of the Gulf of Mexico ecosystem and support, to the maximum extent practicable, restoration efforts and the long-term sustainability of the ecosystem, including its fish stocks, fishing industries, habitat, and wildlife through ecosystem research, observation, monitoring, and technology development.

Base Program

To ensure the best use of resources the Program will coordinate with existing Federal and state science and technology programs, including other activities funded under the RESTORE Act. Section 1604 of the RESTORE Act authorized funding for the Program using 2.5 percent of the Gulf Coast Restoration Trust Fund.

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11.1	Full-time permanent	250	284	310	310	0
11.3	Other than full time permanent	0	0	0	0	0
11.2	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	**Total personnel compensation**	250	284	310	310	0
12.1	Civilian personnel Benefits	95	108	117	117	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	15	17	18	18	0
22	Transportation of things	2	2	2	2	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	86	98	107	107	0
25.2	Other services from non-Federal sources	16	19	20	20	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
26	Supplies and materials	26	29	32	32	0
31	Equipment	14	16	17	17	0
41	Grants, subsidies and contributions	6,193	7,046	7,685	7,685	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
99.9	**Total Obligations**	6,697	7,619	8,308	8,308	0

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base Program	2023 Estimate	Increase/ Decrease from 2023 Base
Federal Funds	0	0	0	0	0
Less offsetting collections	(6,027)	(6,429)	(8,308)	(8,308)	0
Change in uncollected payments	0	0	0	0	0
Recoveries	(89)	(150)	0	0	0
Less unobligated balance, SOY	(1,621)	(1,040)	0	0	0
Plus unobligated balance, EOY	1,040	0	0	0	0
Plus unobligated balance transferred	0	0	0	0	0
Total Budget Authority	0	0	0	0	0
Transfers:					
Transfers from Other Accounts	0	0	0	0	0
Appropriation temporarily reduced	0	0	0	0	0
Mandatory Budget Authority	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Budget Estimates, Fiscal Year 2023

Executive Summary

For FY 2023, NOAA requests a total of $1,204,079,000 and 2,854 FTE/ 3,362 positions for National Marine Fisheries Service, including a net increase of $85,910,000 and 162 FTE/215 positions in program changes.

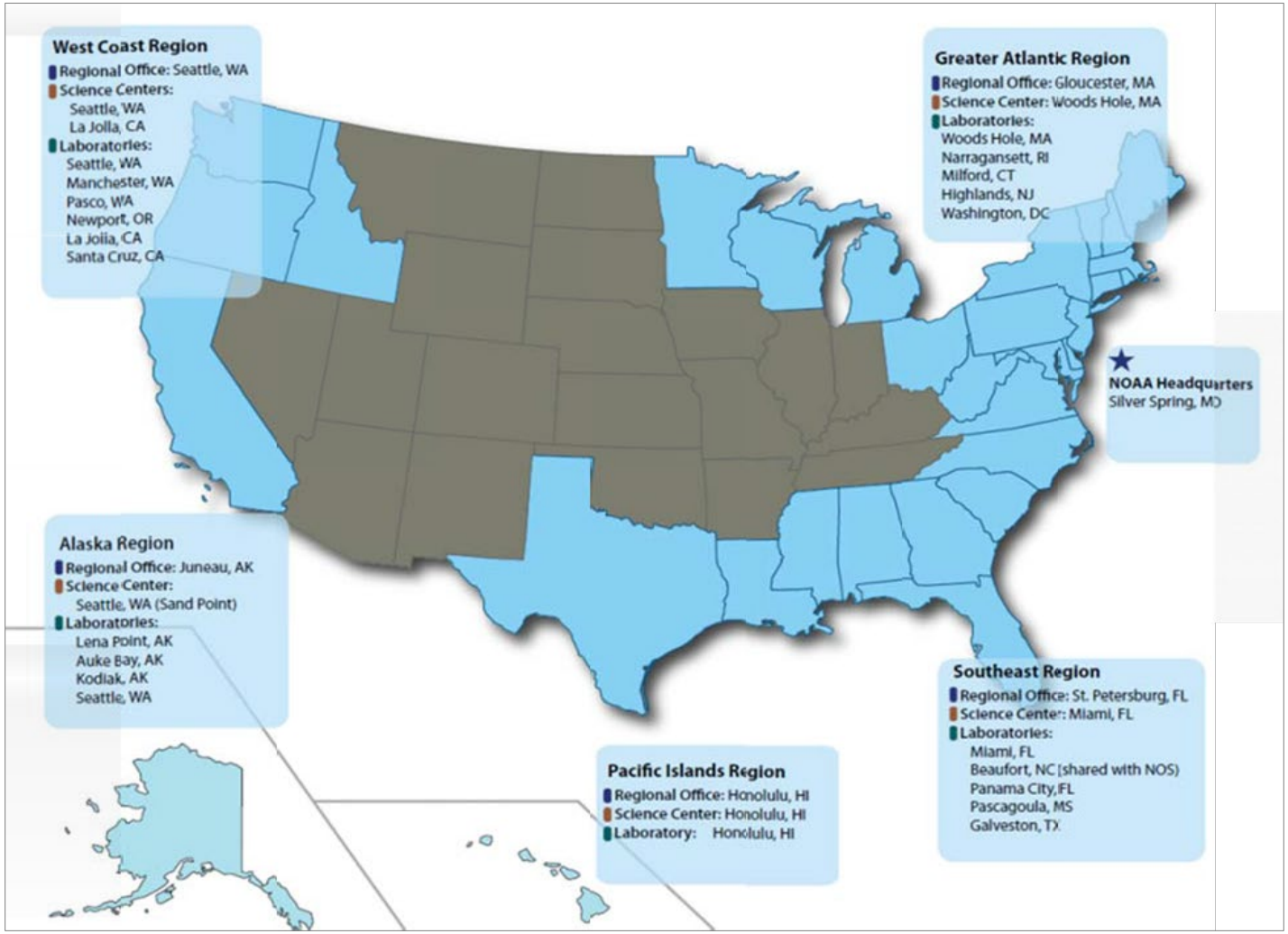
NOAA's National Marine Fisheries Service (NMFS) is responsible for the management and conservation of living marine resources within the U.S. Exclusive Economic Zone (EEZ) – the area extending from three to 200 nautical miles offshore. NMFS provides critical support to commercial and recreational marine fisheries and aquaculture industries, which generate $238.1 billion in sales impact, and support over 1.74 million jobs economy-wide.[1] NMFS also provides scientific and policy leadership in the international arena, and plays a key role in the management of living marine resources in coastal areas under state jurisdiction.

NMFS implements science-based conservation and management actions aimed at sustaining long-term use and promoting the health of coastal and marine ecosystems for the Nation's benefit. Programmatic authority for fisheries management, species protection, and habitat conservation activities is derived primarily from the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Marine Mammal Protection Act (MMPA), and Endangered Species Act (ESA). Other acts provide additional authority for enforcement, seafood safety, habitat restoration, and cooperative efforts with states, Tribes, interstate fishery commissions, and other countries. All of these activities rely on strong scientific and research capabilities to support the challenging public policy decision process associated with NMFS' stewardship responsibilities.

NMFS consists of Headquarters offices in Silver Spring, MD and five Regional Offices as well as six Science Centers in significant coastal areas around the country. Major NMFS facilities and laboratories are located at the following sites:

[1] National Marine Fisheries Service (2021) Fisheries of the United States, 2018. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-F/SPO-225, 246 p. Available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-economics-united-states.

Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Budget Estimates, Fiscal Year 2023



Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Budget Estimates, Fiscal Year 2023

Significant Adjustments:

Inflationary Adjustments
NOAA's FY 2023 Base includes a net increase of $57,479,000 and 0 FTE/ 0 positions to account for the full funding requirement for certain inflationary adjustments to current programs for NMFS activities. This includes inflationary increases for labor and non-labor activities including benefits and rent charges from the General Services Administration.

Technical Adjustments
NOAA also requests the following transfers for a net change of $0 and 0 FTE/ 0 positions to the agency:

From Office	Subactivity	To Office	Subactivity	Amount
NMFS	Fisheries Data Collections, Surveys, and Assessments (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$1,562,000 / 13 FTE / 13 positions

NOAA requests a transfer of $1,562,000 and 13 FTE/13 positions from the NMFS Fisheries Data Collections, Surveys, and Assessments PPA to the OMAO NOAA Commissioned Officer Corps PPA to allow for better alignment of funding and greater transparency over the full cost of the NOAA Corps. With this transfer, funding for all NOAA Corps personnel will reside within OMAO. This increases efficiency within the program by reducing administrative burdens and allows NOAA to better manage personnel requirements consistent with the NOAA Corps Amendments Act of 2020.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries Data Collections, Surveys, and Assessments (ORF) - Transfer to NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	45,849	0	52,055
11.3	Other than full-time permanent	306	0	346
11.5	Other personnel compensation	2,088	0	2,360
11.7	NOAA Corps	1,562	(1,562)	0
11.9	Total personnel compensation	49,805	(1,562)	54,761
12	Civilian personnel benefits	17,611	0	19,943
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	640	0	640
22	Transportation of things	449	0	449
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	3,000	0	3,000
23.2	Rental Payments to others	224	0	224
23.3	Communications, utilities and misc charges	8,065	0	8,065
24	Printing and reproduction	90	0	90
25.1	Advisory and assistance services	16,643	0	16,643
25.2	Other services from non-Federal sources	21,237	0	21,175
25.3	Other goods and services from Federal sources	212	0	212
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	3,123	0	3,123
31	Equipment	1,375	0	1,375
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	53,453	0	53,453
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	175,927	(1,562)	183,153

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers

Exhibit 10

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NATIONAL MARINE FISHERIES SERVICE (NMFS)											
Protected Resources Science and	Pos/BA	775	202,571	853	206,664	853	220,489	915	239,965	62	19,476
Management	FTE/OBL	714	206,661	714	205,664	714	220,489	761	239,965	47	19,476
Fisheries Science and	Pos/BA	1,703	618,372	1,835	626,573	1,822	659,038	1,973	725,172	151	66,134
Management	FTE/OBL	1,638	649,859	1,568	626,573	1,555	659,038	1,669	725,172	114	66,134
Enforcement	Pos/BA	239	73,494	257	75,000	257	79,899	257	79,899	0	0
	FTE/OBL	223	80,084	214	75,000	214	79,899	214	79,899	0	0
Habitat Conservation &	Pos/BA	180	56,699	185	57,625	185	61,353	185	61,353	0	0
Restoration	FTE/OBL	190	57,579	179	57,625	179	61,353	179	61,353	0	0
TOTAL NMFS - ORF	**Pos/BA**	**2,897**	**951,136**	**3,130**	**965,862**	**3,117**	**1,020,779**	**3,330**	**1,106,389**	**213**	**85,610**
	FTE/OBL	**2,765**	**994,183**	**2,675**	**964,862**	**2,662**	**1,020,779**	**2,823**	**1,106,389**	**161**	**85,610**
TOTAL NMFS - PAC	**Pos/BA**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	FTE/OBL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pacific Coastal Salmon	Pos/BA	2	64,935	2	65,000	2	65,000	2	65,000	0	0
Recovery Fund	FTE/OBL	2	64,928	2	65,011	2	65,000	2	65,000	0	0
Fisheries Disaster	Pos/BA	0	299,700	0	0	0	0	2	300	2	300
Assistance Fund	FTE/OBL	2	353,583	0	115,128	0	0	1	300	1	300
Fishermen's Contingency Fund	Pos/BA	0	0	0	349	0	349	0	349	0	0
	FTE/OBL	0	99	0	349	0	349	0	349	0	0
Foreign Fishing Observer Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Finance Program	Pos/BA	0	3,564	0	17,293	0	0	0	0	0	0
Account	FTE/OBL	0	3,566	0	17,293	0	0	0	0	0	0
Federal Ship Financing	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Promote and Develop Fisheries	Pos/BA	0	12,000	0	7,989	0	7,530	0	7,530	0	0
Products	FTE/OBL	0	11,377	0	9,335	0	7,530	0	7,530	0	0
Environmental Improvement and	Pos/BA	0	6,527	0	4,652	0	1,775	0	1,775	0	0
Restoration Fund	FTE/OBL	0	6,528	0	4,652	0	1,775	0	1,775	0	0
Limited Access System	Pos/BA	28	12,070	28	14,325	28	14,857	28	14,857	0	0
Administration Fund	FTE/OBL	28	12,904	28	13,798	28	14,755	28	14,755	0	0
Marine Mammal Unusual Mortality	Pos/BA	0	1	0	0	0	0	0	0	0	0
Event Fund	FTE/OBL	0	0	0	0	0	20	0	20	0	0
Western Pacific Sustainable	Pos/BA	0	578	0	766	0	893	0	893	0	0
Fisheries Fund	FTE/OBL	0	505	0	900	0	893	0	893	0	0
Fisheries Enforcement Asset	Pos/BA	0	2,130	0	(2,019)	0	3,032	0	3,032	0	0
Forfeiture Fund	FTE/OBL	0	5,108	0	5,446	0	3,032	0	3,032	0	0
	Pos/BA	0	2,488	0	3,158	0	3,954	0	3,954	0	0
North Pacific Observer Fund	FTE/OBL	0	3,040	0	3,329	0	3,954	0	3,954	0	0
TOTAL NMFS	**Pos/BA**	**2,927**	**1,355,129**	**3,160**	**1,077,375**	**3,147**	**1,118,169**	**3,362**	**1,204,079**	**215**	**85,910**
	FTE/OBL	**2,797**	**1,455,821**	**2,705**	**1,200,103**	**2,692**	**1,118,087**	**2,854**	**1,203,997**	**162**	**85,910**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Protected Resources Science and Management

Goal Statement

The mission of the Protected Resources Science and Management activity is to assess, understand, and protect the health of protected species, the ecosystems that sustain them, and the communities that value and depend on them.

Base Program

NMFS, in partnership with internal and external stakeholders, uses best available science to develop and implement best practices and conservation actions to reduce threats to protected species and their marine and coastal ecosystems. Protected species include those listed under the Endangered Species Act (ESA) and marine mammals covered by the Marine Mammal Protection Act (MMPA). NMFS Programs funded within this activity operate under the legislative authority of the ESA and MMPA. NMFS implements the ESA and MMPA with the U.S. Fish and Wildlife Service (USFWS). In general, USFWS is responsible for the conservation of terrestrial and freshwater aquatic organisms, some marine mammals, and marine turtles on their nesting beaches. NMFS is responsible for the conservation of most marine mammals, most marine and anadromous fish (i.e., fish that migrate from the sea to freshwater to spawn), marine turtles at sea, marine invertebrates (including corals), and marine plants. In addition, the Marine Mammal Commission provides oversight and makes recommendations to NMFS on priority marine mammal issues, and three regional Scientific Review Groups provide independent review of our marine mammal stock assessments.

Statement of Operating Objectives

Schedule and Deliverables:
FY 2023 – FY 2027:

- Review listing petitions and issue 90-day findings, conduct ESA status reviews and issue 12-month findings, and promulgate ESA protective regulations
- Prepare recovery plans and implement recovery actions identified in the plans to improve the status of ESA-listed species, including climate vulnerable protected species.
- Designate critical habitat
- Provide technical assistance, consultation, and authorization services for all Federal agencies' proposed actions (ESA Section 7)

- Work with Take Reduction Teams (TRTs) to achieve MMPA goals through increased compliance monitoring and bycatch assessments
- Evaluate effectiveness and recommend enforcement measures, modify existing regulations, and add protective measures to reduce marine mammal bycatch in fisheries
- Research the effects of human activities on the conservation and recovery of protected species
- Analyze protected species survey data to determine population trends
- Solicit proposals and award Species Recovery Grants to states and tribes for conservation and recovery activities with a focus on Species in the Spotlight
- Participate in international and regional agreements to further the U.S. policy on protected species conservation

Deliverables:
FY 2023 – FY 2027:

- ESA proposed and final listing regulations, Section 4(d) rules, and critical habitat regulations
- Formal and informal consultation with other Federal agencies
- New and updated recovery plans for recently listed and climate vulnerable species with specific actions to prevent species extinction
- Timely issuance of MMPA and ESA permits, including scientific research permits and incidental harassment authorizations
- Improved or newly developed abundance and fishery mortality estimates for stocks
- MMPA List of Fisheries classifying U.S. commercial fisheries into one of three Categories according to the level of incidental mortality or serious injury of marine mammals
- Marine Mammal Stock Assessment Reports

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

Comparison by subactivity		2021 Actual Personnel	2021 Actual Amount	2022 Annualized CR Personnel	2022 Annualized CR Amount	2023 Base Personnel	2023 Base Amount
Marine Mammals, Sea Turtles, and Other Species	Pos/BA	447	123,213	489	125,164	489	133,408
	FTE/OBL	412	127,227	402	125,164	402	133,408
Species Recovery Grants	Pos/BA	4	6,925	4	7,000	4	7,021
	FTE/OBL	2	6,479	2	7,000	2	7,021
Atlantic Salmon	Pos/BA	23	6,388	23	6,500	23	6,918
	FTE/OBL	23	6,703	22	6,500	22	6,918
Pacific Salmon	Pos/BA	301	66,045	337	67,000	337	73,142
	FTE/OBL	277	66,252	288	67,000	288	73,142
Total Protected Resources Science and Management	Pos/BA	775	202,571	853	205,664	853	220,489
	FTE/OBL	714	206,661	714	205,664	714	220,489

Marine Mammals, Sea Turtles, and Other Species

Under the legislative authority of the ESA and MMPA, this budget line supports activities that conserve and recover species threatened or endangered with extinction, as well as most marine mammals. The programs under this budget line aim to sustain marine and anadromous species and the ecosystems on which they depend, and to enable economic development in a manner compatible with species conservation and recovery.

In addition to work supporting all ESA-listed species, NOAA continues to focus on the “Species in the Spotlight: Survive to Thrive” initiative, an innovative approach to marshal public and private support to slow, halt, and reverse the population decline of nine of our most endangered species—Hawaiian monk seals, Southern Resident killer whales, white abalone, Cook Inlet beluga whales,

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North Atlantic right whales, Atlantic salmon, Pacific leatherback turtles, Sacramento River winter-run Chinook, and Central California Coast coho. (https://www.fisheries.noaa.gov/topic/endangered-species-conservation#species-in-the-spotlight)
Major components of this budget line include:

Listing (ESA Section 4): Any U.S. citizen or organization may petition NMFS to list a species as threatened or endangered, reclassify an already listed species, or revise designated critical habitat under the ESA. Once a petition is received, NMFS has 90 days to make an initial determination and 12 months for determining whether the listing or reclassification is warranted. Details of the Listing process can be found at https://www.fisheries.noaa.gov/national/endangered-species-conservation/listing-species-under-endangered-species-act.

Recovery (ESA Section 4): The ESA requires NMFS to use all methods and procedures to bring listed species to the point where the protections of the ESA are no longer necessary. NMFS oversees and conducts these methods and procedures to allow the species and its ecosystems to recover, as well as to ensure that listed species remain functioning members of the ecosystems we all depend upon. Details on the recovery actions can be found at https://www.fisheries.noaa.gov/national/endangered-species-conservation/recovery-species-under-endangered-species-act. These actions are important to provide communities with healthier ecosystems, cleaner water, greater opportunities for recreation, and the opportunity for current and future generations to share the benefits of diverse and healthy natural resources.

Species Stock Assessment and Monitoring (ESA Section 4, MMPA Sections 115 and 117): This program supports protected species stock assessment and monitoring activities using a variety of observation and survey methods, including use of marine acoustics, unmanned systems, surveys (ship, aerial, and shore-based), and telemetry. To adequately support management decisions, assessments are comprehensive and include estimates of abundance and distribution, as well as analysis of historical trends, serious injury and mortality levels, life history and demographics, and impacts of human activities (e.g., noise, climate, habitat, and ecosystem change). NMFS collects this basic assessment data so it can be as targeted as possible in prescribing mitigation measures that affect commercial and recreational activities. Details on marine mammal stock assessments can be found at https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.

Research (ESA Section 4, MMPA Sections 115 and 117): NMFS conducts research to inform conservation and management actions, focusing on the biology, behavior, and health of marine mammal species; genetic differentiation; ecosystem interactions; and effects of human activities on the recovery and conservation of protected species. Effective conservation requires understanding how human and natural factors influence the viability of marine species and their ecosystems.

Interagency Consultation (ESA Section 7): ESA Section 7 requires Federal agencies to ensure that any action they fund, authorize, or undertake is not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat that has been designated for these species. This consultation with Federal action agencies enables authorization for lawful activities—such as construction of roads and bridges, commercial fishing, or defense readiness training—in a manner that is compatible with species conservation and recovery.

Permits and Authorizations (ESA Section 10 and MMPA Sections 101 and 104): Under the ESA and MMPA, NMFS issues permits and authorizations (often with required mitigation measures) to allow activities that may result in the direct and indirect take of a protected species. Permits and take authorizations cover scientific research and the incidental take and harassment of marine mammals by otherwise lawful activities such as seismic surveys, construction activities, or military readiness training exercises when those activities are deemed to have negligible impact on the species. Details on permits and authorizations of protected species can be found at https://www.fisheries.noaa.gov/insight/understanding-permits-and-authorizations-protected-species.

Conservation Planning (ESA Section 10): When non-Federal entities—such as states, counties, local governments, and private landowners—wish to conduct an otherwise lawful activity that might incidentally, but not intentionally, "take" a listed species, an incidental take permit must first be obtained from NMFS. NMFS reviews the Conservation Plans submitted by permit applicants that are designed to offset harmful effects that a proposed activity might have on listed species and issues permits accordingly.

Bycatch Reduction (ESA Section 4, MMPA Section 118): Fishing gear can accidentally capture protected species, such as marine mammals, seabirds, and sea turtles. NMFS works with the fishing industry and others through Take Reduction Teams or other means to modify fishing gear or practices to minimize bycatch and its impact.

Co-Management with Alaska Native Organizations (MMPA Section 119): Co-management promotes full and equal participation by Alaska Natives in decisions affecting the subsistence management of marine mammals (to the maximum extent allowed by law) as a tool for conserving marine mammal populations in Alaska. NMFS has entered into agreements with Alaska Native groups to manage harvested marine mammal stocks, and will continue to actively engage in activities to support the cooperative management of these stocks under the agreements.

Marine Mammal Health and Stranding Response Program (MMPA Title IV): NMFS is the lead Federal agency to coordinate marine mammal stranding networks, responses, and investigations of marine mammal mortality events. The Marine Mammal Health and Stranding Response Program (MMHSRP) has also been highly successful in developing public-private partnerships that provide emergency response to live or dead marine mammals and investigate the health of marine mammal populations in the wild. The

more than 100 stranding network partners are volunteers and trained professionals from nonprofit organizations; aquaria; universities; and coastal state, local, and Tribal governments. Each member plays an important role in helping NMFS meet our congressional mandates. Data collected from stranded animals are valuable for informing marine mammal stock assessment reports, identifying key species recovery activities, monitoring ocean health, and identifying natural and manmade causes of stranding, illness, and death in marine mammals around the United States. Details on the MMHSRP can be found at https://www.fisheries.noaa.gov/national/marine-life-distress/marine-mammal-health-and-stranding-response-program.

The Prescott Grants Program provides competitive grants to stranding network organizations to rescue, rehabilitate, or investigate sick, injured, or distressed live marine mammals and to determine the cause of death or disease of dead marine mammals. To date the program has led to significant improvements within the stranding network, enabling members to expand response coverage over wider geographic areas; enhance capabilities and data collection; upgrade rehabilitation facilities; evaluate rehabilitation success; increase understanding of the causes of disease and mortality, and provide safer operations for both animals and people.

Species Recovery Grants (ESA Section 6, Fish and Wildlife Coordination Act)
Recovery and conservation actions for listed species under NMFS jurisdiction are implemented through Species Recovery Grants, which are awarded to states and Tribes. Details on Species Recovery Grants can be found at https://www.fisheries.noaa.gov/grant/species-recovery-grants-states and https://www.fisheries.noaa.gov/grant/species-recovery-grants-tribes. For listed species, funding supports activities such as reducing or removing significant sources of mortality and injury, assessing and monitoring species status and trends, developing conservation plans, conserving habitat, and engaging the public in conservation efforts. Funding may also support monitoring of candidate species and recently delisted species.

Atlantic Salmon (ESA Sections 4, 7, 10)
These programs provide funding for the conservation and recovery of ESA-listed Atlantic salmon in the Northeast. Gulf of Maine Atlantic salmon are co-managed by NMFS, USFWS, the Maine Department of Marine Resources, and the Penobscot Indian Nation. Under the ESA, the Essential Fish Habitat provisions under Magnuson-Stevens Act, and a joint Statement of Cooperation with the co-managers, NMFS is responsible for marine stock assessments, designating critical habitat, estuary and marine interagency Section 7 consultations and habitat conservation planning, and minimizing dam impacts.

Pacific Salmon (ESA, All Sections)
Under the legislative authority of the ESA, NMFS conducts interagency Section 7 consultations, habitat conservation planning, and listing and recovery actions to protect and recover threatened and endangered Pacific salmon and steelhead. NMFS also conducts research, monitoring, and analysis to provide managers and regional stakeholders the tools and information necessary to advance

salmonid recovery to ensure biological sustainability of Pacific salmonids and the ecosystems on which they depend. Partnerships among Federal, state, local, and tribal entities, together with non-governmental and private organizations, are key to restoring healthy salmon runs and securing the economic and cultural benefits they provide.

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Marine Mammals, Sea Turtles, and Other Species	Pos./BA	489	133,408	519	138,408	30	5,000
	FTE/OBL	402	133,408	425	138,408	23	5,000

Endangered Species Act Consultations and Marine Mammal Protection Act Permitting (+$5,000, 23 FTE/30 Positions) – The Endangered Species Act (ESA) requires Federal action agencies/applicants to consult with NMFS when an action they take might affect an ESA-listed species. The Marine Mammal Protection Act (MMPA) requires that NMFS process requests for incidental take authorization for the unintentional "take" of marine mammals incidental to activities such as construction projects, offshore energy development, and military exercises. NMFS needs additional staff to reduce its consultation backlog and to keep up with incoming consultation and authorization requests - which will likely increase substantially from the Infrastructure Investment and Jobs Act and the pace with which offshore wind energy development is anticipated to expand across the country.

NMFS completed 932 consultations in FY 2020 and 866 consultations in FY 2021. As of January 2022, there were 151 open consultations, 53 of which were past statutory deadlines. In recent years, NMFS has actively pursued efficiencies in the ESA section 7 consultation and MMPA authorization processes. One of our main efforts to streamline formal consultations is the expanded use of programmatic consultations. Our efforts have substantially reduced the total number of individual consultations while providing consistent mitigation across similar activities. Tracking and monitoring of informal consultation requests and processes show that, we have reduced our processing time of ESA regulatory processes by ~50 percent and of MMPA processes by ~25 percent (both since baseline in 2016). The requested funds will further support our progress through an additional 15 percent reduction in days to complete formal ESA consultations.

While programmatic consultations increase efficiency, many of the new consultations coming in the door tend to be more complex, requiring more time and experienced staff to complete them. It is essential that new staff are sufficiently trained to work on consultations and authorizations which takes additional time and resources. This investment will support increased staff capacity and create a flexible and resilient section 7 team that can shift focus and be assigned to a Region for a two-year period, or as appropriate, to address priority consultation actions. As consultation workload shifts, these staff can follow that workload surge and work on consultations for a new region.

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Schedule and Milestones:
FY 2023 – FY 2027:

- Conduct 10-15 additional formal ESA section 7 consultations per year
- Conduct 40-50 additional informal ESA section 7 consultations per year
- Provide incidental take coverage for 10-15 additional activities per year
- Issue 30-40 additional direct take permits per year

Deliverables:
FY 2023 – FY 2027:

- Provide technical assistance, consultation, and authorization services for all Federal agencies' proposed actions
- Develop programmatic consultation mechanisms
- Provide incidental take coverage under the MMPA
- Conduct post-project implementation monitoring and adaptive management Issue MMPA direct take permits

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	2023	2024	2025	2026	2027
Performance Measures					
Average number of days to complete formal ESA Section 7 consultations					
With Increase	N/A	205	200	190	180
Without Increase	210	210	210	210	210
Average number of days to complete incidental harassment authorizatoin					
With Increase	N/A	5.2	4.5	4.5	4.5
Without Increase	5.2	5.2	5.2	5.2	5.2
Outyear Costs:					
Direct Obligations	5,000	5,000	5,000	5,000	5,000
Capitalized	0	0	0	0	0
Uncapitalized	5,000	5,000	5,000	5,000	5,000
Budget Authority	5,000	5,000	5,000	5,000	5,000
Outlays	4,000	4,000	4,000	4,000	4,000
FTE	23	30	30	30	30
Positions	30	30	30	30	30

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Protected Resources Science and Management
Subactivity: Marine Mammals, Sea Turtles and Other Species
Program Change: ESA Consultations and MMPA Permitting

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist - Silver Spring, MD		ZP-III	14	74,950	1,049,300
Fisheries Biologist - Silver Spring, MD		ZP-IV	3	106,823	320,469
Fisheries Biologist - Gloucester, MA		ZP-III	1	74,129	74,129
Fisheries Biologist - St. Petersburg, FL		ZP-III	4	70,545	282,180
Fisheries Biologist - St. Petersburg, FL		ZP-IV	1	100,545	100,545
Fisheries Biologist - Seattle, WA		ZP-III	4	73,098	292,392
Fisheries Biologist - Seattle, WA		ZP-IV	1	104,184	104,184
Fisheries Biologist - Juneau, AK		ZP-III	1	74,317	74,317
Fisheries Biologist - Honolulu, HI		ZP-III	1	68,608	68,608
Total			30		2,366,124
Less lapse	25.00%		(7)		(591,531)
Total full-time permanent (FTE)			23		1,774,593
2023 Pay Adjustment (4.6%)					81,631
					1,856,224

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	23
Total FTE	23
Authorized Positions:	
Full-time permanent	30
Total Positions	30

Exhibit 15

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Protected Resources Science and Management
Subactivity: Marine Mammals, Sea Turtles, and Other Species

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	50,746	49,922	55,704	57,560	1,856
11.3	Other than full-time permanent	728	716	799	799	0
11.5	Other personnel compensation	996	980	1,094	1,094	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	52,470	51,618	57,597	59,453	1,856
12	Civilian personnel benefits	19,878	19,556	21,821	22,304	483
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	832	818	818	818	0
22	Transportation of things	177	174	174	224	50
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	767	755	755	755	0
23.2	Rental Payments to others	487	479	479	479	0
23.3	Communications, utilities and misc charges	514	506	506	506	0
24	Printing and reproduction	171	169	169	169	0
25.1	Advisory and assistance services	6,518	6,412	6,412	8,993	2,581
25.2	Other services from non-Federal sources	17,240	16,961	16,961	16,961	0
25.3	Other goods and services from Federal sources	1,900	1,869	1,869	1,869	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	135	133	133	133	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	2,807	2,762	2,762	2,782	20
31	Equipment	536	527	527	537	10
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	22,795	22,425	22,425	22,425	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	127,227	125,164	133,408	138,408	5,000

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Marine Mammals, Sea Turtles, and Other Species	Pos./BA	489	133,408	520	137,884	31	4,476
	FTE/OBL	402	133,408	425	137,884	23	4,476

Wind Energy: Protected Species Environmental Reviews and Science (+$4,476, 23 FTE/31 Positions) – This request will allow NMFS to assess the effects of planned offshore energy activities on Endangered Species Act (ESA) listed species and critical habitat; coordinate Marine Mammal Protection Act (MMPA) incidental take authorizations; and conduct review of environmental impact statements (EIS) analyzing the impacts to living marine resources and affected communities under the National Environmental Policy Act (NEPA). These funds support the Administration's goal of deploying 30 gigawatts of wind energy by 2030.

Offshore wind development has been and continues to rapidly expand in the Northeast and Mid-Atlantic, and BOEM is planning to hold up to seven new lease sales between 2022 and 2025 in the Gulf of Maine, New York Bight, Central Atlantic, and Gulf of Mexico and off the coasts of the Carolinas, north and central California, and Oregon. Offshore wind represents a new and significant use of our marine waters requiring substantial scientific and regulatory review. NMFS will work with the Bureau of Ocean Energy Management (BOEM) to minimize the effects of offshore energy projects on protected resources, fisheries, and important habitats in the region; reduce delays and minimize adverse economic impacts to the fishing industry and related coastal communities; and mitigate impacts to fisheries surveys. NMFS is requesting a total of $36.7 million in four complementary areas to address the rapid expansion and the impacts of offshore energy projects. The other components can be found in Fisheries Ecosystem Science Programs and Services (NMFS-56); Fisheries Data Collections, Surveys, and Assessments (NMFS-76); and Fisheries Management Programs and Services (NMFS-91). This effort complements the $8.7 million NOS proposal, Foundational Information for Expansion of Offshore Wind Energy (NOS-39).

NMFS requests a $4.5 million increase for offshore energy assessment related to protected resources. Funds will allow NMFS to efficiently and effectively carry out increased ESA section 7 consultation and MMPA authorization work associated with new BOEM activities, and support early engagement with BOEM and project proponents. The increase will also enable NMFS to minimize impacts and delays to existing workload carried by existing consultation biologists and authorization analysts. In addition, this funding supports the review of comprehensive and complex EIS's to ensure that NMFS can provide BOEM reasonable alternatives with

sufficient analysis to assess the impacts to protected resources and their habitats. These tasks routinely require dedicated engagement with BOEM staff and contractors to allow NMFS to conduct sufficient assessments and consultation as a cooperating agency and as an adopting agency for NMFS-issued MMPA Incidental Take Authorizations. Funds will also allow NMFS to research interactions of protected species and their habitats with offshore wind energy. These funds will focus on the operational needs associated with offshore wind projects in the Northeast and Mid-Atlantic region, and also include initial investments in the West Coast, Gulf of Mexico, and South Atlantic. These funds will position NMFS to meet current and future challenges of regulatory and scientific review. NOAA's expertise in managing and conserving ocean species and habitats is critical to supporting the Administration's priority of deploying 30 gigawatts of offshore wind by 2030, by facilitating responsible renewable energy development while protecting ecosystems and ensuring co-ocean use.

Schedule and Milestones:
FY 2023 – FY 2027:

- Consistent with the Administration's goal of achieving the capacity to generate 30 GW of offshore wind power by 2030, provide information, expert advice, and guidance to BOEM to implement offshore wind development for approximately 25 to 35 projects over a four to five year period beginning in FY 2023 that considers impacts to protected species and their habitats, with a particular focus on the critically endangered North Atlantic right whale
- Through NMFS' role as both a Cooperating Agency and Adopting Agency under NEPA, identify and share living marine resources expertise and make recommendations upon potential environmental, biological, and socio-economic impacts on our trust resources on approximately 25 to 35 projects over a four to five year period by 2027. This will allow regulators and developers to consider the full scope of impacts
- Complete thorough and timely ESA consultations and MMPA authorizations for project consultation and authorization requests that are based on the best available scientific information while fulfilling FAST-41[2] obligations
- Advance management's understanding of and science-based evidence for the interactions of protected species and their habitats with offshore wind energy
- Establish and support regional collaborative ecosystem-scale research and monitoring programs across project/ecosystem scales to develop the necessary understanding of fisheries, habitat, and protected species interactions with wind development and the associated cumulative impacts to these resources and the habitats and ecosystems on which they rely, including potential changes in oceanographic conditions

[2] P.L. 114-94 Title 41, Fixing America's Surface Transportation Act

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Deliverables:

FY 2023- FY 2027:

- NEPA reviews of the direct, indirect, short-term, long-term, and cumulative impacts to marine mammals, threatened and endangered species, ESA critical habitat, and resource users and associated communities
- Provide input on planning and analysis and leasing documents and notices during BOEM's initial phases of offshore wind develop and on project milestones and timelines, Draft Environmental Impact Statements, Final Environmental Impact Statements, and Records of Decision structure, content, and appropriate methodology for impact analysis to BOEM to improve document quality
- Scientific manuscripts for publication in peer-reviewed journals to aid in establishing NMFS as a global leader on topics related to offshore wind and protected species science
- Regional scientific frameworks for protected species and wildlife research and monitoring, developed with regional partners
- Convene State of the Science Symposia, in partnership with scientific and industry collaborators, on the status of protected species interactions with offshore wind energy (FY 2024, FY 2026)

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Performance Measures	2023	2024	2025	2026	2027
Reducing uncertainty of wind and fisheries impacts within regulatory reviewing process – Number of independent peer reviewed literature documenting the effects and impacts of offshore wind development on fisheries and protected species recovery and conservation					
With Increase	5	5	6	8	7
Without Increase	0	0	0	0	0
The number of wind energy projects where early and comprehensive coordination with BOEM and industry yields sufficient information and analysis to inform NMFS consultations and reviews, resulting in improved protection of NOAA Trust Resources					
With Increase	25	25	27	27	29
Without Increase	4	5	4	4	4
Outyear Costs:					
Direct Obligations	4,476	4,476	4,476	4,476	4,476
Capitalized	0	0	0	0	0
Uncapitalized	4,476	4,476	4,476	4,476	4,476
Budget Authority	4,476	4,476	4,476	4,476	4,476
Outlays	3,581	3,581	3,581	3,581	3,581
FTE	23	31	31	31	31
Positions	31	31	31	31	31

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Protected Resources Science and Management
Subactivity: Marine Mammals, Sea Turtles, and Other Species
Program Change: Wind Energy: Protected Species Environmental Reviews and Science

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist (WCRO)		ZPIV	1	104,184	104,184
Fisheries Biologist (NEFSC)		ZPIV	1	105,654	105,654
Fisheries Biologist (GARFO)		ZPIV	1	105,654	105,654
Fisheries Biologist (OPR)		ZPIV	4	106,823	427,292
Fisheries Biologist (SWFSC)		ZPIV	1	106,287	106,287
Fisheries Biologist (WCRO)		ZPIII	6	73,098	438,588
Fisheries Biologist (OPR)		ZPIII	4	74,950	299,800
Fisheries Biologist (GARFO)		ZPIII	6	74,129	444,774
Fisheries Biologist (NEFSC)		ZPIII	3	74,129	222,387
Fisheries Biologist (SERO)		ZPIII	4	66,214	264,856
Total			31		2,519,476
Less lapse	25.00%		(8)		(629,869)
Total full-time permanent (FTE)			23		1,889,607
2023 Pay Adjustment (4.6%)					86,922
					1,976,529

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	23
Total FTE	23
Authorized Positions:	
Full-time permanent	31
Total Positions	31

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Protected Resources Science and Management
Subactivity: Marine Mammals, Sea Turtles, and Other Species

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	50,746	49,922	55,704	57,681	1,977
11.3	Other than full-time permanent	728	716	799	799	0
11.5	Other personnel compensation	996	980	1,094	1,094	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	52,470	51,618	57,597	59,574	1,977
12	Civilian personnel benefits	19,878	19,556	21,821	22,335	514
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	832	818	818	942	124
22	Transportation of things	177	174	174	174	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	767	755	755	755	0
23.2	Rental Payments to others	487	479	479	479	0
23.3	Communications, utilities and misc charges	514	506	506	506	0
24	Printing and reproduction	171	169	169	169	0
25.1	Advisory and assistance services	6,518	6,412	6,412	6,412	0
25.2	Other services from non-Federal sources	17,240	16,961	16,961	18,777	1,816
25.3	Other goods and services from Federal sources	1,900	1,869	1,869	1,869	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	135	133	133	133	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	2,807	2,762	2,762	2,770	8
31	Equipment	536	527	527	564	37
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	22,795	22,425	22,425	22,425	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	127,227	125,164	133,408	137,884	4,476

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Species	Pos./BA	4	7,021	5	17,021	1	10,000
Recovery Grants	FTE/OBL	2	7,021	3	17,021	1	10,000

Species Recovery Grants Program (+$10,000, 1 FTE/1 Positions) –This request enhances conservation and recovery of marine and anadromous species by increasing tribal and state capacity for species recovery and will allow NMFS to increase substantially (more than double) the number of state and tribal conservation programs it funds on an annual basis. Twenty-five states (including U.S. territories), and all federally recognized tribes are eligible to receive this funding. States and tribes have management authorities and responsibilities for protected species within their jurisdictions and, as such, they are uniquely qualified to partner with NMFS in the implementation of recovery actions for listed species. Overall, the number of species requiring the protections of the ESA is increasing, climate change is anticipated to negatively impact the status of these species, and there are numerous recovery needs for currently listed species. These factors present a need for NMFS to increase investment in recovery and delisting efforts to complete a greater number of high-priority recovery actions for a variety of listed species with the goal of recovering these species to the point where protections under the ESA are no longer necessary.

Examples of accomplishments of funded work (conducted by states or tribes) to date include: the captive breeding and release of white abalone into the wild to prevent extinction (California); the removal of dams and repair of water control structures to allow Atlantic salmon access to historical spawning grounds (Maine); significant outreach efforts to decrease fisheries interactions with Hawaiian monk seals (Hawaii); the assessment of Atlantic, shortnose, and Gulf sturgeon spawning success and recruitment and identification of fine-scale habitat use to fill critical data gaps (Maryland, Delaware, Connecticut, North Carolina, Mississippi, New Jersey, Pamunkey Indian Tribe); the establishment of coral nurseries and propagation of listed coral species (Florida, U.S. Virgin Islands); the monitoring of sea turtle populations and stranding and rescue support (Virginia, Florida, CNMI, Puerto Rico, Guam, Georgia, South Carolina); the assessment of population trends and seasonal distribution of endangered whales (Washington, Oregon, Massachusetts); the passive acoustic monitoring of Cook Inlet Beluga whales to obtain information on foraging behavior

effects of noise pollution (Alaska); increasing the understanding of eulachon life history in the Elwha River (Lower Elwha Klallam Tribe); and determining the dietary niche overlap with Southern Resident killer whales (Makah Tribe).

There is an increasing need for NOAA to create and foster natural and economic resilience along our coasts through expertise and robust, on-the-ground partnerships and place-based conservation activities. Ecological restoration and community resilience, as outlined in EO 14008, are integral to NOAA and the Administration's climate strategy. NOAA is also committed to advancing equity and environmental justice, as stated in EO 13985. Through the allocation of funds to tribes, NOAA works in partnership with federally recognized tribes to support management, research, monitoring, and outreach activities that have direct conservation benefits for ESA-listed species. Providing funding opportunities to tribal communities helps to advance fairness and opportunity of Federal resources by justly distributing benefits among our tribal partners and increasing the share of funding and services to underserved communities. Additionally, building partnerships with our tribal communities helps establish and improve communications and relationships with underserved communities to better understand their needs and, in particular, their cultural and subsistence value of ESA-listed species.

Schedule and Milestones:
FY 2023 – FY 2027:

- Solicit and review Species Recovery Grant proposals submitted by states and tribes for conservation and recovery programs and activities
- Develop additional Section 6 agreements with states and territories
- Amend current Section 6 agreements with states and territories to include newly listed species or those most urgently in need of conservation programs

Deliverables:
FY 2023 – FY 2027:

- Award Species Recovery Grants to various states and tribes
- Implement recovery actions identified in recovery plans to prevent species extinction

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

	2023	2024	2025	2026	2027
Performance Measures					
Number of recovery activities being addressed through Species Recovery Grants					
With Increase	85	85	85	85	85
Without Increase	35	35	35	35	35
Outyear Costs:					
Direct Obligations	10,000	10,000	10,000	10,000	10,000
Capitalized	0	0	0	0	0
Uncapitalized	10,000	10,000	10,000	10,000	10,000
Budget Authority	10,000	10,000	10,000	10,000	10,000
Outlays	6,200	6,200	6,200	6,200	6,200
FTE	1	1	1	1	1
Positions	1	1	1	1	1

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Protected Resources Science and Management
Subactivity: Species Recovery Grants
Program Change: Species Recovery Grants

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist - Silver Spring, MD		ZP-III	1	74,950	74,950
Total			1		74,950
Less lapse	25.00%		(0)		(18,738)
Total full-time permanent (FTE)			1		56,213
2023 Pay Adjustment (4.6%)					2,586
					58,798

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	1
Total FTE	1
Authorized Positions:	
Full-time permanent	1
Total Positions	1

Exhibit 15

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Protected Resources Science and Management
Subactivity: Species Recovery Grants

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	306	331	346	405	59
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	306	331	346	405	59
12	Civilian personnel benefits	115	124	130	145	15
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	5	5
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	19	20	20	20	0
25.2	Other services from non-Federal sources	0	0	0	0	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	0	0	0	5	5
31	Equipment	0	0	0	2	2
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	6,039	6,525	6,525	16,439	9,914
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	6,479	7,000	7,021	17,021	10,000

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Fisheries Science and Management

Goal Statement

The Fisheries Science and Management activity encompasses scientific and management activities to ensure sustainability of the Nation's marine fishery resources.

Base Program

In partnership with the eight Regional Fishery Management Councils, state and Federal partners, and regional fishery management organizations for international fisheries; NMFS manages marine fisheries, including aquaculture, using the best available science. NMFS actions supported by the Fisheries Science and Management activity result in sustainable fisheries harvest and production, rebuilding of depleted fish stocks, conservation of essential fish habitats, and other support for fishing businesses and communities. NMFS' science, which is rigorously peer-reviewed, ensures management decisions are based on the highest-quality scientific information. NMFS conducts science on species' responses to environmental changes, such as climate change; impacts of fishing and other human activities on fisheries and their habitat; and social, cultural, and economic behaviors that influence interactions between humans and marine fisheries.

This activity also supports the fisheries management regulatory process, which involves extensive opportunity for public input into management decisions, and thorough analysis of alternatives to meet statutory requirements and agency priorities. This work occurs in close coordination with Regional Fishery Management Councils, Interstate Marine Fisheries Commissions, the Atlantic Highly Migratory Species Advisory Panel, and states. It is a process where science informs management. Managers need high quality science to make important decisions to ensure sustainable fisheries, healthy ecosystems, and productive coastal communities. Data feeds into mathematical models that estimate stock biomass, fishing effort, and other reference points, as seen in the graphic below.

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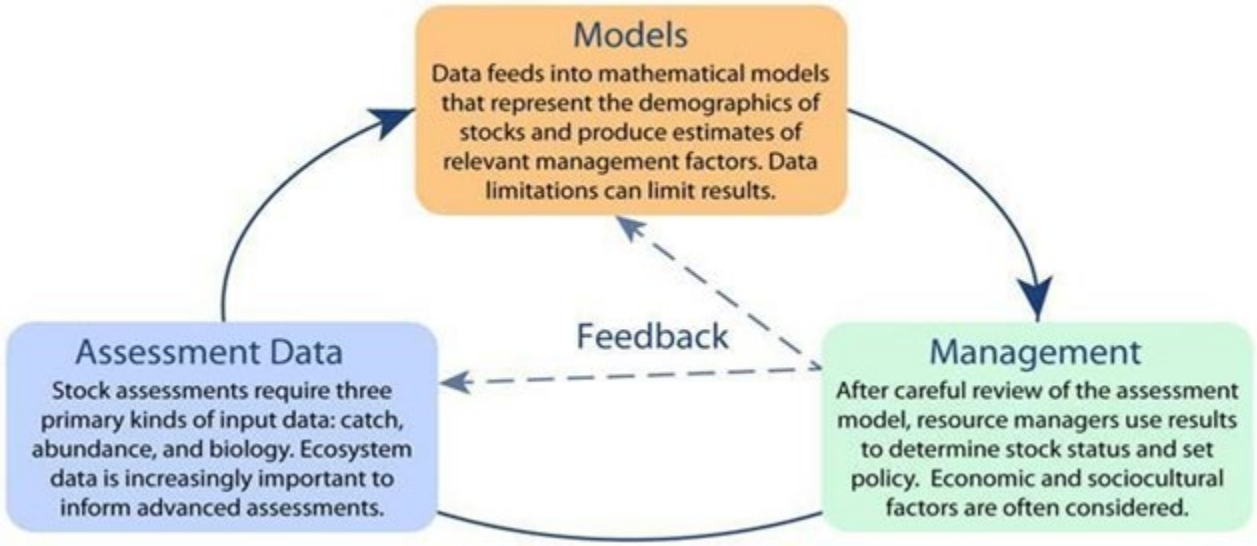

Statement of Operating Objectives

Schedule and Deliverables:

Fisheries and Ecosystem Science Programs and Services (FY 2023 – FY 2027):

- *Economics and Social Science*: Expand implementation of an integrated Bioeconomic Length-structured Angler Simulation Tool, the Social Indicator Toolbox, and FishSET—a spatial economics toolbox; assess the economic performance of fisheries; and predict the cost/benefits of stock rebuilding programs
- *Ecosystem Science*: Continue to work with resource managers to provide ecosystem-based science information and trade-off analyses to inform management decisions for evolving constituent-defined management issues in Integrated Ecosystem Assessment (IEA) regions; continue fisheries oceanography research programs to advance the understanding of environmental impacts on living marine resources to improve stock and ecosystem assessments; and continue to incorporate

long-term observations of climate-related impacts on the Bering Sea ecosystem, and other regions, to help living marine resource managers incorporate climate-related impacts into management decisions

- *Antarctic Research:* Conduct assessments for key stocks managed by the Commission for the Conservation of Antarctic Marine Living Resources
- *Information Analysis and Dissemination*: Improve population dynamics/assessment/ management model development and data analysis tools to support fisheries science programs and improve data dissemination and sharing of integrated data and analyses (climatology, socio-economic, ecosystem, fishery-dependent, and fishery-independent), both internally and externally

Fisheries Data Collections, Surveys, and Assessments (FY 2023 – FY 2027):

- *Fisheries Monitoring, Assessment, and Forecasting:* Conduct and expand fishery-independent surveys; develop advanced sampling technologies to enhance data collection for stock assessments; improve timely delivery of fish stock assessments to fishery managers; and further the implementation of the next-generation stock assessment framework
- *Cooperative Research:* Issue awards for cooperative research from the Northeast Research Set-Aside, and the Southeast CRP competitive grants; and conduct cooperative research surveys nationwide
- *MARMAP*: Perform fishery-independent assessments of reef fish abundance and life history characteristics of economically and ecologically important reef fish species in shelf and upper slope waters from Cape Lookout to Cape Canaveral
- *SEAMAP:* Conduct groundfish and plankton surveys in state and Federal waters, inshore and offshore longline surveys, and reef fish surveys in offshore waters

Observers and Training (FY 2023 – FY 2027):

- Provide safe and high-quality monitoring in fisheries nationwide, with a goal of maintaining high-priority observer programs and, as necessary, expanding observer coverage in existing fisheries and implementing new observer programs for fisheries identified with monitoring needs related to bycatch and protected species interactions
- Maintain monitoring for the fisheries with observer coverage to provide accurate catch and bycatch data
- Coordinate observer program activities at the national level by developing new standards, policies, and procedures to improve regional observer programs

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Fisheries Management Programs and Services (FY 2023 – FY 2027):

- *Regional Fishery Management Councils Support*: Develop fishery management measures, using public input and the best available science and tools such as annual catch limits (ACLs) and accountability measures (AMs)
- *Atlantic Highly Migratory Species (HMS) Management Support*: Develop fishery management measures, using public input and the best available science and tools such as ACLs and AMs
- *Electronic Monitoring and Reporting*: Implement Electronic Monitoring (EM) and Electronic Reporting (ER) options in key fisheries
- *Reducing Bycatch:* Develop technological solutions and investigate changes in fishing practices designed to minimize bycatch of fish and protected species
- *Illegal, Unreported, and Unregulated (IUU) Fishing*: Address Magnuson-Stevens Fishery Conservation and Management Act (MSA) mandates to implement IUU/bycatch identification, monitoring, and certification procedures, and foreign nation capacity building. Submit biennial status reports to Congress. Review shipments of imported fishery products to monitor for IUU shipments and fraudulently labeled seafood
- *National Catch Share Program*: Work with interested Regional Councils to support catch share programs and the use of technology, when appropriate, to improve the cost-effectiveness of these programs
- Product Quality and Safety: Help ensure that the Nation's seafood industry is economically sustainable and complies with food regulations through the National Seafood Inspection Laboratory, which provides an analytical laboratory, data management, and regulatory compliance risk analysis.

Aquaculture (FY 2023 – FY 2027):

- Establish and finalize environmental reviews for the Nation's first two Aquaculture Opportunity Areas (AOAs)
- Finalize a Programmatic Environmental Impact Statement for the Pacific Islands Region to analyze the potential environmental impacts of a proposed offshore aquaculture management program
- Continue scientific and other support for coastal shellfish farming
- Establish and expand regional pilot projects (e.g., kelp and seaweed farming, offshore aquaculture, novel shellfish farming practices, integrated multi trophic aquaculture) in collaboration with public private partnerships with industry and other partners

- Advance Science Center research to support environmentally sound aquaculture practices such as genetics and water quality modeling, and work with NOS to refine and apply aquaculture siting tools (e.g. Ocean Reports)
- Research sustainable finfish aquaculture feeds and genetics
- Develop science-based tools for management that ensure the efficient review of aquaculture permit applications
- Explore use of Public Private Partnerships (in collaboration with Federal, state, and industry partners) to support sustainable aquaculture development (e.g., to expand hatchery capacity, workforce development and training programs)

Salmon Management Activities (FY 2023 – FY 2027):

- Support the operations and maintenance of Columbia River hatcheries to mitigate the loss of fish production due to hydropower dams
- Conduct a broad range of salmon stock assessment and fishery monitoring programs in the Snake and Columbia Rivers

Regional Councils and Fisheries Commissions (FY 2023 – FY 2027):

- Continue to revise Fishery Management Plans (FMPs) and amendments to prevent overfishing, rebuild overfished fisheries, and promote sustainability of commercial, recreational, and subsistence wild caught fisheries
- Complete socioeconomic analyses for fishery management actions
- Work with Councils to implement electronic technologies for fishery monitoring
- Complete necessary environmental analyses and support Council action to remove regulations determined to be outdated, unnecessary, or ineffective, to reduce the burden on commercial, recreational, and subsistence fishermen

Deliverables:

Fisheries and Ecosystem Science Programs and Services (FY 2023 – FY 2027):

- *Economics and Social Science*: Assessments of the benefits/cost-effectiveness of fisheries rebuilding programs, habitat and protected species recovery programs, and decision support tools; and, improved quantitative models for conducting benefit-cost analyses and predicting how fishery participants will respond to changes in management measures
- *Ecosystem Science*: Updated ecosystem-status reports and risk and vulnerability assessments delivered to resource managers in the IEA regions; and delivery of environmental indicators and predicted impacts on managed species to appropriate stock assessment scientists and Regional FMCs

- *Antarctic Research*: Complete stock assessments for targeted stocks of krill, fishes, and crabs managed by the Commission for the Conservation of Antarctic Marine Living Resources
- *Information Analysis and Dissemination*: Technical expertise and capacity infrastructure for data collection, processing, sharing, and archiving for Integrated Ocean Observing System, NOAA Environmental Data Management Committee, NMFS Enterprise Data Management, NMFS Fisheries Information Systems, NMFS Marine Recreational Information Program, and Data.gov

Fisheries Data Collections, Surveys, and Assessments (FY 2023 – FY 2027):

- *Fisheries Monitoring, Assessment, and Forecasting*: Fishery-independent surveys to provide ongoing data for stock assessments; stock assessment reports based on a next-generation stock assessment framework for key stocks; and more precise estimates of recreational catch through improved surveys
- *Cooperative Research*: Conduct cooperative research projects, in partnership with stakeholders; and document the individual project final reports of the results, with data archived at the Fisheries Science Centers and added to the NMFS InPort Centralized documentation (metadata) repository
- *MARMAP*: Fishery-independent assessments of reef fish abundance and life history characteristics of economically and ecologically important reef fish species in shelf and upper slope waters from Cape Lookout to Cape Canaveral; resulting data provided for use in stock assessments and in support of other research and management needs
- *SEAMAP*: Surveys in inshore and offshore waters conducted and fishery, habitat, biological, and environmental data provided to Regional Councils for incorporation into regional species stock assessments and for development of effective fisheries and habitat management strategies

Observers and Training (FY 2023 – FY 2027):

- Information on catch, bycatch, discards, and biological data necessary for in-season monitoring and stock assessments; also information on fishing effort, fishing gear, and specific fishing techniques that minimize bycatch
- National Observer Program (NOP) reports and biennial updates to the U.S. National Bycatch Report (NBR)

Fisheries Management Programs and Services (FY 2023 – FY 2027):

- Development of fisheries regulations, FMPs, and amendments in order to maintain and restore productive stocks important to commercial, recreational, tribal, and subsistence fisheries

- Analysis and research to identify, consult, and certify nations whose vessels engage in IUU fishing, and bycatch of Protected Living Marine Resources (PLMR) and certain shark catches on the high seas. May also result in recommendations to the Secretary of Commerce, after coordination with other Federal agencies, on possible fishery-product trade prohibitions and port restrictions on nations whose vessels engage in the above
- Collection of source data on fishery product imports tracing back to the harvest area and analysis of shipment documentation to verify accuracy and identify trends in import of IUU fishery products and fraudulently labeled seafood
- Improvements in fishing gear and fishing practices to reduce bycatch
- Implementation of cost-effective electronic technology applications that complement observer coverage, improve data collection and analysis, and ensure compliance with recordkeeping and reporting regulations
- Improved timeliness in the administration of fishery disaster relief contingent on available fishery disaster relief appropriations

Aquaculture (FY 2023 – FY 2027):

- Increased domestic aquaculture production and associated jobs
- More efficient aquaculture permitting systems in state and Federal waters
- Communications products to inform the public about sustainable aquaculture science and management topics
- Reports on three complementary, interagency efforts to support sustainable aquaculture development: (1) regulatory efficiency, (2) science collaboration, (3) and economic development.
- Application of science-based tools for management that ensure the efficient review of aquaculture permit applications
- Application of science-based tools and science advice products for management that ensure the efficient review of aquaculture permit applications.

Salmon Management Activities (FY 2023 – FY 2027):

- Maintenance of salmon smolt production as required under the Mitchell Act
- Broad range of salmon stock assessment and fishery monitoring programs in the Snake and Columbia Rivers

Regional Councils and Commissions (FY 2023 – FY 2027):

- Draft amendments to FMPs
- Collection and analysis of socioeconomic data on the impacts of fishery management actions

- Regulations removed that were determined to be outdated, unnecessary, or ineffective, to increase economic fisheries value or improve recreational activities and reduce burden on commercial and recreational fishermen

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(Dollar amounts in thousands)

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
Line Item		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries and Ecosystem Science Programs and Services	Pos/BA	583	144,582	635	146,927	635	157,377
	FTE/OBL	537	149,282	506	146,927	506	157,377
Fisheries Data Collections, Surveys, and Assessments	Pos/BA	444	174,261	478	175,927	465	183,153
	FTE/OBL	457	191,334	437	175,927	424	183,153
Observers and Training	Pos/BA	139	54,476	158	55,468	158	57,467
	FTE/OBL	112	58,382	110	55,468	110	57,467
Fisheries Management Programs and Services	Pos/BA	454	122,116	471	123,836	471	132,426
	FTE/OBL	446	127,000	434	123,836	434	132,426
Aquaculture	Pos/BA	34	17,267	38	17,500	38	18,179
	FTE/OBL	40	18,091	36	17,500	36	18,179
Salmon Management Activities	Pos/BA	35	61,320	40	62,050	40	62,762
	FTE/OBL	36	60,997	36	62,050	36	62,762
Regional Councils and Fisheries Commissions	Pos/BA	12	41,017	13	41,500	13	44,297
	FTE/OBL	9	41,412	8	41,500	8	44,297
Interjurisdictional Fisheries Grants	Pos/BA	2	3,333	2	3,365	2	3,377
	FTE/OBL	1	3,361	1	3,365	1	3,377
Total Fisheries Science and Management	Pos/BA	1,703	618,372	1,835	626,573	1,822	659,038
	FTE/OBL	1,638	649,859	1,568	626,573	1,555	659,038

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(Dollar amounts in thousands)

Sustainable fisheries play an important role in the Nation's economy by providing opportunities for commercial, recreational and subsistence fishing, and marine aquaculture to increase our Nation's supply of seafood. In 2018, commercial and recreational fisheries in the U.S. generated 1.74 million jobs throughout the national economy. In addition, commercial and recreational fishing generated $238.1 billion in sales impacts, $67.3 billion in income impacts, and $108.0. billion in value-added impacts[3]. The U.S. aquaculture industry produced $1.5 billion worth of seafood in 2018, which equals about 21 percent of total U.S. seafood production by value[4]. By ending overfishing, rebuilding stocks, applying an ecosystem-based management approach to the stewardship of fishery resources, and supporting development of marine aquaculture, we strengthen the near and long-term value of U.S. fisheries to commercial and recreational fishing businesses, fishing communities, and the national economy.

Fisheries and Ecosystem Science Programs and Services

This budget supports NMFS science to prevent and eliminate overfishing, rebuild overfished stocks, support sustainable aquaculture, conserve and restore habitats, and support fishing communities. The following are some of the major programs and activities funded within the budget line.

Fisheries Science Base Activities: NMFS conducts science used for the analysis and decision-making needed for ecosystem-based fisheries management, Fishery Management Plans (FMPs) and regulatory implementation, and enforcement to ensure compliance with regulations. Funding supports:

- Regional Science and Operations - core survey and science work in the regional Science Centers (Centers) such as fishery catch monitoring, survey and stock assessments, charters for survey vessels, fuel, supplies, etc. This includes research projects at the Centers, including collaborative research with other institutions on topics such as pelagic fisheries and groundfish.
- Recreational Fisheries Information, such as the Marine Recreational Information Program https://www.fisheries.noaa.gov/topic/recreational-fishing-data
- Science and management activities in support of the Marine National Monuments https://www.fisheries.noaa.gov/pacific-islands/habitat-conservation/marine-national-monuments-pacific

[3] National Marine Fisheries Service (2021) Fisheries of the United States, 2018. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-F/SPO-225, 246 p. Available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-economics-united-states.

[4] National Marine Fisheries Service (2021) Fisheries of the United States, 2019. U.S. Department of Commerce, NOAA Current Fishery Statistics No. 2019, p. xiii. Available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-united-states. Note, due to data availability, aquaculture production data lags the rest of the publication by one year.

- West Coast Groundfish Management and Research - key stock assessment science that supports management of more than 80 fish stocks along the coasts of Washington, Oregon, and California
- Development and implementation of EM and ER; working with industry to integrate technology into data collections and observations to improve the timeliness, quality, integration, cost effectiveness, and accessibility of fishery-dependent data (https://www.fisheries.noaa.gov/national/fisheries-observers/electronic-technologies)
- Science to substantially increase sustainable domestic aquaculture; enabling important contributions to the U.S. seafood supply, job creation in coastal communities, and reduced reliance on imported seafood (currently more than 70 percent of U.S. seafood is imported[5]). Marine aquaculture is also used to enhance commercial and recreational fisheries and restore habitats

Economics and Social Science Research (https://www.fisheries.noaa.gov/topic/socioeconomics)
NMFS economists and social scientists conduct legislatively mandated (e.g., NEPA, MSA) economic and social analysis for almost 300 rulemakings each year. Underpinning these assessments is a broad range of socio-economic data collection, modeling, and, increasingly, a number of commercial and recreational fisheries decision support tools. This work addresses traditional fishery management issues (e.g. effects of rebuilding programs, catch share programs, aquaculture, and fishery allocation decisions on fishermen and communities) and emerging coastal and marine resource management issues such as ecosystem services trade-offs and valuation, and community resilience.

Ecosystem Science (https://www.fisheries.noaa.gov/topic/ecosystems#science)
NMFS implements ecosystem-based approaches to management, which rely upon research that integrates biological, socio-economic, environmental, and oceanographic data into predictive models that improve NOAA's ability to manage resources over the long-term. This includes the Integrated Ecosystem Assessment (IEA) program, which assesses ecosystem status and trends relative to ecosystem management goals, analyze risks and uncertainty, and evaluate trade-offs between management options. (https://www.integratedecosystemassessment.noaa.gov/) This also includes the Climate Regimes & Ecosystem Productivity (CREP) program, which provides decision-makers with information on how climate variability and change are impacting U.S. marine ecosystems and the communities and economies that depend on them. CREP provides information, assessments, and projections of climate-related impacts on living marine resources of the Bering Sea and Gulf of Alaska. This area includes some of the Nation's

[5] National Marine Fisheries Service (2021) Fisheries of the United States, 2018. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-F/SPO-225, 246 p. Available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-economics-united-states.

richest commercial fishing grounds (5.6 billion pounds of seafood were landed in Alaska with a value of $1.8 billion in 2019[6]) as well as protected species and other resources that native communities depend on. CREP also supports an array of sensors designed to detect changes in nutrients, productivity, and biological abundances and diversity along a latitudinal gradient extending from the northern Bering Sea to the Chukchi and Beaufort Seas.

Antarctic Research
The U.S. Antarctic Marine Living Resources Convention Act requires that the Department of Commerce conduct directed scientific research to "achieve the United States goal of effective implementation of the objectives of the Convention [on the Conservation of Antarctic Marine Living Resources]." NOAA's Antarctic Ecosystem Research Program implements the U.S. AMLR program in support of U.S. policy interests related to Antarctic resource management. NMFS scientists operate land-based predator research (e.g., counting seals and penguins and monitoring their reproductive success, body condition, and diet) and ship-based research (e.g., conducting oceanographic, trawl surveys, acoustic surveys, and small boat operations) to describe the fundamental relationships between Antarctic krill, krill's predators, finfish, and key environmental variables under changing sea ice conditions. This program is NOAA's only dedicated, long term ecological presence in the Antarctic, with observations dating back to 1986. (https://swfsc.noaa.gov/aerd/)

Information Analysis and Dissemination
Requirements and directives for data collection, management, and dissemination are included in the MSA, Marine Mammal Protection Act (MMPA), Endangered Species Act (ESA), Aquaculture Act of 1980, Data Quality Act, and other policies and directives. The information analysis and dissemination program supports the NMFS infrastructure and staff that process, analyze, and produce data and disseminate it to resource managers and other users.

Fisheries Data Collections, Surveys, and Assessments

Funds in this budget line support data collection, data management, and fisheries stock assessment production. Providing accurate and timely assessments of fish and shellfish stocks that support commercial and recreational fisheries is one of NMFS' core functions. Stock assessments provide the technical basis for fishery management decisions, such as setting annual catch limits (ACLs) to achieve optimum yield from the fishery while avoiding overfishing and ecosystem harm. Stock assessment models estimate a stock's status over time and forecast future dynamics to advise fishery managers in their development of sustainable

[6] National Marine Fisheries Service (2021) Fisheries of the United States, 2019. U.S. Department of Commerce, NOAA Current Fishery Statistics No. 2019, p. xx. Available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-united-states

harvest levels. They are most reliable when they incorporate high quality data on fishery removals, stock abundance and biology, and ecosystem and environmental variability. (https://www.fisheries.noaa.gov/topic/population-assessments#fish-stocks)

The following are some of the major programs and activities funded within the budget line:

Expand Annual Stock Assessments
Activities include: catch monitoring and surveys; data analysis and stock assessment modeling; advanced sampling technologies; habitat, climate and other ecosystem indicators; and stock assessment model improvements. In addition, NMFS addresses critical gaps in stock assessments as identified in program reviews and the implementation of the new stock assessment improvement plan and prioritization process. This process defines target frequency and assessment levels for each stock and facilitates the implementation of a next generation stock assessment framework. This framework includes assessments linked to climate, ecosystem, and habitat dynamics where appropriate, and provides baseline monitoring for all Federally-managed fish stocks. (https://www.fisheries.noaa.gov/feature-story/stock-assessment-101-series-part-4-future-stock-assessments)

Fisheries Statistics
NMFS manages and conducts data collection, data processing, statistical analysis, information management, and statistical reporting activities for commercial and recreational fisheries. Accurate data and reliable statistics on fishing effort and catch are essential for assessing fish stocks, as well as for monitoring performance relative to wild fishery management targets and aquaculture objectives.

Fish Information Networks (FINs)
This program supports several state-Federal cooperative programs that coordinate data collection, data management, and information management activities, which are essential for accurate monitoring of commercial and recreational fishing impacts. These programs collect data and manage information on fishing participation, fishing effort, and catch. They also help collect fishery-dependent biological data needed for stock assessments. (https://www.fisheries.noaa.gov/national/commercial-fishing/fisheries-information-system-program)

Survey and Monitoring Projects
Projects include support for bluefin tuna tagging research, red snapper monitoring and research, West Coast groundfish surveys, Alaska extended jurisdiction programs, Maine and New Hampshire inshore trawl surveys, Bering Sea Pollock research, and Gulf of Maine groundfish assessment, to name a few. These targeted surveys and biological investigations improve the information available to conduct accurate stock assessments and directly contribute to the *Percentage of FSSI Stocks with Adequate Population Assessments and Forecasts* (*performance indicator 3.4*).

American Fisheries Act (AFA)
NMFS collects data to support the following management measures for the AFA: 1) regulations that limit access and allocate Bering Sea and Aleutian Islands (BSAI) pollock to the fishing and processing sectors of the BSAI pollock fishery, 2) regulations governing the formation and operation of fishery cooperatives in the BSAI pollock fishery, 3) regulations to protect other fisheries from spillover effects from the AFA, and 4) regulations governing catch measurement and monitoring in the BSAI pollock fishery.

Cooperative Research
NMFS conducts cooperative research to enable commercial and recreational fishermen to become involved in collecting fundamental fisheries information that supports management options. Through cooperative research, industry and other stakeholders can partner with NMFS and university scientists in all phases of the research program—planning the survey and statistical design, conducting research, analyzing data, and communicating results. (https://www.fisheries.noaa.gov/sustainable-fisheries/national-cooperative-research-program)

Marine Resources Monitoring, Assessment, and Prediction Program (MARMAP)
MARMAP is a cooperative fisheries project of NMFS and the South Carolina Marine Resources Research Institute (MRRI). For more than 40 years, the MRRI has conducted fishery-independent surveys and research on groundfish, reef fish, and coastal pelagic fishes between Cape Lookout, North Carolina and Cape Canaveral, Florida.

Southeast Area Monitoring and Assessment Program (SEAMAP)
SEAMAP supports the collection of fishery-independent data through state, Federal, and university partnerships by way of cooperative agreements. (https://www.fisheries.noaa.gov/southeast/funding-and-financial-services/southeast-area-monitoring-and-assessment-program-seamap)

Observers and Training
This budget line supports information and analyses on the biological, ecological, economic, and social aspects of the Nation's fisheries resources. The scientific data collected by observer programs provide critical inputs for population assessments of threatened and endangered species such as sea turtles, seabirds, and marine mammals, and for effective management of the Nation's fish stocks. The authority to place observers on commercial fishing and processing vessels is provided by the MSA, MMPA, and ESA. Fisheries observer programs are proven, unbiased, and valuable sources of information on the Nation's fisheries, and are a reliable and cost-effective means to collect fishery-dependent data.

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Observers monitor fishing activities across all five NMFS regions, and collect data for a range of conservation and management issues in various fisheries. This includes information on fishing practices, vessel and gear characteristics, fishing locations and times, environmental conditions within the fishing grounds, catch and bycatch, and socio-economic data. (https://www.fisheries.noaa.gov/topic/fishery-observers)

Fisheries Management Programs and Services

Under the MSA and other fisheries legislation, this budget line supports: management actions to effectively prevent and eliminate overfishing, rebuild overfished stocks, support sustainable aquaculture, develop and implement catch share programs, and implement ecosystem-based management to support sustainable fisheries, fishing businesses, and communities. As a result of this work 47 fish stocks since 2000 have been rebuilt and the number of stocks experiencing overfishing, or determined to be overfished are at near all-time lows.

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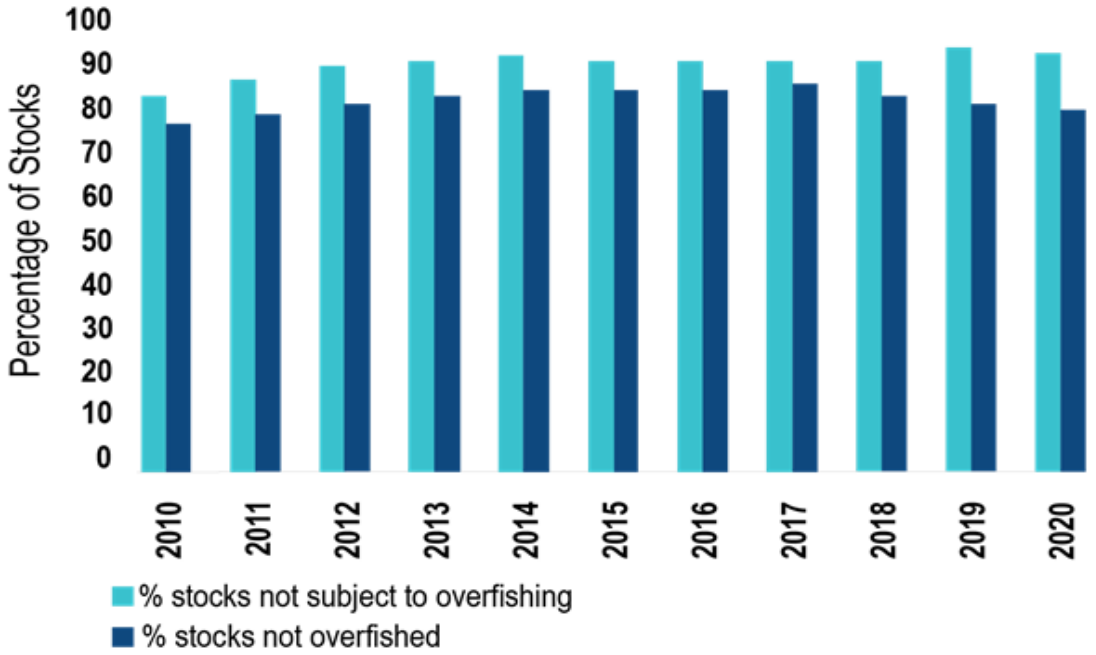
Percentage of Stocks Not Subject to Overfishing and Not Overfished 2010-2020



(Annual Report to Congress: Status of Stocks 2020.
https://www.fisheries.noaa.gov/national/sustainable-fisheries/status-stocks-2020)

The following are some of the major programs and activities funded within the budget line:

Fisheries Management Base
These funds support NMFS staff efforts to deliver the following services, including analysis and decision-making to support fisheries management and regulatory implementation:

- Develop, implement, monitor and adjust (if required) ACLs and AMs
- Implement international requirements of regional fishery management organizations (RFMOs) consistent with MSA and other laws applicable to respective RFMOs, for example, Atlantic Tunas Convention Act, etc.
- Combat IUU Fishing [Note: Enforcement actions required to prosecute and deter IUU fisheries actions are covered in the NMFS Enforcement Activity]
- Develop and promulgate National Standard Guidance
- Support Regional Fishery Management Councils, Interstate Marine Fishery Commissions, and the Atlantic Highly Migratory Species Program
- Incorporate Electronic Monitoring and Reporting technologies into fishery management

National Catch Share Program
NMFS supports the development, implementation, and improvement of catch share programs where determined appropriate by the regional fishery management councils and for Atlantic highly migratory species. These programs have numerous benefits including increased flexibility for fishermen to determine when and how they fish. “Catch share” programs are a market-based approach to fisheries management that allocate a specific portion of the total allowable fishery catch to individuals, cooperatives, communities, or other entities. Depending on the nature of the fishery, catch share programs can provide significant advantages including ensuring annual catch limits are not exceeded, reducing costs to produce seafood, market gluts, and bycatch, extending fishing seasons, and improving fishermen’s safety.

Reducing Bycatch
NMFS supports research on gear technologies that reduce bycatch and bycatch mortality. Reducing bycatch can save fishing jobs by preventing fishery closures due to interactions with endangered species or attainment of strict bycatch quotas. This funding supports the Bycatch Reduction Engineering Program external competitive grants program, which supports innovative gear designs and fishing techniques to minimize bycatch.

Product Quality and Safety
NMFS helps ensure that the Nation’s seafood industry is economically sustainable and complies with food regulations. Funding supports the National Seafood Inspection Laboratory, which provides an analytical laboratory, data management, and regulatory compliance risk analysis. Analytical testing of seafood products and aquatic animal bi-products includes microbiological analysis of biological pathogens, non-pathogenic organisms, and chemical contaminants. Voluntary services are also part of the program, and include sanitation evaluation, product inspection and certification, auditing of food quality and safety programs, and training.

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Aquaculture

NMFS is one of three NOAA Line Offices that support NOAA's Marine Aquaculture Program, whose mission is to provide science, services, and policies to support the significant expansion and sustainability of U.S. marine aquaculture. Each NOAA Line Office has distinct and complementary roles:

- NMFS leads the program and focuses on developing policies, regulations, and science-based tools for management to support streamlined permitting systems. (https://www.fisheries.noaa.gov/topic/aquaculture)
- The Office of Oceanic and Atmospheric Research's (OAR) National Sea Grant College Program supports industry development and extension with integrated research and technology transfers primarily through competitive grants. (https://seagrant.noaa.gov/Our-Work/Aquaculture)
- NOS supports development of coastal planning tools to inform siting decisions (for example: https://coastalscience.noaa.gov/research/marine-spatial-ecology/aquaculture/)

This budget line supports efforts to increase aquaculture production as a critical part of a broad Seafood Competitiveness agenda to support NOAA's Blue Economy goals. Benefits include increasing the Nation's seafood supply, improving our trade balance with other nations, and creating jobs. NMFS' aquaculture activities are led by the Office of Aquaculture (OAQ). NMFS' base funding supports the following priority areas, which are guided by OAQ's 2016 Strategic Plan[7]:

- Increase regulatory efficiency: Develop coordinated, consistent, and streamlined regulatory processes for the marine aquaculture sector in collaboration with state and Federal partners. This includes establishing Aquaculture Opportunity Areas (AOAs).
- Develop science-based tools for sustainable management: Develop science-based tools and science advice products for management to support environmentally sustainable marine aquaculture, and ensure the efficient review of aquaculture permit applications using best available science.
- Improve technical and science-based production tools and techniques (e.g., disease prevention and treatment) in support of the Nation's shellfish farmers.
- Support regional pilot projects: Conduct regional pilot projects (e.g., kelp and seaweed farming, offshore aquaculture, novel shellfish farming practices, integrated multi trophic aquaculture) in collaboration with public private partnerships with industry and other partners.

[7] National Marine Fisheries Service. 2015. Marine Aquaculture Strategic Plan FY 2016-2020. U.S. Department of Commerce. Available at: https://www.fisheries.noaa.gov/webdam/download/65605834

- Inform the public: Develop outreach products and conduct activities to improve public understanding of marine aquaculture.

The U.S. is a major consumer of aquaculture products, yet is a minor producer. The Nation imports 70 to 85 percent of its seafood[8], over half of which is from foreign-produced aquaculture. This reliance on foreign imports resulted in a near $17 billion seafood trade deficit in 2019[9], moves potential seafood jobs overseas, and poses a risk to food security. Given wild fish stocks are at or near maximum harvest levels, the single greatest opportunity to increase the seafood supply is through domestic aquaculture.

Salmon Management Activities

This budget line supports NMFS' research and management activities associated with salmon not listed under the ESA. Funding for the Mitchell Act component supports the operations and maintenance of Columbia River hatcheries through grants and contracts to the states of Washington, Oregon, and Idaho, and to the U.S. Fish and Wildlife Service, to mitigate the loss of salmon on the Columbia and Snake Rivers.

The Pacific Salmon Treaty component funds NMFS and the states of Alaska, Washington, Oregon, and Idaho to provide personnel support to the Pacific Salmon Commission's technical committees and conduct a broad range of salmon stock assessment and fishery monitoring programs required to implement the treaty provisions. These programs are carried out in fisheries and rivers located from southeast Alaska to Oregon, including the Columbia River. U.S. and Canadian Parties negotiated amendments to five Pacific Salmon Treaty fishing regimes contained in Annex IV. The current agreement, in force from 2019 through 2028, addresses conservation concerns through recommendations for reduced harvest of Chinook salmon in both United States and Canadian fisheries. NMFS collaborates closely with the state and tribal representatives to the Pacific Salmon Commission to develop annual spend plans implementing the recommendations. Funds provided to date support these spend plans.

Base funds also support genetic stock identification research which includes the collection, analysis, and testing of methods that rely on genetics-based data to identify and track the location of federally protected stocks in the wild. Genetic stock identification programs improve salmon management and avoid harvest of weak salmon stocks by identifying the movement and location of individual stocks.

[8] National Marine Fisheries Service (2021) Fisheries of the United States, 2019. U.S. Department of Commerce, NOAA Current Fishery Statistics No. 2019, p. 116. Available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-united-states. (Note: due to data availability, aquaculture production data lags the rest of the publication by one year.)

[9] National Marine Fisheries Service (2021) Fisheries of the United States, 2019. U.S. Department of Commerce, NOAA Current Fishery Statistics No. 2019, p. xvii. Available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-united-states.

Regional Councils and Fisheries Commissions

NOAA is the sole source of funding for the eight Regional Fishery Management Councils. The Councils were established by the MSA to prepare FMPs aimed at preventing and eliminating overfishing and rebuilding overfished stocks for the Nation's fisheries. Funding in this budget line is divided among the eight Councils and is used for their operating costs (e.g., staff, rent, public meetings, Council member salaries, and travel). Funding also supports the activities of the Interstate Marine Fisheries Commissions, and International Fisheries Commissions. Funds provide critical operational support to the commissions and states for development and implementation of sustainable fishery management measures.

Interjurisdictional Fisheries Grants

The Interjurisdictional Fisheries Act of 1986 (IFA) is a formula-based financial assistance program to promote state activities in support of the management of interjurisdictional fisheries resources. Any state, either directly or through an interstate commission, may submit a grant proposal that supports management of fishery resources that: 1) occur in waters under the jurisdiction of one or more states and in the U.S. EEZ; 2) are managed under an interstate FMP; or (3) migrate between the waters under the jurisdiction of two or more states bordering on the Great Lakes. Past examples of projects funded through these grants include research on: blue crab spawning in Florida; American lobster settlement in Maine; and, fishery catch statistics, stock status, and management actions for state of Alaska managed fisheries including sablefish, lingcod, black and blue rockfish, and Pacific cod.

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries and Ecosystem Science Programs and Services	Pos./BA	635	157,377	665	167,377	30	10,000
	FTE/OBL	506	157,377	529	167,377	23	10,000

Climate-Ready Fisheries: Climate-Informed Fisheries Assessments and Management Strategies for Changing Oceans (+$10,000, 23 FTE/ 30 Positions) – This request will support the expanded production, delivery, and use of climate science in fisheries assessments and management to address the impacts of climate change on marine resources, fisheries, and the many businesses and communities that depend on them. Warming oceans, rising seas, decreasing sea ice, increasing ocean acidification, and extreme events (e.g., marine heat waves) are affecting the distribution and abundance of marine species in many regions. These changes impact nearly every aspect of the NMFS' mission, from fisheries management and aquaculture to protected resources conservation and habitat restoration. The pace and scope of change severely impact NMFS' ability to deliver robust stock assessments and identify effective management strategies, putting valuable fisheries, aquaculture operations, and resource-dependent communities and economies at risk. To prepare for and respond to these changes, NMFS will establish an operational system that provides decision-makers with climate-informed advice on changing ocean conditions, impacts on marine resources, and best management strategies to reduce impacts and increase economic resilience (Figure 1).

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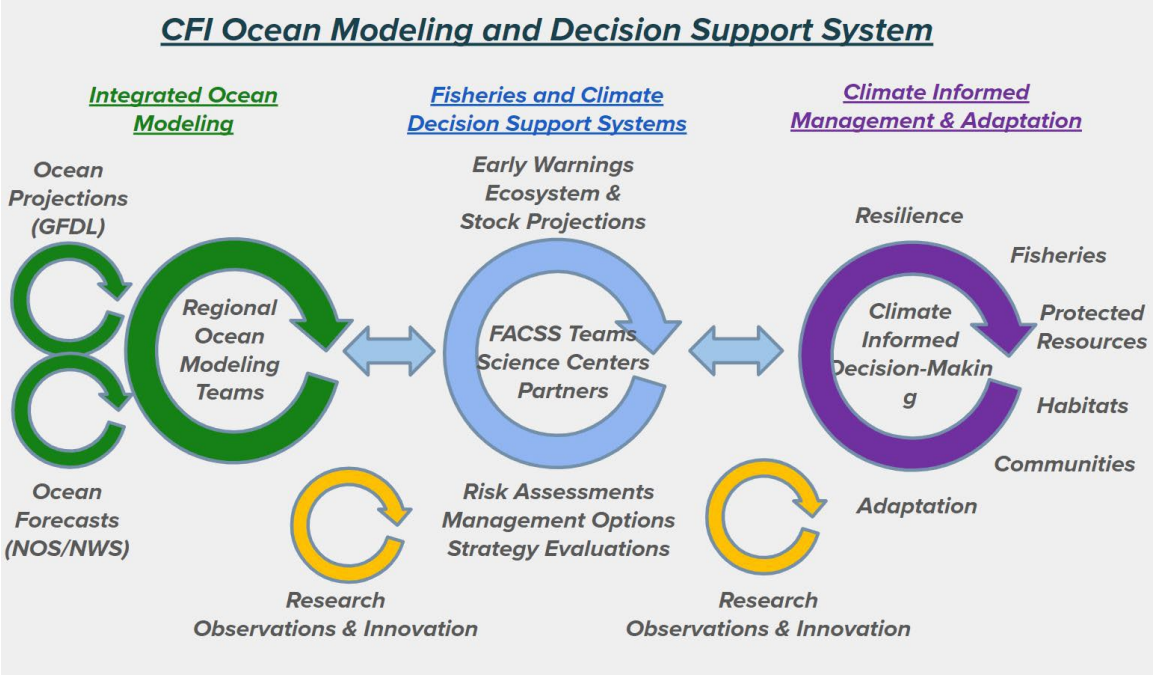

Figure 1: The role of FACCS teams in the Climate Ecosystem Fisheries Initiative

As part of the NOAA Climate Ecosystem Fisheries Initiative (CEFI), this effort will establish Fisheries and Climate Decision Support Systems (FACSSs) at NOAA Fisheries Science Centers in five regions (Northeast, Southeast, California Current, Alaska (Bering Sea + Gulf of Alaska) and Pacific Islands) to deliver the climate-informed advice needed for effective marine resource management in rapidly changing oceans. These FACSS teams will (1) forecast the impacts of changing oceans on marine ecosystems and fisheries, (2) incorporate this information into stock assessments and other management advice, and (3) work with Fishery Management Councils and other decision-makers to evaluate best management strategies for changing oceans. The FACSS are a critical part of the new CEFI integrated ocean modeling and decision-support system that will provide the end-to-end ocean forecasts, risk assessments, adaptation strategies and other services needed to safeguard the nation's valuable fisheries, aquaculture and protected resources in a time of rapidly changing oceans.

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Specifically, NMFS will fund the following activities: Six positions in each of the five regions to establish interdisciplinary FACSS teams (physical, chemical, biological and socioeconomic experts) at NOAA Fisheries Science Centers dedicated to producing regional ocean, ecosystem and fisheries projections, risk assessments, and management strategy evaluations needed for climate-informed fisheries management. ($3.0 million)

- IT capacity required for operational modeling of future conditions and evaluation of best management strategies. ($1.0 million)
- Targeted research to fill critical gaps in our understanding of climate impacts on stock productivity and fisheries adaptations and continuously improve future projections, risk assessments and evaluation of best fishery management strategies for changing conditions. ($5.0 million)
- Translation and delivery of fisheries projections, risk assessments and best management strategies to decision-makers. ($1.0 million)

Schedule and Milestones:
FY 2023 – FY 2027:

- Establish fisheries and climate forecast and assessment teams (FY 2023)
- Develop and test forecasts of future ecosystem and fisheries conditions (FY 2024)
- Launch targeted research on climate impacts to improve forecasts and assessments (FY 2024)
- Deliver forecasts of future ecosystems and fisheries for use in assessing risks, stocks, management strategies etc. (FY 2024)
- Assess climate-related risks and evaluate best fishery management strategies over near and longer timeframes working with Regional Fishery Management Councils and stakeholders (FY 2025-2026)
- Fisheries and Climate Decision Support System is operational and delivering robust forecasts and assessments on an annual basis to support climate-informed fisheries management (FY 2026)

Deliverables:
FY 2023 – FY 2027:

- Fisheries and climate forecast and assessment teams in five regions (FY 2023)
- Pilot forecasts of future ecosystem and fishery conditions (FY 2024)
- Operational forecasts of future ecosystem and fisheries conditions (priority stocks) (FY 2024)
- Assessments of risks and best fishery management strategies for future scenarios (priority stocks) (FY 2025-2026)
- Increased information on climate impacts, risks and management strategies to improve forecasts and assessments (FY 2025)
- Operational Fisheries and Climate Decision Support Systems in five regions (FY 2026)

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Performance Measures	2023	2024	2025	2026	2027
Number of NMFS regions with fisheries and climate decision support systems	1	1	4	5	5
With Increase					
Without Increase	0	1	1	1	1
Outyear Costs:					
Direct Obligations	10,000	10,000	10,000	10,000	10,000
Capitalized	0	0	0	0	0
Uncapitalized	10,000	10,000	10,000	10,000	10,000
Budget Authority	10,000	10,000	10,000	10,000	10,000
Outlays	6,200	6200	6200	6200	6200
FTE	23	30	30	30	30
Positions	30	30	30	30	30

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services
Program Change: Climate-Ready Fisheries: Climate-Informed Fisheries Assessments and Management Strategies

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist (NWFSC)		ZP-IV	9	104,184	937,656
Fisheries Biologist (NEFSC)		ZP-IV	6	105,654	633,924
Fisheries Biologist (PIFSC)		ZP-IV	6	97,784	586,704
Fisheries Biologist (SS)		ZP-IV	3	106,823	320,469
Fisheries Biologist (SEFSC)		ZP-IV	6	100,545	603,270
Total			30		3,082,023
Less lapse	25.00%		(7)		(770,506)
Total full-time permanent (FTE)			23		2,311,517
2023 Pay Adjustment (4.6%)	4.60%				106,330
					2,417,847

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	23
Part-time permanent	0
Full-time temporary	0
Part-time temporary	0
Total FTE	23
Authorized Positions:	
Full-time permanent	30
Part-time permanent	0
Full-time temporary	0
Part-time temporary	0
Total Positions	30

Exhibit 15

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services

	Object Class	2021 Actuals	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	67,421	66,360	73,794	76,212	2,418
11.3	Other than full-time permanent	680	669	740	740	0
11.5	Other personnel compensation	1,907	1,877	2,077	2,077	0
11.8	Special personnel services payments	71	69	76	76	0
11.9	Total personnel compensation	70,079	68,975	76,687	79,105	2,418
12	Civilian personnel benefits	25,239	24,841	27,579	28,184	605
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	212	209	209	209	0
22	Transportation of things	465	457	457	457	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,939	1,908	1,908	1,908	0
23.2	Rental Payments to others	396	389	389	389	0
23.3	Communications, utilities and misc charges	3,425	3,371	3,371	3,371	0
24	Printing and reproduction	68	67	67	67	0
25.1	Advisory and assistance services	8,612	8,476	8,476	11,428	2,952
25.2	Other services from non-Federal sources	20,173	19,854	19,854	22,609	2,755
25.3	Other goods and services from Federal sources	817	804	804	804	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,056	3,008	3,008	3,758	750
31	Equipment	1,472	1,449	1,449	1,969	520
32	Lands and structures	1,169	1,150	1,150	1,150	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	12,160	11,969	11,969	11,969	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	149,282	146,927	157,377	167,377	10,000

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries and Ecosystem Science Programs and Services	Pos./BA	635	157,377	662	166,046	27	8,669
	FTE/OBL	506	157,377	526	166,046	20	8,669

Wind Energy: Fisheries Science & Technical Reviews (+$8,669, 20 FTE/27 Positions) – This request will assess the effects of planned offshore energy activities on fish, fisheries, and ecosystems. Offshore wind development has been and continues to rapidly expand in the Northeast and Mid-Atlantic, and Bureau of Ocean Energy Management (BOEM) is planning to hold up to seven new lease sales between 2022 and 2025 in the Gulf of Maine, New York Bight, Central Atlantic, and Gulf of Mexico and off the coasts of the Carolinas, north and central California, and Oregon. These funds support the Administration's goal of deploying 30 gigawatts of wind energy by 2030.

Offshore wind represents a new and significant use of our marine waters requiring substantial scientific and regulatory review. NMFS will work with the BOEM to minimize the effects of offshore energy projects on protected resources, fisheries, and important habitats in the region; reduce delays and minimize adverse economic impacts to the fishing industry and related coastal communities; and mitigate impacts to fisheries surveys in the Northeast, Mid-Atlantic, southeast/Gulf of Mexico, and west coast. NMFS is requesting a total of $36.7 million in four complementary areas to address the rapid expansion and the impacts of offshore energy projects. The other components can be found in Marine Mammals, Sea Turtles, and Other Species (NMFS-19); Fisheries Data Collections Surveys, and Assessments (NMFS-76); and Fisheries Management Programs and Services (NMFS-91). This effort complements the $8.7 million NOS proposal, Foundational Information for Expansion of Offshore Wind Energy (NOS-39).

NMFS requests $8.7 million to provide dedicated resources for offshore energy assessment to support the regulatory review process, including technical review, data analysis, and generation of recommendations for EFH, ESA, and NEPA consultation processes. This will also fund projects that advance scientific understanding on the interaction of offshore wind on NOAA trust resources. There are significant scientific questions regarding the interaction between wind-development and fisheries. NMFS will address these questions and mitigate impacts to fisheries by providing socio-economic analyses, application of integrated ecosystem assessments, and development of cooperative fisheries research studies. These funds will focus on the operational needs associated with offshore

wind projects in the Northeast and Mid-Atlantic region, and also include initial investments in the West Coast, Gulf of Mexico, and South Atlantic. These funds will position NMFS to meet current and future challenges of regulatory and scientific review. NOAA's expertise in managing and conserving fisheries, ocean species and habitats is critical to supporting the Administration's priority of deploying 30 gigawatts of offshore wind by 2030, by facilitating responsible renewable energy development while protecting ecosystems and ensuring co-ocean use.

Schedule and Milestones:

FY 2023 – FY 2027:

- Consistent with the Administration's goal of achieving the capacity to generate 30 GW of offshore power by 2030, provide scientific information, expert advice, and guidance to BOEM to implement offshore wind development for approximately 25 to 35 projects over a four to five year period beginning in FY 2023 that considers impacts to:
    - Protected species and their habitats, with a particular focus on the critically endangered North Atlantic right whale;
    - Socio-economic impacts from offshore wind development; and,
    - Essential fish habitats, with particular focus on vulnerable complex habitats and life stages
- Through our role as a Cooperating Agency under NEPA, identify and share living marine resources expertise and make recommendations upon potential environmental, biological, and socio-economic impacts on our trust resources on approximately 25 to 35 projects over a four to five year period by 2027. This will allow regulators and developers to consider the full scope of impacts
- Advance management's understanding of science-based evidence for the interactions of fisheries and their habitats with offshore wind energy
- Establish and support regional collaborative ecosystem-scale research and monitoring programs across project/ecosystem scales to develop the necessary understanding of fisheries, habitat, and protected species interactions with wind development and the associated cumulative impacts to these resources and the habitats and ecosystems on which they rely, including potential changes in oceanographic conditions

Deliverables:

FY 2023 - FY 2027:

- Scientific information for NEPA reviews of the direct, indirect, short-term, long-term, and cumulative impacts to marine mammals and their habitats, threatened and endangered species and their critical habitats, fisheries resources and essential fish habitats, and resource users and associated communities

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- Provide input on planning and analysis and leasing documents and notices during BOEM's initial phases of offshore wind development and on Draft Environmental Impact Statements, Final Environmental Impact Statements, and Record of Decisions structure, content, and appropriate methodology for impact analysis to BOEM to improve document quality
- Scientific manuscripts for publication in peer-reviewed journals to aid in establishing NMFS as a global leader on topics related to offshore wind and fisheries science
- Enhanced commercial and recreational fishery and socioeconomic data to improve BOEM decision-making and to improve the consideration of fishing industry considerations in the planning and development process
- Regional scientific frameworks for (1) fisheries research and monitoring and (2) protected species and wildlife research and monitoring, which were developed with regional partners
- Convene State of the Science Symposia, in partnership with scientific and industry collaborators, on the status of fisheries and protected species interactions with offshore wind energy (FY 2024, FY 2026)

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Performance Measures	2023	2024	2025	2026	2027
Reducing uncertainty of wind and fisheries impacts within regulatory reviewing process – Number of independent peer reviewed literature documenting the effects and impacts of offshore wind development on fisheries and protected species recovery and conservation					
With Increase	5	5	6	8	7
Without Increase	0	0	0	0	0
The number of wind energy projects where early and comprehensive coordination with BOEM and industry yields sufficient information and analysis to inform NMFS consultations and reviews, resulting in improved protection of NOAA Trust Resources					
With Increase	25	25	27	27	29
Without Increase	4	5	4	4	4
Outyear Costs:					
Direct Obligations	8,669	8,669	8,669	8,669	8,669
Capitalized	0	0	0	0	0
Uncapitalized	8,669	8,669	8,669	8,669	8,669
Budget Authority	8,669	8,669	8,669	8,669	8,669
Outlays	6,935	6,935	6,935	6,935	6,935
FTE	20	27	27	27	27
Positions	27	27	27	27	27

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services
Program Change: Wind Energy: Fisheries Science & Technical Reviews

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist (NWFSC)		ZPIV	1	104,184	104,184
Fisheries Biologist (SEFSC)		ZPIV	1	97,402	97,402
Fisheries Biologist (SWFSC)		ZPIV	1	106,287	106,287
Fisheries Biologist (NEFSC)		ZPIV	6	105,654	633,924
Fisheries Biologist (NEFSC)		ZPIII	7	74,129	518,903
Fisheries Biologist (NWFSC)		ZPIII	3	73,098	219,294
Fisheries Biologist (SEFSC)		ZPIII	2	68,340	136,680
Fisheries Biologist (SWFSC)		ZPIII	3	74,574	223,722
Fisheries Biologist (NEFSC)		ZPII	1	50,089	50,089
Fisheries Biologist (SEFSC)		ZPII	2	46,177	92,354
Total			27		2,182,839
Less lapse	25.00%		(7)		(545,710)
Total full-time permanent (FTE)			20		1,637,129
2023 Pay Adjustment (4.6%)					75,308
					1,712,437

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	20
Total FTE	20
Authorized Positions:	
Full-time permanent	27
Total Positions	27

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	67,421	66,360	73,794	75,506	1,712
11.3	Other than full-time permanent	680	669	740	740	0
11.5	Other personnel compensation	1,907	1,877	2,077	2,077	0
11.8	Special personnel services payments	71	69	76	76	0
11.9	Total personnel compensation	70,079	68,975	76,687	78,399	1,712
12	Civilian personnel benefits	25,239	24,841	27,579	28,021	442
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	212	209	209	400	191
22	Transportation of things	465	457	457	457	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,939	1,908	1,908	1,908	0
23.2	Rental Payments to others	396	389	389	389	0
23.3	Communications, utilities and misc charges	3,425	3,371	3,371	3,511	140
24	Printing and reproduction	68	67	67	67	0
25.1	Advisory and assistance services	8,612	8,476	8,476	8,476	0
25.2	Other services from non-Federal sources	20,173	19,854	19,854	23,308	3,454
25.3	Other goods and services from Federal sources	817	804	804	804	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,056	3,008	3,008	3,094	86
31	Equipment	1,472	1,449	1,449	1,653	204
32	Lands and structures	1,169	1,150	1,150	1,150	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	12,160	11,969	11,969	14,409	2,440
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	149,282	146,927	157,377	166,046	8,669

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries and Ecosystem Science Programs and Services	Pos./BA	635	157,377	642	160,377	7	3,000
	FTE/OBL	506	157,377	511	160,377	5	3,000

Advancing and Improving Territorial Fisheries Science and Management (+$3,000, 5 FTE/ 7 Positions) – NMFS will increase science and management efforts for economically and culturally significant fisheries located within U.S. Pacific and Caribbean territories. Several fisheries are at-risk of overfishing, impacting the livelihoods of these underserved communities, and immediately require bolstering of current science and management efforts. Local territorial fisheries agencies will benefit greatly from additional resources and support to address gaps in effective reporting, data collection, and complementary management measures.

This proposal will advance NOAA's environmental justice efforts by providing support to the Pacific Island territories for meaningful involvement of diverse local communities in fisheries science and management. NMFS will use $2.0 million to tackle urgent fishery science and management gaps in Pacific Island territories of American Samoa, Guam, and the Commonwealth of the Northern Marianas Islands (CNMI), focusing on the stock status of key economic resources at risk of overfishing (e.g. territorial bottomfishes). Fishing and seafood are integral to local community ways of life and culture in this region. Funds will improve data to reduce uncertainty in stock assessments, and establish staff positions to support cooperative projects. NMFS staff will conduct in-person outreach and education for local territorial management agencies and the fishing community to inform them on the science and management implications of stock assessments, including the introduction and implementation of e-reporting. These actions are the first steps to end the current overfishing/overfished situations in American Samoa and Guam.

NMFS will invest $1.0 million in the Caribbean to provide equitable science and management support to local fisheries management agencies. Available U.S. Caribbean data sources and potential assessment techniques indicate data limitations significantly degrade the development of quantitative management advice required under the MSA. Annual catch limits in the U.S. Caribbean currently use highly uncertain landings data, potentially limiting optimum yield for the fishery. Well-designed fishery independent surveys will

provide immediate benefits by enabling the use of data-limited stock assessment techniques, facilitating the evaluation of management options (e.g. Marine Protected Areas), and contributing to ecosystem based fisheries management objectives. Specifically, NMFS will provide support to local fisheries, and fund cooperative data collection and survey efforts. NMFS will implement these actions through extensive capacity building and engagement with local fishing communities and universities. This cooperative approach is cost-effective, and ensures territorial scientists, managers and communities participate as effective partners in the management of their local marine resources.

NOAA's cutting-edge climate forecasting and service delivery, coupled with a robust approach to diversity, equity and inclusion, position the agency as a critical leader to make tangible improvements to vulnerable communities. NOAA is aligned with the Administration priority of environmental justice and equity and will further support EO 13985 by laying the framework and foundations for successfully integrating equity across the organization to reach a broader range of Americans in underserved or disadvantaged communities.

Schedule and Milestones:
FY 2023 – FY 2027:
Pacific Islands

- Establish quarterly meetings (FY 2023) through fisheries liaisons, inaugural coordination meetings in each territory (FY 2023), and training workshops (FY 2025-2027) for movement to e-reporting for creel and commercial reporting.
- Establish grant proposals for territorial agency funding (per territory) and a biosampling program for American Samoa (FY 2023-2024)
- Review fishery-dependent (creel survey and expansion) data and fishery-independent (mapping, video, eDNA) data for surveys (FY 2023-2024)
- Establish a timeline and implementation plan for creel database modernization and new commercial system (FY 2023-2024)

Caribbean

- Develop outreach and education programs and materials (FY 2023), for programs to be conducted on an annual basis (FY 2024-2027)
- Establish collaborative partnerships with local fishing communities and universities (FY 2023-2027)
- Review and assimilate available data to inform design of fisheries independent survey or enhanced data collection activities in coordination with territorial agencies (FY 2023), collect data to refine proposed surveys (FY 2024-2027)

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Deliverables:
FY 2023 – FY 2027:
Pacific Islands

- Conduct three fishery coordination meetings (one per territory) and host virtual quarterly meetings (12 total per year) (inaugural FY 2023, then yearly)
- Three (one per territory) multi-year grants awarded for creel survey expansion and biosampling programs (FY 2023-2027)
- Complete reports of fish habitat maps for fishery independent surveys for American Samoa (FY 2023-2024), Guam (FY 2024-2025), and CNMI (FY 2025-2026)
- Complete three new fishery-independent surveys: American Samoa (FY 2026-2027), Guam (FY 2027), and CNMI (FY 2027).
- Complete replacement of territorial database with one centralized and standardized system for all three PI territories and replace paper logs with e-reporting interface (FY 2025)

Caribbean

- Development of new Caribbean outreach and education program (FY 2023)
- Collaborative partnerships with local fishing communities and universities established through territorial fisheries agencies (FY 2024-2027)
- New survey design (FY 2023) and database (FY 2024, to be updated annually thereafter, FY 2025-2027)

Department of Commerce
National Oceanic and Atmospheric Administration
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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of coordination meetings serving U.S. territories					
With Increase	15	15	15	15	15
Without Increase	0	0	0	0	0
Number of new survey databases serving U.S. territories (cumulative)	0	1	2	2	2
With Increase					
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	3,000	3,000	3,000	3,000	3,000
Capitalized	0	0	0	0	0
Uncapitalized	3,000	3,000	3,000	3,000	3,000
Budget Authority	3,000	3,000	3,000	3,000	3,000
Outlays	1,860	1,860	1,860	1,860	1,860
FTE	5	7	7	7	7
Positions	7	7	7	7	7

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist (PIFSC/R)		ZP-III	1	66,662	66,662
Fisheries Biologist (PIFSC/R)		ZP-IV	1	95,012	95,012
Fisheries Biologist (SERO)		ZP-III	1	64,649	64,649
Fisheries Biologist (Territories)		ZP-II	3	44,740	134,220
Fisheries Biologist (SEFSC)		ZP-IV	1	98,151	98,151
Total			7		458,694
Less lapse	-25.00%		(2)		(114,674)
Total full-time permanent (FTE)			5		344,021
2023 Pay Adjustment (4.6%)	4.60%				15,825
					359,846
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			5		
Part-time permanent			0		
Full-time temporary			0		
Part-time temporary			0		
Total FTE			5		
Authorized Positions:					
Full-time permanent			7		
Part-time permanent			0		
Full-time temporary			0		
Part-time temporary			0		
Total Positions			7		

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	67,421	66,360	73,794	74,154	360
11.3	Other than full-time permanent	680	669	740	740	0
11.5	Other personnel compensation	1,907	1,877	2,077	2,077	0
11.8	Special personnel services payments	71	69	76	76	0
11.9	Total personnel compensation	70,079	68,975	76,687	77,047	360
12	Civilian personnel benefits	25,239	24,841	27,579	27,669	90
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	212	209	209	477	268
22	Transportation of things	465	457	457	457	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,939	1,908	1,908	1,908	0
23.2	Rental Payments to others	396	389	389	399	10
23.3	Communications, utilities and misc charges	3,425	3,371	3,371	3,391	20
24	Printing and reproduction	68	67	67	67	0
25.1	Advisory and assistance services	8,612	8,476	8,476	10,115	1,639
25.2	Other services from non-Federal sources	20,173	19,854	19,854	19,999	145
25.3	Other goods and services from Federal sources	817	804	804	804	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,056	3,008	3,008	3,028	20
31	Equipment	1,472	1,449	1,449	1,691	242
32	Lands and structures	1,169	1,150	1,150	1,150	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	12,160	11,969	11,969	12,175	206
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	149,282	146,927	157,377	160,377	3,000

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries and Ecosystem Science Programs and Services	Pos./BA	635	157,377	637	158,377	2	1,000
	FTE/OBL	506	157,377	508	158,377	2	1,000

Community Social Vulnerability Indicators (CSVI) Toolbox (+$1,000, 2 FTE/ 2 Positions) – NMFS will expand the CSVI Toolbox – an interactive, online GIS-based decision-making tool – to include new metrics that address environmental justice (E.O. 12898), climate change concerns (Sec. 219 of E.O. 14008), and racial equity (E.O. 13985) in underserved coastal communities. Fishing communities can face considerable uncertainty from annual fluctuations in harvest and regulatory changes, which directly affect fishermen's household income. Furthermore, fishing communities, like all coastal communities, increasingly face threats from severe storms, flooding, and sea level rise. All of these factors may affect the social vulnerability of a community. NMFS has developed a number of mapping tools for visualizing fisheries information at the community level. NMFS CSVI Toolbox provides a suite of social indicators that reflect a community's ability to respond to change by providing metrics that identify the relative importance of commercial and recreational fishing to communities, putting the fisheries data in a human context.

The CSVI Toolbox is currently comprised of a suite of 14 statistically robust social, economic, and climate change metrics that uniquely characterize and evaluate a community's vulnerability and resilience to disturbances (e.g., harvest declines associated with management actions or stock collapse, extreme weather, oil spills, sea level rise, etc.). The publicly accessible indicator map and graphing tool enables users to analyze both environmental justice questions and the climate vulnerability of over 4,600 coastal communities in 23 states and is routinely used for National Environmental Policy Act (NEPA) and Magnuson-Stevens Act (MSA) social impact assessment analyses. The expanded toolbox will be able to identify communities with less capacity to adapt to the disturbances named above, which will support evaluation and implementation of policies to address environmental justice, climate change, and racial equity. It will inform policy initiatives by underscoring that 'one-size fits all" policies are not supported by currently available information, and thus will support better informed assessments and better targeted policies and programs.

This effort will build on the existing toolbox to provide relevant new metrics (including those relied upon by state governments) and geospatial tools. By expanding existing web mapping tools to allow integration with other relevant community data and tools (e.g.,

EPA, BLS and CDC), NMFS will improve actionable knowledge on the intersection between environmental justice and racial equity issues in relation to climate change impacts in underserved communities. Actions include refinement of policy implementation to target underserved communities and will support assessment of the effectiveness of these policies. Updates to the sea level rise and storm surge indicators, and national expansion of the metric for community dependence on climate vulnerable species, will strengthen the utility of the CSVI Toolbox. To ensure use and application of the improved toolbox, a training and outreach program will be provided for analysts, Fishery Management Council staff, decision makers and stakeholders to ensure that these metrics are considered from the initial scoping stage of a fisheries regulation to analyses supporting the final rule.

Schedule and Milestones:
FY 2023 – FY 2027:

- Develop (FY 2023) and implement annually (FY 2024-2027) a new suite of environmental justice and racial equity indicators, including indicators relied upon by state governments
- Update sea level rise and storm surge indicators (FY 2024), updated annually thereafter
- Initiate development of a national framework for assessing community impacts from species vulnerability to climate change nationally (FY 2024) and implement annually thereafter (FY 2025-2027)
- Conduct training on CSVI indicators with NMFS and Council staff (FY 2024 and annually as part of new Council member training and training for NMFS and Council staff)

Deliverables:
FY 2023 – FY 2027:

- Three new metrics for environmental justice and racial equity (FY 2023), total of six new metrics to be updated annually (FY 2025)
- Six sea level rise and storm surge indicators (FY 2023), updated annually (FY 2024-2027)
- Expanded species climate vulnerability metrics for all regions (FY 2024), updated bi-annually (FY 2026)
- Four trainings in FY 2024, and three trainings per year after (FY 2025–2027)

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of environmental justice and racial equity indicators, including those required by state governments (cumulative)	6	8	9	9	9
With Increase					
Without Increase	3	3	3	3	3
Regions with updated community-level storm surge and sea level rise risk indicators	6	6	6	6	6
With Increase					
Without Increase	0	0	0	0	0
Regions with metric that measures community vulnerability to climate vulnerable species	1	2	6	6	6
With Increase					
Without Increase	1	1	1	1	1
Outyear Costs:					
Direct Obligations	1,000	1,000	1,000	1,000	1,000
Capitalized	0	0	0	0	0
Uncapitalized	1,000	1,000	1,000	1,000	1,000
Budget Authority	1,000	1,000	1,000	1,000	1,000
Outlays	620	620	620	620	620
FTE	2	2	2	2	2
Positions	2	2	2	2	2

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services
Program Change: Community Social Vulnerability Indicators (CSVI) Toolbox

Title		Grade	Number	Annual Salary	Total Salaries
Social Scientist		ZP-IV	2	106,823	213,646
Total			2		213,646
Less lapse	-25.00%		0		(53,412)
Total full-time permanent (FTE)			2		160,235
2023 Pay Adjustment (4.6%)	4.60%				7,371
					167,606

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	2
Part-time permanent	0
Full-time temporary	0
Part-time temporary	0
Total FTE	2
Authorized Positions:	
Full-time permanent	2
Part-time permanent	0
Full-time temporary	0
Part-time temporary	0
Total Positions	2

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	67,421	66,360	73,794	73,962	168
11.3	Other than full-time permanent	680	669	740	740	0
11.5	Other personnel compensation	1,907	1,877	2,077	2,077	0
11.8	Special personnel services payments	71	69	76	76	0
11.9	Total personnel compensation	70,079	68,975	76,687	76,855	168
12	Civilian personnel benefits	25,239	24,841	27,579	27,621	42
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	212	209	209	209	0
22	Transportation of things	465	457	457	457	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,939	1,908	1,908	1,908	0
23.2	Rental Payments to others	396	389	389	389	0
23.3	Communications, utilities and misc charges	3,425	3,371	3,371	3,371	0
24	Printing and reproduction	68	67	67	67	0
25.1	Advisory and assistance services	8,612	8,476	8,476	8,476	0
25.2	Other services from non-Federal sources	20,173	19,854	19,854	19,854	0
25.3	Other goods and services from Federal sources	817	804	804	804	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	630	630
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,056	3,008	3,008	3,008	0
31	Equipment	1,472	1,449	1,449	1,449	0
32	Lands and structures	1,169	1,150	1,150	1,150	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	12,160	11,969	11,969	12,129	160
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	149,282	146,927	157,377	158,377	1,000

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Ecosystem Science Programs and Services	Pos./BA	635	157,377	635	157,577	0	200
	FTE/OBL	506	157,377	506	157,577	0	200

Enterprise Infrastructure Solutions (EIS) (+$200, 0 FTE/0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:

FY 2023 – FY 2027:

- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NOAA's current and planned needs
- Transition 100% NOAA Legacy GSA inventory to EIS

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Transition of NOAA Telecommunication services to GSA's EIS					
With Increase	35%	60%	80%	100%	0%
Without Increase	20%	45%	55%	65%	75%
	*Assumes full funding of EIS initiatives NOAA-wide				
Outyear Costs:					
Direct Obligations	200	200	200	200	200
Capitalized	0	0	0	0	0
Uncapitalized	200	200	200	200	200
Budget Authority	200	200	200	200	200
Outlays	200	200	200	200	200
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries and Ecosystem Science Programs and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	67,421	66,360	73,794	73,794	0
11.3	Other than full-time permanent	680	669	740	740	0
11.5	Other personnel compensation	1,907	1,877	2,077	2,077	0
11.8	Special personnel services payments	71	69	76	76	0
11.9	Total personnel compensation	70,079	68,975	76,687	76,687	0
12	Civilian personnel benefits	25,239	24,841	27,579	27,579	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	212	209	209	209	0
22	Transportation of things	465	457	457	457	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,939	1,908	1,908	1,908	0
23.2	Rental Payments to others	396	389	389	389	0
23.3	Communications, utilities and misc charges	3,425	3,371	3,371	3,371	0
24	Printing and reproduction	68	67	67	67	0
25.1	Advisory and assistance services	8,612	8,476	8,476	8,476	0
25.2	Other services from non-Federal sources	20,173	19,854	19,854	20,054	200
25.3	Other goods and services from Federal sources	817	804	804	804	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,056	3,008	3,008	3,008	0
31	Equipment	1,472	1,449	1,449	1,449	0
32	Lands and structures	1,169	1,150	1,150	1,150	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	12,160	11,969	11,969	11,969	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	149,282	146,927	157,377	157,577	200

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Data Collections, Surveys, and Assessments	Pos./BA	465	183,153	507	200,533	42	17,380
	FTE/OBL	424	183,153	455	200,533	31	17,380

Wind Energy: Scientific Survey Mitigation (+$17,380, 31 FTE/42 Positions) – This request will establish a national program to mitigate the effects of planned offshore energy activities on NMFS scientific surveys. Offshore wind development has been and continues to rapidly expand in the Northeast and Mid-Atlantic, off the coasts of the Carolinas, north and central California, and Oregon in the Gulf of Maine, New York Bight, Central Atlantic, and Gulf of Mexico and off the coasts of the Carolinas, north and central California, and Oregon. These funds support the Administration's goal of deploying 30 gigawatts of wind energy by 2030.

Offshore wind represents a new use of our marine waters requiring substantial scientific and regulatory review. NMFS will work with the Bureau of Ocean Energy Management (BOEM) to mitigate impacts to fisheries, protected species, and ecosystems surveys in the Northeast and Mid-Atlantic, as well as the West Coast, Gulf of Mexico, and South Atlantic. NMFS is requesting a total of $36.7 million in four complementary areas to address the rapid expansion and the impacts of offshore energy projects. The other components can be found in Marine Mammals, Sea Turtles, and Other Species (NMFS-19); Fisheries Ecosystem Science Programs and Services (NMFS-56); and Fisheries Management Programs and Services (NMFS-91). This effort complements the $8.7 million NOS proposal, Foundational Information for Expansion of Offshore Wind Energy (NOS-39).

NMFS requests $17.4 million to develop and implement a national Federal survey mitigation program that will need to occur over the operational lifespan of offshore wind developments (33+ years). In the Northeast and Mid-Atlantic United States, the cumulative effects of additional wind energy development throughout the Continental Shelf Ecosystem could add to the project-specific impacts on NMFS surveys. The six elements of NMFS' Federal Survey Mitigation Program in this region include: 1) Evaluate survey designs, 2) Identify and develop new survey approaches, 3) Calibrate new survey approaches, 4) Develop interim provisional survey indices, 5) Conduct wind energy monitoring to fill regional scientific survey data needs over the life of offshore wind operations, and 6) Develop and communicate new regional data streams. The requested level of funding is needed to implement a multi-year Federal

survey mitigation program within the Northeast and Mid-Atlantic region to advance elements of this plan for seven out of the 11 core scientific surveys that will be disrupted by offshore wind energy development (NEFSC Spring and Autumn Bottom Trawl Survey, Ecosystem Monitoring Survey, Scallop Survey, Atlantic Surfclam and Ocean Quahog Surveys, North Atlantic right whale aerial survey, and marine mammal and sea turtle ship-based and aerial surveys). The requested level of funding will also serve as an initial investment for NMFS to assess and develop Federal survey mitigation programs for impacted surveys along the West Coast, Gulf of Mexico, and South Atlantic. NMFS' expertise in managing ocean species and habitats is critical to supporting the Administration's priority of deploying 30 gigawatts of offshore wind by 2030, by facilitating responsible renewable energy development while protecting ecosystems. This proposal would allow NMFS to expand capacity nationally as the Administration opens up new areas of the Outer Continental Shelf to offshore wind energy development and ensuring co-ocean use.

Schedule and Milestones:
FY 2023 – FY 2027:

- Advance management's understanding of and science-based evidence for the interactions of protected species and their habitats and fisheries with offshore wind energy
- Establish and support regional collaborative ecosystem-scale research and monitoring programs across project/ecosystem scales to develop the necessary understanding of fisheries, habitat, and protected species interactions with wind development and the associated cumulative impacts to these resources and the habitats and ecosystems on which they rely, including potential changes in oceanographic conditions
- Implement annual requirements for all six elements of a Northeast and Mid-Atlantic Federal Survey Mitigation Program, as described in the Vineyard Wind Final Environmental Impact Statement for seven core NEFSC fisheries and protected species surveys

Deliverables:
FY 2023- FY 2027:

- Scientific manuscripts for publication in peer-reviewed journals to aid in establishing NMFS as a global leader on topics related to offshore wind and fisheries science
- Regional scientific frameworks for (1) fisheries research and monitoring, and (2) protected species and wildlife research and monitoring, that are integrated into a Federal survey mitigation program
- Scientific survey adaptation plans and scientific recommendations to mitigate impacts to the NEFSC Spring and Autumn Bottom Trawl Survey, Ecosystem Monitoring Survey, Scallop Survey, Atlantic Surfclam and Ocean Quahog Surveys, North Atlantic right whale aerial survey, and marine mammal and sea turtle ship-based and aerial surveys (FY 2023, 2024)

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- One additional survey indices time series with existing NEFSC data to bridge the period of uncertainty created by the transition in survey methods (FY 2023)
- One calibration experiment to ensure continuity of NEFSC core survey time series (FY 2025)
- Assessment and development of Federal Survey Mitigation Plans along the West Coast, Gulf of Mexico, and South Atlantic

Performance Measures	2023	2024	2025	2026	2027
Number of core Federal scientific surveys for which survey mitigation plans have been developed to assure the continuity of critical scientific time series (annual)					
With Increase	2	4	4	2	2
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	17,380	17,380	17,380	17,380	17,380
Capitalized	0	0	0	0	0
Uncapitalized	17,380	17,380	17,380	17,380	17,380
Budget Authority	17,380	17,380	17,380	17,380	17,380
Outlays	10,776	10,776	10,776	10,776	10,776
FTE	31	42	42	42	42
Positions	42	42	42	42	42

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Science and Management
Subactivity: Fisheries Data Collections, Surveys, and Assessments
Program Change: Wind Energy: Scientific Survey Mitigation

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist (SWFSC)		ZPIV	2	106,287	212,574
Fisheries Biologist (NEFSC)		ZPIV	13	105,654	1,373,502
Fisheries Biologist (NWFSC)		ZPIV	1	104,184	104,184
Fisheries Biologist (SEFSC)		ZPIV	1	97,402	97,402
Fisheries Biologist (SWFSC)		ZPIII	1	74,574	74,574
Fisheries Biologist (NEFSC)		ZPIII	9	74,129	667,161
Fisheries Biologist (NWFSC)		ZPIII	3	73,098	219,294
Fisheries Biologist (NEFSC)		ZPII	12	50,089	601,068
Total			42		3,349,759
Less lapse	25.00%		(11)		(837,440)
Total full-time permanent (FTE)			31		2,512,319
2023 Pay Adjustment (4.6%)					115,567
					2,627,886

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	31
Total FTE	31
Authorized Positions:	
Full-time permanent	42
Total Positions	42

Exhibit 15

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries Data Collections, Surveys, and Assessments

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	49,863	45,849	52,055	54,683	2,628
11.3	Other than full-time permanent	333	306	346	346	0
11.5	Other personnel compensation	2,271	2,088	2,360	2,360	0
11.8	Special personnel services payments	1,766	1,624	0	0	0
11.9	Total personnel compensation	54,233	49,867	54,761	57,389	2,628
12	Civilian personnel benefits	19,153	17,611	19,943	20,626	683
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	696	640	640	1,733	1,093
22	Transportation of things	488	449	449	449	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	3,263	3,000	3,000	3,000	0
23.2	Rental Payments to others	244	224	224	224	0
23.3	Communications, utilities and misc charges	8,771	8,065	8,065	8,065	0
24	Printing and reproduction	98	90	90	90	0
25.1	Advisory and assistance services	18,101	16,643	16,643	16,643	0
25.2	Other services from non-Federal sources	23,029	21,175	21,175	31,593	10,418
25.3	Other goods and services from Federal sources	231	212	212	212	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,397	3,123	3,123	3,187	64
31	Equipment	1,496	1,375	1,375	3,429	2,054
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	58,134	53,453	53,453	53,893	440
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	191,334	175,927	183,153	200,533	17,380

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Data Collections, Surveys, and Assessments	Pos./BA	465	183,153	471	194,715	6	11,562
	FTE/OBL	424	183,153	429	194,715	5	11,562

Climate-Ready Fisheries: Advancing Fisheries Survey Capacity for Commercially and Recreationally Valuable Species (+$11,562, 5 FTE/ 6 Positions) – NMFS will invest in surveys, sampling, and analysis capabilities to better track species that are shifting their distributions due to climate change, while working to restore survey days at sea (DAS) for fish and protected species to levels that were performed in the recent past. Warming oceans, rising seas, decreasing sea ice, increasing ocean acidification, and extreme events (e.g., marine heat waves) are affecting the distribution and abundance of marine species in many regions. These changes impact nearly every aspect of the NMFS' mission, from fisheries management and aquaculture to protected resources conservation and habitat restoration. The pace and scope of change severely impact NMFS' ability to deliver robust stock assessments and identify effective management strategies, putting valuable fisheries and resource-dependent communities and economies at risk.

Funds will support NMFS scientific surveys of living marine resources to improve fishery management, and will focus on regionally-identified survey priorities to meet mandates in the Magnuson-Stevens Act, Marine Mammal Protection Act, and other applicable laws. There is growing demand to expand the spatial extent and ecosystem monitoring capabilities of our surveys to address ocean changes due to climate change, and the subsequent shifting of stocks. Combined with the decline in sea days due to inflationary ship costs, additional investment is needed to ensure NMFS continues to provide the scientific data required to produce accurate and timely management advice from stock assessments in an ecosystem context, as tracked in the Fish Stock Sustainability Index (FSSI). Stock assessments that include robust data facilitate use of the best scientific information available for estimating stock abundance and decreasing uncertainty. This ensures the highest possible sustainable catch limits that maximize the number of fish that can be caught while preventing overfishing.

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(Dollar amounts in thousands)

Funds will primarily be used to acquire survey capacity to increase the geographic extent of surveys and collect more climate and environmental data by purchasing supplemental DAS on NOAA ships and chartered vessels, and by investing in advanced sampling technologies (e.g., Saildrone, DriX) to augment survey capacity using innovative approaches. Funds will also support survey-related expenses such as seasonal sea-going scientific contractors; supplies and equipment; data management capabilities, and six new positions (one at each of six fisheries science centers) for data analyses and modeling efforts to produce timely stock assessments.

Schedule and Milestones:
FY 2023 – FY 2027:

- Restore NMFS fish and protected species survey sea days to approximately 2,200 in FY 2023
- Improve assessment reliability for fish populations experiencing climate-driving distribution shifts through expanding the geographical extent of surveys and better encompassing a stock's range

Deliverables:
FY 2023 – FY 2027:

- Additional 500 days at sea annually through FY 2027 through NOAA ships and expanded use of industry chartered vessels
- Data management, analysis and modeling efforts to produce timely stock assessments through the addition of six new positions, one at each of the NMFS fisheries science centers
- Reduced uncertainty in estimates of stock abundance and better scientific understanding of current and projected marine resources distribution

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Average number of survey sea days					
With Increase	2,199	1,915	1,631	1,347	1,062
Without Increase	1,699	1,415	1,131	847	562
Outyear Costs:					
Direct Obligations	11,562	11,562	11,562	11,562	11,562
Capitalized	0	0	0	0	0
Uncapitalized	11,562	11,562	11,562	11,562	11,562
Budget Authority	11,562	11,562	11,562	11,562	11,562
Outlays	7,200	7,200	7,200	7,200	7,200
FTE	5	6	6	6	6
Positions	6	6	6	6	6

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Science and Management
Subactivity: Fisheries Data Collections, Surveys, and Assessments
Program Change: Climate-Ready Fisheries: Advancing Fisheries Survey Capacity for Commercially and Recreationally Valuable Species

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist (NWFSC)		ZP-IV	2	104,184	208,368
Fisheries Biologist (NEFSC)		ZP-IV	1	105,654	105,654
Fisheries Biologist (PIFSC)		ZP-IV	1	97,784	97,784
Fisheries Biologist (SWFSC)		ZP-IV	1	106,287	106,287
Fisheries Biologist (SEFSC)		ZP-IV	1	100,545	100,545
Total			6		618,638
Less lapse	25.00%		(1)		(154,660)
Total full-time permanent (FTE)			5		463,979
2023 Pay Adjustment (4.6%)	4.60%				21,343
					485,322

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	5
Part-time permanent	0
Full-time temporary	0
Part-time temporary	0
Total FTE	5
Authorized Positions:	
Full-time permanent	6
Part-time permanent	0
Full-time temporary	0
Part-time temporary	0
Total Positions	6

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Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries Data Collections, Surveys, and Assessments

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	49,863	45,849	52,055	52,540	485
11.3	Other than full-time permanent	333	306	346	346	0
11.5	Other personnel compensation	2,271	2,088	2,360	2,360	0
11.8	Special personnel services payments	1,766	1,624	0	0	0
11.9	Total personnel compensation	54,233	49,867	54,761	55,246	485
12	Civilian personnel benefits	19,153	17,611	19,943	20,064	121
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	696	640	640	640	0
22	Transportation of things	488	449	449	449	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	3,263	3,000	3,000	3,000	0
23.2	Rental Payments to others	244	224	224	224	0
23.3	Communications, utilities and misc charges	8,771	8,065	8,065	8,065	0
24	Printing and reproduction	98	90	90	90	0
25.1	Advisory and assistance services	18,101	16,643	16,643	16,643	0
25.2	Other services from non-Federal sources	23,029	21,175	21,175	30,037	8,862
25.3	Other goods and services from Federal sources	231	212	212	1,316	1,104
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,397	3,123	3,123	4,113	990
31	Equipment	1,496	1,375	1,375	1,375	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	58,134	53,453	53,453	53,453	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	191,334	175,927	183,153	194,715	11,562

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PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Observers and Training	Pos./BA	158	57,467	158	55,135	0	(2,332)
	FTE/OBL	110	57,467	110	55,135	0	(2,332)

Northeast Multispecies Fishery (-$2,332, 0 FTE/0 Positions) – NMFS requests $8.0 million for the Northeast At-Sea Monitoring Program (ASM). The FY 2022 annualized continuing resolution provided $10.3 million to fully fund the cost of ASM in the New England groundfish fishery, including at-sea and shoreside infrastructure costs. NOAA will cover all industry costs for at-sea monitoring in fishing year 2022 (May 1, 2022, through April 30, 2023). Funds will also be used to support at-sea monitor training and equipment, process samples, and continue development of electronic monitoring technologies that may reduce costs of or improve at-sea monitoring in the future.

	2023	2024	2025	2026	2027
Outyear Costs:					
Direct Obligations	(2,332)	(2,332)	(2,332)	(2,332)	(2,332)
Capitalized	0	0	0	0	0
Uncapitalized	(2,332)	(2,332)	(2,332)	(2,332)	(2,332)
Budget Authority	(2,332)	(2,332)	(2,332)	(2,332)	(2,332)
Outlays	(1,446)	(1,446)	(1,446)	(1,446)	(1,446)
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Exhibit 15

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Observers and Training

	Object Class	2021 Actuals	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	12,353	11,737	13,136	13,136	0
11.3	Other than full-time permanent	103	97	109	109	0
11.5	Other personnel compensation	303	288	322	322	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	12,759	12,122	13,567	13,567	0
12	Civilian personnel benefits	4,887	4,643	5,197	5,197	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	39	37	37	37	0
22	Transportation of things	137	130	130	130	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,312	1,247	1,247	1,247	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	202	192	192	192	0
24	Printing and reproduction	30	29	29	29	0
25.1	Advisory and assistance services	5,587	5,308	5,308	5,308	0
25.2	Other services from non-Federal sources	31,622	30,044	30,044	27,712	(2,332)
25.3	Other goods and services from Federal sources	7	6	6	6	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	501	476	476	476	0
31	Equipment	149	141	141	141	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	1,150	1,093	1,093	1,093	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	58,382	55,468	57,467	55,135	(2,332)

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Management Programs and Services	Pos./BA	471	132,426	471	139,926	0	7,500
	FTE/OBL	434	132,426	434	139,926	0	7,500

Seafood Inspection Program (+$7,500, 0 FTE/0 Positions) – This request supports the sustained operation of the NOAA Seafood Inspection Program (SIP) for when unanticipated events impact the demand for services, and provides funding at the start of each fiscal year while collections accumulate and become available for obligation. These funds are requested in coordination with program measures implemented in FY 2022 to achieve the goal of full cost recovery. The Agricultural Marketing Act authorizes NOAA to assess and collect a reasonable amount of fees to as nearly as possible cover the total cost of the program (7 U.S.C. § 1622(h)), which allows NOAA to use appropriated funds to cover any shortfall in fee collections.

COVID-19 highlighted and exacerbated a resourcing shortfall from fee collections and brought to light an overarching issue related to SIP's funding and accounting structure. This request, in conjunction with the new accounting model, will ensure adequate funds are available for program operations and ensure sound financial management while promoting U.S. commerce and seafood competitiveness. SIP is a fee-for-service program that provides inspection and auditing services to domestic seafood processors and distributors; issues health and catch certification for export of fish and fish products to foreign countries; ensures compliance with food safety regulations; and evaluates product quality, grading, and facility and systems compliance. SIP directly supports NOAA's objectives to support U.S. seafood competitiveness by facilitating confidence in U.S. seafood, domestic commerce, and exports to other countries. SIP supports a range of stakeholders, Federal programs, and seafood markets. SIP provides services to 1,650 active companies, including those that export seafood and supply military, school lunch, and other Federal programs as well as consumer markets. SIP inspects an estimated 3.5 billion pounds of seafood annually. SIP issues approximately 80,000 export certificates and certifies 2.6 billion pounds of seafood annually for export to over 100 countries. The U.S. produces about $11 billion dollars of processed edible seafood each year; exports represent approximately half of that value. This request will support these vital services that promote U.S. commerce and seafood competitiveness.

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(Dollar amounts in thousands)

A dedicated source funding in ORF would ensure SIP's services continue to be available during volatile times to the hundreds of companies, Federal programs, and other stakeholders that rely on it. The requested funds will allow the program to continue to operate in advance of fee collections, and to cover any potential future shortfalls without impact to other fisheries programs.

Schedule and Milestones:
FY 2023 – FY 2027:

- Facilitate the export and trade of seafood products through the provision of export health certification and legal harvest certification of U.S. seafood products, and monitoring of import requirements for seafood products from the United States
- Inspect and audit seafood processors and importers, domestically and internationally, to ensure compliance with U.S. regulations and generally accepted seafood production best practices governing fishery products for human consumption to support seafood safety for domestic consumers
- Inspect and audit seafood products and production facilities supporting Federal programs for military rations, school lunch programs, prisons, and food banks

Deliverables:
FY 2023 – FY 2027:

- Reduced risk to program continuity of operations and reduced risk of trade disruptions from unanticipated events, such as the COVID-19 pandemic, where demand for program services are abruptly impacted
- A financially stable program that is able to continue providing uninterrupted services when there is a shortfall in fee collections

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries Management Programs and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	53,890	52,548	58,674	58,674	0
11.3	Other than full-time permanent	33	32	36	36	0
11.5	Other personnel compensation	1,033	1,008	1,125	1,125	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	54,956	53,588	59,835	59,835	0
12	Civilian personnel benefits	20,618	20,104	22,447	22,447	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	31	30	30	30	0
22	Transportation of things	30	29	29	29	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,779	1,735	1,735	1,735	0
23.2	Rental Payments to others	986	962	962	962	0
23.3	Communications, utilities and misc charges	603	588	588	588	0
24	Printing and reproduction	90	87	87	87	0
25.1	Advisory and assistance services	8,750	8,532	8,532	8,532	0
25.2	Other services from non-Federal sources	20,384	19,876	19,876	27,376	7,500
25.3	Other goods and services from Federal sources	877	855	855	855	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	443	432	432	432	0
31	Equipment	612	597	597	597	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	16,841	16,421	16,421	16,421	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	127,000	123,836	132,426	139,926	7,500

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Management Programs and Services	Pos./BA	471	132,426	508	138,581	37	6,155
	FTE/OBL	434	132,426	462	138,581	28	6,155

Wind Energy: Fisheries Management (+$6,155, 28 FTE/37 Positions) – This request will assess the effects of planned offshore energy activities on fisheries environmental reviews including Essential Fish Habitat (EFH) consultations under the MSA and review of environmental impact statements (EIS) analyzing the impacts to living marine resources and affected communities under the National Environmental Policy Act (NEPA). These funds support the Administration's goal of deploying 30 gigawatts of wind energy by 2030.

Offshore wind development has been and continues to rapidly expand in the Northeast and Mid-Atlantic, and Bureau of Ocean Energy Management (BOEM) is planning to hold up to seven new lease sales between 2022 and 2025 in the Gulf of Maine, New York Bight, Central Atlantic, and Gulf of Mexico and off the coasts of the Carolinas, north and central California, and Oregon. Offshore wind represents a new and significant use of our marine waters requiring substantial scientific and regulatory review. NMFS will work with the BOEM to minimize the effects of offshore energy projects on protected resources, fisheries, and important habitats in the region; reduce delays and minimize adverse economic impacts to the fishing industry and related coastal communities; and mitigate impacts to fisheries surveys. NMFS is requesting a total of $36.7 million in four complementary areas to address the rapid expansion and the impacts of offshore energy projects. The other components can be found in Marine Mammals, Sea Turtles, and Other Species (NMFS-19); Fisheries Ecosystem Science Programs and Services (NMFS-56); and Fisheries Data Collections, Surveys, and Assessments (NMFS-76). This effort complements the $8.7 million NOS proposal, Foundational Information for Expansion of Offshore Wind Energy (NOS-39).

NMFS requests $6.2 million to efficiently and effectively carry out increased consultation work associated with new BOEM activities, and support early engagement with BOEM and project proponents, and to minimize impacts and delays to existing workload carried by existing consultation biologists. The funding supports the staff needed to review environmental assessments for wind projects that enable NMFS to conduct EFH consultations on offshore wind projects and provide conservation recommendations to mitigate the impacts to complex and important marine habitats. In addition, it supports the review of comprehensive and complex EISs to ensure

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NMFS can provide BOEM reasonable alternatives with sufficient analysis to assess the impacts to living marine resources and their habitats and socio-economic impacts to affected fishing and coastal communities. Both tasks routinely require dedicated engagement with BOEM staff and contractors to allow NMFS to conduct assessments and consultations as a cooperating agency. NOAA's expertise in managing and conserving fisheries, ocean species and habitats is critical to supporting the Administration's priority of deploying 30 gigawatts of offshore wind by 2030 by facilitating responsible renewable energy development while protecting ecosystems and ensuring co-ocean use.

Schedule and Milestones:

FY 2023 – FY 2027:

- Consistent with the Administration's goal of achieving the capacity to generate 30 GW of offshore wind power by 2030, provide information, expert advice, and guidance to BOEM to implement offshore wind development for approximately 25 to 35 projects over a four to five year period beginning in FY 2023 that considers impacts to:
    - Socio-economic impacts from offshore wind development; and,
    - Essential fish habitats, with particular focus on vulnerable complex habitats and life stages
- Through our role as a Cooperating Agency under NEPA, identify and share living marine resources expertise and make recommendations upon potential environmental, biological, and socio-economic impacts on our trust resources on approximately 25 to 35 projects over a four to five year period by 2027. This will allow regulators and developers to consider the full scope of impacts
- Complete thorough and timely EFH consultations that are based on the best available scientific information while fulfilling FAST-41[10] obligations

Deliverables:

FY 2023 - FY 2027:

- Conduct NEPA reviews of the direct, indirect, short-term, long-term, and cumulative impacts to essential fish habitats, fisheries, and resource users and associated communities
- Provide input on planning and analysis and leasing documents and notices during BOEM's initial phases of offshore wind development and on project milestones and timelines, Draft Environmental Impact Statements, Final Environmental Impact Statements, and Records of Decision structure, content, and appropriate methodology for impact analysis to BOEM to improve document quality

[10] P.L. 114-94 Title 41, Fixing America's Surface Transportation Act

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Reducing uncertainty of wind and fisheries impacts within regulatory reviewing process – Number of independent peer reviewed literature documenting the effects and impacts of offshore wind development on fisheries and protected species recovery and conservation					
With Increase	5	6	6	8	7
Without Increase	0	0	0	0	0
The number of wind energy projects where early and comprehensive coordination with BOEM and industry yields sufficient information and analysis to inform NMFS consultations and reviews, resulting in improved protection of NOAA Trust Resources					
With Increase	25	25	27	27	29
Without Increase	4	5	4	4	4
Outyear Costs:					
Direct Obligations	6,155	6,155	6,155	6,155	6,155
Capitalized	0	0	0	0	0
Uncapitalized	6,155	6,155	6,155	6,155	6,155
Budget Authority	6,155	6,155	6,155	6,155	6,155
Outlays	4,924	4,924	4,924	4,924	4,924
FTE	28	37	37	37	37
Positions	37	37	37	37	37

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Science and Management
Subactivity: Fisheries Management Programs and Services
Program Change: Wind Energy: Fisheries Management

Title		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist (Policy)		ZPIV	2	106,823	213,646
Fisheries Biologist (OHC)		ZPIII	2	74,950	149,900
Fisheries Biologist (GARFO)		ZPIII	18	74,129	1,334,322
Fisheries Biologist (WCRO)		ZPIII	4	73,098	292,392
Fisheries Biologist (SERO)		ZPIII	6	66,214	397,284
Fisheries Biologist (GARFO)		ZPII	5	50,089	250,445
Total			37		2,637,989
Less lapse	25.00%		(9)		(659,497)
Total full-time permanent (FTE)			28		1,978,492
2023 Pay Adjustment (4.6%)					91,011
					2,069,502

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	28
Total FTE	28
Authorized Positions:	
Full-time permanent	37
Total Positions	37

Exhibit 13

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries Management Programs and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	53,890	52,548	58,674	60,744	2,070
11.3	Other than full-time permanent	33	32	36	36	0
11.5	Other personnel compensation	1,033	1,008	1,125	1,125	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	54,956	53,588	59,835	61,905	2,070
12	Civilian personnel benefits	20,618	20,104	22,447	22,985	538
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	31	30	30	175	145
22	Transportation of things	30	29	29	29	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,779	1,735	1,735	1,735	0
23.2	Rental Payments to others	986	962	962	962	0
23.3	Communications, utilities and misc charges	603	588	588	691	103
24	Printing and reproduction	90	87	87	87	0
25.1	Advisory and assistance services	8,750	8,532	8,532	8,532	0
25.2	Other services from non-Federal sources	20,384	19,876	19,876	23,122	3,246
25.3	Other goods and services from Federal sources	877	855	855	855	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	443	432	432	433	1
31	Equipment	612	597	597	649	52
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	16,841	16,421	16,421	16,421	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	127,000	123,836	132,426	138,581	6,155

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Management Programs and Services	Pos./BA	471	132,426	471	134,426	0	2,000
	FTE/OBL	434	132,426	434	134,426	0	2,000

Education and Outreach for Diverse Participation in Regulatory and Science Process (+$2,000, 0 FTE/0 Positions) – This request will support stronger fishing and seafood sectors by implementing training programs to provide constituents the information and tools needed to confidently and productively engage in fishery (commercial, recreational, aquaculture) management decision processes. Very few new constituents participate in the fishery management process and many who do not participate lack an understanding of the process. Yet strong fishing and seafood sectors require robust engagement with diverse communities that are familiar with the regulations and science that underpin NMFS' activities. By targeting outreach to underserved and underrepresented communities, we will provide these training opportunities to a more diverse group of new participants, allowing them to better understand the scientific underpinnings and the public processes for regulatory actions. The training will benefit both the agency and stakeholders by improving cooperation and trust among the industry, public, scientists, and regulators. These funds will enable NMFS to build stronger and more equitable fishing and seafood sectors to create jobs, support critical infrastructure, and strengthen community economic resiliency. The request complements a $1.0 million request entitled "Workforce Training to Support the Seafood Industry" (see page NMFS-101).

Requested funds will support three complementary efforts:

- NMFS will enroll a group of experts to examine the breadth and depth of diversity and inclusion issues facing NMFS and the fishing and seafood sectors and to provide recommendations for moving forward.

- Building on the panel's recommendations, NMFS will fund partnerships through competitive grants and/or cooperative agreements to bring together diverse stakeholders with scientists, managers, and other marine resource professionals to learn about NMFS' regulatory and science processes in a neutral and professional setting. Modeled after the highly successful Marine Resource Education Program (MREP), participants will leave the program empowered and better prepared to be a voice in

Federal fisheries management. The MREP experience enables fishermen and other fishery stakeholders to participate productively in the fisheries management process and leads to improved cooperation and trust between state and Federal stakeholders including fishermen, scientists, and managers. A co-learning approach is fundamental to program delivery, where fishermen and industry participants, and expert science and management presenters learn from one another in an inclusive and unbiased environment outside of the regulatory process. Program design encourages unscripted interactions to occur organically and fosters constructive dialogue. The opportunity exists to partner with the Gulf of Maine Research Institute (GMRI), which currently runs MREP, and assist with tailoring their workshops for specific diverse and underrepresented communities such as tribal and non-English speaking communities.

- NMFS will also support 5-10 fisheries education/training pilot programs in partnership with the private and public sector and academic institutions targeting diverse and underserved communities, including but not limited to: Historically Black Colleges and Universities (HBCUs), minority-serving institutions (MSIs), and tribal and community colleges. Training curriculum will include broad aspects of fisheries science and management. These pilots will help gauge the effectiveness of various efforts before targeted future investments into the 2-3 programs that show the greatest potential for longer-term effectiveness.

Schedule and Milestones:
FY 2023 – FY 2027:

- Create/identify panel of experts to guide program development and identify barriers to participation (FY 2023)
- Provide grants to execute science and management training targeted for underserved communities (FY 2024- 2027)
- Pilot Projects
    - 5 -10 pilots established (FY 2024)
    - 2-3 training partnerships in place (FY 2025-2027)

Deliverables:
FY 2023 - FY 2027:

- Strategic Training and Implementation Plan Developed (FY 2023)
- 5-10 pilots established and complete first science and management training (FY 2024)
- 2-3 training partnerships in place (FY 2025-2027)

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of Completed Trainings					
With Increase	0	2	4	4	6
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	2,000	2,000	2,000	2,000	2,000
Capitalized	0	0	0	0	0
Uncapitalized	2,000	2,000	2,000	2,000	2,000
Budget Authority	2,000	2,000	2,000	2,000	2,000
Outlays	1,240	1,240	1,240	1,240	1,240
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries Management Programs and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	53,890	52,548	58,674	58,674	0
11.3	Other than full-time permanent	33	32	36	36	0
11.5	Other personnel compensation	1,033	1,008	1,125	1,125	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	54,956	53,588	59,835	59,835	0
12	Civilian personnel benefits	20,618	20,104	22,447	22,447	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	31	30	30	30	0
22	Transportation of things	30	29	29	29	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,779	1,735	1,735	1,735	0
23.2	Rental Payments to others	986	962	962	962	0
23.3	Communications, utilities and misc charges	603	588	588	588	0
24	Printing and reproduction	90	87	87	87	0
25.1	Advisory and assistance services	8,750	8,532	8,532	8,532	0
25.2	Other services from non-Federal sources	20,384	19,876	19,876	20,076	200
25.3	Other goods and services from Federal sources	877	855	855	855	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	443	432	432	432	0
31	Equipment	612	597	597	597	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	16,841	16,421	16,421	18,221	1,800
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	127,000	123,836	132,426	134,426	2,000

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Management Programs and Services	Pos./BA	471	132,426	471	133,426	0	1,000
	FTE/OBL	434	132,426	434	133,426	0	1,000

Workforce Training to Support the Seafood Industry (+$1,000, 0 FTE/0 Positions) – NMFS will implement a series of workforce development and training pilot projects and grants, focused on environmental justice and equity, to support a more robust and diverse domestic seafood sector. These programs align to the National Strategy for Seafood Resilience and Competitiveness workforce development goals and objectives to strengthen the entire seafood sector. The COVID-19 crisis has caused substantial economic disruption to many segments of the seafood and fishing industry—the shutdown of restaurants, slowdown and changes in retail sales and exports, and disruptions to processing facilities and supply chains. Addressing these challenges through workforce training offers opportunities to build a stronger seafood sector that will create new jobs, improve working infrastructure, and strengthen community economic resiliency, while supporting a diverse, equitable, and inclusive workforce that can enhance innovation in the industry. This request complements a $2.0 million request entitled “Education and Outreach for Diverse Participation in Regulatory and Science Process” (see page NMFS-97).

The requested funds will support 5-10 one-year pilot programs for workforce development and training efforts through partnerships with entities catering to diverse and historically underserved communities, including but not limited to: minority serving institutions (MSIs), Historically Black Colleges and Universities (HBCUs), tribal colleges, and community colleges. The results of these pilots will help identify and inform areas for future, more focused investment in a subset (1-3) of pilots that showed the most potential to have longer-term impact. NMFS will coordinate with the National Sea Grant College Program to provide training to the seafood, fishing, and aquaculture industries to be better prepared to adapt to disruptions in the market.

Specific focus areas for grants will be developed with our partners and will include:

(1) technical and engineering skills for the seafood sector (e.g., hatchery techniques, fishing and vessel skills, recirculating aquaculture systems, seafood handling and processing);
(2) seafood safety and Hazard Analysis Critical Control Point (HACCP);
(3) innovative and value-added processing capacity (e.g., freezing and methods to create shelf-stable products for retail sale);
(4) business planning and management;
(5) communication and marketing methods (including online and direct marketing tools where appropriate); and
(6) training related to recreational fishing business opportunities.

Schedule and Milestones:
FY 2023 – FY 2027:

- Evaluate potential education opportunities for the seafood sector, focusing on providing access to underserved and vulnerable communities adversely impacted by the pandemic
- Support 5 to 10 one-year pilot programs to train prospective participants in the seafood industry workforce in close collaboration with Sea Grant
- Review, evaluate, and assess performance using a series of socio-economic metrics—composition of incoming participants, rate of program completion, types of employment opportunities secured post-training, etc.
- Conduct selection process to identify one to three pilot programs for additional funding

Deliverables:
FY 2023 – FY 2027:

- Five to 10 one-year pilot programs established and implemented (FY 2023)
- One to three pilot programs selected for additional funding based on performance evaluation (FY 2024-2027)

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Workforce Development Program Graduates					
With Increase	0	40	60	60	60
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	1,000	1,000	1,000	1,000	1,000
Capitalized	0	0	0	0	0
Uncapitalized	1,000	1,000	1,000	1,000	1,000
Budget Authority	1,000	1,000	1,000	1,000	1,000
Outlays	620	620	620	620	620
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Science and Management
Subactivity: Fisheries Management Programs and Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	53,890	52,548	58,674	58,674	0
11.3	Other than full-time permanent	33	32	36	36	0
11.5	Other personnel compensation	1,033	1,008	1,125	1,125	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	54,956	53,588	59,835	59,835	0
12	Civilian personnel benefits	20,618	20,104	22,447	22,447	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	31	30	30	30	0
22	Transportation of things	30	29	29	29	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,779	1,735	1,735	1,735	0
23.2	Rental Payments to others	986	962	962	962	0
23.3	Communications, utilities and misc charges	603	588	588	588	0
24	Printing and reproduction	90	87	87	87	0
25.1	Advisory and assistance services	8,750	8,532	8,532	8,532	0
25.2	Other services from non-Federal sources	20,384	19,876	19,876	19,876	0
25.3	Other goods and services from Federal sources	877	855	855	855	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	443	432	432	432	0
31	Equipment	612	597	597	597	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	16,841	16,421	16,421	17,421	1,000
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	127,000	123,836	132,426	133,426	1,000

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Enforcement

Goal Statement

NOAA's Office of Law Enforcement (OLE) strengthens domestic commerce by enforcing NOAA's natural resource protection laws and promoting compliance with Federal regulations to conserve and protect our Nation's living marine resources and their natural habitat.

Base Program

OLE protects and monitors the world's largest EEZ, including 13 National Marine Sanctuaries and five Marine National Monuments (Figure 1), and is the only enforcement program (Federal or state) exclusively dedicated to Federal fisheries and marine resource enforcement. An overview can be found at https://www.fisheries.noaa.gov/about/office-law-enforcement and https://www.fisheries.noaa.gov/topic/enforcement. OLE provides direct support for enforcement activities in the NMFS headquarters' Offices of Sustainable Fisheries and Protected Resources, NMFS Regional Offices, and the NOS Office of National Marine Sanctuaries.

Figure 1. NOAA OLE Jurisdiction

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

OLE supports critical collaborations and leverages 26 Joint Enforcement Agreements (JEAs) with 27 coastal states and territories, and partnerships with other Federal agencies such as the U.S. Coast Guard. OLE refers enforcement cases that document violations to NOAA's Office of General Counsel or the U.S. Department of Justice for review and potential prosecution.

NOAA cannot meet the mandate to end overfishing without OLE's efforts. These efforts ensure that the millions of people who enjoy and rely on these marine resources understand and comply with the regulations necessary to ensure their sustainability and allow fair competition now and for future generations. OLE supports two objectives:

1. Enforce laws and regulations that govern:
    a. commercial and recreational fisheries,
    b. international and interstate commerce in marine resources, and
    c. human interactions with marine mammals and threatened and endangered species.
2. Protect resources within designated sanctuaries, marine monuments, and protected areas.

To address these mission requirements, OLE implements four primary methods:

1. Traditional enforcement such as investigations and patrols,
2. Partnerships with state and Federal agencies,
3. Technological tools such as Vessel Monitoring Systems, and
4. Outreach and education strategies designed to increase and enhance voluntary compliance with environmental laws and regulations.

Statement of Operating Objectives

Schedule and Deliverables:
FY 2023 – FY 2027:

- Continue to advance enforcement and compliance assistance efforts in support of NOAA's OLE Operational Priorities
- Continue with the hiring, training and deployment of enforcement personnel at strategic Ports of Entry
- Ensure consistent international IUU fishing enforcement training and technical assistance

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Deliverables:
FY 2023 – FY 2027:

- Monitoring of and compliance assistance to approximately 4,450 vessels under the Vessel Monitoring System (VMS) requirements of 23 Fishery Management Plans (FMPs), two international convention areas, and the Papahanaumokuakea National Monument
- Review of progress toward current and determination of next set of strategic five-year national and regional Operational Enforcement Priorities

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base Program	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Enforcement	Pos/BA	239	73,494	257	75,000	257	79,899
	FTE/OBL	233	80,084	214	75,000	214	79,899
Total Enforcement	Pos/BA	239	73,494	257	75,000	257	79,899
	FTE/OBL	233	80,084	214	75,000	214	79,899

The following programs and activities are funded by the Enforcement budget line:

Enforcement and Surveillance:
NOAA special agents and enforcement officers work to deter, detect, investigate, and document any violations of Federal marine natural resource laws and regulations. NOAA's approach to fisheries enforcement emphasizes compliance assistance. OLE assists regulated parties in understanding and complying with fishery regulations through contact during monitoring and inspections, and increases public awareness and understanding of enforcement goals and objectives through participation in community meetings, trade shows, and on-the-dock informational visits. This approach has proven effective in maintaining dialog on often complex regulations, and allows NOAA's investigative efforts and subsequent prosecution to focus on cases that go beyond misunderstandings and/or clerical errors.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

This program responds to inquiries and requests for assistance from a variety of industry and public stakeholders, covering a broad range of issues related to fisheries, marine mammals, and endangered and other protected marine species. In recent years, additional investments in the Enforcement Program have been made to strengthen NOAA's efforts to detect and deter Illegal, Unreported and Unregulated (IUU) fishing and enforce restrictions on imports of illegally-harvested and improperly-documented seafood.

Cooperative Agreements with States:
The Cooperative Enforcement Program leverages the resources of coastal state and U.S. territorial marine conservation law enforcement agencies to provide direct support for the Federal enforcement mission. These partners execute Joint Enforcement Agreements (JEA) with NOAA to support Federal enforcement efforts near shore and at sea, as well as provide land-based monitoring and inspection activities. This approach addresses challenges associated with the geographic jurisdiction, the breadth of laws and regulations within NOAA's stewardship responsibilities, the amount of regulated commercial activity (fishing and both domestic and international trade), and the amount of recreational use of the marine environment. This cooperative program allows OLE to concentrate on the investigation and resolution of more serious violations by integrating monitoring and inspection activities for Federal requirements with the work of state/territorial enforcement partners and the U.S. Coast Guard. More information on the program can be found at https://www.fisheries.noaa.gov/topic/enforcement#cooperative-enforcement.

Technology and Domain Awareness:
OLE utilizes current and emerging technologies to enhance and maximize operational capabilities and effectiveness. The development, use, support, and management of these technologies is essential. One of the current technologies utilized is the Vessel Monitoring System (VMS). VMS is a satellite or cellular-based technology program for remote monitoring of fishing vessels at sea. VMS is a cost-effective way to help enforce protected areas, fishing quotas, actual landings, and several Federal natural resource, environmental, and species conservation laws. OLE also utilizes digital and marine forensics capabilities to collect, process and analyze evidence, and employs other technologies in its efforts to promote compliance with, and investigate violations of, regulated activities.

Implementation of the High Seas Driftnet Fisheries Enforcement Act:
The High Seas Driftnet Fisheries Enforcement Act sets U.S. policy to enforce the United Nations' worldwide moratorium on large-scale driftnet fishing beyond the EEZ of any nation. Renegade large-scale high seas driftnet fishing indiscriminately kills massive amounts of fish and other marine life such as whales and turtles with enormous nets suspended for miles in open water. The practice

is universally condemned because it is a significant threat to ocean ecosystems and to the food and economic security of nations that rely on fishery resources. The Act provides for denial of port privileges to and import sanctions against nations whose vessels and/or nationals are determined to be conducting illegal driftnet activities and who do not take corrective action. With these funds, OLE conducts investigation and enforcement required to prosecute and deter these illegal actions. Additionally, NOAA participates in scientific research on driftnet-affected species. The results of this research reduce uncertainty in population assessments for these species and inform related fishery management and enforcement decisions.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Habitat Conservation and Restoration

Goal Statement

The Office of Habitat Conservation protects and restores habitat to sustain fisheries, recover protected species, and maintain resilient coastal ecosystems and communities.

Base Program

Activities within the Habitat Conservation and Restoration activity focus on three program areas including Sustainable Habitat Management, Fisheries Habitat Restoration, and Chesapeake Bay Protection and Restoration. The Magnuson-Stevens Fishery Conservation and Management Act (MSA), Federal Power Act, Energy Policy Act of 2005; Endangered Species Act; Oil Pollution Act; and Comprehensive Environmental Response, Compensation and Liability Act guide many of our efforts. NOAA works strategically across programs and with partner organizations toward shared goals to address the growing challenge of coastal and marine habitat loss and degradation. (See https://www.fisheries.noaa.gov/insight/habitat-heroes-some-our-partners-habitat-conservation for additional information on our partners.)

Through NOAA's Habitat Blueprint (https://www.habitatblueprint.noaa.gov/), NOAA and partners collaborate to increase the effectiveness of our habitat conservation efforts for the benefit of fisheries, coastal and marine life, and the coastal communities and economies they support.

Additional information on NMFS habitat conservation can be found at https://www.fisheries.noaa.gov/topic/habitat-conservation.

Statement of Operating Objectives

Schedule and Deliverables:
FY 2023 – FY 2027:

- Develop management options for protecting deep-sea corals in partnership with the Regional Fishery Management Councils and National Marine Sanctuaries
- Participate in the re-licensing process for an estimated 125 hydroelectric projects
- Identify and protect essential fish habitat through consultations and partnerships

- Develop restoration plans, conduct habitat assessments, and implement priority restoration projects critical for NOAA trust resources
- Contribute to major ecosystem restoration efforts, including Chesapeake Bay, Puget Sound, Gulf of Mexico, Great Lakes, and San Francisco Bay/Delta

Deliverables:

FY 2023 – FY 2027:

- Accurate deep-sea coral habitat distribution maps that allow managers to better protect these biologically rich ecosystems
- Technical guidance and assistance provided to NOAA partners, Federal action agencies, and resource decision-makers to achieve protection and restoration of NOAA trust resources
- Restoration plans reviewed and approved through NRDA public process
- Development of maps and habitat assessments annually to support oyster restoration in the Chesapeake Bay
- Acres of habitat restored for ocean, coastal, and Great Lakes resources
- Stream miles made accessible for ocean, coastal, and Great Lakes resources

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base Program	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Habitat Conservation and Restoration	Pos/BA	180	56,699	185	57,625	185	61,353
	FTE/OBL	190	57,579	179	57,625	179	61,353
Total Habitat Conservation and Restoration	Pos/BA	180	56,699	185	57,625	185	61,353
	FTE/OBL	190	57,579	179	57,625	179	61,353

Healthy habitat provides significant and essential ecosystem, community, and economic benefits. Habitat is the foundation for resilient fisheries and fishing-based communities and industries, as well as key to supporting and recovering endangered and

threatened species. In 2018, the U.S. commercial and recreational saltwater fishing industries generated more than $238.1 billion in sales and supported 1.7 million jobs.[11]

Coastal communities rely on healthy habitat for a wide variety of additional socio-economic needs including, recreation, tourism, and natural infrastructure that protects life and property by reducing effects of storm damage, erosion, and coastal flooding. (https://www.fisheries.noaa.gov/national/habitat-conservation/value-habitat) The Nation's ocean and coastal resources annually provide non-market value (e.g. storm surge protection, wildlife viewing, beach visits, snorkeling) of over $100 billion.[12]

However, we are facing continued widespread loss and deterioration of vital habitats for managed fisheries, as well as threatened and endangered species. For example, we are losing coastal wetlands – prime nurseries for many species – at the rate of about 80,000 acres per year. (https://www.fisheries.noaa.gov/coastal-wetlands-too-valuable-lose) This rate of loss is 20,000 more acres per year than was lost during the 6-year period of 1998– 2004.[13] NOAA is working to decrease the loss of priority coastal habitat through its habitat conservation programs.

Sustainable Habitat Management
When a Federal agency authorizes, funds, or undertakes an action that may adversely affect Essential Fish Habitat (EFH), they must consult with NMFS on that action, as required by Section 305(b) of the Magnuson-Stevens Act. NOAA works with Federal partners to guide coastal development in a manner that protects vital fish habitat without hindering economic development opportunities, including critical transportation and infrastructure improvements.

Each year, NOAA protects more than one hundred thousand acres of EFH by conducting thousands of consultations with Federal agencies to avoid, minimize, or compensate for any adverse impacts to coastal habitat that may result from proposed actions such as dredging and filling wetlands, and renewable energy proposals. (https://www.fisheries.noaa.gov/national/habitat-conservation/essential-fish-habitat) Fish require healthy surroundings to survive and reproduce. EFH includes all types of aquatic habitat - wetlands, coral reefs, seagrasses, and rivers - where fish spawn, breed, feed, or grow to maturity. EFH is described and

[11] National Marine Fisheries Service2021. Fisheries Economics of the United States, 2018. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-225, 246 p. Available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-economics-united-states.
[12] The National Ocean Economics Program and the Center for the Blue Economy. 2014. State of the U.S. Ocean and Coastal Economies. 84p. Available at: http://www.oceaneconomics.org/Download/
[13] T.E. Dahl and S.M. Stedman. 2013. Status and trends of wetlands in the coastal watersheds of the Conterminous United States 2004 to 2009. U.S. Department of the Interior, Fish and Wildlife Service and National Oceanic and Atmospheric Administration, National Marine Fisheries Service. (46 p.). Available at: https://coast.noaa.gov/digitalcoast/training/wetland-trends.html

designated by each of the Regional Fishery Management Councils in their development of Fishery Management Plans for Federally-managed fish species. Our unique role and responsibility under the Federal Power Act to ensure fish passage at hydropower dams licensed by the Federal Energy Regulatory Commission (FERC) has resulted in opening passage of more than 2,080 miles of streams and rivers for species such as river herring that serve as important food sources for commercial and recreational fish stocks. (https://www.fisheries.noaa.gov/national/habitat-conservation/improving-fish-migration-hydropower-dams) Since 2011, under its Deep Sea Coral Research and Technology program, NOAA has mapped more than 1,018,000 square kilometers of seafloor to identify locations and new species of deep-sea corals in coordination with other Federal agencies and research institutions. (https://www.fisheries.noaa.gov/national/habitat-conservation/deep-sea-coral-habitat)

Fisheries Habitat Restoration
The NOAA Office of Habitat Conservation Restoration Center (RC) provides expert technical assistance to its many partners for the implementation of priority coastal habitat restoration nationwide. (https://www.fisheries.noaa.gov/topic/habitat-conservation#how-we-restore) In addition, the NOAA RC leads restoration planning and implementation for oil spills and hazardous substance releases across the Nation through our Damage Assessment Remediation and Restoration program (DARRP) (https://darrp.noaa.gov/). Every year, NOAA responds to as many as 150 oil spills and hazardous substance releases (most notably the Deepwater Horizon oil spill. (https://www.gulfspillrestoration.noaa.gov/). The Community-based Restoration Program (CRP) provides technical and financial assistance for the implementation of community-driven habitat restoration. Habitat restoration projects are selected through a competitive solicitation process that leverages substantial investments from partners. (https://www.fisheries.noaa.gov/grant/coastal-and-marine-habitat-restoration-grants)

Chesapeake Bay Protection and Restoration (https://chesapeakebay.noaa.gov/)
The NOAA Chesapeake Bay Office (NCBO) conducts work in fisheries, observations, education, and oyster restoration in support of the 2014 Chesapeake Bay Agreement. NCBO collects and integrates information about the Bay from buoys, satellites, shipboard mapping technologies, and other sources to improve fisheries and protected resource management, weather forecasts, on-the-water safety, and public health. NCBO is working closely with state, Federal, academic, and not-for-profit partners to provide technical assistance for restoring native oysters in ten tributaries of the Chesapeake Bay.

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	2	2	65,000	65,011
Less: Obligations from Prior Year Balances	0	0	0	(11)
Plus: Other Adjustments-to-Base	0	0	0	0
2023 Base	2	2	65,000	65,000
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	2	2	65,000	65,000

		2021 Actual Personnel Amount		2022 Annualized CR Personnel Amount		2023 Base Personnel Amount		2023 Estimate Personnel Amount		Increase/ Decrease from 2023 Base Personnel Amount	
Pacific Coastal Salmon Recovery Fund	Pos/BA	2	64,935	2	99,400	2	65,000	0	65,000	0	0
	FTE/OBL	2	64,928	2	65,011	2	65,000	0	65,000	0	0
Total: Pacific Coastal Salmon Recovery Fund	Pos/BA	2	64,935	2	65,000	2	65,000	0	65,000	0	0
	FTE/OBL	2	64,928	2	65,011	2	65,000	0	65,000	0	0

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	2	64,928	2	65,011	2	65,000	2	65,000	0	0
Total Obligations	**2**	**64,928**	**2**	**65,011**	**2**	**65,000**	**2**	**65,000**	**0**	**0**
Adjustments for:										
Recoveries	0	(3)	0	(11)	0	0	0	0	0	0
Unobligated balance, unapportioned	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(1)	0	0	0	0	0	0	0	0
Unobligated balance, expired	0	0	0	0	0	0	0	0	0	0
Unobligated balance, transferred	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. EOY	0	11	0	0	0	0	0	0	0	0
Total Budget Authority	**2**	**64,935**	**2**	**65,000**	**2**	**65,000**	**2**	**65,000**	**0**	**0**
Financing from Transfers and Other:										
Transfer to ORF	0	65	0	0	0	0	0	0	0	0
Appropriation	**2**	**65,000**	**2**	**65,000**	**2**	**65,000**	**2**	**65,000**	**0**	**0**

*FY 2022 Amount does not include funds received through the Infrastructure Investments and Jobs Act (IIJA) ($34.4 million) that became available in FY 2022. FY 2023 Amount also does not include funds received through the IIJA ($34.4 million) that became available in FY 2023.

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Pacific Coastal Salmon Recovery Fund

For FY 2023, NMFS requests a total of $65,000 for this fund.

Goal Statement

The Pacific Coastal Salmon Recovery Fund (PCSRF) was established by Congress in FY 2000 to protect, restore, and conserve Pacific salmon and steelhead and their habitats through competitive funding to states and tribes.

Base Program

Congressionally authorized activities include:

- Conserving salmon and steelhead populations that are listed as threatened or endangered, or identified by a state as at-risk to be so listed,
- Maintaining populations necessary for exercise of tribal treaty fishing rights or native subsistence fishing, and
- Conserving Pacific coastal salmon and steelhead habitat.

Key accomplishments for PCSRF-funded activities from FY 2000 to FY 2021 include:

- More than 1,160,000 acres of habitat restored, and
- Passage restored to over 11,600 stream miles of salmon habitat.

Restoration projects have increased the quality and quantity of spawning and rearing habitat from stream headwaters to coastal estuaries. Upstream restoration activities have controlled erosion, enhanced in-stream flow and streambed conditions, and provided the habitat necessary for successful spawning and egg survival. Estuary and wetland restoration projects closer to the coast have protected and improved feeding and rearing habitat used by juvenile fish as they transition from freshwater to the open ocean. PCSRF restoration projects have also removed nearly 3,800 barriers to fish passage along streams, restoring access to high-quality habitat. PCSRF projects provide a number of socio-economic benefits, including enhanced water quality, recreation opportunities, flood control, and coastline protection, as well as support for green jobs and local economies.

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Statement of Operating Objectives

PCSRF awards to grantees remain active for up to five years with an estimated 1,188 active projects funded from FY 2016 through FY 2021.

Active projects span all project categories, but a select list of habitat projects include:

- Alaska: Restoring Connectivity for Chinook and Coho Salmon in the Little Tonsina River (end date November 2023)
- Alaska: Strategic Conservation of Priority Salmon Habitat-Phase 8 (end date November 2023)
- Washington: Kwoneesum Dam Removal (end date February 2025)
- Washington: Cispus-Yellowjacket Restoration Phase III (end date February 2024)
- Idaho: Sub-Reach 1 Implementation, Phase 2, Lower Lemhi Rehabilitation Project (end date December 2022)
- Idaho: Tourmaline Habitats Meadow Restoration Project (end date February 2024)
- Oregon: McKay Creek Water Rights Switch (end date December 2024)
- Oregon: Willamette Confluence Lower Middle Fork Revegetation (end date: June 2022)
- California: North Fork Noyo River Tributary Complex – Large Wood Enhancement Project (end date March 2025)
- California: Restoring Fish Passage from Salt River to Williams Creek (end date June 2023)

Explanation and Justification

The PCSRF program provides competitive funding to states and Tribes of the Pacific Coast region to implement projects that restore and protect salmonid populations and their habitats. Eligible applicants include the States of Washington, Oregon, California, Idaho, Nevada, and Alaska and federally recognized Tribes of the Columbia River and Pacific Coast (including Alaska). States are required to provide 33 percent matching funds, and PCSRF awards are supplemented further by significant private and local contributions at the project level. No match is required from the federally recognized Tribes.

PCSRF habitat projects provide a number of benefits to the human community, including enhanced water quality, recreation opportunities, flood control, and coastline protection. Studies suggest that a $1.0 million investment in watershed restoration, of

which PCSRF and state matching funds play a significant role, creates on average 16[14] to 17[15] new "green" jobs and averages $2.3 million[16] in economic activity. Additionally, approximately 80 percent of habitat restoration investments are spent locally in the county in which the project is located, and over 90 percent is spent within the state[17], supporting local jobs and local economies, often in rural and economically distressed communities. More information is available at the program's website: https://www.fisheries.noaa.gov/grant/pacific-coastal-salmon-recovery-fund

[14] Nielsen-Pincus, M., and C. Moseley. 2010. Economic and employment impacts of forest and watershed restoration in Oregon. University of Oregon, Institute for a Sustainable Environment, Ecosystem Workforce Program, Working Paper Number 24, Spring 2010.
[15] Edwards, P.E.T., A.E. Sutton-Grier and C.E. Coyle. 2013 Investing in nature: Restoring coastal habitat blue infrastructure and green job creation. Marine Policy 38:65-71.
[16] Nielsen-Pincus, M., and C. Moseley. 2010. Economic and employment impacts of forest and watershed restoration in Oregon. University of Oregon, Institute for a Sustainable Environment, Ecosystem Workforce Program, Working Paper Number 24, Spring 2010.
[17] Hibbard, M. and S. Lurie. 2006. Some community socio-economic benefits of watershed councils: A case study from Oregon. Journal of Environmental Planning and Management 49:891-908.

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	148	155	155	155	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	3	3	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	151	158	158	158	0
12.1	Civilian personnel benefits	57	57	57	57	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-federal sources	212	212	212	212	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	64,508	65,584	65,573	65,573	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	64,928	65,011	65,000	65,000	0

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less prior year recoveries	(3)	0	0	0	0
Plus unobligated balance, transferred	0	0	0	0	0
Unobligated balance, expired	0	0	0	0	0
Less unobligated balance, SOY	(1)	(11)	0	0	0
Plus unobligated balance, EOY	11	0	0	0	0
Total Budget Authority	65,000	65,000	65,000	65,000	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	2	2	2	2	0
Other than full time permanent	0	0	0	0	0
Total	2	2	2	2	0
Authorized Positions:					
Full-time permanent	2	2	2	2	0
Other than full time permanent	0	0	0	0	0
Total	2	2	2	2	0

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Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
SUMMARY OF REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	0	115,128
Plus: Obligations from prior year balances	0	0	0	0
Less: Other Adjustments-to-Base	0	0	0	(115,128)
2023 Base	0	0	0	0
Plus: 2023 Program Changes	2	1	300	300
2023 Estimate	2	1	300	300

		2021 Actual Personnel Amount		2022 Annualized CR Personnel Amount		2023 Base Personnel Amount		2023 Estimate Personnel Amount		Increase/ Decrease from 2023 Base Personnel Amount	
Fisheries Disaster Assistance Fund	Pos/BA	0	299,700	0	0	0	0	2	300	2	300
	FTE/OBL	2	353,583	0	115,128	0	0	1	300	1	300
Total: Fisheries Disaster Assistance Fund	Pos/BA	0	299,700	0	0	0	0	2	300	2	300
	FTE/OBL	2	353,583	0	115,128	0	0	1	300	1	300

*FY2022 Amount does not include funds received through the Disaster Relief Supplemental Act ($200 million).

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
SUMMARY OF REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	2	353,583	0	115,128	0	0	1	300	1	300
Total Obligations	**2**	**353,583**	**0**	**0**	**0**	**0**	**1**	**300**	**1**	**300**
Adjustments for:										
Recoveries	0	(314)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(168,697)	0	(115,128)	0	0	0	0	0	0
Unobligated balance, EOY	0	115,128	0	0	0	0	0	0	0	0
Total Budget Authority	**2**	**299,700**	**0**	**0**	**0**	**0**	**1**	**300**	**1**	**300**
Financing from Transfers and Other:										
Transfer to ORF	0	300	0	0	0	0	0	0	0	0
Net Appropriation	**2**	**300,000**	**0**	**0**	**0**	**0**	**1**	**300**	**1**	**300**

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Fisheries Disaster Assistance Fund

For FY 2023, NMFS requests a total of $300 for this fund.

Goal Statement

To enhance and expedite the review and analysis of fishery disaster requests, allocations, and spend plans, and support faster turnarounds and improved programs for recipients.

Base Program

Fishery disaster assistance is administered by NOAA's National Marine Fisheries Service within the Department of Commerce. Two statutes, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Interjurisdictional Fisheries Act, provide the authority for fishery disaster assistance. Under both statutes, a request for a fishery disaster determination is generally made by the Governor of a State, or an elected leader of a fishing community, although the Secretary of Commerce may also initiate a review at their own discretion. The Secretary determines whether the circumstances are consistent with relevant statutes and warrant a fishery disaster determination. If the Secretary determines that a fishery disaster has occurred, Congress may appropriate funds for disaster assistance, which are administered by the Secretary.

Statement of Operating Objectives

- MSA 312(a)(2) allows for disaster funds to be used for assessing the economic and social effects of the commercial fishery failure and for activities that restore the fishery or prevent a similar failure in the future and to assist a fishing community affected by such failure. Additionally, any such activity may not expand the size or scope of the commercial fishery failure in that fishery or into other fisheries or other geographic regions.
- MSA 315(b) allows for funding or other economic assistance for meeting immediate shore-side infrastructure needs, financial assistance and job training for fishermen, fishing capacity reduction and other activities authorized under MSA 312(a) and IFA 308(d).

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

- IFA 308(b) authorizes the Secretary to use funds to restore the fishery affected by the failure or to prevent a similar failure in the future.
- IFA 308(d) enables the Secretary to help persons engaged in the commercial fishery through projects that alleviate the harm suffered from the fishery resource disaster.

Explanation and Justification

NOAA Fisheries is committed to quickly evaluating information from requestors for fishery disaster assistance to determine if a fishery disaster has occurred. If Congress appropriates funds, NOAA allocates the funding to positively determined fishery disasters and administers the funds through non-competitive awards consistent with spend plans developed by the recipients and approved by the Administration.

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Disaster Assistance Fund	Pos./BA	0	0	2	300	2	300
	FTE/OBL	0	0	1	300	1	300

Fisheries Disaster Assistance (+$300, 1 FTE/2 Positions) – This request will bolster NOAA staffing necessary to execute the Fisheries Disaster Assistance program as requests for fishery disaster assistance increase. NOAA will use these funds to more quickly process fisheries disaster determination requests, allocate available appropriations, and award grants. This will also improve NOAA's responsiveness to requests for fishery disaster determinations and assistance and enhance its analysis and reviews.

The Secretary of Commerce has the authority to declare fishery disasters under the Magnuson Stevens Fishery Conservation and Management Act and the Interjurisdictional Fisheries Act. A fishery disaster refers to a commercial fishery failure, a catastrophic regional fishery disaster, significant harm incurred, or a serious disruption affecting future production due to a fishery resource disaster arising from natural, undetermined, or in certain circumstances man-made causes. If the Secretary determines that a fishery disaster has occurred, the fishery is eligible for fishery disaster assistance subject to appropriation of funds by Congress. The most common types of Federal assistance are grants that distribute funds to the states and territories, and sometimes to other entities/governments (e.g., tribes or native communities). Examples of fund uses include rebuilding infrastructure, restoring habitat, research, state-run vessel and permit buybacks, and job retraining.

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

	2023	2024	2025	2026	2027
Outyear Costs:					
Direct Obligations	300	300	300	300	300
Uncapitalized	300	300	300	300	300
Budget Authority	300	300	300	300	300
Outlays	186	186	186	186	186
FTE	1	2	2	2	2
Positions	2	2	2	2	2

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Disaster Assistance Fund
Subactivity: Fisheries Disaster Assistance Fund
Program Change: Bolster NOAA Staffing

Title		Grade	Number	Annual Salary	Total Salaries
Grants Management Specialist		ZA III	2	74,950	149,900
Total			2		149,900
Less lapse	25.00%		(1)		(37,475)
Total full-time permanent (FTE)			2		112,425
2023 Pay Adjustment (4.6%)					5,172
					117,597
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			2		
Total FTE			2		
Authorized Positions:					
Full-time permanent			2		
Total Positions			2		

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Fisheries Disaster Assistance Fund
Subactivity: Fisheries Disaster Assistance Fund

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	250	0	0	118	118
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	6	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	256	0	0	118	118
12	Civilian personnel benefits	77	0	0	31	31
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	25	25
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	2,963	0	0	0	0
25.2	Other services from non-Federal sources	497	0	0	111	111
25.3	Other goods and services from Federal sources	29,970	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	0	0	0	10	10
31	Equipment	0	0	0	5	5
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	319,820	115,128	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	353,583	115,128	0	300	300

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	250	0	0	118	118
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	6	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	256	0	0	118	118
12.1	Civilian personnel benefits	77	0	0	31	31
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	25	25
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Comm., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	2,963	0	0	0	0
25.2	Other services from non-federal sources	497	0	0	111	111
25.3	Other goods and services from Federal sources	29,970	0	0	0	0
26	Supplies and materials	0	0	0	10	10
31	Equipment	0	0	0	5	5
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	319,820	115,128	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	353,583	115,128	0	300	300

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Disaster Assistance Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less prior year recoveries	(314)	0	0	0	0
Plus unobligated balance, transferred	0	0	0	0	0
Unobligated balance, expired	0	0	0	0	0
Less unobligated balance, SOY	(168,697)	(115,128)	0	0	0
Plus unobligated balance, EOY	115,128	0	0	0	0
Total Budget Authority	299,700	0	0	300	300

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	349	349
Plus: Obligations from prior year balances	0	0	0	0
Plus: Other Adjustments-to-Base	0	0	0	0
2023 Base	0	0	349	349
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	349	349

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount	
Fishermen's Contingency Fund	Pos/BA	0	0	0	349	0	349	0	349	0	0
	FTE/OBL	0	99	0	349	0	349	0	349	0	0
Total: Fishermen's Contingency Fund	Pos/BA	0	0	0	349	0	349	0	349	0	0
	FTE/OBL	0	99	0	349	0	349	0	349	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	99	0	349	0	349	0	349	0	0
Total Obligations	**0**	**99**	**0**	**349**	**0**	**349**	**0**	**349**	**0**	**0**
Adjustments for:										
Unobligated balance, adj. SOY	0	(1,203)	0	(1,104)	0	(1,104)	0	(1,104)	0	0
Unobligated balance, EOY	0	1,104	0	1,104	0	1,104	0	1,104	0	0
Total Budget Authority	**0**	**0**	**0**	**349**	**0**	**349**	**0**	**349**	**0**	**0**
Financing from Transfers and Other:										
Temporarily Reduced	0	0	0	0	0	0	0	0	0	0
Unapportioned	0	0	0	0	0	0	0	0	0	0
Discretionary Appropriation	0	0	0	0	0	0	0	0	0	0
Net Appropriation	**0**	**0**	**0**	**349**	**0**	**349**	**0**	**349**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Fishermen's Contingency Fund

For FY 2023, NMFS requests a total of $349 for this fund.

Goal Statement

This fund compensates U.S. commercial fishermen for damage or loss of fishing gear, vessels, and resulting economic loss caused by obstructions related to oil or gas exploration, development, and production in any area of the Outer Continental Shelf.

Base Program

The Fishermen's Contingency Fund is authorized under Section 402 of Title IV of the Outer Continental Shelf Lands Act Amendments of 1978. This fund minimizes financial instability of the fishing industry caused by competing uses of the OCS, and provides for timely resolution of claims by vessel owners.

Statement of Operating Objectives

Fishermen who can prove that they suffered losses in income due to inability or reduced capacity to fish as a result of the damage sustained may be eligible for compensation for economic loss and property loss or damage. Compensation for economic loss is based on 50 percent of gross income lost, rather than loss of profits.

Explanation and Justification

The funds used to provide this compensation are derived solely from fees collected on an annual basis by the Secretary of the Interior from the holders of leases, exploration permits, easements, or rights-of-way in areas of the OCS. Disbursements can be made only to the extent authorized in appropriation acts.

PROPOSED LEGISLATION:
For carrying out the provisions of Title IV of Public Law 95-372, not to exceed $349,000, to be derived from receipts collected pursuant to that Act, to remain available until expended.

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services from non federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	99	349	349	349	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	99	349	349	349	0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(1,203)	(1,204)	(1,204)	(1,204)	0
Less unapportioned	0	0	0	0	0
Plus unobligated balance, EOY	1,104	1,204	1,204	1,204	0
Unobligated balance, rescission	0	0	0	0	0
Total Budget Authority	0	349	349	349	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	0	0
Less: Obligations from prior year balances	0	0	0	0
Plus: 2023 Adjustments to Base	0	0	0	0
2023 Base	0	0	0	0
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	0	0

		2021 Actual Personnel Amount		2022 Annualized CR Personnel Amount		2023 Base Personnel Amount		2023 Estimate Personnel Amount		Increase/ Decrease from 2023 Base Personnel Amount	
Foreign Fishing Observer Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total: Foreign Fishing Observer Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	0	0	0	0	0	0	0	0	0
Total Obligations	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Adjustments for:										
Unobligated balance, adj. SOY	0	(522)	0	(522)	0	(522)	0	(522)	0	0
Unobligated balance, EOY	0	522	0	522	0	522	0	522	0	0
Total Budget Authority	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Financing from Transfers and Other:										
Unobligated balance, rescission	0	0	0	0	0	0	0	0	0	0
Net Appropriation	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Foreign Fishing Observer Fund

For FY 2023, NMFS requests a total of $0 for this fund.

Goal Statement

The goals of this fund are to provide 100 percent observer coverage aboard foreign vessels fishing within the U.S. EEZ; increase compliance with fishery regulations and requirements; support balanced conservation and management measures to achieve and maintain the optimum use of living marine resources; collect data to determine foreign compliance with fishery regulations and the status of fish stocks within the U.S. EEZ; and administer the base and supplemental observer programs in a cost-effective manner.

Base Program

The Foreign Fishing Observer Fund is financed through fees collected from owners and operators of foreign fishing vessels fishing within the U.S. EEZ (such fishing requires a permit issued under the Magnuson-Stevens Fishery Conservation and Management Act). The fund is used by NOAA to pay salaries, administrative costs, data editing and entry, and other costs incurred in placing observers aboard foreign fishing vessels.

Statement of Operating Objectives

- Monitor foreign fishing for compliance with U.S. fishing regulations
- Collect biological data

Explanation and Justification

The observer program is conducted primarily through contracts with the private sector. This includes longline vessels fishing in the Atlantic billfish and shark fishery and other foreign vessels fishing in the EEZ. NOAA places these observers aboard foreign fishing vessels to monitor compliance with U.S. fishery laws and to collect fishery management data. Amounts available in the fund can be disbursed only to the extent and in amounts provided in appropriation acts. In FY 1985, Congress approved the establishment of a supplemental observer program. The program provided that foreign vessels without federally funded observers are required to obtain the services of private contractors certified by the Secretary of Commerce.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
SUMMARY OF RESOURCE REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services from non-Federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	0	0	0	0	0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
SUMMARY OF RESOURCE REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(522)	(522)	(522)	(522)	0
Plus unobligated balance, EOY	522	522	522	522	0
Unobligated balance, rescission	0	0	0	0	0
Total Budget Authority	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance Program Account
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	17,293	17,293
Less: 2023 Adjustments to Base	0	0	(17,293)	(17,293)
2023 Base	0	0	0	0
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	0	0

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Finance Program Account	Pos/BA	0	3,564	0	17,293	0	0	0	0	0	0
	FTE/OBL	0	3,566	0	17,293	0	0	0	0	0	0
Total: Fisheries Finance Program Account	Pos/BA	0	3,564	0	17,293	0	0	0	0	0	0
	FTE/OBL	0	3,566	0	17,293	0	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance Program Account
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Loan Modification	0	0	0	0	0	0	0	0	0	0
Credit Reestimates	0	3,566	0	17,293	0	0	0	0	0	0
Total Obligations	**0**	**3,566**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Adjustments for:										
Recoveries	0	(2)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(2,781)	0	(2,781)	0	(2,781)	0	(2,781)	0	0
Unobligated balance, EOY	0	2,781	0	2,781	0	2,781	0	2,781	0	0
Total Budget Authority	**0**	**3,564**	**0**	**17,293**	**0**	**0**	**0**	**0**	**0**	**0**
Financing from Transfers and Other:										
Less: Permanent Indefinite Authority (Mandatory)	0	0	0	0	0	0	0	0	0	0
Net Appropriation	**0**	**3,564**	**0**	**17,293**	**0**	**0**	**0**	**0**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance Program Account
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Fisheries Finance Program Account

For FY 2023, NMFS requests a total of $0 for the Fisheries Finance Program Account.

Goal Statement

The Fisheries Finance Program (FFP) is a national loan program that makes long-term, fixed-rate financing available to U.S. citizens who otherwise qualify for financing or refinancing.

Base Program

NOAA's Fisheries Finance Program offers financing to U.S. companies seeking to improve their commercial fisheries and vessels. Vessel financing or refinancing that could contribute to overcapitalization by increasing harvesting capacity is prohibited by regulation.

Statement of Operating Objectives

The purpose of these loans is to provide affordable financing to support participants of the fishing and aquaculture industries.

Explanation and Justification

Types of activities for financing include the reconstruction, reconditioning, and, in some cases, the purchasing of fishing vessels, shoreside processing, aquaculture, mariculture facilities, purchase or refinance the purchase of harvesting rights in federally managed limited access systems, and the purchase of individual fishing quota (IFQ) in two Northwest fisheries. The FFP also provides fishery-wide financing to ease the transition to sustainable fisheries through its fishing capacity reduction programs and provides IFQ financing to fishermen who fish from small vessels and entry-level fishermen to promote stability and reduce consolidation in already rationalized fisheries. Additionally, FFP can provide loans for fisheries investments of Native American Community Development Quota (CDQ) groups.

The FFP operates under the authority of Title XI of the Merchant Marine Act of 1936, as amended (46 USC 53701); Section 303(a) of the Sustainable Fisheries Act amendments to the Magnuson-Stevens Fishery Conservation and Management Act; and, from time to time FFP-specific legislation. FFP lending practices are guided by Title XI, general rules implementing Title XI (found at 50 CFR part

253, subpart B), and NOAA's sustainable fisheries policy. The overriding guideline for all FFP financings is that they cannot contribute or be construed to contribute to an increase in existing fish harvesting.

FFP authority is subject to the Federal Credit Reform Act of 1990 (FCRA) (2 U.S.C. 661), which requires the estimated loan losses (FCRA cost) be appropriated in cash at the time Congress authorizes annual credit ceilings. Some types of FFP loans require no FCRA subsidy appropriations because these types of loans have historically not required additional loan subsidy. However, specific loan ceilings for each type of loan authority must be included in appropriation language or other bill language regardless of the need for cash appropriations.

PROPOSED LEGISLATION:
Subject to section 502 of the Congressional Budget Act of 1974, during fiscal year 2023, obligations of direct loans may not exceed $24,000,000 for Individual Fishing Quota loans and not to exceed $100,000,000 for traditional direct loans as authorized by the Merchant Marine Act of 1936.

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance Program Account
SUMMARY OF RESOURCE REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services from non-Federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,566	17,293	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	3,566	17,293	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance Program Account
SUMMARY OF RESOURCE REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less prior year recoveries	(2)	0	0	0	0
Less unobligated balance, SOY	(2,781)	(2,781)	(2,781)	(2,781)	0
Plus unobligated balance, EOY	2,781	2,781	2,781	2,781	0
Unobligated balance, rescission	0	0	0	0	0
Total Budget Authority	3,564	17,293	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	7,989	9,335
Less: Obligations from prior year balances	0	0	0	0
Less: 2023 Adjustments to Base	0	0	(459)	(1,805)
2023 Base	0	0	0	0
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	7,530	7,530

		2021 Actual Personnel	Amount	2022 Annualized CR Personnel	Amount	2023 Base Personnel	Amount	2023 Estimate Personnel	Amount	Increase/ Decrease from 2023 Base Personnel	Amount
Promote and Develop Fisheries Products	Pos/BA	0	12,000	0	7,989	0	7,530	0	7,530	0	0
	FTE/OBL	0	11,377	0	9,335	0	7,530	0	7,530	0	0
Total: Promote and Develop Fisheries Products	Pos/BA	0	12,000	0	7,989	0	7,530	0	7,530	0	0
	FTE/OBL	0	11,377	0	9,335	0	7,530	0	7,530	0	0

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	11,377	0	9,335	0	7,530	0	7,530	0	0
Total Obligations	**0**	**11,377**	**0**	**9,335**	**0**	**7,530**	**0**	**7,530**	**0**	**0**
Adjustments for:										
Unobligated balance, adj. SOY	0	(684)	0	(1,346)	0	0	0	0	0	0
Recoveries	0	(38)	0	0	0	0	0	0	0	0
Unobligated balance, adj. EOY	0	1,345	0	0	0	0	0	0	0	0
Total Budget Authority	**0**	**12,000**	**0**	**7,989**	**0**	**7,530**	**0**	**7,530**	**0**	**0**
Financing from Transfers and Other:										
Transfer from USDA	0	(262,275)	0	(253,669)	0	(362,611)	0	(362,611)	0	0
Appropriations previously unavailable	0	(10,846)	0	(14,950)	0	(14,459)	0	(14,459)	0	0
Permanently Reduced	0	0	0	0	0	0	0	0	0	0
Temporarily Reduced	0	14,950	0	14,459	0	20,669	0	20,669	0	0
Transfer to ORF	0	246,171	0	246,171	0	348,871	0	348,871	0	0
Net Appropriation	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Promote and Develop Fisheries Products

For FY 2023, NOAA estimates that a total of $362,611 will be transferred from the Department of Agriculture to the Promote and Develop account. After accounting for sequestration and prior year recoveries, $356,401 will be available in the account. NOAA requests to transfer $348,871 from the Promote and Develop account to the Operations, Research, and Facilities (ORF) account, leaving $7,530 for the Saltonstall-Kennedy (S-K) grant program in FY 2023.

Goal Statement

To address the needs of fishing communities in optimizing economic benefits by building and maintaining sustainable fisheries and practices, dealing with the impacts of conservation and management measures, and increasing other opportunities to keep working waterfronts viable.

Base Program

NOAA will transfer $348,871 from the Promote and Develop account to offset appropriations in the NMFS ORF account. The transfer to ORF will support data collection, data management, and fisheries stock assessment production within the Fisheries Data Collections, Surveys, and Assessments budget line, which includes the Expand Annual Stock Assessments, Fish Information Networks, Survey and Monitoring Projects, Cooperative Research activities; Fisheries Management Programs and Services; and Interjurisdictional Fisheries Grants.

Statement of Operating Objectives

Applications should fall into one of two priorities:

- Promotion, Development, and Marketing
- Science or Technology that Promotes Sustainable U.S. Seafood Production and Harvesting

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

The Promote and Develop account funds are derived from a transfer of thirty percent of duties on imported fisheries products from Department of Agriculture. Any funds remaining in this account after the ORF transfer are available to carry out the purposes of the S-K program. The American Fisheries Promotion Act (AFPA) of 1980 amended the S-K Act to authorize a grants program for fisheries research and development projects. In FY 2021, 40 projects were funded nationwide. The projects address either promotion, development and marketing and science or technology that promotes sustainable U.S seafood production and harvesting. More information on past accomplishments is available at the program's website http://www.nmfs.noaa.gov/mb/financial_services/skhome.htm.

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-federal sources	0	0	0	0	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	11,377	9,335	7,530	7,530	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	11,377	9,335	7,530	7,530	0

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less unobligated balance, SOY	(684)	(1,346)	0	0	0
Plus unobligated balance, EOY	1,345	0	0	0	0
Recoveries	(38)	0	0	0	0
Total Budget Authority	12,000	7,989	7,530	7,530	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full time permanent	0	0	0	0	0
Total	0	0	0	0	0

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	0	0
2023 Base	0	0	0	0
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	0	0

		2021 Actual Personnel Amount		2022 Annualized CR Personnel Amount		2023 Base Personnel Amount		2023 Estimate Personnel Amount		Increase/ Decrease from 2023 Base Personnel Amount	
Federal Ship Financing Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total: Federal Ship Financing Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	0	0	0	0	0	0	0	0	0
Total Obligations	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Adjustments for:										
Transfer to Treasury (mandatory)	0	0	0	0	0	0	0	0	0	0
Offsetting collections (mandatory)	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. EOY	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Federal Ship Financing Fund

For FY 2023, NMFS estimates a total of $0 for the Federal Ship Financing Fund Account.

Goal Statement

To provide for a liquidating account necessary for the collection of premiums and fees under the Fishing Vessel Obligations Guarantee program for loan commitments made prior to FY 1992.

Base Program

Administrative expenses for management of the loan guarantee portfolio were charged to the Federal Ship Financing Fund prior to the enactment of the Federal Credit Reform Act of 1990. Administrative expenses are charged to the ORF account.

Statement of Operating Objectives

- Collect repayments and interest
- Repay borrowings plus interest
- Pay default claims and interest

Explanation and Justification

These collections are for operations of this program, loans, and for use in case of default.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services from non-Federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Plus transfers to Treasury	0	0	0	0	0
Less unobligated balance, SOY	0	0	0	0	0
Plus unobligated balance, EOY	0	0	0	0	0
Less offsetting Collections	0	0	0	0	0
Total Budget Authority	0	0	0	0	0

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Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Improvement and Restoration Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	4,652	4,652
Less: Obligations from prior year balances	0	0	0	0
Less: 2023 Adjustments to Base	0	0	(2,877)	(2,877)
2023 Base	0	0	1,775	1,775
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	1,775	1,775

		2021 Actual Personnel Amount		2022 Annualized CR Personnel Amount		2023 Base Personnel Amount		2023 Estimate Personnel Amount		Increase/ Decrease from 2023 Base Personnel Amount	
Environmental Improvement and Restoration Fund	Pos/BA	0	6,527	0	4,652	0	1,775	0	1,775	0	0
	FTE/OBL	0	6,528	0	4,652	0	1,775	0	1,775	0	0
Total: Environmental Improvement and Restoration Fund	Pos/BA	0	6,527	0	4,652	0	1,775	0	1,775	0	0
	FTE/OBL	0	6,528	0	4,652	0	1,775	0	1,775	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Improvement and Restoration Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	0	6,528	0	4,652	0	1,775	0	1,775	0	0
Total Obligations	**0**	**6,528**	**0**	**4,652**	**0**	**1,775**	**0**	**1,775**	**0**	**0**
Adjustments for:										
Unobligated balance, adj. SOY	0	(1)	0	0	0	0	0	0	0	0
Recoveries	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adjusted	0	0	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	**0**	**6,527**	**0**	**4,652**	**0**	**1,775**	**0**	**1,775**	**0**	**0**
Financing from Transfers and Other:										
Appropriation previously unavailable	0	0	0	0	0	0	0	0	0	0
Permanently Reduced	0	395	0	281	0	107	0	107	0	0
Net Mandatory Appropriation	**0**	**6,922**	**0**	**4,933**	**0**	**1,882**	**0**	**1,882**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Improvement and Restoration Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Environmental Improvement and Restoration Fund

For FY 2023, NMFS estimates obligating $1,775 in the Environmental Improvement and Restoration Fund.

Goal Statement

The Environmental Improvement and Restoration Fund (EIRF) was created by the Department of Interior and Related Agencies Appropriations Act of 1998 for the purpose of carrying out marine research activities in the North Pacific.

Base Program

These funds will provide grants to Federal, state, private, or foreign organizations or individuals to conduct research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean.

Statement of Operating Objectives

- Improve understanding of North Pacific marine ecosystem dynamics and use of the resources
- Improve ability to forecast and respond to effects of changes through integration of various research activities including long-term monitoring
- Improve ability to manage and protect fish and wildlife populations of the North Pacific

Explanation and Justification

Each year NOAA's EIRF account is financed with a transfer from the Department of the Interior. NOAA grants these funds to the North Pacific Research Board (NPRB), which conducts an open, competitive process for gathering research proposals. Through this process, the NPRB recommends research projects relating to fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean, with emphasis on cooperative research designed to address pressing fishery management or marine ecosystem information needs.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Improvement and Restoration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services from non-Federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	6,528	4,652	1,775	1,775	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	6,528	4,652	1,775	1,775	0

Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Improvement and Restoration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less unobligated balance, SOY	(1)	0	0	0	0
Plus unobligated balance, adjusted	0	0	0	0	0
Less unobligated balance, transferred	0	0	0	0	0
Plus unobligated balance, EOY	0	0	0	0	0
Recoveries	0	0	0	0	0
Total Budget Authority	6,527	4,652	1,775	1,775	0

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Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Limited Access System Administration Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	28	28	14,325	13,798
Plus: Adjustments to Base	0	0	532	957
Less: Obligations from Prior Year Balances	0	0	0	0
2023 Base	28	28	14,857	14,755
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	28	28	14,857	14,755

		2021 Actual Personnel Amount		2022 Annualized CR Personnel Amount		2023 Base Personnel Amount		2023 Estimate Personnel Amount		Increase/ Decrease from 2023 Base Personnel Amount	
Limited Access System Administration Fund	Pos/BA	28	12,070	28	14,325	28	14,857	28	14,857	0	0
	FTE/OBL	28	12,904	28	13,798	28	14,755	28	14,755	0	0
Total: Limited Access System Administration Fund	Pos/BA	28	12,070	28	14,325	28	14,857	28	14,857	0	0
	FTE/OBL	28	12,904	28	13,798	28	14,755	28	14,755	0	0

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Limited Access System Administration Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	28	12,904	28	13,798	28	14,755	28	14,755	0	0
Total Obligations	**28**	**12,904**	**28**	**13,798**	**28**	**14,755**	**28**	**14,755**	**0**	**0**
Adjustments for:										
Recoveries	0	(1,564)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(19,809)	0	(20,539)	0	(21,539)	0	(21,539)	0	0
Unobligated balance, unapportioned	0	0	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	20,539	0	21,066	0	21,641	0	21,641	0	0
Total Budget Authority	**28**	**12,070**	**28**	**14,325**	**28**	**14,857**	**28**	**14,857**	**0**	**0**
Financing from Transfers and Other:										
Appropriations previously unavailable	0	(789)	0	(682)	0	(825)	0	(825)	0	0
Temporarily Reduced	0	682	0	825	0	848	0	848	0	0
Net Appropriation	**28**	**11,963**	**28**	**14,468**	**28**	**14,880**	**28**	**14,880**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Limited Access System Administration Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Limited Access System Administration Fund

For FY 2023, NMFS estimates obligating $14,755 in the Limited Access System Administration account.

Goal Statement

To provide for the collection of fees to recover the incremental costs of management, data collection, and enforcement of Limited Access Privilege (LAP) programs.

Base Program

Under the authority of Magnuson-Stevens Fishery Conservation and Management Act (MSA) Section 304(d)(2)(A) funds collected are deposited into the "Limited Access System Administrative Fund" (LASAF). Fees cannot exceed three percent of the ex-vessel value of fish harvested under any such program, and shall be collected at either the time of the landing, filing of a landing report, or sale of such fish during a fishing season or in the last quarter of the calendar year in which the fish is harvested.

Statement of Operating Objectives

- Provide repository for fees collected from Limited Access Programs
- Fund incremental costs of management, data collection and analysis, and enforcement of limited access privilege programs

Explanation and Justification

The LASAF is available, without appropriation or fiscal year limitation, only for the purposes of administrating the central registry system; and administering and implementing the MSA in the fishery in which the fees were collected. Sums in the fund that are not currently needed for these purposes are kept on deposit or invested in obligations of, or guaranteed by, the United States. Also, in establishing a LAP program, a Regional Council can consider, and may provide, if appropriate, an auction system or other program to collect royalties for the initial or any subsequent distribution of allocations. If an auction system is developed, revenues from these royalties are deposited in the LASAF.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Limited Access System Administration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	2,774	3,572	3,572	3,572	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	283	348	348	348	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	3,057	3,920	3,920	3,920	0
12.1	Civilian personnel benefits	1,401	1,495	1,495	1,495	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	2	2	2	2	0
22	Transportation of things	19	19	19	19	0
23.1	Rental payments to GSA	290	292	292	292	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	30	30	30	30	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	8	8	8	8	0
25.2	Other services from non-Federal sources	4,443	4,350	5,307	5,307	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
26	Supplies and materials	119	147	147	147	0
31	Equipment	25	25	25	25	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,510	3,510	3,510	3,510	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	12,904	13,798	14,755	14,755	0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Limited Access System Administration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Recoveries	(1,564)	0	0	0	0
Less unobligated balance, SOY	(19,809)	(20,539)	(21,539)	(21,539)	0
Unobligated balance, unapportioned	0	0	0	0	0
Plus unobligated balance, EOY	20,539	21,066	21,641	21,641	0
Unobligated balance, rescission	0	0	0	0	0
Total Budget Authority	12,070	14,325	14,857	14,857	0

Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	28	28	28	28	0
Other than full time permanent	0	0	0	0	0
Total	28	28	28	28	0
Authorized Positions:					
Full-time permanent	28	28	28	28	0
Other than full time permanent	0	0	0	0	0
Total	28	28	28	28	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Marine Mammal Unusual Mortality Event Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	0	0
Plus: Adjustments to Base	0	0	0	20
2023 Base	0	0	0	20
Plus: 2023 Program Change	0	0	0	0
2023 Estimate	0	0	0	20

		2021 Actual Personnel Amount		2022 Annualized CR Personnel Amount		2023 Base Personnel Amount		2023 Estimate Personnel Amount		Increase/ Decrease from 2023 Base Personnel Amount	
Marine Mammal Unusual Mortality Event Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	20	0	20	0	20
Total: Marine Mammal Unusual Mortality Event Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	20	0	20	0	20

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Marine Mammal Unusual Mortality Event Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	0	0	0	0	20	0	20	0	0
Total Obligations	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**20**	**0**	**0**
Adjustments for:										
Recoveries	0	0	0	0	0	0	0	0	0	0
Collections	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(33)	0	(34)	0	(34)	0	(34)	0	0
Unobligated balance, unapportioned	0	0	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	34	0	34	0	14	0	14	0	0
Total Budget Authority	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Financing from Transfers and Other:										
Appropriation previously unavailable	0	0	0	0	0	0	0	0	0	0
Net Appropriation	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Marine Mammal Unusual Mortality Event Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Marine Mammal Unusual Mortality Event Fund

For FY 2023, NMFS estimates obligating $20 from the Marine Mammal Unusual Mortality Event Fund.

Provide funds to support investigations and responses to unusual marine mammal mortality events.

Base Program

An unusual mortality event (UME) is defined under the Marine Mammal Protection Act (MMPA) as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response." In recent years, increased efforts to examine carcasses and live stranded animals have improved the knowledge of mortality rates and causes, allowing a better understanding of population threats and stressors and the ability to determine when a situation is "unusual." Understanding and investigating marine mammal UMEs is important because they can serve as indicators of ocean health, giving insight into larger environmental issues, which may also have implications for human health.

Statement of Operating Objectives

MMPA Section 405 (16 U.S.C. 1421d) establishes the Marine Mammal Unusual Mortality Event Fund and describes its purposes and how donations can be made to the Fund. The Fund is an emergency response fund used to help cover expenses incurred by the volunteer Marine Mammal Stranding Network during a UME. Specifically, the fund: "shall be available only for use by the Secretary of Commerce, in consultation with the Secretary of the Interior: to compensate persons for special costs incurred in acting in accordance with the contingency plan issued under section 1421c(b) of this title or under the direction of an Onsite Coordinator for an unusual mortality event:

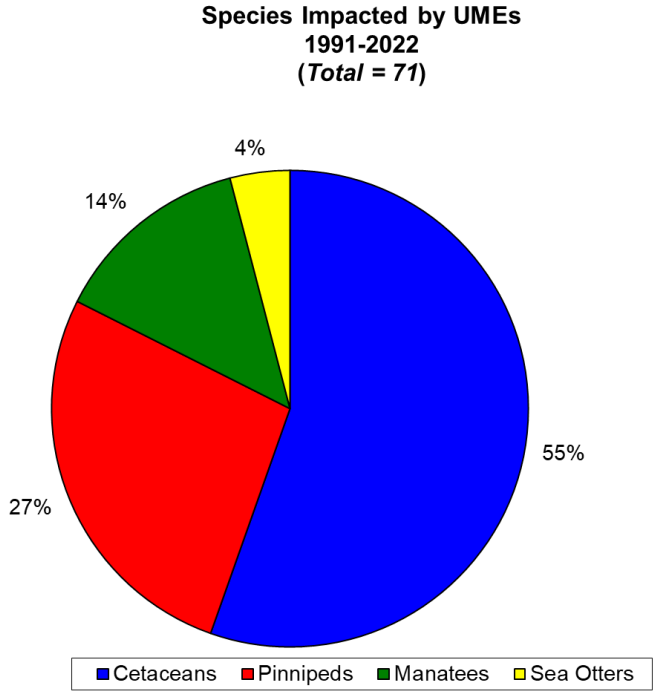
- for reimbursing any stranding network participant for costs incurred in preparing and transporting tissues collected with respect to an unusual mortality event for the Tissue Bank; and,
- for care and maintenance of marine mammal seized under section 1374(c)(2)(D) of this title."

According to the MMPA, deposits can be made into Fund in the following ways:

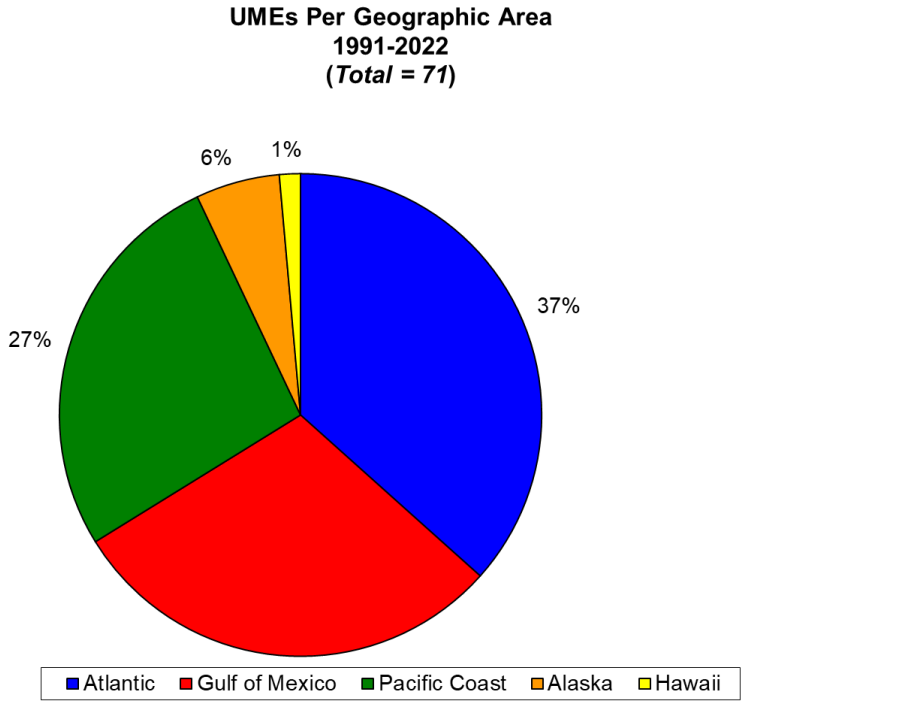
- "amounts appropriated to the Fund;

- other amounts appropriated to the Secretary for use with respect to unusual mortality events; and,
- amounts received by the United States in the form of gifts, devises, and bequests under subsection (d) of this section."

NOAA will continue to utilize the UME Contingency Fund to support the Marine Mammal Stranding Network's eligible work as needed.



Department of Commerce
National Oceanic and Atmospheric Administration
Marine Mammal Unusual Mortality Event Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)



Explanation and Justification

Since UMEs are unpredictable emergency events caused by any number of circumstances (natural or human-caused), it is impossible to anticipate how many UMEs may occur in a given year or how much funding will be needed. During the past 30 years (1991– 2021), NOAA declared 71 UMEs, an average of ~2.4 UMEs per year. The highest number of UMEs declared in a year was five (in both 2006 and 2007). The costs associated with UMEs are highly variable and depend on the species involved, location, equipment, and laboratory needs. For example, a UME involving large whales offshore can cost well over several $100,000s in expenses because of the considerable logistical challenges and needs (e.g., ship time or aerial support, number of personnel, safety equipment, etc.)

Department of Commerce
National Oceanic and Atmospheric Administration
Marine Mammal Unusual Mortality Event Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

To date, Congress has appropriated funding for UMEs on one occasion in 2005. Some of those funds were transferred to the National Fish and Wildlife Foundation (NFWF) since they have the ability to quickly distribute funds within 30 days of invoicing to our partners during a UME. At this time there are sufficient funds held at NFWF to meet most of our expected expenses in FY 2022 and we anticipate obligating up to $20 thousand from the Marine Mammal Unusual Mortality Event Fund in FY 2023. Additionally, the UME Contingency fund is listed on Pay.gov allowing the public to donate to the fund year round.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Marine Mammal Unusual Mortality Event Fund
SUMMARY OF RESOURCE REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services from non-federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	20	20	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	0	0	20	20	0

Department of Commerce
National Oceanic and Atmospheric Administration
Marine Mammal Unusual Mortality Event Fund
SUMMARY OF RESOURCE REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(33)	(34)	(34)	(34)	0
Plus unobligated balance, EOY	34	34	14	14	0
Less collections	0	0	0	0	0
Unobligated balance, unapportioned	0	0	0	0	0
Total Budget Authority	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Western Pacific Sustainable Fisheries Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	766	900
Adjustments to Base	0	0	127	(7)
2023 Base	0	0	893	893
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	893	893

		2021 Actual Personnel Amount		2022 Annualized CR Personnel Amount		2023 Base Personnel Amount		2023 Estimate Personnel Amount		Increase/ Decrease from 2023 Base Personnel Amount	
Western Pacific Sustainable Fisheries Fund	Pos/BA	0	578	0	766	0	893	0	893	0	0
	FTE/OBL	0	505	0	900	0	893	0	893	0	0
Total: Western Pacific Sustainable Fisheries Fund	Pos/BA	0	578	0	766	0	893	0	893	0	0
	FTE/OBL	0	505	0	900	0	893	0	893	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Western Pacific Sustainable Fisheries Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	505	0	900	0	893	0	893	0	0
Total Obligations	**0**	**505**	**0**	**900**	**0**	**893**	**0**	**893**	**0**	**0**
Adjustments for:										
Recoveries	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(61)	0	(134)	0	0	0	0	0	0
Unobligated balance, unapportioned	0	0	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	134	0	0	0	0	0	0	0	0
Total Budget Authority	**0**	**578**	**0**	**766**	**0**	**893**	**0**	**893**	**0**	**0**
Financing from Transfers and Other:										
Appropriation previously unavailable	0	(22)	0	(34)	0	(44)	0	(44)	0	0
Temporarily Reduced	0	34	0	44	0	51	0	51	0	0
Net Appropriation	**0**	**590**	**0**	**776**	**0**	**900**	**0**	**900**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Western Pacific Sustainable Fisheries Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Western Pacific Sustainable Fisheries Fund

For FY 2023, NMFS estimates obligating $893 in the Western Pacific Sustainable Fisheries Fund.

Goal Statement

The purpose of this fund is to allow foreign fishing within the U.S. Exclusive Economic Zone (EEZ) in the Western Pacific through a Pacific Insular Area Fishery Agreement.

Base Program

Section 204(e) of the 2006 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) authorizes the establishment of the Western Pacific Sustainable Fisheries Fund. Before entering an Agreement, the Western Pacific Fishery Management Council must develop a Marine Conservation Plan that provides details on uses for any funds collected by the Secretary of Commerce. Marine Conservation Plans must also be developed by the Governors of the Territories of Guam and American Samoa and of the Commonwealth of the Northern Mariana Islands and approved by the Secretary or designee.

Statement of Operating Objectives

The conservation and management objectives for the Western Pacific Sustainable Fisheries Fund are listed in the four marine conservation plans:

- Hawaii and Pacific Insular Areas
- Guam
- American Samoa
- Commonwealth of the Northern Mariana Islands.

Department of Commerce
National Oceanic and Atmospheric Administration
Western Pacific Sustainable Fisheries Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

The Western Pacific Sustainable Fisheries Fund serves as a repository for any permit payments received by the Secretary for foreign fishing within the U.S. EEZ around Johnston Atoll, Kingman Reef, Palmyra Atoll, and Jarvis, Howland, Baker and Wake Islands, sometimes known as the Pacific remote island areas (PRIA). Funds are available to:

- The Western Pacific Council for the purpose of carrying out implementation of a marine conservation plan (see below for more info on marine conservation plans).
- The Secretary of State for mutually agreed upon travel expenses for no more than two Federal representatives incurred as a direct result of negotiations and entering into a Pacific Insular Area fishery agreement. These fishery agreements authorize foreign fishing within the exclusive economic zone adjacent to a Pacific Insular Area other than American Samoa, Guam, or the Northern Mariana Islands, at the request of the Western Pacific Council.
- The Western Pacific Council to meet conservation and management objectives in the State of Hawaii if monies remain in the Western Pacific Sustainable Fisheries Fund after the funding requirements of Section 204(e) subparagraphs (A) and (B) of the 2006 amendments to the MSA have been satisfied.

In the case of violations by foreign vessels occurring in these areas, amounts received by the Secretary attributable to fines and penalties are deposited into the fund to be used for fisheries enforcement and for implementation of a marine conservation plan. Additionally, any funds or contributions received in support of conservation and management objectives under a Marine Conservation Plan for any Pacific Insular Area other than American Samoa, Guam, or the Northern Mariana Islands are deposited in the fund.

Department of Commerce
National Oceanic and Atmospheric Administration
Western Pacific Sustainable Fisheries Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services from non-Federal sources	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	505	900	893	893	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	505	900	893	893	0

Department of Commerce
National Oceanic and Atmospheric Administration
Western Pacific Sustainable Fisheries Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Recoveries	0	0	0	0	0
Less unobligated balance, SOY	(61)	(134)	0	0	0
Plus unobligated balance, EOY	134	0	0	0	0
Unobligated balance, unapportioned	0	0	0	0	0
Total Budget Authority	578	766	893	893	0

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Asset Forfeiture Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	(2,019)	5,446
Plus: Adjustments to Base			5,051	(2,414)
Less: Obligations from Prior Year Balances	0	0	0	0
2023 Base	0	0	3,032	3,032
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	3,032	3,032

		2021 Actual Personnel	2021 Actual Amount	2022 Annualized CR Personnel	2022 Annualized CR Amount	2023 Base Personnel	2023 Base Amount	2023 Estimate Personnel	2023 Estimate Amount	Increase/ Decrease from 2023 Base Personnel	Increase/ Decrease from 2023 Base Amount
Fisheries Asset Forfeiture Fund	Pos/BA	0	2,130	0	(2,019)	0	3,032	0	3,032	0	0
	FTE/OBL	0	5,108	0	5,446	0	3,032	0	3,032	0	0
Total: Fisheries Asset Forfeiture Fund	Pos/BA	0	2,130	0	(2,019)	0	3,032	0	3,032	0	0
	FTE/OBL	0	5,108	0	5,446	0	3,032	0	3,032	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Asset Forfeiture Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	0	5,108	0	5,446	0	3,032	0	3,032	0	0
Total Obligations	**0**	**5,108**	**0**	**5,446**	**0**	**3,032**	**0**	**3,032**	**0**	**0**
Adjustments for:										
Recoveries	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(10,443)	0	(7,465)	0	0	0	0	0	0
Unobligated balance, EOY	0	7,465	0	0	0	0	0	0	0	0
Total Budget Authority	**0**	**2,130**	**0**	**(2,019)**	**0**	**3,032**	**0**	**3,032**	**0**	**0**
Financing from Transfers and Other:										
Mandatory Appropriation Temporarily Reduced	0	122	0	173	0	173	0	173	0	0
Appropriations previously unavailable	0	5,109	0	(122)	0	(173)	0	(173)	0	0
Unobligated balance, Rescission	0	5,000	0	5,000	0	0	0	0	0	0
Net Appropriation	**0**	**2,143**	**0**	**3,032**	**0**	**3,032**	**0**	**3,032**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Asset Forfeiture Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Fisheries Asset Forfeiture Fund

For FY 2023, NMFS estimates it will collect $3,032 in fines, penalties, and forfeitures proceeds.

Goal Statement

To pay certain enforcement-related expenses from fines, penalties, and forfeiture proceeds received for violations of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Marine Mammal Protection Act (MMPA), National Marine Sanctuaries Act, or any other marine resource law enforced by the Secretary.

Base Program

Pursuant to Section 311(e)(1) of the MSA, NOAA has established a Civil Monetary Penalty/Asset Forfeiture Fund (AFF) where these proceeds are deposited.

Statement of Operating Objectives

The objective of the AFF is to provide a repository for fines, penalties and forfeiture proceeds, which are only used to fund the authorized costs listed below.

Explanation and Justification

The proceeds held in the AFF may be used to offset in part the costs of administering the Enforcement program. Expenses funded through this source include: costs directly related to the storage, maintenance, and care of seized fish, vessels, or other property during a civil or criminal proceeding; expenditures related directly to specific investigations and enforcement proceedings such as travel for interviewing witnesses; enforcement-unique information technology infrastructure; and annual interagency agreement and contract costs for the administrative adjudication process, including Administrative Law Judges.

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Asset Forfeiture Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	903	903	903	903	0
22	Transportation of things	5	5	5	5	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	120	120	120	120	0
23.3	Commun., util., misc. charges	1	1	1	1	0
24	Printing and reproduction	3	3	3	3	0
25.1	Advisory and assistance services	5	5	5	5	0
25.2	Other services from non-Federal sources	2,481	2,819	405	405	0
25.3	Other goods and services from Federal sources	975	975	975	975	0
26	Supplies and materials	199	368	199	199	0
31	Equipment	251	251	251	251	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	165	253	165	165	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	**5,108**	**5,446**	**3,032**	**3,032**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Asset Forfeiture Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Less unobligated balance, SOY	(10,443)	(7,465)	0	0	0
Recoveries	0	0	0	0	0
Plus unobligated balance, EOY	7,465	0	0	0	0
Total Budget Authority	**2,130**	**(2,019)**	**3,032**	**3,032**	**0**

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Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
North Pacific Observer Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
2022 Annualized CR	0	0	3,158	3,329
Plus: Adjustments to Base	0	0	796	625
Less: Obligations from Prior Year Balances	0	0	0	0
2023 Base	0	0	3,954	3,954
Plus: 2023 Program Changes	0	0	0	0
2023 Estimate	0	0	3,954	3,954

		2021 Actual Personnel	Amount	2022 Annualized CR Personnel	Amount	2023 Base Personnel	Amount	2023 Estimate Personnel	Amount	Increase/ Decrease from 2023 Base Personnel	Amount
North Pacific Observer Fund	Pos/BA	0	2,488	0	3,158	0	3,954	0	3,954	0	0
	FTE/OBL	0	3,040	0	3,329	0	3,954	0	3,954	0	0
Total: North Pacific Observer Fund	Pos/BA	0	2,488	0	3,158	0	3,954	0	3,954	0	0
	FTE/OBL	0	3,040	0	3,329	0	3,954	0	3,954	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
North Pacific Observer Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	0	3,040	0	3,329	0	3,954	0	3,954	0	0
Total Obligations	**0**	**3,040**	**0**	**3,329**	**0**	**3,954**	**0**	**3,954**	**0**	**0**
Adjustments for:										
Recoveries	0	0	0	0	0	0	0	0	0	0
Unobligated balance, SOY	0	(723)	0	(171)	0	0	0	0	0	0
Unobligated balance, EOY	0	171	0	0	0	0	0	0	0	0
Total Budget Authority	**0**	**2,488**	**0**	**3,158**	**0**	**3,954**	**0**	**3,954**	**0**	**0**
Financing from Transfers and Other:										
Appropriation previously unavailable	0	(171)	0	(140)	0	(182)	0	(182)	0	0
Temporarily Reduced	0	140	0	182	0	228	0	228	0	0
Net Appropriation	**0**	**2,457**	**0**	**3,200**	**0**	**4,000**	**0**	**4,000**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
North Pacific Observer Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: North Pacific Observer Fund

For FY 2023, NMFS estimates obligating $3,954 for the North Pacific Observer Fund.

Goal Statement

To fund observer coverage on the vessels and processors in the partial coverage category within the North Pacific Groundfish Observer Program (NPGOP).

Base Program

On January 1, 2013, the restructured NPGOP went into effect and made important changes to how observers are deployed, how observer coverage is funded, and the vessels and processors that must have some or all of their operations observed.

Statement of Operating Objectives

- Collect catch data onboard fishing vessels and at onshore processing plants that is used for in-season management and scientific purposes such as stock assessments and ecosystem studies
- Ensure that the data collected by observers are of the highest quality possible by implementing rigorous quality control and quality assurance processes

Explanation and Justification

Coverage levels are no longer based on vessel length and processing volume; rather, NMFS now has the flexibility to decide when and where to deploy observers based on a scientifically defensible deployment plan. The new observer program places all vessels and processors in the groundfish and halibut fisheries off Alaska into one of two observer coverage categories: (1) full coverage category and (2) partial coverage Vessels and processors in the full coverage category (≥100% observer coverage) will obtain observers by contracting directly with observer providers. Vessels and processors in the full observer coverage category are required to have at least one observer at all times. This will represent no change from the status quo for participants in the full coverage category. Vessels and processors in the partial coverage category (<100% observer coverage) will no longer contract independently with an observer provider, and will be required to carry an observer when they are selected through the Observer Declare and

Deploy System (ODDS). Additionally, landings from all vessels in the partial coverage category will be assessed a 1.25 percent fee on standard ex-vessel prices of the landed catch weight of groundfish and halibut. The fee percentage is set in regulation and will be reviewed periodically by the North Pacific Council after the second year of the program. The money generated by this fee will be used to pay for observer coverage on the vessels and processors in the partial coverage category in the following year. NMFS expects approximately $4.0 million to be collected in fees from the FY 2022 season, to be used in FY 2023 for observer coverage.

Department of Commerce
National Oceanic and Atmospheric Administration
North Pacific Observer Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other goods and services from Federal sources	1,864	3,329	3,954	3,954	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	1,176	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	3,040	3,329	3,954	3,954	0

Department of Commerce
National Oceanic and Atmospheric Administration
North Pacific Observer Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/ Decrease from 2023 Base
Recoveries	0	0	0	0	0
Less unobligated balance, SOY	(723)	(171)	0	0	0
Plus unobligated balance, EOY	171	0	0	0	0
Unobligated balance, rescission	0	0	0	0	0
Total Budget Authority	2,488	3,158	3,954	3,954	0

Department of Commerce
National Oceanic and Atmospheric Administration
Oceanic and Atmospheric Research
Budget Estimates, Fiscal Year 2023

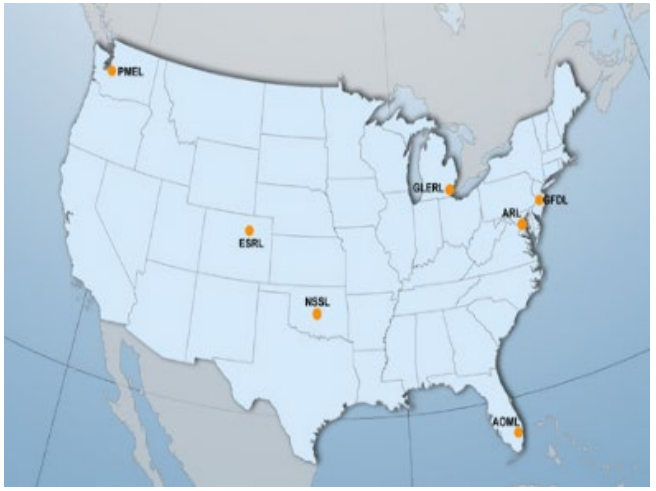
Executive Summary

For FY 2023, NOAA requests a total of $774,775,000 and 860 FTE/ 900 positions for the Office of Oceanic and Atmospheric Research including a net increase of $144,548,000 and 40 FTE/ 52 positions in program changes.

Oceanic and Atmospheric Research (OAR) is NOAA's central research Line Office charged with improving the understanding of changes in the Earth's environment. OAR integrates and conducts research across NOAA to advance NOAA's mission by providing better forecasts and improving understanding of the Earth and its processes. OAR conducts research on ocean acidification, aquaculture, severe weather, climate, and deep sea environments. OAR also develops technology that is transitioned into operations at other NOAA Line Offices or that improves the scope and efficiency of our observing systems. OAR also provides information to individuals, businesses, and communities to reduce vulnerability to extreme weather and climate, prepare for drought and water resource challenges, protect and preserve coasts and coastal infrastructure from inundation, and identify and manage risks to marine ecosystems and the services they provide.

OAR's Organizational Components:
OAR operates through a national network of laboratories, other university-based research institutes, and specialized programs. These centers of expertise collaborate across NOAA's weather, climate, and ocean research to apply an integrated approach to global and local scientific challenges. OAR consists of the following organizational components:

OAR Laboratories:
OAR has ten laboratories across the United States providing the research foundation for NOAA products and services that support decision making by policymakers and the public. These laboratories collaborate with numerous external partners, including NOAA-funded Cooperative Institutes at academic and scientific institutions.



Map displays the location of OAR's ten laboratories. There are four laboratories at the Earth System Research Laboratories location in Boulder. CO.

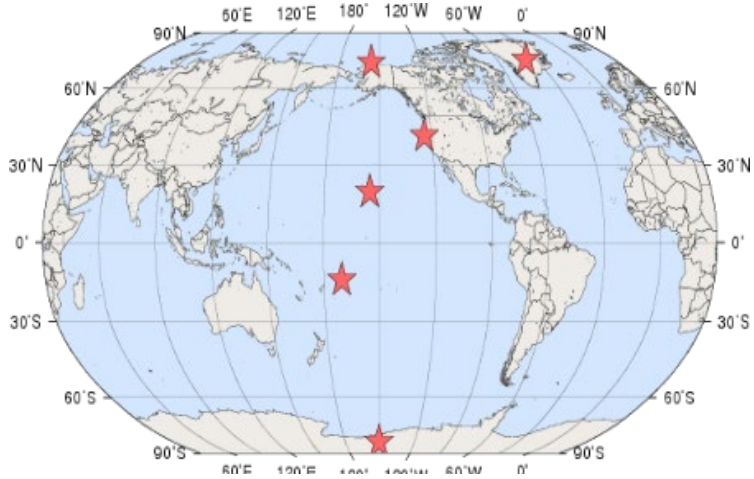
OAR's labs include:

Air Resources Laboratory, College Park, Maryland
Air Resources Laboratory conducts research on atmospheric dispersion, atmospheric chemistry, climate composition, and the complex behavior of the atmosphere near the Earth's surface, providing weather forecasters' direct access to dispersion estimates of airborne hazardous materials to predict the transport of acid rain, volcanic ash, wildfires, air chemistry, mercury contamination, and radioactive material.

Atlantic Oceanographic and Meteorological Laboratory, Miami, Florida
Atlantic Oceanographic and Meteorological Laboratory conducts research that protects coastal populations and ecosystems with more accurate forecasting of hurricanes, better understanding of the role of oceans in climate, and protection from environmental degradation.

Chemical Sciences Laboratory, Boulder, Colorado
One of four laboratories within Earth System Research Laboratories that pursue a broad and comprehensive understanding of the Earth system, including the atmosphere, ocean, and the climate system, Chemical Sciences Laboratory focuses on quantifying manmade and natural emissions, understanding processes that alter the atmosphere's composition and the distribution of pollutants, and offering information and practical applications to local decision makers and the public.

Global Monitoring Laboratory, Boulder, Colorado
One of four laboratories within Earth System Research Laboratories that pursue a broad and comprehensive understanding of the Earth system, including the atmosphere, ocean, and the climate system, Global Monitoring Laboratory sustains long-term observation of atmospheric compounds from over 100 sites around the world and identifies emerging trends in compound location and concentration. It also validates the NASA and NOAA satellite data of greenhouse gases, ozone, radiation, aerosols, and many other atmospheric compounds.



Among other observation networks, Global Monitoring Laboratory operates 6 Atmospheric Baseline Observatories, strategically located across the globe, that collect high quality, long-term atmospheric data used by more than 500 external partners and stakeholders.

Department of Commerce
National Oceanic and Atmospheric Administration
Oceanic and Atmospheric Research
Budget Estimates, Fiscal Year 2023

Global Systems Laboratory, Boulder, Colorado
One of four laboratories within Earth System Research Laboratories that pursue a broad and comprehensive understanding of the Earth system, including the atmosphere, ocean, and the climate system, Global Systems Laboratory improves weather and water by developing and integrating next-generation Earth system models at storm-to-global scales and advances new modeling.

Physical Sciences Laboratory, Boulder, Colorado
One of four laboratories within Earth System Research Laboratories that pursue a broad and comprehensive understanding of the Earth system, including the atmosphere, ocean, and the climate system, Physical Sciences Laboratory conducts physical science research that advances NOAA's abilities to observe, understand, and predict the physical behavior of the Earth system, improving forecasts and seasonal outlooks.

Geophysical Fluid Dynamics Laboratory, Princeton, New Jersey
Geophysical Fluid Dynamics Laboratory modeling research provides the foundation for our Nation's weather prediction, seasonal forecasting and ocean modeling.

Great Lakes Environmental Research Laboratory, Ann Arbor, Michigan
Great Lakes Environmental Research Laboratory develops information and tools for coastal decision makers managing 95 percent of our country's surface freshwater. GLERL advances forecasts of environmental change in the Great Lakes through environmental observation, ecosystem process studies, and integrated modeling.

National Severe Storms Laboratory, Norman, Oklahoma
National Severe Storms Laboratory focuses on understating the causes of severe weather, such as tornadoes, flash floods, hail, damaging winds, and winter weather, in order to improve the lead time and accuracy of severe weather forecasts and warnings.

Pacific Marine Environmental Laboratory, Seattle, Washington
Pacific Marine Environmental Laboratory explores the complex physical and geochemical processes operating in the world's oceans, including the processes driving ocean circulation and the global climate system.

Department of Commerce
National Oceanic and Atmospheric Administration
Oceanic and Atmospheric Research
Budget Estimates, Fiscal Year 2023

NOAA Cooperative Institutes:

NOAA Cooperative Institutes (CIs) are long-term collaborations between NOAA and academic and scientific institutions dedicated to advancing oceanic and atmospheric research. CIs are co-located with one or more NOAA facilities to promote scientific exchange and technology transfer. Each CI is competitively selected to address a specific research theme within NOAA's mission, such as weather forecast improvement or ecosystem forecasting. These partnerships help maximize scientific breadth, quality, productivity, and return on investment. NOAA currently supports 15 CIs consisting of 69 universities and research institutions across 28 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.

NOAA's Cooperative Institutes and their host institution are:

- CI for Climate, Ocean and Ecosystem Studies, University of Washington
- CI for Great Lakes Research, University of Michigan
- CI for Marine and Atmospheric Research, University of Hawaii
- CI for Marine and Atmospheric Studies, University of Miami
- CI for Marine, Earth, and Atmospheric Systems, Scripps Institution of Oceanography, University of California, San Diego
- CI for Marine Ecosystem Resources Studies, Oregon State University
- CI for Meteorological Satellite Studies, University of Wisconsin
- CI for Modeling the Earth System, Princeton University
- CI for Research in Environmental Sciences, University of Colorado
- CI for Research in the Atmosphere, Colorado State University
- CI for Satellite Earth System Studies, University of Maryland, College Park
- CI for the North Atlantic Region, Woods Hole Oceanographic Institution
- CI for Weather Research and Operations, Oklahoma University
- Northern Gulf Institute, Mississippi State University
- Ocean Exploration Cooperative Institute, University of Rhode Island

Department of Commerce
National Oceanic and Atmospheric Administration
Oceanic and Atmospheric Research
Budget Estimates, Fiscal Year 2023

OAR Programs:
OAR Programs manage competitive and noncompetitive awards for intramural and extramural research that focus on specific topics and emerging areas of research. They also foster collaboration across NOAA, with other agencies, and academic institutions. OAR's programs include:

Climate Program Office
CPO supports activities that advance our understanding of Earth's climate system and helps communities apply this knowledge to mitigate risks and improve community resilience and preparedness throughout the Nation.

Global Ocean Monitoring and Observing Program
Global Ocean Monitoring and Observing Program provides long-term, high quality, global ocean observations and information products to researchers, forecasters, and other stakeholders to inform and prepare society for environmental challenges.

National Sea Grant College Program
The National Sea Grant College Program is a Federal-state partnership that focuses on maintaining resilient communities and economies, sustainable fisheries and aquaculture, healthy coastal ecosystems, and environmental literacy and workforce development.

NOAA Ocean Acidification Program
The Ocean Acidification Program aims to improve understanding of how ocean chemistry is changing, how variable that change is by region, and how ocean acidification affects marine life, people, and the economy.

Ocean Exploration and Research
Ocean Exploration and Research, the only Federal program dedicated to ocean exploration, leads efforts to explore and characterize deep-water areas of the U.S. and other poorly known ocean areas so the Nation can successfully manage its oceanic resources.

Weather Program Office
Weather Program Office improves predictions and warnings for the public and weather sensitive U.S. industries by facilitating cutting-edge research and transitioning this research to National Weather Service (NWS) operations.

Significant Adjustments:

Inflationary Adjustments
NOAA's FY 2023 Base includes a net increase of $17,048,000 and 0 FTE/ 0 positions to account for the full funding requirement for certain inflationary adjustments to current programs for OAR activities. This includes inflationary increases for labor and non-labor activities including benefits and rent charges from the General Services Administration.

Technical Adjustments
NOAA also requests the following transfers for a change of $0 and 0 FTE/ 0 Positions to the agency:

From Office	Subactivity	To Office	Subactivity	Amount
OAR	Climate Laboratories and Cooperative Institutes (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$261,000 / 2 FTE / 2 Positions
OAR	Ocean Laboratories and Cooperative Institutes (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$390,000 / 3 FTE / 3 Positions
OAR	Ocean Exploration and Research (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$130,000 / 1 FTE / 1 Positions
OAR	Sustained Ocean Observations and Monitoring (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$130,000 / 1 FTE / 1 Positions

NOAA requests to transfer $261,000 and 2 FTE/ 2 Positions from the Climate Laboratories and Cooperative Institutes Subactivity, $390,000 and 3 FTE/ 3 Positions from the Ocean Laboratories and Cooperative Institutes Subactivity, $130,000 and 1 FTE/ 1 Position from the Ocean Exploration and Research Subactivity, and $130,000 and 1 FTE/ 1 Position from the Sustained Ocean Observations and Monitoring Subactivity to the OMAO NOAA Commissioned Officer Corps Subactivity to allow for better alignment of funding and greater transparency over the full cost of the NOAA Corps. With this transfer, funding for all NOAA Corps personnel will reside within OMAO. This increases efficiency within the program by reducing administrative burdens and allows NOAA to better manage personnel requirements consistent with the *NOAA Corps Amendments Act of 2020* (P.L. 116-259).

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Climate Research
Subactivity: Climate Laboratories & Cooperative Institutes (ORF) transfer to OMAO NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	22,150	0	23,169
11.3	Other than full-time permanent	596	0	596
11.5	Other personnel compensation	503	0	503
11.7	Military personnel compensation	261	(261)	0
11.9	Total personnel compensation	23,510	(261)	24,268
12	Civilian personnel benefits	7,938	0	8,303
13	Benefits for former personnel	4	0	4
21	Travel and transportation of persons	45	0	45
22	Transportation of things	328	0	328
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	765	0	765
23.2	Rental Payments to others	335	0	335
23.3	Communications, utilities and misc charges	931	0	931
24	Printing and reproduction	93	0	93
25.1	Advisory and assistance services	694	0	694
25.2	Other services from non-Federal sources	9,091	0	9,831
25.3	Other goods and services from Federal sources	2,627	0	2,627
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	41	0	41
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	3,630	0	3,630
31	Equipment	2,536	0	2,536
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	22,931	0	24,040
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	1	0	1
44	Refunds	0	0	0
99	Total obligations	75,500	(261)	78,472

*The 2023 Base column reflects the full 2023 base for the subactivity, including calculated ATBs and any additional transfers.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean, Coastal, and Great Lakes Research
Subactivity: Ocean Laboratories & Cooperative Institutes (ORF) transfer to OMAO NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	11,295	0	11,815
11.3	Other than full-time permanent	190	0	190
11.5	Other personnel compensation	115	0	115
11.7	Miltary personnel compensation	390	(390)	0
11.9	Total personnel compensation	11,990	(390)	12,120
12	Civilian personnel benefits	3,979	0	4,162
13	Benefits for former personnel	14	0	14
21	Travel and transportation of persons	287	0	287
22	Transportation of things	164	0	164
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	885	0	885
23.3	Communications, utilities and misc charges	185	0	185
24	Printing and reproduction	33	0	33
25.1	Advisory and assistance services	56	0	56
25.2	Other services from non-Federal sources	4,975	0	5,453
25.3	Other goods and services from Federal sources	16	0	16
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	2,386	0	2,386
31	Equipment	648	0	648
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	10,882	0	11,599
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	36,500	(390)	38,007

*The 2023 Base column reflects the full 2023 base for the subactivity, including calculated ATBs and any additional transfers.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean, Coastal, and Great Lakes Research
Subactivity: Ocean Exploration and Research (ORF) transfer to OMAO NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	2,778	0	2,906
11.3	Other than full-time permanent	88	0	88
11.5	Other personnel compensation	34	0	34
11.8	Special personnel services payments	130	(130)	0
11.9	Total personnel compensation	3,030	(130)	3,028
12	Civilian personnel benefits	1,076	0	1,126
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	171	0	171
22	Transportation of things	1	0	1
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	241	0	241
23.2	Rental Payments to others	3	0	3
23.3	Communications, utilities and misc charges	93	0	93
24	Printing and reproduction	0	0	0
25.1	Advisory and assistance services	3,288	0	3,457
25.2	Other services from non-Federal sources	2,579	0	2,748
25.3	Other goods and services from Federal sources	161	0	161
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	206	0	206
31	Equipment	29	0	29
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	32,122	0	32,630
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	43,000	(130)	43,894

*The 2023 Base column reflects the full 2023 base for the subactivity, including calculated ATBs and any additional transfers.

Exhibit 3T

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Ocean, Coastal, and Great Lakes Research
Subactivity: Sustained Ocean Observations & Monitoring (ORF) transfer to OMAO NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	3,162	0	145
11.3	Other than full-time permanent	48	0	48
11.5	Other personnel compensation	65	0	65
11.8	Special personnel services payments	130	(130)	0
11.9	Total personnel compensation	3,405	(130)	258
12	Civilian personnel benefits	1,086	0	1,136
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	138	0	138
22	Transportation of things	273	0	273
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	80	0	80
23.2	Rental Payments to others	1	0	1
23.3	Communications, utilities and misc charges	245	0	245
24	Printing and reproduction	6	0	6
25.1	Advisory and assistance services	1,145	0	1,145
25.2	Other services from non-Federal sources	2,221	0	3,800
25.3	Other goods and services from Federal sources	177	0	177
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	552	0	552
31	Equipment	737	0	737
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	35,341	0	37,707
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	1	0	1
44	Refunds	0	0	0
99	Total obligations	45,408	(130)	46,256

*The 2023 Base column reflects the full 2023 base for the subactivity, including calculated ATBs and any additional transfers.

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
OCEANIC AND ATMOSPHERIC RESEARCH (OAR)											
Climate Research	Pos/BA	256	180,088	293	182,000	291	187,378	337	256,639	46	69,261
	FTE/OBL	256	182,650	283	182,000	281	187,378	316	256,639	35	69,261
Weather & Air Chemistry	Pos/BA	267	137,981	300	139,382	300	144,479	302	150,766	2	6,287
Research	FTE/OBL	249	145,996	292	139,382	292	144,479	294	150,766	2	6,287
Ocean, Coastal, and Great	Pos/BA	204	229,401	244	231,408	239	236,639	239	236,639	0	0
Lakes Research	FTE/OBL	203	232,838	235	231,408	230	236,639	230	236,639	0	0
Innovative Research &	Pos/BA	16	17,677	17	17,800	17	18,231	21	22,231	4	4,000
Technology	FTE/OBL	15	17,757	16	17,800	16	18,231	19	22,231	3	4,000
TOTAL OAR - ORF	**Pos/BA**	**743**	**565,147**	**854**	**570,590**	**847**	**586,727**	**899**	**666,275**	**52**	**79,548**
	FTE/OBL	**723**	**579,241**	**826**	**570,590**	**819**	**586,727**	**859**	**666,275**	**40**	**79,548**
Systems Acquisition	Pos/BA	1	43,126	1	43,500	1	43,500	1	108,500	0	65,000
	FTE/OBL	1	43,065	1	43,500	1	43,500	1	108,500	0	65,000
TOTAL OAR - PAC	**Pos/BA**	**1**	**43,126**	**1**	**43,500**	**1**	**43,500**	**1**	**108,500**	**0**	**65,000**
	FTE/OBL	**1**	**43,065**	**1**	**43,500**	**1**	**43,500**	**1**	**108,500**	**0**	**65,000**
TOTAL OAR	**Pos/BA**	**744**	**608,273**	**855**	**614,090**	**848**	**630,227**	**900**	**774,775**	**52**	**144,548**
	FTE/OBL	**724**	**622,306**	**827**	**614,090**	**820**	**630,227**	**860**	**774,775**	**40**	**144,548**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Climate Research

Goal Statement

The mission of the Climate Research in OAR is to monitor and understand Earth's climate system to predict potential changes in global climate, as well as understand and communicate to the public and decision-makers near-term, regional climate variations that are of societal and economic importance. The long-term observing, monitoring, research, and modeling capabilities performed in OAR's Climate Research provide the science that Americans need to understand how, where, and when Earth's conditions are changing.

Base Program

OAR's climate research laboratories, programs, and partners are key contributors to advancing understanding of Earth's climate system through interdisciplinary, integrated scientific research, and leveraging the resulting knowledge, data, and systems to enhance society's ability to plan and respond to climate variability and climate change. NOAA's Climate Program Office (CPO) network of partners, specialists, and principal investigators are working to integrate and transition research findings from CPO-sponsored research and development projects into applications designed to help communities and businesses build resilience to climate-related impacts and extreme events.

NOAA's competitive research programs funds climate science, assessments, decision support research, modeling improvements, and transition of research and capacity-building activities in four complementary and important areas:

- Observations and monitoring
- Process understanding and analysis
- Modeling, predictions, and projections
- Societal interactions and communications

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The following three Subactivities are included in the Climate Research Portfolio:

- *Laboratories & Cooperative Institutes*: OAR's Laboratories and Cooperative Institutes primarily support Earth System science research, modeling, and technology development and maintain long-term atmospheric observation networks and infrastructure, including a network of tall towers and the Atmospheric Baseline Observatories which collect data on the atmosphere's composition.
- *Regional Climate Data & Information*: OAR supports activities that improve resilience and preparedness throughout the Nation with research that advances our understanding of climate-related risks and vulnerabilities across sectors and regions and with the development of tools to enable more informed decision making.
- *Climate Competitive Research*: OAR funds high-priority climate science through a competitive selection process to advance understanding of the Earth's climate system and climate impacts on society.

NOAA's climate research activities are authorized under the *National Climate Program Act* (15 U.S.C. §§ 2901-2908), the *Global Change Research Act* (15 U.S.C. §§ 2921-2961), the *Weather Research and Forecasting Innovation* Act (15 U.S.C. § 8501), and the *National Integrated Drought Information System Reauthorization Act* (P.L. 115-423; 15 U.S.C. § 8511-8521).

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 – FY 2027
Laboratories and Cooperative Institutes

- Publish updates on Annual Greenhouse and Ozone Depleting Gas Indices
- Apply new Earth system modeling for tipping point prediction in global estuarine, coastal, and benthic ecosystems
- Deploy and maintain an array of 1,200 surface drifters
- Maintain and augment 38 moorings that measure carbon dioxide and ocean acidification
- Complete one to two cruises that will collect important ocean chemistry data while servicing moorings and collecting information on coastal and deep ocean currents
- Long term global records of greenhouse gases, stratospheric ozone, and aerosols

Regional Climate Data & Information

- Improve drought indicators and indices in support of the Regional Drought Early Warning Information System
- Conduct climate training for tribal communities in the Southern U.S.

- Lead and support the quadrennial National Climate Assessment and the Scientific Assessment of Ozone Depletion, under the Montreal Protocol on Substances that Deplete the Ozone Layer
- Test experimental drought indicators based on decision making needs in the National Integrated Drought Information System (NIDIS) Pilot regions

Climate Competitive Research
- Expand Earth system data collection for cryospheric, boundary layer properties, hydrometeorological, and oceanic process studies
- Increase, from two to five, the cumulative number of science-based adaptation tools and technologies that are used by NOAA partners and stakeholders to improve ecosystem-based management of fisheries

Deliverables:
Laboratories and Cooperative Institutes
- Long term global records of atmospheric compounds, up to 55 trace gases, stratospheric ozone, aerosols, and surface radiation
- Updated status of South Pole ozone hole

Regional Climate Data & Information
- Forty total interoperable drought systems accessible through the U.S. Drought Portal
- Increased skill and capacity among stakeholders in businesses and communities to build resilience to climate-related impacts
- Climate training workshops and reports directed to the needs of resource managers

Climate Competitive Research
- Supported projects, ranging from advancing the understanding and prediction of drought to building resilience in coastal communities, conducted by universities, other research institutions, and other Federal agencies

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Explanation and Justification

Line Item		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Laboratories & Cooperative Institutes (Climate Research)	Pos/BA	187	74,658	209	75,500	207	78,472
	FTE/OBL	185	73,440	204	75,500	202	78,472
Regional Climate Data & Information	Pos/BA	21	41,929	28	42,500	28	43,403
	FTE/OBL	30	44,353	26	42,500	26	43,403
Climate Competitive Research	Pos/BA	48	63,501	56	64,000	56	65,503
	FTE/OBL	41	64,857	53	64,000	53	65,503
Total Climate Research	Pos/BA	256	180,088	293	182,000	291	187,378
	FTE/OBL	256	182,650	283	182,000	281	187,378

In 2021, the United States experienced 20 weather/climate disaster events with losses exceeding $1 billion each to affect the United States. These events included 1 drought event, 2 flooding events, 11 severe storm events, 4 tropical cyclone events, 1 wildfire event, and 1 winter storm event. Overall, these events resulted in the deaths of 688 people and had significant economic effects on the areas impacted. OAR science has been at the forefront of improving our understanding of the causes of extremes, characterizing the drivers of predictability of extremes, and improving the prediction of extremes across timescales. OAR scientists have worked to understand the drivers of tropical cyclone variability and change over time; how severe weather is modulated by climate phenomena such as the El Niño Southern Oscillation and Madden Julian Oscillation; how winter storms are responding to changes in the winter jet stream and water vapor in the atmosphere; how drought varies in response to remote and local climate influences; and how wildfires relate to meteorology, changes in the land surface, and drought. OAR's scientists and funding programs have worked to advance not only the understanding of these events but also our ability to predict them farther in advance to mitigate impacts on lives and property, and monitor them to better describe their evolution and magnitude. Extensive work over the past few years has

deepened our understanding of the mechanisms that control subseasonal to seasonal (S2S) phenomena, which has, for example, advanced our understanding of atmospheric rivers and their predictability on S2S timescales, and transitioned an operational capability to provide S2S forecasts to the Climate Prediction Center.

In broader context, the total cost of U.S. billion-dollar disasters over the last 5 years (2017-2021) is $742.1 billion, with a 5-year annual cost average of $148.4 billion, both of which are new records and nearly triple the 42-year inflation adjusted annual average cost. The U.S. billion-dollar disaster damage costs over the last 10-years (2012-2021) were also historically large: at least $1.0 trillion from 142 separate billion-dollar events. 2021 was another in a series of years with a high frequency, cost, and diversity of extreme events that affect people's lives and livelihoods. This trend suggests that increased disaster activity could become the new normal. 2021 marks the seventh consecutive year (2015-21) in which 10 or more separate billion-dollar disaster events have impacted the U.S. The 1980–2021 annual average is 7.4 events (CPI-adjusted); the annual average for the most recent 5 years (2017–2021) is 17.2 events (CPI-adjusted). Climate change is also increasing the frequency and intensity of certain types of extreme weather that lead to billion-dollar disasters—most notably the rise in vulnerability to drought, lengthening wildfire seasons in the Western states, and the potential for extremely heavy rainfall becoming more common in the eastern states. Sea level rise is amplifying hurricane storm surge flooding. Given all these compounding hazard risks, there is an increased need to focus on where we build, how we build, and investing in infrastructure updates that are designed for a 21st century climate.[1]

[1] NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2021). https://www.ncdc.noaa.gov/billions/, DOI: 10.25921/stkw-7w73

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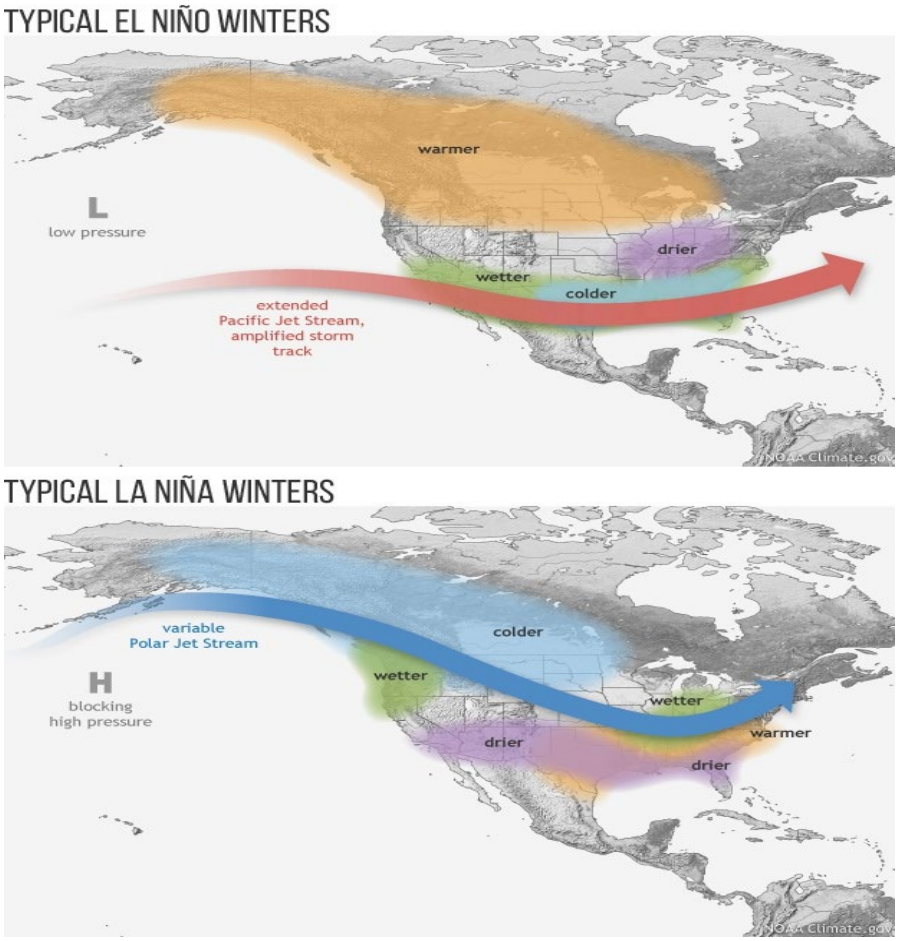
Climate Research continues to sustain its investments and partnerships in global ocean observation and monitoring systems and participated in scientific field campaigns, like "Years of the Maritime Continent" — a 2-year joint research project to improve understanding and prediction of variability over the Indo-Pacific Ocean region, and how that influences weather patterns around the world. Climate Research has advanced use of autonomous robotic ocean profiling instruments such as Deep Argo and Saildrones. Ocean observations led to assessments of ocean acidification impacts to coral reefs and fisheries and to sea level change risks that improved coastal community preparedness. Climate Research-sponsored field campaigns also conducted research on impacts to air quality from urban emissions and wildfires, which can adversely impact human health and the nation's economy due to reduced productivity. In its continuing efforts to help bolster the nation's economy and meet stakeholders' need for science-based decision support, Climate Research enhanced its Regional Drought Early Warning Systems and expanded its online "Climate Explorer" tool, whereby decision makers can access maps and graphs of downscaled climate projections of decision-relevant variables for their county, like the annual numbers of days above or below critical temperature, precipitation, and high-tide flooding thresholds. Similar tools were developed to improve heat risk information and address other health impacts.



NOAA Climate Research

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OAR's Climate Research is collaborative and crosscutting and therefore is often funded through multiple Subactivities. Some cross-cutting themes include:

Global Observations
To better document and understand global processes, OAR provides an array of observational capabilities. For example, OAR's four Atmospheric Baseline Observatories have been collecting 250 measurements of atmospheric trends for over 50 years such that measurements conducted in the 1960s are exactly comparable to those made today and 100 years from now. These observations and supplemental measurements help identify trends and anomalies in the atmosphere, like radioactive dust releases and transport of mercury in the air from China to the U.S., and their impacts. With this information, decision-makers are better able to address global atmospheric challenges. For example, OAR's long-term and on-going measurements of ozone, UV, and ozone-depleting compounds help policymakers identify successes and needs to repair the ozone layer. OAR also supports the Global Ocean Observing System including the drifting buoy network, Argo profiling floats, tropical moored arrays in the Atlantic, and ocean carbon networks, and continually researches new climate observing strategies.

Predicting Future Change
OAR's Climate Research predicts future change to inform decision making. The Earth System comprises many physical, chemical and biological processes that need to be dynamically integrated to better predict their behavior over scales from local to global and periods of minutes to millennia. OAR research produces state-of-the-art models of the Earth System to better predict climate extremes and variability impacting the U.S., such as changes in the risk for heavy rainfall and snow events during an El Niño, frequency of high-impact weather events, and ocean dynamics like the Meridional Overturning Circulation.

Assessing Impacts
OAR Climate Research provides in-depth analysis of climate change impacts on the U.S. OAR assesses the multitude of ways climate change is already affecting and will increasingly affect the lives of Americans. For example, the National Climate Assessment details the changes various geographic regions and economic sectors are experiencing and can expect to experience in the future. Past assessments have included studies of how climate impacts tornadoes, sea level, and drought. This research is pointing to more effective ways to meet environmental management and policy goals while avoiding costly overregulation.

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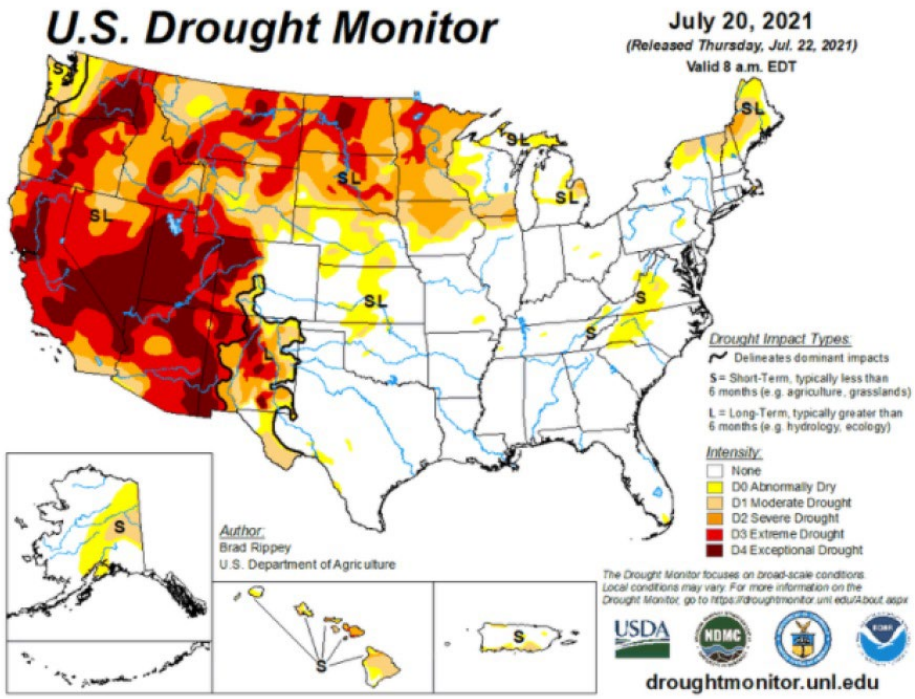

The U.S. Drought Monitor (pictured above) is a weekly map based on measurements of climatic, hydrologic, and soil conditions as well as reported impacts and observations collected from more than 350 contributors around the U.S.

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Supporting Decisions
OAR Climate Research also delivers resources and tools to foster resilience and preparedness throughout the U.S. and abroad, across sectors and regions. In particular, the NOAA-led NIDIS, established by the *National Integrated Drought Information System Act of 2006* and amended in the *National Integrated Drought Information System Reauthorization Act of 2018*, provides accessible drought information for the Nation through improved drought monitoring and forecasting capabilities. In addition, the NOAA Climate.gov Portal provides easy public access to NOAA and its partners' climate data and information services. Climate.gov also hosts and supports the U.S. Climate Resilience Toolkit (toolkit.climate.gov).

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Climate Laboratories and	Pos./BA	207	78,472	212	98,733	5	20,261
Cooperative Institutes	FTE/Obl.	202	78,472	206	98,733	4	20,261

Sustained Atmospheric Observations Increase (+$20,261, 4 FTE/ 5 Positions) – This request proposes an increase to support and enhance its atmospheric observing systems, which will allow NOAA to support, as a requirement of the Paris Agreement, a Global Stocktake.

NOAA's scientific capabilities can be used to uniquely support the Global Stocktake. This requested increase would better enable the U.S. role in this by: 1) creating an independent, transparent evaluation of greenhouse gas (GHG) emissions and changes in emissions at various scales; 2) providing a robust understanding of the allowable cumulative GHG emissions to limit global warming at different future levels by taking into account likely changes in natural GHG sinks, sources in the ocean, land and atmosphere; and 3) examining the biogeochemical-climate feedbacks and the resulting climate sensitivity. NOAA will coordinate with other Federal partners to conduct GHG measurement and modeling and competitively utilize and incorporate expertise from the extramural research community to help quantify actual emissions, and assess carbon-climate feedbacks and the magnitude of permissible emissions to support the U.S. government in implementing its commitments towards mitigation of climate change.

Schedule and Milestones:
FY 2023 - FY 2027

- Rebuild and enhance regional GHG observing systems with more sites, more samples per site, and higher temporal resolution to better enable regional to continental monitoring of emissions across the U.S. (FY 2023)
- Rebuild and enhance global GHG observing system to reinvigorate baseline Global Greenhouse Gas Reference Network and fill observational gaps in the tropics, Arctic, and oceans (FY 2023)
- Initiate transformative network development to enable a step change in data analysis and spatial and temporal sampling of GHGs for satellite, model and emissions evaluations using new sampling platforms, multi-species measurement systems and process studies to both understand and improve GHG sampling algorithms (FY 2023)
- Develop and apply enhanced Earth-system models to inform policy makers about the feasibility and implications of meeting or not meeting different future climate targets including those under the Paris Agreement, as well as to assess the climate effects of different mitigation strategies (FY 2023-2027)

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- Build out a transformative measurement network to enhance network detectability by using commercial aircraft, fossil fuel tracers, boundary layer supersites for model and satellite evaluation and process understanding (FY 2024-2027)
- Develop near-real time GHG data assimilation system coupled with NOAA Unified Forecasting System transport to provide global to local 4-D estimates of atmospheric GHG concentrations, emissions and sinks (FY 2024-2027)

Deliverables:
FY 2023 - FY 2027

- Expand GHG network in spatial and temporal extent and resolution through enhancements in ground, tower, aircraft and balloon borne measurements within the U.S. continental and globally
- Reduce GHG measurement cost, footprint and manpower while preserving accuracy and precision to operationalize GHG measurements on multiple platforms
- Improve process understanding leading to reduced uncertainties in estimates of natural and manmade emissions through multi-tracer studies using atmospheric data
- Reduce uncertainty in modeling systems in simulating Earth's climate as measured by reduced bias and improved simulation of modes of variability when compared against data
- Reduce model and satellite retrieval biases through comparisons with direct measurements of GHGs in the atmosphere
- Demonstrate observation-based data assimilation system for GHG emissions estimates from local to global scales for decision makers through enhancements in sampling and modeling methodology
- Improve stakeholder engagement through data visualization and data assimilation products

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Performance Measures	2023	2024	2025	2026	2027
Annual number of measurement days with aircraft and at ground-based and tall-tower sites distributed across the continental U.S. and globe					
With Increase	8000	9000	10500	11500	14500
Without Increase	7200	7000	6800	6500	6200
Number of studies detailing trends and variability in natural GHG sources and sinks to be considered in reassessing target emissions initiatives					
With Increase	1	3	4	4	4
Without Increase	0	0	0	0	0

Outyear Costs:					
Direct Obligations	20,261	20,261	20,261	20,261	20,261
Capitalized	9,474	9,474	9,474	9,474	9,474
Uncapitalized	10,787	10,787	10,787	10,787	10,787
Budget Authority	20,261	20,261	20,261	20,261	20,261
Outlays	12,561	12,561	12,561	12,561	12,561
FTE	4	5	5	5	5
Positions	5	5	5	5	5

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Climate Research
Subactivity: Climate Laboratories and Cooperative Institutes
Program Change: Sustained Atmospheric Observations Increase

Title		Grade	Number	Annual Salary	Total Salaries
Research Physical Scientist		ZP-V	1	144,612	$144,612
Research Physical Scientist		ZP-IV	2	104,038	$208,076
Research Physical Scientist		ZP-IV	1	106,823	106,823
Research Physical Scientist		ZP-IV	1	109,690	109,690
Total			5		569,201
Less lapse	25.00%		(1)		(142,300)
Total full-time permanent (FTE)			4		426,901
2023 Pay Adjustment (4.6%)					19,637
					446,538
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			4		
Total FTE			4		
Authorized Positions:					
Full-time permanent			5		
Total Positions			5		

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Climate Research
Subactivity: Climate Laboratories and Cooperative Institutes

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	21,568	22,150	23,169	23,616	447
11.3	Other than full-time permanent	596	596	596	596	0
11.5	Other personnel compensation	503	503	503	503	0
11.8	Special personnel services payments	261	261	0	0	0
11.9	Total personnel compensation	22,928	23,510	24,268	24,715	447
12	Civilian personnel benefits	7,729	7,938	8,303	8,437	134
13	Benefits for former personnel	4	4	4	4	0
21	Travel and transportation of persons	45	45	45	45	0
22	Transportation of things	328	328	328	328	0
23	Rent, communications, and utilitites	0	0	0	5	5
23.1	Rental payments to GSA	765	765	765	765	0
23.2	Rental Payments to others	335	335	335	951	616
23.3	Communications, utilities and misc charges	931	931	931	931	0
24	Printing and reproduction	93	93	93	103	10
25.1	Advisory and assistance services	694	694	694	694	0
25.2	Other services from non-Federal sources	8,584	9,091	9,831	11,292	1,461
25.3	Other goods and services from Federal sources	2,627	2,627	2,627	2,627	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	41	41	41	1,643	1,602
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	4	4
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,630	3,630	3,630	4,553	923
31	Equipment	2,536	2,536	2,536	8,947	6,411
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	22,169	22,931	24,040	32,688	8,648
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	1	1	1	0
44	Refunds	0	0	0	0	0
99	Total obligations	73,440	75,500	78,472	98,733	20,261

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Climate Laboratories and Cooperative Institutes	Pos./BA	207	78,472	227	88,472	20	10,000
	FTE/Obl.	202	78,472	217	88,472	15	10,000

Global-Nested High-Resolution Model Increase (+$10,000, 15 FTE/ 20 Positions) – This request proposes an increase to develop a global-high-resolution atmospheric model with a 3km or below resolution to improve NOAA's understanding and prediction of extreme events on all time scales beginning at 2 weeks.

Since 1980, the U.S. has sustained over $2.155 trillion in weather and climate disasters (inflation adjusted).[2] Many of these damaging events are driven by intense hurricanes, hydroclimate events (e.g., atmospheric rivers), and 'bomb' cyclones and severe storms, including hail storms and tornadoes. Improved forecasts of such events can help reduce damage and loss of life through improved planning, preparation, and responses of emergency managers. Thus, there is a critical societal need for improved prediction of extreme weather. This initiative will enable development of a global model with a 3km or below nest aimed at improving understanding and prediction of extreme events on time scales up to 2 weeks. The inclusion of an observational program for boundary layer and clouds will further improve forecasting skill for extreme weather events with earlier warnings and more accurate spatial patterns.

NOAA is at the threshold of attaining spatial scales with Finite-Volume Cubed-Sphere Dynamical Core (FV3)-based Global Forecast System (GFS) that can deliver improved forecasts of extreme weather events. Through this initiative, NOAA will capitalize on computing and modeling developments, which as indicated by prototype modeling in the research phase, are expected to lead to improved forecasts of these events.

Schedule and Milestones:
FY 2023

- Make improvements to forecasting skill for extreme weather events with earlier warnings, more accurate spatial pattern of the extreme events, and higher fidelity in timing, occurrence, and duration of severe weather

[2] https://www.ncdc.noaa.gov/billions/

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FY 2024 - FY 2027

- Enable dynamical operational forecasts of extreme weather events in many regions of the world with a state-of-the-art grid resolution prediction system
- Increase NOAA's predictive capacity geographically for such events, in addition to expected improved predictive capabilities over the contiguous U.S.
- Provide the first real-time convective-scale medium-range forecasts over the continental U.S. and more generally extended-range prediction of extreme events

Deliverables:

- Expanded intramural research to improve numerical weather and climate prediction
- Conduct Federal funding opportunities to advance research in Global-Nested High-Resolution Modeling
- Develop a global atmospheric model with a 3km or below nest, aimed at understanding and predicting extreme events at timescales up to 2 weeks
- Improve cloud microphysics, atmospheric boundary layer, and surface processes, including land-atmosphere interactions and fire emissions, in NOAA's GFS model (GFSv16)
- Capture multiple extremes of significance for the U.S. (e.g., intense landfalling hurricanes, west coast hydroclimate, 'bomb' cyclones along the U.S. east coast, and central U.S. severe storms)
- Provide model output data and products in real-time to public and downstream users

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Performance Measures	2023	2024	2025	2026	2027
Model resolution globally/over continental U.S.					
With Increase	11/11 km	8.5/8.5 km	8.5/3 km	6.5/3 km	6.5/2 km
Without Increase	11/11 km	11/11 km	11/11 km	8.5/8.5 km	8.5/8.5 km
Lead time for explicit severe storm outbreak prediction (from this model)					
With Increase	n/a	n/a	5 days	7 days	7 days
Without Increase	n/a	n/a	n/a	n/a	n/a
# of New/upgraded parameterizations (each year)					
With Increase	1	2	3	2	3
Without Increase	1	2	1	2	2
Outyear Costs:					
Direct Obligations	10,000	10,000	10,000	10,000	10,000
Capitalized	5,620	5,620	5,620	5,620	5,620
Uncapitalized	4,380	4,380	4,380	4,380	4,380
Budget Authority	10,000	10,000	10,000	10,000	10,000
Outlays	6,200	6,200	6,200	6,200	6,200
FTE	15	20	20	20	20
Positions	20	20	20	20	20

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Climate Research
Subactivity: Climate Laboratories and Cooperative Institutes
Program Change: Global-Nested High-Resolution Model Increase

Title		Grade	Number	Annual Salary	Total Salaries
Research Physical Scientist		ZP-III	3	76,961	$230,883
Research Physical Scientist		ZP-IV	3	109,690	$329,070
Computational Scientist		ZP-IV	2	109,690	219,380
Meteorologist		ZP-III	2	76,961	153,922
Meteorologist		ZP-IV	1	109,690	109,690
Project Scientist		ZP-III	3	76,961	230,883
Research Physical Scientist		ZP-III	2	79,545	159,090
Research Physical Scientist		ZP-III	3	72,995	218,985
Meteorologist		ZP-III	1	71,616	71,616
Total			20		1,723,519
Less lapse	25.00%		(5)		(430,880)
Total full-time permanent (FTE)			15		1,292,639
2023 Pay Adjustment (4.6%)					59,461
					1,352,101

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	15
Total FTE	15
Authorized Positions:	
Full-time permanent	20
Total Positions	20

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Climate Research
Subactivity: Climate Laboratories and Cooperative Institutes

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	21,568	22,150	23,169	24,521	1,352
11.3	Other than full-time permanent	596	596	596	596	0
11.5	Other personnel compensation	503	503	503	543	40
11.8	Special personnel services payments	261	261	0	0	0
11.9	Total personnel compensation	22,928	23,510	24,268	25,660	1,392
12	Civilian personnel benefits	7,729	7,938	8,303	8,721	418
13	Benefits for former personnel	4	4	4	4	0
21	Travel and transportation of persons	45	45	45	145	100
22	Transportation of things	328	328	328	328	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	765	765	765	765	0
23.2	Rental Payments to others	335	335	335	335	0
23.3	Communications, utilities and misc charges	931	931	931	931	0
24	Printing and reproduction	93	93	93	103	10
25.1	Advisory and assistance services	694	694	694	694	0
25.2	Other services from non-Federal sources	8,584	9,091	9,831	15,331	5,500
25.3	Other goods and services from Federal sources	2,627	2,627	2,627	2,627	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	41	41	41	41	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	3,630	3,630	3,630	3,830	200
31	Equipment	2,536	2,536	2,536	2,656	120
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	22,169	22,931	24,040	26,300	2,260
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	1	1	1	0
44	Refunds	0	0	0	0	0
99	Total obligations	73,440	75,500	78,472	88,472	10,000

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Regional Climate Data & Information	Pos./BA	28	43,403	31	53,403	3	10,000
	FTE/Obl.	26	43,403	28	53,403	2	10,000

Enhancing Regional and Community Resilience by Scaling Up RISA Program and "Climate-Smart" Communities Initiative (+$10,000, 2 FTE/ 3 Positions) – This request proposes an increase to work with regions and communities towards lasting and equitable climate resilience. The proposal builds on and extends the proven capabilities of the Regional Integrated Sciences and Assessments (RISA) program and the U.S. Climate Resilience Toolkit (USCRT) to advance adaptation measures and resilience planning at regional and local scales, while prioritizing environmental justice.

Through this initiative, NOAA will expand the RISA program, while providing more robust support for those regions already benefitting from a RISA team. The RISA program will add two additional regional teams, while supporting cross-network activities, more in-depth research into key climate risks and adaptation approaches tailored to the regions, and seed activities in additional geographies. NOAA will coordinate closely with non-Federal partners and other Federal agencies, including the Departments of the Interior and Agriculture, to ensure its efforts are not duplicative and are appropriately targeted and scaled.

NOAA further proposes a new public-private partnership, the Climate-Smart Communities Initiative, to scale up and accelerate training and the pace of resilience-building in communities across the Nation utilizing the USCRT. This initiative will engage with and help train 20 cities around the Nation, and will factor in the opportunity to address environmental justice issues within these communities when determining how communities are selected. Communities that engage in this initiative will be supported in better positioning themselves to identify their climate information needs, vulnerabilities, risks, and potential resiliency solutions, and thus may turn to RISA or other activities for more in-depth analysis and tailored support.

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023

- Execute a competition for two additional RISA regions and support network activities connecting regions around national priorities
- Launch engagement with 20 communities with USCRT-based Climate-Smart Communities Initiative

FY 2024 – FY 2027

- Grow the cohort of communities engaged in Climate-Smart Communities Initiative to 100 communities

Deliverables

- Develop regional networks of scientists and decision makers working together to co-generate tailored research and products, including regional climate and risk assessments, focused on key climate risks for the region (e.g., coastal inundation, extreme heat, and water resource stress), and the decision needs of vulnerable and underserved communities
- Enhance climate-ready workforce trained in risk assessment, resiliency and adaptation planning, and climate science communication
- Support NOAA research activities and strategies informed by specific user needs at the regional and community level

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Cumulative number of RISA teams to provide comprehensive, nationwide research, partnerships and services to stakeholders.					
With Increase	13	13	13	13	13
Without Increase	11	11	11	11	11
Cumulative number of Climate-Smart communities enabled for resilience planning					
With Increase	20	50	75	100	100
Without Increase	1	1	1	1	1
Outyear Costs:					
Direct Obligations	10,000	10,000	10,000	10,000	10,000
Capitalized	710	710	710	710	710
Uncapitalized	9,290	9,290	9,290	9,290	9,290
Budget Authority	10,000	10,000	10,000	10,000	10,000
Outlays	6,200	6,200	6,200	6,200	6,200
FTE	2	3	3	3	3
Positions	3	3	3	3	3

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Climate Research
Subactivity: Regional Climate Data and Information
Program Change: Enhancing Regional and Community Resilience by Scaling Up RISA Program and "Climate-Smart" Communities Initiative

Title		Grade	Number	Annual Salary	Total Salaries
Program Director (RISA)		ZA-V	1	148,484	$148,484
Program Manager (RISA)		ZA-III	1	74,950	$74,950
Program Manager (Climate Smart)		ZA-III	1	74,950	74,950
Total			3		298,384
Less lapse	25.00%		(1)		(74,596)
Total full-time permanent (FTE)			2		223,788
2023 Pay Adjustment (4.6%)					10,294
					234,082
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			2		
Total FTE			2		
Authorized Positions:					
Full-time permanent			3		
Total Positions			3		

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Climate Research
Subactivity: Regional Climate Data and Information

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	2,506	2,574	2,692	2,926	234
11.3	Other than full-time permanent	73	73	73	73	0
11.5	Other personnel compensation	2	2	2	2	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	2,581	2,649	2,767	3,001	234
12	Civilian personnel benefits	918	943	986	1,056	70
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	50	50	50	50	0
22	Transportation of things	54	54	54	54	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	209	209	209	209	0
23.2	Rental Payments to others	2	2	2	2	0
23.3	Communications, utilities and misc charges	536	536	536	536	0
24	Printing and reproduction	11	11	11	11	0
25.1	Advisory and assistance services	3,201	3,201	3,201	3,201	0
25.2	Other services from non-Federal sources	4,426	3,648	3,944	3,944	0
25.3	Other goods and services from Federal sources	2,080	2,080	2,080	2,080	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	710	710
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	179	179	179	179	0
31	Equipment	100	100	100	100	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	30,006	28,838	29,284	38,270	8,986
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	44,353	42,500	43,403	53,403	10,000

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Regional Climate Data and	Pos./BA	28	43,403	28	46,403	0	3,000
Information	FTE/Obl.	26	43,403	26	46,403	0	3,000

Tribal Drought Resilience Initiative Increase (+$3,000, 0 FTE/ 0 Positions) – This request proposes an increase to broaden Tribal engagement through the National Integrated Drought Information System (NIDIS).

To effectively address this, NIDIS, along with Tribal, Federal, and other partners, jointly developed the NIDIS Tribal Drought Engagement Strategy: 2021-2025.[3] Tribal Nations will benefit from increased support to implement the strategy, which articulates specific activities and outcomes to improve: drought observations and monitoring; prediction and forecasting; communication and outreach; planning and preparedness; and interdisciplinary research. For example, increased support will allow NIDIS and our partners to rapidly build out a Tribal Drought Portal within the U.S. Drought Portal,[4] providing Tribal Nation-specific forecast and outlook data, Tribal drought learning tools, documentation of drought impacts on Tribal lands, and support for peer-to-peer Tribal drought learning networks. NIDIS will also update the processes for the U.S. Drought Monitor to ensure the information feeding the Tribal Drought Portal continues to be high-quality and useful. NIDIS will expand its Coping with Drought grant competition to enhance natural resource planning and climate mitigation in Tribal Nations, enhancing economic development and jobs. A Tribal Drought Monitoring Program will install pilot stations to expand soil moisture and climate monitoring sites to significantly enhance drought prediction.

This work is authorized by the *National Integrated Drought Information System (NIDIS) Act of 2006* (P.L. 109-430).

[3] https://www.drought.gov/sites/default/files/2020-11/NIDIS-Tribal-Engagement-Strategy-2021-2025.pdf
[4] www.drought.gov/tribal

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023

- Execute two-year Tribal Drought Resilience grant competition
- Conduct Tribal Drought Monitoring Pilot Program and Resilience Activities
- Update the NIDIS processes and local inputs for the U.S. Drought Monitor

FY 2024 - FY 2027

- Continue Tribal Drought Resilience grant efforts
- Use pilot program finds to inform a robust plan for expanding and operating soil moisture and climate monitoring sites within Tribal lands, leveraging USDA's Tribal Soil Climate Analysis Network, NOAA's Climate Reference Network, the National Mesonet Program, and other monitoring networks
- Continue support for resilience activities with Tribal partners

Deliverables:

- Conduct Missouri River Basin and Midwest DEWS Drought Monitoring Pilot Program
- Convene at least four regional Tribal Drought Forums
- Build out a Tribal Drought Portal within the U.S. Drought Portal
- Support applied research on drought indicators and early warning on Tribal lands
- Provide technical support and training opportunities to Tribal Nations with significant drought exposure

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of Tribes engaged and benefitting from Tribal Drought Resilience Initiative					
With Increase	10	20	35	50	50
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	3,000	3,000	3,000	3,000	3,000
Capitalized	1,000	1,000	1,000	1,000	1,000
Uncapitalized	2,000	2,000	2,000	2,000	2,000
Budget Authority	3,000	3,000	3,000	3,000	3,000
Outlays	1,860	1,860	1,860	1,860	1,860
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Climate Research
Subactivity: Regional Climate Data and Information

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	2,506	2,574	2,692	2,692	0
11.3	Other than full-time permanent	73	73	73	73	0
11.5	Other personnel compensation	2	2	2	2	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	2,581	2,649	2,767	2,767	0
12	Civilian personnel benefits	918	943	986	986	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	50	50	50	50	0
22	Transportation of things	54	54	54	54	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	209	209	209	209	0
23.2	Rental Payments to others	2	2	2	2	0
23.3	Communications, utilities and misc charges	536	536	536	536	0
24	Printing and reproduction	11	11	11	11	0
25.1	Advisory and assistance services	3,201	3,201	3,201	3,201	0
25.2	Other services from non-Federal sources	4,426	3,648	3,944	3,944	0
25.3	Other goods and services from Federal sources	2,080	2,080	2,080	2,080	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	1,000	1,000
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	179	179	179	179	0
31	Equipment	100	100	100	100	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	30,006	28,838	29,284	31,284	2,000
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	44,353	42,500	43,403	46,403	3,000

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
	Pos./BA	56	65,503	70	75,503	14	10,000
Climate Competitive Research	FTE/Obl.	53	65,503	64	75,503	11	10,000

Marine Ecosystem Responses to Climate Change Increase (+$10,000, 11 FTE/ 14 Positions) – This request proposes an increase to provide decision-makers with the information and tools they need to prepare for changing oceans and Great Lakes, reducing climate impacts, and increasing the resilience of living marine resources (LMRs) and the communities that depend on them.

In order to provide robust projections of future ocean ecosystems needed for LMR management decisions, this increase will build a national ocean/ecosystem modeling and prediction system spanning U.S. coastal waters, the Arctic, and the Great Lakes. Investments in high performance computing (HPC) and model advances will yield ocean predictions spanning the range of ocean futures at refined resolutions required to meet NOAA's LMR mandates across seasonal to multi-decadal climate change time horizons. The increase will invest in NOAA's workforce to ensure sustained delivery of this vital information to our cross-agency partners (NMFS, NOS) and stakeholders, while maintaining external research partnerships to ensure NOAA's ocean modeling and prediction capabilities remain at the leading edge of science and technology advances. This system will be developed as part of an integrated cross-agency "Climate Fisheries Initiative" (CFI), ensuring that ocean predictions and projections are rapidly translated into actionable information, improved management decisions, and more resilient LMRs and coastal communities.

To manage commercially important and protected species, NOAA requires high quality information on changing ocean and Great Lakes conditions to make important determinations, such as when new fisheries can be opened and legacy fisheries are no longer viable. The quality of the information on changing ocean and Great Lakes conditions is impeded by fragmentation of regional ocean prediction efforts, limited computational resources, data dissemination bottlenecks, and limited understanding of the linkages between weather/climate drivers and marine resource response. NOAA is uniquely positioned to address this challenge by combining its expertise in marine resource management with new advances in modeling future ocean and Great Lakes conditions. This initiative will improve coordination and adequate delivery of regionally-appropriate climate and extreme event information for inclusion in fishery and protected species management processes. This initiative will also support the sustainability of economically and culturally valuable species that affects 1.8+ million jobs and over $200 billion in commercial and recreational fishing industries.[5]

[5] https://cpo.noaa.gov/Meet-the-Divisions/Climate-and-Societal-Interactions/The-Adaptation-Sciences-Program/Climate-Fisheries

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023

- Establish capacity to accelerate development and regional application of NOAA's Modular Ocean Model v.6 ocean and biogeochemical modeling system
- Work with the NOAA CIO on HPC needs to support enhanced climate-fisheries modeling needs
- Form regional ocean modeling teams with Federal and academic partners through NOAA's Cooperative Institutes in five regions (West Coast, East Coast & Gulf of Mexico, Arctic, Pacific Islands, Great Lakes)
- Deliver 5 prototype high-resolution configurations to these five regions
- Establish capacity to accelerate development of global biogeochemical predictions to provide critical acidification, nutrient, and oxygen information for regional ocean modeling and prediction systems
- Support the implementation of competitive research grants to address climate impacts on living marine resources

FY 2024 - FY 2027

- Establish CFI information hub/data portal with comprehensive links to current Climate-Fisheries Resources (FY 2024)
- Complete multi-decadal physical-biogeochemical retrospective ocean simulations in each of the 5 regions and serve fisheries-critical fields on the CFI information hub for NMFS/NOS partners (FY 2025)
- Complete retrospective seasonal to multi-annual physical ocean forecast experiments for each of the 5 regions and serve fisheries critical fields on the CFI information hub for NMFS/NOS partners (FY 2026)
- Establish global biogeochemical prediction capacity on seasonal to multi-annual time-scales and repeat regional forecasts with biogeochemistry (FY 2027)
- Complete climate change projections for each of the 5 regions and serve fisheries-critical fields on the CFI information hub for NMFS/NOS partners (FY 2027)
- Continue competitive grant funding cycles

Deliverables:

- Strengthened academic partnerships through sustained co-development of modeling infrastructure via Cooperative Institutes
- High-resolution multi-decadal retrospective ocean/biogeochemical simulations across U.S. coastal waters and Great Lakes for understanding past LMR fluctuations (FY 2024)
- High-resolution seasonal to multi-annual ocean/biogeochemical predictions across U.S. coastal waters and Great Lakes to inform tactical marine resource management decisions (FY 2025/FY 2027)
- High-resolution multi-decadal ocean/biogeochemical climate change projections across U.S. coastal waters and Great Lakes to inform management strategies aimed at resilient LMRs and coastal communities under climate change (FY 2027)

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(Dollar amounts in thousands)

- A robust data portal to ensure high-priority fisheries and climate datasets and model output are accessible to LMR scientists and managers (FY 2024)
- A global biogeochemical prediction capacity on seasonal to multi-annual time scales to augment existing multi-decadal earth system projections (FY 2027)
- Fund research projects each year to understand and improve fisheries-critical multi-year ocean and biogeochemical prediction capabilities, and improve/innovate ocean prediction systems (FY 2023-20276)
- Conduct collaborative research projects to understand links between climate, LMRs, and coastal communities, and improve LMR management through climate-informed decisions (FY 2023-2027)

Performance Measures	2023	2024	2025	2026	2027
Comprehensive “coast-wide” ocean/biogeochemical hindcasts, predictions, and projections available on the CFI data hub (5 regions, 3 products)					
With Increase	0	0	5	7	15
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	10,000	10,000	10,000	10,000	10,000
Capitalized	3,633	3,633	3,633	3,633	3,633
Uncapitalized	6,367	6,367	6,367	6,367	6,367
Budget Authority	10,000	10,000	10,000	10,000	10,000
Outlays	6,200	6,200	6,200	6,200	6,200
FTE	11	14	14	14	14
Positions	14	14	14	14	14

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Climate Research
Subactivity: Climate Competitive Research
Program Change: Marine Ecosystem Responses to Climate Change Increase

Title		Grade	Number	Annual Salary	Total Salaries
Research Physical Scientist		ZP-III	3	76,961	$230,883
Research Physical Scientist		ZP-IV	2	109,690	$219,380
Research Physical Scientist		ZP-III	1	73,098	73,098
Research Physical Scientist		ZP-IV	1	104,184	104,184
Research Physical Scientist		ZP-III	1	72,995	72,995
Research Physical Scientist		ZP-IV	1	104,038	104,038
Research Physical Scientist		ZP-III	1	72,858	72,858
Research Physical Scientist		ZP-IV	1	103,843	103,843
Research Physical Scientist		ZP-IV	1	100,545	100,545
Research Physical Scientist		ZP-III	1	74,950	74,950
Research Physical Scientist		ZP-IV	1	106,823	106,823
Total			14		1,263,597
Less lapse	25.00%		(3)		(315,899)
Total full-time permanent (FTE)			11		947,698
2023 Pay Adjustment (4.6%)					43,594
					991,292

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	11
Total FTE	11
Authorized Positions:	
Full-time permanent	14
Total Positions	14

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Climate Research
Subactivity: Climate Competitive Research

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	3,858	3,962	4,144	5,135	991
11.3	Other than full-time permanent	380	380	380	380	0
11.5	Other personnel compensation	25	25	25	67	42
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	4,263	4,367	4,549	5,582	1,033
12	Civilian personnel benefits	1,490	1,530	1,600	1,910	310
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	49	49	49	91	42
22	Transportation of things	98	98	98	98	0
23	Rent, communications, and utilitites	0	0	0	14	14
23.1	Rental payments to GSA	1,007	1,007	1,007	1,007	0
23.2	Rental Payments to others	337	337	337	337	0
23.3	Communications, utilities and misc charges	991	991	991	991	0
24	Printing and reproduction	24	24	24	94	70
25.1	Advisory and assistance services	2,737	2,737	2,737	2,751	14
25.2	Other services from non-Federal sources	5,306	4,906	5,406	8,706	3,300
25.3	Other goods and services from Federal sources	967	967	967	981	14
25.4	Operation and maintenance of facilities	0	0	0	25	25
25.5	Research and development contracts	0	0	0	140	140
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	14	14
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	648	648	648	788	140
31	Equipment	390	390	390	530	140
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	46,550	45,949	46,700	51,444	4,744
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	64,857	64,000	65,503	75,503	10,000

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
	Pos./BA	56	65,503	59	74,503	3	9,000
Climate Competitive Research	FTE/Obl.	53	65,503	55	74,503	2	9,000

Providing Climate Change Projections out to 2050 to Inform Risk Management Increase (+$9,000, 2 FTE/ 3 Positions) – This request proposes an increase to develop standardized and accessible climate projections with society-relevant data delivery services to improve climate risk information equity and assist decision making across a wide range of stakeholders and economic sectors.

There is a critical need for improved projections of how climate will change on regional scales through the next several decades (2021 through 2050). This period covers a rich decision space for city planning, infrastructure, natural resource management, national security, and policy goals for reaching carbon neutrality. Global climate model output intended for fundamental physical science cannot—without proper interpretation and application of the data—necessarily address the needs of stakeholders to quantify regional climate risk at the spatial and temporal scales of interest for their decisions. NOAA is well positioned to take on this vital task of producing actionable climate projections and matching them with the needs for a range of societal decisions.

NOAA will build a strategic climate data delivery and communication effort with three approaches: (1) improvement of climate information equity through technology; (2) delivery of data to resource-equipped users; and (3) enhancement of engagement with stakeholders and regional constituents via existing channels. Through existing National Centers for Environmental Information (NCEI) platforms, NOAA will make improvements to climate information and expand efforts to handle large model ensemble datasets. Projections and historical data will be explored with the aid of an interface to develop end-to-end graphics and risk quantification metrics or downloaded in text files. This will allow users access to historic-to-future perspectives on climate risk. Large ensemble data will be moved to cloud-based services via the NOAA Big Data Program, likely supporting industry and academic users. Data will also be stored at NCEI to improve access without a paywall and support. NOAA will also utilize programs at the NOAA Climate Program Office and Cooperative Science Centers to support the development of Federal data products and services to meet stakeholder demands, and connect this work back to model development, connecting NOAA Service offices, research laboratories, and the external physical and social science communities. A key part of this initiative will be to create pathways at multiple educational levels to improve accessibility for under-represented groups.

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023

- Develop implementation strategy
- Conduct stakeholder workshops to match needs with current modeling capabilities and projections
- Provide increasing range of climate projections and products that leverage improvements in modeling capabilities, remain current in terms of greenhouse gas and other anthropogenic forcing scenarios, and that meet the tailored needs of stakeholders in different regions and sectors

FY 2024 - FY 2027

- Establish an accessible and standardized database of climate projections that can be alongside NOAA's observed environmental data

Deliverables:

- Provide world-leading standardized information for use in decision-making and planning in response to climate change.
- Develop state-of-the-art, new capabilities in modeling and serving the needs of stakeholders
- Improve climate information equity by engaging with stakeholders in optimal ways to convey the information and data on extremes to stakeholders and decision-makers
- Train and develop the next generation of climate change scientists through its post-doctoral hires, cooperative institutes, and competitive grants to academic researchers that will be enhanced by the initiative

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Annual number of climate projection products tailored for stakeholders					
With Increase	25	40	60	75	100
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	9,000	9,000	9,000	9,000	9,000
Capitalized	700	700	700	700	700
Uncapitalized	8,300	8,300	8,300	8,300	8,300
Budget Authority	9,000	9,000	9,000	9,000	9,000
Outlays	5,580	5,580	5,580	5,580	5,580
FTE	2	3	3	3	3
Positions	3	3	3	3	3

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Climate Research
Subactivity: Climate Competitive Research
Program Change: Providing Climate Change Projections out to 2050 to Inform Risk Management Increase

Title		Grade	Number	Annual Salary	Total Salaries
Program Analyst		ZP-III	1	74,950	$74,950
Physical Scientist		ZP-III	1	76,961	$76,961
Data Manager		ZP-III	1	66,214	66,214
Total			3		218,125
Less lapse	25.00%		(1)		(54,531)
Total full-time permanent (FTE)			2		163,594
2023 Pay Adjustment (4.6%)					7,525
					171,119

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	2
Total FTE	2
Authorized Positions:	
Full-time permanent	3
Total Positions	3

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Climate Research
Subactivity: Climate Competitive Research

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	3,858	3,962	4,144	4,315	171
11.3	Other than full-time permanent	380	380	380	380	0
11.5	Other personnel compensation	25	25	25	25	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	4,263	4,367	4,549	4,720	171
12	Civilian personnel benefits	1,490	1,530	1,600	1,651	51
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	49	49	49	49	0
22	Transportation of things	98	98	98	98	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,007	1,007	1,007	1,007	0
23.2	Rental Payments to others	337	337	337	337	0
23.3	Communications, utilities and misc charges	991	991	991	991	0
24	Printing and reproduction	24	24	24	24	0
25.1	Advisory and assistance services	2,737	2,737	2,737	2,737	0
25.2	Other services from non-Federal sources	5,306	4,906	5,406	5,406	0
25.3	Other goods and services from Federal sources	967	967	967	967	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	700	700
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	648	648	648	648	0
31	Equipment	390	390	390	390	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	46,550	45,949	46,700	54,778	8,078
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	64,857	64,000	65,503	74,503	9,000

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
	Pos./BA	56	65,503	57	72,503	1	7,000
Climate Competitive Research	FTE/Obl.	53	65,503	54	72,503	1	7,000

Precipitation Prediction Grand Challenge Increase (+$7,000, 1 FTE/ 1 Position) – This request proposes an increase to enhance the skill of precipitation predictions across weather and climate timescales in a research environment and for potential transition to operations.

Through this initiative, NOAA will improve understanding of key physical processes operating in the atmosphere and oceans, identify ways to improve model representations of these processes, and reduce the systematic biases in NOAA models, which will lead to the demonstration of improved precipitation forecast skill. This initiative will focus on key research areas, including conducting process studies, ocean and atmospheric field campaigns, and global modeling experiments targeting key model deficiencies that limit precipitation prediction skill. Research efforts will improve NOAA's predictive capability of OAR's Earth System Model and the research version of the Unified Forecast System (UFS) especially for precipitation excesses and deficiency. NOAA will also support data set development, model evaluation, and testing of data assimilation systems for advancements to better integrate observations and modeling communities to evaluate and reduce model biases and improve the precipitation skills.

This work will be done in coordination with OAR's ocean observation initiative, which will measure and monitor ocean variability and change, and is critical for predicting sources of moisture and heat that can drive regional precipitation. NOAA will engage Labs, Centers, and Cooperative Institutes across NOAA, as well as the private and academic research communities through competitive grants and in partnership with other U.S. Federal agencies in the U.S. Global Change Research Program (USGCRP) and the international research community.

Research is a core capability of NOAA. This request will help NOAA meet the Administration's climate research goals, and is critical to ensuring NOAA produces research data, tools, and information products that are publicly accessible to facilitate climate change decision-making Nation-wide.

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National Oceanic and Atmospheric Administration
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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023

- Engage NOAA Labs, Centers, Cooperative Institutes and the private and academic research communities, and partner with Federal agencies in USGCRP and the international research community, on the development of research efforts including ocean and atmospheric field campaigns and global modeling experiments
- Provide grants and other assistance to improve understanding of key physical processes operating in the atmosphere and oceans, identify ways to improve model representations of these processes, and reduce the systematic biases in NOAA models

FY 2024 - FY 2027

- Continue support for multiple-year research projects to address key processes that are needed to advance precipitation skill (FY 2023 - 2027)
- Work with the broad national and international community to implement multi-disciplinary, multi-agency process studies targeting key deficiencies in forecast systems that limit precipitation prediction skill (FY 2025)

Deliverables:

- Deliver research efforts to improve NOAA’s predictive capability of OAR's Earth System Model and the research version of the UFS (FY 2025)
- Conduct collaborative research projects with partners and document the individual project final reports of the results, with data archived at open archives such as NCEI (FY 2026)
- Develop coherent, testable hypotheses for major precipitation systematic errors in partnership with the U.S. and international communities, and fund research projects to test these hypotheses and to explore productive algorithmic changes to address them (FY 2027)
- Support projects that synthesize existing field observations for more effective applications to prediction model development and improvement (FY 2027)

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Reduce the bias in U.S. seasonal precipitation simulations in OAR Earth System models by margins that are statistically significant					
With Increase	0%	1%	2%	3%	4%
Without Increase	0%	0%	0%	0%	0%
Cumulative number of research studies on key ocean/atmosphere processes that advance precipitation skill and the uptake of the results from those studies into precipitation models					
With Increase	6	11	16	21	26
Without Increase	3	5	7	9	11
Outyear Costs:					
Direct Obligations	7,000	7,000	7,000	7,000	7,000
Capitalized	500	500	500	500	500
Uncapitalized	6,500	6,500	6,500	6,500	6,500
Budget Authority	7,000	7,000	7,000	7,000	7,000
Outlays	4,340	4,340	4,340	4,340	4,340
FTE	1	1	1	1	1
Positions	1	1	1	1	1

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Climate Research
Subactivity: Climate Competitive Research
Program Change: Precipitation Prediction Grand Challenge Increase

Title		Grade	Number	Annual Salary	Total Salaries
Physical Scientist		ZP-III	1	73,098	$73,098
Total			1		73,098
Less lapse	25.00%		(0)		(18,275)
Total full-time permanent (FTE)			1		54,824
2023 Pay Adjustment (4.6%)					2,522
					57,345
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			1		
Total FTE			1		
Authorized Positions:					
Full-time permanent			1		
Total Positions			1		

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Climate Research
Subactivity: Climate Competitive Research

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	3,858	3,962	4,144	4,201	57
11.3	Other than full-time permanent	380	380	380	380	0
11.5	Other personnel compensation	25	25	25	25	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	4,263	4,367	4,549	4,606	57
12	Civilian personnel benefits	1,490	1,530	1,600	1,617	17
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	49	49	49	49	0
22	Transportation of things	98	98	98	98	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	1,007	1,007	1,007	1,007	0
23.2	Rental Payments to others	337	337	337	337	0
23.3	Communications, utilities and misc charges	991	991	991	991	0
24	Printing and reproduction	24	24	24	24	0
25.1	Advisory and assistance services	2,737	2,737	2,737	2,737	0
25.2	Other services from non-Federal sources	5,306	4,906	5,406	5,406	0
25.3	Other goods and services from Federal sources	967	967	967	967	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	500	500
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	648	648	648	648	0
31	Equipment	390	390	390	390	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	46,550	45,949	46,700	53,126	6,426
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	64,857	64,000	65,503	72,503	7,000

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Weather and Air Chemistry Research

Goal Statement

Weather & Air Chemistry Research continually improves capabilities to provide more accurate and timely warnings and forecasts of various high-impact weather, water, and air quality events by prioritizing improvements in weather data observation, modeling, computing, forecasting, and warnings for the protection of life and property, for the enhancement of the national economy and in support of the Department of Commerce 2018-2022 Strategic Plan, Strategic Objective 3.3 Reduce Extreme Weather Impacts.

Base Program

OAR's weather research laboratories, programs, and partners are key contributors to advancing the National Weather Service (NWS) prediction capabilities. NOAA also focuses resources on better understanding and providing information on seasonal (3 months to 2 years) and sub-seasonal (2 weeks to 3 months) outlooks for farmers, fishermen, emergency responders, other industry workers, and the American people regarding what to expect in two weeks, next month, or next season. In addition, scientists working within OAR's Weather & Air Chemistry Research study atmospheric chemistry to accurately characterize atmospheric composition and predict meteorological processes to more effectively understand their role in severe weather.

The following two Subactivities are included in Weather & Air Chemistry Research:

- Laboratories & Cooperative Institutes: OAR's Laboratories & Cooperative Institutes primarily support weather forecasting improvement and air chemistry research, modeling, and technology development.
- Weather & Air Quality Research Programs: Primarily encourages cooperation with external experts in weather and air chemistry research by improving predictions and warnings for the public and weather sensitive U.S. industries with cutting-edge research, analysis techniques, and observing platforms.

NOAA's weather research activities are authorized under the *Weather Service Modernization Act* (Title VII, 15 U.S.C. § 313 note, §§ 701-709), the *National Oceanic and Atmospheric Administration Authorization Act* (Title I, § 108, 15 U.S.C. § 313 note), the *Weather Research and Forecasting Innovation Act* (15 U.S.C. § 8501), and the *National Integrated Drought Information System (NIDIS) Reauthorization Act* (P.L. 115-423; 15 U.S.C. § 8511-8521).

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 - FY 2027
Laboratories & Cooperative Institutes

- High-quality hurricane observations from airborne experiments for use in hurricane regional model data assimilation and evaluation

Weather & Air Quality Research Programs

- Advance radar capabilities to better estimate precipitation in the cool season using dual polarization techniques in operational radar's Multi Radar Multi Sensor
- Complete annual competitive grant process to select USWRP-funded and demonstration projects
- Evaluate Advanced Technology Demonstrator as a proof-of-concept for phased array radar
- Review industry proposals for phased array radar pre-production contract award, provided that NOAA accepts phased array radar as its solution for its future radar system
- Test/evaluation of dual-polarization panel characteristics and performance on phased array radar systems including the ATD
- Improved tornado warning decision performance evaluated and quantified in collaboration with NWS forecasters within the Hazardous Weather Testbed

Deliverables:
Laboratories & Cooperative Institutes

- Tsunami observation, mitigation, and forecast tools
- Probabilistic products incorporated into flash flood forecasting system
- A total of 100,000 stations feeding observations data to the Meteorological Assimilation Data Ingest System
- Improved skill and reliability of flood and water supply forecasts

Weather & Air Quality Research Programs

- Prototype phased array radar products available for transfer into NOAA operations

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

Line Item		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Laboratories & Cooperative Institutes (Weather & Air Chemistry Research)	Pos/BA	250	84,378	282	85,500	282	89,605
	FTE/OBL	231	85,386	274	85,500	274	89,605
U.S. Weather Research Program	Pos/BA	9	26,387	10	26,500	10	26,999
	FTE/OBL	8	32,628	10	26,500	10	26,999
Tornado Severe Storm Research/Phased Array Radar	Pos/BA	3	14,285	3	14,382	3	14,629
	FTE/OBL	6	14,273	3	14,382	3	14,629
Joint Technology Transfer Initiative	Pos/BA	5	12,931	5	13,000	5	13,246
	FTE/OBL	4	13,709	5	13,000	5	13,246
Total Weather & Air Chemistry Research	Pos/BA	267	137,981	300	139,382	300	144,479
	FTE/OBL	249	145,996	292	139,382	292	144,479

Overall, OAR's Weather Research supports:

- Research and development that provides the Nation with accurate and timely warnings and forecasts of high-impact weather events and their broader impact on issues of societal concern such as weather and air chemistry; and
- Research that provides the scientific basis for informed management decisions about weather, water, and air chemistry.

NOAA's Global Ensemble Forecast System (GEFS) underwent significant upgrades to expand its capabilities and improve weather

forecasting. NOAA uses the GEFS to produce medium-range weather forecasts and to issue watches and warnings during high-impact weather events, including hurricanes, blizzards, and extreme heat and cold. With the upgrade, the National Weather Service can deliver its first-ever numerical weather predictions three and four weeks in advance, extending the forecast length from 16 to 35 days and providing more lead time for decision making. GEFS now uses the Finite-Volume Cubed-Sphere (FV3) dynamical core, which was added to the Global Forecast System (GFS) model in 2019. GEFS resolution increased from approximately 33km to 25km, and the number of individual forecasts input into the ensemble has increased from 21 to 31. The changes will allow models to run at a higher resolution of detail and provide better accuracy. The atmospheric composition model in the GEFS upgrade that integrates weather and aerosol forecasting based on the FV3 framework is the result of more than five years of model development at NOAA.

The 2021 Atlantic hurricane season was an accurately predicted above average season producing 21 named storms (winds of 39 mph or greater produced 21 named storms (winds of 39 mph or greater), including seven hurricanes (winds of 74 mph or greater) of which four were major hurricanes (winds of 111 mph or greater). This year was the third most active year on record in terms of named storms. It marks the sixth consecutive above-normal Atlantic hurricane season, and this was the first time on record that two consecutive hurricane seasons exhausted the list of 21 storm names. Scientists at NOAA's Atlantic Oceanographic and Meteorological Laboratory successfully deployed five new extreme weather Saildrones to collect data at the ocean and atmosphere interface in the Caribbean and western tropical Atlantic. One uncrewed Saildrone captured the first ever video and measurements at the surface of the ocean during a major hurricane, withstanding 125-mph winds and 50-foot waves during Hurricane Sam. This data combined with data from other Saildrones, ocean gliders and aircraft-released sensors is helping NOAA to better represent the conditions that drive hurricanes within forecast models. [6]

OAR's Weather Research Portfolio is collaborative and crosscutting and therefore is often funded through multiple Subactivities. Some cross-cutting themes include:

Tornado Severe Storm Research / Phased Array Radar
OAR is working to couple weather forecast model information with dual-polarized radar observations to better determine the type and intensity of precipitation, and add the ability to classify hail size and detect tornado debris. Other radar research includes developing phased array radar, which can reduce the time to scan a weather system from 4-5 minutes to less than one minute, providing earlier weather predictions.

[6] https://www.noaa.gov/news-release/active-2021-atlantic-hurricane-season-officially-ends

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(Dollar amounts in thousands)

Each spring, during prime time for severe thunderstorms and tornadoes, the NOAA Hazardous Weather Testbed hosts experiments that bring together researchers, forecasters and academics to test new technologies. Forecasters and researchers get to walk in each other's shoes.

Forecaster and Researcher Collaboration
Researchers and forecasters work side-by-side throughout the year in the NOAA Hazardous Weather Testbed (HWT) to develop, test, and evaluate new forecast and warning strategies. Participants explore innovative radar and satellite technologies, decision support systems, and new weather and water prediction models. Each year, the HWT draws as many as 60 researchers and forecasters together for six to eight weeks to review emerging ideas and answer the question, “What do forecasters need?” HWT scientists also test new concepts and tools with forecasters in simulated settings and with real-time forecasts. This collaborative approach promotes effective transfer of research into forecasting and warning operations.

Earlier Warnings
Currently, NWS does not issue warnings for local severe weather until they see an early signal on radar, or the weather hazard is spotted. This approach provides the public with an average tornado warning lead time of 9 minutes. However, hospitals, nursing homes, large venue operators, aviation officials, and others require 30 minutes of lead time or more to move citizens to safety. Through its Warn-On-Forecast project, OAR is working to combine high-resolution surface satellite and radar data into a set of analyses allowing computer models to predict specific weather hazards 30-60 minutes before they form. This would enable decision-makers to take more effective action to mitigate damage and reduce injuries and loss of life.

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Operations, Research, and Facilities
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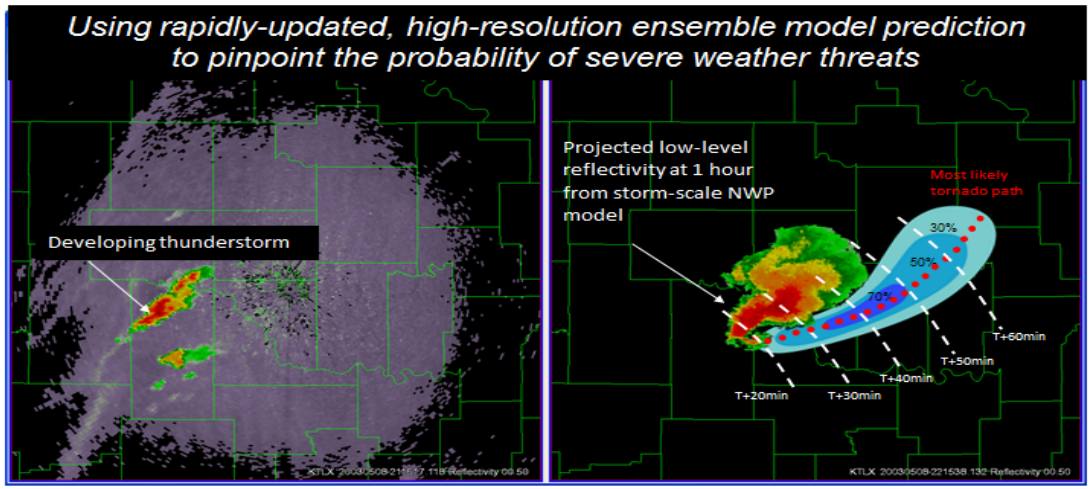
(Dollar amounts in thousands)

U.S. Weather Research Program

Through a competitive grant program, the U.S. Weather Research Program provides continuous improvements to understand, predict, and communicate information associated with hazardous weather, air quality and seasonal to sub-seasonal events. Results of this research are transferred to NWS after demonstration in several NOAA testbeds. Projects are selected using a peer-review process with NWS participation.



Earth Prediction Innovation Center

The *National Integrated Drought Information System Reauthorization Act of 2018* expands Section 102(b) of the Weather Research and Forecasting Innovation Act of 2017 to include the Earth Prediction Innovation Center (EPIC) for advancing weather modeling skill and international leadership in the area of numerical weather prediction, and directs NOAA's U.S. Weather Research Program to carry out the activities of EPIC. The Act directs NOAA to create a true community global weather research modeling system that is accessible by the public and utilizes innovative strategies to host and manage the modeling system. EPIC leverages existing NOAA resources to accelerate advances to the Unified Forecast System (UFS), a community-based, coupled comprehensive Earth system model-based analysis and prediction system designed to meet NOAA's operational forecast mission to protect life and property and improve economic growth.

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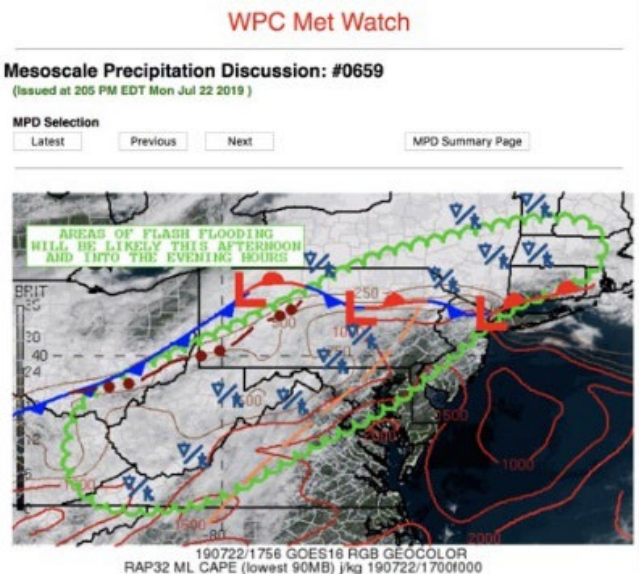
(Dollar amounts in thousands)

VORTEX-USA
The *Weather Research and Forecasting Innovation Act of 2017* (P.L. 115-25) authorized the implementation of a tornado warning improvement and extension program, codified in the *Consolidated Appropriations Act, 2021* (P.L. 116-260), as VORTEX-USA. The National Severe Storms Laboratory (NSSL) and the Weather Program Office are collaborating to build the program with the aim of reducing the loss of life and economic damage caused by tornadoes, including expanding atmospheric observations, advancing radar technology, and improving the delivery of actionable weather information. VORTEX-USA continues the work of the VORTEX-SE program, closely coordinating with this broader initiative.

Improved Flood & Drought Predictions
Accurate rain and snowfall predictions help water and emergency managers to better balance water supply needs. Partnering with NWS and other Federal, state, and local water resource agencies, OAR researches the extreme precipitation and weather conditions that can lead to droughts or flooding by evaluating new observations and modeling tools to improve these forecasts. Floods and flash floods kill more people each year than any other severe weather hazard. And a few extra minutes of notice can make a big difference in reducing deaths and economic loss. This is why NOAA is testing an experimental flash flood and intense rainfall forecasting tool. The Warn-on-Forecast System,[7] or WoFS, provides high-resolution information and can update quickly. The current operational model focuses on individual thunderstorms and hazards associated with those storms a few hours before they form and as they develop. Ultimately, the new tool will help forecasters issue flash flood warnings earlier.



A Warn-on-Forecast product showing conditions for flash flooding over the I-95 corridor.

The prediction system proved its usefulness in July 2019 when parts of the Northeast and mid-Atlantic were inundated with intense rainfall. The storms resulted in flooded roads during rush hour, stranded motorists, cancelled and delayed flights, power outages and property damage. Forecasters used WoFS as they observed the perfect conditions for flash flooding over the I-95 corridor, and the experimental system showed up to five inches of rain in some areas. The guidance provided through WoFS gave forecasters more confidence to use the phrase “flash flooding likely” when they issued area forecasts for parts of Pennsylvania and New Jersey, down to Baltimore, Washington D.C and Virginia.

[7] https://www.nssl.noaa.gov/projects/wof/

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(Dollar amounts in thousands)

Air Chemistry
Whether it is fine particulate matter, or other airborne substances, air pollution can have significant impact on the environment and human health. OAR Weather Research & Air Chemistry provides a strong scientific understanding of these air chemistry problems to help all stakeholders make effective management decisions. With long-term monitoring of chemicals like mercury, nitrogen and other compounds, OAR provides data to identify sources and evaluate the effectiveness of emission controls.

Data from these observations, along with model evaluations and other studies, help improve predictions of where airborne substances come from and where they will go. NWS uses OAR-developed air chemistry models to issue air quality warnings so that people can limit their exposure to air pollution. OAR's atmospheric dispersion models also predict impacts during emergencies, like the 2019 Texas chemical plant explosion and fire.

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Tornado Severe Storm Research / Phased Array Radar	Pos./BA	3	14,629	5	20,916	2	6,287
	FTE/OBL	3	14,629	5	20,916	2	6,287

Phased Array Radar Research and Development Follow-On Plan (+$6,287, 2 FTE/ 2 Positions) – This request will advance critical research on Phased Array Radar (PAR) technology including the engineering, digital architecture, operational studies, and scientific studies that quantify the benefits of various PAR technologies for weather radar. PAR is a promising technology that could advance NOAA's current radars from 1988-based technology to radars that would be viable until the end of the 21st century. This request is part of an integrated effort to prepare for a formal Radar Acquisition Management Program and decision point in 2028 with the objective to evaluate the capabilities of PAR as a replacement for the current NEXRAD radar network by 2040. This request is in parallel to the PAC request (OAR-93). Together, they support NOAA's needs to achieve the following milestones and deliverables.

Schedule and Milestones:

- FY 2023: Prepare internal report on responses from Request for Information (RFI) to inform Request for Proposals
- FY 2023: Prepare solicitation documents for Rotating Planar PAR system
- FY 2024: Award contract and begin production of the Rotating Planar PAR demonstration prototype
- FY 2025: Begin development of Evaluation Test Plan
- FY 2026: Complete Evaluation Test Plan for the Rotating Planar PAR prototype
- FY 2026: Proposed installation of the Rotating Planar PAR prototype
- FY 2027: Preliminary evaluation of the Rotating Planar PAR capabilities

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(Dollar amounts in thousands)

Deliverables:

- Report on analysis of RFI responses and recommendations for desired characteristics for Rotating Planar PAR prototype
- Evaluation Test Plan for the Rotating Planar PAR
- Report documenting the preliminary evaluation of the prototype Rotating Planar PAR

Performance Measures	2023	2024	2025	2026	2027
Cumulative number of research reports on all-digital rotating PAR and its ability to meet NOAA operational radar requirements.					
With Increase	0	0	0	1	3
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	6,287	6,287	6,287	6,287	6,287
Capitalized	3,000	3,000	3,000	3,000	3,000
Uncapitalized	3,287	3,287	3,287	3,287	3,287
Budget Authority	6,287	6,287	6,287	6,287	6,287
Outlays	3,898	3,898	3,898	3,898	3,898
FTE	2	2	2	2	2
Positions	2	2	2	2	2

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Weather & Air Chemistry Research
Subactivity: Tornado Severe Storm Research / Phased Array Radar
Program Change: Phased Array Radar Research and Development Follow-On Plan

Title		Grade	Number	Annual Salary	Total Salaries
Management and Program Analyst		ZA -IV	1	94,633	94,633
Physical Scientist / Electronics Engineer		ZP-V	1	131,539	131,539
Total			2		226,172
Less lapse	25.00%		0		(56,543)
Total full-time permanent (FTE)			2		169,629
2023 Pay Adjustment (4.6%)					7,803
					177,432
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			2		
Total FTE			2		
Authorized Positions:					
Full-time permanent			2		
Total Positions			2		

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Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Weather & Air Chemistry Research
Subactivity: Tornado Severe Storm Research / Phased Array Radar

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	677	695	727	904	177
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	5	5	5	5	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	682	700	732	909	177
12	Civilian personnel benefits	236	242	253	306	53
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	1	1	1	1	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	766	766	766	766	0
23.3	Communications, utilities and misc charges	2	2	2	2	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	273	273	273	273	0
25.2	Other services from non-Federal sources	2,954	2,971	3,012	3,512	500
25.3	Other goods and services from Federal	0	0	0	1,500	1,500
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	3,144	3,161	3,202	4,202	1,000
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	45	45	45	45	0
31	Equipment	204	204	204	204	0
32	Lands and structures	75	75	75	75	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	5,891	5,942	6,064	9,121	3,057
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	14,273	14,382	14,629	20,916	6,287

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Ocean, Coastal, and Great Lakes Research

Goal Statement

The Ocean, Coastal, and Great Lakes Research in OAR provides science to coastal communities from a wide network of university partners, develops technology to advance the Nation's oceans and Great Lakes observations, and coordinates multi-partner ocean exploration missions to characterize our natural resources and improve our understanding of the changes occurring in the oceans and Great Lakes.

Base Program

OAR's ocean, coastal, and Great Lakes laboratories, programs, and partners have been key contributors to advancing NOAA's NMFS, NOS, and NWS by providing research to better understand our oceans and Great Lakes natural resources and the influence of the oceans and Great Lakes on the Earth's weather and climate through technological advancements in modeling, computing, observing, and information dissemination.

The following seven Subactivities are included in the Ocean, Coastal, and Great Lakes Research portfolio:

- Laboratories & Cooperative Institutes: Primarily supports foundational ocean observation networks and research, modeling, and technology development at OAR's laboratories and cooperative institutes.
- National Sea Grant College Program: Established by Congress through the National Sea Grant College Program Act, the National Sea Grant Collage Program is a Federal-state partnership that turns research into actions that support science-based sustainable practices. This partnership ensures that coastal communities remain engines of economic growth. The Sea Grant programs form a dynamic national network of more than 300 participating institutions represented by more than 2,300 scientists, engineers and outreach experts based at universities across the country.
- Sea Grant Aquaculture Research: Guided by the National Aquaculture Act of 1980, advances this industry though aquaculture research and extension as well as supporting the National Sea Grant Marine Aquaculture Grant Program. This is the largest and most comprehensive U.S. government grant program dedicated to supporting marine aquaculture development. These grants tackle some of the top challenges to marine aquaculture like reducing fishmeal and fish oil in aquaculture feeds, increasing seafood safety and quality, diversifying species and products.

- Ocean Exploration and Research: Established by Congress through the Ocean Exploration Act, Ocean Exploration and Research is the only Federal organization dedicated to ocean exploration.
- Integrated Ocean Acidification (OA) authorized under the Federal Ocean Acidification Research and Monitoring Act to better understand ocean acidification and the consequences of OA on marine resources to enable communities to mitigate, prepare, and adapt to changes.
- Sustained Ocean Observations and Monitoring: A global system for observations, modelling, and analysis of marine and ocean variables to support operational ocean services worldwide.
- National Oceanographic Partnership Program (NOPP): This OAR funding line was established in FY 2019 to advance ocean science research through the program established under 10 U.S.C. 7901 and to continue support for Ocean Joint Technology Transfer Initiative projects funded in fiscal year 2018.

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 - FY 2027
Laboratories & Cooperative Institutes

- Continue collection and analysis of acoustic data from Ocean Noise Reference Stations, in coordination with NMFS and NOS
- Demonstrate/test new ocean observing/communication technologies

National Sea Grant College Program

- Hold local and regional state program requests for proposals
- Continue to ensure accountability to NOAA aligned program plans through external Performance Review Panels

Sea Grant Aquaculture Research

- Provide competitive research grants, extension services, and research partnerships that support aquaculture's industry development and technology transfer grants to support the aquaculture industry
- Fund development and transfer of new and improved technologies to local communities; improvement of aquaculture practices; advancement of aquaculture production; and support for extension activities that contribute to both economic and environmental community resilience.

Ocean Exploration and Research
- Develop an annual extramural competition for conducting the next phase of research into the potential resources and natural habitats in areas identified through the ECS Mapping Initiative
- Develop an annual extramural competition for the exploration of unknown and poorly known ocean areas where there is a high potential for discovery

Integrated Ocean Acidification
- Conduct OA coastal observing and process research cruises and deploy OA sensors on NOAA research and volunteer observing ships
- Develop a coastal early-warning system that can identify episodic low pH events and alert managers of potentially impacted resources
- Partner with IOOS Marine Sensor Program to develop marine sensors that can assist coastal industries with both scientific and monitoring capacity
- Optimize observing systems in each of the eight large marine ecosystem regions
- Increase number of living marine resources characterized for vulnerability to ocean acidification

Sustained Ocean Observations and Monitoring
- Maintain NOAA's contribution of 1500 active Argo ocean profiling floats and implement Deep (6000 meters) Argo array
- Maintain Global Ocean Observing System (GOOS)

National Oceanographic Partnership Program (NOPP)
- Projects focused on improving NOAA's operational efficiency and resource management responsibilities, including activities designed to support the blue economy

Deliverables:
Laboratories & Cooperative Institutes
- Technical Report to describe current and chemical distributions in coastal waters in relation to known point sources, to assess relative strengths of land-based sources of pollution over southeast Florida reef tracks
- Pre-operational forecast products to alert the over two million coastal Lake Erie residents of algal toxins in drinking water
- An annual, synthetic, ecosystem-based assessment of the eastern Bering Sea for the North Pacific Fisheries Management Council

National Sea Grant College Program
- Continue to leverage state and other partners
- Assist coastal communities to adopt sustainable development principles
- Create and transfer decision-support tools/technologies to coastal managers
- Support Sea Grant activities to restore degraded ecosystems
- Provide coastal resource managers with information/training in local hazard resiliency, and hazard mitigation tools, techniques, and best practices

Sea Grant Aquaculture Research
- Continue to provide economic and marketing research to increase profitability and environmental stability of aquaculture businesses
- Identify common policies to ensure uniform regional governance and permitting
- Increase domestic production through research and extension efforts for currently farmed and promising new species
- Provide research and technical assistance to ensure the safety and quality of aquaculture products to meet public demand

Ocean Exploration and Research
- Complete Bureau of Ocean Energy Management-NOAA Partnership expedition to explore and characterize habitats and ecosystems in the Arctic and other key areas within the U.S. Exclusive Economic Zone (EEZ)
- Increased number of telepresence-enabled systematic expeditions providing opportunities to engage a multitude of shore-based stakeholders and other users in real-time ocean exploration

Integrated Ocean Acidification
- Regional biogeochemical and ecological models

Sustained Ocean Observations and Monitoring
- 1,000 drifting buoys deployed annually
- 250 Argo Array Buoys deployed annually

National Oceanographic Partnership Program (NOPP)
- Transition research into operational applications

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

Line Item		2021 Actual		2022 Annualized CR		2023 Base Program	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Laboratories & Cooperative Institutes (Ocean, Coastal and Great Lakes Research)	Pos/BA	116	35,953	134	36,500	131	38,007
	FTE/OBL	116	36,151	131	36,500	128	38,007
National Sea Grant College Program	Pos/BA	16	74,790	20	75,000	20	76,316
	FTE/OBL	9	76,037	19	75,000	19	76,316
Sea Grant Aquaculture Research	Pos/BA	4	12,971	4	13,000	4	13,235
	FTE/OBL	2	13,469	4	13,000	4	13,235
Ocean Exploration and Research	Pos/BA	29	42,385	40	43,000	39	43,894
	FTE/OBL	22	42,502	37	43,000	36	43,894
Integrated Ocean Acidification	Pos/BA	12	15,352	14	15,500	14	15,876
	FTE/OBL	16	14,964	14	15,500	14	15,876
Sustained Ocean Observations and Monitoring	Pos/BA	26	44,959	31	45,408	30	46,256
	FTE/OBL	38	46,442	29	45,408	28	46,256
National Oceanographic Partnership Program	Pos/BA	1	2,991	1	3,000	1	3,055
	FTE/OBL	0	3,273	1	3,000	1	3,055
Total Ocean, Coastal, and Great Lakes Research	Pos/BA	204	229,401	244	231,408	239	236,639
	FTE/OBL	203	232,838	235	231,408	230	236,639

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Overall, OAR's Ocean, Coastal, and Great Lakes Research supports:

- Improving understanding of the physics, chemistry, and ecology of oceanic, coastal, and Great Lakes systems, including changes in these environments and the impacts of stressors such as changes in temperature, changes in ocean and Great Lakes chemistry, pollution, and invasive species;
- Improving predictive capability for oceanic, coastal, and Great Lakes processes, including developing predictive models for ecosystems, and coupling these with physical and biogeochemical models to create comprehensive Earth System Models;
- Translating ocean, coastal, and Great Lakes science into services through tools developed for resource managers, policy makers and the public, and through increased education and outreach; and
- Developing and using cutting edge technology for understanding and exploring the ocean, coasts and Great Lakes.

In 2020, NOAA's Harmful Algal Bloom daily forecasts got a boost from a new model, developed by scientists at NOAA's Great Lakes Environmental Research Lab (GLERL), which allows scientists to better understand and predict the size of the bloom. Forecasters can use the new model to predict how extensively the bloom has spread from the lake's surface to its floor. HABs can be a thin scum on the lake surface or they can mix evenly throughout the water column. Previous HAB forecast models relied heavily on satellite imagery, but those images can only show how concentrated the algal bloom is on the surface of the lake. Knowing how the blooms are vertically distributed throughout the lake's depths improves the accuracy and usefulness of the forecasts. Anglers, boaters, and beach goers use the improved forecast prior to an excursion to Lake Erie. Drinking water plants along Lake Erie are alerted when to expect algal blooms near their water intakes which allows facility managers to better regulate the amount of chemical treatment to use, saving taxpayer money.

As part of New Jersey Sea Grant Consortium's project, New Jersey oyster farmer Tommy Burke of Sloop Point Oysters assists New Jersey Division of Fish and Wildlife staff with loading his oysters on a boat for planting at a restoration site. Credit: Lisa Calvo | New Jersey Sea Grant Consortium

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Much of the research performed within OAR's Ocean, Coastal, & Great Lakes Research is collaborative and crosscutting and therefore is often funded through multiple Sub-activities. Some cross-cutting themes include:

Ecosystems Research
OAR Laboratories and Cooperative Institutes conduct research on ecological processes, and provide data to develop models critical to understanding ecosystem structure and function in important and economically significant environments in the oceans and the Great Lakes, including coral reefs, deep sea hydrothermal vents, and fish and shellfish habitat. Through observations, laboratory, and field experiments researchers also develop models to forecast impacts of multiple stressors, such as invasive species and nutrient runoff, on water quality, food webs, and fishery productivity. This work supports the development of new models, forecasting tools, and applications to evaluate and mitigate impacts to present and future ecosystem stressors.

collaborative effort between GLERL and Cooperative Institute scientists. The team uses an integrated approach to understand the ecosystem dynamics and environmental drivers of HABs and hypoxia in the Great Lakes to improve prediction and mitigation strategies.

Integrated Marine and Ocean Processes
OAR carries out interdisciplinary scientific investigations of the physics of ocean currents and water properties, and on the role of the ocean in extreme weather events, and ecosystems. The tools used to carry out these studies range from sensors on deep ocean moorings to satellite-based instruments to measurements made on research and commercial shipping vessels and autonomous vehicles, and include data analysis and numerical modeling. NOAA scientists and partners conduct innovative research and develop numerical models to predict the physical, chemical, biological, and ecological response in the oceans and Great Lakes due to weather, climate, and human-induced changes. The forecast models and quantitative tools developed by researchers allow scientists, coastal resource managers, policy makers, and the public to make informed decisions for optimal management of oceans and Great Lakes resources. The ocean, coasts, and Great Lakes are closely tied to the Earth's atmosphere, and a sound understanding of ocean-earth interactions is essential for better management of marine resources and improved ocean and weather services.

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Resilient Communities and Economies
OAR's Ocean, Coastal and Great Lakes Research works through the National Sea Grant College Program to develop vibrant and resilient coastal economies that use comprehensive planning to make informed strategic decisions; improve coastal water resources that sustain human health and ecosystem services; and adapt to the impacts of coastal hazards.

Sustainable Fisheries and Aquaculture
The National Sea Grant Marine Aquaculture Grant Program is the only U.S. government grant program dedicated to supporting marine aquaculture development. OAR's marine aquaculture work ensures safe, secure and sustainable supplies of domestic seafood and decreases reliance on seafood imports through aquaculture research, extension, and grants. As a part of the cross-NOAA Program, OAR works with aquaculture partners in the NMFS and the (NOS) in coordination with state fisheries managers, seafood processors, fishing associations and consumer groups. These grants tackle some of the top challenges to marine aquaculture like reducing fishmeal and fish oil in aquaculture feeds, increasing seafood safety and quality, diversifying species and products. OAR's aquaculture competition is authorized under the National Aquaculture Act of 1980.

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Ocean Exploration
OAR leads efforts to explore and characterize deep-water areas of the U.S. Exclusive Economic Zone, Extended Continental Shelf, and other poorly known ocean areas and phenomena. Since its commissioning in 2008, the *Okeanos Explorer*, NOAA's ship assigned to exploration, has mapped over a million square kilometers of the seafloor at high resolution. Data collected from ocean exploration expeditions have been critical for science-based decisions on issues like deepwater fisheries management, potential oil and gas development or deep-sea mining, marine protected area establishment and management, determination of the U.S. Extended Continental Shelf, and nautical charting.

In 2021 the NOAA Ocean Exploration and Research Program celebrated 20 years of NOAA exploration. The Program was established in April 2001 in response to the recommendations and challenges set forth in the Report of the President's Panel for Ocean Exploration and in recognition of the value such a program could provide to NOAA and the Nation. Since then NOAA's Ocean Exploration and Research Program has been involved in collecting data and information that have been used in decisions to protect some of our Nation's most important marine places. Pictured Left: From June 30 through July 29, 2021, NOAA and partners conducted the 2021 North Atlantic Stepping Stones: New England and Corner Rise Seamounts expedition, a telepresence-enabled ocean exploration expedition on NOAA Ship *Okeanos* Explorer to collect critical baseline information about unknown and poorly understood deepwater areas off the eastern U.S. coast and high seas.

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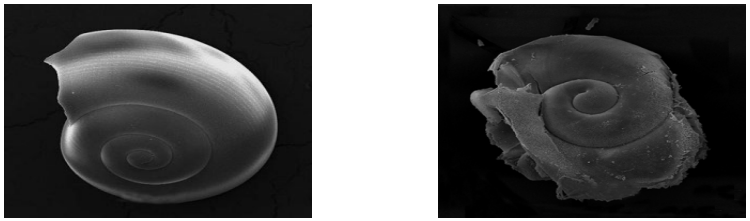
Ocean Chemistry and Ocean Acidification
Research across OAR labs, programs, and Cooperative Institutes aims to improve our understanding of how, and how fast, ocean chemistry is changing, how variable that change is by region, and what impacts these changes are having on marine life, people, and the local, regional, and national economies. OA refers to changes in the chemistry of the ocean due to rising atmospheric carbon dioxide; currently, ocean chemistry is changing faster than any period in the past 55 million years. OAR's Ocean Acidification Program (OAP) maintains long-term OA monitoring, conducts research to enhance the conservation of marine ecosystems sensitive to OA, and promotes OA educational opportunities. By better understanding and predicting OA, OAP also informs national and international carbon mitigation discussions and enables local communities to better prepare, mitigate, and adapt to changes caused by OA.



Impacts to a pteropod's shell in seawater that is too acidic (images above). The left panel shows a shell collected from a live pteropod from a region in the Southern Ocean where acidity is low. The shell on the right is from a pteropod collected in a region where the water is more acidic. Photo credits: (left) Bednaršek et al. 2012; (right) Nina Bednaršek.

Sustained Ocean Observations and Monitoring (SOOM)
SOOM supports NOAA's contribution to the sustained Global Ocean Observing System (GOOS) by maintaining over 3,950 platforms that report environmental weather/climate information to global prediction centers and researchers. GOOS is a permanent global system for observations, modelling, and analysis of marine and ocean variables to support operational ocean services worldwide. The U.S. Integrated Ocean Observing System (IOOS) is the U.S. regional contribution to GOOS and SOOM activities contribute unique and essential global measurements and capabilities to the IOOS enterprise. SOOM's contribution helps describe the present state of the oceans, monitors long-term changes, supports operational services worldwide and is the basis for forecasting climate variability and change. SOOM also supports research to develop new data products from these observations to address a broad range of stakeholder needs.

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National Oceanographic Partnership Program (NOPP)
The NOPP was established by Public Law 104-201 to "coordinate and strengthen national oceanographic efforts by identifying and carrying out partnerships among Federal agencies, academia, industry, and other members of the oceanographic scientific community in the areas of data, resources, education, and communication." With an increasing amount of research and development spending occurring within the private sector relative to the federal government, NOPP is a unique catalyst for participation by non-governmental organizations and industry in federal ocean research and education projects. NOAA has been investing ad hoc resources (on an annual basis) toward this effort.

Previous NOPP successes include creation of a comprehensive national ocean observing network, air/ocean modeling improvements and transitions, and innovative marine technology solutions. Future efforts under discussion include:

- Reducing plastic waste in the oceans
- Comprehensive mapping and characterization of the U.S. Exclusive Economic Zone
- Development of next-generation autonomous and remote (air and satellite) marine data collection systems
- New discoveries of ocean resources and marine habitat dynamics that are gleaned from existing marine information databases.
- Seamless national oceanographic and marine information systems that provide transparent access and advanced data management and analysis tools

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Activity: Innovative Research & Technology

Goal Statement

The Innovative Research and Technology accelerates the adoption and transition of advanced computing and technology throughout NOAA. Innovative Research and Technology supports High Performance Computing (HPC) initiatives through major improvements in weather and climate forecasting, ecosystem and ocean modeling, environmental information dissemination and in support of the Department of Commerce 2018-2022 Strategic Plan, Strategic Objective 3.3 Reduce: Extreme Weather Impacts.

Base Program

Innovative Research and Technology efforts provide NOAA with necessary computational and network resources required to support continued advances in environmental modeling capabilities. The purpose of the High Performance Computing and Communications program is to improve the accuracy and timeliness of NOAA's short-term weather warnings, seasonal forecasts, hurricane forecast improvements, as well as regional and global climate and weather predictions that are heavily dependent on major advances. Timely and responsive dissemination of NOAA's services and information requires full use of modern network and communication technologies.

The following Subactivities are included in Innovative Research & Technology:

- High Performance Computing and Communications: Supports the computing requirements for NOAA’s modeling and research missions.
- Uncrewed Systems: Supports the advancement of research and evaluation for operational readiness of a full spectrum of NOAA (aircraft and maritime) Uncrewed Systems (UxS) mission concepts.

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 - FY 2027

- Complete migration of at least one operational model and one research model to next-generation architecture software structure

- Test impact of assimilation of new and proposed satellite observations using observing system simulation experiment and observing system experiment approaches using the operational Hurricane Weather Research and Forecast hybrid data assimilation system to improve hurricane intensity guidance
- Quantitative evaluation of (a) (statistically) downscaled climate projections for the U.S. and (b) their suitability for use in climate impacts and decision-making applications published in the peer-reviewed literature
- Participate in the Networking and information Technology Research and Development Program interagency activities
- Shepherd UxS R&D activities through their transition to operation including preparation for acceptance by receiving offices
- Continued R&D to support new and ongoing projects to advance operational readiness of UxS within NOAA

Deliverables:

- HPC System availability – 97 percent of computational hours made available to scientists
- 11 HPC and advanced networking R&D projects
- Conduct directed research and proposal solicitations for R&D related to promising new UxS concepts and technologies across all NOAA Line Offices
- Increase staffing capacity to effectively manage the R&D and transition activities

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(Dollar amounts in thousands)

Explanation and Justification

Line Item		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
High Performance Computing & Communications	Pos/BA	16	17,677	17	17,800	17	18,231
	FTE/OBL	15	17,757	16	17,800	16	18,231
Uncrewed Systems	Pos/BA	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0
Total, Innovative Research & Technology	Pos/BA	16	17,677	17	17,800	17	18,231
	FTE/OBL	15	17,757	16	17,800	16	18,231

High Performance Computing & Communications
HPC Initiatives, established through the *High-Performance Computing Act of 1991* (P.L. 102-194), improve the accuracy and timeliness of NOAA's short-term weather warnings, forecasts, hurricane forecast improvements, as well as regional and global climate and ecosystem predictions. HPC Initiatives provide necessary computational and network resources required to advance in environmental modeling capabilities across NOAA. In fact, every NOAA line office uses R&D HPC systems. Benefits of HPC Initiatives include:

- Improvements in short-term warning and weather forecast systems and models,
- Enabling scientists to attack long-lead time problems associated with the physical processes that govern the behavior of the atmosphere and ocean,
- Maintaining NOAA’s leadership position in understanding climate with applications towards critical issues such as hurricanes, drought, sea-level rise, and
- Accelerating modeling and simulation activities and providing relevant decision support information on a timely basis for programs.

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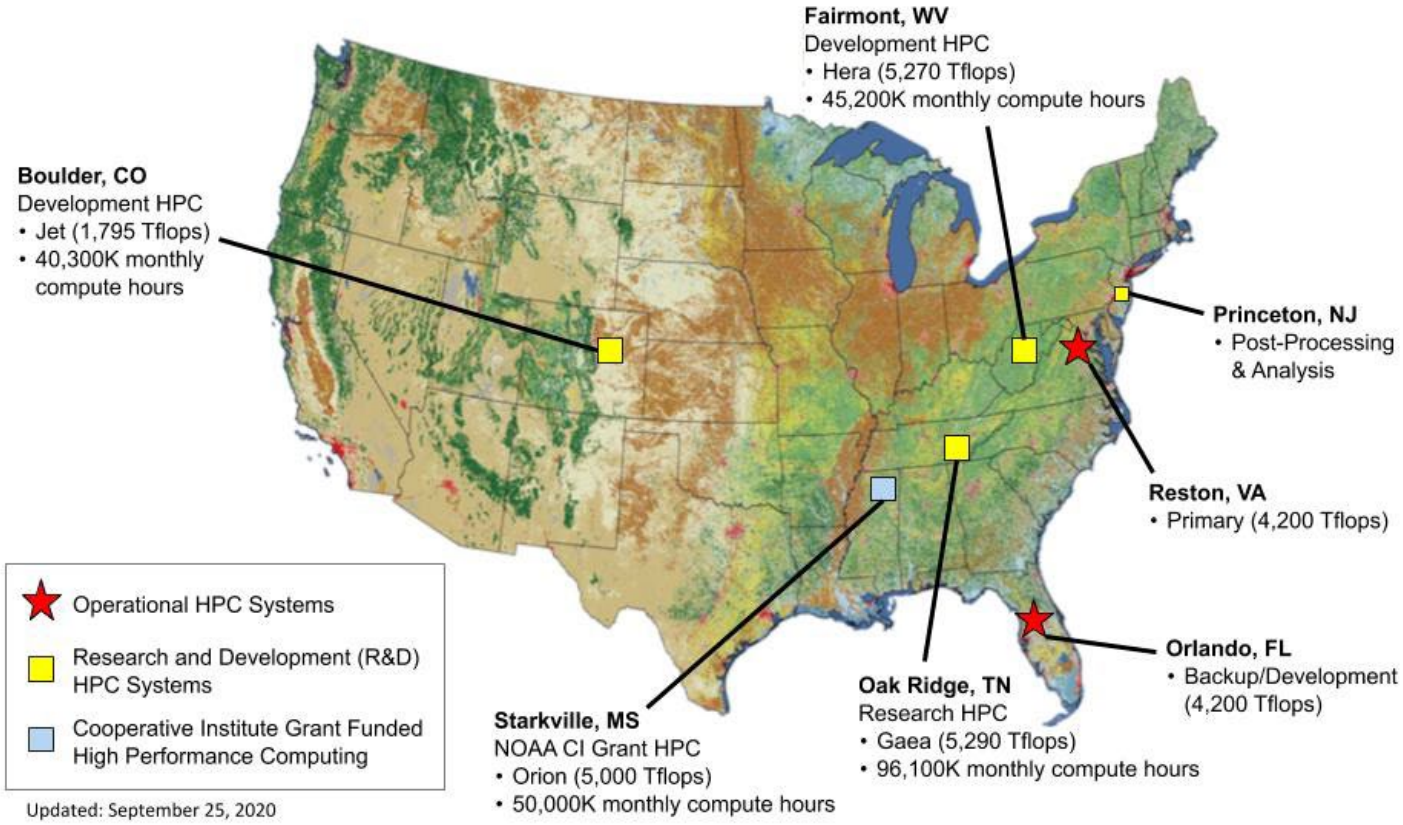

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
	Pos./BA	0	0	4	4,000	4	4,000
Uncrewed Systems	FTE/Obl.	0	0	3	4,000	3	4,000

Uncrewed Systems Increase (+$4,000, 3 FTE/ 4 Positions) – This request proposes an increase to advance research and evaluation for operational readiness of a full spectrum of NOAA (aircraft and maritime) Uncrewed Systems (UxS) mission concepts.

The use of uncrewed aircraft and maritime systems have significant potential to improve the quality and timeliness of NOAA science, products, and services while reducing costs. Robust research and development (R&D) is critical for the successful transition of promising initial concepts to operational readiness. UxS technologies are not and will not become broadly ready for operational use within NOAA without dedicated, long term funding for R&D, and achieving the potential offered by UxS requires sustained R&D support.

These funds will move notional ideas to testable technologies and finalize mature, transition ready projects into operational use within NOAA. NOAA will use these resources for directed research and proposal solicitations for R&D related to UxS concepts and technologies to support missions across NOAA's Line Offices. Research will be solicited and supported via both internal NOAA competitions and external Federal funding opportunities available to academic and Federal partners. The resources will further support efforts for completing transition-to-operation activities including preparations for acceptance by receiving offices. The UxS Research Transition Office (UxSRTO) will provide NOAA with targeted logistical and technical support for the complicated final step of transitioning UxS technologies into operational use across the organization. The UxSRTO will provide the leadership to continue to identify and develop the technologies that NOAA needs to ensure we are prepared to take advantage of the potential offered by UxS.

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023

- Provide dedicated R&D support evaluating and advancing the operational readiness of a full spectrum of NOAA UxS mission concepts encompassing both aircraft and maritime systems

FY 2024 - FY 2027

- Shepherd UxS R&D activities through their transition to operation including preparation for acceptance by receiving offices
- Continued R&D to support new and ongoing projects to advance operational readiness of UxS within NOAA

Deliverables:

- Conduct directed research and proposal solicitations for R&D related to promising new UxS concepts and technologies across all NOAA Line Offices
- Increase staffing capacity to effectively manage the R&D and transition activities

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of UxS mission concepts (both aircraft and maritime systems) transitioning to operations or applications					
With Increase	2	3	3	4	5
Without Increase	0	0	0	0	0
Number of additional NOAA observational systems and mission concepts utilizing UxS					
With Increase	10	15	15	20	25
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	4,000	4,000	4,000	4,000	4,000
Capitalized	1,035	1,035	1,035	1,035	1,035
Uncapitalized	2,965	2,965	2,965	2,965	2,965
Budget Authority	4,000	4,000	4,000	4,000	4,000
Outlays	2,480	2,480	2,480	2,480	2,480
FTE	3	4	4	4	4
Positions	4	4	4	4	4

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Innovative Research and Technology
Subactivity: Uncrewed Systems
Program Change: Uncrewed Systems Increase

Title		Grade	Number	Annual Salary	Total Salaries
Supervisory Physical Scientist (Director)		ZP-5	1	148,484	148,484
Mgmt. and Prg. Analyst		ZA-4	1	106,823	106,823
Financial Mgmt. Analyst		ZA-4	1	106,823	106,823
Admin. Prg. Specialist		ZA-2	1	50,643	50,643
Total			4		412,773
Less lapse	25.00%		(1)		(103,193)
Total full-time permanent (FTE)			3		309,580
2023 Pay Adjustment (4.6%)					14,241
					323,820

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	3
Total FTE	3
Authorized Positions:	
Full-time permanent	4
Total Positions	4

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Innovative Research and Technology
Subactivity: Uncrewed Systems

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	0	0	0	324	324
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	324	324
12	Civilian personnel benefits	0	0	0	97	97
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	18	18
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	20	20
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	18	18
23.3	Communications, utilities and misc charges	0	0	0	2	2
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	0	0	0	500	500
25.3	Other goods and services from Federal sources	0	0	0	35	35
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	500	500
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	0	0	0	12	12
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	2,474	2,474
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	0	0	0	4,000	4,000

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Systems Acquisition

Goal Statement

Research Supercomputing:
Research Supercomputing provides sustained capability to the NOAA Research and Development (R&D) High Performance Computing System (HPC) to advance Earth system science and accelerate the development of regional and sub-regional information products and services as described in the NOAA High Performance Computing Strategic Plan 2015-2020[8] and in support of the Department of Commerce 2018-2022 Strategic Plan, Strategic Objective 3.3 Reduce Extreme Weather Impacts.

Base Program

NOAA's R&D HPC provides computational resources to support advances in environmental modeling crucial for understanding critical Earth system modeling issues. NOAA's environmental modeling enterprise underpins most of NOAA's products and services to the Nation. NOAA's R&D HPC assets are part of the critical infrastructure required for NOAA to accomplish its mission. NOAA's R&D HPC support the NOAA user base in the geospatial and ecosystems research communities across the Agency. However, demand for HPC compute resources outweighs the supply currently. NOAA is exploring ways of mitigating this shortfall through other means such as cloud computing. NOAA currently has several pilots examining if cloud could be a possible solution to fill the supply and demand gap.

Statement of Operating Objectives

Schedule and Milestones and Deliverables:
FY 2023 - FY 2027

- High-resolution Earth System Model integrations publicly available for use in regional decision-making through federated data services
- Exploratory application of Earth System Models and subsequent demonstration of Earth System modeling applications using exascale high-performance computing platforms, which would be capable of at least one exaflop, or a thousand petaflops
- High-resolution integrations for prediction of seasonal tornado risks at multi-month lead times
- Improved credibility of projections of changes of important climatic quantities, such as regional climate change and extreme

[8] http://www.cio.noaa.gov/it_plans/HPCStrategy_Final_Draft_080913.pdf

events, to allow society to efficiently plan for and adapt to climate change
- Capability to develop and provide decadal prototype forecasts and predictions made with high-resolution coupled climate model
- NOAA's environmental modeling applications able to utilize performance increases available through fine-grain architectures

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

Line Item		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Research Supercomputing/CCRI	Pos/BA	1	43,126	1	43,500	1	43,500
	FTE/OBL	1	43,065	1	43,500	1	43,500
Research Acquisitions and Management	Pos/BA	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0
Total, Innovative Research & Technology	Pos/BA	1	43,126	1	43,500	1	43,500
	FTE/OBL	1	43,065	1	43,500	1	43,500

NOAA's R&D HPC provides computational resources to support advances in environmental modeling crucial for understanding critical Earth system modeling issues. This investment includes the supercomputing systems, associated storage devices, advanced data communications, hardware and software engineering services, security, and necessary data center space. NOAA currently operates three R&D HPCs:

- Gaea – Located at Oak Ridge National Laboratory in Oak Ridge, Tennessee, Gaea is primarily used for long-term climate and weather predictions and projections.
- Hera – Located in Fairmont, West Virginia, HERA more than doubles the previous Theia system with a total capacity of 2.7 petaflops. It supports development of weather modeling across OAR and NWS to improve the prediction of high-impact weather events and evaluate potential future directions for models and data assimilation.
- Jet – Located in Boulder, Colorado, Jet is primarily used for hurricane research.

NOAA's R&D HPC also provides software engineering support and associated tools to re-architect NOAA's applications to run efficiently on next generation fine-grain HPC architectures. Through a focused effort, engineers investigate and test new algorithms, train existing NOAA developers with new coding techniques, and assist these developers in accelerating the re-architecting of NOAA's applications. These software engineering efforts allow NOAA to take advantage of next-generation research computing technologies, but also help NOAA to more efficiently use its existing high performance computing assets.

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Research	Pos./BA	1	43,500	1	68,500	0	25,000
Supercomputing/CCRI	FTE/OBL	1	43,500	1	68,500	0	25,000

Research and Development (R&D) High Performance Computing (HPC) (+$25,000, 0 FTE/ 0 Positions) – This request proposes an increase in funding for recapitalization and sustaining infrastructure to address R&D HPC capacity. Developing and delivering the next generation modeling systems for weather and climate prediction depends on expanding essential compute elements of NOAA's HPC enterprise, using both in-house and commercial capabilities. In order to support research to operations (R2O) activities, the R&D HPC capacity needs to be compatible and of sufficient scale with the next generation operational HPC system. In 2022, the operational HPC capacity will increase by a factor of three, and without this investment, the R&D HPC capacity will not keep pace. This request will decrease the gap between operational and R&D HPC capacity, by providing funding for recapitalization of NOAA's R&D HPC resources. With this investment, NOAA will be able to deliver continually improved products and services, such as the comprehensive, integrated, and unified models of the Earth system that can greatly improve our predictions of extreme weather events like hurricanes, fires, windstorms, flash flooding, and other climate events at subseasonal-to-seasonal timescales. It will also support community engagement through the Earth Prediction Innovation Center, accelerating innovative research and model enhancements into NOAA operational forecasts.

Schedule and Milestones:
FY 2023
- Sustain NOAA's R&D HPC computational resources which support advances in environmental modeling crucial for understanding critical Earth system modeling issues
- Prepare and carry out acquisition activities for rotating enhancement of current computational resources and infrastructure across all sites to return to a three-year technology refresh cycle within the established Research Computing/CCRI funding

FY 2024 - FY 2027
- Maintain support for priority activities within available Research Supercomputing/CCRI funding

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Deliverables:

- Provide more consistent enhancements and technology refreshes to achieve a three-year refresh cycle for R&D HPC systems through traditional and commercial computing market options

Performance Measures	2023	2024	2025	2026	2027
R&D HPC PetaFlops					
With Increase	20	25	35	45	50
Without Increase	20	15.5	15.5	15.5	15.5
Outyear Costs:					
Direct Obligations	25,000	25,000	25,000	25,000	25,000
Capitalized	25,000	25,000	25,000	25,000	25,000
Uncapitalized	0	0	0	0	0
Budget Authority	25,000	25,000	25,000	25,000	25,000
Outlays	10,500	10,500	10,500	10,500	10,500
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Outyear Funding Estimates:

Subactivity/PPA	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	$25,000	$25,000	$25,000	$25,000	$25,000	N/A	N/A
Total Request	$528,144	$78,500	$78,500	$78,500	$78,500	$78,500	N/A	Recurring

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Research Supercomputing/CCRI

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	316	325	340	340	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	316	325	340	340	0
12	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	73	73	73	73	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	429	429	429	429	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	568	568	568	568	0
25.2	Other services from non-Federal sources	11,894	11,979	11,976	11,976	0
25.3	Other goods and services from Federal sources	21,237	21,322	21,319	21,319	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	2,974	2,974	2,974	2,974	0
31	Equipment	1,785	1,785	1,785	26,785	25,000
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,788	4,045	4,036	4,036	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	43,064	43,500	43,500	68,500	25,000

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, & Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Research Acquisitions and Management	Pos./BA	0	0	0	40,000	0	40,000
	FTE/OBL	0	0	0	40,000	0	40,000

Phased Array Radar Research and Development Follow-On Plan (+$40,000, 0 FTE/ 0 Positions) – This request will allow NOAA to acquire a dual polarization Phased Array Radar (PAR) to demonstrate and evaluate advanced techniques needed to perform the rapid updates required with a rotating planar array. This critical step would allow NOAA to evaluate dual polarization PAR technology to meet NOAA's weather radar requirements. PAR is a promising technology that could advance NOAA's current radars from 1988-based technology to radars that would be viable well into the 21st century. This request is part of an integrated effort to prepare for a formal Radar Acquisition Management Program and decision point in 2028 with the objective to evaluate the capabilities of PAR as a replacement for the current NEXRAD radar network by 2040. This request is in parallel to the ORF request (OAR-63). Together, they support NOAA's needs to achieve the following milestones and deliverables.

Schedule and Milestones:

- FY 2023: Prepare internal report on responses from Request for Information (RFI) to inform Request for Proposals
- FY 2023: Prepare solicitation documents for Rotating Planar PAR system
- FY 2024: Award contract and begin production of the Rotating Planar PAR demonstration prototype
- FY 2025: Begin development of Evaluation Test Plan
- FY 2026: Complete Evaluation Test Plan for the Rotating Planar PAR prototype
- FY 2026: Proposed installation of the Rotating Planar PAR prototype
- FY 2027: Preliminary evaluation of the Rotating Planar PAR capabilities

Deliverables:

- Report on analysis of RFI responses and recommendations for desired characteristics for Rotating Planar PAR prototype
- Evaluation Test Plan for the Rotating Planar PAR
- Report documenting the preliminary evaluation of the prototype Rotating Planar PAR

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, & Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of all-digital rotating PAR prototypes developed.					
With Increase	0	0	0	0	1
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	40,000	40,000	0	0	0
Capitalized	40,000	40,000	0	0	0
Uncapitalized	0	0	0	0	0
Budget Authority	40,000	40,000	0	0	0
Outlays	14,000	14,000	14,000	14,000	14,000
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Outyear Funding Estimates:

Research Acquisition and Management	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	40,000	40,000	0	0	0	N/A	N/A
Total Request		40,000	40,000	0	0	0	0	80,000

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Research Acquisitions and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	0	0	0	40,000	40,000
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	0	0	0	40,000	40,000

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Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Budget Estimates, Fiscal Year 2023

Executive Summary

For FY 2023, NOAA requests a total of $1,323,413,000 and 4,379 FTE/ 4,445 positions for the National Weather Service (NWS) including a net increase of $41,320,000 and 29 FTE/ 39 positions in program changes.

The FY 2023 budget submission continues to work towards making the United States a Weather-Ready Nation (WRN) in which NWS operations provide impact-based decision support services (IDSS) to decision-makers at every government level and life-saving products and services to the public as they prepare for and respond to oncoming extreme weather and water events. Record-breaking snowfall, cold temperatures, extended drought, high heat, severe flooding, unprecedented wildfires, violent tornadoes, and massive hurricanes have all combined to cause frequent multi-billion dollar weather disasters. In 2021 there were 20 weather, water, and climate disaster events with losses exceeding $1 billion each that struck communities across the country.[1] As embodied in the NWS Strategic Plan, "Building a Weather-Ready Nation," the NWS is evolving to meet changing and increasing needs for weather, water, and climate forecasts and warnings, and transforming the way people receive, understand, and act on our information. In alignment with the *Weather Research and Forecasting Innovation Act of 2017 (Title IV)* (P.L. 115-25), NWS will work to better serve partners through IDSS, develop a flexible and nimble workforce, improve the effectiveness of forecasting in support of IDSS and enable rapid response during high impact events, and support continuous improvements through innovation.

As the nation continues to experience a growing number of record-breaking extreme weather and water events, NWS must also ensure that its products and services, including IDSS, reach everyone in the country, regardless of socio-economic status, race, language, or other factors that might lead to inequitable access. NWS aims to protect an increasingly vulnerable American population by delivering life-saving decision support services and meeting the needs of historically underserved and socially vulnerable communities (HUSVCs) so that every community is ready, responsive, resilient in the face of extreme weather and water events. As directed in Executive Order (EO) 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, NWS is working to recognize and redress inequities in policies and programs that serve as barriers to equal opportunity. As a first step, NWS conducted a Service Equity Assessment in 2021 to identify barriers and gaps in service to HUSVCs. This assessment revealed a mission critical need for NWS to systematically and intentionally engage the HUSVCs that it serves with relevant weather, water, and climate information, products, and services. This is the only way to fully meet the mission of the NWS and realize the vision of a Weather-Ready Nation.

[1] https://www.ncdc.noaa.gov/billions

Through FY 2021, NWS has made several improvements within current resources:

1. To better serve our partners and leverage the best of our employees' talents at the national and local level, the NWS has defined a Collaborative Forecast Process (CFP) to guide field demonstration plans. The CFP ensures NWS provides weather, water, and climate data forecasts and warnings for the protection of life and property and the enhancement of the national economy in the most efficient and effective way possible. Regional Operations Centers were established with Initial Operating Capability at each of the six NWS Regional Headquarters. These elements all establish the building blocks for CFP. NWS conducted a Quantitative Precipitation Forecast CFP demonstration in FY 2022 and also completed plans for a Winter Weather CFP.
2. Multiple model implementations providing improved forecast guidance (GFSv16, Space Weather Modeling Framework, etc.) have been implemented in FY 2021. These advancements will improve hurricane genesis forecasting, modeling for snowfall location, heavy rainfall forecasts, air quality, flood predictions, and more.
3. A new Weather and Climate Operational Supercomputing System (WCOSS) was delivered enabling the NWS to begin the transition of applications from the legacy supercomputer in preparation for an operational go-live in FY22.
4. Enhanced Dissemination of Weather Products and Warnings - NWS strengthened the ability to provide robust, secure, flexible and high-capacity services to the nation by continuing to implement the resilient Integrated Dissemination Program (IDP), an on-premise private cloud located in Boulder, CO, and College Park, MD. In FY 2021, the NWS addressed challenges and concerns about data accessibility by modifying its approach and quickly implementing new technology to ensure timely dissemination of NWS products, watches and warnings. For example, NWS moved critical applications to a 24x7 cloud environment including the Geographical Information National Viewer which supports better IDSS, and RIDGE II, which vastly improves the NWS' ability to display radar information.

Going forward in FY 2023 with an emphasis on IDSS, NWS will continue to work to enhance relationships with communities and organizations to ensure that NWS products and services reach everyone in the country, especially HUSVCs. In order to do so, NWS will need to increase its dedicated workforce that provides services 24/7/365 in support of the mission to provide weather, water, and climate data forecasts and warnings for the protection of life and property and enhancement of the national economy. NWS also requires continued improvement of tools and technology in order to develop and deliver climate products and services. NWS proposes to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA Enterprise Infrastructure Solutions (EIS) contract vehicle which will allow NWS to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. In addition, NWS will continue to optimize and upgrade the Integrated Dissemination Program (IDP) program in accordance with the plan provided to Congress. The investment in IDP will allow NWS to reliably and quickly deliver critical observations, model guidance, forecasts, and watch and warning information to NWS meteorologists, emergency management partners, the Weather Enterprise, and the public.

Significant Adjustments:

Inflationary Adjustments
NOAA's FY 2023 Base includes a net increase of $78,407,000 and 0 FTE/ 0 positions to account for the full funding requirement for certain inflationary adjustments to current programs for NWS activities. This includes inflationary increases for the estimated 2023 civilian pay raise of 4.6 percent and military pay raise of 4.6 percent, as well as inflationary increases for labor and non-labor activities including benefits and rent charges from the General Services Administration.

Technical Adjustments
NOAA requests the following transfers for a net change of $0 and 0 FTE/ 0 positions to the agency:

From Office	Subactivity	To Office	Subactivity	Amount
NWS	Observations (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$324,000/ 2 FTE/ 2 Positions
NWS	Central Processing (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$346,000/ 2 FTE/ 2 Positions
NWS	Analyze, Forecast and Support (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$54,000/ 1 FTE/ 1 Positions

NOAA requests to transfer $324,000 and 2 FTE/ 2 Positions from the Observations (ORF) PPA, $346,000 and 2 FTE/ 2 Positions from the Central Processing (ORF) PPA, and $54,000 and 1 FTE/ 1 Position from the Analyze, Forecast and Support (ORF) PPA to the OMAO NOAA Commissioned Officer Corps PPA to allow for better alignment of funding and greater transparency over the full cost of the NOAA Corps. With this transfer, funding for all NOAA Corps personnel will reside within OMAO. This increases efficiency within the program by reducing administrative burdens and allows NOAA to better manage personnel requirements consistent with the *NOAA Corps Amendments Act of 2020* (P.L. 116-259).

Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Observations ORF
Subactivity: Observations Transfer to NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	74,982	(324)	77,612
11.3	Other than full-time permanent	99	0	102
11.5	Other personnel compensation	2,475	0	2,563
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	77,556	(324)	80,277
12	Civilian personnel benefits	32,709	0	33,352
13	Benefits for former personnel	37	0	38
21	Travel and transportation of persons	670	0	755
22	Transportation of things	3,009	0	3,392
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	6,130	0	6,186
23.2	Rental Payments to others	3,778	0	3,911
23.3	Communications, utilities and misc charges	11,557	0	11,952
24	Printing and reproduction	22	0	25
25.1	Advisory and assistance services	24,702	0	27,541
25.2	Other services from non-Federal sources	45,379	0	50,472
25.3	Other goods and services from Federal sources	1,730	0	1,785
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	303	0	342
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	20,645	0	22,955
31	Equipment	1,018	0	1,121
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	2,656	0	2,979
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	9	0	9
44	Refunds	0	0	0
99	Total obligations	231,910	(324)	247,093

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers

Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Central Processing ORF
Subactivity: Central Processing Transfer to NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	28,112	(346)	29,082
11.3	Other than full-time permanent	40	0	41
11.5	Other personnel compensation	832	0	862
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	28,984	(346)	29,985
12	Civilian personnel benefits	12,167	0	12,402
13	Benefits for former personnel	14	0	14
21	Travel and transportation of persons	60	0	70
22	Transportation of things	93	0	108
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	3,279	0	3,302
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	445	0	453
24	Printing and reproduction	1	0	1
25.1	Advisory and assistance services	10,502	0	12,000
25.2	Other services from non-Federal sources	26,467	0	31,816
25.3	Other goods and services from Federal sources	1,102	0	1,150
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	11,421	0	13,068
31	Equipment	3,314	0	3,845
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	128	0	136
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	3	0	3
44	Refunds	0	0	0
99	Total obligations	97,980	(346)	108,353

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers

Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Analyze, Forecast and Support ORF
Subactivity: Analyze, Forecast and Support Transfer to NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	299,064	(54)	308,068
11.3	Other than full-time permanent	711	0	732
11.5	Other personnel compensation	26,684	0	27,488
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	326,459	(54)	336,288
12	Civilian personnel benefits	136,575	0	138,555
13	Benefits for former personnel	252	0	256
21	Travel and transportation of persons	459	0	987
22	Transportation of things	1,056	0	2,267
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	13,785	0	14,017
23.2	Rental Payments to others	3,821	0	3,956
23.3	Communications, utilities and misc charges	11,442	0	11,818
24	Printing and reproduction	16	0	34
25.1	Advisory and assistance services	12,993	0	21,819
25.2	Other services from non-Federal sources	21,894	0	34,261
25.3	Other goods and services from Federal sources	2,741	0	3,329
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	4,026	0	5,407
31	Equipment	1,095	0	2,045
32	Lands and structures	10	0	22
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	373	0	410
42	Insurance claims and indemnities	0	0	1
43	Interest and dividends	3	0	4
44	Refunds	0	0	0
99	Total obligations	537,000	(54)	575,476

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers

Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Weather Service (NWS)											
Observations	Pos/BA	712	225,526	716	231,910	714	247,093	714	247,843	0	750
	FTE/OBL	667	235,494	710	231,910	708	247,093	708	247,843	0	750
Central Processing	Pos/BA	218	96,452	226	97,980	224	108,353	224	108,353	0	0
	FTE/OBL	253	97,415	223	97,980	221	108,353	221	108,353	0	0
Analyze, Forecast and Support	Pos/BA	2,891	534,225	2,930	537,000	2,929	575,476	2,968	584,176	39	8,700
	FTE/OBL	2,873	536,613	2,899	537,000	2,898	575,476	2,927	584,176	29	8,700
Dissemination	Pos/BA	80	78,048	80	78,362	80	83,258	80	119,658	0	36,400
	FTE/OBL	77	79,767	77	78,362	77	83,258	77	119,658	0	36,400
Integration	Pos/BA	433	153,048	433	155,524	433	164,279	433	159,279	0	(5,000)
	FTE/OBL	426	140,900	421	155,524	421	164,279	421	159,279	0	(5,000)
TOTAL NWS - ORF	**Pos/BA**	**4,334**	**1,087,299**	**4,385**	**1,100,776**	**4,380**	**1,178,459**	**4,419**	**1,219,309**	**39**	**40,850**
	FTE/OBL	**4,296**	**1,090,189**	**4,330**	**1,100,776**	**4,325**	**1,178,459**	**4,354**	**1,219,309**	**29**	**40,850**
Systems Acquisition	Pos/BA	26	122,545	26	93,634	26	93,634	26	94,104	0	470
	FTE/OBL	25	123,756	25	93,634	25	93,634	25	94,104	0	470
Construction	Pos/BA	0	9,843	0	10,000	0	10,000	0	10,000	0	0
	FTE/OBL	1	9,138	0	10,000	0	10,000	0	10,000	0	0
TOTAL NWS - PAC	**Pos/BA**	**26**	**132,388**	**26**	**103,634**	**26**	**103,634**	**26**	**104,104**	**0**	**470**
	FTE/OBL	**26**	**132,894**	**25**	**103,634**	**25**	**103,634**	**25**	**104,104**	**0**	**470**
TOTAL NWS	**Pos/BA**	**4,360**	**1,219,687**	**4,411**	**1,204,410**	**4,406**	**1,282,093**	**4,445**	**1,323,413**	**39**	**41,320**
	FTE/OBL	**4,322**	**1,223,083**	**4,355**	**1,204,410**	**4,350**	**1,282,093**	**4,379**	**1,323,413**	**29**	**41,320**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Observations
Subactivity: Observations

Goal Statement

NWS is fundamentally dependent on environmental and climatological observations, from the surface of the sun to the bottom of the sea, to meet its forecast and warnings mission. NWS integrates in-situ and remotely-sensed data from satellites and radars, NOAA systems, commercial sources, Federal, and even international partners in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts.

Base Program

Funding from this Activity is used to operate and maintain all NWS observing systems, evaluate observational requirements, engineer technical solutions, and perform systems development and testing. Together, these systems provide critical infrastructure that enable forecasters to identify emerging threats, characterize their severity, and provide detailed warnings and forecasts.

Observing systems must measure a broad array of parameters to support forecasting in the varied mission service areas of the NWS including aviation weather, severe weather, space weather, marine weather, tropical weather, fire weather, climate and more. All of these systems have strengths and weaknesses in monitoring the environment, so individual systems in the overall suite must complement each other. By gathering information from multiple sources, NWS ensures the most complete data picture possible.

Specific activities in Observations include:

- Manage operations and maintenance of NWS observational systems;
- Provide holistic, ongoing assessments/analyses of the observing systems portfolio;
- Identify, support, and manage NWS' observation requirements;
- Seek solutions to fulfill NWS' observation requirements;
- Develop a strategy to maximize effectiveness while minimizing cost; and,
- Coordinate NWS' observing system activities with NOAA and its partners.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 – FY 2027

- Sustain the tri-agency Next Generation Weather Radar (NEXRAD) radar network in support of severe weather warnings and forecasts
- Sustain the radiosonde, NOAA profiler, and aircraft reporting networks in support of upper air observations
- Sustain the tri-agency Automated Surface Observing System (ASOS) in support of aviation, climate, and other services
- Operate and maintain Coastal Weather Buoys, Coastal Marine Automated Networks (C-MAN), Pacific Ocean Tropical Atmosphere Ocean (TAO) buoy array, and Deep-ocean Assessment and Reporting of Tsunamis (DART) in support of marine, tropical, and tsunami warnings and forecasts
- Sustain data processing of the National Solar Observatory's (NSO) Global Oscillation Network Group (GONG) and observatory in support of space weather warnings and forecasts
- Sustain the Cooperative Observer Program (COOP) in support of climate and other services
- Develop, test, and deploy NEXRAD Radar Product Generator (RPG) and Radar Data Acquisition (RDA) Software Builds
- Develop, test, and deploy Terminal Doppler Weather Radar (TDWR) Supplemental Product Generator (SPG) Builds
- Develop, test, and deploy NOAA Profiler Network Software Builds
- Provide hardware and software support for systems acquiring data in support of the World Meteorological Organization (WMO) Integrated Global Observing System (WIGOS), ensuring compliance with WMO standards
- Sustain the Meteorological Assimilation Data Ingest System (MADIS), while optimizing system design and code to accommodate COOP and other weather, water, and climate-related observations of opportunity
- Transition legacy GSA circuits supporting NEXRAD and ASOS to the Enterprise Infrastructure Solutions (EIS)

Deliverables:

- Support operations of 122 NEXRAD systems at 96 percent availability
- Support operations of 45 Federal Aviation Administration (FAA) TDWR SPG systems
- Support operations of 102 radiosonde stations in the United States and its territories, Caribbean, and Pacific Island nations, maintaining 96 percent availability
- Support operations of 309 NWS ASOS units and maintenance of up to 570 FAA and 97 Department of Defense (DoD) ASOS units under a reimbursable funding arrangement at 96 percent availability
- Support operations of 104 Coastal Weather Buoys systems at 80 percent availability (assumes adequate ship time provided

by the U.S. Coast Guard) to provide hourly marine weather wind speed and direction, air and sea temperature, atmospheric pressure, and detailed wave information
- Support operations of 43 C-MAN stations at 80 percent availability
- Support operations of 39 DART buoys with availability of 70 percent
- Support operations of the TAO buoy array at 70 percent availability, with the support of adequate ship time provided by NOAA Office of Marine and Aviation Operations
- Continuity of GONG data to the Space Weather Prediction Center
- Support operations of three Wind Profiler systems in Alaska at 96 percent availability
- Support transition of the Multi-Radar/Multi-System (MRMS) sustainment to NWS, without sustaining engineering support/resources
- Oversee continued observational data purchasing
- Leverage data flow from aircraft observations commercial data purchases
- Maintain National Mesonet Program Office and leverage data flow from commercial data purchases
- Leverage data flow from lightning commercial data purchases
- Leverage data flow from ship, vessel, or other marine surface meteorological and oceanographic observations data purchases
- Support strategic and tactical ice analysis services for the tri-agency National Ice Center by leveraging data from foreign satellite data purchases and providing support for the International Arctic Buoy Program
- Increase interoperability of observation data formats with key international partners
- Provide maintenance, repair, quality assurance, and warehousing of new and reconditioned parts;
- Develop and maintain software for observing systems; and,
- Perform system and operational tests and evaluation of alternative systems.
- Enhance MADIS software architecture to incorporate additional climate-related observations, to enabling the availability of such data for use by the research community as well as operational models and forecasters
- Begin the transition of legacy circuits supporting NEXRAD and ASOS inventory to the EIS

Without the continued support for Upper Air, Radar, Surface, and Marine observations and associated sustainment, provided for in Observations ORF, NWS cannot sustain or further enhance observation capabilities and outputs by: (1) improving assimilation of data collected by NWS and others; (2) improving research community collaboration through creative approaches; (3) improving the techniques used by expert forecasters; (4) making NWS information available quickly, efficiently, and in useful forms; (5) incorporating forecast uncertainty to help customers make better-informed decisions; (6) leveraging emerging technologies to

disseminate information; and (7) maintaining an up-to-date technology base and a trained workforce to integrate these tools to maximum effect. Furthermore, the availability of buoy data will decrease, as level funding for contract maintenance cruises buys fewer days at sea, reducing the number of buoys that can be maintained annually.

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Observations	Pos/BA	712	235,494	716	231,910	714	247,093
	FTE/OBL	667	235,494	710	231,910	708	247,093

In FY 2023, the Observations portfolio will support the observing systems, such as the NEXRAD, ASOS, and radiosondes that collect data necessary to provide weather forecasts, warnings, and outlooks. They will also operate and maintain multiple networks of weather/ocean buoys, and develop, test and deploy software builds for the NEXRAD RPG and RDA, the TDWR SPG, and the NOAA Profiler Network.

In FY 2022, NWS is maintaining an average C-MAN and weather buoy availability rate of 80 percent, TAO and DART buoy availability of 70 percent, a NEXRAD system availability rate of 96 percent, and an ASOS system availability rate of 96 percent. In FY 2023, NWS will continue to maintain its critical observing systems while improving their sustainability through configuration management and sustaining engineering.

Under Observations, NWS maintains the following programs to accomplish this activity:

Upper Air Observations Program provides a vertical profile of meteorological data across the Earth's atmosphere. To provide humidity, pressure, and other data that shape weather forecasts, NWS operates a radiosonde network, acquires observations from private and commercial aircraft, acquires lightning data from commercial vendors, and operates a wind profiler network in Alaska. In addition, the program provides for critical, terrestrial-based space weather observations.

- Each year, NWS launches over 78,000 radiosondes from locations throughout the United States and its territories, including

the Caribbean and Pacific Island nations. Radiosondes provide atmospheric profiles of pressure, temperature, relative humidity, and winds aloft. These data are critical inputs for NWS weather prediction models and forecaster operations supporting severe storm, aviation and marine forecasts, and climate and other research uses. Radiosondes also serve to provide a reference for satellite-sounding data.

- NWS leverages private-public partnerships to obtain additional data for more comprehensive upper air observations. Meteorological Data, Collection, and Reporting System-equipped aircraft currently provide temperature and wind information.
- The Alaskan NOAA Profiler Network consists of three Doppler radar sites providing continuous vertical wind profile data. The most critical use of the Alaska profiler network is to support the production of aviation warnings of volcanic ash, which can cause catastrophic engine failure for aircraft in flight.
- NWS supports the NSO GONG. GONG consists of six ground-based observatories strategically placed around the globe so that at least one site has the opportunity to observe the sun at all times.

Radar Observations Program provides meteorological data about winds, clouds, and precipitation that provide real-time information to forecasters for issuing severe weather warnings, with guidance on storm impacts and severity. To produce timely and accurate storm data, NWS operates 122 NEXRADs and acquires supplementary radar data from other sources.

- NEXRAD is a tri-agency weather radar system with NWS, the DoD, and FAA. NEXRAD is the primary tool used by NOAA's meteorologists for issuing warnings for flash floods, tornadoes, and severe thunderstorms.
- NWS leverages other radar data sources such as the FAA's TDWR to supplement the NEXRAD network to ensure adequate national radar coverage.

Surface Observations Program provides meteorological data at the Earth's surface. To provide on-the-ground observations, NWS operates the ASOS, the Cooperative Observer Program (COOP), and the National Mesonet Program.

- ASOS is the Nation's primary surface weather observing network supporting aviation operations and the needs of the meteorological, hydrological, and climatological research communities. ASOS is a tri-agency automated surface observation system with NWS, FAA, and DoD and consists of 976 operational systems.
- COOP is a network of volunteer observers providing a significant and cost-effective source of meteorological and climatological data representative of where our citizens live, work, and play. The COOP data are the primary data utilized in the NWS snowfall forecast guidance.
- The National Mesonet Program is a network of automated weather stations located in areas most susceptible to tornadoes and installed closely together to gather "mesoscale meteorological" observations such as temperature, humidity, lightning, and atmospheric pressure. Due to their proximity to each other, Mesonet data can identify small-scale features at the surface

that can indicate rapidly deteriorating weather conditions not shown by other observations.

Marine Observations Program provides real-time meteorological, oceanographic, and climatological data in the open ocean and coastal zones surrounding the United States. NWS operates the Weather and Ocean Platform network, the TAO buoy array, the DART buoy network, and the Voluntary Observing Ship (VOS) program.

- The Coastal Weather Buoys and C-MAN stations are meteorological and ocean observing platforms that provide real-time marine meteorological, oceanographic, and geophysical observations. The 104 moored buoys and 43 land-based C-MAN stations operate in the coastal US and offshore waters from the western Atlantic, Gulf of Mexico, and Caribbean Sea to the western Pacific around Hawaii, to the Bering Sea, and in the Great Lakes. The buoys and C-MAN stations provide forecasters and the public with frequent, high-quality marine observations for forecast and warning preparation (including for hurricanes) and to verify forecasts after they are produced. Other users rely on the observations and forecasts for commercial and recreational activities.
- The TAO buoy array is designed for the study of sub-seasonal to seasonal and year-to-year climatic variations related to El Niño and the Southern Oscillation that can have tremendous impact on the Nation's weather. These data are used to produce NWS' seasonal outlooks. Like shorter-term forecasting, the study of this variability enables more rapid prediction of climate anomalies that may result in hazardous weather conditions within the United States. The array consists of 55 moored ocean buoys and four Acoustic Doppler Current Profilers in the equatorial Pacific.
- The DART buoy network, located along the 'ring of fire' throughout the Pacific Ocean, and in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico, collects observational data that is used by NWS' Tsunami Warning Center to prepare and refine tsunami watches and warnings covering all U.S. territories and coastal states.
- The VOS program obtains meteorological and oceanographic observations from ships in both coastal and high seas areas to improve tropical and marine watches and warnings, as well as global weather models, and informs local ocean surface conditions. The VOS program is supported by NWS Port Meteorological Officers located at twelve major port cities across the country. To improve tropical and marine watches, warnings, and global modeling, the *Consolidated Appropriations Act, 2021* (P.L. 116-260) included funding for a data buy contract for meteorological and oceanographic observations from marine vessels.

Systems Engineering and Support provides systems acquisition, engineering, and logistics support for NWS mission critical observing systems, as well as the functional expertise necessary to design, acquire, test, and provide life cycle support. Actions include:

- Performing system engineering and acquisition to support operational weather systems.

- Planning, coordinating, and implementing hardware modifications, retrofits, and rehabilitation programs to meet changing program requirements and improve system performance.
- Directing product identification, configuration control, auditing, and status accounting for all systems that are under formal NWS Configuration Management control.
- Prescribing and managing efficient logistics for stocking levels (i.e. level of stock needed to balance the need for the part, without carrying the overhead of having unneeded items on hand) and ensuring procurement of initial and replenishment spares for depot-level stock (i.e. required level of on-hand spare parts inventory needed to repair a particular system or system component).

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Observations	Pos./BA	714	247,093	714	247,843	0	750
	FTE/OBL	708	247,093	708	247,843	0	750

Enterprise Infrastructure Solutions (EIS) (+$750, 0 FTE/ 0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract. The total NWS request for this initiative is $12.6 million, which includes $11.4 million in Dissemination ORF [NWS-48], $0.75 million in Observations ORF, and $0.47 million in Observations PAC [NWS-66]. All three NWS program increases are part of a non-severable initiative.

Specifically, this request focuses on EIS for NOAA Weather Radio (NWR), surface observing (ASOS) and radar (NEXRAD) circuits. NWS is required to transition all circuits provisioned by the Dissemination and Observation portfolios to facilitate these communications, necessitating the purchase of new hardware. There will be costs for trenching and laying these new lines, procurement, and implementation of network hubs to allow communications on NWS networks between the legacy vendors and the new vendor circuits during the transition period. NWS also requires support services to facilitate the architecture and installations throughout the transition. NWS anticipates it will take up to 5 years to transition all circuits to the new contract.

If NWS does not move to quickly transition to EIS before the expiration of the Networx contract, there are two risks:

1) Circuits will be disconnected by the vendor placing mission operations at risk
2) The incumbent Networx vendor will move the circuit to a month-to-month commercial circuit, which could double or triple the cost, depending on the location and technology. These levels are not affordable within the program.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will

accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

'Schedules and Milestones', 'Deliverables', and 'Performance Measures' reflect the outcomes resulting from all three NWS program increases given the non-severability of these initiatives.

Schedule and Milestones:

FY 2023 – FY 2027
FY 2023

- Establish contractual services for the required level of support to plan and engineer the transition
- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NWS's current and planned needs
- Begin transition of NWS Legacy GSA inventory to EIS
- Transition 86 ASOS SLEP sites
- Procure 500 NWR IP circuits
- Transition 237 NWR sites
- Transition 10 One NWSNet sites
- Establish two hubs for legacy and new circuits to communicate
- Transition 53 NEXRAD landlines

FY 2024

- Transition 53 NEXRAD landlines
- Transition four NEXRAD VSATs
- Transition 10 NEXRAD 4G sites
- Transition 300 ASOS SLEP sites
- Procure 400 NWR IP circuits
- Transition 237 NWR sites
- Transition 60 One NWSNet sites

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

- Establish 10 hubs for legacy and new circuits to communicate
- Maintain and support transitioned NWR lines and circuits

FY 2025
- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs
- Transition 50 NEXRAD 4G sites
- Transition 199 ASOS SLEP sites
- Transition 237 NWR circuits
- Transition 60 NWSNet sites
- Maintain 12 hubs for legacy and new circuits to communicate
- Maintain and support transitioned NWR lines and circuits

FY 2026
- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs
- Transition 50 NEXRAD 4G sites
- Transition 100 ASOS SLEP sites
- Transition 237 NWR circuits
- Transition 60 NWSNet sites
- Decrease hubs to five for legacy and new circuits to communicate
- Maintain and support transitioned NWR lines and circuits

FY 2027
- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs
- Transition 50 NEXRAD 4G sites
- Transition 60 NWSNet sites
- Maintain five hubs for legacy and new circuits to communicate
- Maintain and support all NWR lines and circuits

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Percentage of total radar circuits transitioned to the new EIS contract					
With Increase	15%	40%	65%	90%	100%
Without Increase	0%	10%	20%	30%	40%
Outyear Costs:					
Direct Obligations	750	750	750	750	750
Capitalized	0	0	0	0	0
Uncapitalized	750	750	750	750	750
Budget Authority	750	750	750	750	750
Outlays	465	465	465	465	465
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Observations
Subactivity: Observations

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	72,626	74,982	77,612	77,612	0
11.3	Other than full-time permanent	91	99	102	102	0
11.5	Other personnel compensation	2,412	2,475	2,563	2,563	0
11.7	NOAA Corps	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	75,129	77,556	80,277	80,277	0
12	Civilian personnel benefits	28,540	32,709	33,352	33,352	0
13	Benefits for former personnel	32	37	38	38	0
21	Travel and transportation of persons	814	670	755	755	0
22	Transportation of things	3,660	3,009	3,392	3,392	0
23	Rent, communications, and utilitites	0	0	0	750	750
23.1	Rental payments to GSA	5,370	6,130	6,186	6,186	0
23.2	Rental Payments to others	3,649	3,778	3,911	3,911	0
23.3	Communications, utilities and misc charges	10,381	11,557	11,952	11,952	0
24	Printing and reproduction	27	22	25	25	0
25.1	Advisory and assistance services	29,002	24,702	27,541	27,541	0
25.2	Other services from non-Federal sources	48,462	45,379	50,472	50,472	0
25.3	Other goods and services from Federal sources	1,569	1,730	1,785	1,785	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	369	303	342	342	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	24,149	20,645	22,955	22,955	0
31	Equipment	1,155	1,018	1,121	1,121	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,176	2,656	2,979	2,979	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	10	9	10	10	0
44	Refunds	0	0	0	0	0
99	Total obligations	235,494	231,910	247,093	247,843	750

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Central Processing
Subactivity: Central Processing

Goal Statement

Central Processing is the second step in the NWS forecast process. Through this Activity, NWS ingests data obtained from observing infrastructure, and delivers it in a usable form to NWS modelers and meteorologists in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts.

Base Program

Activities under Central Processing include managing the Weather and Climate Operational Supercomputing System (WCOSS), the Advanced Weather Interactive Processing System (AWIPS), hydrology information technology initiatives, and the information technology (IT) infrastructure that supports national centers and field operations. Together these ensure the uninterrupted flow of information from collection of observations to central guidance production and local access to all essential weather and climate data products.

Specific activities in Central Processing include:

- Operate NWS' IT processing infrastructure;
- Sustain reliability of NWS' IT processing by keeping infrastructure up to date;
- Identify NWS' processing requirements and gaps;
- Review NWS' processing system capabilities;
- Seek solutions to fulfill NWS processing requirements;
- Coordinate NWS' processing system activities across NOAA; and,
- Maintain a 24/7 help desk for all forecast systems.

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 – FY 2027

- Manage high performance computing usage, reliability, and resources including a major system upgrade
- Support scheduled improvements to National Centers for Environmental Prediction (NCEP) production suite
- Maintain updated AWIPS architecture and infrastructure at National Centers, Weather Forecast Offices (WFOs), River Forecast Centers (RFCs)
- Continue to improve flood lead time and accuracy improvement

Deliverables:

- WCOSS meeting or exceeding reliability metrics
- 43 million numerical prediction products produced per day for weather, climate, ocean, river, and space-weather forecasts
- 4,011 operational Advanced Hydrologic Prediction System (AHPS) forecast locations
- AHPS performance meeting or exceeding flood lead time and accuracy goals
- National Center and Regional IT infrastructure that meets operational reliability goals through improved annual maintenance

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Central Processing	Pos/BA	218	97,415	226	97,980	224	108,353
	FTE/OBL	253	97,415	223	97,980	221	108,353

In FY 2022, NWS operationalized new service backup capabilities for its river forecast centers through the National Water Center. NWS completed the implementation of an initial operational capability of AWIPS Hazard Services in FY 2020 which simplified and modernized the software forecasters use to generate lifesaving watches and warnings. In FY2022, NWS implemented further advancements to AWIPS Hazard Services enhancing warning capabilities for winter weather and non-precipitation hazards. AWIPS II is an underlying software design enhancement that enables the AWIPS software, NWS' primary forecasting software, to more rapidly integrate new data sources and forecast capabilities into operations while improving system maintainability. In FY 2020, NWS awarded a new follow-on Weather and Climate Operational Supercomputing System (WCOSS) contract. In FY 2023, NWS will continue to integrate new forecast capabilities into AWIPS and will implement model improvements on high performance computing

systems under a new WCOSS contract.

Central Processing maintains the following programs to accomplish this activity:

NCEP Central Operations (NCO) provides support for WCOSS including the software and infrastructure that forms the basis for predictions from NCEP Centers and WFOs through its Weather and Climate Computing Infrastructure Services (WCCIS) program. WCCIS provides the following services:

- Performs quality assurance of incoming observations and outgoing products;
- Transitions and disseminates numerical weather and climate prediction models from development into operational use by forecasters at NCEP and the WFOs;
- Performs 24/7 system maintenance and administration service;
- Performs software development for data processing, display, interaction, and product generation; and,
- Monitors the creation of all products in the NCEP production suite on a 24/7 basis.

Advanced Weather Interactive Processing System (AWIPS) is the information processing, display, and telecommunications system that is the cornerstone of NWS field operations. AWIPS provides the following services:

- Integrates and displays observing data (meteorological, hydrological, satellite, and radar) at NWS field offices;
- Processes and displays forecast data at operational sites;
- Provides an interactive communications system including the Satellite Broadcast Network to connect NWS field locations and allows a mechanism for external partners to access the data;
- Initiates the dissemination of weather and flood warnings and forecasts in a rapid and highly reliable manner; and,
- Provides the communication interface for the public to see NOAA's data.

Hydrology Information Technology Initiatives gather, integrate and utilize advanced and localized water and related observations to predict streamflow and produce water resources information to inform decisions, which optimize water use and mitigate the impacts of floods and droughts.

- The Advanced Hydrologic Prediction System (AHPS) is a web-based suite of graphical river-forecast products that provide advanced information on the magnitude and likelihood of floods and droughts. Advanced river forecast information is provided at 4,011 locations throughout the United States to enable government agencies, private institutions, and individuals to make more informed decisions about risk-based policies and actions to mitigate the dangers posed by floods and droughts. This advanced forecast information includes uncertainty information generated by the Hydrologic Ensemble Forecast Service.

- Community Hydrologic Prediction System (CHPS) is the information technology infrastructure that all 13 RFCs use to develop and run operational hydrologic forecast models. This infrastructure generates data and information that water resource managers and emergency managers use to effectively respond to flooding events.

National Centers and Regional IT Infrastructure maintain the information technology infrastructure and standards that enable the National Centers and regional offices, including forecast offices, to effectively work together. This includes:

- Computing that occurs outside of AWIPS;
- Local area networking;
- Security; and
- Data center power and cooling

Without the continued support for NCEP, NCO, AWIPS, Hydrology Information Technology Initiatives, and National Centers and Regional IT Infrastructure, provided for in Central Processing ORF, NWS cannot continue to support the information technology necessary to process weather data and run weather models in support of national centers and field operations. These include not only the systems and initiatives outlined above, but also the WCOSS, AHPS, and other hydrology information technology initiatives.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Analyze, Forecast and Support
Subactivity: Analyze, Forecast and Support

Goal Statement

NWS' mission is to provide forecasts, warnings, and impact-based decision support services for the protection of life and property, and to support the national economy. The Analyze, Forecast and Support (AFS) Activity leverages innovations from the Science and Technology Integration (STI) Activity, and utilizes output and support services from the Observations, Central Processing, and Dissemination Activities by applying expertise to the observed data, model outputs, and dissemination systems, resulting in forecasts, warnings, and impact-based decision support services (IDSS) for the Nation in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts.

Base Program

NWS' national network of forecast offices, specialized centers, and associated workforce of meteorologists, hydrologists, climatologists, and space physicists is supported through the AFS Activity. This expert workforce monitors the weather, water, climate and space weather from our oceans to the surface of the sun, 24 hours a day, seven days a week. These professionals provide information using a collaborative forecast process that enables forecasts and warnings to benefit from the NWS' fully integrated forecast process. Forecasts globally support agriculture, transportation, energy production and water management among other missions and industries. Forecasts and warnings, provided days in advance of pending winter storms or hurricanes, wildland fire conditions, tornado outbreaks, heat waves or river floods, enable communities, industry, and emergency managers to plan effective preparation and response strategies. Warnings for high impact, rapidly evolving hazards such as solar storms, tornadoes, tsunamis, flash floods or ash plumes following volcanic eruptions, enable decision makers to keep the public out of harm's way to protect their lives and livelihoods.

NOAA's network of Weather Forecast Offices (WFOs), River Forecast Centers (RFCs), and specialized national centers house the NOAA equipment and expertise that results in weather forecasts, warnings, and the provision of IDSS. Like any other physical asset, this infrastructure must be maintained to support NWS' mission delivery and efforts to build a Weather-Ready Nation. Many of these facilities are required to operate 24 hours per day, 365 days per year. As such, NWS conducts facility condition assessments (FCAs) for all leased and owned facilities. At many locations, the FCA identifies issues that significantly affect operational readiness, service

delivery, or occupant safety. A first assessment of all facilities was completed in FY 2019, which provided NWS with a comprehensive analysis of site conditions, itemized deferred maintenance requirements and costs, and the 10 year projected life cycle cost for all NWS locations. The FCA process restarted in FY 2022 to begin the cycle to update all of the facility assessments. The FCAs were paused during the pandemic, although work to address identified deferred maintenance continued.

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 – FY 2027

- Operate national network of 24/7 WFOs, that provide weather surveillance, IDSS, forecast and warning services
- Operate national network of RFCs that provide river stage, streamflow, water supply, and flood guidance
- Operate the National Centers for Environmental Prediction (NCEP) service centers that monitor the tropics, high seas, and national airspace, warn of space weather hazards, predict tornadoes, provide outlooks for subseasonal and seasonal conditions and develop and deliver foundational data sets
- Operate the National Water Center (NWC) 24/7 to support water resource decision support services across the Nation by providing analyses, forecasts, and inundation information and guidance for all water resources events, including flash flooding, riverine flooding, and water resources outlooks
- Operate NOAA's component of the interagency U.S. National Ice Center (USNIC) to support sea ice analysis and prediction
- Provide IDSS to core partners during routine and high impact events, which includes underserved and vulnerable communities
- Operate Tsunami Warning Centers to monitor and predict the development and onset of tsunamis along the Nation's coasts and coasts of other countries as agreed by treaty
- Provide weather and financial support to the Nations of the Pacific Island Compact

Deliverables:

- Operations of all WFOs, RFCs, National Centers, and Tsunami Warning Centers
- IDSS provided to local, regional and state partners and decision makers from WFOs, RFCs and National Centers
- Provision of field operational support from National Headquarters
- Operations and maintenance of Weather Service Offices (WSO) outside the continental United States that support the Nations of the Pacific Island Compact
- Operations and maintenance of WSOs and Data Collection Offices in Hawaii and Alaska as components of the national

observation program
- Operational sea ice forecasts from the USNIC
- Aviation weather forecasts for all identified airports and air routes
- Deployments of Incident Meteorologists to support decision makers at wildland fires
- Probabilistic prediction of extreme weather events in support for fire management of large fire outbreaks and growth
- Fire weather services and risk communications for underserved and vulnerable rural, Tribal, and Wildlife Urban Interface communities.
- Continued support of StormReady® communities
- Street-level water information for every stream reach in the continental United States, hourly at 2.7 million locations
- A predictive 1-hr-to-10-day national streamflow forecast for the entire Nation
- A 30-day water outlook for the entire Nation
- Initiate the implementation of flood forecast inundation maps for communities across the Nation
- Begin planning for a recruitment program that is inclusive of black, indigenous and, people of color students and responsive to the NWS Diversity and Inclusion goals

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Analyze, Forecast & Support	Pos/BA	2,891	536,613	2,930	537,000	2,929	575,476
	FTE/OBL	2,873	536,613	2,899	537,000	2,898	575,476

NWS issues forecasts and warnings, provides seasonal outlooks, and communicates the effects of changing weather, sub-seasonal to seasonal climate trends, and water resources information to the American public and to the weather/water/climate enterprise. Weather and water impact every sector of the economy, and businesses rely on NOAA's information to improve commerce. Timely and accurate warnings for weather and water-related hazards – provided reliably and on time, every time – are necessary for public safety. NWS measures satisfaction with NOAA information and warning services through surveys of emergency managers, first responders, natural resource and water managers, public health professionals, industry, government, and the public. NWS then uses these results to inform service improvements.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

In FY 2022, the NWC continued its evolution from Initial Operating Capability toward Full Operating Capability as directed in the *Consolidated Appropriations Act, 2021* (P.L. 116-260). In FY 2023, the NWC will begin a transition from demonstrating to implementing a real-time flood inundation mapping capability for the continental U.S. NWC activities also include facilitating collaboration within the NWS, across NOAA, and among Federal water agencies to improve water resources situational awareness and decision support services. These collaborative activities include the NOAA Annual Spring Outlook, which helps communities prepare for the potential for flooding from mid-March through June. NWC maintains situational awareness before, during, and after all hydrologic events throughout the year, and leads the intra- and interagency coordination for significant national or multi-regional hydrologic events. Moreover, NWC works with NCEP Centers, Regional Operations Centers, RFCs, WFOs, and core Federal agency partners including U.S. Geological Survey (USGS), U.S. Army Corps of Engineers (USACE), and Federal Emergency Management Agency (FEMA) to maintain a common operating picture to ensure coordinated and actionable water resources decision support services that inform both routine, high value and event-driven, high impact decisions. NWC also implemented a first ever, centralized capability providing service backup and continuity of operations for NOAA's 13 RFCs.

Recognizing the gap in equitable water resources information, the NWS developed the concept of a continental domain, neighborhood-scale water resources model to deliver service equity for communities nationwide. NOAA's National Water Model (NWM), introduced in August 2016 as NOAA's first foray in leveraging High Performance Computing for hydrology, is a continental-scale water resources model that combines data from USGS stream gauges, reservoir release information from USACE and other reservoir operators, with outputs from NOAA's atmospheric weather models to significantly improve the spatial resolution and temporal frequency of streamflow and flood forecasts. The NWM simulates conditions for 3.4 million miles of rivers and streams nationwide every hour, expanding from the 110K miles forecast today by RFCs. The model also improves NOAA's ability to meet the needs of stakeholders by providing more frequent and expanded streamflow information, as well as new forecast capabilities for soil moisture, evapotranspiration, runoff, snow water equivalent and other water resources parameters on a high-resolution grid nationwide. The NWC leads the transition of state-of-the-science improvements to national hydrologic forecasting and decision support operations through strong collaboration with the public, private, and academic sectors.

Following previous upgrades to the NWM, which expanded the domain to include Hawaii, the Great Lakes, Puerto Rico and the U.S. Virgin Islands, NWS continues to upgrade the model to improve and expand hydrologic information and services to previously underserved communities. Planned upgrades and enhancements for the next version of the NWM, which is scheduled for release in FY 2023, include an expansion to the Cook Inlet and Copper River Basins in Alaska and the provision of comprehensive operational total water guidance for 120 million Americans living in coastal communities. These new total water forecasts in the coastal zone

account for the combined impacts of riverine freshwater, surge, tide, and wave action through a coupling of the NWM with coastal estuary models.

In May 2020, the NOAA component of the tri-agency USNIC was realigned NESDIS to NWS, into NCEP's Ocean Prediction Center (OPC), to enable NOAA to meet growing requirements for operational sea ice analysis and forecasting. Given USNIC's mission to produce global snow cover and sea ice products, this action aligns national and global scale operational weather analysis and prediction functions within NWS/NCEP. This realignment also leverages the organizational synergies within NCEP by combining USNIC's existing global sea ice analysis capability with hazardous marine weather forecasting at OPC and positions NWS to start planning implementation of a full spectrum of integrated analysis and prediction of polar maritime weather and ice, including improved sea ice predictions and hazards, and polar seasonal outlooks

In FY 2021, NWS met or exceeded 11 of its 16 field-based Government Performance and Results Act goals.

AFS maintains the following programs to accomplish this and other mission-critical activities:

Weather and Climate Services and Warnings provide real-time meteorological and subseasonal to seasonal climate products and services to emergency managers, public officials and the public, with an emphasis on reaching underserved/vulnerable communities. To achieve this requirement, NWS operates WFOs and other field offices within the continental United States, Alaska, Hawaii, U.S. territories and in locations within the Pacific Island Compact.

- WFOs issue warnings, watches, advisories, statements, and forecasts for their geographic area of responsibility at multiple time scales, from alerting for immediate threats, to subseasonal and seasonal reports. WFOs operate full time 24/7/365. WFO forecasts include aviation, fire weather, marine, severe and tropical weather and the prediction of winter storms. WFOs also issue warnings for tornadoes, blizzards, large hail, flash floods (including ice jams and dam failures) and projected tsunami impacts. WFOs control broadcasts of weather information on the NOAA Weather Radio All Hazards stations, provide weather spotter training to communities, and foster close ties with both the media and the emergency management community. Staff at WFOs have a close relationship with local, state, territorial and native American government officials and emergency managers and provide IDSS and outreach to support their decision making both remotely (including underserved communities) and at their operations centers during hazardous conditions.
- WSOs and Data Collection Offices are located within Alaska and Pacific Regions and provide a collection of expert hydro-meteorological data in support of local, regional, national, and global weather, hydrologic, climatic, and warning programs. WSOs support the mission of their associated WFO through public service, education, and outreach. They differ from WFOs

in that they do not issue forecasts or warnings, are responsible primarily for observations and data collection, and are not operated 24 hours a day.
- Through an interagency agreement with the FAA, NWS forecasters are embedded within all 21 Air Route Traffic Control Centers (called Center Weather Service Units or CWSUs) to provide direct decision support services to air traffic managers promoting aviation safety and supporting efficient airspace management.

National Centers provide specialized forecast guidance and products for NWS field offices and other direct users (such as the FAA's Air Traffic Control System Command Center, and FEMA) through the National Centers for Environmental Prediction (NCEP). Each National Center depends on data from the Observations Subactivity, model output from the supercomputers in Central Processing, dissemination infrastructure from the Dissemination Subactivity, and innovations from the Science and Technology Integration Subactivity to provide expert analysis and prediction services to the local WFO and RFC infrastructure and other core partners. The National Centers provide an integrated suite of numerical weather and environmental forecast guidance, at scales ranging from local to global, at various time frames. National Centers also issue watches and warnings that include tornado watches, hurricane watches and warnings, gale, storm, and hurricane-force wind warnings for large oceanic storms, aviation weather warnings and advisories for hazards to aircraft, space weather alerts, and seasonal predictions for El Niño and La Niña events. NWS Forecasters and the weather enterprise use this information and the suite of weather model output as the basis for consistent forecast products, advisories and warnings. The AFS Subactivity supports seven NCEP National Centers:

- **Aviation Weather Center (AWC)** delivers consistent, timely and accurate weather information to support safe air navigation for the world airspace system. AWC provides aviation warnings and forecasts of hazardous flight conditions (including volcanic ash), at all levels within domestic and international airspace, and has an embedded group of forecasters at the FAA's Air Traffic Control System Command Center.

- **Climate Prediction Center (CPC)** delivers real-time products and information on timescales from weeks two-to-four to sub-seasonal and seasonal, integrating observed weather with longer-term climate variability. This includes predictions for the onset and duration of El Niño and La Niña events, which can have a significant impact on the nation's weather from the potential extremes of flood, drought, excessive heat or cold, and severe weather. Application of CPC services provides social and economic benefits to agriculture, energy, transportation, water resources, and public health. CPC works with scientific partners around the world to understand and predict modes of natural global climate variability.

- **National Hurricane Center (NHC)** issues watches, warnings, forecasts and analyses of hazardous tropical weather (e.g.,

tropical storms and hurricanes including storm surge), and offshore and high seas marine forecasts for a large part of the southwest North Atlantic (south of 30 degrees North), Caribbean Sea, Gulf of Mexico and the eastern North Pacific (east of 140 degrees West). NHC also leads a substantial education and outreach program on tropical hazards both domestically and internationally.

- **Ocean Prediction Center (OPC)** issues marine warnings, forecasts, and guidance for maritime users and continually monitors and analyzes maritime data for protection of life and property, safety at sea, and enhancement of economic opportunity. OPC issues gale, storm and hurricane-force wind warnings for the Atlantic and Pacific Oceans, north of 30 Degrees North. As part of OPC, NOAA's component of the interagency USNIC produces global snow cover and operational sea ice prediction products.

- **Space Weather Prediction Center (SWPC)** provides real-time monitoring and forecasting of solar and geophysical events and disturbances such as geomagnetic storms and solar flares. SWPC researchers and partners develop advanced models to improve understanding of the space weather environment and predict future events. Model improvements enable better prediction of these events and their potential impact on Earth. Impacts could include disruptions to satellite communications, impacts to the terrestrial electric grid and communication outages to cross polar airline flights. SWPC supports the Space Weather Operations, Research and Mitigation national space weather strategy and serves as an International Civil Aviation Organization Space Weather Center.

- **Storm Prediction Center (SPC)** provides forecasts and watches for tornadoes, severe thunderstorms, large hail, lightning, wildfire potential, and heavy precipitation for the United States.

- **Weather Prediction Center (WPC)** is responsible for preparing a variety of analyses, national guidance products, and reliable national forecasts through a collaborative forecast process that ensures consistency and accuracy. The WPC specializes in providing national temperature and quantitative precipitation forecasts and predictions of the impacts of winter storms.

Hydrologic Services and Warnings provides hydrologic data, analysis, forecast information, and decision support services through the NWC, RFCs, and WFOs to address the Nation's growing water resources challenges.

- RFCs provide short range (deterministic) and long range (probabilistic) river level and streamflow forecasts, flash flood guidance, and water supply forecasts. RFCs deliver a set of water resource-related decision support services for regional,

state, and local NWS core partners that facilitate decision making associated with water supply planning and events ranging from flash floods to drought. A wide range of users depend on these forecasts including those in emergency management, agriculture, hydroelectric dam operation, transportation, recreation, and water resources management. The forecast information is the basis for river and flash flood warnings, watches, and advisories issued by the WFOs. NWS operates 13 RFCs.

- NWS operates 122 WFOs. WFOs assess and monitor the threat of flash and river flooding 24 hours a day 7 days a week to provide timely and accurate life-saving forecasts, warnings and decision support services. In addition, WFOs work with dam operators and the emergency management community to provide timely warnings for floods that result from infrastructure failure such as dam break and levee breaches. Moreover, WFOs routinely conduct local outreach and education to heighten public and partner awareness of flood risks and NWS hydrologic services.
- The NWC acts as a catalyst for interagency activities as they relate to the transformation of NOAA's water prediction capabilities and decision support services. Moreover, it serves as an operational forecasting center, which includes a FEMA Liaison Officer. To that end, NWC maintains situational awareness before, during, and after all hydrologic events, from floods to drought, and leads the agency/interagency coordination for significant national or multi-regional hydrologic events. The goal is to establish an integrated and common operating picture for water resources. Moreover, the NWC is focused on developing and improving new national water prediction capabilities such as the National Water Model and Flood Inundation Mapping, which simulates conditions for 3.4 million miles of rivers and streams nationwide every hour. A second new transformational hydrologic forecasting capability is the Hydrologic Ensemble Forecasting Service (HEFS), which produces reliable and skillful ensemble streamflow forecasts at lead times ranging from one hour to one year. HEFS is particularly useful for long-range water resource planning and risk-based water resources decision-making.

NOAA's Tsunami Warning Program provides reliable, 24/7 monitoring of seismic events that could generate a tsunami that could impact the Atlantic or Pacific coastlines. In the event of a tsunami, the program generates timely and precise warnings, predictions of wave impact times and heights, and operational tools for emergency managers and public officials to guide rapid, critical decisions in which lives and property are at stake. The program uses DART® moorings from the observations program as critical input and verification of tsunami forecasts.

Tsunami forecast modeling research seeks to develop faster and more reliable tsunami forecasts. Inundation modeling assists communities with their efforts to assess risk and mitigate potential impacts.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Tsunami hazard mitigation grants have enabled partner states to support coastal communities with life-saving products and services such as coastal inundation maps, evacuation plans and maps, preparedness training and mitigation workshops, evacuation drills, warning infrastructure (e.g., sirens), and tsunami evacuation signs.

The program coordinates with a variety of national and international partners and is supported by the Pacific Tsunami Warning Center in Hawaii and the National Tsunami Warning Center in Alaska. Ongoing work in the Tsunami Warning Program includes

- performing innovative research to speed earthquake detection and improve the reliability of predictions of tsunami track, speed, height, onset times and potential coastal impact;
- issuing tsunami watches and warnings for all U.S. communities at risk and for international areas by agreement or compact; and
- increasing community preparedness and public tsunami education through the TsunamiReady™ program and outreach.

Pacific Island Compact is part of the U.S. Compact of Free Association with the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau in which the U.S. government provides basic government and commerce services including weather services to these island nations. The Compact provides the necessary funding to support the NWS WSOs and associated weather warning, forecast, and observation services for these islands. This continued investment preserves critical weather observation infrastructure and services necessary to support core NOAA mission responsibilities in the Pacific such as aviation, typhoon, and marine forecasts; climate monitoring; and support to U.S. Navy operations.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Analyze, Forecast and Support	Pos./BA	2,929	575,476	2,968	584,176	39	8,700
	FTE/OBL	2,898	575,476	2,927	584,176	29	8,700

Staffing to Enhance Equitable NWS Decision Support Services (+$8,700, 29 FTE/ 39 Positions) – This request addresses critical staffing needs within NWS field offices and national centers to meet increasing demand for impact-based decision support services (IDSS) from communities faced with an increasing pace of extreme weather, water and climate events.

Ninety-eight percent of all presidentially declared disasters are related to weather and lead to approximately 500 deaths per year and nearly $15 billion in damage. The nation is facing an increasing and urgent demand for new and expanded weather, water, and climate products and services, such as IDSS, across all sectors of government. Although NWS has significantly advanced technology, operations, service delivery, and core partner relationships over the past 10 years, the demand continues to outpace current NWS capabilities.

With an infusion of strategically located additional staff and associated support, this initiative will increase the capacity to deliver life-saving decision support services and work to meet the needs of historically underserved and socio-economically vulnerable communities.

With this funding NWS will provide additional staffing support within the Analyze, Forecast and Support (AFS) portfolio which will increase NWS' capacity to serve all communities with world-class IDSS, and to provide the resources for training and travel to directly meet with decision makers with the goal of saving lives and livelihoods. Specifically, AFS requests $8.7 million broken into the following categories:

- $8.0 million to provide additional staffing support at Weather Forecasting Offices (WFOs) and NCEP Centers (30 positions at WFOs & nine positions at NCEP Centers), along with associated recruitment expenses, such as permanent change of station. NWS will hire General and Lead Forecasters at WFOs and NCEP Centers. These positions will allow NWS to better

address increasing IDSS demands, meet requests to embed forecasters at local emergency operations centers, and continue to move WFO positions to required green staffing levels.

- $0.7 million to support both the training of NWS operational staff to improve outreach and risk communications across all communities, and resources for staff to travel directly to communities, with emphasis on reaching underserved and vulnerable populations.

Schedule and Milestones:
FY 2023 - FY 2027

- Rapidly hire external recruits into introductory forecaster positions
- Ensure efficient career progression necessary to open entry-level forecaster positions
- Develop and execute on outreach and risk communications training
- Ensure proficiency of new and existing staff

Deliverables:
FY 2023 - FY 2027

- Use of group vacancy announcements supporting hiring as rapidly as the process will permit
- New outreach and risk communications training courses

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Average Annual Percentage of WFOs with full complement of forecast staff as compared to total WFOs					
With Increase	40%	50%	60%	60%	60%
Without Increase	40%	40%	40%	40%	40%
Outyear Costs:					
Direct Obligations	8,700	8,700	8,700	8,700	8,700
Capitalized	0	0	0	0	0
Uncapitalized	8,700	8,700	8,700	8,700	8,700
Budget Authority	8,700	8,700	8,700	8,700	8,700
Outlays	6,960	6,960	6,960	6,960	6,960
FTE	29	29	29	29	29
Positions	39	39	39	39	39

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Analyze, Forecast and Support
Subactivity: Analyze, Forecast and Support
Program Change: Staffing to Enhance Equitable NWS Decision Support Services

Title	Grade	Number	Annual Salary	Total Salaries
WFO General Forecaster	12	20	98,827	1,976,540
WFO Lead Forecaster	13	10	117,516	1,175,160
NCEP Lead Forecaster	14	4	138,866	555,464
NCEP Forecaster	13	5	117,516	587,580
Total		39		4,294,744
Less Lapse	25.00%	(10)		(1,073,686)
Total full-time permanent (FTE)		29		3,221,058
2023 Pay Adjustment (4.6%)				148,168
				3,369,226

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time Permanent	29
Total FTE	29
Authorized Positions:	
Full-time Permanent	39
Total Positions	39

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Analyze, Forecast and Support
Subactivity: Analyze, Forecast and Support

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	296,408	299,064	308,068	311,437	3,369
11.3	Other than full-time permanent	701	711	732	732	0
11.5	Other personnel compensation	26,461	26,684	27,488	27,488	0
11.7	NOAA Corps	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	323,570	326,459	336,288	339,657	3,369
12	Civilian personnel benefits	121,901	136,575	138,555	139,945	1,390
13	Benefits for former personnel	225	252	256	256	0
21	Travel and transportation of persons	672	459	987	2,527	1,540
22	Transportation of things	2,740	1,056	2,267	3,968	1,701
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	12,920	13,785	14,017	14,017	0
23.2	Rental Payments to others	3,691	3,821	3,956	3,956	0
23.3	Communications, utilities and misc charges	10,961	11,442	11,818	11,818	0
24	Printing and reproduction	41	16	34	34	0
25.1	Advisory and assistance services	13,841	12,993	21,819	21,819	0
25.2	Other services from non-Federal sources	26,629	21,894	34,261	34,961	700
25.3	Other goods and services from Federal sources	3,191	2,741	3,329	3,329	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	5,649	4,026	5,407	5,407	0
31	Equipment	2,383	1,095	2,045	2,045	0
32	Lands and structures	26	10	22	22	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	8,168	373	410	410	0
42	Insurance claims and indemnities	1	0	1	1	0
43	Interest and dividends	4	3	4	4	0
44	Refunds	0	0	0	0	0
99	Total obligations	536,613	537,000	575,476	584,176	8,700

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Dissemination
Subactivity: Dissemination

Goal Statement

The ability to communicate warnings and forecasts to the American public is essential to protecting property and saving lives. To be effective, NWS requires a scalable, robust, secure, 24 hours a day, 7 days a week operational dissemination infrastructure, an optimized network that meets capacity requirements, and a sophisticated suite of communications systems to meet varied customer needs in a timely, reliable and authoritative manner in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts.

Base Program

The NWS transmits forecasts and warnings through the infrastructure provided by the Dissemination Activity. Dissemination maintains communication technology required by NWS to collect, tailor, and distribute data and products. The resilient Integrated Dissemination Program (IDP) is an on-premise private cloud located in Boulder, CO, and College Park, MD. The IDP collects and distributes watches, warnings, advisories, data, and products internally and externally. It provides information to multiple users in a variety of formats including satellite broadcast and terrestrial (Earth-based) networks, internet, radio, and partner briefing webinars. Current major systems included in IDP are the NWS Geostationary Weather Satellite Antenna System, NWS web and GIS services, NOAA Weather Radio (NWR), the Emergency Managers Weather Information Network (EMWIN), and the extensive OneNWS Network, connecting NWS sites to each other and to NWS partners. The IDP infrastructure is the mission-critical communications hub that delivers information to different dissemination networks, such as to NWS offices, over the OneNWS Network, to the public with wireless emergency alerts through FEMA Integrated Public Alert and Warning System (IPAWS), and to emergency managers via EMWIN.

Building on the successes in the last few years of implementing robust geographically-diverse dissemination systems and upgrading the network infrastructure, including the increased bandwidth that will be implemented in FY 2022, NWS will operationally maintain and operate the existing IDP application services including the legacy NWSChat application, and the Common Alerting Protocol (CAP) Handler application. Implemented in FY 2021, the CAP Handler application, in partnership with FEMA IPAWS, enables NWS to amplify non-weather emergency messages from First Responders and the Emergency Management community for broadcast

over appropriate NWR transmitters. Implemented on IDP in FY 2022, legacy NWSChat is an Instant Messaging program utilized by NWS operational personnel to exchange in real-time with media and emergency response community, critical warning decision expertise and other types of significant weather information essential to the NWS's mission of saving lives and property. Furthermore, NWS will maintain an IDP system availability rate of 97 percent providing 24x7 support to maintain existing infrastructure and dissemination services with application failover between IDP data centers in 15 minutes or fewer. In FY 2022, the NWS also demonstrated the use of the NOAA public cloud utility contract to provide GIS-based web services.

In FY 2023, NWS will continue to maintain an NWR system availability rate of 96 percent and have a maximum transit time for warning messages of one second or less for system latency at 1,030 locations.

To ensure a WRN and optimize the delivery of scalable and agile dissemination capabilities, the NWS organized the Dissemination Subactivity around infrastructure, networks, web services and other warning-delivery services.

In general, activities in the Dissemination portfolio will:

- Operate NWS' information technology (IT) dissemination infrastructure and services;
- Identify NWS' dissemination requirements and gaps;
- Analyze NWS' system capabilities;
- Maintain and support a scalable and geographically diverse redundant NWS dissemination architecture (IDP) consistent with, and part of, the NOAA enterprise architecture;
- Maintain a strategy to maximize effectiveness while minimizing cost; and
- Maintain and operate NWS' dissemination system capabilities including IDP and NWS networks at 97 percent operational availability.
- Create and sustain a support model for applications running in the public cloud.

Statement of Operating Objectives

Schedule and Milestones:

FY 2023 – FY 2027

- Maintain NWR service at 96 percent availability
- Maintain IDP services and NWS Global Information System Centers services at 97 percent reliability
- Maintain existing Enterprise Geospatial and Web Services to accommodate data providers and users and increase data

throughput via the on-premise private cloud infrastructure (IDP) and through NOAA public cloud services
- Execute approved and resourced Roadmap for future Weather Distribution Services to support a WRN
- Operate and maintain OneNWS Network bandwidth/reliability
- Manage IDP system usage, reliability, and resources
- Operate and maintain IDP applications
- Operate and maintain water-related products and services
- Maintain operational support and maintenance of IDP on-premise private cloud infrastructure in College Park, MD, and Boulder, CO
- Maintain operational support and maintenance of NWS Geostationary Weather Satellite Antenna System
- Maintain operational support and maintenance of a backup NWS network through a Very-Small-Aperture Terminal (VSAT) antenna system at each NWS Weather Forecast Office (WFO)
- Maintain and support NWS networks under the GSA Enterprise Infrastructure Solutions (EIS) contract as we begin to transition to the new contract

Deliverables:
- Maximum transit time for warning messages of less than 15 seconds
- NWR service availability at 96 percent
- Overall IDP system availability at 97 percent
- Integrated enhanced weather data and web services operationally supported on resilient IDP system 8 hours a day/five days or 24 hours a day/seven days a week support (varies by service) of Operational Terrestrial and Satellite Networking Services
- Eight hours a day/five days a week support of NWS GIS and Web Services via a NOAA Public Cloud service

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Dissemination	Pos/BA	80	79,767	80	78,362	80	83,258
	FTE/OBL	77	79,767	77	78,362	77	83,258

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

NWS operates and maintains critical infrastructure that enables NOAA to provide services to the Nation. NWS manages a distributed network of offices that span the United States and its territories, delivering essential NOAA services, especially those related to high-impact events at the local level where critical, life-saving decisions are made. NWS manages all major weather observing systems from software engineering and communications to facilities and logistics planning. NWS also ensures worldwide acquisition and delivery of weather and water data through its private-cloud IDP systems, web and GIS services, public cloud services, and the OneNWS Network.

Dissemination maintains the following programs to accomplish this activity:

Dissemination IT Infrastructure and Virtualized Application Services within the IDP provides a scalable, robust, and secure dissemination IT infrastructure in two geographically diverse locations for NWS, NOAA, and federal partners.

- Weather and environmental disturbances can disrupt virtually every major public infrastructure system including transportation systems, power grids, telecommunications, and emergency response systems that protect the public. Facing these interruptions, users could be cut off from government services. Minutes (sometimes seconds) count in saving lives, and it is critical that the NWS dissemination systems perform reliably so that it can quickly provide critical information.
- The IDP infrastructure is the Nation's hub for collecting and distributing weather data and products. Applications within the IDP systems automatically collect and distribute a wide variety of environmental data such as observations, analysis, and forecast products to WFOs, National Centers, NWS web-services, broadcasters, the commercial meteorological community, and major international partners. These time-perishable data products are distributed to ensure the fastest availability of the fully-integrated information within IDP in College Park, MD, and Boulder, CO.
- NWS IDP applications and services provide users with flexible access to observational weather data, hazardous weather information, and other weather forecast products required for air traffic management. NOAA provides data discovery services, data format translation, and dissemination services to improve the accuracy and availability of weather information.

Terrestrial and Satellite Networking Services ensures NWS has the networking capacity and reliability to deliver critical weather data for internal and external partners. NWS operates and maintains critical terrestrial and satellite networking capabilities. With its updated IT infrastructure, NWS ensures adequate processing, delivery, and exploitation of new environmental satellite, model, and radar data. These terrestrial and satellite operational networks enable NWS to use new data to improve the accuracy and timeliness of weather warnings and forecasts.

- NWS manages the OneNWS Network, a distributed network of terrestrial telecommunication circuits, satellite communications space segments, wireless, and broadband capabilities that span the Nation, including the Pacific and

Alaskan regions, delivering essential NOAA data.

- NWS manages the backup satellite network services, Very Small Aperture Terminals (VSAT) implemented at CONUS (and in late FY 2022 OCONUS) WFOs and the Tsunami Warning Center.
- NWS National Centers, Pacific Region, and Alaska Region Offices require full resolution and aerial coverage of satellite imagery and products to achieve their missions. NWS provides the operational support and maintenance for the GOES-16, GOES-17, and Himawari-8 Re-Broadcast Antennas at the National Hurricane Center, Inouye Research Center, WFO Guam, WFO Anchorage, Aviation Weather Center, Storm Prediction Center, Space Weather Prediction Center, and NOAA Center for Weather and Climate Prediction.
- In FY 2023, NWS will continue to sustain and operate the infrastructure to meet the NWS mission.
- In FY 2023, NWS will continue to transition network services from GSA's Networx contract to the Enterprise Infrastructure Solutions contract. GSA expects this transition to be complete in FY 2023; however, it will depend on resource availability for both network engineering expertise and circuit transition costs.

Weather Information Distribution Services provides the capabilities to communicate weather-related warnings directly to emergency managers and the American public. These services include providing NWS data and product access for international partners via the World Meteorological Organization Information Systems and the robust NWS Global Information System Centers. NWS operates several weather warning services systems:

- NOAA Weather Radio (NWR) is a national warning network consisting of 1,030 transmitter stations with a broadcast coverage that reaches more than 96 percent of the Nation's population. It provides critical weather and other hazard information to the U.S. public and media outlets. NWR is the only NWS dissemination system capable of reaching individuals at nominal cost (individual purchase of NOAA weather radio) in both rural and urban locations, as well as across the coastal marine waters to serve the boating community.
- The Emergency Manager Weather Information Network (EMWIN) provides the emergency management community with direct access to a set of NWS warnings, watches, forecasts, and other products via either satellite broadcast or an internet connection.
- NOAA Weather Wire Service (NWWS) is a satellite data collection and dissemination system that provides NWS partners, Federal, state, local emergency managers, and the public with timely delivery of meteorological, hydrological, climatological, and geophysical information. The vast majority of NWWS products are weather and hydrologic forecasts and warnings issued around the clock from NWS Forecast Offices. NWWS is one method used to activate the Emergency Alert System.
- HazCollect/Common Alerting Protocol (CAP) Handler application amplifies non-weather emergency messages out through

NWS delivery channels. These non-weather emergency messages, such as Civil Emergencies, from authorized local, state, and Federal partners are delivered to NWS IDP by FEMA's IPAWS.

- Web and Geographic Information System (GIS) services enable the access and delivery of NOAA and NWS data and products to forecasters, NOAA users, Federal partners (FAA, FEMA), the Weather Enterprise, the international community, and the public.
- In FY 2019, NWS initiated the exploration of public cloud use to expand the capabilities of IDP, considering it for applications that do not perform primary mission-essential functions. In FY 2020, the NWS demonstrated the use of the development environment of one of its largest applications currently operational on IDP, thereby conserving space on the IDP private cloud for the operational environment. In early FY 2021, NWS successfully transitioned the Damage Assessment Toolkit to the NOAA Amazon Web Service public cloud environment via NOAA's Cloud Utility Contract vehicle. The Damage Assessment Toolkit (DAT) application fits the NWS selection criteria to run in a public cloud framework since the information it provides does not require high availability or low latency, but is used by the NWS after severe weather. In FY 2019, NWS successfully reached initial operating capability of the Enterprise National GIS Viewer and Flood Inundation Mapping in a public cloud environment. In FY 2022, NWS plans to reach full operating capability, and in FY 2023 NWS will support and enhance these services.

Without the continued support for Dissemination IT Infrastructure and Virtualized Application Services, Terrestrial and Satellite Networking Services, and the Weather Information Distribution System provided for in Dissemination ORF, NWS cannot continue to support the operations of the network and communication infrastructure. This includes the OneNWS Network, the on-premise private cloud (IDP) infrastructure and applications, the off-premise public cloud infrastructure and applications, and NOAA Weather Radio, all of which are required to distribute forecasts, warnings, and other products to customers, partners, and the American public.

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PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Dissemination	Pos./BA	80	83,258	80	108,258	0	25,000
	FTE/OBL	77	83,258	77	108,258	0	25,000

Optimize and Upgrade the Integrated Dissemination Program (+$25,000, 0 FTE/ 0 Positions) – NWS requests an increase to optimize and upgrade the National Dissemination Program on-premise IT infrastructure and applications, and to build the public cloud framework, by focusing on activities within Phases 3 and 4 of the Integrated Dissemination Program (IDP) plan.[2] These activities will provide the public and core partners with timely critical warnings, watches, and forecasts that protect lives and property.

Full implementation of the IDP plan will allow NWS to implement a long-term NWSChat solution in the public cloud, update the NOAA Weather-Wire Service application, and weather.gov site, as well as implement them on the most optimal operationally-supported infrastructure, fully staff the application upgrade support team, and transition applications that will benefit from the scalability of the public cloud to that platform, as well as provide strengthened IT security. It also provides necessary support to reinstate 24x7 hardware support and a refresh to mitigate system outages, provides for IDP hardware upgrades and software maintenance, and supports the sustainment of weather model data dissemination and existing GIS services being hosted in the public cloud using Infrastructure-as-a-service.

Phase 3 of the IDP plan includes achieving increased performance of IDP applications by fully optimizing the on-premise cloud infrastructure, and most significantly the migration of the fifteen remaining dissemination applications which reside on legacy system environments that cannot reliably support them. NWS will implement these applications over the next five years to either the reliable 24x7 supported private cloud IDP system environment or an off-premise public cloud framework aligned with the OMB “Cloud Smart” strategy. Without these periodic enhancements and upgrades, the applications will compromise the ability of the NWS to fulfill its mission.

[2] http://www.weather.gov/media/wrn/NOAA-NWS-ODIS-Future-Needs-of-IDP.pdf

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PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

Phase 4 of the IDP plan entails establishing a Technical Cloud Migration Team to transition non-mission essential applications, such as GIS-based services, off the IDP to the public cloud via the NOAA Unisys Cloud Utility and Big Data Project contracts, as well as the applications that enable the delivery and visualization of NOAA Numerical Weather Prediction model data. NWS will transition the demonstration of NOAA's Big Data Project public cloud environment for model data to full operating capability either via Public Cloud or Content Delivery Network Provider by applying lessons learned from the demonstration. NWS will transition the demonstration of NOAA's Big Data Project public cloud environment for model data to full operating capability either via Public Cloud or Content Delivery Network Provider by applying lessons learned from the demonstration. NWS will also proceed with a commercial-off-the-shelf (COTS) solution to replace the legacy NWSChat and host it on the public cloud. This migration will allow NWS to maximize the space on IDP to upgrade existing IDP mission-critical applications and redesign and deploy an improved NWS weather.gov website, as well as NOAA Weather-Wire Service (NWWS). Utilizing cloud services to host NWS applications at times of dramatically increased usages during weather events allows for greater ease of resource scalability to meet peak demand that on-premise solutions cannot do as quickly. This flexibility helps meet customer needs and keeps costs lower than on-premise solutions.

Without these updates, the outdated legacy versions of these applications will compromise the ability of the NWS to reliably and quickly deliver critical observations, model guidance, forecasts, and watch and warning information to NWS meteorologists, the public, the Weather Enterprise, and emergency management partners. To ensure the IDP systems perform to meet customer demand, NWS also requires additional system administrators, software developers, and on-boarding specialists to transition, test, and implement the applications to run on IDP, as well as system and network engineers to support the infrastructure and applications on a 24x7 basis.

Schedule and Milestones:
FY 2023 - FY 2026

- Provide IDP hardware and software maintenance to support NWS dissemination systems
- Increase the IDP network capacity in College Park, MD, and Boulder, CO, to improve the availability and access of mission-critical forecast products, watches, warnings, and observations
- Establish contractual services for the required level of support of the existing IDP applications
- Initiate the optimization of the operational performance of NWSChat, and NWWS
- Enable the maintenance and enhancements of IDP applications
- Complete the optimization and sustaining operational capability of NWSChat and NWWS on either a NWS supported private cloud or public cloud environment
- Initiate upgrades to weather.gov

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(Direct Obligations amounts in thousands)

FY 2024 - FY 2027

- Continue to operate and maintain NWS mission-critical delivery systems and applications on the IDP infrastructure
- Maintain and enhance IDP applications

Deliverables:

- Increased availability of Primary Mission Essential Functions on IDP to 99%
- Increased IT Security within both the re-engineered applications and the underlying technical architecture
- Enable routine, timely access to IDP delivery services
- Transition application development environments to a public cloud, as appropriate and as resourced
- Achieve a 24x7 fully resourced support model for operational applications on the IDP private cloud systems, including NWWS
- Achieve 24x7 support of a fully optimized long-term NWSChat solution hosted in the public cloud

Performance Measures	2023	2024	2025	2026	2027
Number of IDP upgrades/enhancements to existing IDP applications					
With Increase	3	6	10	14	15
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	25,000	25,000	25,000	25,000	25,000
Capitalized	23,750	23,750	23,750	23,750	23,750
Uncapitalized	1,250	1,250	1,250	1,250	1,250
Budget Authority	25,000	25,000	25,000	25,000	25,000
Outlays	15,500	15,500	15,500	15,500	15,500
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Dissemination
Subactivity: Dissemination

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	9,966	10,639	10,994	10,994	0
11.3	Other than full-time permanent	9	11	11	11	0
11.5	Other personnel compensation	398	423	438	438	0
11.7	NOAA Corps	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	10,373	11,073	11,443	11,443	0
12	Civilian personnel benefits	3,598	4,243	4,321	4,321	0
13	Benefits for former personnel	3	4	4	4	0
21	Travel and transportation of persons	105	70	81	81	0
22	Transportation of things	60	42	48	48	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,935	3,967	4,008	4,008	0
23.2	Rental Payments to others	4,807	4,976	5,151	5,151	0
23.3	Communications, utilities and misc charges	24,045	25,001	26,073	26,773	700
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	3,472	3,739	3,956	3,956	0
25.2	Other services from non-Federal sources	25,228	19,838	22,446	42,996	20,550
25.3	Other goods and services from Federal sources	755	1,189	1,196	3,196	2,000
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	2,947	3,085	3,266	5,016	1,750
31	Equipment	838	655	731	731	0
32	Lands and structures	1	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	598	478	532	532	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	2	2	2	2	0
44	Refunds	0	0	0	0	0
99	Total obligations	79,767	78,362	83,258	108,258	25,000

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PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Dissemination	Pos./BA	80	83,258	80	94,658	0	11,400
	FTE/OBL	77	83,258	77	94,658	0	11,400

Enterprise Infrastructure Solutions (EIS) (+$11,400, 0 FTE/ 0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract. The total NWS request for this initiative is $12.6 million, which includes $11.4 million in Dissemination ORF, $0.75 million in Observations ORF [NWS-15], and $0.47 million in Observations PAC [NWS-66].

Specifically, this request focuses on EIS for NOAA Weather Radio (NWR), surface observing (ASOS) and radar (NEXRAD) circuits. NWS is required to transition all circuits provisioned by the Dissemination and Observation portfolios to facilitate these communications, necessitating the purchase of new hardware. There will be costs for trenching and laying these new lines, procurement, and implementation of network hubs to allow communications on NWS networks between the legacy vendors and the new vendor circuits during the transition period. NWS also requires support services to facilitate the architecture and installations throughout the transition. NWS anticipates it will take up to 5 years to transition all circuits to the new contract.

If NWS does not move to quickly transition to EIS before the expiration of the Networx contract, there are two risks:

1) Circuits will be disconnected by the vendor placing mission operations at risk
2) The incumbent Networx vendor will move the circuit to a month-to-month commercial circuit, which could double or triple the cost, depending on the location and technology. These levels are not affordable within the program.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and

establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

'Schedules and Milestones', 'Deliverables', and 'Performance Measures' reflect the outcomes resulting from all three NWS program increases given the non-severability of these initiatives.

Schedule and Milestones:

FY 2023

- Establish contractual services for the required level of support to plan and engineer the transition
- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NWS's current and planned needs
- Begin transition of NWS Legacy GSA inventory to EIS
- Transition 86 ASOS SLEP sites
- Procure 500 NWR IP circuits
- Transition 237 NWR sites
- Transition 10 One NWSNet sites
- Establish two hubs for legacy and new circuits to communicate
- Transition 53 NEXRAD landlines

FY 2024

- Transition 53 NEXRAD landlines
- Transition four NEXRAD VSATs
- Transition 10 NEXRAD 4G sites
- Transition 300 ASOS SLEP sites
- Procure 400 NWR IP circuits
- Transition 237 NWR sites
- Transition 60 One NWSNet sites
- Establish 10 hubs for legacy and new circuits to communicate
- Maintain and support transitioned NWR lines and circuits

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PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

FY 2025
- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs
- Transition 50 NEXRAD 4G sites
- Transition 199 ASOS SLEP sites
- Transition 237 NWR circuits
- Transition 60 NWSNet sites
- Maintain 12 hubs for legacy and new circuits to communicate
- Maintain and support transitioned NWR lines and circuits

FY 2026
- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs
- Transition 50 NEXRAD 4G sites
- Transition 100 ASOS SLEP sites
- Transition 237 NWR circuits
- Transition 60 NWSNet sites
- Decrease hubs to five for legacy and new circuits to communicate
- Maintain and support transitioned NWR lines and circuits

FY 2027
- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs
- Transition 50 NEXRAD 4G sites
- Transition 60 NWSNet sites
- Maintain five hubs for legacy and new circuits to communicate
- Maintain and support all NWR lines and circuits

Deliverables:
- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

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(Direct Obligations amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Percentage of circuits transitioned to the new EIS contract					
With Increase	15%	40%	65%	90%	100%
Without Increase	0%	10%	20%	30%	40%
Outyear Costs:					
Direct Obligations	11,400	11,400	11,400	11,400	11,400
Capitalized	4,700	4,700	4,700	4,700	4,700
Uncapitalized	6,700	6,700	6,700	6,700	6,700
Budget Authority	11,400	11,400	11,400	11,400	11,400
Outlays	7,068	7,068	7,068	7,068	7,068
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Dissemination
Subactivity: Dissemination

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
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11.3	Other than full-time permanent	9	11	11	11	0
11.5	Other personnel compensation	398	423	438	438	0
11.7	NOAA Corps	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	10,373	11,073	11,443	11,443	0
12	Civilian personnel benefits	3,598	4,243	4,321	4,321	0
13	Benefits for former personnel	3	4	4	4	0
21	Travel and transportation of persons	105	70	81	81	0
22	Transportation of things	60	42	48	48	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,935	3,967	4,008	4,008	0
23.2	Rental Payments to others	4,807	4,976	5,151	5,151	0
23.3	Communications, utilities and misc charges	24,045	25,001	26,073	32,773	6,700
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	3,472	3,739	3,956	3,956	0
25.2	Other services from non-Federal sources	25,228	19,838	22,446	23,446	1,000
25.3	Other goods and services from Federal sources	755	1,189	1,196	1,196	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	2,947	3,085	3,266	6,966	3,700
31	Equipment	838	655	731	731	0
32	Lands and structures	1	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	598	478	532	532	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	2	2	2	2	0
44	Refunds	0	0	0	0	0
99	Total obligations	79,767	78,362	83,258	94,658	11,400

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Science and Technology Integration
Subactivity: Science and Technology Integration

Goal Statement

NWS improves the overall quality of the environmental information needed to safeguard life and livelihoods by integrating new science and technology into its operations. Funding in NWS' STI activity leverages the entire weather enterprise including users, research communities, partner agencies, and industry, to provide improved weather forecast guidance for the Nation in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts.

Base Program

STI engages partners in outreach efforts, supporting targeted research and development efforts, improving a suite of forecast guidance models and post-processing, continuously training the workforce on scientific advances, and infusing new science into operations. Transition of new research into operations (R2O) is a fundamental activity of this portfolio. NWS identifies and transfers new science concepts and techniques to improved operational warning, forecast, and decision support services, thus enabling the NWS vision to build a Weather-Ready Nation through improved products and services.

In 2022, NWS implemented the Hybrid Single Particle Lagrangian Integrated Trajectory (HYSPLIT) v8 Model, implemented the Great Lakes Wave Unstructured (GLWU) v1.4 system, transitioned all Environmental Modeling Center operational systems from the Weather and Climate Operational Supercomputing System 1 (WCOSS) to WCOSS2, completed development of the Coastal Wind and Water Event Database and Named Storm Event Model, completed Real-time Hurricane Analysis and Forecast System (HAFS) experiments designed for NOAA Research and Development High Performance Computer System and WCOSS machines with additional capabilities of moving nests, Hybrid EnVar data assimilation and with multiple configurations. In 2023, NWS will implement the Real-Time Ocean Forecast System (RTOFS) v3, HAFSv1, Global Ocean Data Assimilation System (GODAS) v3, Rapid Refresh Forecast System v1, and the Nearshore Wave Prediction System v1.4 (NWPS).

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 - FY 2027
- Conduct testing, demonstration, and validation of new science and service capabilities through testbeds and proving grounds
- Implement regional, global, hurricane, and air quality model upgrades routinely
- Improve weather model and post-processing guidance
- Update product suite based on customer requirements
- Demonstrate high-resolution large watershed modeling with nested hyper-resolution modeling over three regional areas
- Annual upgrade of National Blend of Models

FY 2023
- Replace the High-Resolution Rapid Refresh with the new regional short-range forecast system: Rapid Refresh Forecast System (RRFS) v1
- Implement Version 4.0 of the National Water Model (NWM v4)
- Implement new Hurricane Analysis and Forecast System (HAFS v1)
- Implement update to global RTOFS v3
- Implement update to NWPS v1.4
- Implement update to GODAS v3
- Production of 30 year higher resolution, ensemble-based coupled reanalysis and reforecast.
- Implement National Blend of Models version 4.1

FY 2024
- Implement unified Global Coupled Ensemble Forecast System version 13/Global Forecast System version 17
- Implement update to Hurricane Analysis and Forecast System (HAFS v2)
- Development of SFS v1 prototype
- Public release of MRW/S2S (global coupled) application
- Develop the UFS Coastal Modeling Strategy
- Demonstrate operational probability-based forecasts of high impact weather for extended ranges (weeks 3 and 4)
- Implement update to 3 Dimensional Real Time Mesoscale Analysis (3DRTMA)/Unrestricted Mesoscale Analysis (URMA) v3
- Implement update to the HYSPLIT v9 air quality model

FY 2025

- Implement decision support tools for week 3-4 precipitation forecasts targeted toward water resource managers
- Implement operational high resolution large watershed modeling with nested hyper-resolution capability in at least five regional areas
- Implement update to HAFS v3
- Implement update to RRFS v2
- Implement update to Whole Atmosphere Model (WAM) v2 for space weather forecasts
- Implement update to 3DRTMA/URMA v4
- Implement National Blend of Models version 4.2

FY 2026

- Implement RRFS v3
- Implement Global Ensemble Forecast System v14/Global Forecast System v18
- Implement update to Hurricane Analysis and Forecast System (HAFS v4)
- Prototype unification of regional and hurricane regional systems
- Implement update to 3DRTMA/URMA v5

FY 2027

- Implement new Seasonal Forecast System version 1, as an extension of the GEFS v14/GFS v18 system
- Implement update to Hurricane Analysis and Forecast System (HAFS v5)
- Implement RRFS v4
- Implement update to 3DRTMA/URMA v6

Deliverables:

- Upgrades to global operational atmospheric prediction system
- Annual upgrades to operational NOAA Hurricane Forecast System
- Annual enhancement and release of UFS modeling infrastructure (ESMF, CCPP, and METplus)
- Upgrades to the operational regional forecast systems
- Probabilistic hydrologic forecasts for assessing river level and flood risks
- Continuous improvements to NOAA's suite of operational forecast models
- Regular release of operational forecast systems to the community through the Unified Forecast System
- New and improved modeling techniques, evaluated by the Developmental Testing Center, and delivered to NWS, for incorporation in the Operational Modeling Suite
- Increased horizontal and vertical resolution of atmosphere, ocean, sea ice, waves, land, within bounds of computational

capability
- Upgrades to operational Data Assimilation System, toward JEDI-based coupled Data Assimilation system
- Annual upgrades to the NOAA Environmental Modeling System infrastructure
- Upgraded ocean, atmosphere, sea ice, land surface, aerosol, wave component models
- Agile HPC environment with quicker operational transition of research and development efforts
- Upgraded operational storm surge warning service products (e.g., inundation maps)
- Upgraded probabilistic storm surge guidance
- Operational weekly, monthly and seasonal sea ice outlook guidance products for Arctic Ocean
- Forecaster applications (tools, methodologies, datasets) of near real-time data products from research ocean remote sensing satellites
- New NWS experimental products focused on extreme events
- Global operational coupled atmosphere-ocean-land-wave-sea ice prediction system extending today's operational weather outlooks from 16 days out to one year
- Improved forecasts provided to the Nation's critical infrastructure to ensure lives and property are protected from the effects of space weather
- Evaluation of NWS testing/demonstration plans and results
- Improved public access to Federal water information
- Upgraded ozone and particulate prediction system

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Science and Technology Integration	Pos/BA	433	140,900	433	155,524	433	164,279
	FTE/OBL	426	140,900	421	155,524	421	164,279

In support of NOAA's operational forecasting mission, NWS researches and develops, improves, and monitors data assimilation systems and models of the atmosphere and oceans using advanced methods developed internally, as well as cooperatively with scientists from universities, NOAA laboratories, other government agencies, and the international scientific community.

STI maintains the following programs to accomplish this activity:

Weather-Ready Nation (WRN) is a nationwide initiative to build community resilience in the face of increasing vulnerability to extreme weather, water, and climate events. WRN empowers emergency managers, first responders, government officials, businesses, and the public to make faster, smarter decisions to save lives and protect livelihoods. Key actions that enable implementation of the WRN roadmap include the following:

- Develop, transition, and improve advanced forecast tools, techniques, service products, and next generation warning and forecast paradigms to enhance NWS' national, regional and local warning, forecast, and guidance services.
- Incorporate and integrate social science into the forecasting process to develop more effective decision support capabilities, improving the effectiveness of warnings and forecasts, and to better convey forecast risk and uncertainty.
- Develop high-resolution probabilistic weather information consistent across space and time to support safe air traffic operations.
- Extend warning and forecast lead times for tornado, hurricane, storm surge, fire weather, and winter storms with increased certainty and confidence. Develop/improve models, tools, and data sets to forecast and monitor real-time climate variations.
- Improve space weather warnings and forecasts for geomagnetic and radiation storms and ionospheric disturbances to protect the reliability and resilience of the Nation's electric power system, satellite navigation, and telecommunication infrastructure, and support aviation and space flight safety.

Operational Environmental Prediction Modeling Suite is the foundation for all warning, forecast, and decision support services. The Environmental Modeling Center (EMC) develops, enhances, and maintains complex software of numerical weather, ocean, climate, sea ice, and coastal prediction models and data assimilation systems that span the globe. These forecast systems underpin all NOAA forecast capabilities. The operational modeling suite provides the basic numerical guidance that NWS forecasters rely on in making forecasts, warnings, and decision support service products.

- EMC collaborates with partners at universities and research laboratories to integrate advancements of environmental prediction modeling research and development into NWS operational models.
- EMC also collaborates with partners within NOAA and with other Federal agencies to conduct studies to validate observing requirements and data impacts for existing and new observing platforms and technologies such as satellites and radar.

Improving Effectiveness of Warning and Forecasts aims to accelerate the transition of advanced modeling research into operations. This program is focused on improving warning and forecast lead times and accuracy of severe weather events associated with hurricanes, tornadoes, flash floods, and other severe weather hazards. Major efforts include:

- Improving the accuracy and reliability of hurricane track and intensity forecasts, through the Hurricane Forecast Improvement Project (HFIP), as required by the *Weather Research and Forecasting Innovation Act of 2017* (P.L. 115-25), to reduce unnecessary evacuations. This effort also focuses on advanced data assimilation and improved global atmospheric and ocean models, which underpin forecast systems for all severe weather.
- Providing the Next Generation Global Prediction System (NGGPS) to the research community, including necessary infrastructure to facilitate engagement and improvements from community collaborators. NGGPS forms the backbone of NOAA's future operational numerical weather prediction capability meeting the public's evolving needs for more accurate, more specific, and longer lead time weather forecasts. NGGPS provides significant advancements for warning and forecast skill across multiple service areas.
- Developing and evaluating national air quality forecast models to provide national pollutant forecast information for states, local communities, commercial sectors, the U.S. Environmental Protection Agency, and the U.S. Department of State.
- Extending forecast of extreme and high impact weather to four weeks through the development of improved outlooks and transitioning into modeling operations of advancements in prediction science coming from the scientific research community. Extending foundational forecasts of subseasonal and seasonal temperature and precipitation is a key requirement of the *Weather Research and Forecasting Innovation Act of 2017*.
- Unifying NOAA's operational model suite based on FV3 atmospheric Dynamic Core, with coupling to the MOM6 ocean model.

Hydrology and Water Resource Programs leverage NOAA partnerships in the areas of atmosphere, watersheds, estuaries and oceans to improve and integrate water resource prediction modeling capabilities. NWS' Hydrology Laboratory conducts studies, investigations and analyses, leading to the application of new scientific and computer technologies to hydrologic forecasting and related water resources problems.

- NWS transitions research in atmosphere, watershed, estuary and ocean modeling, and data assimilation science and technology into operational hydrologic and water resource forecast capabilities in order to provide integrated decision support tools that offer a seamless suite of summit-to-sea forecasts.
- Through partnerships, especially the IWRSS Consortium, NWS is developing a new suite of high-resolution forecasts of streamflow, soil moisture, soil temperature and other variables directly related to watershed conditions to enable monitoring and forecasting of hydrologic conditions from floods to droughts.

Training Infrastructure is critical to preparing the current and future workforce for WRN. Effective training leads to better integration of new models, transition of science and technology into operations, and improved service to the Nation. The NWS workforce must

remain agile and flexible to meet core partner needs. NWS uses a blended learning approach including online courses, webinars, and residence training. Implementation of these training initiatives requires new and enhanced methods and technologies for training delivery, such as simulations and on-demand training, integrated into applications and other systems. As a part of this effort:

- NWS identifies and addresses local training needs, facilitates professional development, and addresses individual strengths and weaknesses of the local forecast staff.
- NWS ensures local operations and management teams are fully proficient and knowledgeable in protocols, tools, forecast and warning operations for delivery of effective IDSS.

Improve Operational Forecast Products and Services through a continuous infusion of science and technology. This is critical for improving services and ensuring the current and future workforce is prepared to meet the requirements of a WRN. These actions include:

- Centrally manage national and regional implementation of research to operations transitions at the local level including applications that improve model guidance;
- Maintain local science and training expertise through the Science and Operations Officers and the Development and Operations Hydrologists to lead coordinated improvements of operations through adopting new science and technology by the forecasting staff, and addressing local forecast and warning issues;
- Maintain close connections with the research community to enable, and accelerate, research to operations, including sponsoring the Collaborative Science and Technology Applied Research program, supporting testbeds, and supporting visiting scientists programs, a priority of the *Weather Research and Forecasting Innovation Act of 2017* (P.L. 115- 25), to improve NWS services;
- Enhance testbeds and operational proving grounds; and,
- Provide operational platforms for the broad research and development community across NOAA, academia, core partners, and the weather enterprise to conduct demonstration, simulation, verification, and validation of new science and service capabilities.

Without continued support for WRN, the Operational Environmental Prediction Modeling Suite, Hydrology and Water Resource Programs and this training infrastructure, provided for in STI ORF, NWS cannot continue to support research and research-to-operations activities that advance weather and climate prediction and improve NWS products and information in the future.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM DECREASE FOR 2023
(Direct Obligations amounts in thousands)

		2023 Base		2023 Estimate		Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Science Technology Integration	Pos./BA	433	164,279	433	159,279	0	(5,000)
	FTE/OBL	421	164,279	421	159,279	0	(5,000)

Suspend COASTAL Act Implementation (-$5,000, 0 FTE/ 0 Positions) – This program change will suspend implementation of the NOAA Consumer Option for an Alternative System To Allocate Losses (COASTAL) Act of 2012 in order to better align NOAA's timeline with the Federal Emergency Management Agency (FEMA).

The purpose of the COASTAL Act is to lower costs to FEMA's National Flood Insurance Program (NFIP) by better discerning wind versus water damage in the case of "indeterminate losses;" that is, where little tangible evidence beyond a building's foundation ("slab") remains for the proper adjustment of insurance claims for homes totally destroyed by a tropical cyclone.

Presently, NWS' development of the Named Storm Event Model (NSEM) and Coastal Wind and Water Event Database (CWWED) is 92% completed. The final steps for implementation of the NOAA COASTAL Act are for NOAA to transition the CWWED and NSEM to the operational supercomputer and deploy observational sensors to facilitate the generation of post-storm assessments that determine the strength and timing of damaging winds and water using pre-defined triggers for tropical cyclones. To operationalize the COASTAL Act, FEMA must also complete and implement a new COASTAL Act formula for initiating generation of post-storm assessments. Without FEMA's participation, final steps for implementation cannot be completed.

This program change will suspend developmental efforts necessary for building NSEM and CWWED, as well as execution and maintenance requirements. The NOAA COASTAL Act contract team will be disbanded. NOAA will not be able to work with interagency partners, such as the Interagency Council for Advancing Meteorological Services, USGS, NIST, and academic partners to coordinate and maintain the National Plan For Disaster Impact Assessment due to lack of resources. Once COASTAL Act implementation is re-initiated, NWS will need time and investment to re-establish contract support.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Science and Technology Integration
Subactivity: Science and Technology Integration

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	55,335	57,304	59,340	59,340	0
11.3	Other than full-time permanent	52	55	56	56	0
11.5	Other personnel compensation	1,918	1,983	2,055	2,055	0
11.7	NOAA Corps	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	57,305	59,342	61,451	61,451	0
12	Civilian personnel benefits	21,940	25,220	25,723	25,723	0
13	Benefits for former personnel	19	22	22	22	0
21	Travel and transportation of persons	38	33	37	37	0
22	Transportation of things	204	180	200	200	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,773	6,368	6,491	6,491	0
23.2	Rental Payments to others	76	79	81	81	0
23.3	Communications, utilities and misc charges	888	975	999	999	0
24	Printing and reproduction	36	31	35	35	0
25.1	Advisory and assistance services	22,817	20,784	22,860	21,546	(1,314)
25.2	Other services from non-Federal sources	10,692	10,954	11,655	11,655	0
25.3	Other goods and services from Federal sources	3,212	3,148	3,386	3,386	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	1,767	2,024	2,067	2,067	0
31	Equipment	812	757	825	825	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	15,319	25,605	28,445	24,759	(3,686)
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	2	2	2	2	0
44	Refunds	0	0	0	0	0
99	Total obligations	140,900	155,524	164,279	159,279	(5,000)

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Systems Acquisition
Subactivity: Observations

Goal Statement

The Procurement, Acquisition, and Construction (PAC) Observations Programs, Projects, and Activities (Subactivity) supports the life-cycle of all NWS observing system investments by providing technical solutions to meet NWS' operational observational requirements. With PAC funding, NOAA improves current observational capabilities, provides large-scale recapitalization of significant observational systems, and engineers technical solutions for systems to meet evolving requirements and demands in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts.

Base Program

Observations is responsible for the collection of space, atmosphere, water, and climate observational data owned or leveraged by NWS. Observations is also responsible for the development, acquisition and management of cost-effective observing technologies, hardware and software enhancements, maintenance and repairs, logistics, cost management, technical data verification, and life-cycle replacements of NWS observational platforms.

Specifically, with the PAC appropriation, the funds in the PAC Observations Subactivity are used to:

- Extend the service life of the Nation's weather radar network;
- Extend the service life of the Nation's primary surface weather observing network supporting aviation operations, and the needs of the meteorological, hydrological, and climatological research communities, and
- Implement Enterprise Infrastructure Solutions (EIS).

Statement of Operating Objectives

Schedule and Milestones
FY 2023 – FY 2027
Next Generation Weather Radar (NEXRAD) Service Life Extension Program (SLEP)

- Complete pedestal refurbishments

- Complete replacement of engine/generator systems

Automated Surface Observing System (ASOS) SLEP

- Complete production and installation of Acquisition Control Unit (ACU) and Data Collection Package (DCP) upgrades
- Complete telecommunications architecture upgrades

EIS

- Establish a sustainable, resilient architecture to meet NWS's current and planned needs

Deliverables:

NEXRAD SLEP

- Refurbish pedestals with expected service life beyond 2035
- Replace engine/generator systems with expected service life beyond 2035

ASOS SLEP

- Total refreshment of ACU-DCU with expected service life to at least 2040
- Increase data flow and remote maintenance capabilities

EIS

- Modernized telecommunications infrastructure capable of meeting the agency's mission via EIS implementation

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Observations	Pos/BA	0	21,682	0	15,700	0	15,700
	FTE/OBL	2	21,682	0	15,700	0	15,700

PAC Observations objectives are achieved through the following programs:

Next Generation Weather Radar (NEXRAD) SLEP is an effort to sustain the aging NEXRAD infrastructure that underpins severe weather forecast and warning services for high-impact events critical for a WRN. NEXRAD is a tri-agency program with the U.S. Department of Defense and the U.S. Department of Transportation (DOT). Though the system is nearing end of life, the Federal government is 20 years away from full deployment of the next generation of weather radar design. Therefore, NWS is undertaking a

technology refresh effort to sustain NEXRAD fleet availability until the current network is replaced.

Automated Surface Observing System (ASOS) SLEP is a cost-effective approach to maintaining the aging ASOS infrastructure that provides critical aviation weather parameters at airports supporting the air transportation industry and provides high-quality meteorological data supporting NWS's forecast and warning mission. The original capital investment for this system was $227 million and was initiated in the mid-1980s. In addition to extending its longevity, the ASOS SLEP enhances overall system capabilities by enabling high speed/high-resolution data transmissions; provides greater safety to aviation operations by increasing reliability of the system, as well as a stable platform for more consistent and accurate data; and allows for remote and cost-effective maintenance, logistics, and training. ASOS is an inter-agency effort supporting meteorological observational requirements of NOAA, DoD, and DOT.

In FY 2022, NWS made progress in NEXRAD SLEP projects toward achieving performance goals and extending the system's service life beyond 2035. In FY 2023, NWS will continue its NEXRAD SLEP, completing engine/generator, and continuing pedestal refurbishments, to extend overall service life, and reduce the average time between failures. NWS will also continue the ASOS SLEP with production and installation of the upgraded ACU and Data Collection Package DCP, in partnership with and including reimbursable funding from tri-agency partners, the FAA, and the DoD.

Without continued support for the NEXRAD and ASOS SLEP projects, provided for in Observations PAC, NWS cannot continue to support necessary enhancements and life-cycle replacements of these systems that collect and process observations necessary to provide weather warnings, forecasts, and outlooks.

Enterprise Infrastructure Solutions (EIS) will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023, though options for an extension to May 2024 is possible. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

Specifically, this request focuses on EIS for surface observing (ASOS) and radar (NEXRAD/SPG/NPN) circuits. NWS is required to transition all circuits provisioned by the Dissemination and Observation portfolios to facilitate these communications, necessitating the purchase of new hardware. There will be costs for trenching and laying these new lines, procurement, and implementation of network hubs to allow communications on NWS networks between the legacy vendors and the new vendor circuits during the transition period. NWS also requires support services to facilitate the architecture and installations throughout the transition. NWS

anticipates it will take up to five years to transition all circuits to the new contract.

Outyear Funding Estimates*

Observations	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	470	7,439	6,924	(7,627)	(15,700)	N/A	N/A
Total Request	147,007	16,170	23,609	23,094	8,543	470	N/A	218,893

*Outyears are estimates. Future requests will be determined through the annual budget process.

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Observations	Pos./BA	0	15,700	0	16,170	0	470
	FTE/OBL	0	15,700	0	16,170	0	470

Enterprise Infrastructure Solutions (EIS) (+$470, 0 FTE/ 0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract. The total NWS request for this initiative is $12.6 million, which includes $11.4 million in Dissemination ORF [NWS-48], $0.75 million in Observations ORF [NWS-15], and $0.47 million in Observations PAC.

Specifically, this request focuses on EIS for surface observing (ASOS) and radar (NEXRAD/SPG/NPN) circuits. NWS is required to transition all circuits provisioned by the Dissemination and Observation portfolios to facilitate these communications, necessitating the purchase of new hardware. There will be costs for trenching and laying these new lines, procurement, and implementation of network hubs to allow communications on NWS networks between the legacy vendors and the new vendor circuits during the transition period. NWS also requires support services to facilitate the architecture and installations throughout the transition. NWS anticipates it will take up to 5 years to transition all circuits to the new contract.

If NWS does not move to quickly transition to EIS before the expiration of the Networx contract, there are two risks:

1) Circuits will be disconnected by the vendor placing mission operations at risk
2) The incumbent Networx vendor will move the circuit to a month-to-month commercial circuit, which could double or triple the cost, depending on the location and technology. These levels are not affordable within the program.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and

establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

'Schedules and Milestones', 'Deliverables', and 'Performance Measures' reflect the outcomes resulting from all three NWS program increases given the non-severability of these initiatives.

Schedule and Milestones:

FY 2023

- Establish contractual services for the required level of support to plan and engineer the transition
- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NWS's current and planned needs
- Begin transition of NWS Legacy GSA inventory to EIS
- Transition 86 ASOS SLEP sites
- Transition 53 NEXRAD landlines

FY 2024

- Transition 53 NEXRAD landlines
- Transition four NEXRAD VSATs
- Transition 10 NEXRAD 4G sites
- Transition 300 ASOS SLEP sites

FY 2025

- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs
- Transition 50 NEXRAD 4G sites
- Transition 199 ASOS SLEP sites

FY 2026

- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

- Transition 50 NEXRAD 4G sites
- Transition 100 ASOS SLEP sites

FY 2027

- Transition 53 NEXRAD landlines
- Transition 12 NEXRAD VSATs
- Transition 50 NEXRAD 4G sites

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Percentage of total radar circuits transitioned to the new EIS contract					
With Increase	15%	40%	65%	90%	100%
Without Increase	0%	10%	20%	30%	40%
Outyear Costs:					
Direct Obligations	470	1,215	1,109	849	583
Capitalized	0	0	0	0	0
Uncapitalized	470	470	470	470	470
Budget Authority	470	1,215	1,109	849	583
Outlays	165	425	388	297	204
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

Outyear Funding Estimates:

EIS	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	470	1,139	624	113	0	N/A	N/A
Total Request	N/A	470	1,609	1,094	583	470	N/A	4,226

*Outyears are estimates. Future requests will be determined through the annual budget process.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Observations
Subactivity: Observations

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.7	NOAA Corps	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	33	7	7	7	0
22	Transportation of things	11	3	3	3	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	408	505	505	505	0
23.2	Rental Payments to others	17	4	4	4	0
23.3	Communications, utilities and misc charges	46	526	526	996	470
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	3,967	3,284	3,284	3,284	0
25.2	Other services from non-Federal sources	9,792	3,064	3,064	3,064	0
25.3	Other goods and services from Federal sources	189	227	227	227	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	6,489	3,865	3,865	3,865	0
31	Equipment	226	4,079	4,079	4,079	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	504	136	136	136	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	21,682	15,700	15,700	16,170	470

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(Direct Obligations amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Observations	Pos./BA	0	15,700	0	23,740	0	8,040
	FTE/OBL	0	15,700	0	23,740	0	8,040

Automated Surface Observing System Service Life Extension Program (+$8,040, 0 FTE/ 0 Positions) – NWS requires an increase in funding to modernize and sustain the ongoing Automated Surface Observing System (ASOS) Service Life Extension Program (SLEP) to accelerate the weather sensor improvements necessary for more accurate and robust products and services, including better fire weather and climate services, that advance our life and property saving impact-based decision support services (IDSS).

The current ASOS SLEP does not include the required resources to update the system's increasingly obsolete weather sensors. The increasing frequency of weather extremes in the United States, particularly heat waves and their resultant droughts and wildfires, highlights the critical need to improve the quality, fidelity, and reliability of the instrumentation on our surface weather observing systems. Upgrading the system with modern weather sensors (temperature, relative humidity, all-weather precipitation, current weather elements (rain, snow, etc.), visibility, ceilometers, sunshine, barometric pressure, and winds), along with the processor and communications upgrades, will enable the NWS to collect and disseminate more essential, frequent, and high-quality observations.

This further modernization of ASOS, with new sensors, will ensure valuable high-quality data and information are available to improve situational awareness of near-term weather events, severe weather forecasts, long-term climate records and services, support to fire weather monitoring and operations, and the full suite of decision support services to emergency managers. In addition to extending its longevity, the ASOS SLEP enhances overall system capabilities by enabling high speed/high-resolution data transmissions; provides greater safety to aviation operations by increasing reliability of the system, as well as a stable platform for more consistent and accurate data; and allows for remote and cost-effective maintenance, logistics, and training.

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(Direct Obligations amounts in thousands)

ASOS is a tri-agency program with NWS, the Federal Aviation Administration (FAA), and the Department of Defense (DoD), and is the Nation's primary surface weather observing network supporting aviation operations as well as the needs of the meteorological, hydrological, and climatological operations and research communities. The NWS owns 308 out of 963 ASOS sites globally; the remaining ASOS sites are property of the FAA and DoD.

Schedule and Milestones:
FY 2023
- Establish 10 Year Blanket Purchase Agreement for Meteorological Sensors and Equipment that enables state of the art sensor technology refresh for ASOS.
- Procure Temperature Sensors
- Procure ASOS SLEP Wind Sensor upgrades
- Initiate the transition of ASOS SLEP Acquisition Control Unit/Data Collection Platform (ACU/DCP)

FY 2024
- Complete the transition of ASOS SLEP Acquisition Control Unit/Data Collection Platform (ACU/DCP)
- Complete the transition of ASOS SLEP Temperature Sensor upgrades
- Completed the transition of ASOS SLEP Wind Sensor upgrades
- Procure Present Weather, visibility and Ceilometer Sensors

FY 2025
- Complete the transition of ASOS SLEP Visibility and Weather Sensor upgrades
- Procure ASOS SLEP Precipitation Accumulation sensors

FY 2026
- Complete the transition of ASOS SLEP Precipitation Accumulation Sensor upgrades
- Complete the transition of ASOS SLEP Ceilometer sensor upgrades
- Procure ASOS SLEP Barometer and Pyranometer sensors

FY 2027
- Complete all ASOS SLEP Barometer and Pyranometer sensor upgrades
- ProcureASOS SLEP Operator Interface Devices
- Procure ASOS SLEP Very High Frequency (VHF) Radios

Deliverables:
- Modernize telecommunications infrastructure capable of meeting the agency’s mission

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(Direct Obligations amounts in thousands)

- Provide a secure and resilient infrastructure resistant to extreme weather impacts
- Provide reliable and accurate weather sensing infrastructure for safety of National Air Space Operations and climate recording
- Increase accessible and reliable weather sensing for rural, underserved communities

Performance Measures	2023	2024	2025	2026	2027
ASOS Data Availability (96%)					
With Increase	96%	96%	96%	96%	96%
Without Increase	96%	90%	86%	82%	78%

Outyear Funding Estimates:

ASOS SLEP	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	8,040	14,500	14,500	460	(7,500)	N/A	N/A
Total Request	50,000	15,540	22,000	22,000	7,960	0	N/A	117,500

*Outyears are estimates. Future requests will be determined through the annual budget process.

Department of Commerce
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Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Observations
Subactivity: Observations

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.7	NOAA Corps	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	33	7	7	47	40
22	Transportation of things	11	3	3	293	290
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	408	505	505	505	0
23.2	Rental Payments to others	17	4	4	4	0
23.3	Communications, utilities and misc charges	46	526	526	1,116	590
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	3,967	3,284	3,284	3,284	0
25.2	Other services from non-Federal sources	9,792	3,064	3,064	3,864	800
25.3	Other goods and services from Federal sources	189	227	227	401	174
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	6,489	3,865	3,865	3,965	100
31	Equipment	226	4,079	4,079	10,125	6,046
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	504	136	136	136	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	21,682	15,700	15,700	23,740	8,040

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(Direct Obligations amounts in thousands)

		2023 Base		2023 Estimate		Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Observations	Pos./BA	0	15,700	0	7,660	0	(8,040)
	FTE/OBL	0	15,700	0	7,660	0	(8,040)

Reduce Service Life Extension Program for Next Generation Weather Radar (-$8,040, 0 FTE/ 0 Positions) – This program change reflects a planned decrease for the Service Life Extension Program (SLEP) to the Next Generation Weather Radar (NEXRAD) infrastructure. This reflects the award of major contracts on the pedestal and shelter refurbishments, and generator replacement projects, now in deployment.

NEXRAD SLEP is a multi-year effort that began in FY 2015 and is on target to be completed in FY 2024. NEXRAD underpins severe weather forecast and warning services for high-impact events critical for a Weather-Ready Nation (WRN). The current NEXRAD system was fielded in the mid-1990s with an original design life of 20 years. The SLEP extends the useful life of the NEXRAD array by approximately 15 years. Refurbishing the existing system is a cost-effective approach to preserving this $3.1 billion capital investment. Continued investment in the ongoing SLEP mitigates high operational risk by extending the useful life of the radars.

Schedule and Milestones:
FY 2023 – FY 2024
- Complete pedestal refurbishments
- Complete refurbishment of engine/generator systems

Deliverables:
- New signal processor replacing obsolete hardware; implementation of new signal processor software replacing obsolete antenna control cards
- Refurbished pedestals with expected service life beyond 2030
- Refurbished transmitters with expected service life beyond 2030
- Refurbished radar shelters

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PROGRAM INCREASE FOR 2023
(Direct Obligations amounts in thousands)

- New Generator Set replacing obsolete backup power systems with expected service life beyond 2030

Performance Measures	2023	2024	2025	2026	2027
NEXRAD Operational Availability					
With Decrease	96	96	96	96	96
Without Decrease	96	96	96	96	96

Outyear Funding Estimates:

NEXRAD SLEP	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	(8,040)	(8,200)	(8,200)	(8,200)	(8,200)	N/A	N/A
Total Request	97,007	160	0	0	0	0	N/A	97,167

*Outyears are estimates. Future requests will be determined through the annual budget process.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Observations
Subactivity: Observations

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.7	NOAA Corps	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	33	7	7	7	0
22	Transportation of things	11	3	3	3	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	408	505	505	505	0
23.2	Rental Payments to others	17	4	4	4	0
23.3	Communications, utilities and misc charges	46	526	526	526	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	3,967	3,284	3,284	284	(3,000)
25.2	Other services from non-Federal sources	9,792	3,064	3,064	0	(3,064)
25.3	Other goods and services from Federal sources	189	227	227	227	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	6,489	3,865	3,865	2,889	(976)
31	Equipment	226	4,079	4,079	3,079	(1,000)
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	504	136	136	136	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	21,682	15,700	15,700	7,660	(8,040)

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Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Systems Acquisition
Subactivity: Central Processing

Goal Statement

The PAC Central Processing Subactivity ensures the uninterrupted flow of information from the collection of observations, to central guidance production, to local applications of all essential weather and climate data products, and continuity of public watches and warnings in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts.

Base Program

Central Processing is responsible for program and budget planning for the Weather and Climate Operational Supercomputing System (WCOSS) and the Advanced Weather Interactive Processing System (AWIPS). Central Processing is also responsible for maintaining an optimum processing systems configuration and an enterprise architecture for processing systems to meet current and future NWS mission requirements, including the strategy for maximizing effectiveness while minimizing operating costs and coordination with the Office of Dissemination.

Statement of Operating Objectives

Schedule and Milestones:
FY 2023–2027

- Provide Operations and Maintenance support for WCOSS
- Provide Operations and Maintenance support for NOAA's R&D HPC System
- Phased implementation of new forecast tools and capabilities into AWIPS.

Deliverables:

- Operational WCOSS with full backup capability
- Production Suite On-Time Product Generation at 99 percent
- Sustained WCOSS capacity at 12.1 TFLOPS, in each of the primary and backup systems
- New forecast tools and capabilities for IDSS/WRN operations

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(Dollar amounts in thousands)

- Weather Event Simulator integration into AWIPS

Explanation and Justification

		Actual		Annualized CR		Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Central Processing	Pos/BA	26	91,917	26	68,000	26	68,000
	FTE/OBL	23	91,917	25	68,000	25	68,000

PAC Central Processing objectives are achieved through the following programs:

Weather and Climate Operational Supercomputing System (WCOSS) supports (a) weather and climate forecasting capabilities 24 hours per day/seven days a week, (b) numerical environmental prediction model development and testing, and (c) dissemination of operational products using a wide area network. These products include national and global weather, water, climate and space weather guidance, forecasts, warnings and analyses to a broad range of users and partners including other NOAA programs, government agencies, military, and the general public.

WCOSS is composed of primary and backup operational supercomputing systems, storage resources, wide area network, support services, and developmental research and development computing systems. The primary system runs the NCEP production suite. The backup is used to thoroughly test new weather and climate forecasting applications when it is not being used to run the production suite (during a backup system test or an actual emergency). The backup supercomputer system is capable of handling 100 percent of the operational workload should the primary supercomputer system be disrupted. In accordance with NOAA Critical Infrastructure Protection plans, implementation and maintenance of a redundant WCOSS architecture ensures uninterrupted flow of weather and climate data and products, such as storm watch and warning services to the public. WCOSS also provides NWS access to developmental computing systems through the NOAA-wide enterprise Research and Development High Performance Computing System.

Advanced Weather Interactive Processing System (AWIPS) is an information processing, display, and telecommunications system that is the cornerstone of NWS field operations. AWIPS provides the following services:

- Integrates and displays radar, satellite, and other meteorological and hydrological data at NWS field offices;
- Acquires and processes data from sensors and local sources;
- Provides computational and display functions at the forecaster's desk;
- Provides an interactive communications system to interconnect NWS operational sites;
- Initiates the dissemination of weather and flood warnings and forecasts in a rapid and highly reliable manner; and,
- Provides the communication interface for internal and external users of much of NOAA's real-time environmental data.

Sustained investments in the AWIPS hardware, communications, and software infrastructure, are necessary for integrating many other programs such as NEXRAD, and other weather radars, weather satellites, sensors, and instruments. NWS Government Performance and Results Act goals are based on the effective use of these technology investments along with advanced decision assistance tools, forecast preparation and advanced database capabilities. As the NWS continues to evolve toward an IDSS-based WRN, improvements to AWIPS technology will be needed to ensure NWS meteorologists and hydrologists have the necessary tools and technology. Continued AWIPS improvements produce increased performance in the Government Performance and Results Act goals of Tornado Warning Lead Time, Flash Flood Warning Lead Time, and Winter Storm Warning Lead Time.

In FY 2023, NWS will continue to develop new Advanced Weather Interactive Processing System (AWIPS-II) forecast capabilities and implement modeling advancements on its modernized Weather and Climate Operational Supercomputing System (WCOSS). Without continued support for WCOSS and for investments in AWIPS, provided for in Central Processing PAC, NWS cannot provide operational and developmental high performance computing (HPC) capacity, and forecast and process improvements within AWIPS.

Outyear Funding Estimates*

Central Processing	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	0	0	0	0	0	N/A	N/A
Total Request	N/A	68,000	68,000	68,000	68,000	68,000	N/A	Recurring

*Outyears are estimates. Future requests will be determined through the annual budget process.

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Systems Acquisition
Subactivity: Dissemination

Goal Statement

The advancement of the NOAA Weather Radio (NWR) Program is a life-saving mission critical component in the delivery of short-fused warnings and emergency messages for the American Public and near shore marine community. As commercial providers stop supporting copper lines, the NWS must migrate to current technologies. In FY 2023 NWS will transition 50 NWR transmitter circuits from legacy copper to a wireless solution to continue the delivery of time-sensitive warnings over NWR broadcasts.

The NOAA Integrated Dissemination Program (IDP) is a multi-year NWS response to organizational and technical dissemination challenges created through the years as individual efforts built stovepipes across the NWS enterprise. While IDP became operational in FY 2018, providing a reliable and scalable NWS on-premise private cloud (a dissemination infrastructure) to sustain 24 hours a day/seven days a week mission operations in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts, ongoing maintenance and support is necessary to keep both the hardware and software up to date and meeting current security requirements. In FY 2022 NWS began utilizing both the private on-premise cloud, and the public cloud to disseminate NWS information. In FY 2023 NWS will fully implement an approved Cloud Concept of Operations (CONOPS) and Governance Framework.

IDP reached full operating capability in FY 2018, but there remain 15 additional mission-essential applications running on legacy stovepipe systems and legacy web farms, with no additional capacity on IDP or resources to transition or sustain the applications and services. In FY 2019, the NWS began exploring the use of the public cloud for applications that do not perform primary mission-essential functions, looking to conserve space on IDP. Efforts to migrate capabilities to the public cloud began in FY 2020, and by FY 2022 the NWS continued to utilize the public cloud as the development environment for applications. In FY 2022, NWS will fully operationalize a Geographical Informational Services (GIS) Viewer (a way of visualizing data overlaid on a map) for implementation in the public cloud.

Base Program

To ensure a Weather-Ready Nation and optimize the delivery of scalable and agile dissemination capabilities, the PAC Dissemination Subactivity is organized around infrastructure, networks, web services, and warning dissemination services.

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(Dollar amounts in thousands)

Specific to the PAC appropriation, funding within the PAC Dissemination Subactivity:

- Procures NWS' IT dissemination infrastructure and services;
- Closes NWS' dissemination requirements and gaps;
- Enhances and maintains NWS' dissemination system and application capabilities; and
- Develops a strategy to maximize effectiveness while minimizing cost.

Statement of Operating Objectives

Schedule and Milestones

FY 2023 – FY 2027

- Provide processing and storage resources to support WRN
- Conduct modest enhancements of existing IDP applications and services
- Conduct annual phase of five-year refresh of Dissemination Infrastructure hardware
- Conduct enhancements of GIS and web services both on-premise private cloud and off-premise public cloud environments
- Replace legacy NWR copper circuits to wireless technologies
- Replace obsolete NWR transmitter site monitoring equipment

Deliverables

- Improved reliability of enterprise GIS capabilities on IDP and through Public Cloud Services
- Reliable infrastructure for NWS Dissemination services

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Dissemination	Pos/BA	0	10,157	0	9,934	0	9,934
	FTE/OBL	0	10,157	0	9,934	0	9,934

To achieve these goals, NWS manages the following programs:

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Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

NOAA Weather Radio
NOAA Weather Radio (NWR) provides the NWS with the capability to quickly disseminate severe and high impact weather warnings, watches and forecasts and non-weather emergency messages to the public. In FY 2022, NWS continued its slow transition of NWR legacy technology to Ethernet/Internet Protocol-based services within budgetary resources. Furthermore, in FY 2022, NWS has continued to strengthen its partnership with FEMA to look for efficiencies in delivering both weather and non-weather emergency messages via NWR and FEMA's Integrated Public Alert and Warning System. This partnership ensures that messages from both the Federal Communication Commission managed Emergency Activation System (EAS) and Wireless Emergency Alerts (WEA) are distributed appropriately.

Improve Dissemination Reliability Project
The improved dissemination reliability project mitigates risk to mission operations during severe weather events by enhancing capabilities to reduce single points of failure and increase website capacity.

Providing phased hardware refresh of the IDP architecture and modest enhancements to existing core applications on IDP ensures reliable delivery of NWS products to users and capitalizes on better observation data and prediction models to improve services.

In FY 2021 and FY 2022, NWS acquired backup satellite-based communication paths to NWS WFOs, in the continental United States (CONUS), Alaska and Hawaii, making the NWS network infrastructure more resilient and robust while also decreasing the risk of product delivery outages.

Specific activities, spanning multiple years, include:

- Reducing Enterprise Single Points of Failure: Acquiring robust and reliable networking capabilities by upgrading networking lines (such as aging copper lines) with fiber optics.
- Conducting enhancements and upgrades of existing IDP applications and services.
- Providing Robust Enterprise Web and GIS Services: Increasing web and GIS services for NWS WFOs at the primary and backup integrated dissemination sites to ensure the services align with growing requirements and increased use during severe weather events.
- Integrating IT Infrastructure Redesign and Upgrades: Enhance the delivery of web and GIS services, as well as the radar, model, and observational data necessary as new satellites with increased data collection become operational.
- Continuation of an effort to assess applications currently on IDP, as well as those identified for migration to IDP, to determine

if utilizing the public cloud as a host would meet the requirement of the application with reengineering efforts, create efficiencies, and be cost effective.

- Transition of non-primary mission - essential functions to public cloud delivery solutions based on budgetary resources.

Without the continued support for NWR and the Improve Dissemination Reliability Project, provided for in Dissemination PAC, NWS cannot continue to enhance the infrastructure of NWS dissemination systems and upgrade existing applications, including web and GIS services, to meet new satellite and model data requirements, as well as upgrades to select NOAA Weather Radio locations.

Outyear Funding Estimates*

Dissemination	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	0	0	0	0	0	N/A	N/A
Total Request	N/A	9,934	9,934	9,934	9,934	9,934	N/A	Recurring

*Outyears are estimates. Future requests will be determined through the annual budget process.

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: NWS Construction
Subactivity: Facilities Construction and Major Repairs

Goal Statement

The objective of the Construction activity is to construct and provide for major repairs and relocations to forecast offices and other government-owned and leased weather facilities in support of the Department of Commerce 2022-2026 Strategic Plan, Strategic Objective 3.1 Increase the impact of climate data and services for decisionmakers through enhanced service delivery and improved weather, water, and climate forecasts.

Base Program

To support its mission, the NWS operates and maintains 122 Weather Forecast Offices (WFO), 13 River Forecast Centers (RFC), 18 Weather Service Offices (WSO) and associated employee housing units, and nine National Centers. There are 86 owned and 36 leased WFOs and WFO/RFCs. To support these facilities, the Facilities Construction & Major Repairs Subactivity account is managed by NWS Headquarters Office of Facilities.

The objectives of the Facilities Construction & Major Repairs activity are to:

- Upgrade, improve, and relocate NOAA's NWS Facilities;
- Maintain operational readiness by addressing major component replacements, deferred maintenance and real property disposals; and
- Maintain compliance with Federal law and national and local building codes.

Statement of Operating Objectives

Schedule and Milestones
FY 2023 – FY 2027

- Design and build out tenant improvements for the relocation of up to seven operational sites
- Award contracts for highest priority repairs, replacements, and real property disposals

Deliverables

- Forced relocations addressed through new GSA leases

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- Completed tenant improvements, construction, and relocation of operations
- Conducted necessary actions for real property disposals with available resources
- Completed deferred maintenance and major component replacement projects with available resources

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
NWS Construction	Pos/BA	0	9,138	0	10,000	0	10,000
	FTE/OBL	1	9,138	0	10,000	0	10,000

NWS facilities have exceeded 25 years of age and now require extensive capital improvements to maintain operational readiness to support a Weather-Ready Nation. Immediate capital investments are required to address deficiencies in both leased and owned facilities including mission-critical infrastructure such as heating, ventilation, and air conditioning systems (HVAC), emergency power generators, roofs, flooring systems, and uninterruptible power supply systems. This effort is essential to ensure the safety of the workforce and continuity of uninterrupted warnings, watches, and forecasts for local communities and for our partner agencies, the FAA and DOD. NWS relies on Facilities PAC funding to cover the costs of tenant improvements and move costs associated with forced office relocations resulting from the competitive procurement of new GSA leases. The Facilities Portfolio must meet the evolving needs of the NWS mission to provide facilities that enable a fully integrated field structure capable of supporting impact-based decision support services (IDSS).

In FY 2023, NWS will complete the construction and relocation of WFO Topeka, KS. NWS will begin construction of the new WFO/RFC Slidell, New Orleans, LA location and complete relocation of the NEXRAD radar. NWS will complete major system replacements at WFOs Flagstaff, AZ and Glasgow, MT and complete the installation of a municipal water line to WFO Gray, ME. NWS is prepared to fund the remediation, demolition, disposal, and site restoration at WSOs St. Paul and McGrath Newer Housing Units in Alaska if they are not transferred or sold by GSA. NWS will continue to address the aging infrastructure of its Headquarters building and continue with implementing the data center infrastructure refresh project, a multi-year effort to address aging NWS IT architecture and equipment. NWS will continue to focus resources on lifecycle management of government owned assets to address deferred maintenance, requirements from NWS regions, real property disposal projects and backlogs, data center consolidation, and improved space utilization in the National Capital Region.

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In FY 2024, NWS will complete ongoing forced relocations, address deferred maintenance, field requirements, real property disposals, and NWS HQ infrastructure repairs as part of lifecycle management.

NWS cannot continue to support upgrades and improvements to NOAA's NWS facilities or to improve safety, functionality, and relocations with partners without continued support for construction and major repairs provided for in NWS Facilities Construction and Major Repairs PAC.

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Executive Summary

For FY 2023, NOAA requests a total of $2,282,932,000 and 808 FTE/ 887 positions for the National Environmental Satellite, Data, and Information Service (NESDIS), including a net increase of $758,765,000 and 44 FTE/ 62 positions in program changes.

NESDIS (http://www.nesdis.noaa.gov/) provides secure and timely access to global environmental data from satellites and other sources to enhance the Nation's economy, security, environment, and quality of life. NESDIS works in close coordination with its NOAA Line Office partners to help satisfy NOAA's climate and environmental mission service requirements. Information derived from the data that NESDIS collects supports investments and resource utilization in the economy, including: agriculture, transportation, fisheries, energy, construction, emergency management, hazard mitigation, and other sectors. Billions of dollars in damage are incurred each year due to natural disasters and extreme climate and weather events such as wildfires, heatwaves, tornadoes, hurricanes, floods, and drought. In 2021, there were 20 weather, water, and climate disaster events with losses exceeding $1 billion each across the United States, directly resulting in 688 deaths and damages totaling more than $145.0 billion.[1] Additionally, 2021 was the seventh consecutive year (2015-2021) in which 10 or more billion-dollar weather and climate disaster events impacted the United States. Though the large events make headlines, this year there were also hundreds of smaller events with an economic impact below $1 billion. National climate assessments warn that the fast-altering climate will amplify the number and severity of annual billion-dollar disasters in the future. Decision makers, including businesses, communities, and governments, rely on NESDIS data and information to help them reduce the losses incurred by these destructive events, making it imperative to ensure the continuity of these satellite systems and the data they provide.

NESDIS manages the Nation's civil operational environmental satellites. These satellites are essential to the agency's integrated observing system, which is the foundation of the environmental intelligence that the agency provides. NESDIS maintains primary constellations of environmental satellites in the polar and geostationary orbits and in deep space at Lagrange point 1, directly along the sun-earth line. NESDIS satellite-based observations assist with disaster mitigation through the monitoring of severe weather, sea level rise, precipitation, fire and smoke, volcanic eruptions, dust storms, and other air quality issues. Along with managing NOAA's satellites in real time, NESDIS leverages Federal, partner, and commercial data sources to develop and distribute products and information from NOAA. NESDIS-developed products and information underpin weather and other environmental forecasts, contributing to saving lives and property, and providing essential information to sustain and generate economic activity.

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[1] Credit National Centers for Environmental Information (NCEI): http://www.ncdc.noaa.gov/billions/

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NOAA satellite observations, along with partner and commercial observations, provide uninterrupted global coverage critical for generating short-term and long-term weather forecasts. By integrating these observations with NESDIS's extensive environmental data archives at the National Centers for Environmental Information (NCEI), NESDIS provides valuable information and analyses of long-term monitoring and understanding of planetary environmental change. The preservation and continuous validation of long-term environmental data records support decision making, seasonal forecasting, climate monitoring, and climate modeling applications in both the private and public sectors. NESDIS is committed to the international effort to establish a global observing system that meets both the Nation's and the world's need for environmental intelligence. A fully implemented global observing system, leveraging investments from NOAA and from multiple international contributors, is yielding increasingly accurate and reliable warnings of severe weather, climate change, and other environmental events in the United States and all around the world.

Next Generation Architecture

In 2015-2018 NESDIS conducted the NOAA Satellite Observing System Architecture (NSOSA) study, a comprehensive assessment of its next generation satellite architecture, which considered much more than just the satellite assets. NOAA reviewed the way it collects and manages requirements, and the industrial and IT systems trends that are essential elements of our work environment, and the anticipated user environment that our future systems will need to support.

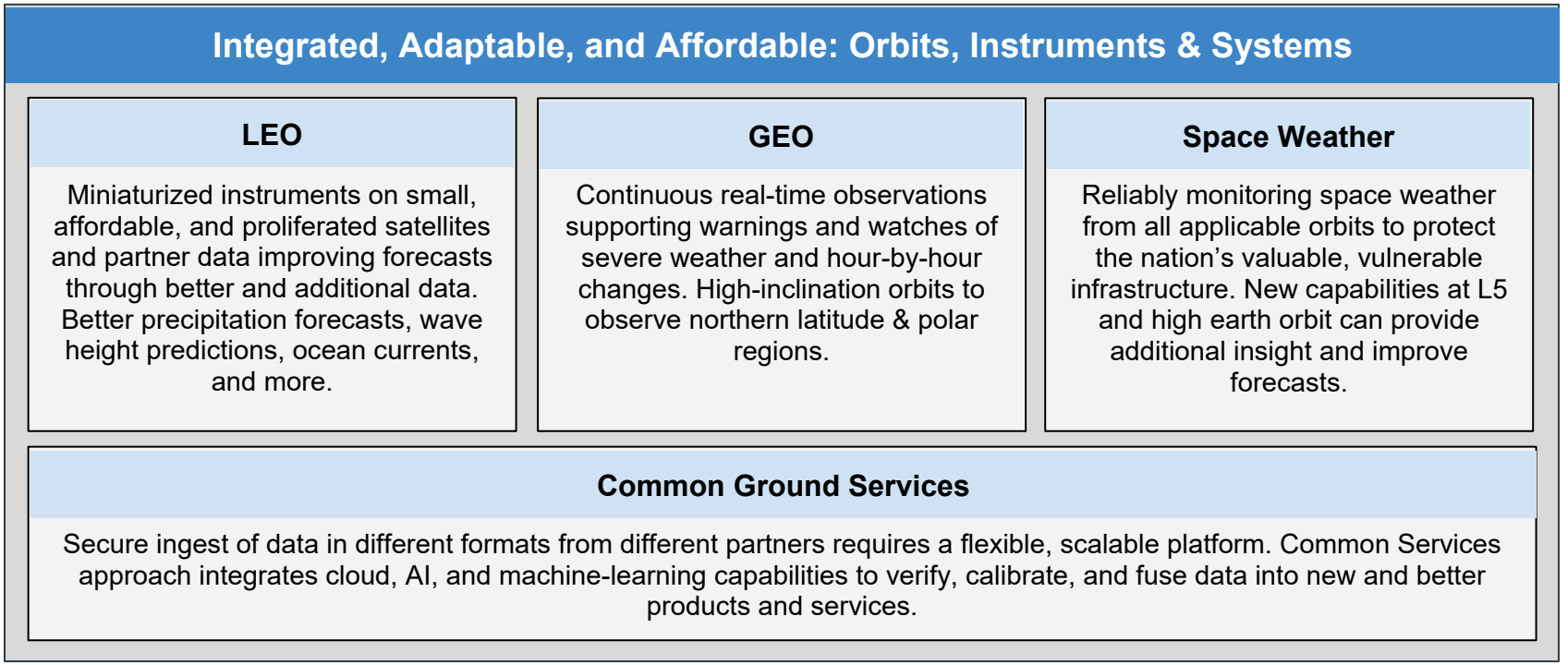
Within the evolving weather, climate, and environmental data landscape, we are seeing an unprecedented pace of technology advances (satellite and launch vehicle capabilities, artificial intelligence, high performance computing, and machine learning), which is opening access to space, increasing demand for timely integrated data and information, and advancing forecast modeling. In particular, there is an increased demand for timely and accurate observations and predictions of extreme weather events, and an intensified demand for environmental assessments informed by climate change assessments for forecasts to inform infrastructure investments. Commercial launch and remote sensing capabilities are emerging among the aerospace industry, along with an increasing vulnerability of our technological society to the effects of space weather.

NOAA is taking essential steps to operate effectively in this changing environment. Our vision is to create an integrated, digital understanding of our Earth environment that will allow our citizens to adapt and thrive. This observing system will provide advanced, real-time data critical to saving lives and protecting property as well as powering increasingly sophisticated models that forecast climate change-driven weather patterns and environmental conditions never seen before, to provide our communities and users with information to manage their lives and investments into the future.

We envision a future observing system that will provide:

- A breadth of observations obtained from multiple viewpoints and organized into observation portfolios, including Low Earth Orbit (LEO), Geostationary Earth Orbit (GEO), and Space Weather Observations (SWO), where and when we need them to meet expected future demands;
- A system featuring a mixture of small, medium and large satellites and instruments, including shorter development times, more frequent launches, and smaller and more capable instruments and satellites.
- A Common Ground Services approach to operate the evolving observing system, and integrated cloud, AI, and machine-learning capabilities to verify, calibrate, and fuse data into better products and services. This includes a flexible, scalable platform that enables secure ingest of partner data in different formats.
- A combination of assets, including NOAA-owned and managed, partner assets, commercial partnerships, and the purchase of data.
- A stable, predictable year-over-year budget allowing NOAA to pursue the most critical observations while making tradeoffs within and between observation portfolios to avoid cost growth that creates risk both to NESDIS as well as other NOAA line office priorities. NESDIS is committed to a flat $2.0 billion budget with no outyear increases other than government-wide inflation assumptions.

As NESDIS continues adapting to the changing weather and environmental data landscape, future endeavors will focus on the continuity and efficient expansion of LEO, GEO, and SWO capabilities as well as the provision of common ground services for the secure ingest of data, without an increase in budget. Together, these four areas constitute the pillars of the NSOSA study implementation:



NESDIS will continue to adhere to and track the life cycle costs (LCCs) for major satellite programs such as the Geostationary Operational Environmental Satellite – R Series (GOES-R Series), Joint Polar Satellite System (JPSS), Polar Follow On (PFO), and Space Weather Follow On (SWFO). Since each of these represent established missions with unique visibility and stakeholders, NESDIS will keep the current reporting structure for the duration of these missions.

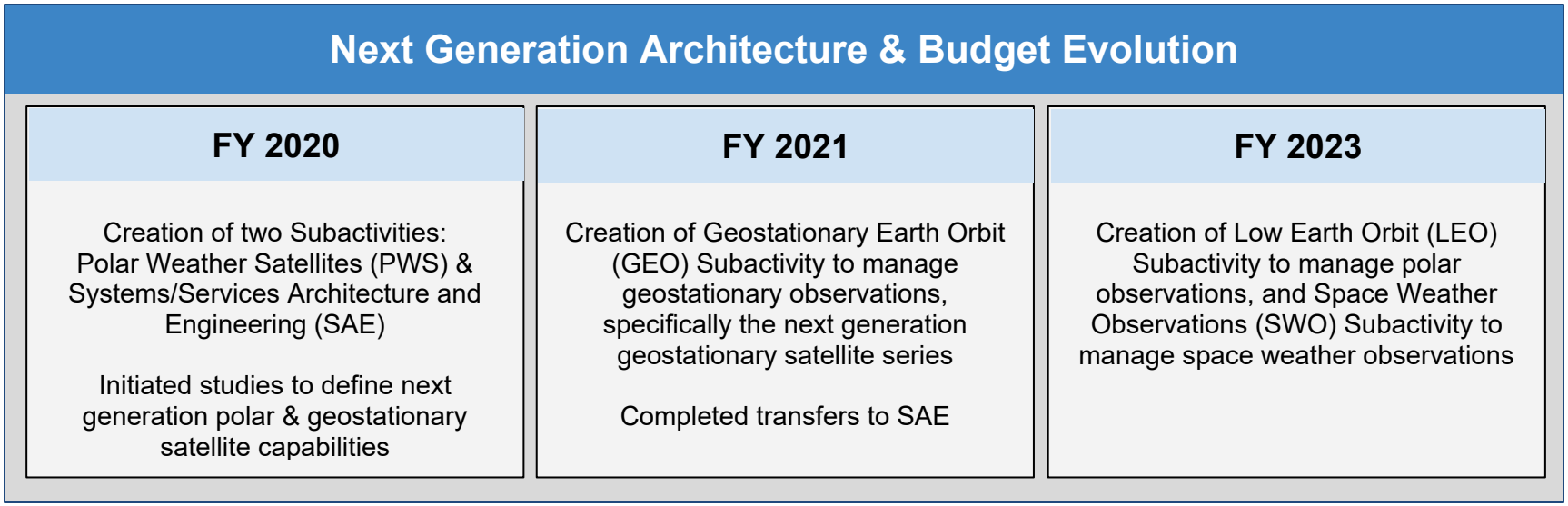
Budget Restructure Overview

The current NESDIS budget structure has enabled NESDIS to develop and successfully exploit individual NESDIS-owned and operated satellite missions. However, the challenge of the current budget structure is that resources, products, and offices are bound

to specific satellite missions, leading to:

- Higher acquisition costs due to an inability to balance risks across observation sets;
- Complex mission definition and authorization timelines that support large complex system with long development times;
- Information products tied to individual satellite platforms, making support of enterprise products and measurements tied to portfolio objectives, regardless of the data source, very difficult to develop; and.
- Missed opportunities to exploit partnerships and technology innovation.

NESDIS began evolving its budget structure in FY 2020 and 2021 to lay the groundwork for the architecture recommendations in accordance with the NSOSA study. Budget structure changes proposed in FY 2023 align with the investments requested for all our observing systems, including LEO, GEO, and SWO.



In FY 2023, NOAA proposes to establish the **Low Earth Orbit (LEO)** Subactivity, which will set the stage for managing polar and other low earth and medium earth orbit satellite observations as loosely coupled programs. See the Program Increase requests for

more detail on FY 2023 activities. Together with PWS, these observations primarily serve the requirements of NOAA's NWS numerical weather prediction models, providing the short-term (0-3 days), and mid-range (3-7 days) warnings of severe weather events critical for emergency managers and communities to make timely decisions to protect life and property. Future activities could also include assimilation of research observations from national and international partners or others for operational use.

In FY 2023, NOAA also proposes to establish the **Space Weather Observations (SWO)** Subactivity, which will manage the future space weather observations as loosely coupled programs. See the Program Increase requests for more detail on FY 2023 activities. Together with the Space Weather Follow On (SWFO), these observations create space weather warnings and forecasts, which are critical to protecting space assets, establishing space commerce, and protecting critical infrastructure, such as commercial banking, electrical power grid, and aviation operations.

NOAA is proposing to restructure the NESDIS budget to position itself to thrive in this new, heterogeneous observing system environment while enabling the organization to more efficiently make the tradeoffs to maintain a flat overall budget. The proposed combination of NOAA-owned and managed assets, partner assets, commercial partnerships, and the purchase of data will:

- Stabilize funding levels by allowing NESDIS to manage program performance and risk within the LEO, GEO, and SWO portfolios. We will institute budget performance evaluation to limit or prevent future cost growth. We will work with our Federal acquisition partners to lower the amount of funding required to be held for contingencies since risk will be shared across the portfolios.
- Collect and manage requirements at the observables level, rather than at the instrument or platform level. This will enable NESDIS to allocate resources to meet the NOAA mission requirement in the most efficient way and provide portfolio managers an incentive to reduce cost-intensive engineering changes to large satellite systems because unused reserves can be applied to newer, innovative (i.e. Next Generation) systems. Mission requirements still must be validated at the NOAA level.
- Leverage new public and private sector science, technical, and information sciences innovation – We will benefit from innovation at both ends of the information pipeline: in satellite technology at one end, and in information and product development and distribution at the other. There is a growing availability of commercial and partner data, as well as commercial and partner service delivery expertise. The budget restructure allows NOAA to commit resources and enter into contracts and partnerships proactively and timely.
- Be agile and responsive to public and private users' needs and expectations – Our ability to expand and diversify observations will allow users to limit the impact of severe weather events and environmental degradation events (harmful

algal blooms, flooding, fires, etc.), while fueling the commercial weather enterprise and environmental services sectors. Portfolio management will also pave the way for more rapid development and deployment of targeted observations in response to user needs or large satellite system anomalies, as mitigation plans can be implemented faster.

Budget Restructure Details

The proposed restructure will enable more effectively managed cost, schedule, and performance risk across the enterprise and increase program efficiencies to deliver space-based observations under a new architecture and paradigm. It reduces the overall number of Subactivities from 15 to 11, with 5 Subactivities remaining in ORF and 6 Subactivities in PAC. The NESDIS PAC Subactivity Crosswalk is displayed in Table 1 below:

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Table 1: NESDIS PAC Subactivity Crosswalk

PAC Appropriation	
FY 2021 Subactivities*	**FY 2023 Subactivities**
Geostationary Systems – R (GOES-R)	**Geostationary Earth Orbit (GEO)**
Geostationary Extended Observations (GeoXO)	
Polar Weather Satellites (PWS)	**Low Earth Orbit (LEO)**
Cooperative Data and Rescue Services (CDARS)	
COSMIC 2/GNSS RO	
LEO Weather Satellites*	
POES Extension*	
Space Weather Next*	**Space Weather Observations (SWO)**
Space Weather Follow On (SWFO)	
Projects, Planning and Analysis (PPA) (SWO Base)	
Projects, Planning and Analysis (PPA) (CGS Base)	**Common Ground Services (CGS)**
Satellite Ground Services (SGS)	
Systems/Services Architecture & Engineering (SAE)	**Systems/Services Architecture & Engineering (SAE)**
Satellite CDA Facility	**Satellite CDA Facility**

* LEO Weather Satellites, POES Extension, and Space Weather Next are new Line Items requested in FY 2023 via Program Increases, but appear here for clarity.

Within each section of this budget request, Subactivities are further subdivided into Line Items to increase transparency and traceability in the NESDIS portfolios. Table 2 below identifies the FY 2021 Enacted amounts transferring to each new Line Item within the proposed FY 2023 budget restructure.

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Table 2: Crosswalk of NESDIS FY 2022 Annualized CR to FY 2023 Proposed Restructure Subactivities:

Current Structure

PAC Subactivity	Geostationary Earth Orbit (GEO)		Low Earth Orbit (LEO)					Space Weather Observations (SWO)			CGS	SAE	Satellite CDA Facility
	GOES-R	GeoXO	PWS	LEO Weather Sats.	CDARS	COSMIC 2/GNSS RO	POES Ext.	SWO Base	SWFO	SW Next	CGS	SAE	Satellite CDA Facility
GOES-R	334,500												
GEO		10,000											
PWS			657,835										
CDARS					14,400								
COSMIC 2/GNSS-RO						5,892							
PPA								6,606			9,339		
SWFO									108,115				
SGS											39,287		
SAE												38,500	
CDA Facility													2,450
Total, NESDIS – PAC Subactivities	**344,500**		**678,127**					**114,721**			**48,626**	**38,500**	**2,450**

(1) This table aligns the FY 2021 Enacted with the new FY 2023 Proposed Restructure. It does not include any of the Calculated ATBs, Technical Adjustments, or Operational Phase Transfers outlined in the Significant Adjustments section (NESDIS-15). Final post-adjustment FY 2020 base amounts are reflected in Exhibit 10 (NESDIS-37).

(2) LEO Weather Satellites, POES Extension, and Space Weather Next are new sub-PPAs in FY 2022 and therefore do not have FY 2021 Enacted amounts.

The benefits of organizing the NESDIS budget by thematic portfolios, rather than hardware-based portfolios, include:

- Maximizing the flexibility, responsiveness, and sustainability within each satellite portfolio;
- Eliminating duplicative management costs;
- More opportunities to improve program reserves posture by combining program funding to diversify risk pools; and,
- Creating additional critical synergies to protect against catastrophic events, such as impacts to supply chain, by minimizing time and management effort necessary to swap components, instruments and reserves. Spares, hardware, staff and other capacity

that become available would be deployed seamlessly, efficiently and effectively to reduce cost and avoid schedule delays since funds would be contained within a single Subactivity.

Throughout the budget restructure and continuing with the program execution into the future, NESDIS will continue to adhere to and track the LCCs for current and future major satellite programs, such as GOES-R Series, JPSS, PFO, and SWFO. To ensure NESDIS maintains its commitment to the LCC, the amounts will continue to be separately reported.

Within each section of this budget request, Program Changes are aligned with specific Subactivities and Line Items (see Table 3).

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Table 3: NESDIS New Subactivity to New Line Item Crosswalk

Activity	Subactivity	Line Item	FY 2023 Program Changes
Environmental Satellite Observing Systems	**OSPO**	OSPO	$9,000
	PDR&A	PDR&A	$23,741
	OSC	OSC	N/A
	USGEO	USGEO	$500
	NCEI	NCEI Base	$18,500
		Coastal Data Development	N/A
		Regional Climate Services	$4,000
Systems Acquisition	**Geostationary Earth Orbit (GEO)**	GOES-R	($33,500)
		GeoXO	$653,829
	Low Earth Orbit (LEO)	PWS	($252,835)
		LEO Weather Satellites	$78,330
		CDARS	($13,100)
		COSMIC 2/GNSS RO	$2,208
		POES Extension	$10,000
	Space Weather Observations (SWO)	SWO Base	N/A
		SWFO	$28,085
		Space Weather Next	$145,000
	Common Ground Services (CGS)	CGS Base	N/A
		DACS	$25,007
		Data Access and Distribution	$24,000
	Systems/Services Architecture & Engineering (SAE)	Architecture, Requirements, and Planning	N/A
		Commercial Data Program	Commercial Weather Data Pilot: $5,000 Commercial Data Purchase: $16,000
		Joint Venture	$15,000

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Proposed Organizational Alignment

In FY 2023, NESDIS seeks approval to reorganize its offices. The reorganization aligns with the strategic direction we have set to provide the observations, products, services and data stewardship to support our Line Office partners, users and decision-makers. It will also provide for strong governance and management of the NESDIS requirements and budget. The benefits of this reorganization include the following:

- Portfolio Management Framework – NESDIS will adopt a governance structure that provides for a robust portfolio management process, leading to better planning and management of risks and resources within a given set of observations, while maintaining accountability and transparency on mission execution at the project level.
- Innovation Efficiencies – NESDIS will increase its focus on science functions, deriving maximum use of data, and optimizing product distribution to users.
- Common Products and Services Model – NESDIS will provide a more effective and cost-efficient implementation of services and products that can be leveraged across the entire organization.

In FY 2023, NESDIS also seeks approval to elevate the Office of Space Commerce (OSC) from NESDIS to NOAA Headquarters, reporting directly to the Assistant Secretary for Environmental Observations and Prediction. The elevation of OSC within NOAA ensures the highest level of visibility, administrative oversight, and accountability.

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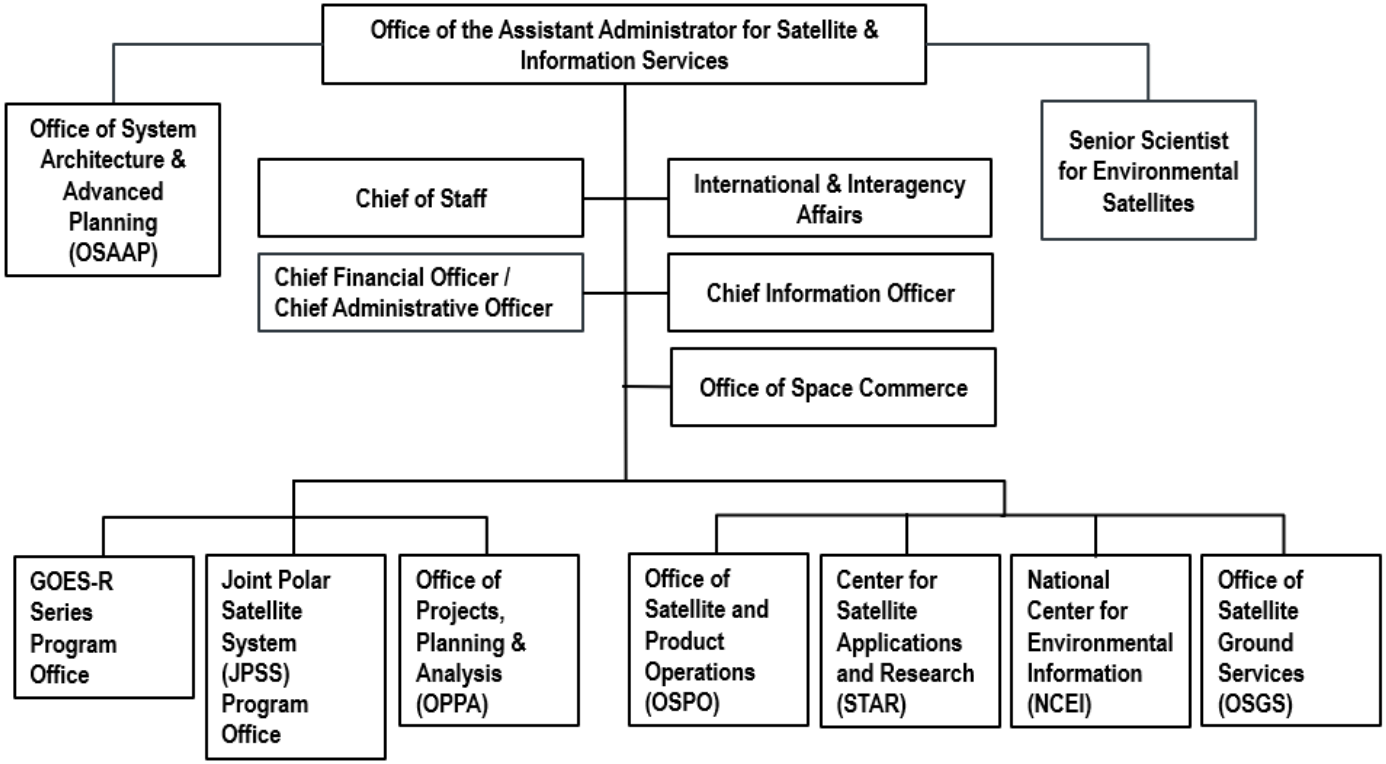
The current NESDIS organization is structured as follows:



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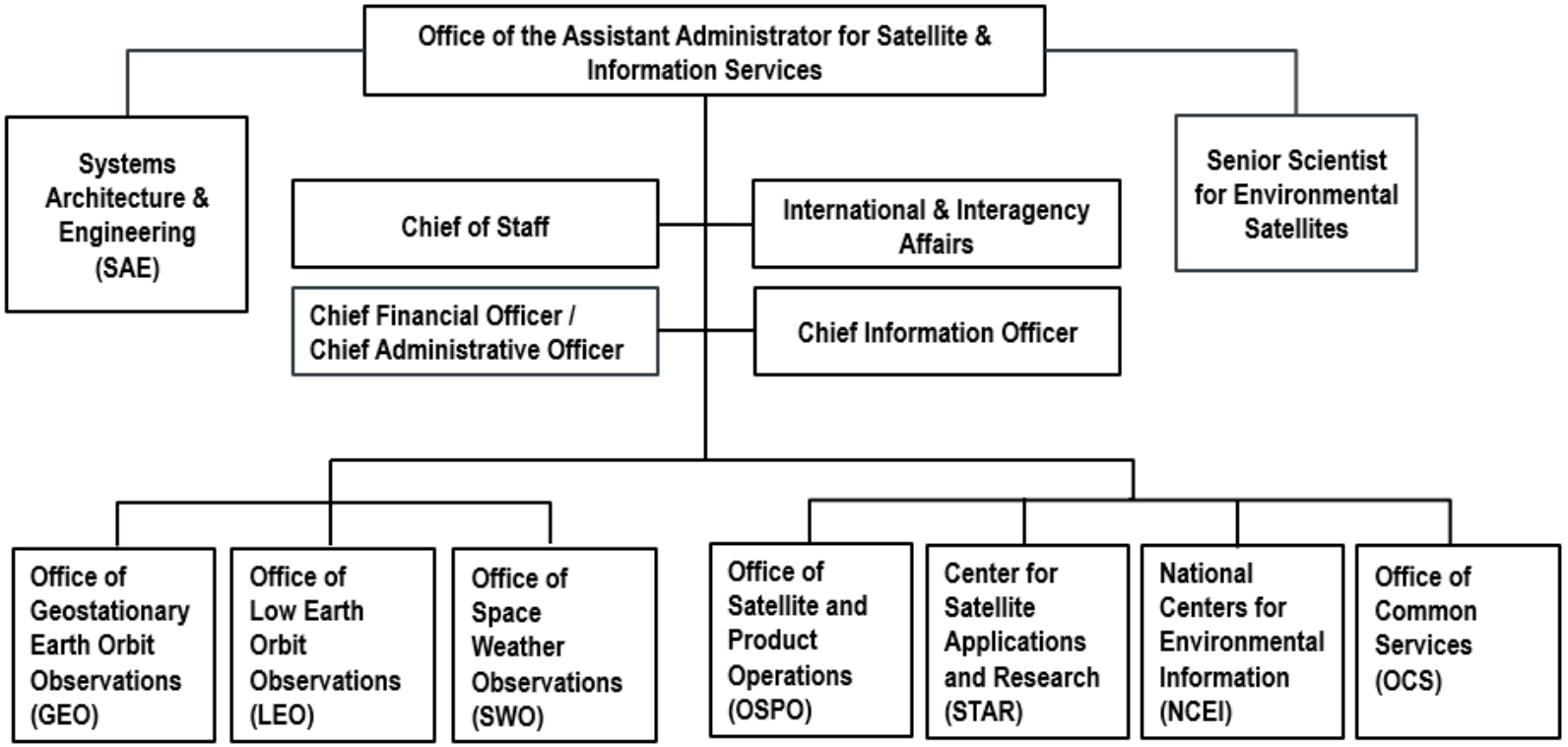
The proposed NESDIS organization will be structured as follows:



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Significant Adjustments:

Inflationary Adjustments
NOAA's FY 2023 Base includes a net increase of $16,263,000 and 0 FTE/ 0 positions to account for the full funding requirement for certain inflationary adjustments to current programs for NESDIS activities. This includes inflationary increases for labor and non-labor activities including benefits and rent charges from the General Services Administration.

Technical Adjustments (Transfers)
NOAA requests the following transfers for a net change of $0 and 0 FTE/ 0 positions to the agency:

From Office	Subactivity	To Office	Subactivity	Amount
NESDIS	Geostationary Systems – R (PAC)	NESDIS	Geostationary Earth Orbit (PAC)	$334,500,000 / 47 FTE/ 51 Positions
NESDIS	Polar Weather Satellites (PAC)	NESDIS	Low Earth Orbit (PAC)	$657,835,000 / 88 FTE/ 96 Positions
NESDIS	Cooperative Data and Rescue Services (PAC)	NESDIS	Low Earth Orbit (PAC)	$14,400,000 / 3 FTE/ 4 Positions
NESDIS	COSMIC-2 / GNSSRO (PAC)	NESDIS	Low Earth Orbit (PAC)	$5,892,000 / 2 FTE / 2 Positions
NESDIS	Projects, Planning, and Analysis (PAC)	NESDIS	Space Weather Observations (PAC)	$6,606,000 / 15 FTE/ 16 Positions
NESDIS	Space Weather Follow On (PAC)	NESDIS	Space Weather Observations (PAC)	$108,115,000 / 13 FTE/ 19 Positions
NESDIS	Projects, Planning, and Analysis (PAC)	NESDIS	Common Ground Services (PAC)	$9,339,000 / 0 FTE/ 0 Positions

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NOAA requests technical adjustments that will continue the next phase of the NESDIS budget restructure by completing the transfers to the LEO, GEO, and SWO Subactivities.

- NOAA requests to transfer $334,500,000, 47 FTE/ 51 positions, for support of the GOES-R Series program from the GOES-R Subactivity into the GEO Subactivity. The consolidation of these activities will support the management of geostationary earth orbit observations as a portfolio.
- NOAA requests to transfer $657,835,000, 88 FTE/ 96 positions, for support of the JPSS and PFO programs from the PWS Subactivity into the LEO Subactivity.
- NOAA requests to transfer $14,400,000, 3 FTE/ 4 positions, for support of the CDARS program from the CDARS Subactivity into the LEO Subactivity.
- NOAA requests to transfer $5,892,000, 2 FTE/ 2 positions, for support of the COSMIC-2/GNSSRO program from the COSMIC-2/GNSSRO Subactivity into the LEO Subactivity. The consolidation of PWS, CDARS, and COSMIC-2/GNSSRO activities will support the management of low earth orbit observations as a portfolio.
- NOAA requests to transfer $6,606,000, 15 FTE/ 16 positions, for support of future space weather observations from the PPA Subactivity into the SWO Subactivity.
- NOAA requests to transfer $108,115,000, 13 FTE/ 19 positions, for support of the SWFO program from the SWFO Subactivity into the SWO Subactivity.
- NOAA requests to transfer $9,339,000, 0 FTE/ 0 positions, from the PPA Subactivity into the CGS Subactivity. This transfer will allow NOAA to continue to securely ingest and generate products for Metop Second Generation (Metop SG) and partner data, and implement the ground system modifications necessary to process, distribute and archive Metop SG and other partner mission data.

From Office	Subactivity	To Office	Subactivity	Amount
NESDIS	Office of Space Commerce (ORF)	Mission Support	Office of Space Commerce (ORF)	$10,000,000 / 19 FTE/ 20 Positions

NOAA requests a technical adjustment to move $10,000,000 and 19 FTE/ 20 positions for support of the Office of Space Commerce from NESDIS to NOAA Mission Support.

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From Office	Subactivity	To Office	Subactivity	Amount
NESDIS	Office of Satellite and Product Operations (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$277,000 / 2 FTE / 2 Positions
NESDIS	Product Development, Readiness & Application (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$276,000 / 2 FTE / 2 Positions

NOAA also requests to transfer $277,000 and 2 FTE/ 2 Positions from the Office of Satellite and Product Operations PPA and $276,000 and 2 FTE/ 2 Positions from the Product Development, Readiness & Application PPA to the OMAO NOAA Commissioned Officer Corps PPA to allow for better alignment of funding and greater transparency over the full cost of the NOAA Corps. With this transfer, funding for all NOAA Corps personnel will reside within OMAO. This increases efficiency within the program by reducing administrative burdens and allows NOAA to better manage personnel requirements consistent with the *NOAA Corps Amendments Act of 2020* (P.L. 116-259).

Operational Phase Transfers
The NOAA satellite budget profiles in the PAC account are formulated to reflect the full life cycle cost (LCC) of NESDIS satellite programs including design, development, and operations. An Operational Phase Transfer (OPT) is required to transfer the LCC funding currently budgeted within a PAC Subactivity to the appropriate ORF Subactivity for operational functions. It results in a net change of zero to the NESDIS budget.

In FY 2023, NOAA requests four OPTs to support the operational phase activities for the Joint Polar Satellite System (JPSS) series of satellites, as detailed below.

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Low Earth Orbit / Joint Polar Satellite System (JPSS):

From Office	Subactivity	To Office	Subactivity	Amount
NESDIS	LEO (PAC)	NESDIS	Office of Satellite and Product Operations (ORF)	$39,190,000 / 0 FTE / 0 positions
NESDIS	LEO (PAC)	NESDIS	Product Development, Readiness, and Application (ORF)	$14,600,000 / 0 FTE / 0 positions
NESDIS	LEO (PAC)	NESDIS	National Centers for Environmental Information (ORF)	$1,000,000 / 0 FTE / 0 positions
NESDIS	LEO (PAC)	NESDIS	Common Ground Services (PAC)	$7,800,000 / 0 FTE / 0 positions

The JPSS portion of the Polar Weather Satellites (PWS) PAC outyear profile will be reduced by the OPT amounts listed to reflect the operational phase requirements below. The JPSS LCC will not change.

- NOAA requests a technical adjustment to move $39,190,000 and 0 FTE/ 0 positions from the LEO Subactivity in PAC to the Office of Satellite and Product Operations (OSPO) Subactivity in ORF. This OPT transfers maintenance funding for the JPSS ground system.
- NOAA requests a technical adjustment to move $14,600,000 and 0 FTE/ 0 positions from the LEO Subactivity in PAC to the Product Development, Readiness, and Application (PDR&A) Subactivity in ORF. This OPT transfers data product maintenance and Marine Optical Buoy (MOBY) funding to support the JPSS program.
- NOAA requests a technical adjustment to move $1,000,000 and 0 FTE/ 0 positions from the LEO Subactivity in PAC to the National Centers for Environmental Information (NCEI) Subactivity in ORF. This OPT transfers archiving and data stewardship funding to support the JPSS program.
- NOAA requests a technical adjustment to move $7,800,000 and 0 FTE/ 0 positions from the LEO Subactivity in PAC to the Common Ground Services (CGS) Subactivity in PAC. This OPT transfers sustainment funding for the Environmental Satellite Processing and Distribution Services (ESPDS) and the Comprehensive Large Array-data Stewardship System (CLASS) in support of the JPSS program.

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Low Earth Orbit / Cooperative Data and Rescue Services (CDARS):

From Office	Subactivity	To Office	Subactivity	Amount/ FTE
NESDIS	LEO (PAC)	NESDIS	Office of Satellite and Product Operations (ORF)	$1,300,000 / 1 FTE / 1 Position

In FY 2023, NOAA requests a technical adjustment to move $1,300,000 and 1 FTE/ 1 position from the LEO Subactivity in PAC to the OSPO Subactivity in ORF. This OPT transfers the operations funding for the Argos Data Collection and Location System.

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Life cycle costs: The following tables provide the details of the total LCC of NOAA satellites that have a required base funding level of over $250 million.

GOES-R Series LCC* ($ in thousands):

GOES-R Series LCC	2022 & Prior**	2023	2024	2025	2026	2027	CTC	Total
GOES-R Series LCC (PAC & ORF)	**9,779,279**	**334,900**	**334,900**	**158,400**	**132,400**	**130,700**	**829,511**	**11,700,087**
Procurement, Acquisition, and Construction (PAC)								
Total PAC	**9,575,876**	**301,000^**	**301,000^**	**124,500**	**98,500**	**96,800**	**524,411**	**11,022,087**
GOES-R Series	9,575,876	301,000	301,000	124,500	98,500	96,800	524,411	11,022,087
Operations, Research, and Facilities (ORF)								
Total ORF	**203,400**	**33,900**	**33,900**	**33,900**	**33,900**	**33,900**	**305,100**	**678,000**
Office of Satellite and Product Operations	158,940	26,490	26,490	26,490	26,490	26,490	238,410	529,800
Product Development, Readiness & Application	36,000	6,000	6,000	6,000	6,000	6,000	54,000	120,000
National Centers for Environmental Information	8,460	1,410	1,410	1,410	1,410	1,410	12,690	28,200

* Outyears are estimates. Future requests will be based on current needs and requirements. Therefore, the PAC profile will be updated on an annual basis.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.
^ The COVID-19 Pandemic resulted in significant cost and schedule impacts to the GOES-R Series ground system server replacement. Access restrictions at NOAA operations facilities slowed, and at times halted, work on the server replacement; most notable, a four-month work stoppage from March through July 2020. Due to the delays, the server replacement will now be conducted in two phases: pre- and post- GOES-T launch. The new schedule requires a 10-month contract extension (this includes a 2-month option) to accommodate the 4-month work stoppage and the 6-month launch freeze, a period where no ground server changes are allowed in order to prevent introduction of a change that was not tested on the spacecraft. The estimated cost of the contract extension is $60 million. NOAA awarded the contract extension from within the GOES-R Series reserves, which reduced the reserves below an acceptable level. As such, it is necessary to request funding sooner than anticipated within the LCC to replenish reserves to an acceptable level in order to maintain schedule and minimize risks to the GOES-T and GOES-U launches. NOAA pulled forward $25 million and $28.5 million in FY 2023 and FY 2024, respectively; the LCC remains unchanged.

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Polar Weather Satellites (PWS; JPSS and PFO) LCC* ($ in thousands):

PWS		2022 & Prior**	2023	2024	2025	2026	2027	CTC***	Total
Total PWS (PAC & ORF)		**13,289,759**	**425,000**	**425,000**	**425,000**	**425,000**	**425,000**	**2,745,266**	**18,160,025**
JPSS LCC (PAC & ORF)		10,872,145	200,000	167,390	82,590	-	-	-	11,322,125
PFO LCC (PAC & ORF)		2,417,614	225,000	257,610	342,410	425,000	425,000	2,745,266	6,837,900
Procurement, Acquisition, and Construction (PAC)									
Total PAC		**13,229,759**	**350,210**	**350,210**	**350,210**	**350,210**	**350,210**	**1,922,576**	**16,903,385**
Subactivity	**Program**								
Polar Weather Satellites	JPSS	10,812,145	117,410	84,800	-	-	-	-	11,014,355
	PFO	2,417,614	225,000	257,610	342,410	342,410	342,410	1,836,776	5,764,230
Common Ground Services	JPSS	-	7,800	7,800	7,800	-	-	-	23,400
Common Ground Services	PFO	-	-	-	-	7,800	7,800	85,800	101,400
Operations, Research, and Facilities (ORF)									
Total ORF		**60,000**	**74,790**	**74,790**	**74,790**	**74,790**	**74,790**	**822,690**	**1,256,640**
Subactivity	**Program**								
Office of Satellite and Product Operations	JPSS	60,000	59,190	59,190	59,190	-	-	N/A	237,570
	PFO^	-	-	-	-	59,190	59,190	651,090	769,470
Product Development, Readiness & Application	JPSS	-	14,600	14,600	14,600	-	-	N/A	43,800
	PFO^	-	-	-	-	14,600	14,600	160,600	189,800
National Centers for Environmental Information	JPSS	-	1,000	1,000	1,000	-	-	N/A	3,000
	PFO^	-	-	-	-	1,000	1,000	11,000	13,000

* Outyears are estimates. Future requests will be based on current needs and requirements. Future year funding assumes $425.0 million per year for PWS from FY 2023-FY 2026, allocated efficiently between JPSS and PFO while remaining at or under each program's LCC baseline in total.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.
*** The $134.7 million previously identified as a JPSS underrun has been brought back into the program profile due to cost increases related to (1) the previously reported JPSS-2 launch being delayed from March 2022 to September 2022 and (2) cost increases for ground system operations and maintenance.
^ Operational Phase Transfers related to PFO are estimates and will be reevaluated in FY 2026.

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Space Weather Follow On (SWFO) LCC* ($ in thousands):

SWFO LCC	2022 & Prior**	2023	2024	2025	2026	2027	CTC	Total
SWFO LCC	**321,946**	**136,200**	**97,200**	**41,200**	**22,300**	**21,800**	**52,154**	**692,800**
Procurement, Acquisition, and Construction (PAC)								
Total PAC	**321,946**	**136,200**	**97,200**	**41,200**	**22,300**	**21,800**	**52,154**	**692,800**
SWFO	321,946	136,200	97,200	41,200	22,300	21,800	52,154	692,800

* Outyears are estimates. Future requests will be based on current needs and requirements. Therefore, the PAC profile will be updated on an annual basis.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.

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TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing System
Subactivity: Office of Space Commerce (ORF) – Transfer to NOAA Mission Support (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	1,647	(1,647)	0
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	1,647	(1,647)	0
12	Civilian personnel benefits	527	(527)	0
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	200	(200)	0
22	Transportation of things	0	0	0
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	227	(227)	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	28	(28)	0
24	Printing and reproduction	0	0	0
25.1	Advisory and assistance services	600	(600)	0
25.2	Other services from non-Federal sources	5,836	(5,836)	0
25.3	Other goods and services from Federal sources	900	(900)	0
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	3	(3)	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	4	(4)	0
31	Equipment	28	(28)	0
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	0	0	0
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	10,000	(10,000)	0

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Office of Satellite and Product Operations (ORF) transfer to NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2022 Transfer	2022 Base*
11.1	Full-time permanent compensation	34,793	0	38,785
11.3	Other than full-time permanent	77	0	77
11.5	Other personnel compensation	5,002	0	5,002
11.7	NOAA Corps	277	(277)	0
11.9	Total personnel compensation	40,149	(277)	43,864
12	Civilian personnel benefits	12,848	0	15,703
13	Benefits for former personnel	8	0	8
21	Travel and transportation of persons	33	0	39
22	Transportation of things	95	0	99
23	Rent, communications, and utilitites	0	0	587
23.1	Rental payments to GSA	9,057	0	9,057
23.2	Rental Payments to others	1,229	0	1,229
23.3	Communications, utilities and misc charges	2,657	0	2,657
24	Printing and reproduction	7	0	7
25.1	Advisory and assistance services	51,634	0	54,600
25.2	Other services from non-Federal sources	50,827	0	50,827
25.3	Other goods and services from Federal sources	13,537	0	54,027
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	3,241	0	3,241
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	1,222	0	1,285
31	Equipment	1,623	0	1,740
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	928	0	928
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	5	0	5
44	Refunds	0	0	0
99	Total obligations	189,099	(277)	239,902

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application (ORF) transfer to NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	11,784	0	12,830
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	259	0	259
11.7	NOAA Corps	276	(276)	0
11.9	Total personnel compensation	12,319	(276)	13,089
12	Civilian personnel benefits	3,942	0	4,283
13	Benefits for former personnel	4	0	4
21	Travel and transportation of persons	19	0	23
22	Transportation of things	3	0	3
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	2,800	0	2,808
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	35	0	35
24	Printing and reproduction	5	0	5
25.1	Advisory and assistance services	50	0	73
25.2	Other services from non-Federal sources	2,147	0	2,147
25.3	Other goods and services from Federal sources	274	0	14,996
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	2,624	0	2,917
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	58	0	60
31	Equipment	300	0	303
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	3,853	0	3,853
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	1	0	1
44	Refunds	0	0	0
99	Total obligations	28,434	(276)	44,599

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (PAC) – Transfer of Maintenance Funding for the JPSS Ground System to the Office of Satellite and Product Operations (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	10,569	0	10,419
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	10,569	0	10,419
12	Civilian personnel benefits	3,382	0	3,334
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	248	0	248
22	Transportation of things	0	0	0
23	Rent, communications, and utilitites	1,230	0	1,230
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	40	0	40
25.1	Advisory and assistance services	5,695	0	5,695
25.2	Other services from non-Federal sources	2,284	0	2,284
25.3	Other goods and services from Federal sources	638,272	(39,190)	574,580
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	111	0	111
31	Equipment	549	0	549
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	15,747	0	15,747
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	678,127	(39,190)	614,237

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Office of Satellite and Product Operations (ORF) – Transfer of Maintenance Funding for the JPSS Ground System from Low Earth Orbit (PAC)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	34,793	0	38,935
11.3	Other than full-time permanent	77	0	77
11.5	Other personnel compensation	5,002	0	5,002
11.7	NOAA Corps	277	0	0
11.9	Total personnel compensation	40,149	0	44,014
12	Civilian personnel benefits	12,848	0	15,799
13	Benefits for former personnel	8	0	8
21	Travel and transportation of persons	33	0	39
22	Transportation of things	95	0	99
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	9,057	0	9,644
23.2	Rental Payments to others	1,229	0	1,229
23.3	Communications, utilities and misc charges	2,657	0	2,657
24	Printing and reproduction	7	0	7
25.1	Advisory and assistance services	51,634	0	54,552
25.2	Other services from non-Federal sources	50,827	0	50,827
25.3	Other goods and services from Federal sources	13,537	39,190	53,829
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	3,241	0	3,241
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	1,222	0	1,285
31	Equipment	1,623	0	1,740
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	928	0	928
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	5	0	5
44	Refunds	0	0	0
99	Total obligations	189,099	39,190	239,902

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (PAC) – Transfer of Data Product Maintenance and Marine Optical Buoy (MOBY) Funding to Product Development, Readiness and Application (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	10,569	0	10,419
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	10,569	0	10,419
12	Civilian personnel benefits	3,382	0	3,334
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	248	0	248
22	Transportation of things	0	0	0
23	Rent, communications, and utilitites	1,230	0	1,230
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	40	0	40
25.1	Advisory and assistance services	5,695	0	5,695
25.2	Other services from non-Federal sources	2,284	0	2,284
25.3	Other goods and services from Federal sources	638,272	(14,600)	574,580
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	111	0	111
31	Equipment	549	0	549
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	15,747	0	15,747
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	678,127	(14,600)	614,237

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application (ORF) – Transfer of Data Product Maintenance and Marine Optical Buoy (MOBY) Funding from Low Earth Orbit (PAC)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	11,784	0	12,830
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	259	0	259
11.7	NOAA Corps	276	0	0
11.9	Total personnel compensation	12,319	0	13,089
12	Civilian personnel benefits	3,942	0	4,283
13	Benefits for former personnel	4	0	4
21	Travel and transportation of persons	19	0	23
22	Transportation of things	3	0	3
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	2,800	0	2,808
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	35	0	35
24	Printing and reproduction	5	0	5
25.1	Advisory and assistance services	50	0	73
25.2	Other services from non-Federal sources	2,147	0	2,147
25.3	Other goods and services from Federal sources	274	14,600	14,996
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	2,625	0	2,917
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	58	0	60
31	Equipment	300	0	303
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	3,853	0	3,853
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	1	0	0
44	Refunds	0	0	0
99	Total obligations	28,434	14,600	44,599

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (PAC) – Transfer of Archiving and Data Stewardship Funding to National Centers for Environmental Information (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	10,569	0	10,419
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	10,569	0	10,419
12	Civilian personnel benefits	3,382	0	3,334
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	248	0	248
22	Transportation of things	0	0	0
23	Rent, communications, and utilitites	1,230	0	1,230
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	40	0	40
25.1	Advisory and assistance services	5,695	0	5,695
25.2	Other services from non-Federal sources	2,284	0	2,284
25.3	Other goods and services from Federal sources	638,272	(1,000)	574,580
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	111	0	111
31	Equipment	549	0	549
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	15,747	0	15,747
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	678,127	(1,000)	614,237

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: National Centers for Environmental Information (ORF) – Transfer of Archiving and Data Stewardship Funding from Low Earth Orbit (PAC)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	21,493	0	23,279
11.3	Other than full-time permanent	144	0	144
11.5	Other personnel compensation	408	0	408
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	22,045	0	23,831
12	Civilian personnel benefits	7,055	0	7,784
13	Benefits for former personnel	30	0	30
21	Travel and transportation of persons	14	0	15
22	Transportation of things	34	0	34
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	4,782	0	4,799
23.2	Rental Payments to others	473	0	473
23.3	Communications, utilities and misc charges	646	0	646
24	Printing and reproduction	31	0	33
25.1	Advisory and assistance services	13,066	0	13,441
25.2	Other services from non-Federal sources	8,233	0	8,609
25.3	Other goods and services from Federal sources	922	1,000	1,922
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	7	0	7
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	681	0	692
31	Equipment	170	0	179
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	5,311	0	5,837
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	63,500	1,000	68,332

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (PAC) – Transfer of Sustainment Funding for ESPDS/CLASS to Common Ground Service (PAC)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	10,569	0	10,419
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	10,569	0	10,419
12	Civilian personnel benefits	3,382	0	3,334
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	248	0	248
22	Transportation of things	0	0	0
23	Rent, communications, and utilitites	1,230	0	1,230
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	40	0	40
25.1	Advisory and assistance services	5,695	0	5,695
25.2	Other services from non-Federal sources	2,284	0	2,284
25.3	Other goods and services from Federal sources	638,272	(7,800)	574,580
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	111	0	111
31	Equipment	549	0	549
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	15,747	0	15,747
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	678,127	(7,800)	614,237

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Common Ground Service (PAC) – Transfer of Sustainment Funding for ESPDS and CLASS from Low Earth Orbit (PAC)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	4,796	0	5,017
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	4,796	0	5,017
12	Civilian personnel benefits	1,535	0	1,605
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	13	0	13
22	Transportation of things	1	0	1
23	Rent, communications, and utilitites	550	0	550
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	0	0	0
25.1	Advisory and assistance services	8,545	0	13,274
25.2	Other services from non-Federal sources	12,661	0	13,591
25.3	Other goods and services from Federal sources	5,689	7,800	15,578
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	3,937	0	5,237
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	109	0	109
31	Equipment	928	0	928
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	519	0	519
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	4	0	4
44	Refunds	0	0	0
99	Total obligations	39,287	7,800	56,426

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (PAC) – Transfer of Operations Funding for the Argos Data Collection and Location System to the Office of Satellite and Product Operations (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	10,569	0	10,419
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	10,569	0	10,419
12	Civilian personnel benefits	3,382	0	3,334
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	248	0	248
22	Transportation of things	0	0	0
23	Rent, communications, and utilitites	1,230	0	1,230
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	40	0	40
25.1	Advisory and assistance services	5,695	0	5,695
25.2	Other services from non-Federal sources	2,284	0	2,284
25.3	Other goods and services from Federal sources	638,272	(1,300)	574,580
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	111	0	111
31	Equipment	549	0	549
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	15,747	0	15,747
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	678,127	(1,300)	614,237

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

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TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Office of Satellite and Product Operations (ORF) – Transfer of Operations Funding for the Argos Data Collection and Location System from Low Earth Orbit (PAC)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base*
11.1	Full-time permanent compensation	34,793	150	38,935
11.3	Other than full-time permanent	77	0	77
11.5	Other personnel compensation	5,002	0	5,002
11.7	NOAA Corps	277	0	277
11.9	Total personnel compensation	40,149	150	44,014
12	Civilian personnel benefits	12,848	48	15,799
13	Benefits for former personnel	8	0	8
21	Travel and transportation of persons	33	0	39
22	Transportation of things	95	0	99
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	9,057	0	9,644
23.2	Rental Payments to others	1,229	0	1,229
23.3	Communications, utilities and misc charges	2,657	0	2,657
24	Printing and reproduction	7	0	7
25.1	Advisory and assistance services	51,634	0	54,552
25.2	Other services from non-Federal sources	50,827	0	50,827
25.3	Other goods and services from Federal sources	13,537	1,102	53,829
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	3,241	0	3,241
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	1,222	0	1,285
31	Equipment	1,623	0	1,740
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	928	0	928
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	5	0	5
44	Refunds	0	0	0
99	Total obligations	189,099	1,300	239,902

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

Exhibit 10

Department of Commerce
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PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
Comparison by Subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE (NESDIS)											
Office of Satellite and Product Operations (OSPO)	Pos/BA	285	184,941	295	189,099	294	239,902	294	248,902	0	9,000
	FTE/OBL	278	191,944	287	189,099	286	239,902	286	248,902	0	9,000
Product Development, Readiness & Application (PDR&A)	Pos/BA	80	29,920	88	28,434	86	44,599	91	68,340	5	23,741
	FTE/OBL	83	29,986	87	28,434	85	44,599	88	68,340	3	23,741
Office of Space Commerce (OSC)	Pos/BA	8	9,953	20	10,000	0	0	0	0	0	0
	FTE/OBL	10	8,899	19	10,000	0	0	0	0	0	0
U.S. Group on Earth Observations (USGEO)	Pos/BA	0	499	0	500	0	500	0	1,000	0	500
	FTE/OBL	0	499	0	500	0	500	0	1,000	0	500
National Centers for Environmental Information (NCEI)	Pos/BA	176	62,488	187	63,500	187	68,332	187	90,832	0	22,500
	FTE/OBL	160	63,736	165	63,500	165	68,332	165	90,832	0	22,500
TOTAL NESDIS - ORF	**Pos/BA**	**549**	**287,801**	**590**	**291,533**	**567**	**353,333**	**572**	**409,074**	**5**	**55,741**
	FTE/OBL	**531**	**295,064**	**558**	**291,533**	**536**	**353,333**	**539**	**409,074**	**3**	**55,741**

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		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
Comparison by Subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE (NESDIS)											
Geostationary Earth Orbit (GEO)	Pos/BA	0	9,974	0	10,000	51	344,500	60	964,829	9	620,329
	FTE/OBL	0	9,938	0	10,000	47	344,500	53	964,829	6	620,329
Geostationary Systems-R (GOES-R)	Pos/BA	50	332,583	51	334,500	0	0	0	0	0	0
	FTE/OBL	59	334,687	47	334,500	0	0	0	0	0	0
Low Earth Orbit (LEO)	Pos/BA	0	0	0	0	101	614,237	98	438,840	(3)	(175,397)
	FTE/OBL	0	0	0	0	92	614,237	88	438,840	(4)	(175,397)
Polar Weather Satellites (PWS)	Pos/BA	92	649,411	96	657,835	0	0	0	0	0	0
	FTE/OBL	97	654,541	88	657,835	0	0	0	0	0	0
Cooperative Data and Rescue Services (CDARS)	Pos/BA	4	14,358	4	14,400	0	0	0	0	0	0
	FTE/OBL	3	8,420	3	14,400	0	0	0	0	0	0
COSMIC-2/GNSS RO	Pos/BA	2	5,865	2	5,892	0	0	0	0	0	0
	FTE/OBL	1	5,619	2	5,892	0	0	0	0	0	0
Space Weather Observations (SWO)	Pos/BA	0	0	0	0	35	114,721	58	287,806	23	173,085
	FTE/OBL	0	0	0	0	28	114,721	46	287,806	18	173,085
Projects, Planning and Analysis (PPA)	Pos/BA	16	14,817	16	15,945	0	0	0	0	0	0
	FTE/OBL	7	18,507	15	15,945	0	0	0	0	0	0
Space Weather Follow On (SWFO)	Pos/BA	19	107,819	19	108,115	0	0	0	0	0	0
	FTE/OBL	17	108,226	13	108,115	0	0	0	0	0	0
Common Ground Services (CGS)	Pos/BA	38	37,163	42	39,287	42	56,426	66	105,433	24	49,007
	FTE/OBL	36	48,768	34	39,287	34	56,426	52	105,433	18	49,007
Systems/Services Architecture & Engineering (SAE)	Pos/BA	29	37,498	29	38,500	29	38,500	33	74,500	4	36,000
	FTE/OBL	33	33,827	27	38,500	27	38,500	30	74,500	3	36,000

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(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
Comparison by Subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE (NESDIS)											
Satellite CDA Facility	Pos/BA	0	1,572	0	2,450	0	2,450	0	2,450	0	0
	FTE/OBL	0	1,727	0	2,450	0	2,450	0	2,450	0	0
Transfer to OIG	Pos/BA	0	0	0	(2,000)	0	0	0	0	0	0
	FTE/OBL	0	0	0	(2,000)	0	0	0	0	0	0
TOTAL NESDIS - PAC	**Pos/BA**	**250**	**1,211,060**	**259**	**1,224,924**	**258**	**1,170,834**	**315**	**1,873,858**	**57**	**703,024**
	FTE/OBL	**253**	**1,224,260**	**229**	**1,224,924**	**228**	**1,170,834**	**269**	**1,873,858**	**41**	**703,024**
TOTAL NESDIS	**Pos/BA**	**799**	**1,498,861**	**849**	**1,516,457**	**825**	**1,524,167**	**887**	**2,282,932**	**62**	**758,765**
	FTE/OBL	**784**	**1,519,324**	**787**	**1,516,457**	**764**	**1,524,167**	**808**	**2,282,932**	**44**	**758,765**

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(Dollar amounts in thousands)

Activity: Environmental Satellite Observing System

Goal Statement

NOAA manages environmental satellites and related ground systems to provide timely and accurate environmental data and products for forecasts and warnings to ensure the safety of U.S. citizens, public property, and infrastructure.

Base Program

NOAA's Environmental Satellite Observing Systems activities are to:

- Maintain and operate a system of polar-orbiting satellites which provide global imaging and sounding for medium and long-range weather forecasting and climate analysis crucial to numerical weather prediction models.
- Maintain and operate a system of geostationary satellites to provide near-continuous environmental observations of the Earth's Western Hemisphere critical for weather forecasting and severe storm tracking.
- Supply data and operational products to the public and decision-makers.
- Operate and maintain the mission control center for the search and rescue satellite system.

The Environmental Satellite Observing System activity includes the following Subactivities: Office of Satellite and Product Operations; Product Development, Readiness and Application; and U.S. Group on Earth Observation. Detailed operating objectives for each Subactivity are described below.

Statement of Operating Objectives

Office of Satellite and Product Operations (OSPO)
Schedule and Milestones:
FY 2023 – FY 2027

- 24/7 operations, collision, and anomaly support for NOAA geostationary, low earth orbiting, and space weather satellites; and, backup operations for Jason Continuity of Service (Jason CS) and Metop satellites
- Process and distribute environmental data from NOAA geostationary and low earth orbiting satellites; Metop B, C, and EUMETSAT Polar System Second Generation (EPS-SG); Argos-4, and other international partner satellites
- Continuously monitor and annual penetration testing of all NOAA information technology (IT) systems

- Enhance common processes in response to IT Security events or incidents including moving NESDIS non-satellite control high impact networks into NOAA OCIO's secure active directory
- Maintain satellite operation facilities at Suitland, Maryland; Wallops, Virginia; Utqiaġvik and Fairbanks, Alaska; and Fairmont, West Virginia
- Maintain infrastructure for National/Mission High and Moderate Critical IT Systems
- Maintain SARSAT infrastructure

FY 2023

- Accept handover of JPSS-2 after completion of on-orbit testing

FY 2025

- Accept handover of SWFO after completion of on-orbit testing
- Accept handover of GOES-U after completion of on-orbit testing

Deliverables:

- Delivery of satellite data and products to users
- Engineering support for NOAA on-orbit satellites
- Support search and rescue antenna performance checks on POES (NOAA-19) and Metop B and C
- Maintain satellite operations facilities at Suitland, Maryland; Wallops, Virginia; Utqiaġvik and Fairbanks, Alaska; and Fairmont, West Virginia
- Maintain infrastructure for National/Mission High and Moderate Critical IT Systems
- Maintain SARSAT infrastructure

Product Development, Readiness & Application (PDR&A)
Schedule and Milestones:

FY 2023 – FY 2027

- For Metop-SG A1 and B1 satellites instruments, complete algorithms, pre-launch readiness, support initial calibration, conduct NOAA initial product validation, and transition to routine algorithm maintenance and anomaly resolution, and support routine calibration maintenance
- For ongoing commercial GNSS-RO, provide science input data to evaluate commercial offerings and provide transition support and ongoing quality assessment for purchased data
- For CWDP Round 3 and 4, provide science input / support / evaluation depending on commercial sector readiness
- Deliver enterprise algorithms for operational implementation in cloud computing to enable transition off of legacy algorithms

processing in legacy ground product generation

- For JPSS-2 sensors and products, complete initial calibration/validation, and transition to routine calibration/validation, algorithm maintenance, and anomaly resolution
- Develop requirements, algorithms, test and verify then transition to operations and routine maintenance/anomaly resolution for updated LEO/GEO blended products incorporating Metop-SG
- Develop requirements, algorithms, test and verify then transition to operations and routine maintenance/anomaly resolution for geostationary ring and LEO/GEO blended products incorporating Meteosat Third Generation
- Complete GOSAT AMSR-3 algorithms, and initial c calibration/validation and look up table delivery and transition to routine calibration, validation, algorithm maintenance and anomaly resolution
- Complete final validation of Sentinel-6 Michael Freilich
- For Sentinel-6B perform pre-launch development, post-launch evaluation, initial validation of products, implement work packages in 6-month commissioning phase with Sentinel-6 Michael Freilich, and final validation of Sentinel-6B, transition of both to routine calibration/validation maintenance and anomaly resolution
- For GOES-U, complete pre-launch preparations and post launch calibration/validation and transition to routine calibration, validation, algorithm maintenance and anomaly resolution
- For JPSS-3, complete pre-launch calibration/validation, look up tables and integrated calibration/validation system readiness

Deliverables:

- Maintain algorithms and data product validation to translate raw data into useful products meeting quality requirements for GOES-R Series, Sentinel-6, POES, Metop, COSMIC, CWDP, EOS, Himawari, Meteosat, Sentinel, Scatsat, and lead for JPSS series and GCOM-W, GOSAT AMSR 3, Metop-SG, Sentinel 4 and 5
- Conduct pre-launch initial instrument calibration and product validation for satellites to be launched, and complete initial instrument calibration and product validations for recently launched satellites
- Perform suitability assessment, and validation of non-NOAA data sources for NOAA use, and incorporate non-NOAA data flows into NOAA enterprise algorithms and NOAA models (in cooperation with NWS, OAR, NOS)
- Provide science coordination with national and international partners
- Provide observing requirements inputs to future satellite sensor and mission studies and support their optimization for NOAA mission needs and subsequent development

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U.S. Group on Earth Observations (USGEO):
Schedule and Milestones:
FY 2023 – FY 2027

- Support the development and growth of the United States' programmatic contributions to the GEO Work Program in support of national and international policy and NOAA mission objectives
- Increase the U.S. participation in the implementation of GEO's strategic plan through a grant to the GEO Trust Fund

Deliverables:

- Participation in major GEO meetings and activities to promote international engagement and coordination with stakeholders and outreach
- GEO Secretariat will devote more resources to strengthen program integration, coordination and user engagement in areas of key interest to NOAA such as urban resilience
- New contractor support to strengthen the capacity of the Inter-American community to advance the application of Earth observations, geospatial, and statistical data through flexible training options to gain required knowledge, skills, and abilities

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(Dollar amounts in thousands)

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
Comparison by Subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Office of Satellite and Product Operations (OSPO)	Pos/BA	285	184,941	295	189,099	294	239,902
	FTE/OBL	278	191,944	287	189,099	286	239,902
Product Development, Readiness & Application (PDR&A)	Pos/BA	80	29,920	88	28,434	86	44,599
	FTE/OBL	83	29,986	87	28,434	85	44,599
Office of Space Commerce (OSC)	Pos/BA	8	9,953	20	10,000	0	0
	FTE/OBL	10	8,899	19	10,000	0	0
U.S. Group on Earth Observations (USGEO)	Pos/BA	0	499	0	500	0	500
	FTE/OBL	0	499	0	500	0	500
Total Environmental Satellite Observing Systems	Pos/BA	373	225,313	403	228,033	380	285,001
	FTE/OBL	371	231,328	393	228,033	371	285,001

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(Dollar amounts in thousands)

Office of Satellite and Product Operations (OSPO) (http://www.ospo.noaa.gov/): OSPO acquires and delivers accurate, timely, and reliable satellite observations and integrated products from NOAA-operated, commercially-acquired, and domestic and international non-NOAA satellites. OSPO provides support during launch, activation, and evaluation of recently launched satellites of interest; satellite health and safety monitoring, satellite operations, and data acquisition to meet user needs; and, assessment of satellite and ground station anomalies and support to appropriate recovery actions for those anomalies.

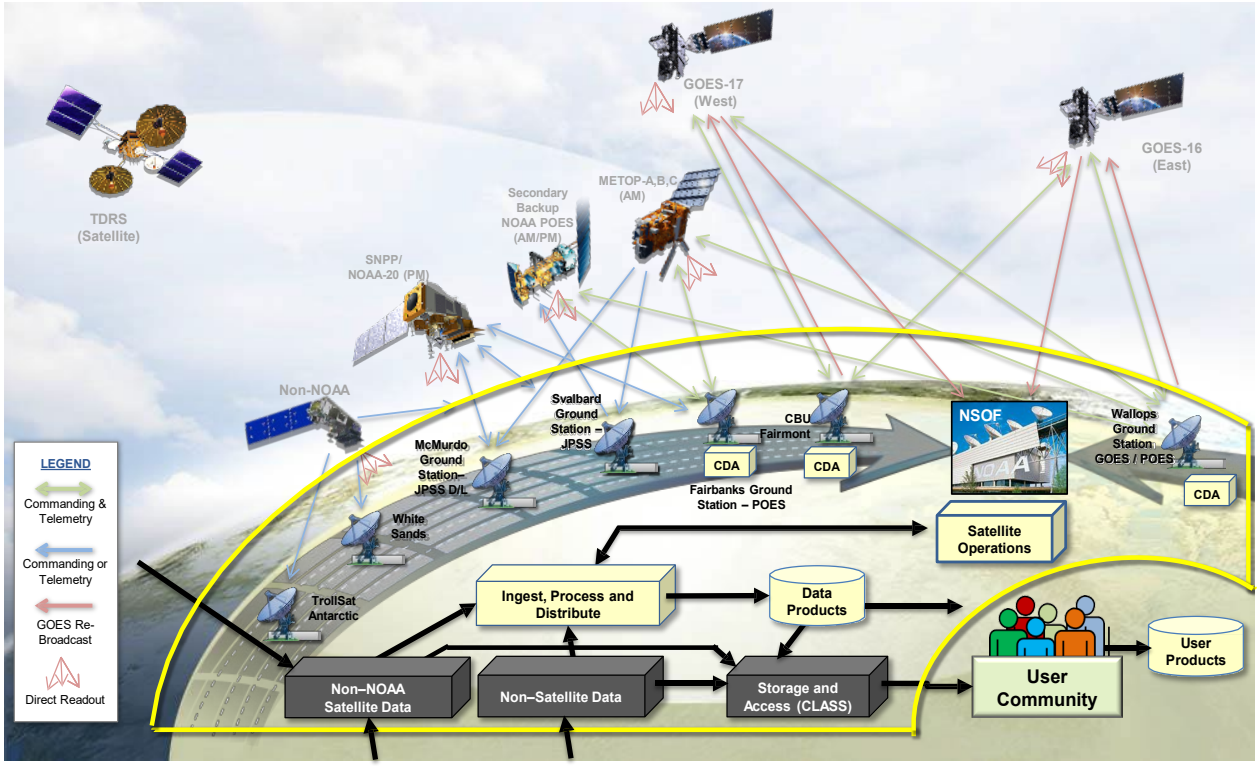
OSPO manages and directs NOAA's command and control of the suite of on-orbit satellites that supply the environmental data critical for developing weather and climate products used daily by Federal and state agencies, industry, and citizens across the Nation. To this end, OSPO works with NOAA's National Weather Service (NWS) to supply the satellite data that makes up over 90 percent of the information used in their numerical weather prediction models. OSPO collects space weather data, which is used to protect the aviation and electric power industries, Global Positioning System, radio communications, and satellites. OSPO provides satellite transmission services that provide operational data, derived products, and support for the worldwide direct readout community who are given free, unrestricted access to the scientific data from NOAA satellites. OSPO is also the United States operator for the international Search and Rescue Satellite-Aided Tracking (SARSAT) system, utilizing NOAA satellites, dedicated to saving persons in distress on land or water.

Overall, OSPO:

- Maintains and operates a system of polar-orbiting satellites which provide global imaging and sounding for medium and long-range weather forecasting and climate analysis crucial to numerical weather prediction models;
- Maintains and operates a system of geostationary satellites to provide near-continuous environmental observations of the Western Hemisphere critical for weather forecasting and severe storm tracking;
- Performs long-term maintenance to preserve the form, fit, and function of legacy ground systems;
- Performs on-orbit anomaly support for the legacy Geostationary Operational Environmental Satellites (GOES) and Polar-orbiting Operational Environmental Satellites (POES) series of satellites, Deep Space Climate Observatory (DSCOVR), and Jason-3;
- Supplies data and operational products to the public and decision-makers;
- Operates a continuous Data Collection System (DCS) service, providing data relay services for multiple Federal and commercial users; and,
- Operates and maintains the U.S. Mission Control Center for the search and rescue satellite system.

In FY 2022, OSPO operated and supported a total of 19 on-orbit satellites including: legacy GOES and POES; Suomi National Polar-orbiting Partnership (Suomi NPP) and Joint Polar Satellite System (JPSS) satellites; GOES-R Series satellites; DSCOVR; Jason-3; as well as other non-NOAA operational environmental satellites. OSPO's IT Security implements vulnerability management against the

latest threats on satellite ground systems to lower the operational risk, which ensures continuity of critical satellite data flow to key customers such as NOAA's NWS.



Maintaining the operations and data acquisition from NOAA and our partner satellites is a 24/7 process. OSPO manages and directs operation of the central ground facilities which ingest, process, and distribute environmental satellite data and derived products to users.

OSPO sustains NOAA's legacy ground systems through capability enhancements; periodic technology refresh, including hardware and software upgrades; and IT security. OSPO currently sustains ground segments supporting the following satellite constellations: GOES;

POES; Jason-3; and DSCOVR. OSPO also supports elements of the GOES-R Series and JPSS ground segment and sustains ground system antennas, which send and receive data to and from satellites.

OSPO supports:

- The NOAA Satellite Operations Facility (NSOF) for NOAA's 24 hours a day, 365 days a year, environmental satellite operations. Through NSOF, NOAA operates the ground systems that command, control, and acquire data from on-orbit satellites. Each day, NSOF processes more than 25 terabytes of environmental satellite raw data from on-orbit DOD, NOAA, and non-NOAA satellites. In addition to satellite operations, NSOF provides environmental data used to develop weather and climate products, as well as other information products used daily by industry and citizens across the Nation;
- The Satellite Operations Control Center and Environmental Satellite Processing Center, which serve as the vital link between satellites and users by providing uninterrupted availability of critical observations and real-time delivery of satellite data to product processing centers. These include the Command and Data Acquisition Stations at Wallops, Virginia, and Utqiaġvik and Fairbanks, Alaska, and the consolidated backup at Fairmont, West Virginia;
- The Comprehensive Large Array-data Stewardship System, providing the long-term preservation of and access to the ever-increasing input of data from observing systems (e.g., satellites, radar, and other ground observations);
- The GOES Data Collection System and Argos Data Collection and Location Systems used by researchers, governmental and environmental organizations worldwide;
- The U.S. SARSAT system is an integral part of the Cospas-Sarsat Program, which is an international humanitarian search and rescue system that detects and relays distress signals from mariners, aviators, and recreational enthusiasts, anywhere in the world, to Mission Control Centers that coordinate with local rescue authorities to rescue the person(s) in distress. NOAA coordinates U.S. participation in the international Cospas-Sarsat Program, and operates and maintains the U.S. Mission Control Center and the Local User Terminals, which are the satellite receiving ground stations that receive emergency beacon distress alerts; and,
- The NOAA instruments on the Metop-B and Metop-C satellites by providing data processing and distribution of environmental data, as well as anomaly support.

Product Development, Readiness & Application (PDR&A) (http://www.star.nesdis.noaa.gov/star/index.php): PDR&A provides the scientific and technical capabilities that enable the calibration and validation of state-of-the-art satellite-based information to be delivered to NOAA and its partners in usable formats. PDR&A increases forecast prediction capabilities using advanced satellite assimilation methods to accelerate and improve the quantitative use of research and operational satellite data in weather, ocean, climate, and environmental analysis and prediction systems. PDR&A capitalizes on NOAA's investment in the acquisition and management of the Nation's operational environmental satellites to 1) transform raw observations and data feeds into information

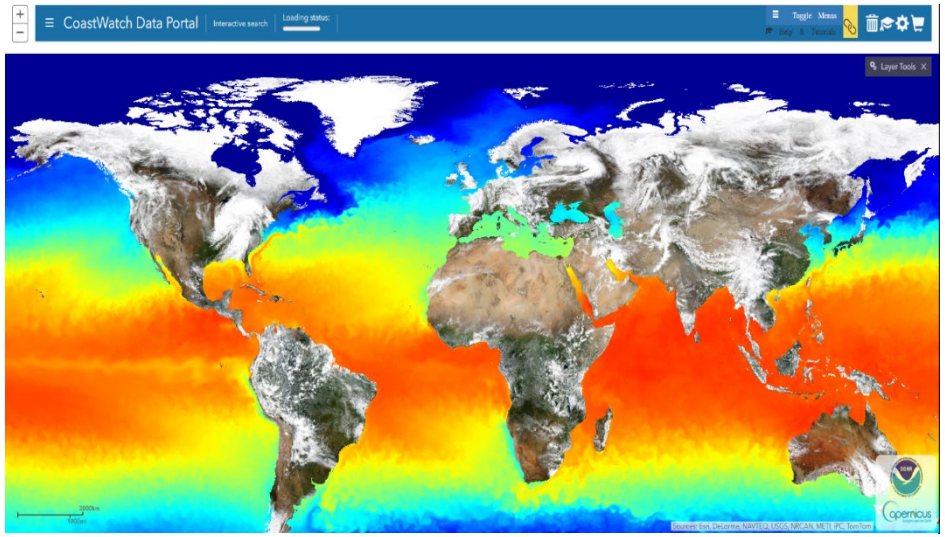
products and services to support NOAA's mission; 2) develop instrument and future mission observational requirements; 3) develop NOAA sensors and missions, including transition to operations; 4) maintain and sustain satellite data quality; and 5) provide user support, training, and distribution services. PDR&A funds the core capabilities of the Center for Satellite Applications and Research (STAR) and post operational phase transition support for GOES-R Series, Jason, and JPSS.

Through these capabilities STAR implements funding from NESDIS and other programs to:

- Conduct comprehensive and rigorous calibration/validation of all data in NOAA's satellite operations and to the extent necessary for partner and commercial satellite data sources to ensure the accuracy of satellite products to meet user performance requirements throughout mission life cycles, collaborates with other satellite data providers to foster consistency and usability;
- Support resolution of instrument anomalies either pre-launch or on-orbit through compensating changes to data product algorithms and tables;
- Working with NOAA's Line Offices, combines NOAA's environmental satellite measurements with other available information to create fit for purpose blended data, products, and services to meet NOAA's mission requirements, such as through NOAA's Coast/Ocean/Polar Watch;
- Provide characterization, support, testing, assimilation technology and quality assurance for critical real time satellite data and information products to meet the needs of NOAA's National Weather Service, NOAA's other line offices, and partner U.S. Government and international agencies. These products feed forecast models and operational forecasts;
- Provide non-real time data and information products to meet the needs of NOAA's line offices and partner U.S. Government and international agencies for model validation, training and user readiness, retrospective assessments, and long term data sets improving environmental understanding;
- Through research and development into remote-sensing solutions to meet NOAA mission goals and science challenges, improve NOAA services that protect lives, property, and livelihoods by addressing challenges such as increasing lead times for severe weather warnings, severe ocean condition warnings, and providing accurate warnings of related environmental phenomena such as floods, fire, droughts, volcanic ash, toxic algal blooms, sea ice, water quality, etc.;
- Provide easy access to a wide range of products and services that support the Blue Economy; assess the impacts of environmental change in ecosystems, weather, and climate; help build the economy and support recreational and commercial activities; and strengthen our understanding of the marine environment;
- Improve the understanding of long-term trends in fire activity, emissions, and land surface properties, as well as assess the needs of gaps of the fire community;
- Support users through training, science support, risk reduction, consulting, enterprise distribution services complementing satellite product operations, testing and validation, and support to archive services; and,

- Support future NOAA and partner satellite instrument and mission requirements development to meet NOAA mission objectives, and support development through transition to operations of NOAA instruments and missions.

STAR's work supports Executive Order (EO) 14008, Tackling the Climate Crisis at Home and Abroad, and EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, by conducting scientific research and developing new satellite products to improve and expand the use of satellite data for monitoring global meteorological, climatological, and environmental conditions. STAR also provides the scientific expertise needed to support NESDIS and other NOAA line offices with carrying out activities in the *FY 2022 Extending Funding and Emergency Assistance Act* and *The Infrastructure Investment and Jobs Act* (P.L. 117-58). The products STAR develops are used widely within NOAA's weather, climate, and environmental monitoring and prediction systems and include products ranging from fire, aerosols, and atmospheric temperature to snow and ice cover, ocean color and temperature, and tropical cyclones. STAR's work in calibrating and validating satellite instruments and developing new products are integral to improving the quality and quantity of numerical weather predictions, climate observations, analysis, interpretation, and archives by maintaining a consistent climate record and improving our understanding of why changes are occurring.



The CoastWatch Data Portal provides users with visual access to CoastWatch oceanographic satellite data. Above is NOAA-20 VIIRS imagery with sea surface temperature.

U.S. Group on Earth Observations (USGEO): USGEO is a subcommittee of the White House National Science and Technology Council, with co-chairs from the Office of Science and Technology Policy, the National Aeronautics and Space Administration, NOAA, and the U.S. Geological Survey. GEO is a partnership of 113 governments and more than 150 participating organizations and associates from the public and private sectors at international, regional, and national levels with a mission to coordinate comprehensive and sustained Earth observations. The United States is a founding member of GEO, and NOAA serves as the United States Principal to GEO. USGEO provides program resources to support the U.S. Group on Earth Observations and supports NOAA's participation as part of the U.S. membership in the international Group on Earth Observations (GEO) organization. Global environmental and resource issues are among the great global challenges of our time, including mitigating and adapting to climate change and supporting sustainable

development and resilience of global communities in the face of public health crisis, stress on food systems and biodiversity, and environmental degradation. Integrated Earth observations from public and private sources, technological advances in the application of artificial intelligence and machine learning, cloud computing and data analytics are essential tools for addressing these challenges. USGEO is a key forum for international engagement and cooperation on Earth observations. USGEO fulfills legislative requirements to deliver a National Plan for Civil Earth Observations and its associated implementation plan. One of the National Plan's objectives is to coordinate the United States' participation and representation to GEO. Specifically:

- Enhance international cooperation to enable more robust Earth observation architectures;
- Work through international frameworks to increase access to data from overseas sources;
- Promote and advance the United States' interests; and,
- Strengthen global and regional leadership through engagement in the intergovernmental GEO and advancement of the western hemisphere regional GEO community, AmeriGEO

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Office of Satellite and Product Operations (OSPO)	Pos./BA	294	239,902	294	247,402	0	7,500
	FTE/OBL	286	239,902	286	247,402	0	7,500

Satellite and Product Operations Deferred and Extended Maintenance (+$7,500, 0 FTE/ 0 Positions) – NOAA requests an increase to support critical satellite operations and maintenance requirements. These funds will ensure resources to address repairs, maintenance, and major upgrades from a growing backlog. Funding will support maintenance for ground systems and major upgrades to antenna systems at NOAA's Command and Data Acquisition Stations in Wallops Island, Virginia, and Utqiaġvik and Fairbanks, Alaska; and at NOAA's Consolidated Back-up operational facility in Fairmont, West Virginia. Together, these systems command and control NOAA's satellite constellations and provide real-time environmental information and data to the National Weather Service for forecasts and early warnings that save lives and protect property.

Projects will include, but are not limited to, upgrades of antenna motors, feeds, high performance amplifiers, low noise amplifiers, transmitters, drive systems, and control units. NOAA will prioritize the projects in the year of execution based on available funding and mission requirements.

Schedule and Milestones:
FY 2023 – FY 2027

- Maintain satellite operation facilities at Suitland, Maryland; Wallops, Virginia; Utqiaġvik and Fairbanks, Alaska; and Fairmont, West Virginia
- Maintain infrastructure for National/Mission High and Moderate Critical IT Systems

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Deliverables:

- Maintain satellite operations facilities at Suitland, Maryland; Wallops, Virginia; Utqiaġvik and Fairbanks, Alaska; and Fairmont, West Virginia
- Maintain infrastructure for National/Mission High and Moderate Critical IT Systems

Performance Measures	2023	2024	2025	2026	2027
Percentage of satellite data successfully acquired to meet customer requirements					
With Increase	99%	99%	99%	99%	99%
Without Increase	95%	90%	85%	80%	80%
Outyear Costs:					
Direct Obligations	7,500	7,500	7,500	7,500	7,500
Capitalized	0	0	0	0	0
Uncapitalized	7,500	7,500	7,500	7,500	7,500
Budget Authority	7,500	7,500	7,500	7,500	7,500
Outlays	4,500	4,500	4,500	4,500	4,500
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Office of Satellite and Product Operations (OSPO)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	33,878	34,793	38,935	38,935	0
11.3	Other than full-time permanent	77	77	77	77	0
11.5	Other personnel compensation	5,002	5,002	5,002	5,002	0
11.7	NOAA Corps	277	277	0	0	0
11.9	Total personnel compensation	39,234	40,149	44,014	44,014	0
12	Civilian personnel benefits	11,354	12,848	15,799	15,799	0
13	Benefits for former personnel	8	8	8	8	0
21	Travel and transportation of persons	33	33	39	39	0
22	Transportation of things	95	95	99	99	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	9,057	9,057	9,644	9,644	0
23.2	Rental Payments to others	1,229	1,229	1,229	1,229	0
23.3	Communications, utilities and misc charges	2,657	2,657	2,657	2,657	0
24	Printing and reproduction	7	7	7	7	0
25.1	Advisory and assistance services	51,634	51,634	54,552	54,552	0
25.2	Other services from non-Federal sources	56,080	50,827	50,827	54,327	3,500
25.3	Other goods and services from Federal sources	13,537	13,537	53,829	53,829	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	3,241	3,241	3,241	3,241	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	1,222	1,222	1,285	2,785	1,500
31	Equipment	1,623	1,623	1,740	4,240	2,500
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	928	928	928	928	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	5	5	5	5	0
44	Refunds	0	0	0	0	0
99	Total obligations	191,944	189,099	239,902	247,402	7,500

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Office of Satellite and Product Operations (OSPO)	Pos./BA	294	239,902	294	241,402	0	1,500
	FTE/OBL	286	239,902	286	241,402	0	1,500

Enterprise Infrastructure Solutions (+$1,500, 0 FTE/ 0 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA Enterprise Infrastructure Solutions (EIS) contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services to support secure and reliable 24x7 communications among its nation-wide sites. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

NESDIS will prioritize transitioning the remaining NETWORX data circuits that are not part of the NOAA Enterprise WAN (N-Wave). In addition, the increase will support the carrier transition of the NESDIS SARSAT IP operational network of 16 sites to AT&T under EIS. Legacy voice services across NESDIS require upgrades from current Circuit Switched Voice Services.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

Schedule and Milestones:
FY 2023 – FY 2027

- Award NOAA task orders under EIS to support modernization needs

Department of Commerce
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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

- Establish a sustainable, resilient architecture to meet NOAA's current and planned needs
- Transition 100% NOAA Legacy GSA inventory to EIS

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Transition of NOAA telecommunication services to GSA's EIS					
With Increase	35%	60%	80%	100%	100%
Without Increase	35%	45%	55%	65%	75%
Outyear Costs:					
Direct Obligations	1,500	1,500	1,500	1,500	1,500
Capitalized	-	-	-	-	-
Uncapitalized	1,500	1,500	1,500	1,500	1,500
Budget Authority	1,500	1,500	1,500	1,500	1,500
Outlays	900	900	900	900	900
FTE	-	-	-	-	-
Positions	-	-	-	-	-

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Office of Satellite and Product Operations (OSPO)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	33,878	34,793	38,935	38,935	0
11.3	Other than full-time permanent	77	77	77	77	0
11.5	Other personnel compensation	5,002	5,002	5,002	5,002	0
11.7	NOAA Corps	277	277	0	0	0
11.9	Total personnel compensation	39,234	40,149	44,014	44,014	0
12	Civilian personnel benefits	11,354	12,848	15,799	15,799	0
13	Benefits for former personnel	8	8	8	8	0
21	Travel and transportation of persons	33	33	39	39	0
22	Transportation of things	95	95	99	99	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	9,057	9,057	9,644	9,644	0
23.2	Rental Payments to others	1,229	1,229	1,229	1,229	0
23.3	Communications, utilities and misc charges	2,657	2,657	2,657	2,657	0
24	Printing and reproduction	7	7	7	7	0
25.1	Advisory and assistance services	51,634	51,634	54,552	54,552	0
25.2	Other services from non-Federal sources	56,080	50,827	50,827	50,827	0
25.3	Other goods and services from Federal sources	13,537	13,537	53,829	55,329	1,500
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	3,241	3,241	3,241	3,241	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	1,222	1,222	1,285	1,285	0
31	Equipment	1,623	1,623	1,740	1,740	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	928	928	928	928	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	5	5	5	5	0
44	Refunds	0	0	0	0	0
99	Total obligations	191,944	189,099	239,902	241,402	1,500

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Product Development, Readiness and Application (PDR&A)	Pos./BA	86	44,599	86	52,599	0	8,000
	FTE/OBL	85	44,599	85	52,599	0	8,000

Advance Core Activities (+$8,000, 0 FTE/ 0 Positions) - NOAA requests an increase to improve the development rate of data products, applications, techniques, and systems to return to an appropriate baseline and better meet NOAA mission requirements; to support the transition to operations; to perform user engagement; as well as to support the full requirement for the legacy geostationary and polar satellite systems calibration and validation of instruments. PDR&A conducts required calibration/validation of all data in NOAA's satellite operations as well as partner and commercial satellite data used by NOAA mission services to ensure the sustained accuracy of all satellite products to meet user performance requirements. The number of satellites that NESDIS calibrates and validates has expanded, increasing the requirements for PDR&A and redefining the baseline. For example, while NOAA recently added GOES-16 and 17 and NOAA-20, the legacy satellites of GOES-14 and 15, and NOAA-15/18/19 are still in use. NOAA needs to maintain GOES-14 and 15 as a critical backup for the GOES-R series. The legacy polar satellites (NOAA-15/18/19) also continue to provide valuable data and products to users including weather forecast models.

Funding will sustain and advance core activities, including critical calibration and validation of products, algorithm development, and product maintenance in order to fully exploit satellite observations and products available to NOAA and advance the products by blending them with other external and international partners to create enterprise products. This increase would also help fully realize partner commitments, such as using data from European Space Agency's Metop satellites and other non-NOAA satellite data into blended products, in order to maximize the use of NOAA mission products and services, particularly for weather forecasts, including assimilation into numerical weather forecast models, and warnings that protect lives and property.

Schedule and Milestones:
FY 2023 – FY 2027

- Continue calibration and validation of all NOAA satellite operations

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

- Sustain development of algorithms and product maintenance
- Incorporate partner mission families into full sustainment posture

Deliverables:
- Maintain NESDIS current product suites
- Fully support calibration and validation of legacy geostationary and polar satellites

Performance Measures	2023	2024	2025	2026	2027
Number of NOAA, partner, and commercial mission families fully supported					
With Increase	16	20	20	20	20
Without Increase	8	8	8	8	8
Outyear Costs:					
Direct Obligations	8,000	8,000	8,000	8,000	8,000
Capitalized	0	0	0	0	0
Uncapitalized	8,000	8,000	8,000	8,000	8,000
Budget Authority	8,000	8,000	8,000	8,000	8,000
Outlays	4,960	4,960	4,960	4,960	4,960
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application (PDR&A)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	11,474	11,784	12,830	12,830	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	259	259	259	259	0
11.7	NOAA Corps	276	276	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	12,009	12,319	13,089	13,089	0
12	Civilian personnel benefits	4,022	3,942	4,283	4,283	0
13	Benefits for former personnel	4	4	4	4	0
21	Travel and transportation of persons	19	19	23	243	220
22	Transportation of things	3	3	3	3	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,800	2,800	2,808	2,808	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	35	35	35	35	0
24	Printing and reproduction	5	5	5	5	0
25.1	Advisory and assistance services	50	50	73	73	0
25.2	Other services from non-Federal sources	2,147	2,147	2,147	6,873	4,951
25.3	Other goods and services from Federal sources	274	274	14,996	17,825	2,829
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	4,406	2,625	2,917	2,917	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	58	58	60	60	0
31	Equipment	300	300	303	303	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,853	3,853	3,853	3,853	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	29,986	28,434	44,599	52,374	8,000

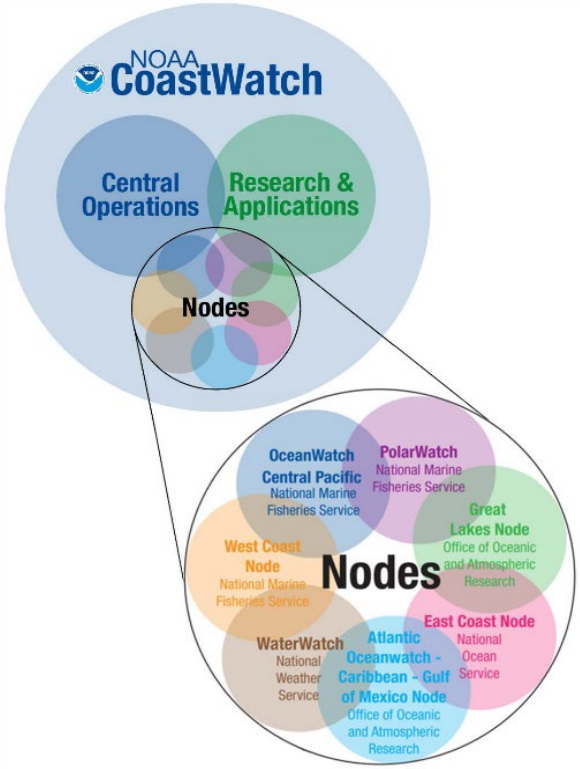
Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Product Development, Readiness and Application (PDR&A)	Pos./BA	86	44,599	86	51,104	0	6,505
	FTE/OBL	85	44,599	85	51,104	0	6,505

Ocean Remote Sensing (+$6,505, 0 FTE/ 0 Positions) – NOAA requests an increase to support sustainment of currently produced ocean products as well as development of additional ocean-related products and their transition to operations, including products utilized by the global and coastal oceans user community, climate-related products, and products and services that support improved understanding of ocean dynamics and marine ecosystems. Ocean Remote Sensing (ORS) products are currently developed and sustained on a best effort basis by seven parameter-based science teams (ocean color, ocean surface vector winds, sea ice and polar dynamics, sea surface height, sea surface salinity, sea surface temperature, and water surface conditions) and two service-based science teams (Coast/Ocean/Polar Watch and Coral Reef Watch). ORS products are used to find suitable wind farm locations and grow renewable energy; support NMFS enforcement of illegal, unreported, and unregulated fishing regulations; monitor oil spills; and build a sustainable aquaculture industry. Products produced by these teams include sea surface temperature maps that support NWS meteorological weather predictions, commercial and recreational activities (e.g., fishing), as well as NOS coral reef conservation efforts; ocean color radiometry data, derived chlorophyll-a, and total suspended matter/turbidity products utilized by Federal, State, and local coastal and ocean natural resource biologists to identify agricultural runoff plumes and blooms and predict harmful algal blooms; and ocean surface vector winds for NWS maritime warnings used by sailors and commercial shipping pilots for safe navigation. Re-establishing sustained and dedicated funding for ORS will enable more consistent and continued development, sustainment, and enhancement of products that support NOAA and government-wide initiatives, help build the Blue Economy, and strengthen our

understanding of the marine environment.

Development and dissemination of region-specific and specialized fit-for-purpose products and applications are provided by NOAA's CoastWatch/OceanWatch/PolarWatch and Coral Reef Watch programs. These Watches provide easy access to a wide range of global and regional satellite environmental data and data products for use in understanding, managing, and protecting ocean and coastal resources, as well as for assessing impacts of environmental change in ecosystems, weather, and climate. They are the interface between end users of ocean and coastal satellite data products (and related *in situ* data) and satellite remote sensing science and algorithm development. They provide end user services, including education and training about using ocean and coastal satellite data and products, and produce and provide tailored products for core constituent users. These Watches provide consistent access to high quality, long term time series data for climate and ecosystem research and applications, as well as monitoring climate change, and support all aspects of the Blue Economy. ORS leverages the Coral Reef Watch infrastructure provided by NOS to develop cross cutting products for applications beyond coral reef conservation. Making these satellite observations available to Federal, State, Tribal, and local agencies is critical to protect lives, property, and public health.



CoastWatch is a cross-NOAA program headquartered in NESDIS that provides satellite data products and services for understanding and managing our oceans and coasts. The regional nodes help build capacity, distribute data products, and work with users on specific applications tailored for the region.

Schedule and Milestones:
FY 2023 – FY 2027

- Develop ocean-related products, for example ocean color, sea surface temperature, and sea surface roughness, and transition products to sustained operations
- Continue to train users in the use of NOAA satellite data and products
- Continue to provide tailored ocean products and services for users

Deliverables:

- Conduct Federal funding and contract opportunities to provide at least 20 service enhancements/new ocean/coastal products annually

Department of Commerce
National Oceanic and Atmospheric Administration
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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

- Hold at least four intensive satellite user trainings annually, one per quarter

Performance Measures	2023	2024	2025	2026	2027
Number of ocean remote sensing products/service enhancements delivered					
With Increase	20	20	20	20	20
Without Increase	5	5	5	5	5
Number of users trained on satellite data and products					
With Increase	100	100	100	100	100
Without Increase	40	40	40	40	40
Outyear Costs:					
Direct Obligations	6,505	6,505	6,505	6,505	6,505
Capitalized	0	0	0	0	0
Uncapitalized	6,505	6,505	6,505	6,505	6,505
Budget Authority	6,505	6,505	6,505	6,505	6,505
Outlays	4,033	4,033	4,033	4,033	4,033
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application (PDR&A)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	11,474	11,784	12,830	12,830	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	259	259	259	259	0
11.7	NOAA Corps	276	276	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	12,009	12,319	13,089	13,089	0
12	Civilian personnel benefits	4,022	3,942	4,283	4,283	0
13	Benefits for former personnel	4	4	4	4	0
21	Travel and transportation of persons	19	19	23	48	25
22	Transportation of things	3	3	3	3	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,800	2,800	2,808	2,808	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	35	35	35	35	0
24	Printing and reproduction	5	5	5	7	2
25.1	Advisory and assistance services	50	50	73	73	0
25.2	Other services from non-Federal sources	2,147	2,147	2,147	5,610	3,463
25.3	Other goods and services from Federal sources	274	274	14,996	14,996	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	4,406	2,625	2,917	2,917	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	58	58	60	75	15
31	Equipment	300	300	303	803	500
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,853	3,853	3,853	6,353	2,500
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	29,986	28,434	44,599	51,104	6,505

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Product Development, Readiness and Application (PDR&A)	Pos./BA	86	44,599	89	48,599	3	4,000
	FTE/OBL	85	44,599	87	48,599	2	4,000

Advancing Fire Weather Priorities (+$4,000, 2 FTE/ 3 Positions) - NOAA requests additional funding for fire product research, development, transition, and sustainment. In 2020, wildfires burned over 10 million acres in the U.S., approximately 154% of the 10-year average. California and Colorado had their largest wildfires on record in 2020[2]. Assessments for the near future suggest that the fire danger in Western states is increasing to a year-round risk[3]. Fires are increasing in occurrence and spreading more aggressively at a time when the wildland/exo-urban interface is expanding. NESDIS is pursuing a series of short-term and long-term fire product development activities that address critical gaps in the fire product lifecycle, including products developed from funding in the *FY 2022 Extending Funding and Emergency Assistance Act* and *The Infrastructure Investment and Jobs Act* (IIJA; P.L. 117-58). The new fire products and research will address critical gaps but require a long-term investment in order to be sustained. Additional funds will: 1) support the transition of a new fire product and information system into operations; 2) support sustained operational production and maintenance; 3) improve the understanding of long-term trends in fire activity, emissions, and land surface properties (e.g. burn scars, wildfire fuel management, and ecosystem restoration); 4) continuously assess the needs and gaps of fire products and research to ensure the NESDIS satellite product portfolio remains impactful as needs and observations continuously evolve; and 5) enhance and maintain partnerships that strengthen the overall government response to the wildfire challenge. For example, this funding would help realize the full value of emerging and improved sources of satellite data for wildfire detection and monitoring, air quality forecasting, post-fire recovery, and many other impactful wildfire applications. Further, this funding would help realize the full value of a research effort to quantify the contributions of fires to greenhouse gas emissions and the resulting impact on air quality and climate, an activity funded in the IIJA, and ensure its transition to operations.

[2] https://fas.org/sgp/crs/misc/IF10244.pdf
[3] https://www.fs.usda.gov/features/year-round-fire-season

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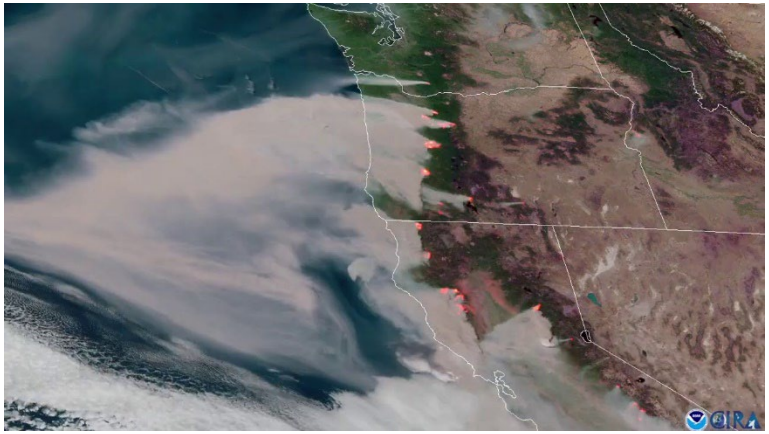
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)



GOES-17 imagery from September 2020 showing heat from West Coast

NOAA and partner satellites are a critical wildland fire information resource. Geostationary weather satellites, such as those in the GOES-R Series, provide near continuous observations, with new data available every 5 minutes. GOES-R Series satellite imagery allows analysts to quickly identify new fires and changes in fire intensity, while providing first-of-a-kind lightning observations. Polar orbiting satellites, such as JPSS, provide high resolution images twice per day that are critical for strategic decision-making and planning. Fire intensity products, derived from JPSS satellites, are a driving factor of operational smoke forecasts from the High Resolution Rapid Refresh model and the Global Forecasting System. JPSS also provides images that depict fire boundaries and burn scars. The GOES-R Series and JPSS capabilities have exceeded expectations, making possible new advanced fire applications, including many of those recommended by the Department of Homeland Security[4] and National Wildfire Coordinating Group[5]. The research and resulting development of new fire products will be closely coordinated with the fire community and other NOAA line offices (especially OAR and NWS) with an emphasis on being responsive to stakeholder needs, including those of underserved communities and Arctic Tribal nations, and supporting the proposed NOAA Fire Weather Testbed. Improved product dissemination will also be addressed. Users at Federal, State, Tribal, and local agencies rely on 24x7 access to these data and information products to inform decision-making to protect lives, property and critical infrastructure.

Schedule and Milestones:
FY 2023

- Demonstrate new or improved fire products in the NOAA Fire Weather Testbed
- Develop Common Data Services project plan for new cloud-based fire product/information system

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[4] Department of Homeland Security Science and Technology Integrated Project Team. *Wildland Urban Interface Fire Operational Requirements and Capability Analysis, Report of Findings*. May 31, 2019. Available: https://www.dhs.gov/sites/default/files/publications/wui_fire_report_of_findings_july_24_2019v2_508.pdf
[5] Lindley, T. T., C. M. Gravelle, S. M. O'Neill, D. C. Daily, W. Schroeder, S. Triplett, C. Belongie, B. Gardunio, and C. Thompson, 2020: Report on satellite technology requirements for wildland fire services in the CONUS. Satellite Data Task Team, Fire Environment Committee, National Wildfire Coordinating Group. Available: https://www.nwcg.gov/sites/default/files/committee/docs/fenc-satellite-data-task-team-final-report.pdf

- Prepare new fire product system, with GOES-R Series capabilities, for transition into the NESDIS Common Cloud Framework (NCCF)
- Ingest new data sources into the NCCF

FY 2023 – FY 2027

- Implement fire product system and updates into the NCCF
- Develop user readiness plan for new operational fire product system
- Work with partner organizations to integrate NOAA's readiness, responsiveness, and resilience assets
- Work with partners to engage vulnerable populations in becoming ready, responsive, and resilient in response to fires
- Prepare fire product system with GOES-R Series and JPSS VIIRS capabilities for operational transition into the NCCF, including associated reviews
- Coordinate fire product updates with the stakeholders
- Transition fire product system, including updates, into operations
- Integrate additional satellite sensor data into fire system
- Configure NCCF implementation of fire product system for generating high quality long-term fire data records
- Reprocess satellite data in the NCCF to update the Climate Data Record
- Update long-term fire and emission data records from reprocessed fire products

Deliverables:

- Implement five fire information system capabilities/enhancements per year
- Provide annual update on fire activity and emissions
- Provide report on fire system performance and user impacts
- Provide formal and informal education opportunities on resilience, readiness, and responsiveness in support of Fire
- Participate in outreach events on readiness, responsiveness, and resilience in support of Fire
- Implement new fire detection system into the operational environment
- Distribute operational products to users
- Conduct a workshop and disseminate survey to assess impact of new fire products and identify remaining gaps
- Provide reprocessed fire products to NCEI for archive

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of fire information system products/ enhancements delivered					
With Increase	5	5	5	5	5
Without Increase	1-2	1-2	1-2	1-2	1-2
Outyear Costs:					
Direct Obligations	4,000	4,000	4,000	4,000	4,000
Capitalized	0	0	0	0	0
Uncapitalized	4,000	4,000	4,000	4,000	4,000
Budget Authority	4,000	4,000	4,000	4,000	4,000
Outlays	2,480	2,480	2,480	2,480	2,480
FTE	2	3	3	3	3
Positions	3	3	3	3	3

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application (PDR&A)
Program Change: Advancing Fire Weather Priorities

Title		Grade	Number	Annual Salary	Total Salaries
Physical Scientist		ZP-IV	1	132,300	132,300
Physical Scientist		ZP-III/IV	1	107,500	107,500
Physical Scientist		ZP-III	1	93,600	93,600
Total			3		333,400
Less lapse	25.00%		(1)		(83,350)
Total full-time permanent (FTE)			2		250,050
2023 Pay Adjustment (4.6%)					11,502
					261,552

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	2
Total FTE	2
Authorized Positions:	
Full-time permanent	3
Total Positions	3

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	11,474	11,784	12,830	13,092	262
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	259	259	259	259	0
11.7	NOAA Corps	276	276	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	12,009	12,319	13,089	13,351	262
12	Civilian personnel benefits	4,022	3,942	4,283	4,367	84
13	Benefits for former personnel	4	4	4	4	0
21	Travel and transportation of persons	19	19	23	33	10
22	Transportation of things	3	3	3	3	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,800	2,800	2,808	2,808	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	35	35	35	35	0
24	Printing and reproduction	5	5	5	6	1
25.1	Advisory and assistance services	50	50	73	73	0
25.2	Other services from non-Federal sources	2,147	2,147	2,147	5,789	3,642
25.3	Other goods and services from Federal sources	274	274	14,996	14,996	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	4,406	2,625	2,917	2,917	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	58	58	60	61	1
31	Equipment	300	300	303	303	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,853	3,853	3,853	3,853	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	29,986	28,434	44,599	48,599	4,000

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Product Development, Readiness and Application (PDR&A)	Pos./BA	86	44,599	88	47,835	2	3,236
	FTE/OBL	85	44,599	86	47,835	1	3,236

Coastal Resilience and Water Quality (+$3,236, 1 FTE/ 2 Positions) – NOAA requests an increase to support development, transition to operations, and maintenance of new and improved satellite products, applications, and services for coastal resilience, including physical and ecological states across the land-sea interface. As recognized by the NOAA Science Advisory Board (SAB),[6] there is an urgent need for NOAA – in partnership with other Federal agencies – to expand and enhance observations, mapping, modeling, and services that inform the public about environmental and physical risk at the coast by identifying and leveraging existing capacities and capabilities to assess and predict coastal change and its impacts. Increased funding will provide improved (e.g., higher resolution) and new (e.g., nearshore coastal bathymetry, shoreline changes) multi-sensor observations and derived products (including satellite altimetry, ocean color, and synthetic aperture radar) that support monitoring, forecasting, and prediction of: coastal storms; extreme hazards and cascading events; water quantity, extent, and quality (e.g., water runup, runoff, nutrient and sediment loadings, hypoxia, eutrophication, and oil spills); and ecosystem health and services (e.g., coastal habitat changes, fisheries, and aquaculture). These satellite observations and derived products will be delivered at many time scales ranging from near-real time event observations (e.g., tracking extreme ecosystem events) to the interannual and multi-decadal assessments critical for understanding climate and its impact on fisheries and coastal ecosystems.

Scientific and technical infrastructure development is required in the areas of satellite observations, physical science and ecosystem research and development, modeling and forecasting support, social science research and applications, and decision support systems.

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[6] NOAA Science Advisory Board. *A NOAA Capability for Coastal Flooding and Inundation Information and Services at Climate Timescales to Reduce Risk and Improve Resilience*, Draft V2. April 2021. Available: https://sab.noaa.gov/sites/SAB/Documents/Meetings/SAB%20Meetings%202021/August%202021/NOAA%20Coastal%20Inundation%20at%20Climate%20Timescale%20White%20Paper_Version%207.0.pdf?ver=2021-07-28-100245-840

There is also the underlying need for improved technological capacity and application of cloud computing, artificial intelligence/machine learning, and other advanced and high performance computing approaches. Recognizing this need, this funding will build off current NESDIS cloud efforts and leverage the Data Access and Distribution initiative increase request (NESDIS-182) to give users timely and sustained access to tailored multi-sensor satellite data, derived products, and integrated information specific to the coastal zone. Leveraging inputs from the above initiative as well as from the IIJA and other supplemental funding, these data and derived products will synthesize suites of data streams to provide holistic, integrated information for ecosystem understanding and knowledge, focused on the needs of specific issues and coastal challenges.

Further, the SAB report from December 2021 on "Priorities for Weather Research"[7] strongly supports NOAA priorities related to water availability, quality and risk and coastal resilience. The requested funding would provide information needed by U.S. coastal communities to ensure the health and resilience of their ecosystems and their economies by increasing coastal resilience and decreasing risk. Addressing these needs is a growing challenge for the Nation and its people, especially underserved and underrepresented communities. These activities will leverage existing programs and activities, both domestically and internationally. NOAA is a leading partner in key international programs, including the Committee on Earth Observation Satellites' Coastal Observations, Applications, Services and Tools effort; and the Group on Earth Observation Blue Planet and AquaWatch Initiatives.

Schedule and Milestones:
FY 2023 – FY 2027

- Develop/improve/maintain coastal resilience satellite products
- Tailor web portals for decision/policy makers
- Develop/deliver user training for web portal and tailored sites

Deliverables:

- Provide at least four product or service enhancements/new coastal products annually
- Tailor web portal and information and knowledge sites to coastal users
- Hold at least one user training annually on new products

[7] NOAA Science Advisory Board, *2021: A Report on Priorities for Weather Research*. NOAA Science Advisory Board Report, 119 pp. https://sab.noaa.gov/wp-content/uploads/2021/12/PWR-Report_Final_12-9-21.pdf

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of new and improved coastal resilience products delivered per year					
With Increase	4	4	4	4	4
Without Increase	1	1	1	1	1
Number of new and improved information and knowledge portals delivered per year					
With Increase	3	3	3	3	3
Without Increase	1	1	1	1	1
Direct Obligations	3,236	3,236	3,236	3,236	3,236
Capitalized	0	0	0	0	0
Uncapitalized	3,236	3,236	3,236	3,236	3,236
Budget Authority	3,236	3,236	3,236	3,236	3,236
Outlays	2,006	2,006	2,006	2,006	2,006
FTE	1	2	2	2	2
Positions	2	2	2	2	2

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application (PDR&A)
Program Change: Coastal Resilience and Water Quality

Title		Grade	Number	Annual Salary	Total Salaries
Physical Scientist		ZP-IV	1	132,300	132,300
Physical Scientist		ZP-III	1	93,600	93,600
Total			2		225,900
Less lapse	25.00%		(1)		(56,475)
Total full-time permanent (FTE)			1		169,425
2023 Pay Adjustment (4.6%)					7,794
					177,219
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			1		
Total FTE			1		
Authorized Positions:					
Full-time permanent			2		
Total Positions			2		

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application (PDR&A)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	11,474	11,784	12,830	13,007	177
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	259	259	259	259	0
11.7	NOAA Corps	276	276	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	12,009	12,319	13,089	13,266	177
12	Civilian personnel benefits	4,022	3,942	4,283	4,340	57
13	Benefits for former personnel	4	4	4	4	0
21	Travel and transportation of persons	19	19	23	23	0
22	Transportation of things	3	3	3	3	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,800	2,800	2,808	2,808	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	35	35	35	35	0
24	Printing and reproduction	5	5	5	5	0
25.1	Advisory and assistance services	50	50	73	73	0
25.2	Other services from non-Federal sources	2,147	2,147	2,147	4,913	2,766
25.3	Other goods and services from Federal sources	274	274	14,996	14,996	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	4,406	2,625	2,917	2,917	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	58	58	60	60	0
31	Equipment	300	300	303	539	236
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,853	3,853	3,853	3,853	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	29,986	28,434	44,599	47,835	3,236

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Product Development, Readiness and Application (PDR&A)	Pos./BA	86	44,599	86	46,599	0	2,000
	FTE/OBL	85	44,599	85	46,599	0	2,000

Expanding Polar Region Integrated Satellite Marine and Ice Information Capabilities (+$2,000, 0 FTE/ 0 Positions) – NOAA proposes to substantially expand the scope of the current satellite work and its application for the polar regions (Arctic and Antarctic). Changes in polar climate and sea ice cover have societal impacts on national security, polar maritime transportation, fisheries, stability of Arctic communities, severe weather throughout the U.S., and coastal resilience. This funding will improve algorithms for Essential Climate Variables (sea ice concentration, extent/edge, thickness, and drift) through a blended, multi-sensor approach. New products for Essential Ocean Variables (fast ice, ice type, ice salinity, snow cover thickness, surface freeze-up and melt times, and melt pond coverage) will be added from existing and next-generation observations from NOAA and non-NOAA partner missions, including commercial missions. Time series will be extended with new NOAA and partner satellite observations and the entire satellite data record will be reprocessed for consistency to deliver U.S. Government authoritative climate products and services of the highest quality. The result will be more comprehensive datasets that will allow us to study and understand polar climates and their variation during the satellite era.

Improving information products will substantially expand their use, enabling development of new services and climate applications to inform stakeholders (marine transportation, ocean exploration, and seafood competitiveness) in advancing the New Blue Economy in polar waters. Additionally, this increase will support products, such as snow depth on ice and sea ice detection, used to facilitate commerce, support national defense, and understand climate change. Enhanced satellite applications will directly benefit the NWS Ocean Prediction Center, the National Ice Center, the U.S. Navy and Coast Guard, and the North American Ice Service product readiness for operational strategic/tactical support of the Government's interests in the polar regions and its national security. Further, enhanced observation products, information products (guidance, warnings, forecasts), and services provided by NOAA's PolarWatch and other programs (U.S. National Ice Center, NWS Alaska Sea Ice Program, Environmental Modeling Center, Department of Homeland Security's Arctic Domain Awareness Center, etc.) provide equitable access to decision-makers and the public. Leveraging

the PolarWatch capability enables data discovery, easy access, and broader usage of high-latitude satellite data products for governmental, academic, commercial, and public users in support of broad applications, including climate, in the Arctic and Southern Oceans.

Schedule and Milestones:
FY 2023 – FY 2027

- Expand polar product portfolio, data discovery, and availability by leveraging PolarWatch
- Target satellite-based sea ice product / service improvements (concentration, thickness, drift) that increase capability at operational NOAA centers to evaluate and predict sea ice conditions
- Reprocess priority satellite data record to extend/create Arctic and Antarctic climate data records

Deliverables:

- Conduct Federal funding and contract opportunities to add five new/enhanced Arctic and Antarctic products/services per year, to include Essential Climate Variables and Essential Ocean Variables related to sea ice

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of new/enhanced Arctic and Antarctic products and services delivered					
With Increase	5	5	5	5	5
Without Increase	1-2	1-2	1-2	1-2	1-2
Outyear Costs:					
Direct Obligations	2,000	2,000	2,000	2,000	2,000
Capitalized	0	0	0	0	0
Uncapitalized	2,000	2,000	2,000	2,000	2,000
Budget Authority	2,000	2,000	2,000	2,000	2,000
Outlays	1,240	1,240	1,240	1,240	1,240
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: Product Development, Readiness and Application (PDR&A)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	11,474	11,784	12,830	12,830	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	259	259	259	259	0
11.7	NOAA Corps	276	276	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	12,009	12,319	13,089	13,089	0
12	Civilian personnel benefits	4,022	3,942	4,283	4,283	0
13	Benefits for former personnel	4	4	4	4	0
21	Travel and transportation of persons	19	19	23	23	0
22	Transportation of things	3	3	3	3	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,800	2,800	2,808	2,808	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	35	35	35	35	0
24	Printing and reproduction	5	5	5	5	0
25.1	Advisory and assistance services	50	50	73	73	0
25.2	Other services from non-Federal sources	2,147	2,147	2,147	2,647	500
25.3	Other goods and services from Federal sources	274	274	14,996	14,996	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	4,406	2,625	2,917	2,917	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	58	58	60	60	0
31	Equipment	300	300	303	303	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,853	3,853	3,853	5,353	1,500
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	29,986	28,434	44,599	46,599	2,000

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
U.S. Group on Earth Observations (USGEO)	Pos./BA	0	500	0	1,000	0	500
	FTE/OBL	0	500	0	1,000	0	500

U.S. Group on Earth Observations (USGEO) (+$500, 0 FTE/ 0 Positions) – NOAA requests an increase to the GEO Trust Fund for the operations of the GEO Secretariat and to support the efforts of the AmeriGEO efforts in the Americas. The increased contribution to support the activities of GEO at global and regional levels will accelerate the implementation of the GEO Work Programme, will significantly improve the impact of activities on decision-making for societal benefit and will enable the U.S. to play a stronger leadership role in the GEO organization. This contribution supports a key objective of the USGEO – strengthen global and regional leadership of the United States through engagement in the intergovernmental GEO and advancement of AmeriGEO.

Schedule and Milestones:
FY 2023 – FY 2027

- Support the development and growth of the United States' programmatic contributions to the GEO Work Program in support of national and international policy and NOAA mission objectives.
- Increase the U.S. participation in the implementation of GEO's strategic plan through a grant to the GEO Trust Fund.

Deliverables:

- Participation in major GEO meetings and activities to promote international engagement and coordination with stakeholders and outreach.
- GEO Secretariat will devote more resources to strengthen program integration, coordination and user engagement in areas of key interest to NOAA such as urban resilience.
- New contractor support to strengthen the capacity of the Inter-American community to advance the application of Earth

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(Dollar amounts in thousands)

observations, geospatial, and statistical data through flexible training options to gain required knowledge, skills, and abilities.

Performance Measures	2023	2024	2025	2026	2027
Increase in grant funding in support of the GEO Trust Fund					
With Increase	1	1	1	1	1
Without Increase	0	0	0	0	0
Contract to support the international GEO					
With Increase	1	1	1	1	1
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	1,000	1,000	1,000	1,000	1,000
Capitalized	0	0	0	0	0
Uncapitalized	1,000	1,000	1,000	1,000	1,000
Budget Authority	1,000	1,000	1,000	1,000	1,000
Outlays	620	620	620	620	620
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Environmental Satellite Observing Systems
Subactivity: U.S. Group on Earth Observations (USGEO)

Object Class	2021 Actuals	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
Full-time permanent compensation	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Other personnel compensation	0	0	0	0	0
NOAA Corps	0	0	0	0	0
Special personnel services payments	0	0	0	0	0
Total personnel compensation	0	0	0	0	0
Civilian personnel benefits	0	0	0	0	0
Benefits for former personnel	0	0	0	0	0
Travel and transportation of persons	0	0	0	0	0
Transportation of things	0	0	0	0	0
Rental payments to GSA	0	0	0	0	0
Rental Payments to others	0	0	0	0	0
Communications, utilities and misc charges	0	0	0	0	0
Printing and reproduction	0	0	0	0	0
Advisory and assistance services	0	0	0	0	0
Other services from non-Federal sources	0	0	0	0	0
Other goods and services from Federal sources	15	0	0	0	0
Operation and maintenance of facilities	0	0	0	0	0
Research and development contracts	0	0	0	0	0
Medical care	0	0	0	0	0
Operation and maintenance of equipment	0	0	0	0	0
Subsistence and support of persons	0	0	0	0	0
Supplies and materials	0	0	0	0	0
Equipment	0	0	0	0	0
Lands and structures	0	0	0	0	0
Investments and loans	0	0	0	0	0
Grants, subsidies and contributions	484	500	500	1,000	500
Insurance claims and indemnities	0	0	0	0	0
Interest and dividends	0	0	0	0	0
Refunds	0	0	0	0	0
Total obligations	499	500	500	1,000	500

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: National Centers for Environmental Information

Goal Statement

NOAA's National Centers for Environmental Information (NCEI) is the Nation's leading authority for environmental information and is responsible for preserving, hosting, and providing access to one of the most significant environmental archives on Earth, with comprehensive oceanic, atmospheric, and geophysical data and information, covering the depths of the ocean to the surface of the sun, and from million-year-old sediment records to near real-time satellite images.

Base Program

The amount and demand for high-value environmental data and information has dramatically increased in recent years. NCEI currently hosts and provides access to over 45 petabytes (PB) (45,000 TB or 45 million GB) of data (primary and secure copy) and anticipates that the demand for data stewardship will rise to over 400 PB by 2030. Additionally, NCEI directly assists data users, servicing over 13,000 individual contacts annually, by email, phone, mail, and online. NCEI also provides key, easily-understood environmental data information via the NCEI website, with 14 million website visitors yearly. NCEI's data stewardship and archiving services provide for the highest return on investments in NOAA's Earth observations by ensuring data is findable, accessible, interoperable, and reusable. These data practices help expand data equality and expand usability to nontraditional users such as minority serving institutions and underserved communities.

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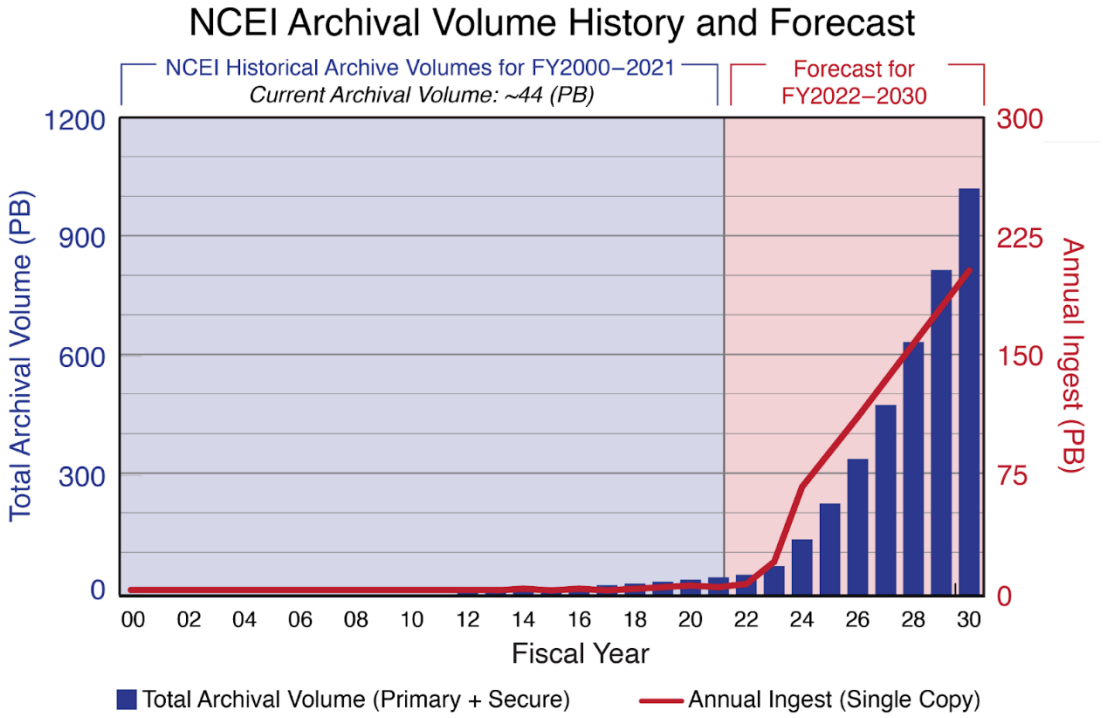

NCEI houses over 45 PB of data from ground, ocean, and space-based observation platforms that measure from the bottom of the ocean to the surface of the sun. The data holdings start with the present and go back millennia, and also include forward-looking model output. NCEI is the official archive of NOAA's GOES, POES, JPSS, GOES-R Series, Jason, DSCOVR, and COSMIC-2 satellite data, housing data covering from the 1970s to the present and providing stewardship for over 2.3 PB of data delivered to the archive annually from active satellites. With improvements in observation platforms, data stored at NCEI is expected to increase exponentially in the next decade. NCEI works with NOAA offices to host data from programs, including OAR's Office of Ocean Exploration and Research, NWS's Tsunami Program, NOS's Office of Coast Survey and National Geodetic Survey, NMFS's Office of Science and Technology, and OMAO ships and aircraft. NCEI also provides a repository for other national and international data collectors. NCEI develops critical climate services that are used every day by the NWS and provides a significant portion of NOAA's public-facing

climate services mission. For example, NCEI develops climate data records derived from NOAA and partner observations, which are used by government, industry, and academia to detect, monitor, and assess climate change-related trends and patterns as well as support climate adaptation and risk-assessment. NCEI also works with local, state, and regional partners to deliver place-based climate science and information products and services to help people make informed decisions as well as identify and amplify the climate services needs of traditionally underserved communities and populations.

Beyond NOAA, NCEI utilizes its expertise, datasets, and nation-wide presence to support State and Federal agencies, international partners, and industry. This includes programs with the Department of Defense, Department of Homeland Security's Federal Emergency Management Agency, Department of Agriculture, Department of Transportation's Federal Aviation Administration, and Department of State, as well as supporting every sector of the American economy. NCEI's transition to the cloud will increase public access, data innovation, and economic exploitation of NCEI climate products and services.

There are significant variations in information collected and needed across the U.S. NCEI has built a nationwide presence to best support priorities and needs at the national, regional, local and international levels. NCEI is headquartered in Asheville, North Carolina, with significant presences in Boulder, Colorado; Stennis Space Center, Mississippi; and Silver Spring, Maryland. NCEI further supports regional outreach through Regional Climate Service Directors strategically located in Taunton, Massachusetts; Stennis Space Center, MS; Kansas City, Missouri; Boulder, CO; Anchorage, AK; and Honolulu, Hawaii, with additional staff located in South Carolina and Wisconsin. NCEI also hosts four World Data Centers, as part of the International Science Council, providing international leadership in environmental data management.

NCEI's work directly supports EO 14008, Tackling the Climate Crisis at Home and Abroad, and EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, by providing access to PBs of environmental data, assessing the climate on a monthly basis, supporting regional climate work, analyzing national and global climate information in monthly and annual climate reports, and working directly with the public to assist in discovering and understanding data and information needs to inform decision making. The timely and accurate information provided by NCEI helps local and state governments, regions, and national and international decision makers prepare for and build back better from natural disasters and climate-related hazards; enables communities and industries to make climate smart decisions about the future; and helps ensure the longevity, sustainability, and prosperity of our natural resources, as well as the people, communities, and economies that rely on those resources. For example, NCEI helps characterize global and U.S. coastal ocean surface wind patterns for the marine transportation and offshore wind industries; curates a microplastics database to facilitate a better understanding of the distribution and effects of microplastics on the ocean environment, recreation, and fisheries; and provides improved ocean climatologies to better understand global and regional changes affecting coastal communities. NCEI also supports NESDIS and other NOAA line offices' activities, assisting with

implementing the *Foundations for Evidence-Based Policy Making Act* and providing the data stewardship and archiving for the large amount of data stemming from activities funded under the *FY 2022 Extending Funding and Emergency Assistance Act* and *The Infrastructure Investment and Jobs Act* (P.L. 117-58).

Statement of Operating Objectives

National Centers for Environmental Information (NCEI)
Schedule and Milestones:
FY 2023 – FY 2027

- Archive a minimum of 83 percent of all ingested data, including the U.S. Climate Reference Network data, ocean observations from NOAA vessels, and space weather data from NOAA geostationary satellites
- Provide access to environmental data and products for use in ecosystem baselines, monitoring, and assessments including Large Marine Ecosystem data
- Collect, review, and adjudicate user community needs across as many U.S. sectors as possible to identify the highest priority, core needs for improving existing products and informing new product development

Deliverables:
FY 2023 – FY 2027

- Provide archive and access services for NOAA and NOAA partners' environmental data and their derived products from *in situ* and satellite observations, including from geostationary, polar-orbiting, and space weather platforms
- Continue to archive and provide access to Large Marine Ecosystem data
- Provide an annual analysis of user engagement at the national and regional levels

Explanation and Justification

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Comparison by Subactivity		2021 Actual		2022 Annualized CR		2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
National Centers for Environmental Information (NCEI)	Pos/BA	176	62,488	187	63,500	187	68,332
	FTE/OBL	160	63,736	165	63,500	165	68,332
Total National Centers for Environmental Information (NCEI)	Pos/BA	176	62,488	187	63,500	187	68,332
	FTE/OBL	160	63,736	165	63,500	165	68,332

National Centers for Environmental Information (NCEI) (https://www.ncei.noaa.gov/): NCEI is continually working to foster innovative and value-added strategies, including the development of newly integrated products and services that span the science disciplines and enable better data discovery. By preserving, stewarding, and maximizing the utility of the Federal government's multi-billion-dollar investment in high-quality environmental data, NCEI remains committed to providing products and services to private industry and businesses, local and international governments, academia, and the general public. NCEI:

- Provides billions of dollars of benefit to the U.S. economy through authoritative and actionable environmental data that informs future investments across sectors such as finance, agriculture, fisheries, transportation, energy, insurance, and manufacturing;
- Transforms complex, long-term data from a variety of legacy and modern observing systems into use-inspired, operational products and information to meet the needs of government, academia, and U.S. industry;
- Provides data preservation and access services that enable full use of the Nation's multi-billion dollar investment in satellite, ship, aircraft, and *in situ* observations;
- Advances and enables environmental science and decision making for resilient ocean and coastal communities, the Arctic, and space weather through derived products, assessments, and information services in support of customer requirements;
- Provides authoritative U.S. and global retrospective weather and climate data and information for decision making through use-inspired applied science, products, services, and assessments and monitoring;
- Maintains the Nation's archive of environmental information as well as international data holdings through the World Data System and leverages data portals and cloud services to maximize the availability and accessibility of official archived records;

- Conducts integrated scientific analyses of coastal and marine environmental datasets to better understand historical trends, anomalies, and the frequency of event occurrences; and,
- Provides regional and sectoral climate services in coordination with other NOAA and Federal entities to ensure that broad national comprehensive data and information, products, and services are available to public and private sector users at the local, state, regional, and Federal levels.

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
National Centers for Environmental Information (NCEI)	Pos./BA	187	68,332	187	74,632	0	6,300
	FTE/OBL	165	68,332	165	74,632	0	6,300

Improving Local, State, and Regional Climate Services (+$6,300, 0 FTE/ 0 Positions) - NOAA requests an increase to support local, state, and regional climate services and fund climate change attribution services. NOAA requires strong support for NCEI's Regional Climate Services (RCS), including the Regional Climate Centers (RCC), to support the development and delivery of a wide range of place-based climate science and information products and services to help people make informed decisions. These efforts increase the value of climate information to users and support more efficient, cost-effective delivery of products and services relevant to region-specific economic activity, hazards, and vulnerability. Expanding RCS, including investing in software, design, and staffing for data entry and analysis to support NOAA's research, observation, and modeling science, would enable NOAA to better articulate user needs for prioritization, improve development and delivery of operational regional information, and support engagement experts to showcase user needs by sector, geography, and timescale. Funding to improve RCS would also allow NOAA to sustain the full complement of RCSDs, who play a primary role in communicating with stakeholders, building and strengthening partnerships, and integrating NOAA's work with others engaged in developing and delivering climate services at the regional level. It would allow an additional level of support necessary to systematically identify needs and NOAA's role in supporting the top economic sectors, which vary from region to region. These initiatives will complement activities ongoing with NOAA's Regional Program and NOAA Regional Integrated Sciences and Assessments Program.

To enhance this improved service delivery, NOAA proposes to re-invigorate the State Climate partnership, and to train the local forecast office focal points on NOAA's climate assets available at local scales. This funding would support RCCs to build and refine NOAA's national products to meet the specific needs at state and local scales. Regional and state partners are also uniquely positioned to help identify and amplify the climate services needs of traditionally underserved communities and populations.

Additionally, the increased number and severity of disasters such as record wildfires, drought, heatwaves, and flooding events in recent years has resulted in frequent requests to connect these disasters to climate change. With increased funding, the science of attribution

would become an operational climate service, leveraging NCEI's monitoring and assessment roles. Support for this work would build on cloud and artificial intelligence infrastructure, and would operationalize a multi-million dollar research-to-operations effort that includes OAR, NESDIS, and NWS.

Schedule and Milestones:
FY 2023 – FY 2027

- Work with state climatologists to ensure regional products are better integrated into state government decisions.
- Work through NOAA Line Office Climate Services units and the NOAA Regional Collaboration teams to familiarize field personnel with NOAA climate assets. Coordinate on training enhancements when appropriate.
- Establish an operational event attribution function, including reporting mechanisms and cadence.

Deliverables:

- Create a unified mechanism for the collection of end-user engagement needs and lessons learned, which will allow for leadership discussion and adjudication
- Fully sustain the RCSD positions
- Report operationally on extreme events beginning FY 2023, leveraging NCEI's monthly and quarterly climate monitoring schedule, and increase the number of events addressed over the five-year window.
- Identify and document research needs/science gaps, and share with NOAA science partners, including OAR and NWS.

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of economic sectors regionally engaged, with sectoral needs documented and prioritized					
With Increase					
Economic sectors per region	Top 5	Top 6	Top 8	Top 10	Top 12
Total	30	36	48	60	72
Without Increase	9	9	9	9	9
Number of extreme events operationally analyzed and reported					
With Increase	0	1	1	2	4
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	6,300	6,300	6,300	6,300	6,300
Capitalized	0	0	0	0	0
Uncapitalized	6,300	6,300	6,300	6,300	6,300
Budget Authority	6,300	6,300	6,300	6,300	6,300
Outlays	3,906	3,906	3,906	3,906	3,906
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: National Centers for Environmental Information
Subactivity: National Centers for Environmental Information (NCEI)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	20,605	21,493	23,279	23,279	0
11.3	Other than full-time permanent	144	144	144	144	0
11.5	Other personnel compensation	408	408	408	408	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	21,157	22,045	23,831	23,831	0
12	Civilian personnel benefits	6,767	7,055	7,784	7,784	0
13	Benefits for former personnel	30	30	30	30	0
21	Travel and transportation of persons	14	14	15	31	16
22	Transportation of things	34	34	34	34	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	4,782	4,782	4,799	4,799	0
23.2	Rental Payments to others	473	473	473	526	53
23.3	Communications, utilities and misc charges	646	646	646	646	0
24	Printing and reproduction	31	31	33	34	1
25.1	Advisory and assistance services	13,910	13,066	13,441	13,441	0
25.2	Other services from non-Federal sources	8,233	8,233	8,609	14,838	6,229
25.3	Other goods and services from Federal sources	922	922	1,922	1,922	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	7	7	7	7	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	681	681	692	692	0
31	Equipment	170	170	179	180	1
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	5,547	5,311	5,837	5,837	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	332	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	63,736	63,500	68,332	74,632	6,300

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
National Centers for Environmental Information (NCEI)	Pos./BA	187	68,332	187	74,332	0	6,000
	FTE/OBL	165	68,332	165	74,332	0	6,000

Climate Data Records (+$6,000, 0 FTE/ 0 Positions) - Additional funding is requested to revitalize NOAA's ability to develop and operationally sustain seamless and consistent multi-decadal climate data records (CDRs) derived from NOAA and partner satellite observations. Government, industry, and academia use CDRs to detect, monitor, and assess climate change-related trends and patterns in the Earth system. CDRs also support various climate adaptation and risk-assessment applications, and help to put recent or ongoing events into the historical context that helps gauge their significance. Without additional funding, the ability of NOAA to meet its mission to the energy, transportation, and food security industries will begin to degrade as older instruments fail and newer data are not incorporated into the record. Most CDRs address the Essential Climate Variable (ECV) requirements of the Global Climate Observing System (GCOS), and support global modeling efforts and national and international assessments (e.g., Intergovernmental Panel on Climate Change, IPCC). Other CDRs deal with even more foundational data, allowing for comparison of fundamental satellite output. This historically-consistent base data fuels the development of products, services, and science that can foster a greater understanding of the earth system and inform development of future observing platforms.

Additional funding would allow NOAA to: 1) augment its capability to develop use-driven CDRs addressing the nation's most pressing societal challenges, such as climate extremes (floods, droughts, heat waves, hurricanes, space weather), and international commitments such as the recurring Global Stocktakes of the Paris Agreement's mitigation and adaptation progress; 2) migrate and upgrade existing CDRs to utilize NOAA's advanced satellite fleet (JPSS, GOES-R Series) rather than end-of-life legacy satellites (POES, GOES, DMSP); 3) maintain and operationally sustain the CDRs using new observations as acquired, including episodically reprocessing full periods-of-record (1970s to present) as needed for improvements and consistency; and 4) develop and deliver CDR-relevant services -- including training and education -- to the U.S. public. NOAA will continue to coordinate its efforts with traditional U.S. partners (NASA, USGS) and international partners (e.g., EUMETSAT, ESA/Copernicus) to maximize value to the taxpayer. This initiative makes the multi-sourced petabytes of data usable by Federal, State, Tribal and local decision makers to support decision-making in the face of complex and dynamic environments.

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023 – FY 2027

- Continue preservation of existing climate data records and generation of new records
- Incorporate next-generation satellite missions into existing or new climate data records
- Incorporate new CDRs into accessible and understandable public products
- Engage with public and partner stakeholder groups to facilitate uptake of CDRs and their utility to assess climate change

Deliverables:

- Development or updating of two new climate data records per year, including atmospheric and ocean carbon

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of climate data records created or updated					
With Increase	26	28	30	32	34
Without Increase	26	22	15	11	11
Incorporation of next-generation missions into climate data records					
With Increase	1	1	1	2	2
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	6,000	6,000	6,000	6,000	6,000
Capitalized	0	0	0	0	0
Uncapitalized	6,000	6,000	6,000	6,000	6,000
Budget Authority	6,000	6,000	6,000	6,000	6,000
Outlays	3,720	3,720	3,720	3,720	3,720
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: National Centers for Environmental Information
Subactivity: National Centers for Environmental Information (NCEI)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	20,605	21,493	23,279	23,279	0
11.3	Other than full-time permanent	144	144	144	144	0
11.5	Other personnel compensation	408	408	408	408	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	21,157	22,045	23,831	23,831	0
12	Civilian personnel benefits	6,767	7,055	7,784	7,784	0
13	Benefits for former personnel	30	30	30	30	0
21	Travel and transportation of persons	14	14	15	30	15
22	Transportation of things	34	34	34	34	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	4,782	4,782	4,799	4,799	0
23.2	Rental Payments to others	473	473	473	473	0
23.3	Communications, utilities and misc charges	646	646	646	646	0
24	Printing and reproduction	31	31	33	34	1
25.1	Advisory and assistance services	13,910	13,066	13,441	13,441	0
25.2	Other services from non-Federal sources	8,233	8,233	8,609	14,592	5,983
25.3	Other goods and services from Federal sources	922	922	1,922	1,922	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	7	7	7	7	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	681	681	692	693	1
31	Equipment	170	170	179	179	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	5,547	5,311	5,837	5,837	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	332	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	63,736	63,500	68,332	74,332	6,000

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
National Centers for Environmental Information (NCEI)	Pos./BA	187	68,332	187	73,632	0	5,300
	FTE/OBL	165	68,332	165	73,632	0	5,300

Enhance Enterprise Data Stewardship and Archiving (+$5,300, 0 FTE/ 0 Positions) - NOAA requests an increase for enterprise data stewardship and archiving to further enhance the value of NOAA's investment in Earth observations, ensure the data being provided are appropriately quality assessed and quality controlled, and ensure data usability and access equality. Currently NCEI processes about 25 requests for recurring data and over 170 single submissions each year.[8] These stewardship services ensure data providers have their data preserved and accessible in accordance with regulations and best practices as well enable users, such as climate researchers, state and local resource managers, and infrastructure planners, to fully leverage these data to inform decision making and create economic value for the nation. This increase will allow for improvements to NCEI's data stewardship by increasing the capacity to complete at least 50 continuous data set requests per year to address the over 130 pending requests by partners for continuous stewardship services and supporting sustainment of existing systems as cloud solutions are developed. It will allow NCEI to address the current demand for data management, archive, and access capabilities and be able to better meet future demand. The priority will be on ensuring climate and coastal data are stewarded to support agency priorities. Enhancing NCEI's enterprise data stewardship and archiving abilities will ensure the necessary capabilities are in place to handle the normal, existing demand for data stewardship and archiving requests while also providing the foundation for increased capacity to handle the incoming data from the *FY 2022 Extending Funding and Emergency Assistance Act* and *The Infrastructure Investment and Jobs Act* (P.L. 117-58).

NCEI's data stewardship and archiving services supports the broad NOAA mission from the surface of the sun to the bottom of the ocean and ensures equitable discoverability, access, and usability of NOAA environmental data in alignment with the Federal Data Strategy and Federal Evidence-Based Policymaking Act. These efforts ensure the highest return on investment of NOAA's Earth

[8] Recurring (continuous) data submissions are collections of related data that are archived at some frequency, such as daily, monthly, or yearly. An example of a continuous data submission is for satellite or radar data that is delivered hourly or daily. A single submission is a one time submission of data to the archive. An example of a single data submission is ocean data from a cruise that is delivered once after the ship returns to port and data are processed.

observations by ensuring data are findable, accessible, interoperable, and reusable (FAIR), supporting scientific discovery today and decades into the future. In addition, FAIR data practices promote data equality by being broadly available and independently understandable, expanding the usability to nontraditional users such as minority serving institutions and underserved communities. NCEI works in partnership across NESDIS, NOAA, other Federal agencies, and international partners to engage stakeholders and leverage subject matter expertise to meet this mission.

Advances in observation, processing, and visualization technology have increased the demand for data stewardship and archiving services to manage increasingly large, complex, and variable data as well as provide trusted, curated, interoperable, and timely data. NCEI has struggled to keep pace with the demand which is expected to continue to grow exponentially. Expanding data stewardship and archiving capability will allow NCEI to address current NOAA demands for services and be prepared to leverage technology to further increase capacity. This investment will provide the foundational, trusted data for integrated climate, health, and economic research as well as create jobs through contract support. Through this initiative, NCEI will enable enhanced use of NOAA data by Federal, State, Tribal, and local users and support protection of lives, property, and critical infrastructure.

Schedule and Milestones:
FY 2023 – FY 2027

- Establish data archive teams and reduce the environmental data archive backlog based on current demand
- Partner across NOAA to improve data stewardship planning and create joint annual archive plan
- Maintain and sustain legacy enterprise stewardship capabilities

Deliverables:

- Create cross-NOAA annual archive plan
- Reduce the current pending archive requests by stewarding an additional 25 continuous data sets annually

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of continuous data sets archived annually					
With Increase	50	50	50	50	50
Without Increase	25	25	25	25	25
Outyear Costs:					
Direct Obligations	5,300	5,300	5,300	5,300	5,300
Capitalized	0	0	0	0	0
Uncapitalized	5,300	5,300	5,300	5,300	5,300
Budget Authority	5,300	5,300	5,300	5,300	5,300
Outlays	3,286	3,286	3,286	3,286	3,286
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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National Oceanic and Atmospheric Administration
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: National Centers for Environmental Information
Subactivity: National Centers for Environmental Information (NCEI)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	20,605	21,493	23,279	23,279	0
11.3	Other than full-time permanent	144	144	144	144	0
11.5	Other personnel compensation	408	408	408	408	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	21,157	22,045	23,831	23,831	0
12	Civilian personnel benefits	6,767	7,055	7,784	7,784	0
13	Benefits for former personnel	30	30	30	30	0
21	Travel and transportation of persons	14	14	15	15	0
22	Transportation of things	34	34	34	34	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	4,782	4,782	4,799	4,799	0
23.2	Rental Payments to others	473	473	473	473	0
23.3	Communications, utilities and misc charges	646	646	646	646	0
24	Printing and reproduction	31	31	33	33	0
25.1	Advisory and assistance services	13,910	13,066	13,441	13,441	0
25.2	Other services from non-Federal sources	8,233	8,233	8,609	13,909	5,300
25.3	Other goods and services from Federal sources	922	922	1,922	1,922	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	7	7	7	7	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	681	681	692	692	0
31	Equipment	170	170	179	179	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	5,547	5,311	5,837	5,837	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	332	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	63,736	63,500	68,332	73,632	5,300

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(Dollar amount in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
National Centers for Environmental Information (NCEI)	Pos./BA	187	68,332	187	73,232	0	4,900
	FTE/OBL	165	68,332	165	73,232	0	4,900

Sustainment of Cloud Framework for Environmental Data (+$4,900, 0 FTE/ 0 Positions) - NOAA requests additional funding to provide sustained science and data stewardship operations in the cloud, improving NCEI's ability to serve and make data, products, and services accessible users. To enable accelerated public access, increased data innovation, and economic exploitation of NCEI products and services, NESDIS proposes to move all of its product areas and supporting applications to the cloud. While NESDIS' Data-source Agnostic Common Services (DACS) Program will cover the initial transition of NESDIS data to the cloud (see NESDIS-176 for more information), NCEI will use this request to prepare and migrate operational stewardship and science services as well as enhance consumer services for the public in the cloud. Initial focus will be on software and metadata development, optimization, and consolidation to handle higher data volumes and complexities, prepare for launching to the cloud, and facilitate data-driven decision-making by enabling tools, applications, and visualizations. Longer-term, the focus will be on sustaining and enhancing operational science services for customers, such as a program for providing climate products. Under NOAA's Big Data Program (renamed NOAA Open Data Dissemination), NESDIS demonstrated the value of moving its products to the cloud when it showed that access to its Next Generation Weather Radar (NEXRAD) archive from the cloud increased by over 130%. The Climate Corporation, a division of a major agriculture organization, saw a direct benefit from this increased access when it used this data to generate products for agricultural industries, reducing product development timelines and total cost.[9] Other demonstrated benefits across many industries are expected if this initiative is supported.

[9] Ansari, S., Greco, S., Kearns, E., Brown, O., Wilkins, S., Ramamurthy, M., Weber, J., May, R., Sundwall, J., Layton, J., Gold, A., Pasch, A., and Lakshmanan, V. 2018: Unlocking the Potential of NEXRAD Data Through NOAA's Big Data Partnership. *Bulletin of the American Meteorological Society*. 99:1, 189-204. Available: https://journals.ametsoc.org/view/journals/bams/99/1/bams-d-16-0021.1.xml

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Schedule and Milestones:
FY 2023 – FY 2027

- Continue preparation of environmental data for transition to the cloud
- Increase use of cloud-based tools, applications, and visualizations to support data-driven decision making.

Deliverables:

- Optimize most used datasets in the cloud for interoperability and artificial intelligence and machine learning use.
- Sustain operational stewardship and science services in the Cloud

Performance Measures		2023	2024	2025	2026	2027	
Percentage of product areas sustained in							
With Increase		15%	35%	60%	85%	100%	
Without Increase		0%	0%	0%	0%	0%	
Outyear Costs:							
Direct Obligations	4,900	4,900	4,900	4,900			4,900
Capitalized	0	0	0	0			0
Uncapitalized	4,900	4,900	4,900	4,900			4,900
Budget Authority	4,900	4,900	4,900	4,900			4,900
Outlays	3,038	3,038	3,038	3,038			3,038
FTE	0	0	0	0			0
Positions	0	0	0	0			0

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PROGRAM INCREASE FOR 2023
(Dollar amount in thousands)

Activity: National Centers for Environmental Information
Subactivity: National Centers for Environmental Information (NCEI)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	20,605	21,493	23,279	23,279	0
11.3	Other than full-time permanent	144	144	144	144	0
11.5	Other personnel compensation	408	408	408	408	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	21,157	22,045	23,831	23,831	0
12	Civilian personnel benefits	6,767	7,055	7,784	7,784	0
13	Benefits for former personnel	30	30	30	30	0
21	Travel and transportation of persons	14	14	15	15	0
22	Transportation of things	34	34	34	34	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	4,782	4,782	4,799	4,799	0
23.2	Rental Payments to others	473	473	473	473	0
23.3	Communications, utilities and misc charges	646	646	646	646	0
24	Printing and reproduction	31	31	33	33	0
25.1	Advisory and assistance services	13,910	13,066	13,441	13,441	0
25.2	Other services from non-Federal sources	8,233	8,233	8,609	13,509	4,900
25.3	Other goods and services from Federal sources	922	922	1,922	1,922	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	7	7	7	7	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	681	681	692	692	0
31	Equipment	170	170	179	179	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	5,547	5,311	5,837	5,837	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	332	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	63,736	63,500	68,332	73,232	4,900

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Activity: Systems Acquisition

Goal Statement

NOAA's satellite portfolio provides the backbone for the operational data products that support NOAA's work related to weather, climate, oceans, coasts, and ecosystems. NOAA satellite data drives critical decision-making, impacts national security, and numerous sectors of the economy including agriculture, transportation, energy, construction, infrastructure, emergency management, and hazard mitigation.

Base Program

NOAA maintains three portfolios of environmental satellites and data acquisition that produce crucial sets of observations: low-earth orbiting, geostationary, and space weather. In FY 2022, Systems Acquisition includes flight, ground, and architecture planning, risk reduction, and development activities, spread across five Subactivities: LEO, GEO, SWO, SAE, and CGS. The FY 2022 request enables NOAA satellite programs to continue to meet milestones, as well as to plan for future programs and comprehensive engineering solutions. Detailed operating objectives for each Subactivity are described below.

Statement of Operating Objectives

Geostationary Earth Orbit (GEO): See the Program Changes for the proposed schedule, milestones, deliverables, performance goals and measurement data, and the budget profile.

Low Earth Orbit (LEO): See the Program Changes for the proposed schedule, milestones, deliverables, performance goals and measurement data, and the budget profile.

Space Weather Observations (SWO): See the Program Changes for the proposed schedule, milestones, deliverables, performance goals and measurement data, and the budget profile.

Common Ground Services (CGS)
Schedule and Milestones:
FY 2023

- Sustain legacy product generation and data distribution capabilities

- Sustain legacy archive capability
- Support migration of existing product generation capabilities to the NESDIS Common Cloud Framework (NCCF) and begin planning to decommission hardware
- Begin migration of archived environmental data holdings to the NCCF

FY 2024

- Sustain legacy data distribution capability
- Sustain legacy archive capability
- Decommission legacy product generation hardware
- Continue migration of archived environmental data holdings to the NCCF
  Deploy a development environment in the NCCF to enable science, algorithm development and stewardship workflows in NCCF

FY 2025 – FY 2027

- Complete migration of on-premise archive systems to the NCCF and decommission legacy systems
- Begin sustaining NCCF capability to ingest, process, and archive data
- Operationalize cloud-based data distribution from NCCF and decommission legacy distribution capabilities

Deliverables:

- Sustain legacy on-premise systems until capabilities are transitioned to the NCCF and hardware is decommissioned
- Sustain ingest, product generation, and archive of data from partner sources per enterprise Cloud Roadmap

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Outyear Funding Estimates*

Common Ground Services (CGS)	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
CGS Base	34,272	51,411	51,411	51,411	51,411	51,411	N/A	N/A
DACS**	10,030	30,022	45,500	45,500	45,500	45,500	N/A	N/A
Data Access and Distribution	-	24,000	24,000	24,000	24,000	24,000	N/A	N/A
Total CGS Request^	**44,302**	**105,433**	**120,911**	**120,011**	**120,911**	**120,911**	N/A	N/A

*Outyears are estimate. Future requests will be determined through the annual budget process.
** DACS was established in FY 2021, so the 2022 & Prior column does not reflect any funding prior to FY 2021.
^ Funding profile reflects Operational Phase Transfer from LEO / Polar Weather Satellites to CGS, and includes the requested program changes for DACS and Data Access and Distribution on NESDIS-176 and NESDIS-182, respectively.

Systems/Services Architecture & Engineering (SAE):

Architecture, Requirements, & Planning (ARP)
Schedule and Milestones:
FY 2023

- Continue guiding NESDIS future architecture decisions as a result of the NSOSA study and program formulation studies
- Continue demonstration of capabilities favored by NSOSA study and more recent architecture study results
- Continue to develop Requirements documentation for next generation programs and other NESIDS activities that flow down from the NESDIS Level Requirements document
- Provide comprehensive assessments for integration, optimization, and sustainment of NOAA's Observing System Portfolio Management capability
- Provide guidance and leadership of the NESDIS Product Baseline, Five-Year Plan, and innovative products development

- Continue demonstrations and pilots of ground architecture capabilities as a result of the NESDIS Ground Enterprise Study (NGES) and follow-on studies

FY 2024 – FY 2027

- Continue guiding NESDIS future architecture decisions as a result of the NSOSA study, the NGES study, program formulation studies, and related activities
- Initiate additional elements of next generation flight and ground architecture based on Analyses of Alternatives (AoAs), demonstrations, and formulation progress to date
- Continue to develop and refine Requirements documentation for next generation programs
- Provide comprehensive assessments for integration, optimization, and sustainment of NOAA's Observing System Portfolio Management capability
- Continue to provide guidance and leadership of the NESDIS Product Baseline, Five-Year Plan, and innovative products development
- Continue demonstrations and pilots of ground architecture capabilities as a result of the NGES study and follow-on studies

Deliverables:

- Preliminary Requirements Documents for the next generation of programs in pre-formulation and other NESDIS activities that flow down from the NESDIS Level Requirements document
- Active enterprise risk management
- Active enterprise configuration control/management
- Active requirements management and change process

Commercial Weather Data Pilot: See the Program Change for the proposed schedule, milestones, deliverables, performance goals and measurement data, and the budget profile.

Commercial Data Purchase: See the Program Change for the proposed schedule, milestones, deliverables, performance goals and measurement data, and the budget profile.

Joint Venture Partnerships: See the Program Change for the proposed schedule, milestones, deliverables, performance goals and measurement data, and the budget profile.

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Outyear Funding Estimates*

SAE	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Architecture, Requirements & Planning	56,722	21,500	21,500	21,500	21,500	21,500	N/A	N/A
Commercial Data Program	32,000	33,000	36,000	39,000	39,000	39,000	N/A	N/A
Commercial Weather Data Pilot^	9,000	8,000	8,000	8,000	8,000	8,000	N/A	N/A
Commercial Data Purchase^	23,000	25,000	28,000	31,000	31,000	31,000	N/A	N/A
Joint Venture^	12,268	20,000	20,000	20,000	20,000	20,000	N/A	N/A
GEO-XO#	10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total SAE Request	110,990	74,500	77,500	80,500	80,500	80,500	N/A	N/A

* Outyears are estimates. Future requests will be determined through the annual budget process.
** SAE was established in FY 2020; 2022 & Prior column does not reflect any funding prior to FY 2020.
^ The funding profile includes requested program changes for Commercial Weather Data Pilot, Commercial Data Purchase, and Joint Venture on NESDIS-201, NESDIS-189, and NESDIS-195, respectively.
# GEO-XO (now GeoXO) was transferred to Geostationary Earth Orbit (GEO) in FY 2021.

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Explanation and Justification

Comparison by Subactivity		2021 Actual Personnel	2021 Actual Amount	2022 Annualized CR Personnel	2022 Annualized CR Amount	2023 Base Personnel	2023 Base Amount
Geostationary Earth Orbit (GEO)	Pos/BA	0	9,974	0	10,000	51	344,500
	FTE/OBL	0	9,938	0	10,000	47	344,500
Geostationary Systems - R (GOES-R)	Pos/BA	50	332,583	51	334,500	0	0
	FTE/OBL	59	334,687	47	334,500	0	0
Low Earth Orbit (LEO)	Pos/BA	0	0	0	0	101	614,237
	FTE/OBL	0	0	0	0	92	614,237
Polar Weather Satellites (PWS)	Pos/BA	92	649,411	96	657,835	0	0
	FTE/OBL	97	654,541	88	657,835	0	0
Cooperative Data and Rescue Services (CDARS)	Pos/BA	4	14,358	4	14,400	0	0
	FTE/OBL	3	8,420	3	14,400	0	0
COSMIC 2/GNSS RO	Pos/BA	2	5,865	2	5,892	0	0
	FTE/OBL	1	5,619	2	5,892	0	0
Space Weather Observations (SWO)	Pos/BA	0	0	0	0	35	114,721
	FTE/OBL	0	0	0	0	28	114,721
Projects, Planning, and Analysis (PPA)	Pos/BA	16	14,817	16	15,945	0	0
	FTE/OBL	7	18,507	15	15,945	0	0
Space Weather Follow On (SWFO)	Pos/BA	19	107,819	19	108,115	0	0
	FTE/OBL	17	108,226	13	108,115	0	0

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Comparison by Subactivity		2021 Actual Personnel	2021 Actual Amount	2022 Annualized CR Personnel	2022 Annualized CR Amount	2023 Base Personnel	2023 Base Amount
Common Ground Services (CGS)	Pos/BA	38	37,163	42	39,287	42	56,426
	FTE/OBL	36	48,768	34	39,287	34	56,426
Systems/Services Architecture & Engineering (SAE)	Pos/BA	29	37,498	29	38,500	29	38,500
	FTE/OBL	33	33,827	27	38,500	27	38,500
Total NESDIS Systems Acquisition	Pos/BA	250	1,209,488	259	1,224,474	258	1,168,384
	FTE/OBL	253	1,222,533	229	1,224,474	228	1,168,384

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Geostationary Earth Orbit (GEO): GEO observations and measurements, provided by NOAA assets, partner assets, or commercially procured, contribute to weather forecast models and drive short-term weather forecasts and severe weather warnings. GEO data also provides advanced detection and monitoring of the atmosphere, oceans, and coasts including environmental hazards like wildfires, smoke, dust, volcanic ash, pollutants, drought, flooding, and harmful algal blooms. GEO comprises services and data products from specific missions, as well as from enterprise products and services that are source-agnostic. This subactivity also includes ground system development and sustainment for current and future geostationary Earth observations.

GEO will manage current and future geostationary observations as a portfolio, while maintaining transparency into the development schedule, and the annual and life cycle costs for all individual programs and projects comprising the observing system elements.

The GEO Subactivity is divided into two Line Items:

- **Geostationary Systems – R (GOES-R) (http://www.goes-r.gov):** GOES-R provides NOAA's latest generation of Geostationary Operational Environmental Satellites (GOES). The GOES-R Series, a four-satellite program, provides advanced imagery and atmospheric measurements of Earth's weather, climate, oceans and environment, real-time mapping of lightning activity, and improved monitoring of solar activity and space weather. Observations from these satellites provide coverage of the western hemisphere from a geostationary orbit, allowing continuous monitoring of severe storms, tropical cyclones, volcanic eruptions, fire hot spots, cloud and atmospheric moisture changes, long term climate trends, lightning, currents flow dynamics, and atmospheric smoke and dust. Observations from GOES-R Series space weather instruments enable NOAA's Space Weather Prediction Center to significantly improve space weather forecasts and provide early warning of possible impacts to the Earth's space environment and potentially disruptive events on the ground. The system delivers critical real-time data and information needed for sound decision making, addresses needs to support expanded climate services, and works with global partners.

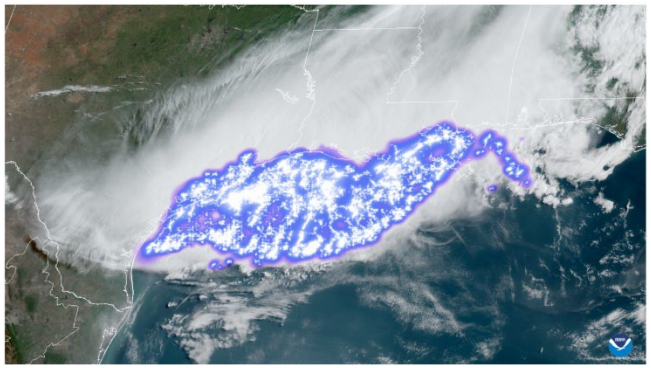

Artist rendering of GOES-R Series satellite (Credit: NASA)

  The GOES program, which has provided essential observational data since 1975, supports NOAA's NWS in forecasting, tracking, and monitoring severe storms. The GOES-R Series satellites provide significant enhancements for all operational users of geostationary observations, in particular NWS. For example, calculating the probability that a developing storm will

produce severe weather within the next hour is improved in the GOES-R Series era, given the additional information from the Advanced Baseline Imager (ABI) and total lightning data from the Geostationary Lightning Mapper (GLM). The products resulting from this data will improve as a result of more frequent images, a factor of four improvement in spatial resolution, more spectral bands for inferring cloud properties, and lightning mapping. The increased quantity, quality, and accuracy of satellite data that the GOES-R Series produces will enable NWS to issue improved and timelier weather watches, warnings, and advisories to the public, protecting life and property.

The GOES-R Series provides data that enhances a number of NOAA products and services, including:

- Cloud images and precipitation estimates for hurricanes and other coastal storms;
- Images of the U.S. and adjacent ocean areas to enable the detection, tracking, and intensity changes of hurricanes and other major climate and weather events; and,
- Improved numerical weather prediction models and flood/drought assessments.



Lightning as seen from the Geostationary Lightning Mapper on

The GLM provides real-time warnings of lightning threat, supporting decision making for outdoor venues, construction, and electrical grids. GLM also helps characterize the lightning risk and increases certainty for airline flight and airport ramp safety protocols, improving operational efficiency. Finally, it provides critical observations to forecast and combat wildfires providing direct benefit to the firefighting community through unique identification of continuing current lightning strikes most likely to ignite fires, better pyrocumulonimbus characterization, and thunderstorm tracking in areas of reduced radar coverage. Used in tandem, space- and ground-based lightning observations help locate smoldering fires before they grow out of control.

The first satellite in the series, GOES-R, launched on November 19, 2016, and became GOES-16 when it reached geostationary orbit. GOES-16 replaced GOES-13 as NOAA's operational GOES East satellite on December 18, 2017. The GOES-R Series launched the second satellite on March 1, 2018. GOES-S became GOES-17 when it reached geostationary orbit. GOES-17 became operational as GOES West on February 12, 2019. GOES-T launched in March 2022, and will be followed by GOES-U in 2024 (Q1 FY 2025).

- **Geostationary Extended Observations (GeoXO) (https://www.nesdis.noaa.gov/GeoXO):**

NOAA's Geostationary Extended Observations (GeoXO) satellite program is the ground-breaking mission that will advance Earth observations from geostationary orbit. GeoXO will supply vital information to address major environmental challenges of the future in support of U.S. weather, ocean, and climate operations. NOAA is working to ensure these critical observations are in place by the early 2030s as the GOES-R Series nears the end of its operational lifetime. By 2033, GOES-16 and GOES-17 will have reached the end of their design lives and NOAA will no longer be able to provide an on-orbit spare geostationary satellite, putting continuity of real time imagery at risk. Any break in the continuous stream of real-time data would pose an enormous risk to millions of lives and billions of dollars in activity that ensure our national and economic security.

Data from GeoXO will be used in numerical weather models and drive short-term weather forecasts and severe weather warnings. It will also provide advanced detection and monitoring of environmental hazards, such as wildfires, smoke, fog, dust, volcanic ash, drought, flooding, sea ice, air pollution, and harmful algal blooms. These observations will provide vital data to complement those from NOAA's partners in Europe and Asia, providing an essential global observing system.

The GeoXO program moved into the formulation phase in FY 2021. During the formulation phase, GeoXO will establish the final definition of the overall GeoXO program scope and architecture based on impact analysis and cost/benefit assessments. NOAA will integrate community and industry input into potential options, inform development activities for future systems, and confirm the viability of commercial hosting architectures.

The GeoXO program expects that its ground system will provide services for NOAA's deep space weather satellites. Space weather requirements are funded by the SWO PPA.

Low Earth Orbit (LEO): Low Earth and future medium Earth observations, provided by NOAA assets, partner assets or commercially procured, are most critical for weather forecasting, environmental monitoring, climate monitoring, and to help inform public watches and warnings. A resilient constellation of low Earth orbiting satellites, which can be quickly deployed to mitigate the risk of on-orbit failures, are essential for improving life-saving weather forecasts and warnings.

The LEO Subactivity will support implementation of the NOAA Satellite Observing System Architecture (NSOSA) study recommendations and respond to Congressional direction to improve weather forecast and prediction capabilities, as provided in the *Weather Research and Forecasting Innovation Act of 2017* (P.L. 115-25). In addition to acquiring new government-owned observing assets, LEO will allow NOAA to partner with other U.S. agencies, foreign governments, and private industry to provide critical LEO

and future medium Earth observations, measurements and services. These opportunities will improve NOAA's weather and environmental forecast capabilities and continue critical *in situ* data relay and search and rescue services. The investments made will evolve NESDIS' current architecture into one with more small and medium-sized satellites, individual instruments on commercial hosts, data buys, and an increased number of partnerships with domestic and foreign space agencies. NOAA will leverage emerging opportunities, new innovations and science within the commercial space industry when it becomes available.

LEO will initially augment the current generation of polar satellites with the goal to serve as the next generation of space-based environmental monitoring observatories. LEO comprises services and data products from specific missions, as well as from enterprise products and services that are source-agnostic. This subactivity also includes ground system development and sustainment for LEO and for future medium Earth observations. NESDIS will maintain transparency into the development schedule, and the annual and life cycle costs for all major programs comprising the observing system elements.

The LEO Subactivity is divided into three Line Items:

- **Polar Weather Satellites (PWS) (www.jpss.noaa.gov):** PWS provides global meteorological observations to enable short-term (0-3 days), and mid-range (3-7 days) forecasts and warnings of severe weather events critical for emergency managers and communities to make timely decisions to protect life and property. In addition, PWS provides an array of global environmental observations for a wide variety of environmental phenomena that support and supplement seasonal monitoring and forecasting of weather. Data and imagery obtained from PWS helps increase timeliness, accuracy, and cost effectiveness of public warnings and forecasts of climate and weather events. These observations include:
  - Operational and short-term forecasts in Alaska;
  - Severe storm and flood warnings;
  - Tropical cyclone and hurricane warnings;
  - Hydrologic forecasts;
  - Ocean surface temperature, ocean color for ocean monitoring (e.g., reef conditions, harmful algal bloom warnings,

etc.);
- Global sea level rise;
- Aviation forecasts (domestic, military, and international);
- Ice monitoring and forecasting;
- Ozone monitoring;
- Environmental air quality monitoring;
- Detection and analysis of wildfires and volcanic eruptions including volcanic ash warnings for aviation safety;
- Short-term and mesoscale forecasts;
- Seasonal and inter-annual climate forecasts;
- Decadal-scale monitoring of climate variability; and,
- Assessment of long-term global environmental change.

PWS contributes to international partnerships between the U.S. and the European and Japanese space agencies focusing on operational civilian polar-orbiting satellites that provide the primary input data for all numerical weather prediction (NWP) models. Polar satellites contribute approximately 85 percent of all data for NWP models. This program also supports risk reduction efforts for future polar requirements as part of its continuing work with SAE on future LEO architecture efforts.

PWS includes the NOAA/NASA Suomi NPP, the NOAA-20 (formerly known as JPSS-1), JPSS-2, JPSS-3, and JPSS-4 satellite missions. It also encompasses a large ground system with facilities in the Antarctic, Norway, Alaska, New Mexico, Maryland and West Virginia, as well as the operational science, maintenance, and archiving for these missions through FY 2038 to ensure that NOAA continues to provide accurate and timely weather forecasts and warnings. NOAA/NASA Suomi NPP and NOAA-20 are currently operational in the early afternoon orbit. NOAA is currently building JPSS-2, -3, and -4, and developing JPSS-3 and JPSS-4 instruments and spacecraft buses as copies of JPSS-2. This allows NOAA to take advantage of the JPSS-2 instrument development and spacecraft bus contracts to reduce cost and risk. The NOAA JPSS-2, -3 and -4 missions are comprised of the Advanced Technology Microwave Sounder (ATMS), Cross-track Infrared Sounder (CrIS), Visible Infrared Imaging Radiometer Suite (VIIRS), and the Ozone Mapping Profiler Suite-Nadir (OMPS-N) instruments. NASA's Radiation Budget Instrument (RBI) was demanifested from JPSS-2. NASA is now moving forward with a new instrument for radiation budget measurements, Libera, which will be included on JPSS-3. NOAA will also continue the development, maintenance, and sustainment of the ground systems, evolve ground systems to align with changing technologies and threats, and conduct risk reduction efforts to support current and future polar data acquisition requirements.

Starting in the fall of 2021, NOAA began developing a new climate product, NOAA Unique Combined Atmospheric

Processing System, to improve global measurements of greenhouse gases (methane, carbon dioxide, ozone, nitrogen dioxide, others) from space. Based on an international agreement between NOAA and EUMETSAT, NOAA will receive hyperspectral sounding products from the European IASI-NG instrument following the launch of Metop-SG A1 satellite in March 2024. These observations can be combined with NASA, JAXA, ESA dedicated greenhouse gas missions. These dedicated missions identify the ground sources and sinks of greenhouse gases while the NOAA greenhouse gas products from JPSS and EUMETSAT satellites monitor transcontinental transport.

- **Cooperative Data and Rescue Services (CDARS): (**https://www.nesdis.noaa.gov/OPPA/argos-adcs.php**):** CDARS supports the space-based component of the Argos Data Collection and Location System (DCS). The Argos Data Collection System (DCS) is a data collection and relay program that provides global coverage and platform location services dedicated to studying and protecting the environment. The Argos system supports a wide variety of applications, including environmental monitoring, marine fisheries applications, and maritime security applications. The Argos system consists of DCS instruments that are hosted on polar-orbiting satellites operated by EUMETSAT, the Indian Space Research Organisation, and NOAA in three sun-synchronous orbits that ensure timely reporting at all latitudes. The Argos DCS meteorological-oceanographic platforms contribute daily *in situ* observations for use by numerical weather prediction, ocean, and climate models around the world.

  The current DCS instruments on the NOAA polar-orbiting satellites (NOAA-15,-18,-19) are operating well beyond their design life. To provide continuity of service, the NOAA CDARS program, under an international agreement with the French space agency Centre National d'Etudes Spatiales (CNES), will launch the next Argos DCS payload (Argos-4), built and provided by CNES, on a commercial spacecraft using a U.S. Air Force Hosted Payload Solutions (HoPS) contract. General Atomics will integrate and launch the Argos-4 payload on the Orbital Test Bed-3 spacecraft in 2022.

- **Constellation Observing System for Meteorology, Ionosphere, and Climate (COSMIC)-2 / Global Navigation Satellite System (GNSS) Radio Occultation (RO):** COSMIC-2/GNSS RO observations use signals of opportunity from GNSS sources such as the U.S. Global Positioning System (GPS) to measure environmental parameters as Earth's atmosphere occults the GNSS source. Enhanced satellite configurations and new methods of GNSS signal processing can yield additional environmental parameters from reflections of these signals of opportunity off of ocean and land surface. The measurements support the NWS mission to provide weather, water, climate, and space weather forecasts for the protection of life, property,

and enhancement of the national economy. RO is one of the most impactful observations for medium and long-term forecast skill. It also yields measurements of the ionosphere which are important for space weather prediction.

The COSMIC-2/GNSS RO program seeks to provide consistent global geographically and temporally distributed RO sounding profiles to NWS to improve forecast quality. NOAA participates in the COSMIC-2 collaboration with Taiwan and the U.S. Air Force (USAF). COSMIC-2 is a six-satellite constellation of spacecraft with RO instruments launched to the equatorial orbit by USAF on June 25, 2019. The USAF provided the RO sensors while Taiwan provided the spacecraft and serves as the satellite operator. NOAA operates a ground system consisting of a network of ground reception stations and a RO data processing center. NOAA also has data access partnerships to acquire satellite-based GNSS data from other agencies, including NASA, EUMETSAT, German Aerospace Center, JAXA, the Korea Aerospace Research Institute, and the Spanish National Research Council. NOAA will continue to pursue other partnerships to receive RO data as they are available. The COSMIC-2/GNSS RO program is currently leveraging NOAA's ground system for timely acquisition and processing of satellite-based GNSS data from these partner agencies. The program will assist NOAA and partner agencies efforts to improve the on-orbit performance of satellite instruments that exploit GNSS signals of opportunity, to host these instruments on new satellites, and to better use the data in terrestrial and space weather applications.

Space Weather Observations (SWO): Since its start, NOAA has deployed space weather monitoring and warning capability as part of its mission to monitor the environment and issue watches and warnings to protect lives and property. Space weather phenomena pose a significant threat to ground-based and space-based critical infrastructure, modern technological systems, and humans working in space. The effects of severe space weather on the electric power grid, satellites and satellite communications and information, aviation operations, astronauts living and working in space, and space-based position, navigation, and timing systems

have significant societal, economic, national security, and health impacts -- ultimately threatening our nation's economic and national security. In 2016, EO 13744, Coordinating Efforts to Prepare the Nation for Space Weather Events, directed the DOC and therefore NOAA to "provide timely and accurate operational space weather forecasts, watches, warnings, alerts, and," and to "ensure the continuous improvement of operational space weather services." In 2020, the *Promoting Research and Observations of Space Weather to Improve the Forecasting of Tomorrow (PROSWIFT) Act* (P.L. 116-181) further authorized NOAA to sustain, improve and expand space-based space weather observations.

Space Weather describes the phenomena that impact systems and technologies in orbit and on Earth. Space Weather can occur anywhere from the surface of the sun to the surface of the earth. (Credit: NOAA, NWS Space Weather Prediction Center)

NOAA's satellites collect essential data that serve as a long-term record for monitoring key environmental parameters, and SWO is an integral part of NOAA in order to meet the Administration's science goals, including EO 14008, Tackling the Climate Crisis at Home and Abroad, through improved observations and forecasting for the American public. Space weather continues to be critical to all space assets and the establishment of space commerce.

SWO develops, builds and deploys space-based observational capabilities to provide crucial data necessary to understand, forecast, and prepare for space weather phenomena. SWO comprises services and data products from NOAA and partner-operated space-based instruments and observatories. SWO develops source-unique as well as enterprise products and services that are source-agnostic. This subactivity also includes ground system development and sustainment to support SWO space weather observations. SWO will manage space weather observations as a portfolio, while maintaining transparency into the development schedule, and the annual and life cycle costs for all individual programs and projects comprising the observing system elements. The SWO portfolio will be coordinated with the Office of the Federal Coordinator for Meteorology, NWS, NASA, the Department of Defense, the National Science Foundation, our research and academic community, and our international partner satellite agencies.

- **Space Weather Follow On (SWFO):** SWFO is designed to meet NOAA's need for operational coronal mass ejection (CME)

imagery and *in situ* solar wind measurements. NOAA is working to have instruments in place to address the very high risk of loss of these observations before legacy space-based systems cease to provide useful data. CME and solar wind measurements are necessary for NOAA to provide warnings for the two major types of space weather events that affect the Earth: solar radiation storms and geomagnetic storms. Satellites are mostly impacted by solar radiation storms. Commercial airlines are rerouted during solar radiation and/or geomagnetic storms. These storms cause communication blackouts and impacts to navigation accuracy. The most extreme geomagnetic storms have resulted in severe impacts to commercial power grids and impacted hundreds of millions of people. Satellite data, including CME imagery and measurement of solar wind plasma, are critical to providing accurate and early warnings of these potentially destructive space weather events. Requirements for these measurements derive from the NOAA Space Weather Mission Service Area Observational User Requirements Document baselined by the NOAA Observing System Council in November 2017.

Currently, CME measurements at the Earth-Sun Lagrange-1 (L1) point are provided only by the NASA-European Space Agency research Solar and Heliospheric Observatory (SOHO) that was launched in 1995. SOHO is more than 25 years old and is operating well past its mission design life. Without CME imagery, the 1-4 day lead-time of likely storm conditions will be degraded, thereby affecting the accuracy of geomagnetic storm watches and endangering U.S. infrastructure. SWFO design ensures the continuity of CME imagery for operational use by the NWS Space Weather Prediction Center for geomagnetic storm watches beyond SOHO. NOAA is working with the Naval Research Laboratory to develop flight compact coronagraphs (CCOR) to obtain CME imagery necessary for tracking eruptive events from the sun and provide initial estimates of the likelihood and severity of any impacts to Earth.

SWFO will also replenish the capability of detecting solar wind upstream from Earth. Currently, solar wind measuring capability is provided by NOAA's Deep Space Climate Observatory (DSCOVR), with the over 25-year-old Advanced Composition Explorer (ACE) providing backup. However, DSCOVR is a research-grade satellite, also past its mission life, and is susceptible to mission failure with the loss of any of several single string critical components. Loss of DSCOVR without a ready replacement will significantly reduce NOAA's ability to monitor solar wind and provide short-term warnings (15-45 minutes) of space weather storms. The Solar Wind Instrument Suite (SWIS) to be accommodated on the SWFO-L1 satellite mission will provide the required solar wind data. The SWIS will include a Solar Wind Plasma Sensor (SWiPS), a set of magnetometers (MAG), and a low-energy ion spectrometer called the SupraThermal Ion Sensor (STIS).

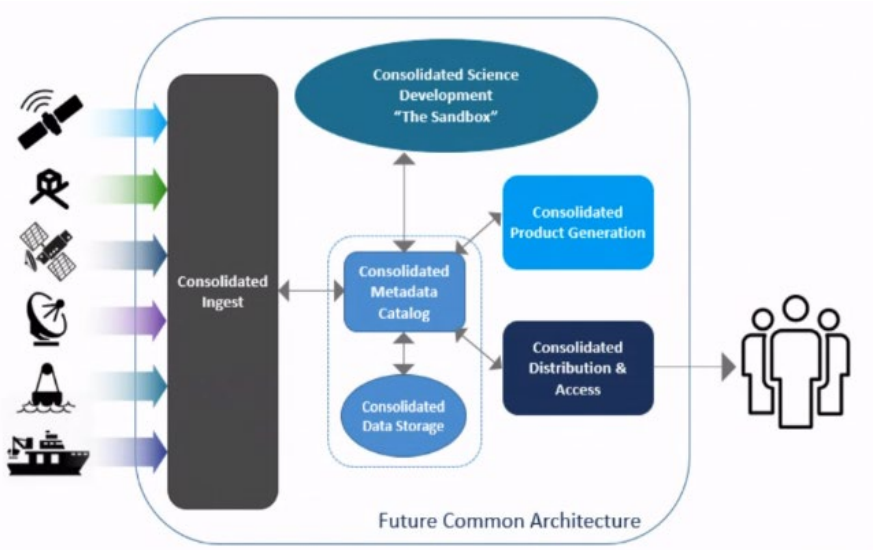
The SWFO Program will use a rideshare opportunity with NASA's Interstellar Mapping and Acceleration Probe (IMAP) mission scheduled for launch in 2025. NOAA has established an interagency agreement with NASA for assisted acquisition of the SWFO-L1 spacecraft and the SWIS instruments. NOAA is developing the ground segment including NOAA acquisition of

the command and control for mission operations, acquisition of the SWFO Antenna Network for continuous real time data acquisition, and the product generation and distribution capability to distribute products to operational and retrospective users. The Naval Research Laboratory, with NOAA oversight, is responsible for the development and delivery of the CCOR instruments under an interagency agreement. One CCOR will be accommodated on the SWFO-L1 mission that will launch as a rideshare on the IMAP launch. The second CCOR will be hosted on the GOES-U satellite which plans to launch in 2024. Flying a second CCOR in a geostationary orbit adds operational resilience and reliability to the CME imagery necessary for space weather warnings and forecasting.

The SWFO Program successfully completed the Milestone 2/3 review October 31, 2019. On November 19, 2019, the Deputy Secretary of Commerce signed the SWFO Milestone 2/3 Decision Memorandum establishing the program baseline. The SWFO Program completed Key Decision Point C on November 17, 2021, the agency level approval for implementation.

Common Ground Services (CGS): CGS plans and executes common ground services for NOAA's satellite, data, and information capabilities. Ground services are critical to acquiring, processing, and managing the environmental data from satellite missions and deriving value from the investments other organizations have made in the space segment. CGS facilitates access to non-NOAA domestic and international satellites, as well as supports commercially-acquired data. In collaboration with NCEI, CGS also provides long-term archive services for all approved NOAA and external partners' environmental data sources.

CGS core responsibilities include: developing and sustaining the NESDIS Common Cloud Framework (NCCF), which facilitates ingesting and processing of data from non-NOAA sources and product portfolio management to ensure delivery of high priority products aligned with user needs. Consolidating data in the NCCF will significantly enhance access to and usability of NOAA's data, which is expected to grow from 40 to 400 petabytes by 2030. This will also enable NOAA and other users to quickly develop new applications, facilitate research by the academic community, and facilitate the use of artificial intelligence and machine learning to exploit big data sets. CGS activities also include planning cloud-related acquisitions;



sustainment of on-premise systems prior to transition to the cloud; and management, engineering, integration and testing, transition to operations, and overall sustainment of common ground services. In addition, CGS participates in system verification and validation efforts, as well as life cycle reviews for major satellite acquisition programs and projects.

In FY 2021, NOAA implemented Data-source Agnostic Common Services (DACS), a cloud-enabled, end-to-end ground service capability that provides a secure, scalable, cost effective, portfolio approach of managing NOAA's data. The DACS initiative: 1) evolves the ground service enterprise to leverage cloud computing for data ingest, processing, dissemination, and archive; 2) allows NOAA to utilize data and observations from an increasingly capable and diverse array of partner and commercial systems to meet mission requirements in a cost-effective manner; and 3) provides a framework for managing all of NOAA/NESDIS data. NOAA transitioned initial operational services to a cloud architecture in FY 2021, after the successful completion of the FY 2019 and FY 2020 Cloud Pilots. The FY 2022 investment completed the infrastructure framework by adding archive functionalities, completed the migration of legacy product processing to the NCCF, and generated products to support multiple NOAA mission service areas such as weather forecasting, ocean prediction, and ecosystem monitoring. In FY 2022, NOAA continued to operate the NCCF, migrated algorithms and processing for the European Metop and Sentinel satellites to the NCCF, and also established an interface to securely ingest data from the Meteosat Third Generation satellites. Each of these datasets provide continuity for NOAA's weather forecasting mission.

Overall, the cloud-enabled DACS will continue to expand to include archive and stewardship of NOAA's satellite holdings, as well as expand dissemination services from the cloud. In addition to resolving many data access and latency issues and providing nearly unlimited scalability, NOAA data in the cloud can significantly reduce costs and expand the size and diversity of NOAA user communities and data applications.

Systems/Services Architecture & Engineering (SAE): SAE provides analysis based on emerging capabilities and user needs to identify the highest value approaches to the NESDIS enterprise architecture, including flight, ground, and related services, to meet NESDIS, NOAA, and National needs. SAE ensures NESDIS-wide activities are aligned to the enterprise architecture vision, including managing the mission concept development activities for the next generation LEO, GEO, and SWO programs; creating and maintaining NESDIS-wide systems engineering and program management policies and procedures; governing the suite of products and services NESDIS provides to users from our own systems, partner systems, and commercial data to optimally meet user needs; and managing NESDIS-wide risk assessments and strategic plan implementation. SAE also manages the Commercial Data Program and Joint Venture Partnerships.

The SAE Subactivity is divided into three Line Items:

- **Architecture, Requirements, & Planning:** SAE leads and manages NESDIS's assessments of and planning for future enterprise architectures to meet NESDIS Level Requirements. This includes performing architecture trade studies (within NOAA as well as with industry, partners, and the science community), pre-formulation activities, demonstrations, and the development of roadmaps to achieving future architectures. Starting from the foundation of the NESDIS Level Requirements, SAE manages the NESDIS requirements development and change process for NESDIS level and program level requirements, leads the prioritization and governance process for managing NESDIS' baseline products and services, and validates that baseline products are meeting requirements. SAE also guides NESDIS in the implementation of its strategic plan, interfaces with other agencies in service to NESDIS strategic goals, manages the NESDIS enterprise risk process, and develops and maintains systems engineering and program management guidance applicable to all NESDIS programs and activities.

  SAE's Architecture, Requirements, & Planning responsibilities also include:
  - Undertaking quantitative assessments for objective analyses to evaluate relative value and benefits of future data sources and satellite architectures;
  - Creating and implementing NESDIS enterprise policies, processes and procedures for alignment of systems engineering and project management activities across all of NESDIS;
  - Providing an independent assessment to the milestone decision authority for all DOC Acquisition Milestones and NASA Key Decision Points and other program or project milestones to ensure systemic compliance with architecture and effective implementation of requirements; and,
  - Managing the implementation of the NOAA Administrative Order 212-16, Observing Systems Portfolio Management (November 2016), including validation of NOAA observation requirements, and conducting observing system impact and portfolio analyses. SAE supports all NOAA Line Offices and manages the NOAA Observing System Integrated Analysis tool, which is used to manage NOAA's current and future observing system investments.

- **Commercial Data Program:** The NOAA Commercial Space Policy (January 2016) calls for NOAA to: 1) undertake pilot projects to demonstrate the ability of the commercial sector to establish and sustain capabilities to meet NOAA's ongoing operational needs, and 2) to purchase commercial data to support those operational needs once a pilot project has successfully demonstrated the commercial sector's capability and readiness. NESDIS conducts both of these activities via the Commercial Data Program. This approach is consistent with the *Weather Research and Forecasting Innovation Act of 2017* (P.L. 115-25), which directs NOAA to purchase weather data through contracts with commercial providers and assess the accuracy, value, and impact of that commercial data on NOAA models and weather forecasts.

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NESDIS regularly conducts assessments to determine the viability of commercial solutions to address NOAA observing system objectives prior to considering the purchase of commercial data for operational use. NOAA conducted the Commercial Weather Data Pilot (CWDP) Round 1 in 2016-2018, as well as an expanded CWDP Round 2 in 2018-2020, both focused on demonstrating radio occultation data. NOAA used Round 2 of the CWDP to confirm the readiness of the commercial sector to provide Global Navigation Satellite System Radio Occultation (GNSS-RO) data for operational use. NOAA last issued requests for information in 2020 and 2021, which showed data types beyond GNSS-RO that are ready for piloting (i.e., microwave sensor data and space weather). In response to the RFIs, and based on further analysis in 2022, NOAA initiated an additional CWDP Round. Pending a successful pilot NOAA will continue to increase operational investments in commercial data.

The Commercial Data Program also assesses new types of data and capabilities that are available on the commercial market. The *PROSWIFT Act of 2020* (P.L. 116-181) specifically directed NOAA to establish a pilot program to enter into contracts with one or more entities in the commercial space weather sector. Through CWDP, NESDIS will continue to:

- Test commercially available capabilities, including space weather, to assess the accuracy, value, and impact of the commercial data or service – new capabilities will be evaluated by comparison to established and validated NOAA operational products and deliverables;
- Ensure the necessary ground systems, services, IT security interfaces, and data processing are in place for ingesting the commercial data selected; and,
- Deliver assessment report(s) on the viability of the pilot data set(s) and the capabilities of the commercial systems to meet NOAA observation requirements for operational services.

If NOAA determines that data or services obtained and evaluated through the CWDP are cost effective, operationally viable, and appropriate for meeting a NOAA observation requirement, NESDIS will pursue purchase of the commercial data or service via the Commercial Data Purchase, within the Commercial Data Program. Based on a successful Round 2 pilot, NOAA, in 2020, successfully purchased operational GNSS-RO data via an Indefinite Delivery Indefinite Quantity (IDIQ) contract. Since May 2021, this data is being used in NOAA's numerical weather prediction models.

Critical to the purchase of commercial data, NOAA will consistently evaluate the quality of the data offerings, assess the on-going impact of the commercial data on NOAA's mission objectives, and conduct cost-benefit analyses to determine appropriate amounts of data to be purchased in future years.

- **Joint Venture Partnerships:** The *National Integrated Drought Information System Reauthorization Act of 2018* (P.L. 115-423) amends the *Weather Research and Forecasting Innovation Act of 2017* (P.L 115-25) and directs NOAA to analyze data sources that can lower the cost of observations or provide value-adding technological advancements to help improve skill in climate and weather forecasting. Partners in industry and other government agencies are key to NESDIS' ability to meet this mandate. Further, the *PROSWIFT Act of 2020* (P.L. 116-181) directs NOAA to facilitate advances in space weather prediction and forecasting; increase coordination of space weather research to operations and operations to research; and, improve preparedness for potential space weather phenomena. NESDIS conducts each of these directed activities via Joint Venture Partnerships.

  Joint Venture Partnerships was established in FY 2020 to initiate activities with NASA, other agencies, and the commercial sector. Joint Venture Partnerships enables a consistent, prioritized approach across NESDIS, based on enterprise-wide architecture analysis, to initiate new NOAA programs, leverage partner data, and operationalize new technologies, focusing heavily on, but not limited to, innovations in LEO, GEO, and SWO instruments, spacecraft development, satellite operations, and ground communications. Joint Venture leverages the ongoing work of NOAA's U.S. government agency partners and industry to meet NOAA needs, with the potential for large return on investment of NOAA funds, and is the first critical step in designing any new NOAA system, leveraging any partner data source, and making use of any new technology.

  Through Joint Venture Partnerships, NESDIS leverages capabilities being developed by other Federal partners and industry in four areas: exploiting partner data, exploiting partner technologies, partnering to supplement other agencies' initiatives that will add value to NOAA's mission, and initial concept development to operationalize new data and technology. Specifically, Joint Venture Partnerships allows NESDIS to:
  - Assess non-NOAA data sources, including NASA's Earth Science and Heliophysics satellite programs and Department of Defense space-based environmental monitoring capabilities, for incorporation into NOAA operations;
  - Evaluate new technology for incorporation into NOAA operations;
  - Support other Federal Agency's data and technology development to cost effectively meet NOAA needs, including co-implementing NASA Announcements of Opportunity such as Earth Venture and Earth Science Technology Office opportunities. NOAA's support funds unique operational characteristics for the selected capabilities, such as download bandwidth, ingest and processing of data on operational timelines, and the development of operational algorithms for NOAA use;
  - Determine the best concepts to transition to operations by leveraging ongoing industry development of new

observation capabilities, spacecraft design, and/or ground system capabilities. NESDIS will use additional Broad Agency Announcements or other contract actions to industry and academia as the basis of NOAA's future satellite systems mission and instrument concept assessment and design.

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Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Geostationary	Pos./BA	51	344,500	60	998,329	9	653,829
Earth Orbit (GEO)	FTE/OBL	47	344,500	53	998,329	6	653,829

Geostationary Extended Observations (+$653,829, 6 FTE/ 9 Positions) - NOAA requests an increase of $653.8 million, for a total of $663.8 million, for the Geostationary Extended Observations (GeoXO) program. GeoXO advances NOAA's weather, ocean, and climate observational capabilities to support necessary U.S. forecasting and prediction operations. GeoXO will continue and expand observations provided by the GOES-R Series, bringing new capabilities to address emerging environmental issues and challenges that threaten the security and well-being of every American.

Weather forecasting yields a $162 billion/year[10] benefit to the global economy with U.S. satellites providing an estimated ~45 percent[11] of the benefit. GeoXO will deliver increased benefits to weather forecasting, and provide benefits in new areas such as tracking ocean ecosystem changes and monitoring air quality. Data from GeoXO will be used in numerical weather models and drive short-term weather forecasts and severe weather warnings. GeoXO will also provide advanced detection and monitoring of environmental hazards, such as wildfires, smoke, fog, dust, volcanic ash, drought, flooding, sea ice, air pollution, and harmful algal blooms. These observations will provide vital data to complement those from NOAA's partners in Europe and Asia, providing an essential global observing system.

[10] "The Value of Surface-based Meteorological Observation Data" WMO/WorldBank 2021.
[11] NOAA estimated the benefit provided by U.S. geostationary satellites based on figures included within "The Value of Surface-based Meteorological Observation Data" (WMO/WorldBank 2021). The authors estimated the minimum global socioeconomic valuation of the benefits of weather prediction is $162 Billion per year (pg. 16), of which 75.9 percent is from space-based assets (pg. 19). The U.S. contributes 45 percent of space-based assets (Figure 6, pg. 19), of which 40 percent (based on a NOAA-conducted Forecast Sensitivity to Observation in Observing System Simulation Estimate) are GEO assets.

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(Dollar amounts in thousands)

NOAA is considering the following instruments for inclusion on GeoXO: Imager, Hyperspectral Sounder, Lightning Mapper, Atmospheric Composition, and Ocean Color. These instruments are expected to provide the following benefits:

- **Severe Weather:** The GeoXO Imager and Lightning Mapper, together with weather models driven by Hyperspectral Sounder data, will increase the lead time for severe storm warnings.
- **Air Quality:** The GeoXO Atmospheric Composition Instrument, Hyperspectral Sounder, and Imager will together provide a comprehensive detection of air quality conditions that pose health concerns.
- **Blue Economy:** The GeoXO Ocean Color will provide monitoring of dynamic coast and ocean features, ecosystem change, water quality, and hazards. These observations will refine estimates of fisheries yield, reduce risk/cost of harmful algal blooms, and allow us to track/respond to climate-driven ocean and coastal ecosystem changes.

*Brackets indicate potential cross NOAA Line Office benefits.

In FY 2023, NOAA will complete the Imager and Sounder Phase A formulation studies. NOAA will also initiate Phase A formulation studies for the remaining proposed GeoXO instruments and the spacecraft. These Phase A industry studies will provide the data needed to evaluate expected cost and expected performance to inform DOC Acquisition Milestone 2, tentatively scheduled for Q4 FY 2023.

After completing DOC Acquisition Milestone 2, NOAA will award the development contract for the imager and initiate procurement activities for the other selected instruments and spacecraft. Funding will also support the award of development contracts for the other instruments and spacecraft, tentatively planned for FY 2025.

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(Dollar amounts in thousands)

The Department and Administration are committed to maintaining a steady long-term funding profile for NESDIS to enable long-term planning and certainty for the Nation's weather and climate satellites. The FY 2023 request for GeoXO will fund near-term program reserves, allowing NESDIS to balance its requirements across portfolios and fiscal years within an overall budget of $2 billion per year plus inflation. The FY 2023 request will smooth out the funding profile throughout the next decade minimizing risk of outyear spikes and allowing the program to manage the acquisitions with certainty.

Schedule and Milestones:

FY 2023

- Complete Phase A Formulation studies for the Imager and Sounder instruments
- Award Phase A Formulation studies for the lightning mapper, ocean color, and atmospheric composition instruments and spacecraft
- Complete the Systems Requirements Review and DOC Acquisition Milestone 2
- Award Imager development contract (Phase B-D)

FY 2024

- Initiate procurements activities for other instruments and spacecraft (Phase B-D)

FY 2025

- Complete GeoXO Mission Definition Review
- Award development contracts for other instruments and spacecraft (Phase B-D)

FY 2026

- Complete GeoXO Key Decision Point B, Program Preliminary Design Review, Key Decision Point C, and Milestone 3.
- Complete Critical Design Review for the imager instrument
- Complete requirement definition for GeoXO Ground System

FY 2027

- Complete CDRs for the remaining instruments as well as the spacecraft
- Initiate procurement activities for GeoXO Ground System

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Deliverables:

- Report of Readiness provided to Congress (FY 2023)

Performance Measures	2023	2024	2025	2026	2027
Percent of milestones completed on time					
With Increase	75%	75%	75%	75%	75%
Without Increase	0%	0%	0%	0%	0%
Outyear Costs:					
Direct Obligations	653,829	385,000	632,500	679,000	725,000
Capitalized	653,829	385,000	632,500	679,000	725,000
Uncapitalized	0	0	0	0	0
Budget Authority	653,829	385,000	632,500	679,000	725,000
Outlays	274,600	161,700	265,650	285,100	304,500
FTE	6	9	9	9	9
Positions	9	9	9	9	9

Department of Commerce
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Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates*

GEO	2022 & Prior**	2023#	2024*#	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	653,829	385,000	632,500	679,000	725,000	N/A	N/A
Total GeoXO PAC Request	20,000	663,829	395,000	642,500	689,000	735,000	TBD	TBD
Total other GEO Programs (PAC)^	9,575,876	301,000	301,000	124,500	98,500	96,800	524,411	11,022,087
Total GEO Request (PAC)^^	9,595,876	964,829	696,000	767,000	787,500	831,800	TBD	TBD

* Outyears are estimates. Future requests will be determined through the annual budget process.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.
^Total other GEO Programs includes GOES-R Series.
^^ Total GEO Request includes GOES-R Series and GeoXO PAC funding only.
# The COVID-19 pandemic resulted in significant cost and schedule impacts to the GOES-R Series ground system server replacement. Access restrictions at NOAA operations facilities slowed, and at times halted, work on the server replacement; most notable, a four-month work stoppage from March through July 2020. Due to the delays, the server replacement will now be conducted in two phases: pre- and post- GOES-T launch. The new schedule requires a 10-month contract extension (this includes a 2-month option) to accommodate the 4-month work stoppage and the 6-month launch freeze, a period where no ground server changes are allowed in order to prevent introduction of a change that was not tested on the spacecraft. The estimated cost of the contract extension is $60 million. NOAA awarded the contract extension from within the GOES-R Series reserves, which reduced the reserves below an acceptable level. As such, it is necessary to request funding sooner than anticipated within the LCC to replenish reserves to an acceptable level in order to maintain schedule and minimize risks to the GOES-T and GOES-U launches. NOAA pulled forward $25 million and $35 million in FY 2023 and FY 2024, respectively; the LCC remains unchanged.

Department of Commerce
National Oceanic and Atmospheric Administration
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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Geostationary Earth Orbit (GEO
Program Change: Geostationary Extended Observations (GeoXO)

Title		Grade	Number	Annual Salary	Total Salaries
General Engineer		ZP-IV	2	132,300	264,600
Supervisory Engineer		ZP-V	1	160,900	160,900
Physical Scientist		ZP-IV	1	132,300	132,300
Supervisory Physical Scientist		ZP-V	1	160,900	160,900
Program Analyst		ZA-II/III	1	80,200	80,200
Program Analyst		ZA-III/IV	2	107,500	215,000
Budget Analyst		ZP-IV	1	132,300	132,300
Total			9		1,146,200
Less lapse	25.00%		(3)		(286,550)
Total full-time permanent (FTE)			6		859,650
2023 Pay Adjustment (4.6%)					39,540
					899,190

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	6
Total FTE	6
Authorized Positions:	
Full-time permanent	9
Total Positions	9

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National Oceanic and Atmospheric Administration
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Geostationary Earth Orbit (GEO) – Geostationary Extended Observations (GeoXO)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	8,537	8,710	9,110	10,009	899
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	85	100	100	100	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	8,622	8,810	9,210	10,109	899
12	Civilian personnel benefits	2,859	2,820	2,947	3,235	288
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	5	500	500	500	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	518	525	525	525	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	4,158	4,200	4,200	4,200	0
25.2	Other services from non-Federal sources	11,948	12,000	12,000	12,000	0
25.3	Other goods and services from Federal sources	172,028	283,710	283,183	935,825	652,642
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	1,813	1,815	1,815	1,815	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	40	40	40	40	0
31	Equipment	131,754	19,200	19,200	19,200	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	10,880	10,880	10,880	10,880	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	344,625	344,500	344,500	998,329	653,829

Department of Commerce
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PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Geostationary	Pos./BA	51	344,500	51	311,000	0	(33,500)
Earth Orbit (GEO)	FTE/OBL	47	344,500	47	311,000	0	(33,500)

GOES-R Series (-$33,500, 0 FTE/ 0 Positions) - NOAA proposes a planned funding reduction to the Geostationary Operational Environmental Satellite - R (GOES-R) Series program following the successful launch and transition to operations of GOES-T (GOES-18) in FY 2022. The remaining funds will continue integration and testing for the GOES-U satellite, the final satellite in the GOES-R Series program. Funds will also be used to complete the recapitalization of the GOES-R Series ground system, including replacement of the IBM servers, in compliance with requirements under the *Consolidated Appropriations Act, 2014* (P.L.113-76), which limit DOC, DOJ, NASA, and NSF from using appropriated funds to acquire a high- or moderate-impact system produced, manufactured, or assembled by China. Furthermore, the funds will be used for the follow-on sustainment contract of the GOES-R Ground System.

Schedule and Milestones:

FY 2023
- Continue GOES-U I&T
- Complete the replacement of IBM servers
- Award follow-on contract for sustainment of the GOES-R Series Ground System

FY 2024
- Complete GOES-U I&T
- Ship GOES-U to launch base and prepare to launch GOES-U
- Sustainment activities

FY 2025
- Launch GOES-U and conduct post launch checkout and calibration activities
- Complete GOES-U product validation and transition GOES-U to operations
- Sustainment activities

FY 2026
- Sustainment activities

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PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

FY 2027
- Sustainment activities

Deliverables:

Spacecraft*	Launch Commitment Date	Target Launch Date
GOES-U	Q1 FY 2025	April 2024

*Launch Readiness Dates were previously reported due to their relevance in contingency mission discussions. NOAA will no longer be reporting them to remain consistent with the Annual Satellite Reports.

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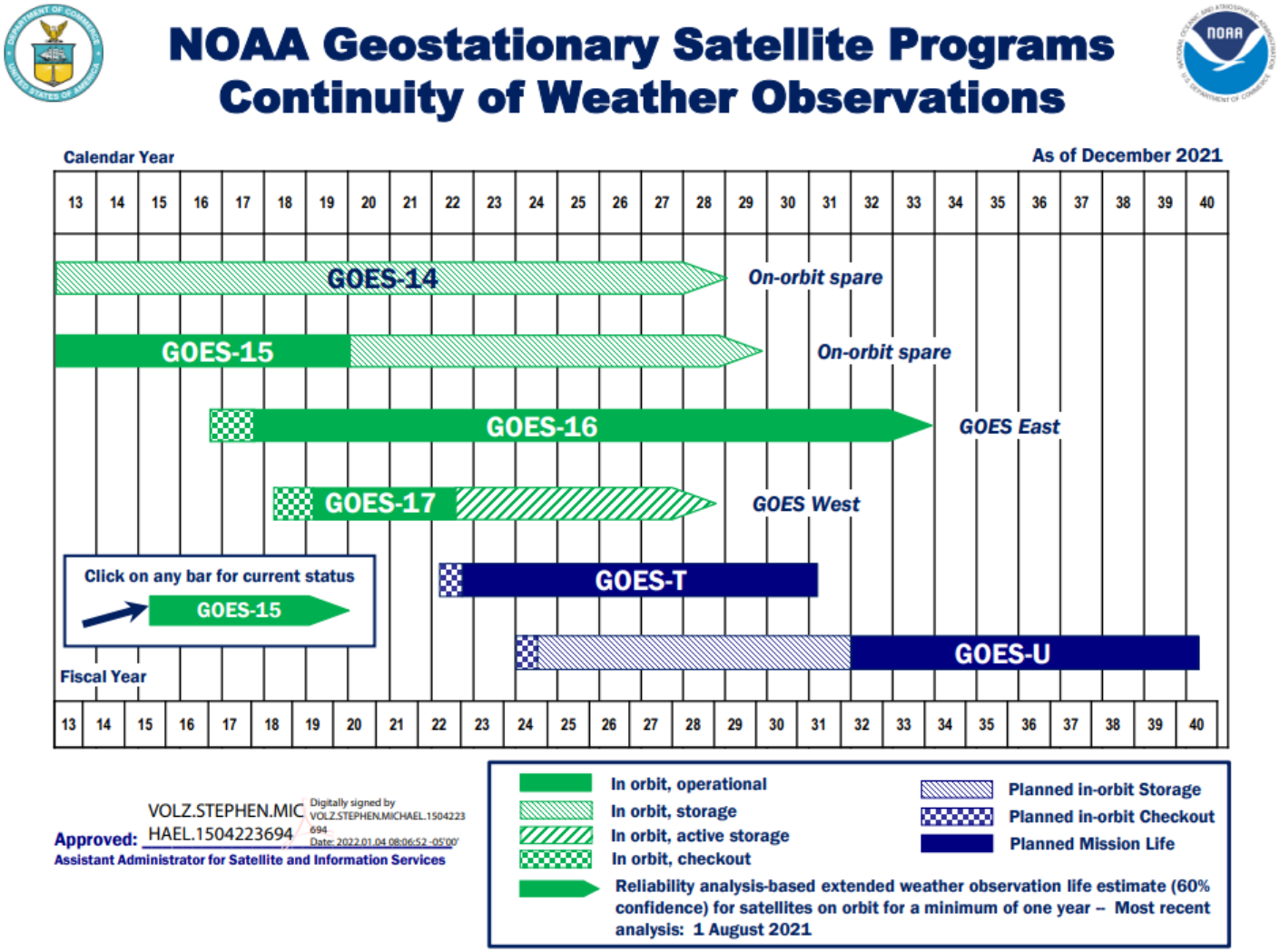
(Dollar amounts in thousands)



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Approved: _____

Assistant Administrator for Satellite and Information Services

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Percent of milestones completed on time					
With Decrease	75%	75%	75%	75%	75%
Without Decrease	75%	75%	75%	75%	75%
Outyear Costs:					
Direct Obligations	(33,500)	(33,500)	(210,000)	(236,000)	(237,700)
Capitalized	(33,500)	(33,500)	(210,000)	(236,000)	(237,700)
Uncapitalized	0	0	0	0	0
Budget Authority	(33,500)	(33,500)	(210,000)	(236,000)	(237,700)
Outlays	(14,070)	(14,070)	(88,200)	(99,120)	(99,830)
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates*

GEO	2022 & Prior**	2023#	2024*#	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	(33,500)	(33,500)	(210,000)	(236,000)	(237,700)	N/A	N/A
Total GOES-R Series PAC Request	9,575,876	301,000	301,000	124,500	98,500	96,800	524,411	11,022,087
Total GOES-R Series ORF Request	203,400	33,900	33,900	33,900	33,900	33,900	305,100	678,000
GOES-R Series LCC (PAC & ORF)	9,779,276	334,900	334,900	158,400	132,400	130,700	829,511	11,700,087
Total Other GEO Programs (PAC)^	20,000	663,829	395,000	642,500	689,000	735,000	TBD	TBD
Total GEO Request (PAC)^^	9,595,876	964,829	696,000	767,000	787,500	831,800	TBD	TBD

* Outyears are estimates. Future requests will be determined through the annual budget process.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations. .
^Total other GEO Programs includes GeoXO.
^^ Total GEO Request includes GOES-R Series and GeoXO PAC funding only.
# The COVID-19 pandemic resulted in significant cost and schedule impacts to the GOES-R Series ground system server replacement. Access restrictions at NOAA operations facilities slowed, and at times halted, work on the server replacement; most notable, a four-month work stoppage from March through July 2020. Due to the delays, the server replacement will now be conducted in two phases: pre- and post- GOES-T launch. The new schedule requires a 10-month contract extension (this includes a 2-month option) to accommodate the 4-month work stoppage and the 6-month launch freeze, a period where no ground server changes are allowed in order to prevent introduction of a change that was not tested on the spacecraft. The estimated cost of the contract extension is $60 million. NOAA awarded the contract extension from within the GOES-R Series reserves, which reduced the reserves below an acceptable level. As such, it is necessary to request funding sooner than anticipated within the LCC to replenish reserves to an acceptable level in order to maintain schedule and minimize risks to the GOES-T and GOES-U launches. NOAA pulled forward $25 million and $28.5 million in FY 2023 and FY 2024, respectively; the LCC remains unchanged.

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Geostationary Earth Orbit (GEO) – GOES R Series

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	8,537	8,710	9,110	9,110	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	85	100	100	100	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	8,622	8,810	9,210	9,210	0
12	Civilian personnel benefits	2,859	2,820	2,947	2,947	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	5	500	500	500	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	518	525	525	525	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	4,158	4,200	4,200	4,200	0
25.2	Other services from non-Federal sources	11,948	12,000	12,000	12,000	0
25.3	Other goods and services from Federal sources	172,028	283,710	283,183	249,683	(33,500)
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	1,813	1,815	1,815	1,815	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	40	40	40	40	0
31	Equipment	131,754	19,200	19,200	19,200	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	10,880	10,880	10,880	10,880	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	344,625	344,500	344,500	311,000	(33,500)

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Low Earth Orbit	Pos./BA	101	614,237	109	692,567	8	78,330
(LEO)	FTE/OBL	92	614,237	98	692,567	6	78,330

LEO Weather Satellites (+$78,330, 6 FTE/ 8 Positions) – NOAA proposes to initiate a LEO Weather Satellites program that will complement the Polar Weather Satellite (PWS) program, and will ultimately serve as the follow-on to PWS to provide essential, sustained observations from LEO to meet NOAA mission needs. LEO Weather Satellites are responsive to the Congressional direction to improve weather forecasting and prediction capabilities, as provided in the *Weather Research and Forecasting Innovation Act of 2017* (P.L. 115-25).

The early morning, mid-morning, and early afternoon orbits are optimized for data requirements to feed NWS numerical weather prediction (NWP) models. The 2018 NOAA Satellite Observing System Architecture study found that a disaggregated approach to LEO observations could provide greater overall system reliability compared to the larger satellites of the JPSS era. These small satellites will be developed and deployed quickly, enabling the nation's polar observing satellite architecture to evolve to be more agile and resilient. Timely innovation using rapid technology infusion and an increase in data diversity by adding orbits results in improved value.

NOAA proposes to use demonstration missions to prove out this new "smallsat" architecture. This approach to managing the long-term transition from PWS to LEO will allow NOAA to obtain critical lessons learned before adopting disaggregation in the post-JPSS era, while also establishing a more resilient near-term PWS constellation. The first launch of a LEO Weather Satellites will be the QuickSounder. NOAA proposes to launch an engineering model of the Advanced Technology Microwave Sounder (ATMS) instrument on a commercial spacecraft and operated by commercial ground services, allowing NOAA to gain experience with new commercial business models and to leverage new acquisition strategies. The QuickSounder demonstration mission will assess mission assurance practices relative to established commercial New Space missions and establish a referenceable knowledge base of rapid procurement practices that will benefit the future, high launch tempo LEO Program. NESDIS intends to progress the QuickSounder mission from Authorization to Proceed to launch within approximately three years. Utilizing elements and best

practices of the commercial space industry to meet federal program level requirements, the QuickSounder mission will demonstrate that NOAA can provide observation capabilities with a small satellite on a compressed production schedule.

As a secondary benefit, QuickSounder will help mitigate the projected gap in microwave sounding data that is crucial to NWP models, once the legacy POES satellites are decommissioned (see program change for POES Extension at NESDIS-145). The legacy POES have drifted into the early morning orbit over time. Microwave sounding data from early morning orbits greatly benefits the accuracy of NWP models (Figure 2) that NWS relies on for weather forecasting. Together, the early morning, mid-morning, and early afternoon orbits provide a distribution of sounding observations that are essential to the performance of NWP global models. These global models run every six hours, while their regional models run every hour. Without three primary orbits, NOAA cannot provide full global coverage every six hours, and the NOAA mission to provide accurate weather forecasts will be compromised. No other U.S. Government agency or commercial entity has plans to provide these observations in the early-morning orbit, nor do we expect them to before the POES satellites are retired. Since data from the legacy satellites have been ingested into NWS NWP models since FY 2020, loss of microwave sounding data from the early morning orbit in 2022 and beyond could result in a degradation of NWP output that could affect support to the forecaster.

Finally, FY 2023 funds will support the instrument development studies and exploration of innovative smallsat development approaches, including leveraging commercial capabilities and partnering with commercial entities. Understanding the opportunities and risks of commercial capabilities, including building spacecraft, launch vehicles, and ground services, is critical for developing and implementing a robust program to successfully meet mission requirements. This work will build off of complementary efforts funded within the Joint Venture program.

Ultimately, the LEO Weather Satellites Program will be able to leverage innovative technological advances by U.S. industry in instrument development, spacecraft design, and launch and ground services to provide the observation capabilities where and when they are needed. This disaggregated, rapid response architecture will provide NOAA greater agility to infuse new technology at a more rapid pace and be more responsive to changes in mission requirements and specific stakeholder needs.

Schedule and Milestones:
FY 2023

- LEO Program Key Decision Point – 0
- LEO Program DOC Milestone 1
- QuickSounder Acquisition Strategy Meeting

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

- QuickSounder DOC Milestone 1

FY 2024
- QuickSounder DOC Milestone 2
- QuickSounder Key Decision Point - C
- Initiate Phase A Studies for Microwave Sounder

FY 2025
- LEO Program DOC Milestone 2
- Complete refurbishment of ATMS EDU into QuickSounder Flight Unit
- Initiate Microwave Sounder Phase B-D development
- Initiate Phase A Studies for Infrared Sounder

FY 2026
- LEO Program Key Decision Point - 1
- LEO Program DOC Milestone 3
- QuickSounder launch

FY 2027
- Initiate Infrared Sounder Phase B-D development

Deliverables:
- Launch QuickSounder satellite mission

Department of Commerce
National Oceanic and Atmospheric Administration
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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Percent of Milestones completed on time					
With Increase	75%	75%	75%	75%	75%
Without Increase	0%	0%	0%	0%	0%
Outyear Costs:					
Direct Obligations	78,330	123,590	134,590	163,590	154,000
Capitalized	78,330	123,590	134,590	163,590	154,000
Uncapitalized	-	-	-	-	-
Budget Authority	78,330	123,590	134,590	163,590	154,000
Outlays	32,900	51,901	56,530	68,670	64,680
FTE	6	8	8	8	8
Positions	8	8	8	8	8

Department of Commerce
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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates*

LEO	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	78,330	123,590	134,590	163,500	154,000	N/A	N/A
Total LEO Weather Satellites Request	N/A	78,330	123,590	134,590	163,500	154,000	TBD	TBD
Total Other LEO Programs (PAC)#	**13,365,605**	**360,510**	**350,510**	**350,510**	**350,510**	**350,510**	**TBD**	**TBD**
Total LEO Request (PAC)^^	**13,365,605**	**438,840**	**474,100**	**485,100**	**514,010**	**504,510**	**TBD**	**TBD**

* Outyears are estimates. Future requests will be determined on an annual basis and informed by the various studies as the program moves through the formulation gateways.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.
# Total Other LEO Programs (PAC) includes PWS, CDARS, COSMIC-2/GNSS RO, and POES Extension PAC funding only.
^^ Total LEO Request includes PWS, LEO Weather Satellites, CDARS, COSMIC-2/GNSS RO, and POES Extension PAC funding only.

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (LEO)
Program Change: LEO Weather Satellites

Title		Grade	Number	Annual Salary	Total Salaries
Program Manager		ZA-V	1	161,000	161,000
Financial Manager		ZA-V	1	161,000	161,000
Budget Analyst		ZA-III	1	132,000	132,000
General Engineer		ZP-IV	3	161,000	483,000
Physical Scientist		ZP-IV	2	161,000	322,000
Total			8		1,259,000
Less lapse	25.00%		(2)		(314,750)
Total full-time permanent (FTE)			6		944,250
2023 Pay Adjustment (4.6%)					25,495
					969,745

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	6
Total FTE	6
Authorized Positions:	
Full-time permanent	8
Total Positions	8

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (LEO) – LEO Weather Satellites

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	9,677	10,569	10,419	11,389	970
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	125	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	9,802	10,569	10,419	11,389	970
12	Civilian personnel benefits	1,936	3,382	3,334	3,644	310
13	Benefits for former personnel		0	0	0	0
21	Travel and transportation of persons	11	248	248	248	0
22	Transportation of things	18	0	0	0	0
23.1	Rental payments to GSA	1,073	1,230	1,230	1,230	0
23.2	Rental Payments to others		0	0	0	0
23.3	Communications, utilities and misc charges	469	0	0	0	0
24	Printing and reproduction	2	40	40	40	0
25.1	Advisory and assistance services	176,551	5,695	5,695	5,695	0
25.2	Other services from non-Federal sources	11,292	2,284	2,284	2,284	0
25.3	Other goods and services from Federal sources	425,382	638,272	574,580	651,630	77,050
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	16,548	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	267	111	111	111	0
31	Equipment	1,495	549	549	549	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	23,730	15,747	15,747	15,747	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	4	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	668,580	678,127	614,237	692,567	78,330

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Low Earth Orbit	Pos./BA	101	614,237	101	624,237	0	10,000
(LEO)	FTE/OBL	92	614,237	92	624,237	0	10,000

Polar Operational Environmental Satellites (POES) Extension (+$10,000, 0 FTE/ 0 Positions) – NOAA proposes to extend operations of the POES satellites (NOAA-15, NOAA-18, and NOAA-19) which provide critical early-morning orbit observations, space weather observations, and satellite data services to NWS and POES users.

The legacy POES satellites were originally launched in the mid- and early afternoon orbit and have now drifted into the early morning orbit over time. While the POES satellites are beyond their design life, the spacecraft and many instruments and channels are operational and continue to provide critical data to numerical weather prediction (NWP) models and for situational nowcasting needs. NWP impact studies show statistically significant degradation in forecast models when POES satellite data is removed.

Extending legacy POES will continue to provide Space Environment Monitor data to NWS Space Weather Prediction Center for their mission requirements. Extending legacy POES will also provide continuity of satellite data services for the SARSAT Program and the Argos-DCS Program, which provides relay of meteorological data from ocean buoys and wildlife monitoring. The CDARS-ADCS sensor will support the Argos-DCS program after it is launched in FY 2022, completes calibration, and is placed into operations to continue services currently provided by legacy POES.

The legacy-based POES ground system consists of a command and control segment, processing, antenna equipment, and simulator utilizing a design that is currently more than 20 years old, with several components that have reached their end of life. Based on a comprehensive Alternatives of Analysis conducted in 2021, the most cost effective and efficient approach identified to extend the POES mission will utilize a “Ground System as a Service” architecture that leverages commercial services while minimizing impacts to plans to shift operational resources to support needed new systems. This investment will extend the operation of the legacy POES operational constellation beyond the previously planned deactivation at the end of FY 2022 and is planned to provide for up to an additional three years of operation through FY 2025.

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:

FY 2023

- Government Ground system operations and maintenance
- Polar products processing and distribution
- Polar products system technology refresh
- IT Security fixes/upgrades and scanning/patching
- IT Security scanning and patching
- Transition of operations to the Commercial Ground system
- Commercial Ground system operations and maintenance
- Government ground system decommissioning

FY 2024

- Commercial Ground system operations and maintenance
- Polar products processing and distribution
- IT Security fixes/upgrades and scanning/patching
- IT Security scanning and patching

FY 2025

- Commercial Ground system operations and maintenance
- Polar products processing and distribution
- IT Security fixes/upgrades and scanning/patching
- IT Security scanning and patching

Deliverables:

-
- Strategic technology refresh of the polar products system
- Commercial Ground system

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Percent of Milestones completed on time					
With Increase	75%	75%	75%	75%	75%
Without Increase	0%	0%	0%	0%	0%
Outyear Costs:					
Direct Obligations	10,000	0	0	0	0
Capitalized	2,500	0	0	0	0
Uncapitalized	7,500	0	0	0	0
Budget Authority	10,000	0	0	0	0
Outlays	4,200	5,800	0	0	0
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates*

LEO	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	10,000	0	0	0	0	N/A	10,000
Total POES Extension	0	10,000	0	0	0	0	0	10,000
Total Other LEO Programs (PAC)#	13,365,605	428,840	474,100	485,100	514,010	504,510	TBD	TBD
Total LEO Request (PAC)^^	13,365,605	438,840	474,100	485,100	514,010	504,510	TBD	TBD

* Future requests will be determined on an annual basis.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.
# Total Other LEO Programs (PAC) includes PWS, LEO Weather Satellites, CDARS, and COSMIC-2/GNSS-RO PAC funding only.
^^ Total LEO Request includes PWS, LEO Weather Satellites, CDARS, COSMIC-2/GNSSRO, and POES Extension PAC funding only.

Department of Commerce
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Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (LEO) - POES Extension

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	9,677	10,569	10,419	10,419	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	125	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	9,802	10,569	10,419	10,419	0
12	Civilian personnel benefits	1,936	3,382	3,334	3,334	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	11	248	248	248	0
22	Transportation of things	18	0	0	0	0
23.1	Rental payments to GSA	1,073	1,230	1,230	1,230	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	469	0	0	0	0
24	Printing and reproduction	2	40	40	40	0
25.1	Advisory and assistance services	176,551	5,695	5,695	5,695	0
25.2	Other services from non-Federal sources	11,292	2,284	2,284	4,784	2,500
25.3	Other goods and services from Federal sources	425,382	638,272	574,580	582,080	7,500
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	16,548	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	267	111	111	111	0
31	Equipment	1,495	549	549	549	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	23,730	15,747	15,747	15,747	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	4	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	668,580	678,127	614,237	624,237	10,000

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Low Earth Orbit	Pos./BA	101	614,237	101	616,445	0	2,208
(LEO)	FTE/OBL	92	614,237	92	616,445	0	2,208

COSMIC-2/GNSS-RO (+$2,208, 0 FTE/ 0 Positions) - NOAA requests an increase to maintain the current operational capability of the globally distributed ground system for the COSMIC-2 program. Without the increase, NOAA will be forced to eliminate the quality assurance of the data and reduce the number of ground reception stations used to acquire data. Reducing the number of ground reception stations will increase latency of the delivery of the data to the user. When the data is delivered later than the required time, it is unable to be utilized by the NWS or USAF, which will have a negative impact on NOAA's forecast product accuracy.

This request aligns with the commitments outlined in the "Radio Occultation Data Gap Mitigation Plan" NOAA developed pursuant to direction provided in Senate Report 115-275 and delivered on May 1, 2020.

Schedule and Milestones:
FY 2023 – FY 2027

- Reception and processing of equatorial low Earth orbit satellite GNSS-RO data from COSMIC-2 mission
- Reception and processing of mid and high latitude low Earth orbit satellite GNSS-RO data from partner missions

Deliverables:

- Processed GNSS-RO data; improved quality control algorithms for GNSS-RO data in NWS operational data assimilation systems
- GNSS-RO data for assimilation into the NWS predictive weather models

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National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Percent of Milestones completed on time					
With Increase	100%	100%	100%	100%	100%
Without Increase	85%	70%	50%	50%	50%
Outyear Costs:					
Direct Obligations	2,208	2,208	2,208	2,208	2,208
Capitalized	-	-	-	-	-
Uncapitalized	2,208	2,208	2,208	2,208	2,208
Budget Authority	2,208	2,208	2,208	2,208	2,208
Outlays	930	930	930	930	930
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates*

LEO	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	2,208	2,208	2,208	2,208	2,208	TBD	TBD
Total COSMIC-2 / GNSS-RO Request	51,025	8,100	8,100	8,100	8,100	8,100	TBD	TBD
Total Other LEO Programs (PAC)#	**13,314,580**	**430,740**	**466,000**	**477,000**	**505,910**	**496,410**	**TBD**	**TBD**
Total LEO Request (PAC)^^	**13,365,605**	**438,840**	**474,100**	**485,100**	**514,010**	**504,510**	**TBD**	**TBD**

* Outyears are estimates only. Future requests will be determined through the annual budget process.

** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations. # Total Other LEO Programs (PAC) includes PWS, LEO Weather Satellites, CDARS, and POES Extension PAC funding only.

^^ Total LEO Request includes PWS, LEO Weather Satellites, CDARS, COSMIC-2/GNSS RO, and POES Extension PAC funding only.

Department of Commerce
National Oceanic and Atmospheric Administration
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (LEO) – COSMIC-2

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	9,677	10,569	10,419	10,419	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	125	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	9,802	10,569	10,419	10,419	0
12	Civilian personnel benefits	1,936	3,382	3,334	3,334	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	11	248	248	248	0
22	Transportation of things	18	0	0	0	0
23.1	Rental payments to GSA	1,073	1,230	1,230	1,230	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	469	0	0	0	0
24	Printing and reproduction	2	40	40	40	0
25.1	Advisory and assistance services	176,551	5,695	5,695	5,695	0
25.2	Other services from non-Federal sources	11,292	2,284	2,284	2,284	0
25.3	Other goods and services from Federal sources	425,382	638,272	574,580	576,788	2,208
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	16,548	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	267	111	111	111	0
31	Equipment	1,495	549	549	549	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	23,730	15,747	15,747	15,747	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	4	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	668,580	678,127	614,237	616,445	2,208

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Low Earth Orbit	Pos./BA	101	614,237	98	601,137	(3)	(13,100)
(LEO)	FTE/OBL	92	614,237	90	601,137	(2)	(13,100)

Cooperative Data and Rescue Services (-$13,100, -2 FTE / -3 Positions) – NOAA requests a planned decrease to terminate Cooperative Data and Rescue Services. Following the planned launch in FY 2022, NOAA will complete procurement activities supporting the launch of the Argos-4 Advanced Data Collection System (A-DCS) instrument provided by the French space agency Centre National d'Etudes Spatiales and will transition it to operations. Beginning in FY 2023, funding to support operations is included within the OSPO Subactivity.

Outyear Funding Estimates*

LEO	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	(13,100)	(13,100)	(13,100)	(13,100)	(13,100)	N/A	N/A
Total CDARS Request	78,939	0	0	0	0	0	N/A	N/A
Total Other LEO Programs (PAC)#	**13,286,666**	**438,840**	**474,100**	**485,100**	**514,010**	**504,510**	**TBD**	**TBD**
Total LEO Request (PAC)^^	**13,365,605**	**438,840**	**474,100**	**485,100**	**514,010**	**504,510**	**TBD**	**TBD**

* Outyears are estimates only. Future requests will be determined through the annual budget process.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (LEO)
Program Change: Cooperative Data and Rescue Services

Title		Grade	Number	Annual Salary	Total Salaries
General Engineer		ZP-IV	(1)	132,000	(132,000)
Physical Scientist		ZP-IV	(2)	132,000	(264,000)
Total			(3)		(396,000)
Less lapse	25.00%		0		0
Total full-time permanent (FTE)			(2)		(396,000)
2023 Pay Adjustment (4.6%)					0
					(396,000)
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			(2)		
Total FTE			(2)		
Authorized Positions:					
Full-time permanent			(3)		
Total Positions			(3)		

Department of Commerce
National Oceanic and Atmospheric Administration
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (LEO) – Cooperative Data and Rescue Services (CDARS)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	9,677	10,569	10,419	10,023	(396)
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	125	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	9,802	10,569	10,419	10,023	(396)
12	Civilian personnel benefits	1,936	3,382	3,334	3,210	(124)
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	11	248	248	248	0
22	Transportation of things	18	0	0	0	0
23.1	Rental payments to GSA	1,073	1,230	1,230	1,230	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	469	0	0	0	0
24	Printing and reproduction	2	40	40	40	0
25.1	Advisory and assistance services	176,551	5,695	5,695	5,695	0
25.2	Other services from non-Federal sources	11,292	2,284	2,284	2,284	0
25.3	Other goods and services from Federal sources	425,382	638,272	574,580	562,000	(12,580)
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	16,548	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	267	111	111	111	0
31	Equipment	1,495	549	549	549	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	23,730	15,747	15,747	15,747	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	4	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	668,580	678,127	614,237	601,137	(13,100)

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Low Earth Orbit (LEO)	Pos./BA	101	614,237	93	361,402	(8)	(252,835)
	FTE/OBL	92	614,237	84	361,402	(8)	(252,835)

Polar Weather Satellites (PWS) (-$252,835, -8 FTE/ -8 Positions) – NOAA proposes a planned decrease to PWS due to the rescheduled launch commitment dates applying to a five-year cadence. The launch vehicles will be purchased in future years reducing the current need.

During FY 2023, NOAA will commission and transition JPSS-2/NOAA-21 into operations. NOAA will also continue the development of the spacecraft and ATMS, CrIS, VIIRS, and OMPS instruments for JPSS-3 and JPSS-4 in order to maintain synergies with JPSS-2 and efficiencies of the block buy approach for these elements of the PWS. NOAA will continue the maintenance and sustainment of the globally distributed ground system supporting the Suomi NPP and NOAA-20 satellites and continue development and testing of the ground system to support JPSS-2. Finally, NOAA will continue to work to refine its constellation strategy to ensure PWS continuity.

NOAA's satellites collect essential data that serve as a long-term record for monitoring key climate parameters, and there is increasing demand for NOAA's satellite operations to collect more accurate information and expand observing capacity.

Schedule and Milestones:
FY 2023
- Commission and transition JPSS-2 to operations
- Conduct System Integration Review for JPSS-3
- Continue JPSS-4 instrument level environmental testing
- Sustain and maintain Suomi NPP, NOAA-20 and JPSS-2
- Sustain and maintain ground system to support Suomi NPP, NOAA-20 and JPSS-2

FY 2024

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(Dollar amounts in thousands)

- Sustain and maintain NOAA-20 and JPSS-2
- Sustain and maintain ground system to support NOAA-20 and JPSS-2

FY 2025
- Deliver JPSS-4 instruments
- Continue JPSS-4 satellite integration and testing
- Sustain and maintain NOAA-20 and JPSS-2
- Sustain and maintain ground system to support NOAA-20 and JPSS-2

FY 2026
- Sustain and maintain NOAA-20 and JPSS-2
- Sustain and maintain ground system to support NOAA-20 and JPSS-2

FY 2027
- Deliver JPSS-3 satellite to launch site
- Conduct launch site integration and test in preparation for JPSS-3 launch
- Sustain and maintain NOAA-20 and JPSS-2
- Sustain and maintain ground system to support NOAA-20 and JPSS-2

Deliverables:
- JPSS-2 satellite for launch by Q1 FY 2023
- On-orbit support for Suomi NPP and NOAA-20

Satellite	Launch Commitment Date**	Target Launch Date***
JPSS-2	Q1 FY 2023	September 2022
JPSS- 3	Q1 FY 2028	TBD
JPSS-4	Q1 FY 2033	TBD

** Launch commitment dates will be re-evaluated based on annual appropriations, the performance of on-orbit assets, and the overall constellation risk posture.
*** Target Launch Date is only known after coordination with the launch services provider and in accordance with the NESDIS 1330 Polar-Orbiting Launch Policy.

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Percent of Milestones completed on time					
With Increase	75%	75%	75%	75%	75%
Without Increase	75%	75%	75%	75%	75%
Outyear Costs:					
Direct Obligations	(252,835)	(252,835)	(252,835)	(252,835)	(252,835)
Capitalized	(252,835)	(252,835)	(252,835)	(252,835)	(252,835)
Uncapitalized	-	-	-	-	-
Budget Authority	(252,835)	(252,835)	(252,835)	(252,835)	(252,835)
Outlays	(106,190)	(106,190)	(106,190)	(106,190)	(106,190)
FTE	(8)	(8)	(8)	(8)	(8)
Positions	(8)	(8)	(8)	(8)	(8)

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Outyear Funding Estimates*

LEO	2022 & Prior**	2023*	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 PAC Base	N/A	(252,835)	(252,835)	(252,835)	(252,835)	(252,835)	N/A	N/A
PWS (PAC & ORF)	**13,289,759**	**425,000**	**425,000**	**425,000**	**425,000**	**425,000**	**2,745,266**	**18,160,025**
JPSS (ORF)	60,000	74,790	74,790	74,790	0	0	0	284,370
JPSS (PAC)^	10,812,145	125,210	92,600	7,800	0	0	0	11,037,755
PFO (ORF)	0	0	0	0	74,790	74,790	822,690	972,270
PFO (PAC)	$2,417,614	225,000	257,610	342,410	350,210	350,210	1,922,576	5,865,630
Total Other LEO Programs (PAC)#	**135,846**	**96,430**	**131,690**	**142,690**	**171,600**	**162,100**	**TBD**	**TBD**
Total LEO Request (PAC)^^	**13,365,605**	**438,840**	**474,100**	**485,100**	**514,010**	**504,510**	**TBD**	**TBD**

* Outyears are estimates. Future requests will be determined on an annual basis and informed by the various studies as the program moves through the formulation gateways.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.
# Total Other LEO Programs (PAC) includes PWS, CDARS, COSMIC-2/GNSS RO, and POES Extension PAC funding only.
^^ Total LEO Request includes PWS, LEO Weather Satellites, CDARS, COSMIC-2/GNSS RO, and POES Extension PAC funding only.

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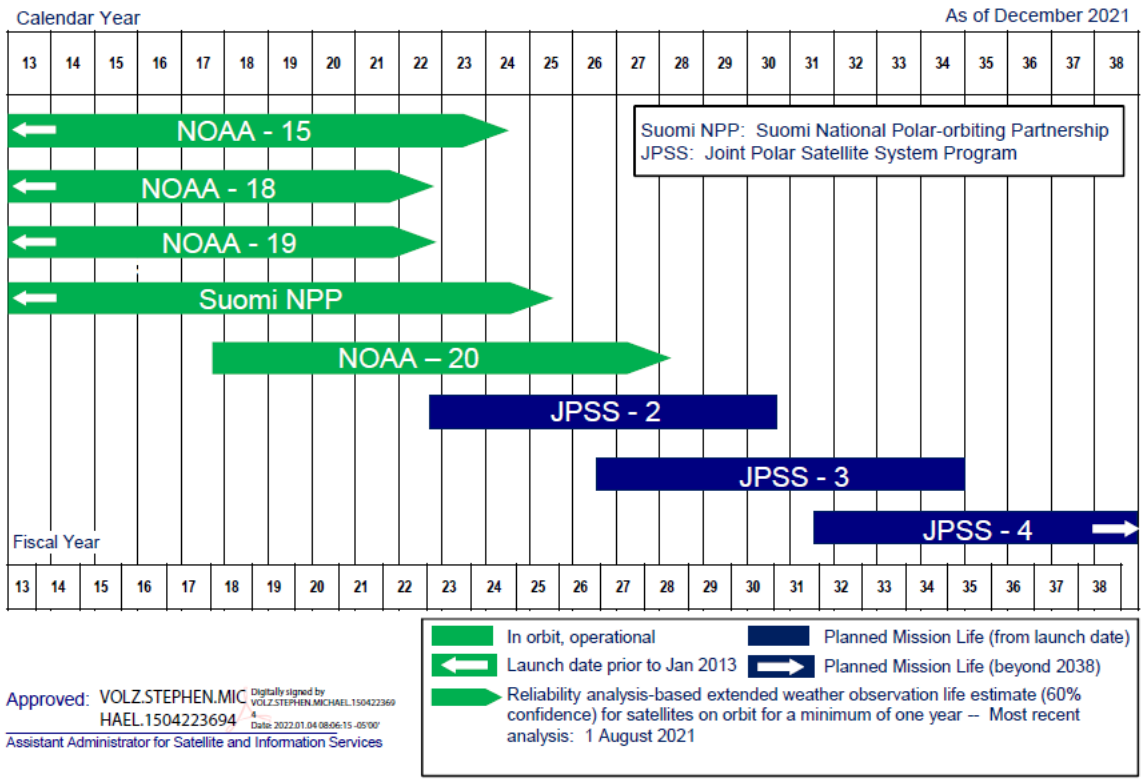

Department of Commerce
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Procurement, Acquisition, and Construction
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (LEO)
Program Change: Polar Weather Satellites (PWS)

Title		Grade	Number	Annual Salary	Total Salaries
General Engineer		ZP-IV	(1)	132,000	(132,000)
Supervisory Engineer		ZP-V	(1)	161,000	(161,000)
Physical Scientist		ZP-IV	(1)	132,000	(132,000)
Supervisory Physical Scientist		ZP-V	(1)	161,000	(161,000)
Program Analyst		ZA-II/III	(1)	81,000	(81,000)
Program Analyst		ZA-III/IV	(2)	108,000	(216,000)
Budget Analyst		ZP-IV	(1)	132,000	(132,000)
Total			(8)		(1,015,000)
Less lapse	0.00%		0		0
Total full-time permanent (FTE)			(8)		(1,015,000)
2023 Pay Adjustment (4.6%)					(46,690)
					(1,061,690)

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	(8)
Total FTE	(8)
Authorized Positions:	
Full-time permanent	(8)
Total Positions	(8)

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Low Earth Orbit (LEO) – Polar Weather Satellites (PWS)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	9,677	10,569	10,419	9,357	(1,062)
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	125	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	9,802	10,569	10,419	9,357	(1,062)
12	Civilian personnel benefits	1,936	3,382	3,334	2,994	(340)
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	11	248	248	248	0
22	Transportation of things	18	0	0	0	0
23.1	Rental payments to GSA	1,073	1,230	1,230	1,230	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	469	0	0	0	0
24	Printing and reproduction	2	40	40	40	0
25.1	Advisory and assistance services	176,551	5,695	5,695	5,695	0
25.2	Other services from non-Federal sources	11,292	2,284	2,284	2,284	0
25.3	Other goods and services from Federal sources	425,382	638,272	574,580	323,147	(251,433)
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	16,548	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	267	111	111	111	0
31	Equipment	1,495	549	549	549	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	23,730	15,747	15,747	15,747	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	4	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	668,580	678,127	614,237	361,402	(252,835)

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Space Weather Observations (SWO)	Pos./BA	35	114,721	58	259,721	23	145,000
	FTE/OBL	28	114,721	46	259,721	18	145,000

Space Weather Next (+$145,000, 18 FTE/ 23 Positions) – NOAA proposes to initiate the Space Weather Next (SW Next) program that will sustain, improve, extend, and mitigate potential gaps in observations to support NOAA space weather forecast operations as authorized by the *Promoting Research and Observations of Space Weather to Improve the Forecasting of Tomorrow (PROSWIFT) Act* (P.L. 116-181) and driven by the National Space Weather Strategy and Action Plan. Without establishment of activities and projects to obtain these observations, NOAA will not be able to meet its strategic objectives and will jeopardize space weather forecasts affecting multiple sectors of the economy, and civilian and national security interests. This work is required to sustain continuity of the existing program of record observations and, together with research investments within NASA and operational product improvements within NOAA's National Weather Service's Space Weather Prediction Center. Space weather is critical to all space assets and for protecting the burgeoning U.S. space commerce. Increasing the capability of predicting space weather events will directly support the protection of critical infrastructures which include commercial banking, electrical power grid, and airline operations.

The program will be responsible for formulation, development, and deployment of NESDIS observational capabilities with respect to space weather. These program responsibilities and deliverables will include:

- Pre-formulation and formulation activities to establish and baseline a Space Weather Program. NESDIS will engage the space weather stakeholder community, industry, academia, interagency working groups, and advisory groups to define requirements. Concept designs, trade studies, and analysis of alternatives are necessary in preparation for Department of Commerce Milestones and NASA Key Decision Points. NOAA will prepare and deliver a comprehensive space weather program plan of execution that will identify the mission performance enabled by the five year profile for FY 2023 through FY 2027.
- Lagrange Point 1 (L1) continuity project to meet the NOAA mission need in the most cost effective manner. The L1 project will provide continuity of observations as NOAA's Space Weather Follow On-L1 reaches the end of its design life.
- Compact coronagraph for deployment aboard the European Space Agency (ESA) Lagrange L5 mission that is anticipated to launch in 2027. ESA will provide the launch, spacecraft, additional observations of value to NOAA's mission, and the satellite

operations. Imagery of the Sun's corona from the L5 observation point was identified by the NSOSA independent Space Platform Requirements Working Group as the single most impactful new observation to improve NOAA's space weather mission. To meet the pressing schedule need, the coronagraph for the L5 mission will be a compact coronagraph (CCOR) developed by the Naval Research Laboratory. NOAA intends to procure the L1 solar coronagraph from industry to sustain these critical observations in a cost-effective and timely manner.

- Actions as detailed in the NOAA Space Weather Gap Mitigation plan, including plans for contingency coronal imagery by exploiting observations from NOAA partners. Partner observations under consideration include coronagraph observations from the upcoming NASA PUNCH mission, solar wind data from the NASA IMAP mission, and other partner assets at L1, such as the Indian Space Research Organisation (ISRO)'s Aditya, that may provide complementary data for calibration and validation.

NOAA will also conduct pre-formulation and formulation activities for instruments for X-Ray and Extreme UltraViolet (EUV) Irradiances, and EUV and coronagraph imagery of the Sun; and, instruments to observe the Earth's thermosphere and Aurora. Finally, the Space Weather Program may include instrument suites for *in situ* measurement of energetic particles and magnetic fields in LEO, GEO, HEO, and other orbits as appropriate to meet the NOAA mission need in the most cost-effective manner.

Schedule and Milestones:

FY 2023

- Program Mission Definition Review
- L5 coronagraph System Requirements Review for partner mission with ESA
- Initiate studies of next generation SWO instruments

FY 2024

- L1 project DOC Milestone 2/Key Decision Point A
- L1 project System Requirements Review
- L5 coronagraph System Definition Review for partner mission with ESA
- L5 coronagraph Key Decision Point B for partner mission with ESA

FY 2025

- L1 project System Definition Review
- L1 project Key Decision Point B
- L5 coronagraph Preliminary Design Review
- L5 coronagraph Key Decision Point C

FY 2026

- L1 project Preliminary Design Review

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- L1 project Key Decision Point C
- L5 coronagraph Critical Design Review for partner mission with ESA

FY 2027

- L1 Project Critical Design Review
- L5 coronagraph delivery for partner mission with ESA

FY 2027

- L1 Project Key Decision Point D

Deliverables:

- Provide continuity of space weather ionosphere, thermosphere, solar and heliospheric observations to ensure accurate and timely alerts and warnings for the protection of critical infrastructures and societal and economic impacts due to space weather.

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Performance Measures	2023	2024	2025	2026	2027
Percentage of projected milestones to be completed annually for the Space Weather Next program. This includes key decision points and major reviews for the program.					
With Increase	75%	75%	75%	75%	75%
Without Increase	0%	0%	0%	0%	0%
Outyear Costs:					
Direct Obligations	145,000	225,000	228,000	231,200	231,200
Capitalized	145,000	225,000	228,000	231,200	231,200
Uncapitalized	0	0	0	0	0
Budget Authority	145,000	225,000	228,000	231,200	231,200
Outlays	60,900	94,500	95,760	97,104	97,104
FTE	18	23	23	23	23
Positions	23	23	23	23	23

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(Dollar amounts in thousands)

Outyear Funding Estimates*

SWO	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	145,000	225,000	228,000	231,200	231,200	TBD	TBD
Total SW Next Request	N/A	145,000	225,000	228,000	231,200	231,200	TBD	TBD
Total Other SWO Programs^	328,552	142,806	97,200	41,200	22,300	21,800	52,154	TBD
Total SWO Request^^	328,552	287,806	322,200	269,200	253,500	253,000	TBD	TBD

* Outyears are estimates. Future requests will be determined through the annual budget process and informed by the various studies as the program moves through the formulation gateways.
** The FY 2022 & Prior column accounts for the FY 2021 enacted and FY 2022 annualized CR amounts, as well as any reductions for deobligations.
^ Total Other SWO Programs includes PPA Base and Space Weather Follow On.
^^Total SWO Request includes SWFO, PPA Base, and SW Next.

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Space Weather Observations (SWO)
Program Change: Space Weather Next (SW Next)

Title		Grade	Number	Annual Salary	Total Salaries
Supervisory Physical Scientist		ZP-V	1	161,000	161,000
Supervisory Engineer		ZP-V	2	161,000	322,000
General Engineer		ZP-IV	4	132,300	529,200
Physical Scientist		ZP-IV	4	132,300	529,200
General Engineer		ZP-III	4	93,600	374,400
Physical Scientist		ZP-III	4	93,600	374,400
Program Analyst		ZA-III	2	93,600	187,200
Budget Analyst		ZA-III	2	93,600	187,200
Total			23		2,664,600
Less lapse	25.00%		(5)		(666,150)
Total full-time permanent (FTE)			18		1,998,450
2023 Pay Adjustment (4.6%)					91,929
					2,090,379
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			18		
Total FTE			18		
Authorized Positions:					
Full-time permanent			23		

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Space Weather Observations (SWO) – Space Weather Next (SW Next)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	4,430	4,549	4,758	6,848	2,090
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	67	67	67	67	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	4,497	4,616	4,825	6,915	2,090
12	Civilian personnel benefits	1,439	1,477	1,544	2,213	669
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	27	27	27	81	54
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	893	893	893	1,798	905
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	34	34	34	80	46
24	Printing and reproduction	11	11	11	48	37
25.1	Advisory and assistance services	2,540	2,382	2,382	24,330	21,948
25.2	Other services from non-Federal sources	941	941	941	37,726	36,785
25.3	Other goods and services from Federal sources	115,358	112,686	103,071	184,103	81,032
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	193	193	193	693	500
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	13	13	13	37	24
31	Equipment	6	6	6	16	10
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	781	781	781	1,681	900
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	126,733	124,060	114,721	259,721	145,000

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Space Weather Observations (SWO)	Pos./BA	35	114,721	35	142,806	0	28,085
	FTE/OBL	28	114,721	28	142,806	0	28,085

Space Weather Follow On (+$28,085, 0 FTE/ 0 Positions) – NOAA requests a planned increase for the Space Weather Follow On (SWFO) program to ensure development and acquisition activities meet critical milestones to meet launch dates in 2025. Funding will support a SWFO-L1 mission with a Space Weather Instrument Suite (SWIS) for solar wind observations and a compact coronagraph (CCOR) for coronal mass ejection (CME) imagery at Lagrange point 1. The NOAA SWFO-L1 mission will ensure continuity of space weather data beyond NOAA's Deep Space Climate Observatory (DSCOVR) and NASA-European Space Agency research Solar and Heliospheric Observatory (SOHO), which are well past their design life. The funding also supports the integration of a CCOR on the GOES-U spacecraft. Flying a second CCOR in a geostationary orbit adds operational resilience and reliability to the CME imagery necessary for space weather warnings and forecasting.

The SWFO Program is being developed to take advantage of a rideshare launch opportunity with NASA's Interstellar Mapping and Acceleration Probe (IMAP) mission scheduled for launch in FY 2025 to Lagrange Point-1, and the CCOR-1 manifest on GOES-U in FY 2025. Funding is essential to allow SWFO to maintain the schedule and milestones to meet the NASA IMAP rideshare and GOES-U opportunities. Leveraging the IMAP rideshare opportunity is the most timely and cost effective mechanism to ensure space weather forecasting continuity.

CME, magnetometer, and solar wind measurements are necessary for NOAA to provide warnings for the two major types of space weather events that affect the Earth: solar radiation storms and geomagnetic storms. Satellites are mostly impacted by solar radiation storms and atmospheric density changes due to geomagnetic storms. Commercial airlines are re-routed during both radiation and/or geomagnetic storms. These storms cause communication blackouts and impacts to navigation accuracy. The most extreme geomagnetic storms have resulted in severe impacts to commercial power grids and impacted hundreds of millions of people. Satellite data, including CME imagery, magnetometer, and measurement of solar wind plasma, are critical to providing accurate and early warnings of these potentially destructive space weather events. Requirements for these measurements derive from the NOAA

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(Dollar amounts in thousands)

Space Weather Mission Service Area Observational User Requirements Document baselined by the NOAA Observing System Council in November 2017.

Schedule and Milestones:

FY 2023
- Instruments ship to SWFO-L1 spacecraft
- SWFO Program Key Decision Point D: Proceed to System Assembly, Integration & Test, and Launch & Checkout (KDP-D)
- First release of Command and Control software
- First End-to-End Test with SWFO-L1 observatory
- SWFO Antenna Network Ready for Installation

FY 2024
- Ship SWFO-L1 spacecraft to IMAP launch vehicle for integration

FY 2025
- Rideshare launch of SWFO-L1 spacecraft with IMAP
- SWFO-L1 mission Initial Operational Capability
- GOES-U launch with integrated SWFO CCOR

FY 2026
- SWFO-L1 mission Full Operational Capability

FY 2027
- Sustainment activities

Deliverables
- Provide timely access to operational solar wind data and CME imagery for short and long-term warnings of geomagnetic storms

Performance Measures	2023	2024	2025	2026	2027

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Percentage of projected milestones to be completed annually to meet the LRD for SWFO-L1. This includes key decision points, major reviews, testing, and delivery of the following instruments: CCOR-1, SWiPS, MAG, and STIS					
With Increase	75%	75%	75%	75%	75%
Without Increase	20%	5%	0%	0%	0%
Outyear Costs:					
Direct Obligations	28,085	(10,915)	(66,915)	(85,815)	(86,315)
Capitalized	28,085	(10,915)	(66,915)	(85,815)	(86,315)
Uncapitalized	0	0	0	0	0
Budget Authority	28,085	(10,915)	(66,915)	(85,815)	(86,315)
Outlays	11,800	(4,580)	(28,100)	(36,040)	(36,250)
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates*

SWO	2022 & Prior	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	28,085	(10,915)	(66,915)	(85,815)	(86,315)	N/A	N/A
Total SWFO Request	321,946	136,200	97,200	41,200	22,300	21,800	52,154	692,800
Total Other SWO Programs^	6,606	151,606	225,000	228,000	231,200	231,200	TBD	TBD
Total SWO Request^^	328,552	287,806	322,200	269,200	253,500	253,000	TBD	TBD

* Outyears are estimates only. Future requests will be determined through the annual budget process and informed by the various studies as the program moves through the formulation gateways.
^ Total Other SWO Programs includes PPA Base and SW Next.
^^Total SWO Request includes SWFO, PPA Base, and SW Next.

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Space Weather Observations (SWO) - SWFO

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	4,430	4,549	4,758	4,758	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	67	67	67	67	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	4,497	4,616	4,825	4,825	0
12	Civilian personnel benefits	1,439	1,477	1,544	1,544	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	27	27	27	27	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	893	893	893	893	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	34	34	34	34	0
24	Printing and reproduction	11	11	11	11	0
25.1	Advisory and assistance services	2,540	2,382	2,382	12,212	9,830
25.2	Other services from non-Federal sources	941	941	941	5,154	4,213
25.3	Other goods and services from Federal sources	115,358	112,686	103,071	117,113	14,042
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	193	193	193	193	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	13	13	13	13	0
31	Equipment	6	6	6	6	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	781	781	781	781	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	126,733	124,060	114,721	142,806	28,085

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Common Ground Services (CGS)	Pos./BA	42	56,426	58	81,433	16	25,007
	FTE/OBL	34	56,426	46	81,433	12	25,007

Data-source Agnostic Common Services (DACS) (+$25,007, 12 FTE/ 16 Positions) – NOAA requests an increase to expand leveraging of non-NOAA and commercial data sources and to provide the IT infrastructure to securely ingest, generate science products, distribute, and archive data. With this increase in funding, NOAA will complete an end-to-end infrastructure that will allow us to leverage partner and commercial observations to meet NOAA's and NESDIS' mission requirements in a cost-effective manner, and begin delivering enhanced products and services to meet NOAA's environmental and climate mission. Further, this request includes personnel who will provide the new and expanded skill sets required to develop and sustain NOAA's transition to enterprise-wide common ground services. With this funding, NOAA will also be able to actively manage the IT security that is required to safely use non-NOAA data that is ingested and incorporated into NOAA models and systems.

The $5.0 million investment in FY 2021 initiated activities to establish the NESDIS Common Cloud Framework (NCCF). In FY 2021 NOAA operationalized the secure ingest and product generation functionalities within the NCCF to support ingest and processing of non-NOAA (e.g., domestic, international, commercially sourced) and commercial Global Navigation Satellite System (GNSS) Radio Occultation (RO) data. In FY 2022, NOAA continued to operate the NCCF, and migrated algorithms and processing for the European Metop and Sentinel satellites to the NCCF. NOAA also established an interface to securely ingest data from the Meteosat Third Generation satellites. These datasets provide continuity for NOAA's weather forecasting mission. The FY 2023 investment will develop the infrastructure framework to distribute and archive data, and will begin the migration of on-premises IT systems and satellite environmental holdings to the cloud. The investment will also generate products to support multiple NOAA mission service areas such as weather forecasting, ocean prediction, and ecosystem monitoring. Partner satellite missions provide key observations from sensors not flown by NOAA. NOAA partners invest more than $2 billion-a-year in space segments, which provides NOAA an opportunity to leverage these investments to generate products and services that meet NOAA mission requirements cost-effectively.

Without this investment NOAA will not be able to leverage the infrastructure it has built over the past two years, and it will not be able to accommodate the significant increase in volume and diversity of observations from partner missions, impacting NOAA's ability to:

maintain and evolve global modeling with the Unified Forecast System; support healthy, productive, and resilient ocean ecosystems; and forecast severe weather events. Furthermore, NOAA will continue to be forced to operate older on-premise systems and maintain its vast environmental holdings in disparate IT systems. Continued reliance on these legacy systems will increase NOAA's systems risk, as the technology ages, impacting critical operational functions in place today.

Consolidating NOAA's data in the NCCF will shift NOAA away from a disparate set of on-premise storage systems to a more scalable approach in the cloud, one that will be able to easily expand from 40 to 400 petabytes by 2030. This will enable NOAA and other users to rapidly innovate and develop new applications, facilitate research by the academic community, and accelerate the use of artificial intelligence and machine learning (AI/ML) to exploit big data sets. Additionally, the DACS initiative also supports the Administration's Executive Order on Climate by maintaining and archiving long term climate records, and supporting the ingest and archive of new observations for monitoring climate change in an environment that protects NOAA from cybersecurity threats.

Schedule and Milestones:

FY 2023

- Complete end-to-end architecture to allow secure ingest, product generation, data distribution, and archive in the cloud
- Generate cloud enabled products from external data sources (e.g., MeteoSat Third Generation (MTG), Radarsat Constellation Mission 1/2/3, Sentinel-6, and OceanSat)
- Complete migration of on-premise enterprise product generation system to the NCCF and decommission legacy systems
- Begin migration of environmental data to the NCCF
- Optimize cloud architecture to reduce research to operations timelines and operating costs

FY 2024

- Continue to generate products from external data sources (e.g., MTG, Advanced Land Observing Satellite (ALOS-4), Global Observing SATellite for Greenhouse gases and Water Cycle (GOSAT-GW))
- Continue migration of archived environmental data holdings to the NCCF
- Begin migration of science sandbox environment to support algorithm development activities to the NCCF
- Continue to optimize the cloud architecture to reduce product development and deployment timelines

FY 2025 - FY 2027

- Complete migration of on-premise archive systems to the NCCF and decommission legacy systems
- Continue to expand cloud enabled products from additional data sources
- Maintain the cloud-enabled framework functionality (ingest, generation, distribution, archive)
- Continue to optimize the cloud architecture to reduce product development and deployment timelines
- Continue to migration of algorithm development activities to the NCCF

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- Identify and migrate additional NESDIS capability to the cloud (e.g., elements of mission management)

Deliverables:
- End to end cloud framework architecture to allow ingest, product generation, data distribution, and archive in the cloud
- Ingest, product generation, archive, and access of data from partner sources per enterprise Cloud Roadmap

Performance Measures	2023	2024	2025	2026	2027
Enhanced or new products and services made available to the designated user community which utilize partner data sources based on NESDIS core mission data product categories					
With Increase	12	18	26	26	26
Without Increase	7	4	6	6	6
Outyear Costs:					
Direct Obligations	30,022	40,485	40,485	40,485	40,485
Capitalized	-	-	-	-	-
Uncapitalized	30,022	40,485	40,485	40,485	40,485
Budget Authority	25,007	40,485	40,485	40,485	40,485
Outlays	10,500	17,000	17,000	17,000	17,000
FTE	12	12	12	12	12
Positions	16	16	16	16	16

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Outyear Funding Estimates*

Common Ground Services (CGS)	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	25,007	40,485	40,485	40,485	40,485	N/A	N/A
Total DACS Request**	10,030	30,022	45,500	45,500	45,500	45,500	N/A	N/A
Total Other CGS Programs^	--	75,411	75,411	75,411	75,411	75,411	N/A	N/A
Total CGS Request	44,302	105,433	120,911	120,911	120,911	120,911	N/A	N/A

* Outyears are estimates. Future requests will be determined through the annual budget process.

** DACS was established in FY 2021, so the 2022 & Prior column does not reflect any funding prior to FY 2021.
^Total other CGS Programs includes CGS Base Funding. The funding profile includes another requested program increase on NESDIS-182.

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Common Ground Services
Program Change: Data-source Agnostic Common Services (DACS)

Title		Grade	Number	Annual Salary	Total Salaries
IT Specialist		ZP-III	3	94,000	282,000
IT Specialist		ZP-IV	6	132,000	792,000
Management and Program Analyst		ZA-IV	1	132,000	132,000
Physical Scientist		ZP-III	1	94,000	94,000
Physical Scientist		ZP-IV	5	132,000	660,000
Total			16		1,960,000
Less lapse	25.00%		(4)		(490,000)
Total full-time permanent (FTE)			12		1,470,000
2023 Pay Adjustment (4.6%)					67,620
					1,537,620

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	12
Total FTE	12
Authorized Positions:	
Full-time permanent	16
Total Positions	16

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Common Ground Services (CGS) – Data-source Agnostic Common Services (DACS)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	4,670	4,796	5,017	6,555	1,538
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	118	118	118	118	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	4,788	4,914	5,135	6,673	1,538
12	Civilian personnel benefits	1,639	1,573	1,643	2,135	492
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	13	13	13	13	0
22	Transportation of things	1	1	1	1	0
23	Rent, communications, and utilitites	550	550	550	550	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	11,545	8,545	13,274	13,274	0
25.2	Other services from non-Federal sources	17,161	12,505	13,435	24,924	11,489
25.3	Other goods and services from Federal sources	7,574	5,689	15,578	27,067	11,489
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	3,937	3,937	5,237	5,237	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	109	109	109	109	0
31	Equipment	928	928	928	928	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	519	519	519	519	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	4	4	4	4	0
44	Refunds	0	0	0	0	0
99	Total obligations	48,768	39,287	56,426	81,433	25,007

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Common Ground Services (CGS)	Pos./BA	42	56,426	50	80,426	8	24,000
	FTE/OBL	34	56,426	40	80,426	6	24,000

Data Access and Distribution (+$24,000, 6 FTE/ 8 Positions) – NOAA requests an increase to expand and accelerate the development of, and migration to, the NOAA cloud infrastructure to support the Administration's goals to create innovative climate solutions, and to expand opportunity and innovation through science, data, and research. This initiative will enable NOAA to provide increased data volumes from a diverse suite of sources in concert with tools, platforms, information, products and services, as well as skilled personnel to enhance discoverability, access, and usability of NOAA data for climate and other emerging applications. This effort builds upon current NESDIS cloud initiatives such as Data-source Agnostic Common Services (DACS) that provide the basic infrastructure and processing capabilities to generate products from partner and commercial sources. It also expands NOAA's capacity to host and serve data beyond satellite-centric observations, including airborne and maritime platforms that support hydrographic surveys, fish assessments, and conservation and recovery of protected species - areas where improved access to analysis-ready data will help decision makers respond to events driven by the changing climate.

This initiative will accelerate the migration and transformation of data in the cloud, centralizing data from multiple processing systems into a single processing environment where users can more easily find and access the holdings. The acceleration is necessary as the Nation continues to see a rapid rise in weather and climate disasters, with 20 such disasters causing more than $1 billion each in damage in 2021 alone[12]. This centralization of data will democratize access and cloud computing power to all users, allowing nearly instantaneous access to NOAA data holdings, enabling more users to address complex, data driven, and interdisciplinary problems. NOAA will also leverage pilot projects, such as the pilot with Google, to apply artificial intelligence and machine learning (AI/ML) tools and techniques to implement and operationalize full-scale prototypes to process and leverage the large volume and diversity of environmental data.

[12] NOAA NCEI Billion-Dollar Weather and Climate Disasters: https://www.ncdc.noaa.gov/billions/

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This effort will result in a cloud-based repository of curated data that can be easily used by the broader Earth observation enterprise to include changes in the ocean (e.g., ocean acidification, sea level rise) that support partners in our New Blue Economy. In addition to the central repository, NOAA will develop a user-facing data access portal in the cloud linked to the aforementioned data holdings. Moreover, NOAA will ensure this data is interoperable, analysis-ready[13], and transformed into more useful formats (e.g., cloud-optimized, AI-ready formats) which will allow decision makers at all levels to leverage the information more rapidly and improve accessibility and usefulness of NOAA science and services for all users, including stakeholders in historically underrepresented communities. This capability and capacity directly supports Executive Order (EO) 13859, Maintaining American Leadership in Artificial Intelligence, and EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. Further, this initiative will also support international efforts to acquire and share data to advance weather and climate monitoring and prediction, and will allow NOAA to meet the World Meteorological Organization's preliminary recommendation for sharing core and recommended data on a free and open basis to advance predictive and research capabilities globally.

Schedule and Milestones:
FY 2023

- Transition at least 10 percent of current non-satellite data and tools, and accelerate the migration of satellite data and algorithms to the cloud in support of climate and ocean initiatives
- Implement an Initial Operating Capability for an integrated, cloud optimized, and analysis ready Public Data Access Platform
- Curate and transform high value climate and ocean data sets (~2 PB) into analysis-ready cloud and AI formats, and optimize up to 7 percent of metadata for increased data discovery, accessibility, and utilization
- Achieve an intermediate AI readiness maturity level of data curation and delivery
- Develop a training module for the public which leverages the transformed, analysis-ready data and establish a user readiness training program

FY 2024

- Complete the migration of 20 percent of current non-satellite data and tools to the cloud, and accelerate the migration of additional satellite data and algorithms to the cloud in support of climate and ocean initiatives
- Curate and transform additional data (~5 PB) with climate and ocean applications into cloud and AI-ready formats, and optimize 8 percent of metadata for increased data discovery, accessibility, and utilization

[13] NOAA's Science Advisory Board recommended analysis-ready datasets to be provided either in place of hosting the original data files on the Cloud or in addition to doing so. They state that this "would not only improve the efficiency and speed of science, but also improve public trust by reducing the barriers for non-expert communities to use these data."

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- Demonstrate a development sandbox connection from NOAA Line Offices to NESDIS for select datasets
- Provide, as a minimum, annual user readiness training in support of newly transformed NESDIS data

FY 2025 – FY 2027

- Complete the migration of 70 percent of existing non-satellite data and tools to the cloud, and accelerate the migration of additional satellite data and algorithms to the cloud in support of climate and ocean initiatives
- Implement a Full Operating Capability for the Public Data Access Platform
- Maintain annual user readiness and developer training
- Curate and transform additional data (~5 PB) with climate and ocean applications into cloud and AI-ready formats, and optimize up to 75 percent of metadata for increased data discovery, accessibility, and utilization
- Achieve a fully optimized AI readiness maturity level of data curation and delivery
- Convert 75 percent of new datasets supporting climate and ocean initiatives into cloud and AI-ready formats with optimized metadata for increased data discovery, accessibility, and utilization

Deliverables:

- Consolidated and authoritative public Data Access Platform developed in the cloud, focused on improved data accessibility and discoverability (i.e. analysis-ready formats)
- Ten new climate products that support improved disaster preparedness and Blue Economy, as well as climate-quality data reprocessing for over 20 datasets
- Training materials, modules, and seminars provided to the public to support the effective and efficient use of the Data Access Platform

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Performance Measures	2023	2024	2025	2026	2027
Percentage of prioritized data transformed into analysis-ready cloud and AI formats					
With Increase	7%	15%	25%	50%	75%
Without Increase	1%	5%	10%	15%	20%
Outyear Costs:					
Direct Obligations	24,000	24,000	24,000	24,000	24,000
Capitalized	-	-	-	-	-
Uncapitalized	24,000	24,000	24,000	24,000	24,000
Budget Authority	24,000	24,000	24,000	24,000	24,000
Outlays	10,080	10,080	10,080	10,080	10,080
FTE	6	6	6	6	6
Positions	8	8	8	8	8

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(Dollar amounts in thousands)

Outyear Funding Estimates*

Common Ground Services (CGS)	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	24,000	24,000	24,000	24,000	24,000	N/A	N/A
Total Data Access and Distribution Request	--	24,000	24,000	24,000	24,000	24,000	N/A	N/A
Total Other CGS Programs^	44,301	81,433	96,911	96,911	96,911	96,911	N/A	N/A
Total CGS Request	44,302	105,433	120,911	120,911	120,911	120,911	N/A	N/A

* Outyears are estimates. Future requests will be determined through the annual budget process.

** DACS was established in FY 2021, so the 2022 & Prior column does not reflect any funding prior to FY 2021.

^Total other CGS Programs includes CGS Base Funding. The funding profile includes another requested program increase on NESDIS-176.

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Common Ground Services
Program Change: Data Access and Distribution

Title		Grade	Number	Annual Salary	Total Salaries
Computer Scientist		ZP-IV	2	159,286	318,572
IT Specialist		ZP-III	2	113,362	226,724
IT Specialist		ZP-IV	2	159,286	318,572
IT Specialist		ZP-V	2	172,500	345,000
Total			8		1,208,868
Less lapse	25.00%		(2)		(302,217)
Total full-time permanent (FTE)			6		906,651
2023 Pay Adjustment (4.6%)					27,200
					933,851
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			6		
Total FTE			6		
Authorized Positions:					
Full-time permanent			8		
Total Positions			8		

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Common Ground Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	4,670	4,796	5,017	5,951	934
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	118	118	118	118	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	4,788	4,914	5,135	6,069	934
12	Civilian personnel benefits	1,639	1,573	1,643	1,942	299
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	13	13	13	13	0
22	Transportation of things	1	1	1	1	0
23	Rent, communications, and utilitites	550	550	550	550	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	11,545	8,545	13,274	13,274	0
25.2	Other services from non-Federal sources	17,161	12,505	13,435	24,819	11,384
25.3	Other goods and services from Federal sources	7,574	5,689	15,578	26,962	11,384
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	3,937	3,937	5,237	5,237	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	109	109	109	109	0
31	Equipment	928	928	928	928	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	519	519	519	519	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	4	4	4	4	0
44	Refunds	0	0	0	0	0
99	Total obligations	48,768	39,287	56,426	80,426	24,000

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Systems/Services Architecture and Engineering (SAE)	Pos./BA	29	38,500	31	54,500	2	16,000
	FTE/OBL	27	38,500	28	54,500	1	16,000

Commercial Data Purchase (+$16,000, 1 FTE/ 2 Positions) – NOAA requests a planned increase to expand the purchase of commercial GNSS-RO data for operational use. It will also support continued development and sustainment of the infrastructure and capability to securely import, transfer, process, and store external data from commercial providers for operational use.

Between 2016 and 2020, NESDIS conducted two rounds of the Commercial Weather Data Pilots (CWDP), which focused on evaluating GNSS-RO data. These pilots demonstrated the commercial sector readiness, cost-effectiveness, and operational viability, for NOAA to initiate operational data purchases of GNSS-RO data to include in NOAA's numerical weather prediction models. This approach is consistent with the *Weather Research and Forecasting Innovation Act of 2017* (P.L. 115-25), and NOAA's plans for obtaining GNSS-RO data from a combination of government assets, partner contributions, and commercial purchases. In FY 2021, NOAA awarded its first contracts to purchase commercially available GNSS-RO data for use in NOAA's operational weather forecasts, which NWS has been evaluating for its operational space weather requirements. NOAA began using this commercial RO data in operational numerical weather prediction models in May 2021. In 2021 and through FY 2022, NOAA conducted ongoing cost-benefit analyses to determine appropriate amounts of GNSS-RO data to be purchased in future years. The amount of data purchased in outyears will depend on this cost-benefit evaluation, as well as the price, quality, and availability of data from commercial providers. These factors will also impact how quickly future data purchases will occur. NOAA plans to conduct additional commercial data pilot projects in FY 2023 and will increase operational investments in commercial data following a successful pilot phase. NOAA will also support subsequent operational data purchases of GNSS-RO and other types of commercial data in the future.

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Schedule and Milestones:

FY 2023

- Award multi-year contract(s) for commercial GNSS-RO data
- Execute GNSS-RO IDIQ contract Delivery Order(s) for continued operational data purchases
- Issue solicitation for, and award, follow-on IDIQ contracts

FY 2024

- Issue solicitations for operational commercial microwave data and space weather data
- Execute GNSS-RO IDIQ contract Delivery Order(s) for continued operational data purchases

FY 2025 – FY 2027

- Execute GNSS-RO IDIQ contract Delivery Order(s) for continued operational data purchases
- Issue solicitation for follow-on IDIQ contracts
- Review existing commercial data streams and balance NOAA's commercial portfolio based on cost-benefit and future plans

Deliverables:

- Commercial GNSS-RO data processed and delivered to NWS for use in operational NWP models and delivered to Space Weather Prediction Center for use in space weather models
- Provide new data types (e.g., microwave, space weather) to the NWS for use in operational NWP models
- Results of evaluations regarding new data and capabilities
- Operational service contracts with commercial providers, pending pilot results

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Performance Measures	2023	2024	2025	2026	2027
Percent increase in the number of operational RO counts procured per fiscal year					
With Increase	25%	20%	15%	15%	15%
Without Increase	0%	0%	0%	0%	0%
Outyear Costs:					
Direct Obligations	16,000	19,000	22,000	22,000	22,000
Capitalized	-	-	-	-	-
Uncapitalized	16,000	19,000	22,000	22,000	22,000
Budget Authority	16,000	19,000	22,000	22,000	22,000
Outlays	6,720	7,980	9,240	9,240	9,240
FTE	1	1	1	1	1
Positions	2	2	2	2	2

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Outyear Funding Estimates*

SAE (Commercial Data Purchase)	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	16,000	19,000	22,000	22,000	22,000	N/A	N/A
Total Commercial Data Purchase	23,000	25,000	28,000	31,000	31,000	31,000	N/A	N/A
Total Other SAE Programs^	87,990	49,500	49,500	49,500	49,500	49,500	N/A	N/A
Total SAE Request	110,990	74,500	77,500	80,500	80,500	80,500	N/A	N/A

* Outyears are estimates. Future requests will be determined through the annual budget process.

** SAE was established in FY 2020; 2022 & Prior column does not reflect any funding prior to FY 2020.
^Total other SAE Programs includes Architecture, Requirements, and Planning; Commercial Weather Data Pilot; and Joint Venture Partnerships. The funding profile includes other requested program increases on NESDIS-201 and NESDIS-195, respectively.

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Systems/Services Architecture & Engineering
Program Change: Commercial Data Purchase

Title		Grade	Number	Annual Salary	Total Salaries
General Engineer		ZP-V	1	161,000	161,000
General Engineer		ZP-IV	1	132,000	132,000
Total			2		293,000
Less lapse	25.00%		(1)		(73,250)
Total full-time permanent (FTE)			1		219,750
2023 Pay Adjustment (4.6%)					10,109
					229,859
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			1		
Total FTE			1		
Authorized Positions:					
Full-time permanent			2		
Total Positions			2		

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Systems/Services Architecture and Engineering – Commercial Data Purchase

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	3,486	3,580	3,745	3,975	230
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	67	67	67	67	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	3,553	3,647	3,812	4,042	230
12	Civilian personnel benefits	1,226	1,167	1,220	1,293	74
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	90	90	90	90	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	477	477	477	477	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	16,737	21,375	21,158	21,158	0
25.2	Other services from non-Federal sources	2,764	2,764	2,764	10,612	7,848
25.3	Other goods and services from Federal sources	6,720	6,720	6,720	14,568	7,848
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	930	930	930	930	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	28	28	28	28	0
31	Equipment	56	56	56	56	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	1,245	1,245	1,245	1,245	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	1	1	1	0
44	Refunds	0	0	0	0	0
99	Total obligations	33,827	38,500	38,500	54,500	16,000

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Systems/Services Architecture and Engineering (SAE)	Pos./BA	29	38,500	31	53,500	2	15,000
	FTE/OBL	27	38,500	29	53,500	2	15,000

Joint Venture Partnerships (+$15,000, 2 FTE/ 2 Positions) – NOAA requests an increase to expand activities with other agencies and the commercial sector that investigate, mature, and demonstrate new technologies and capabilities that could potentially be incorporated into NOAA satellite architectures and associated enterprise products and services portfolios. New technologies and capabilities will focus heavily on innovations for LEO and SWO instruments to reduce cost and/or observing system complexity, and LEO spacecraft development and satellite operations. These efforts will increase both the efficacy and efficiency of NOAA's satellite fleet for the future.

With this request NOAA will: 1) expand partnerships to leverage ongoing industry and agency development of new technology, observation capabilities, spacecraft and ground system design, information processing techniques, product evaluation and development, and tools for operational exploitation; and, 2) leverage NASA and other agencies' Announcements of Opportunity to fund operational evaluations and/or demonstrations of other agency missions that demonstrate new observations and new technologies, or through research opportunities which demonstrate new ways to exploit existing and new data sources. These activities -- building on the FY 2020 and FY 2021 studies which partnered with the commercial sector and NASA to explore capabilities that could be developed and demonstrated in outyears -- will help NOAA, jointly with partner agencies, fully develop and demonstrate both new observation capabilities and better methods to exploit existing satellite observations that will help increase skill for numerical weather, environmental prediction models, and space weather needs.

Joint Venture activities will be conducted on an ongoing basis to enable NOAA to continually feed a more flexible architecture and a more responsive and capable product and services suite with the best emerging capabilities, technology innovation, scientific assessment, and enhanced mission concepts. In FY 2022, NOAA conducted limited technical exploitation projects to leverage industry and NASA capabilities for the next generation enterprise architecture. NOAA also developed and released BAAs for key NESDIS priorities. In FY 2023, NOAA will enter into agreements with other Federal agencies, industry, or academia for detailed studies of instrument or other component concepts needed for the first LEO Weather Satellite demonstration and/or next generation

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Space Weather mission needs. Agreements will be based on findings from the Broad Agency Announcements (BAA) concept studies developed under Joint Venture in FY 2022.

The FY 2023 requests for Joint Venture, LEO, and SWO are complementary. Joint Venture is intended to invest in individual satellite or technology partnerships to demonstrate the viability of a measurement or spacecraft approach, while LEO is to invest in constellation and production developments and studies to understand the LEO and SWO system observations approach.

Schedule and Milestones:
FY 2023
- Initiate up to two data exploitation studies to assess non-NOAA observation capabilities for incorporation into NOAA operations and recommend if data from the assessed capability should be incorporated into NOAA operations
- Enter into agreements with other Federal agencies, industry, or academia for studies of instrument or other component concepts to evaluate new technologies to support the first LEO Weather Satellite demonstration and/or Space Weather mission needs
- Contribute funding with other agencies and industry toward data and technology development to cost effectively meet NOAA needs

FY 2024
- Start project initiation and approval to incorporate two non-NOAA data sources into NOAA operations, pending assessment in FY 2022
- Continue contracts with industry or academia on studies of instrument or other component concepts to evaluate new technologies to support the first LEO Weather Satellite demonstration or next generation Space Weather mission needs
- Contribute to studies with other agencies and industry toward data and technology development to cost effectively meet NOAA needs

FY 2025 - FY 2027
- Issue additional solicitations to industry or academia for priority next generation observational needs and award contracts based on proposals received
- Continue data exploitation studies as other agency observation capabilities become available for assessment of potential to incorporate into NOAA operations
- Continue assessing opportunities to partner with other agencies for future missions or research opportunities, contributing funding to address NOAA mission needs as part of relevant Announcements of Opportunity
- Continue to initiate future infrastructures and product developments for existing or new observation capabilities

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Deliverables:

- Solicitations to industry in support of future LEO sounding architecture
- Awards to industry or academia for studies of instrument or other component concepts for first LEO Weather Satellite demonstration and/or Space Weather mission needs
- Development and demonstration of evolving capabilities for NOAA's operational use, including new observations and/or technologies that will inform NESDIS' future space architecture and suite of products
- Faster transition of research capabilities into operational use, and at a lower cost

Performance Measures	2023	2024	2025	2026	2027
Evaluation of new technology or data sources to meet NOAA needs					
With Increase	3	3	3	3	3
Without Increase	1	1	1	1	1
Outyear Costs:					
Direct Obligations	15,000	15,000	15,000	15,000	15,000
Capitalized	-	-	-	-	-
Uncapitalized	15,000	15,000	15,000	15,000	15,000
Budget Authority	15,000	15,000	15,000	15,000	15,000
Outlays	6,300	6,300	6,300	6,300	6,300
FTE	2	2	2	2	2
Positions	2	2	2	2	2

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates*

SAE (Joint Venture)	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	15,000	15,000	15,000	15,000	15,000	N/A	N/A
Total Joint Venture	12,268	20,000	20,000	20,000	20,000	20,000	N/A	N/A
Total Other SAE Programs^	87,990	54,500	57,500	60,500	60,500	60,500	N/A	N/A
Total SAE Request	110,990	74,500	77,500	80,500	80,500	80,500	N/A	N/A

* Outyears are estimates. Future requests will be determined through the annual budget process.

** SAE was established in FY 2020; 2022 & Prior column does not reflect any funding prior to FY 2020.
^Total other SAE Programs includes Architecture, Requirements, and Planning; Commercial Weather Data Pilot; and Commercial Data Purchase. The funding profile includes other requested program increases on NESDIS-201 and NESDIS-189.

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Systems Acquisition
Subactivity: Systems/Services Architecture, and Engineering (SAE)
Program Change: Joint Venture Partnerships

Title		Grade	Number	Annual Salary	Total Salaries
General Engineer		ZP-V	1	161,000	161,000
General Engineer		ZP-IV	1	132,000	132,000
Total			2		293,000
Less lapse	25.00%		0		(73,250)
Total full-time permanent (FTE)			2		219,750
2023 Pay Adjustment (4.6%)					10,109
					229,859
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			2		
Total FTE			2		
Authorized Positions:					
Full-time permanent			2		
Total Positions			2		

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Systems/Services Architecture and Engineering (SAE)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	3,486	3,580	3,745	3,971	226
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	67	67	67	67	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	3,553	3,647	3,812	4,038	226
12	Civilian personnel benefits	1,226	1,167	1,220	1,292	72
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	90	90	90	90	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	477	477	477	477	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	16,737	21,375	21,158	21,158	0
25.2	Other services from non-Federal sources	2,764	2,764	2,764	10,115	7,351
25.3	Other goods and services from Federal sources	6,720	6,720	6,720	14,071	7,351
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	930	930	930	930	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	28	28	28	28	0
31	Equipment	56	56	56	56	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	1,245	1,245	1,245	1,245	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	1	1	1	0
44	Refunds	0	0	0	0	0
99	Total obligations	33,827	38,500	38,500	53,500	15,000

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Systems/Services Architecture & Engineering (SAE)	Pos./BA	29	38,500	29	43,500	0	5,000
	FTE/OBL	27	38,500	27	43,500	0	5,000

Commercial Weather Data Pilot (CWDP) (+$5,000, 0 FTE/ 0 Positions) – NOAA requests a planned increase to continue executing pilots on emerging commercial data capabilities. These pilots assess operational viability of possible future commercial capabilities, which is critical to planning for NOAA's future satellite architecture needs. Pilot work allows NOAA to sample and analyze prospective data before purchase from various commercial vendors, explore the utility and quality of new data types when they become available, and leverage industry investment in emerging commercial capabilities that could contribute to NOAA's mission in the future. CWDP will base ongoing pilots on the outcomes of regularly released Requests for Information (RFI), which focus on commercially available data that may improve numerical weather prediction, consistent with direction in the *Weather Research and Forecasting Innovation Act of 2017* (P.L. 115-25) as amended and *Promoting Research and Observations of Space Weather to Improve the Forecasting of Tomorrow Act of 2020* (P.L. 116-181), and on continued regular canvassing and development of emerging commercial sector capabilities, consistent with the NOAA Commercial Space Policy and the NESDIS Commercial Space Activities Assessment Process. Results from RFIs released in 2020 (i.e., microwave) and 2021 (i.e., space weather) showed that there are data types beyond GNSS-RO ready for piloting, which indicated a potential need to initiate CWDP Rounds for microwave sensor data and space weather data and related capabilities in FY 2022. After further analysis in FY 2022, NOAA issued a space weather pilot RFP and shifted the microwave sensor data pilot to FY 2023.

Schedule and Milestones:
FY 2023

- Revisit viability of pursuing a Microwave and GNSS Reflectometry pilot
- Release an RFI to assess the commercial marketplace; stand up a capability assessment team to determine commercial sector readiness
- Continue to explore additional sources/types of data and capabilities available from the commercial sector through market research

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

FY 2024

- Initiate the solicitation of pilot measurements identified above, pending commercial sector readiness
- Release an RFI to assess the commercial marketplace; stand up a capability assessment team to determine commercial sector readiness
- Continue to explore additional sources/types of data and capabilities available from the commercial sector through market research

FY 2025 – FY 2027

- Explore additional sources/types of data and capabilities available from the commercial sector through market research
- Initiate additional CWDP Rounds, pending commercial sector readiness

Deliverables:

- Results of ongoing market research
- Results of evaluations regarding new data and capabilities
- Operational services contracts with commercial providers, pending pilot results

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of calls and contracts for commercial data and services issued to industry					
With Increase	1	2	1	2	1
Without Increase	1	1	1	1	1
Outyear Costs:					
Direct Obligations	5,000	5,000	5,000	5,000	5,000
Capitalized	-	-	-	-	-
Uncapitalized	5,000	5,000	5,000	5,000	5,000
Budget Authority	5,000	5,000	5,000	5,000	5,000
Outlays	2,100	2,100	2,100	2,100	2,100
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates*

SAE (Commercial Weather Data Pilot)	2022 & Prior**	2023	2024*	2025*	2026*	2027*	CTC	Total
Change from 2023 Base	N/A	5,000	5,000	5,000	5,000	5,000	N/A	N/A
Total Commercial Weather Data Pilot Purchase	9,000	8,000	8,000	8,000	8,000	8,000	N/A	N/A
Total Other SAE Programs^	101,990	66,500	69,500	72,500	72,500	72,500	N/A	N/A
Total SAE Request	110,990	74,500	77,500	80,500	80,500	80,500	N/A	N/A

* Outyears are estimates. Future requests will be determined through the annual budget process.

** SAE was established in FY 2020; 2022 & Prior column does not reflect any funding prior to FY 2020.
^Total other SAE Programs includes Architecture, Requirements, and Planning; Joint Venture; and Commercial Data Purchase. The funding profile includes other requested program increases on NESDIS-195 and NESDIS-189, respectively.

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Systems Acquisition
Subactivity: Systems/Services Architecture & Engineering – Commercial Weather Data Pilot (CWDP)

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	3,486	3,580	3,745	3,745	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	67	67	67	67	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	3,553	3,647	3,812	3,812	0
12	Civilian personnel benefits	1,226	1,167	1,220	1,220	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	90	90	90	90	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	477	477	477	477	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	16,737	21,375	21,158	21,158	0
25.2	Other services from non-Federal sources	2,764	2,764	2,764	7,764	5,000
25.3	Other goods and services from Federal sources	6,720	6,720	6,720	6,720	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	930	930	930	930	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	28	28	28	28	0
31	Equipment	56	56	56	56	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	1,245	1,245	1,245	1,245	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	1	1	1	0
44	Refunds	0	0	0	0	0
99	Total obligations	33,827	38,500	38,500	43,500	5,000

Exhibit 3

Department of Commerce
National Oceanic and Atmospheric Administration
Mission Support
Budget Estimates, Fiscal Year 2023

Executive Summary

For FY 2023, NOAA requests a total of $595,605,000 and 832 FTE/ 892 positions for Mission Support, including an increase of $216,592,000 and 73 FTE/ 94 positions in program changes.

In FY 2023, Mission Support will continue to provide the services that are essential to the safe and successful execution of NOAA's Mission.

The Mission Support budget is organized into six activities within the Operations, Research, and Facilities (ORF) account.

- Executive Leadership provides centralized executive management as well as policy formulation and direction.
- Mission Services and Management includes such activities as financial reporting, budgeting, information technology, acquisition and grants, human resource services, and facilities management.
- IT Security leads priority cyber security initiatives.
- Payment to the DOC Working Capital Fund provides centralized services to NOAA's Line Offices and Staff Offices.
- Office of Education provides expert support of education activities to NOAA Line, Program, and Staff Offices while promoting NOAA services and products and their benefits to the public.
- Facilities Maintenance supports a centralized approach to addressing facilities maintenance and repair projects across NOAA.

The Mission Support budget is organized under one activity within the Procurement, Acquisition, and Construction (PAC) account:
NOAA Construction provides for restoration of capital assets including alteration or modification of properties.

Significant Adjustments:

Inflationary Adjustments
NOAA's FY 2023 Base includes a net increase of $28,774,000 and 0 FTE/ 0 positions to account for the full funding requirement for certain inflationary adjustments to current programs for Mission Support activities. This includes inflationary increases for labor and non-labor activities including benefits and rent charges from the General Services Administration (GSA).

Technical Adjustments
NOAA also requests the following transfers for a net change of $0 and 0 FTE/ 0 positions to the agency:

From Office	Subactivity	To Office	Subactivity	Amount
MS	Mission Services and Management (ORF)	OMAO	NOAA Commissioned Officer Corps (ORF)	$661,000 / 4 FTE / 4 positions

NOAA requests to transfer $661,000 and 4 FTE/4 Positions to the OMAO NOAA Commissioned Officer Corps PPA to allow for better alignment of funding and greater transparency over the full cost of the NOAA Corps. With this transfer, funding for all NOAA Corps personnel will reside within OMAO. This increases efficiency within the program by reducing administrative burdens and allows NOAA to better manage personnel requirements consistent with the NOAA Corps Amendments Act of 2020.

From Office	Subactivity	To Office	Subactivity	Amount
MS	Payment to the DOC Working Capital Fund (ORF)	MS	Mission Services and Management	$3,071,000/ 0 FTE / 0 positions

NOAA requests to transfer $3,071,000 and 0 FTE/0 Positions from the Payment to the DOC Working Capital Fund to Mission Services and Management to continue funding centralized services from the Department. “The Departmental Management Working Capital Fund management team and the Enterprise Services management team moved two projects from the Working Capital Fund (WCF) to the Advances and Reimbursements (A&R) account in FY 2021 as the accounts are direct licensing pass-throughs and more appropriate in the A&R account. These two accounts are the Enterprise Services HR Connect licenses and the Enterprise Services Commerce Learning Center licenses. The change was budget neutral for all Bureaus, but for NOAA represented a change across PPAs.

From Office	Subactivity	To Office	Subactivity	Amount
NESDIS	Office of Space Commerce (ORF)	MS	Office of Space Commerce (ORF)	$10,000,000 / 19 FTE/ 20 Positions

NOAA requests a technical adjustment to move $10,000,000 and 19 FTE/ 20 positions for support of the Office of Space Commerce from NESDIS to NOAA Mission Support.

Department of Commerce
National Oceanic and Atmospheric Administration
Mission Support
Budget Estimates, Fiscal Year 2023

Department of Commerce Enterprise Services Initiative:
Department of Commerce's Enterprise Services Office (DOC ESO) was established in FY 2016 to provide transactional and corporate-wide services in the Human Resources (HR), Acquisition Services, Financial Management, and Information Technology functional areas. HR was the first functional area to transition to the Enterprise Services model and NOAA was the first DOC ESO customer for these services starting in late FY 2016. Over the next four years, NOAA received and was charged for an increasing series of HR transactional services to include Personnel Action Requests, payroll, employee separations and retirements, compensation and benefits. In FY 2021, ESO began to develop additional HR services, this time in the area of corporate-wide recruiting and hiring (also identified as "talent acquisition"). NOAA has participated in and fully funded this standup effort along with other bureaus and is scheduled to receive initial services in this area during FY 2022. Based on our experience with the time necessary to smooth out the delivery of HR transactional services and our own longstanding work to achieve successful hiring practices using our own vendor, we expect the full transition into a full suite of talent acquisition services could extend well into FY 2023 if not beyond. In FY 2023, the Office of Human Capital Services (OHCS) continued to manage and direct our hiring services vendor to complete required hiring actions and maintain the level of success first achieved in FY 2020 after years of falling short of our hiring goals.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management (ORF) transfer to OMAO NOAA Commissioned Officer Corps (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	75,442	0	79,446
11.3	Other than full-time permanent	10	0	10
11.5	Other personnel compensation	1,978	0	1,977
11.7	NOAA Corps	661	(661)	0
11.9	Total personnel compensation	78,091	(661)	81,433
12	Civilian personnel benefits	27,376	0	30,375
13	Benefits for former personnel	35	0	35
21	Travel and transportation of persons	94	0	94
22	Transportation of things	162	0	169
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	5,457	0	5,590
23.2	Rental Payments to others	664	0	664
23.3	Communications, utilities and misc charges	669	0	1,266
24	Printing and reproduction	61	0	69
25.1	Advisory and assistance services	15,124	0	15,224
25.2	Other services from non-Federal sources	19,928	0	24,133
25.3	Other goods and services from Federal sources	7,339	0	10,443
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	471	0	498
31	Equipment	462	0	567
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	59	0	59
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	8	0	8
44	Refunds	0	0	0
99	Total obligations	156,000	(661)	170,627

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Payment to the DOC Working Capital Fund
Subactivity: Payment to the DOC Working Capital Fund (ORF) transfer to Mission Services and Management (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	0	0	0
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	0	0	0
12	Civilian personnel benefits	0	0	0
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	0	0	0
22	Transportation of things	0	0	0
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	0	0	0
25.1	Advisory and assistance services	0	0	0
25.2	Other services from non-Federal sources	0	0	0
25.3	Other goods and services from Federal sources	66,389	(3,071)	71,299
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	0	0	0
31	Equipment	0	0	0
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	0	0	0
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	66,389	(3,071)	71,299

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Payment to the DOC Working Capital Fund (ORF) transfer to Mission Services and Management (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	75,442	0	79,446
11.3	Other than full-time permanent	10	0	10
11.5	Other personnel compensation	1,978	0	1,977
11.7	NOAA Corps	661	0	0
11.9	Total personnel compensation	78,091	0	81,433
12	Civilian personnel benefits	27,376	0	30,375
13	Benefits for former personnel	35	0	35
21	Travel and transportation of persons	94	0	94
22	Transportation of things	162	0	169
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	5,457	0	5,590
23.2	Rental Payments to others	664	0	664
23.3	Communications, utilities and misc charges	669	0	1,266
24	Printing and reproduction	61	0	69
25.1	Advisory and assistance services	15,124	0	15,224
25.2	Other services from non-Federal sources	19,928	0	24,133
25.3	Other goods and services from Federal sources	7,339	3,071	10,443
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	471	0	498
31	Equipment	462	0	567
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	59	0	59
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	8	0	8
44	Refunds	0	0	0
99	Total obligations	156,000	3,071	170,627

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Office of Space Commerce
Subactivity: Office of Space Commerce Transfer from NESDIS to MS

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	0	1,647	1,647
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	0	0	0
11.7	NOAA Corps	0	0	0
11.9	Total personnel compensation	0	1,647	1,647
12	Civilian personnel benefits	0	527	527
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	0	200	200
22	Transportation of things	0	0	0
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	0	227	227
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	28	28
24	Printing and reproduction	0	0	0
25.1	Advisory and assistance services	0	600	600
25.2	Other services from non-Federal sources	0	5,836	5,836
25.3	Other goods and services from Federal sources	0	900	900
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	3	3
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	0	4	4
31	Equipment	0	28	28
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	0	0	0
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	0	10,000	10,000

*The 2023 Base column reflects the full 2023 Base for this Subactivity, including calculated ATBs and any additional transfers.

Exhibit 10

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease From 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
MISSION SUPPORT (MS)											
Executive Leadership	Pos/BA	105	26,964	116	27,078	116	29,243	127	31,743	11	2,500
	FTE/OBL	89	26,630	110	27,078	110	29,243	119	31,743	9	2,500
Mission Services and Management	Pos/BA	541	150,493	629	156,000	625	170,627	689	196,419	64	25,792
	FTE/OBL	563	163,995	598	156,000	594	170,627	644	196,419	50	25,792
IT Security	Pos/BA	18	15,328	20	15,378	20	16,393	20	16,393	0	0
	FTE/OBL	20	15,484	19	15,378	19	16,393	19	16,393	0	0
Payment to the DOC Working Capital Fund	Pos/BA	0	66,323	0	66,389	0	71,299	0	71,299	0	0
	FTE/OBL	0	62,967	0	66,389	0	71,299	0	71,299	0	0
Facilities Maintenance	Pos/BA	0	4,995	0	5,000	0	5,000	0	5,000	0	0
	FTE/OBL	0	3,415	0	5,000	0	5,000	0	5,000	0	0
Office of Space Commerce	Pos/BA	0	0	0	0	20	10,000	35	87,000	15	77,700
	FTE/OBL	0	0	0	0	19	10,000	30	87,000	11	77,700
Office of Education	Pos/BA	15	32,947	16	33,000	16	33,451	20	41,351	4	7,900
	FTE/OBL	15	33,139	16	33,000	16	33,451	19	41,351	3	7,900
Hollings Scholarship	Pos/BA	0	5,738	0	0	0	0	0	0	0	0
	FTE/OBL	0	6,022	0	0	0	0	0	0	0	0
TOTAL MISSION SUPPORT - ORF	**Pos/BA**	**679**	**302,788**	**781**	**302,845**	**797**	**326,013**	**891**	**449,905**	**94**	**113,892**
	FTE/OBL	**693**	**311,652**	**743**	**302,845**	**758**	**326,013**	**831**	**449,905**	**73**	**113,892**

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Construction	Pos/BA	1	42,954	1	43,000	1	43,000	1	145,700	0	102,700
	FTE/OBL	2	27,603	1	43,000	1	43,000	1	145,700	0	102,700
TOTAL MISSION SUPPORT - PAC	**Pos/BA**	**1**	**42,954**	**1**	**43,000**	**1**	**43,000**	**1**	**145,700**	**0**	**102,700**
	FTE/OBL	**2**	**27,603**	**1**	**43,000**	**1**	**43,000**	**1**	**145,700**	**0**	**102,700**
Spectrum Relocation Fund - ORF	**Pos/BA**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	FTE/OBL	**0**	**11,981**	**0**	**21,850**	**0**	**3,938**	**0**	**3,938**	**0**	**0**
Spectrum Relocation Fund-PAC	**Pos/BA**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	FTE/OBL	**0**	**20,642**	**0**	**29,798**	**0**	**10,248**	**0**	**10,248**	**0**	**0**
Spectrum Efficient National Surveillance Radar - ORF	**Pos/BA**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	FTE/OBL	**0**	**57**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Spectrum Pipeline - ORF	**Pos/BA**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	FTE/OBL	**0**	**17**	**0**	**0**	**0**	**1,769**	**0**	**1,769**	**0**	**0**
TOTAL MISSION SUPPORT	**Pos/BA**	**680**	**345,742**	**782**	**345,845**	**798**	**369,013**	**892**	**595,605**	**94**	**216,592**
	FTE/OBL	**695**	**371,952**	**744**	**397,493**	**759**	**384,698**	**832**	**611,560**	**73**	**216,592**

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(Dollar amounts in thousands)

Activities: Executive Leadership, Mission Services and Management, IT Security, Payment to the DOC Working Capital Fund, Office of Education, Facilities Maintenance, and Office of Space Commerce

Goal Statement

The objectives of these Mission Support activities are to: 1) develop policies regarding the administration of NOAA programs with Federal agencies, the Congress, and private industry; and 2) develop and implement policy, planning, and program oversight.

Base Program

NOAA's Mission Support services are the backbone of NOAA's programs and mission. These services provide the planning, administrative, financial, procurement, information technology, human resources, and infrastructure services that are essential to the safe and successful execution of NOAA's mission.

Statement of Operating Objectives

Schedule and Deliverables:

AGO

- Continue efforts to decrease backlog of required contract closeouts
- Continue to track fees generated against fee projections (cumulative total including fee for service, NOAALink and ProTech)
- Strengthen alignment of acquisition resources to NOAA program requirements
- Increase AGO/Program Office engagement early in the acquisition/grants lifecycle

OCAO

- Continue implementing the Silver Spring Metro Center Consolidation Project to reduce NOAA's leased portfolio costs in the National Capital Region
- Continue implementation of the NOAA Asset Management Program to support data driven decision making and reporting
- Maintain and increase, focus on timely resolution of commercial leases

- Complete the Facilities Strategic Plan and begin implementing the highest priority projects
- Continue the safety culture that has been established at NOAA over the past four years
- Successfully execute construction and repair projects on time and within budget

OCFO

- Continue to obtain an annual 'unqualified opinion' on the audit of NOAA's consolidated financial statements
- Continue to deliver DOC Strategic Planning and Performance elements ahead of schedule
- Execute at least one major economic reporting product (e.g. Marine Economy Satellite Account)

OCIO

- Incorporate machine learning and automation into Security Operations
- Expand NOAA's enterprise network to achieve economic efficiencies and increased reliability
- Establish a sustainable relationship with industry to provide enhanced, cloud-based access to NOAA's environmental data
- Continue to increase utilization of the cloud

OHCS

- Implement continuous improvement efforts in all facets of talent management to significantly improve NOAA's ability to attract, hire and retain diverse talent in both scientific and support fields, especially among minorities and historically underserved communities
- Leverage the extensive review of the NOAA workforce caused by COVID-19 reintegration planning and implement optimum solutions to achieve better work-life balance for personnel while achieving all missions, objectives and goals
- Mature and broaden use of HR IT tools and applications to end the use of paper-based processes and leverage automation to increase efficiency and equity while ensuring more time is put toward planning the delivery of mission critical services
- Design and deliver more actionable HR analytics to offer leadership transparent data driven decision science that mitigates skill gaps and equity risks to successfully manage performance and accomplish NOAA's mission
- Continue to prudently implement a Full Service HR Model for NOAA within the Department's enterprise service solutions
- Address and provide solutions to increase organizational effectiveness through change management facilitation and employee development to strengthen the employee experience and job satisfaction in the process

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OICR

- Process Equal Employment Opportunity (EEO) complaints of discrimination
- Sustain and maintain a Model EEO program (EEO Commission mandate)
- Conduct targeted outreach (underrepresented populations)
- Conduct organizational climate assessments
- Foster an inclusive culture within the agency
- Manage the Agency's Diversity and Inclusion Implementation Plan
- Educate the workforce (EEO & Diversity and Inclusion training; Special Emphasis Programs)
- Manage Special Emphasis Programs and Employee Resource Groups

WVPRP

- Increase response services spanning across all of NOAA's regions
- Increase prevention services with computer-based training and in-person bystander intervention, development of resiliency training
- Maintain the RAINN contract to include dedicated hotline/helpline for SASH response services
- Develop and maintain a workplace violence database
- Develop and maintain a workplace violence prevention website
- Develop toolkits for employees and management, as well as outreach materials
- Participate in the National Academies of Science Action Collaborative
- Develop methods to address intersectionality, racial equity, and mission related needs
- Create and deliver a Workplace Cultural Survey for various populations to inform future training

OSC

- Continue to support SSA/STM through assessments, advanced analytics developments, and end-to-end functional demonstrations
- Further develop SSA Open Architecture Data Repository capabilities as a reference design for possible transition to operations
- Issue licenses and other license actions within statutory timelines (60 days)
- Conduct inspections of operational ground stations
- Conduct requirements definition and demonstration of capabilities to support the commercial industry mechanism to ensure space weather forecasting continuity.

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OED

- Advance education both within NOAA and with the public we serve
- Educate and train the students in NOAA-related fields through the Jose E Serrano Educational Partnership Program with MSIs and the Hollings Scholarship Program
- Support meaningful watershed education through the Bay Watershed Education and Training Program
- Support formal and informal education projects that build community resilience through the Environmental Literacy Program.
- Coordinate educational activities across NOAA and with external partners to ensure that these efforts are effective and continually improve

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(Dollar amounts in thousands)

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base Program	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Executive Leadership	Pos/BA	105	26,964	116	27,078	116	29,243
	FTE/OBL	89	26,630	110	27,078	110	29,243
Mission Services and Management	Pos/BA	541	150,493	629	156,000	625	170,627
	FTE/OBL	563	163,995	598	156,000	594	170,627
IT Security	Pos/BA	18	15,328	20	15,378	20	16,393
	FTE/OBL	20	15,484	19	15,378	19	16,393
DOC Working Capital Fund	Pos/BA	0	66,323	0	66,389	0	71,299
	FTE/OBL	0	62,967	0	66,389	0	71,299
Facilities Maintenance	Pos/BA	0	4,995	0	5,000	0	5,000
	FTE/OBL	0	3,415	0	5,000	0	5,000
Office of Space Commerce	Pos/BA	0	0	0	0	20	10,000
	FTE/OBL	0	0	0	0	19	10,000
Education	Pos/BA	15	32,947	16	33,000	16	33,451
	FTE/OBL	15	33,139	16	33,000	16	33,451
Hollings Scholarship	Pos/BA	0	5,738	0	0	0	0
	FTE/OBL	0	6,022	0	0	0	0
Total Mission Support	Pos/BA	679	302,788	781	302,845	797	336,013
	FTE/OBL	687	311,652	743	302,845	758	336,013

Department of Commerce
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Executive Leadership

Executive Leadership supports the leadership and management of NOAA, and represents NOAA at the executive level with other Federal agencies, Congress, NOAA stakeholders, and private industry.

The Offices of the Under Secretary/Assistant Secretary and Deputy Under Secretary (USAO): These offices support NOAA's leadership. Program activities consist of formulating and executing policies for achieving NOAA objectives, responding to Executive Branch policy decisions, and exercising delegated authority in committing NOAA to courses of action. USAO also includes the following offices:

Office of Legislative and Intergovernmental Affairs (OLIA): This office serves as the primary liaison for NOAA with the members and staff of Congress. The office is responsible for the planning, direction, and coordination of legislative programs that are of immediate concern to the Office of the Under Secretary.

Office of Communications and External Affairs: This office is the principal point of contact for NOAA programs with the public and the news media. Its staff advises NOAA and other Departmental officials on all aspects of media relations and communication issues.

Office of International Affairs (OIA): This office coordinates NOAA and other leadership officials' relationship's with international programs, as directed by the Office of the Under Secretary. The Director of the Office of International Affairs exercises a leadership role in establishing policies, guidelines, and procedures for NOAA's international programs.

Interagency Meteorological Coordination Office (IMCO): This office ensures Federal coordination functions for the Department pursuant to the Weather Research and Forecasting Innovation Act (Public Law No. 115-25, Title IV, sec. 402). The IMCO will serves as the administrative headquarters of the Interagency Council on Advancing Meteorological Services, an Executive Branch office chartered under the authority of the Director of Science and Technology Policy. This office is funded through an assessment of funds from NWS, OAR, and NESDIS.

Office of General Counsel (OGC): OGC provides legal advice, review, and representation on a host of complex matters arising from the fulfillment of NOAA's mission. NOAA OGC ensures NOAA management decisions are made with necessary consideration of proper legal requirements, procedures, and options.

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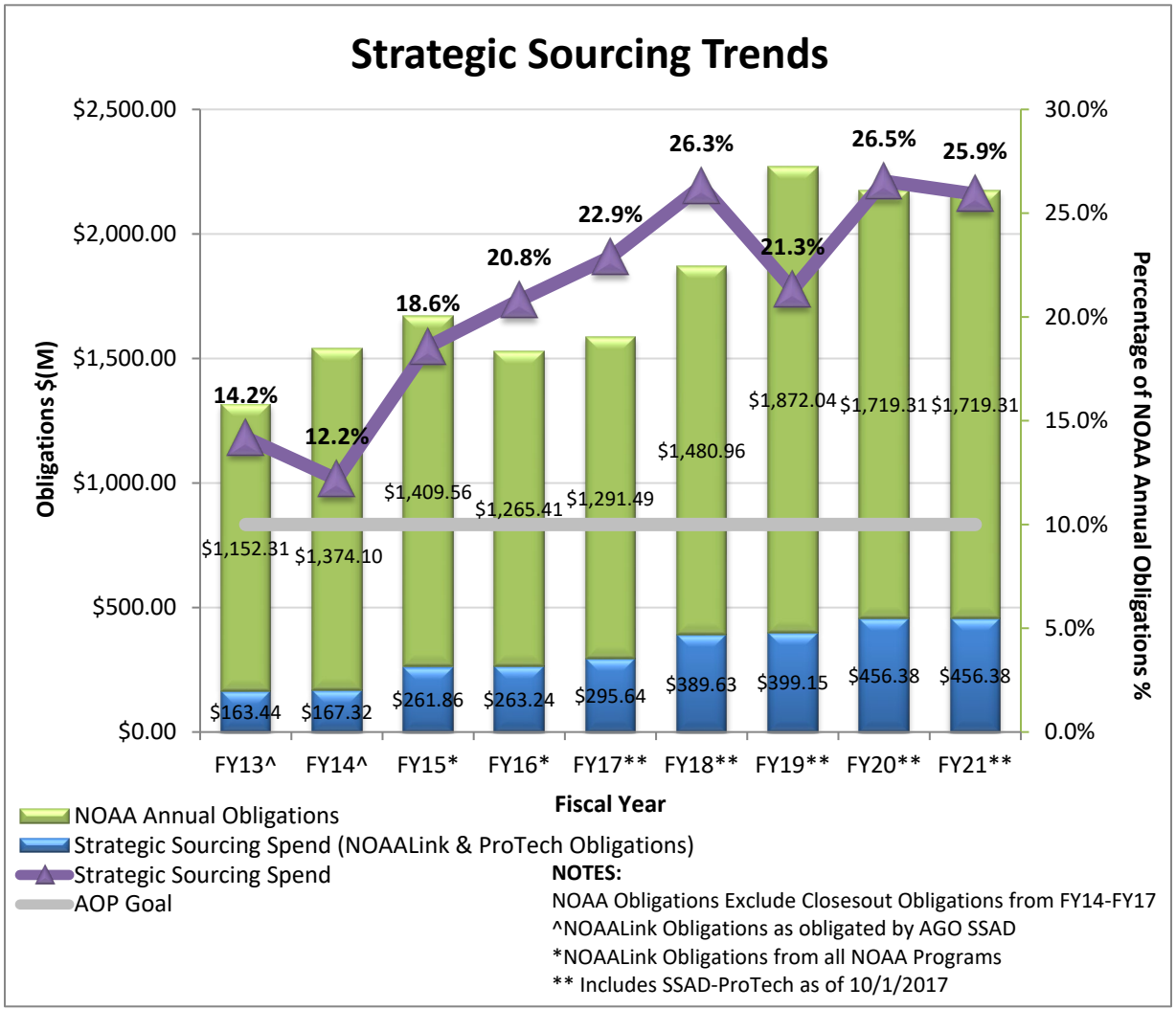
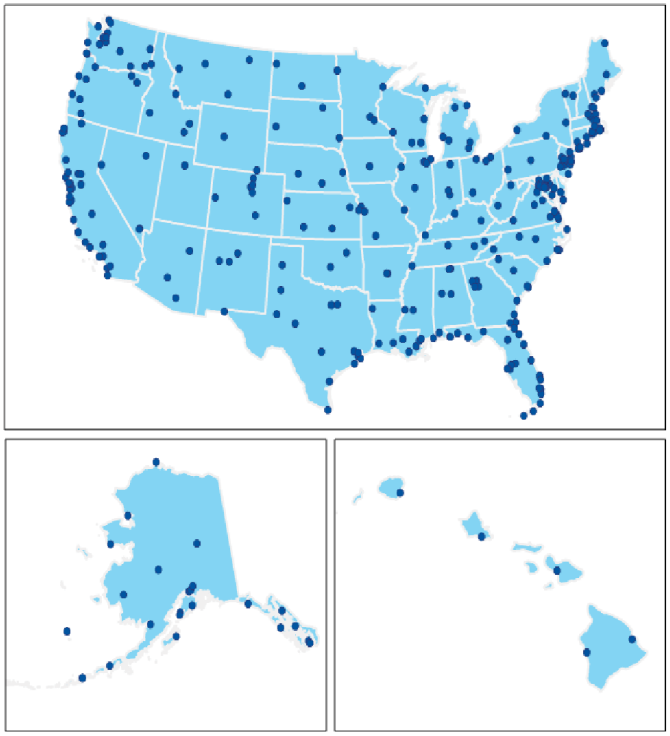
Mission Services and Management
Mission Services and Management is the mission-enabling arm of NOAA that supports all operational activities and is essential to its success.

Acquisition and Grants Office (AGO): AGO provides high-value services to NOAA Line and Staff Offices, compliant with laws and regulations, on time, and at the best value to the government through the planning, solicitation, award, administration, and closeout of nearly 22,000 acquisition and financial assistance transactions annually. NOAA's ability to accomplish its mission and achieve its goals depends significantly on AGO's ability to process over $3 billion annually in accordance with statutory and regulatory requirements. In FY 2021 for example, AGO obligated $1.81 billion and managed over 4,900 active contracts valued at over $12 billion. AGO executed over 2,300 financial assistance transactions to award $1.4 billion. NOAA also successfully executed over 8,000 acquisition and nearly 700 financial assistance



closeout actions in FY 2021. NOAA also successfully executed over 8,000 acquisition and nearly 700 financial assistance closeout actions in FY 2021.

In addition, NOAA continued its strong support of small businesses in FY 2021, obligating $834 million to small businesses equating to a 47.6 percent overall small business achievement for the year. AGO also continued to place emphasis on NOAA's two key strategic sourcing initiatives, NOAALink program and ProTech Acquisition Initiative, to improve efficiency and reduce costs. In FY 2021, 25.9 percent of NOAA dollars were awarded via strategic sourcing vehicles.



Current NOAA Footprint

Office of the Chief Administrative Officer (OCAO): NOAA's national scope and mission requires a diverse portfolio of geographically distributed facilities. OCAO supports NOAA-wide mission accomplishment by oversight, technical expertise and support services for the stewardship of NOAA's assets, facilities, and infrastructure. NOAA's real property portfolio has more than 620 facilities including 4,675 acres of land across 160 markets, including 401 NOAA-owned facilities with an estimated replacement value of $3 billion; and administers a personal property portfolio of approximately 141,000 personal property assets valued at over $17 billion. OCAO manages the Safety and Occupational Health program, coordinates security and anti-terrorism risk protection, and ensures best business practices around records and financial controls.

In 2017, NOAA launched the NOAA 2030 Footprint initiative to develop and implement best practices and tools for facilities sustainment. The initiative consists of three major projects: developing and implementing a Strategic Facilities Plan for 2030; consolidating four locations around the National Capital Region into NOAA Headquarters in Silver Spring, MD; and implementing asset management tools to track facility condition use. In FY 2018, NOAA completed a facilities enterprise baseline, footprint framework, and regional opportunities analysis as steps towards the Strategic Facilities Master plan. NOAA has completed Regional Footprint Studies of five regions, Northwest, Northeast, Southeast, Southwest and Mid-Atlantic. The remaining two regions, Mountain and Midwest, will be completed in FY 2022. Completion of all regional studies will conclude a comprehensive review of NOAA's facilities' portfolio and

completion of a Facilities Strategic Plan (FSP) in 2022. Also in FY 2022, the SSMC Consolidation project entered the construction phase which is anticipated to conclude by the end of calendar year 2023.

NOAA has implemented asset management tools to document, analyze, track and report conditions, repair needs, space use, replacement value and sustainment cost for its owned assets. Additionally, NOAA created standardized processes for how and what real property data is collected, and awarded a contract to validate the data on seventy-five percent (1.8 million gross square feet) of NOAA's inventory of owned properties. Upon full implementation of the asset management program, NOAA will have a repeatable, traceable, and accurate owned facility data set. With this information, NOAA executives will make data-driven decisions to best utilize limited resources to sustain its mission-critical footprint. Additionally, NOAA is expanding the scope of its investment planning to include owned and leased properties, as well as life cycle investment planning in a comprehensive Facilities Investment Plan (FIP). These efforts will complete a comprehensive review of the NOAA facilities portfolio and set the stage for a strategic investment path forward for both recapitalization and sustainment of the portfolio.

Office of the Chief Financial Officer (OCFO): OCFO serves as NOAA's principal financial manager. NOAA has annual appropriated resources of almost $6 billion and recorded net capital asset value of $13.6 billion in FY 2021. OCFO is responsible under the CFO Act to provide the leadership necessary for NOAA to obtain an annual 'unqualified opinion' on the audit of its consolidated financial statements. The areas under the direction of the OCFO are the Budget Office, the Finance Office, Performance, Risk and Social Science Office (PRSSO), Program Integration Office, the DOC Working Capital Fund (WCF), Common Services and the NOAA Direct Bill. The Budget Office provides oversight, management, outreach and communication of the budget process, which includes coordinating the preparation of budget submissions, and allocating and controlling the execution of all budgetary resources. The Finance Office ensures that the consolidated financial statements and reports are accurate, manages and operates the financial management system, and is responsible for the timely payment of bills. The PRSS Office leads and deploys best practices from social science integration and enterprise performance and risk management to advance NOAA's mission. The Program Integration Office plans and manages the design, development, implementation, and transition of key cross-cutting Departmental and NOAA enterprise systems, including the BAS implementation project.

DOC Accounting System (CBS application): The CBS application is scheduled to be replaced with DOCs Business Applications Solution applications of Oracle EBS and an Enterprise Data Warehouse (EDW). Assuming the target go-live date of October 1, 2023 is met, CBS and the NOAA data warehouse will begin sunsetting activities for non-production environments in FY 2024. The production CBS and Data Warehouse environments will be maintained for most, if not all, of fiscal year 2024 to accommodate tasks such as FY 2023 year end close activities, the FY 2023 financial and IT audits, support of crosswalk activities for Economic Development Administration (EDA) grant transactions, and to ensure access to legacy data until the BAS enterprise DW is fully vetted and validated. This requires that the application environment(s) continue to be operated, maintained, and patched.

Although NOAA will no longer own or operate its own financial systems after sunsetting CBS, NOAA's financial systems support will continue to provide expertise in BAS reports development, production support activities, subject matter expertise, internal and DOC change control board (CCB) representation, and data analytics leadership. Additionally, help desk, training services, and tier 2 support will remain in place in support of these activities as well as for full ongoing support of NOAA's E2 travel system user community.

Common Services (CS) account: The Common Services account supports the NOAA CFO in providing resources for NOAA-wide activities and services provided through the DOC and other agencies through Memoranda of Understanding (MOU) and/or Interagency Agreements (IA). CS funds the Departmental Management Advances and Reimbursements (A&R) accounts providing a centralized funding source for special services and tasks provided by the DOC; off-site health services at the Census Bureau Health Unit; OPM USAJobs portal usage and maintenance; and other miscellaneous services and products.
NOAA Direct Bill Process: The NOAA Direct Bill process enables NOAA Line and Staff Office service providers to assess other Line and Staff Offices for their proportionate share of the costs of enterprise-wide programs or services. Direct Bill proposals are only for unique services/products that provide an enterprise-wide benefit or that consolidate funding for enterprise solutions.

Office of the Chief Information Officer (OCIO): NOAA OCIO's operating model focuses on service delivery, customer experience, innovation, and security with a mission to provide a secure and agile information enterprise with advanced computing capability that propels NOAA's scientific and operational missions. The cornerstone of the operating model is delivering shared enterprise information services through technology advancements including cloud computing, mobile devices, and big data. NOAA generates terabytes of data each day from satellites, radars, ships, weather models, and other sources. While these data are available to the public, the NOAA Big Data Program (BDP) provides public access to NOAA's open data on commercial cloud platforms through public-private partnerships. These partnerships remove obstacles to the public use of NOAA data, help avoid costs and risks associated with Federal data access services, and leverage operational public-private partnerships with the cloud computing and information services industries. The BDP combines an expansive collection of high-quality environmental data and expertise, the vast infrastructure and scalable computing capabilities of our industry partners, and the innovative energy of the American economy. In FY 2021, the BDP increased the cumulative number of NOAA Weather Enterprise and other environmental information datasets made openly available to the public to over 220.

OCIO provides the enterprise IT infrastructure that connects and manages networks, telecommunications, systems, and people to enable NOAA to provide data observation, ingestion, assimilation and modeling, processing, dissemination, and archiving capabilities at greater scales. To improve the network landscape in the Alaska region during FY21, N-Wave and its partners initiated the Alaska Shared Network Infrastructure project. With new network points of presence in Anchorage and Fairbanks, new fiber in Utqiaġvik, and new circuits extending south to Juneau and west to Kodiak, the project directly benefits science and operations across all NOAA Line Offices. OCIO has

established five NOAA Information Resources Management strategic goals: (1) promote our people who make the mission possible; (2) propel the mission; (3) protect the mission; (4) deliver customer-centric service excellence; and (5) optimize for maximum NOAA value. OCIO improves customer experience and productivity by increasing collaboration tool utilization, and focused resources on modernizing and streamlining IT systems to protect against cyber-attack, equipment malfunctions, or natural disasters. The Research and Development (R&D) High Performance Computing (HPC) program provides research that contributes directly to operating high performance computers and data systems for NOAA to deliver improved weather models. These models are used to understand and predict weather, and to produce decision-support tools that facilitate understanding weather, mitigation strategies, and adaptation options for the Nation. The goal of the program is to develop, test, and apply state-of-the-science computer-based simulation models, based upon a strong scientific foundation while leveraging leading edge HPC and information technologies. The objective is to increase the skill, resolution, complexity, and throughput of computer model-based projections.

Office of Human Capital Services (OHCS): OHCS provides human capital programs, consultative services, policies and processes that facilitate the acquisition, development and retention of a diverse, highly skilled, motivated, and effective workforce capable of accomplishing the Agency's mission. OHCS also provides a wide range of human capital functions including strategic human capital planning, labor-management and employee relations, strategic recruitment and hiring, program evaluation, customer experience, quality assurance, HR policy, performance management and incentives, executive and employee support, leadership and career development, HR data analytics and forecasting, as well as HR information technology systems.

OHCS has developed a new NOAA Strategic Human Capital Management Plan; engaged vendors and partners to provide improved workforce planning support; adopted new technologies and co-led a significant inter-office review of workforce HR policies in the face of the COVID-19 Pandemic followed by detailed planning for the reintegration of the workforce.

In FY 2021, OHCS delivered distinct hiring improvements by continuing to reduce average time-to-hire days. Time to hire averaged 125 days in FY 2020 and was reduced to 106 days in FY 2021. OHCS expanded its dynamic LANTERN (Leveraging Abilities, Needs, Talents Energies & Resources Network) program which enables all Line and Staff Offices to provide detail opportunities to NOAA personnel that support distinct organizational needs while promoting individual professional growth and experience. OHCS also initiated the first ever NOAA-wide senior executive continuing education program in concert with a nationally known university who provides a tailored program of instruction.

In FY 2022, OHCS is expanding use of the proven Management Consulting and Customer Engagement operating model to guide HR personnel with customer interactions. OHCS is leveraging Human Centered Design processes to achieve customer-centric approaches and solutions. These techniques provide improved transparency of human capital actions and greater consistency of services while capitalizing

on economies of scale and efficiency and improving the quality of services provided. In addition, OHCS will continue to mature specific centers of expertise to advance strategic and practical developments in workforce planning, succession management, performance culture, employee learning, as well as human resource analytics and forecasting. The maturity of each of these program areas is critical to support NOAA's efforts to enhance equity and employee satisfaction. OHCS will continue to expand its NOAA-wide supervisory training, leadership development programs and mentoring program. OHCS is also maturing its use of machine learning and state-of-the-art tools to assist the agency with its change management and change leadership efforts. OHCS has positioned itself to provide tailored HR consultative services to support NOAA's organizational excellence and adaption to the post COVID-19 environment.

In FY 2023, NOAA expects to continue to provide oversight in the implementation of transactional HR services being provided by the Department's Enterprise Services model. Simultaneously, OHCS will further expand a NOAA-wide recruiting-hiring-retention portfolio of projects with a distinct focus on equity and improved employee satisfaction. OHCS will also expand its robust consultative services to provide human capital expertise to effectively manage mission risks in each Line and Staff office to ensure unity of purpose and an enhanced customer experience.

Office of Inclusion and Civil Rights (OICR): OICR is responsible for ensuring NOAA-wide compliance with EEO and Civil Rights laws, regulations, executive orders, and policies that prohibit discrimination on the basis of race, color, religion, sex, national origin, age, disability, sexual orientation, and genetic information. OICR manages the agency's EEO complaint program for a workforce of over 11,000. Compliance rates for processing informal cases within prescribed timelines consistently succeed EEO Commission statutory requirements. During FY 2021, OICR processed 20 percent more EEO pre-complaints than FY 2020 and maintained 100 percent timely processing rate for the second consecutive year. The efforts of a dedicated OICR staff resulted in 28 percent of NOAA's pre-complaints not entering into the formal EEO complaint process. Each EEO case negatively impacts the mission fiscally and in terms of mission performance. In FY 2023, OICR continues to seek innovative methods to enhance efficiency in all EEO program functions.

OICR also manages the agency's Diversity and Inclusion (D&I) program and oversees affirmative employment initiatives. OICR's mission is to ensure that D&I is a business priority that becomes ingrained into NOAA's organizational culture enhancing it's standing as an Employer of Choice. OICR identifies and deploys D&I best practices to promote D&I agency-wide. In addition, NOAA was selected as one of the Top 20 supporters of Historically Black Colleges and Universities for the past 3 consecutive years. To ensure the agency's workforce is knowledgeable about practices which promote inclusion and strategies to overcome barriers to diversity, OICR provide EEO and D&I training at all levels. OICR staff provide advice and counsel to employees and agency leaders regarding conducting outreach activities to underrepresented populations, organizational climate, and strategies to attract, hire, develop, and retain a highly skilled and diverse workforce.

To promote D&I and cultural awareness, OICR annually offers nine Special Emphasis Programs which focus special attention on certain groups that are not represented or have less than expected participation rates in specific occupational categories or grade levels within the agency's workforce. OICR staff serve as Special Emphasis Program Managers who provide oversight and guidance for 11 Employee Resource Groups which serve a valuable resource for employees and NOAA leaders. In FY 2021, OICR hosted nine Special Emphasis Observance Programs. In addition, OICR plans and coordinates the agency's premiere annual D&I Summit which reinforces NOAA's commitment to D&I initiatives and acquires top talent from the D&I industry to facilitate training content based on the needs of the agency. From an outreach perspective, OICR ensures NOAA's presence at affinity group conferences to attract underrepresented populations within the civilian labor force and further promote NOAA as an Employer Choice.

OICR conducts annual Organizational Climate Assessments to gather information from the workforce about perceptions of the culture within the agency. The data obtained is analyzed to identify practices that may have a negative impact on organizational effectiveness. The OICR Director meets with Line/Staff Office senior leaders on a quarterly basis to discuss and assist with developing courses of action to address EEO/D&I issues. OICR is committed to expanding its D&I portfolio to keep the needle moving towards greater diversity, inclusion, equality, and accessibility.

Workplace Violence Prevention and Response Program (WVPRP): The WVPRP supports the Deputy Under Secretary of Operations. The WVPRP will develop comprehensive, trauma-informed support services for all NOAA employees, contractors, and affiliates who experience sexual assault and sexual harassment (SASH). This dictates that there be full-time Regional Coordinators for the agency who screen, train and develop collateral-duty victim advocates across NOAA by region. The program also develops comprehensive and centralized prevention for all NOAA employees; tracks incidents and cases of workplace violence and coordinates the annual congressional report; provides ongoing consultation to leadership; and coordinates the development of the workplace violence prevention plan, which creates goals to be reviewed biannually. In FY 2021, WVPRP efforts were highlight as best practice efforts within publications by the National Academies of Science related to relevant STEM institutions. Further, the "We Are NOAA" survey spear headed by WVPRP has been identified as a best practice benchmark in the development and implementation of workplace culture surveys. The survey afforded participants an opportunity to anonymously share their everyday work experiences across various intersections, including gender, race, sexual harassment, bullying, and discrimination. In 2022 WVPRP will enforce Section 3 of Executive Order 14035; Government-Wide Diversity, Equity, Inclusion, and Accessibility Initiative and Strategic Plan which states a comprehensive framework to address workplace harassment, including sexual harassment, which clearly defines the term "harassment"; outlines policies and practices to prevent, report, respond to, and investigate harassment; promotes mechanisms for employees to report misconduct; encourages bystander intervention; and addresses training, education, and monitoring to create a culture that does not tolerate harassment or other forms of discrimination or retaliation.

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IT Security

The mission of the IT Security Program is to defend NOAA's data, networks, equipment, intellectual property and personnel against a wide variety of adversaries ranging from nation states to lone-wolf attackers. Successful attacks by adversaries could negatively impact NOAA's ability to keep nearly 330 million Americans, as well as others, safe and informed of weather, environmental, and other events with widespread economic impact. Additionally, with NOAA's reliance on information systems and data connected to the Internet, cyber-espionage is an effective, low-cost, low-risk way to compromise data and information products and services. NOAA's interconnected nature presents significant risk to IT infrastructure components and data. OCIO implements NOAA's IT Security Program through a risk-based approach that emphasizes vulnerability management to achieve defense in depth via a common prevention, response, and mitigation strategy to manage mission risk related to cyber security threats.

High-priority risks include insider threat, network segmentation, national/international/non-state adversaries, social engineering attacks, botnets, and malware/ransomware. Major initiatives include improving system segmentation to limit adversaries from traversing from external facing systems to internal resources, full monitoring of all NOAA end points, improving the quality of enterprise IT security services and the implementation of all five phases of the DHS Continuous Diagnostic Monitoring Program.

The IT Security Program continues its efforts to increase the efficiency of base-level functionality, which resulted in significantly increased visibility into defending the NOAA networks and systems. This includes building out our sensors so more NOAA systems are sending information to our centralized network defense systems, better integration of cyber threat intelligence, and better processes and procedures to use this data. The NOAA Cyber Security Center delivers enterprise-wide cybersecurity services to all NOAA systems; these services include Security Operations Center (SOC) operations, Trusted Internet Connection (TIC) operations, endpoint security, audit log archival, incident response, IT security policy, compliance, risk management, oversight and training, continuous monitoring, IT security infrastructure, and IT security project management.

Payment to the Department of Commerce (DOC) Working Capital Fund (WCF)

The DOC WCF provides centralized services to NOAA's Line and Staff Offices in the most efficient and economical manner. Organizational units within DOC provide the administrative, legal, information technology, financial, and policy support needed to accomplish NOAA's overall mission. The WCF was established pursuant to 5 USC 607 (15 USC 1521). Unlike other DOC bureaus, the NOAA contribution to the WCF is provided by specific allocation within the NOAA appropriation.

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Facilities Maintenance

Facilities Maintenance funds are administered by OCAO and provide centralized support to address the growing backlog of deferred maintenance and repair needs at NOAA facilities as well as project management and planning. In FY 2023, NOAA will continue to apply maintenance funds to deferred maintenance and repair across the NOAA facilities portfolio, project and program management, and begin pre-planning for Silver Spring Metro Center lease requirements.

Office of Space Commerce

The office has the following functions:

- Office of Space Commerce (OSC) plays a key role in coordinating with the Executive Branch's activities surrounding the National Space Policy (2020) and the U.S. Space Priorities Framework. OSC is the principal unit for space commerce policy activities within the Department of Commerce. Its mission is to foster the conditions for the economic growth and technological advancement of the U.S. commercial space industry. OSC represents the Department in interagency work and advocates for industry within the executive branch of the Federal Government.

- OSC continues to develop requirements for activities to improve space situational awareness (SSA) capabilities for civil and commercial space situational services. Commercial operators can use space situational awareness products and services to enhance the safety and security of their on-orbit operations.

- Commercial Remote Sensing Regulatory Affairs: continues coordination and facilitation of the Advisory Committee on Commercial Remote Sensing (ACCRES), which provides information, advice, and recommendations to the Under Secretary of Commerce for Oceans and Atmosphere on matters relating to the U.S. satellite commercial remote sensing industry and NOAA's activities. It also conducts activities for implementing the regulations on private remote sensing space systems per 15 CFR Part 960. These activities include issuing and modifying licenses to operate remote sensing systems, monitoring regulatory compliance of licensed systems, and monitoring global availability of remote sensing data made available by foreign sources.

Office of Education

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The Office of Education guides and underpins education activities across NOAA resulting in a more efficient and effective portfolio, better able to support NOAA priorities. The Office supports NOAA's mission by working with students, educators, and the general public so they understand NOAA's science and can use it to make decisions. The Office fosters a diverse future workforce trained in STEM by providing quality educational opportunities for the next generation, including competitive scholarships, internships and professional training for post-secondary students.

The Office of Education provides advice and counsel to the Under Secretary of Commerce for Oceans and Atmosphere in matters pertaining to education, coordinates education activities across NOAA through the NOAA Education Council and represents the Agency in inter-agency education initiatives. Activities build capacity in STEM education to use NOAA assets to reach more people in effective ways. The Office lays out the goals and objectives for NOAA's education programs and supports data-driven program assessments, enabling a learning culture able to evolve and improve education efforts. The Office of Education works with institutions and networks to build capacity to advance NOAA's mission through formal (K-12) and informal education at national, regional and community levels. Among the Office's accomplishments:

- Managed www.noaa.gov/education to provide an integrated, NOAA-wide portal for education resources and opportunities that got over 2.9 million visits in FY 2021
- Released the first NOAA Citizen Science Strategy and enhanced a NOAA citizen science community of practice with projects that engage over 500 thousand volunteers annually
- Developed implementation plan with over 97actions in support of NOAA's Education 2021-2040 Strategic Plan across the Agency by working with the NOAA Education Council as required by America COMPETES Act statutory authority
- Coordinated 25 aquariums and marine science education institutions through the Coastal Ecosystems Learning Centers network and 154 educational institutions through the Science on a Sphere® network

José E. Serrano Educational Partnership Program with Minority Serving Institutions (EPP/MSI): EPP/MSI provides financial assistance, through competitive processes, to students and MSIs that train students and conduct research in NOAA mission sciences. The program's goal is to increase the number of students, particularly from underrepresented groups, who are trained and earn degrees in sciences directly related to NOAA's mission. Long term goals of the program include increasing the diversity of the STEM and NOAA workforce and fostering American competitiveness in STEM fields. Among EPP's accomplishments:

- 2,513 postsecondary degrees have been awarded to EPP/MSI supported students in NOAA mission fields since 2001, including 325 PhDs. Over 630 students have received Master's degrees. From 2003-2019, EPP/MSI Cooperative Science Center (CSC) Institutions awarded 54 percent of doctoral degrees in atmospheric sciences, 35 percent of doctoral degrees in marine science, and 30 percent of doctoral degrees in environmental sciences earned by African Americans. Additionally, CSCs awarded 39 percent of

doctoral degrees in marine science doctoral, 21 percent of doctoral degrees in atmospheric sciences, and 19 percent environmental science doctoral degrees earned by Latinos
- 307 students in NOAA mission fields currently in the pipeline
- 3 graduate students attending Cooperative Science Centers were selected for the EPP/MSI Graduate Fellowship pilot program

For more information, please visit the EPP/MSI website: http://www.noaa.gov/epp

Ernest F. Hollings Scholarship Program: The NOAA Hollings Scholarship Program is a competitive program that increases undergraduate training in oceanic and atmospheric sciences, research, technology, and education. The program catalyzes scientific research through work-based learning experiences, improves environmental literacy, and prepares the STEM workforce for the future. It recruits and prepares students for careers with NOAA and other natural resource and science organizations at the Federal, state and local levels of government, in academia and the private sector, as well as in science and environmental education. In 2021, the Hollings Scholarship Program supported 125 new scholars (class of 2021) while continuing to support 123 scholars from the class of 2020.

Based on the FY 2023 Request of $6.884 billion, NOAA estimates it will have $6.884 million for the Hollings Scholarship Program. For more information, please visit the Hollings Scholarship website: http://www.noaa.gov/hollings

Environmental Literacy Grants: NOAA's Environmental Literacy Grants provides support for STEM and environmental education projects that engage and involve children, youth, and adults in using NOAA-related sciences to improve ecosystem stewardship and increase resilience to extreme weather and climate events. Multi-year grants and cooperative agreements are competitively awarded to formal (K-12) and informal educational institutions within the United States. Since 2015, in addition to supporting broad STEM education projects, the program has prioritized funding community resilience education projects that empower people, especially those who have been historically marginalized, to learn about and become involved in creating a healthier, more resilient, and equitable community. Environmental Literacy Grants accomplishments include the following:
- $81 million provided through 145 awards since the program's inception in 2005
- In FY 2021, more than 150 institutions advanced NOAA's mission to enhance awareness and understanding of ocean, coastal, Great Lakes, and atmospheric sciences through formal (K-12) and informal education initiatives
- In FY 2021, over 10,000 youth and adults participated in informal science education programs
- In FY 2021, over 1,000 educators participated in professional development programs using evidence-based practices conveying ocean, coastal, Great Lakes, and atmospheric sciences in compelling and relevant ways
- In FY 2021, over 8,000 K-12 students from 406 public, charter, and private schools participated in formal science education programs

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For more information, please visit https://www.noaa.gov/office-education/elp

Bay-Watershed Education and Training (B-WET): The NOAA B-WET program is an environmental education program that promotes place-based experiential learning for K–12 students and related professional development for teachers. B-WET funding is provided through competitive grants that support Meaningful Watershed Educational Experiences (MWEEs): learner-centered experiences that focus on investigations into local environmental issues and lead to informed action. B-WET serves seven regions of the country: California, Chesapeake Bay, Great Lakes, Gulf of Mexico, Hawaii, New England, and Pacific Northwest. This regional approach allows the B-WET program to support grantee capacity building and respond to local education and environmental priorities. B-WET accomplishments include the following:

- B-WET grants reached over 61,400 students and 2,800 teachers in 2021 through awards to 147 institutions
- Since the program's inception in 2002 NOAA has awarded over $110 million to support more than 874 projects
- NOAA is implementing a multiyear $3.2 million partnership with the Department of Education's 21st Century Community Learning Centers. Through a partner, 30 grants serving 18 states were awarded in June 2020. These projects provide locally relevant, out-of-school time STEM programming to students in high-poverty and low performing schools based on the B-WET MWEE model and include NOAA assets and expertise.

For more information, please visit the B-WET website: https://www.noaa.gov/office-education/bwet.

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Executive Leadership	Pos./BA	116	29,243	118	29,743	2	500
	FTE/OBL	110	29,243	112	29,743	2	500

NOAA Tribal Liaison (+$500, 2 FTE/2 Positions) - NOAA requests additional funds to create two full-time NOAA Tribal Liaison positions to strengthen NOAA communications and outreach to Tribal governments, Native Alaska Corporations, and Native Hawaiians; one in Juneau, Alaska and one located in the Washington DC metro area. The Tribal Liaisons will support meaningful consultations and coordination with tribal officials in the development and implementation of Federal policies that have tribal implications. This initiative supports Executive Order (EO) 13175, DAO 218-8, and the Department of Commerce Tribal Consultation Policy, which mandate Federal agencies appropriately engage with tribal officials. The liaisons will be responsible for filling an existing gap by providing timely government to government consultation on NOAA policies and actions that impact Indian Tribes. They will also manage appropriate training for NOAA officials engaged in tribal relations to identify and expand best consultation practices.

Schedule and Milestones:
FY 2023-2027:

- Create two full-time positions for Tribal Liaisons for NOAA
- Train NOAA officials engaged in government-to-government consultations in best practices for tribal relations
- Provide funding for conference travel, attendance and registration where required

Deliverables:

- Issue policy to ensure timely and meaningful government-to-government consultation on NOAA policies and actions that have a substantial effect on tribes
- Issue policy for recording government-to-government consultations and outcomes
- Training for NOAA officials engaged in government-to-government consultations

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Performance Measures	2023	2024	2025	2026	2027
Proportion of Federally-recognized Tribes consulted by NOAA					
With Increase	12%	22%	27%	30%	30%
Without Increase	10%	10%	10%	10%	10%
Outyear Costs:					
Direct Obligations	500	500	500	500	500
Capitalized	0	0	0	0	0
Uncapitalized	500	500	500	500	500
Budget Authority	500	500	500	500	500
Outlays	310	310	310	310	310
FTE	2	2	2	2	2
Positions	2	2	2	2	2

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Executive Leadership
Subactivity: Executive Leadership
Program Change: NOAA Tribal Liaison

Title		Grade	Number	Annual Salary	Total Salaries
Senior Tribal Liaison		ZA-IV	1	164,065	164,065
Tribal Liaison		ZA-III	1	116,039	116,039
Total			2		280,104
Less lapse	25.00%		(1)		(70,026)
Total full-time permanent (FTE)			1		210,078
2023 Pay Adjustment (4.6%)					9,664
					219,742

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	1
Total FTE	1
Authorized Positions:	
Full-time permanent	2
Total Positions	2

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Executive Leadership
Subactivity: Executive Leadership

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	13,875	14,250	15,076	15,296	220
11.3	Other than full-time permanent	94	97	97	97	0
11.5	Other personnel compensation	686	705	705	705	0
11.8	Special personnel services payments				0	0
11.9	Total personnel compensation	14,655	15,052	15,878	16,098	220
12	Civilian personnel benefits	5,798	5,955	6,770	6,836	66
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	39	39	40	50	50
22	Transportation of things	61	62	63	63	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,343	2,366	2,456	2,456	0
23.2	Rental Payments to others	1,484	1,499	1,549	5	5
23.3	Communications, utilities and misc charges	298	301	551	30	30
24	Printing and reproduction	1	1	1	10	10
25.1	Advisory and assistance services	186	188	188	10	10
25.2	Other services from non-Federal sources	1,150	994	1,097	0	0
25.3	Other goods and services from Federal sources	207	209	209	90	85
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	171	173	182	24	24
31	Equipment	110	111	131	131	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	127	128	128	128	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	26,630	27,078	29,243	25,931	500

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Executive Leadership	Pos./BA	116	29,243	125	31,243	9	2,000
	FTE/OBL	110	29,243	117	31,243	7	2,000

Strategic Communication and Outreach to Underserved Communities (+$2,000, 7 FTE/9 Positions) – The Office of Communications will enhance strategic communications capacity, with the goal of reaching and engaging new, diverse and underserved public audiences. NOAA's science and services in climate, weather and water are increasingly important to U.S. businesses' operations and planning, local decision-making, and individual livelihoods, therefore NOAA must ensure wider access, understanding, and use of this information to contribute to a better informed and more equitable society that is better prepared for a changing climate.

These funds would directly support NOAA's mission of sharing scientific knowledge, data and services with the public. As the agency produces more science, demands for NOAA's products, services, and expertise steadily increase, including from media and constituents.

These resources would also provide an opportunity for more targeted outreach to underserved communities and underrepresented groups, who are more likely to be unaware of, or unable to, access NOAA data and services. This initiative will allow for hiring specialists with secondary language proficiencies to enhance outreach capabilities to more communities. This will allow for enhanced communications about NOAA products that can help those communities that are disproportionately affected by extreme weather and other hazards of climate change better understand vulnerabilities and take appropriate action. In sum, this request enables the Office of Communications to implement a strategy, using traditional and new media platforms, to educate and build awareness among diverse and multi-sector decision-makers, community members, and stakeholders.

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023-2027:

- Create an external affairs team in order to develop strategy and execute outreach to more diverse communities
- Create a new three-person public affairs team devoted to communicating NOAA's climate science and services through innovative local, regional and national media outreach
- Focus on hiring specialists with secondary language proficiencies to enhance NOAA's outreach capacity
- Contract outside survey of community leaders in underserved communities to understand their needs accessing and using NOAA data and services and work with line offices to incorporate this information into program execution.
- Double the size of the digital team and develop user-focused strategies for reaching underserved populations with NOAA's online information

Deliverables:

- Toolkit for stakeholders and the media to reach underserved communities to understand and take advantage of climate services
- Media products in other languages, focusing initially on Spanish and ASL interpretation
- Survey of local leaders in underserved communities to receive feedback on how NOAA can improve and more equitably communicate the agency's data, science and services

Performance Measures	2023	2024	2025	2026	2027
Number of underserved communities surveyed					
With Increase	50	50	50	50	50
Without Increase	0	0	0	0	0
Toolkits distributed to communities / media					
With Increase	40	40	40	40	40
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	2,000	2,000	2,000	2,000	2,000

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Capitalized	0	0	0	0	0
Uncapitalized	2,000	2,000	2,000	2,000	2,000
Budget Authority	2,000	2,000	2,000	2,000	2,000
Outlays	1,240	1,240	1,240	1,240	1,240
FTE	7	9	9	9	9
Positions	9	9	9	9	9

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Executive Leadership
Subactivity: Executive Leadership
Program Change: Strategic Communication and Outreach to Underserved Communities

Title		Grade	Number	Annual Salary	Total Salaries
Deputy Director of External Affairs		ZA-IV	1	140,000	140,000
External Affairs Specialist		ZA-III	1	100,000	100,000
Digital Content Manager		ZA-III	1	100,000	100,000
Digital Content Writer-editor		ZA-III	1	80,000	80,000
Public Affairs Specialist		ZA-IV	3	120,000	360,000
Public Affairs Specialist		ZA-III	2	100,000	200,000
Total			9		980,000
Less lapse	25.00%		(2)		(245,000)
Total full-time permanent (FTE)			7		735,000
2023 Pay Adjustment (4.6%)					33,810
					768,810
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			7		
Total FTE			7		
Authorized Positions:					
Full-time permanent			9		
Total Positions			9		

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Executive Leadership
Subactivity: Executive Leadership

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	13,875	14,250	15,076	15,845	769
11.3	Other than full-time permanent	94	97	97	97	0
11.5	Other personnel compensation	686	705	705	705	0
11.8	Special personnel services payments				0	0
11.9	Total personnel compensation	14,655	15,052	15,878	16,647	769
12	Civilian personnel benefits	5,798	5,955	6,770	7,001	231
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	39	39	40	90	50
22	Transportation of things	61	62	63	73	10
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	2,343	2,366	2,456	2,556	100
23.2	Rental Payments to others	1,484	1,499	1,549	1,549	0
23.3	Communications, utilities and misc charges	298	301	551	551	0
24	Printing and reproduction	1	1	1	1	0
25.1	Advisory and assistance services	186	188	188	188	0
25.2	Other services from non-Federal sources	1,150	994	1,097	1,887	790
25.3	Other goods and services from Federal sources	207	209	209	209	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	171	173	182	207	25
31	Equipment	110	111	131	156	25
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	127	128	128	128	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	26,630	27,078	29,243	31,243	2,000

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	638	173,157	13	2,530
	FTE/OBL	594	170,627	604	173,157	10	2,530

Acquisition and Grants Office (+$2,530, 10 FTE/13 Positions) – The Acquisition and Grants Office (AGO) will utilize additional funds to build acquisition and grant management capacity through increased staffing. AGO provides high-value services to NOAA Line and Staff Offices, compliant with laws and regulations and at the best value to the government through the planning, solicitation, award, administration, and closeout of nearly 23,000 acquisition and financial assistance transactions annually. NOAA's ability to accomplish its mission and achieve its goals depends significantly on AGO's ability to process over $3 billion annually in accordance with statutory and regulatory requirements. AGO is a critical partner to other NOAA offices working to create and foster natural and economic resilience along our coasts through direct financial support, expertise and robust, on-the-ground partnerships and place-based conservation activities. Ecological restoration and community resilience, as outlined in EO 14008, are integral to NOAA and the Administration's climate strategy.

While AGO's fee for service model would fund the majority of new acquisition work related to the Administration's priorities for climate research, space weather operations, fleet support, and satellites, additional appropriations are needed to address the anticipated increases in grants and associated inherently governmental management and oversight functions, including staffing. The new positions are anticipated to be directly related to financial assistance execution and increased management responsibilities under expanded programs.

Without the requested increase for personnel, AGO's capacity to process and manage new grants would not be able to keep up with the volume of activity proposed in FY 2023. Delays in grant awards will lead to increased carryover balances across NOAA. Furthermore, without increased funding, AGO may not be able to diligently monitor awards to ensure good performance and proper financial stewardship.

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023-2027:

- FY 2023 Pre-Award Phase: Planning and partnership with prospective grantees and developing funding opportunities
- FY 2023 - 2024 Award Phase: Awarding grants funds
- FY 2024 - 2027 Post-Award Phase: Monitoring, reporting progress, and closeout

Deliverables:

- New grants awarded are managed timely and accordance with all required oversight

	2023	2024	2025	2026	2027
Outyear Costs:					
Direct Obligations	2,530	2,530	2,530	2,530	2,530
Capitalized	0	0	0	0	0
Uncapitalized	2,530	2,530	2,530	2,530	2,530
Budget Authority	2,530	2,530	2,530	2,530	2,530
Outlays	1,569	1,569	1,569	1,569	1,569
FTE	10	13	13	13	13
Positions	13	13	13	13	13

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: Acquisition and Grants Office

Title		Grade	Number	Annual Salary	Total Salaries
Grants Management Specialist		14	6	159,286	955,716
Grants Management Specialist		13	4	134,798	539,192
Management Analyst		14	2	159,286	318,572
Management Analyst		13	1	134,798	134,798
Total			13		1,948,278
Less lapse	25.00%		(3)		(487,070)
Total full-time permanent (FTE)			10		1,461,209
2023 Pay Adjustment (4.6%)					67,216
					1,528,424

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	10
Total FTE	10
Authorized Positions:	
Full-time permanent	13
Total Positions	13

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	80,974	1,528
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	2,030	53
11.7	Miltary personnel compenstation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	83,014	1,581
12	Civilian personnel benefits	25,096	27,376	30,375	30,833	458
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	328	234
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	13	13
23.1	Rental payments to GSA	5,439	5,457	5,590	5,712	122
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,269	3
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,178	45
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	20	20
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	526	28
31	Equipment	460	462	567	593	26
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	173,157	2,530

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	649	175,627	24	5,000
	FTE/OBL	594	170,627	612	175,627	18	5,000

Increase Facility Program Capacity (+$5,000, 18 FTE/24 Positions) – NOAA requests funds to build capacity within the Office of the Chief Administrative Officer (OCAO) to coordinate capital investment, sustainment, and deferred maintenance and repair (DM&R) activities supported by NOAA's Facilities Maintenance (ORF) and Construction (PAC) accounts. In addition, funds will support the Facilities Strategic Plan and other facility planning efforts. NOAA's facilities portfolio supports scientific programs throughout the United States ranging programmatically from climate, weather, ocean, and fisheries research and services, to operational facilities supporting multi-billion-dollar satellite programs and NOAA's ship and aircraft operations. NOAA values its inventory at over $3 billion. This increased capacity will provide support to address an increasing number of requests for capital investment projects and a growing backlog of DM&R projects. Additional staff will provide project definition and development of business cases, alternative analyses, and new project plans.

Additional staff are also needed to properly manage NOAA's facilities Asset Management Program, planning requirements including a thorough capture of requirements for project planning, the development of realistic cost estimates, and proper definition of project scope. OCAO must also maintain project oversight which includes review of designs/reports and monitoring construction work in progress. This program will also increase capacity within other divisions of OCAO such as audit and information support, real property management, and personal property and fleet management as NOAA implements the new Business Application System interface with Sunflower and other platforms starting in FY 2023.

OCAO is diligent about initiating activities cited in appropriations and deferred maintenance priorities, however, during COVID-19, project execution slowed due to staffing, supply chain shortages, and travel restriction issues. Significant project management and engineering expertise is needed to right-size NOAA's facility footprint, achieve NOAA's climate change goals, spur economic growth, create good paying jobs, and serve marginalized and overburdened communities. NOAA has a fiduciary responsibility for the stewardship of these assets to ensure the NOAA facility footprint aligns with NOAA mission needs in the most cost-effective manner.

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023-2027:

- Award design of Phase 3 SSMC Consolidation (Q1 FY 2023)
- Complete the Program of Requirements Seattle Region (Q1 FY 2023)
- Award Northeast Business Case Analysis (BCA) (Q1 FY 2023)
- Award of Seattle / Western Region Business Case Analysis (Q1 FYv2023)
- Preliminary planning for Seattle / Western Region Master Plan (Q2 FY 2023)
- Award Southeast Business Case Analysis (BCA) (Q2 FY 2023)
- Award Charleston Pier Design and Pre-Construction Services Contracts (Q4 FYv2023)
- Begin construction of Phase 3 SSMC Consolidation (Q4 FY 2023)

Deliverables:

- Annual process to update the National Strategic Facilities Plan
- Annual Prioritized Deferred Maintenance and Repair (DM&R) List
- Annual Prioritized List of Capital Investment Projects

Performance Measures	2023	2024	2025	2026	2027
Percentage of DM&R projects awarded throughout NOAA					
With Increase	80	80	80	80	80
Without Increase	65	65	65	65	65
Out-year Costs:					
Direct Obligations	5,000	5,000	5,000	5,000	5,000
Capitalized	0	0	0	0	0
Uncapitalized	5,000	5,000	5,000	5,000	5,000
Budget Authority	5,000	5,000	5,000	5,000	5,000
Outlays	3,100	3,100	3,100	3,100	3,100

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

FTE	18	24	24	24	24
Positions	24	24	24	24	24

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National Oceanic and Atmospheric Administration
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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Support and Management
Subactivity: Mission Support and Management
Program Change: Increase Facility Program Capacity

Title		Pay Band	Number	Annual Salary	Total Salaries
Management Analyst		ZA-IV	6	150,000	900,000
Realty Specialist		ZA-III	2	120,000	240,000
Financial Management Specialist		ZA-III	3	132,000	396,000
Logistics Management Specialist		ZA-III	3	125,000	375,000
Environmental Engineer		ZP-IV	3	147,000	441,000
Engineer		ZP-IV	4	157,000	628,000
Engineering Technician		ZP-III	3	132,000	396,000
Total			24		3,376,000
Less lapse	25.00%		(6)		(844,000)
Total full-time permanent (FTE)			18		2,532,000
2023 Pay Adjustment (4.6%)					116,472
					2,648,472

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	18
Total FTE	18
Authorized Positions:	
Full-time permanent	24
Total Positions	24

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	82,094	2,648
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.8	Special personnel services payments	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	84,081	2,648
12	Civilian personnel benefits	25,096	27,376	30,375	31,169	794
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,133	0
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	12,001	1,558
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	498	0
31	Equipment	460	462	567	567	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	175,627	5,000

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	625	172,027	0	1,400
	FTE/OBL	594	170,627	594	172,027	0	1,400

Implement a Budget Position Management System (+$1,400, 0 FTE/0 Positions) - NOAA's management of positions, labor costs, vacancies and lapse is critical to a well-managed organization and for the responsible shepherding of taxpayer dollars. NOAA does not have a system of record that tracks positions by budget line so reporting must be done through manual data calls to the Line and Staff Offices, and NOAA has struggled to validate the reported data. This lack of data integrity is an increasing enterprise risk, especially as NOAA transitions to an enterprise-model for both Talent Acquisition and the new Business Application System. Implementing a budget position management system will improve NOAA's ability to report the required data and be directly responsive to Congressional directives in recent years to improve NOAA's position management capabilities. The establishment of transparent linkage between positions and budget is a necessary component for oversight and interoperability to continuously improve the provision of human capital services, most importantly the hiring process, across NOAA. Finally, the implementation of such a system would also free Office of Human Capital Services HR specialists to focus on the broad range of human capital consultative services including workforce planning, precise development of budgets per personnel counts, and tailored career progression and succession planning. Ultimately, NOAA's lack of a budget position management system hinders its ability to develop, budget for, and execute a comprehensive human capital strategy and vision for the future of its workforce.

Schedule and Milestones:
FY 2023-2027:

- Establish and implement a streamlined, standardized process for collecting and reporting NOAA staffing and associated budget, filled and unfilled positions
- Identify recommendations to enable and maximize automation of the standardized process
- Maintain effective data quality and data cleanup activities for successful data management

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(Dollar amounts in thousands)

- Identify opportunities and methods to enhance communications, transparency and clarity regarding on-going reporting needs and coordination with the Enterprise-level service provider

Deliverables:

- Standardized process for collecting personnel data
- Accurate budget and organizational data across NOAA
- Integration between NOAA's HR and new financial systems
- Business Rules and Interagency Agreements
- Process for data collection, analyses, and cleanup in order to maintain data quality

Performance Measures	2023	2024	2025	2026	2027
Data Accuracy for Position and Organizational Codes (%)					
With Increase	90	92	94	96	100
Without Increase	80	80	80	80	80
Outyear Costs:					
Direct Obligations	1,400	1,400	1,400	1,400	1,400
Capitalized	1,400	1,400	1,400	1,400	1,400
Uncapitalized	0	0	0	0	0
Budget Authority	1,400	1,400	1,400	1,400	1,400
Outlays	868	868	868	868	868
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,446	0
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Miltary personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,433	0
12	Civilian personnel benefits	25,096	27,376	30,375	30,375	0
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilities	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	25,533	1,400
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	498	0
31	Equipment	460	462	567	567	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	172,027	1,400

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	625	171,527	0	900
	FTE/OBL	594	170,627	594	171,527	0	900

Equity Assessment and Implementation Support In Compliance with EO 13985 (+$900, 0 FTE/0 Positions) - EO 13985, Section 5 tasks Federal agencies to conduct Service Equity Assessments which are a review of selected high-priority programs for an assessment of whether underserved communities face systemic barriers to access benefits and opportunities available pursuant to those programs. The EO also asks agencies to produce a plan for addressing these barriers to ensure full and equal participation in the selected programs. With these requested funds, NOAA will expand the number of assessments of NOAA's programs and services and learn, through the statistical collection of evidence, which plans are effective in addressing barriers. In this way, it will be possible to quickly incorporate lessons learned and institutionalize an efficient strategy for equitable service delivery at NOAA.

The Performance, Risk and Social Science Office (PRSSO) will work with NOAA programs selected for the Service Equity Assessment to evaluate the barriers to equitable deployment of NOAA's services and employ strategies to overcome these barriers. These strategies will include evidence-based evaluations of processes and program outcomes and best practices from customer experience (CX) approaches, including service blueprinting and journey mapping. For example, large-scale weather, water, and climate events have caused a striking $1.875 trillion in economic damages since 1980, and they have disproportionately affected the lives of vulnerable populations. In many localities whose budgets have already been constrained by the pandemic, major storms have caused local revenues to fall by six to seven percent, with that figure two times larger for municipalities with a significant racial-minority population[1]. To counteract impacts such as this one, it is crucial that NOAA assess and improve the delivery of its programs to mitigate for increased adverse impacts for underserved communities.

[1] Jerch, R., Kahn, M.E., and Lin, G.C. (2021), *Local Public Finance Dynamics and Hurricane Shocks*. NBER Working Paper No. 28050, https://www.nber.org/papers/w28050.

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones:

FY 2023-2027:

- Create a database of underserved communities and equity barriers identified through the Service Equity Assessments
- Conduct up to three evaluations of plans to address barriers, or other assessments of service delivery of high-impact programs, in FY 2023-2024
- Develop a CX model focusing on underserved communities and apply it to selected high-impact programs:
    - Collect existing documentation about each program's mission, communities served, and operating model
    - Conduct interviews with selected communities to gain qualitative insights into the programs' service delivery models, customer experience, and pain points
    - Map communities/stakeholder landscape using existing documentation and interviews
    - Develop a community/stakeholder ecosystem map to facilitate Community Network Analysis based on existing data
    - Conduct Community Network Analysis to identify key relationships between communities and NOAA programs based on existing data
    - Conduct focus groups with employees and stakeholders from diverse underserved populations (e.g., rural, communities of color. tribal, etc.) to gain qualitative insights into service delivery models, customer experience, and pain points
- Conduct subsequent evaluations of the effectiveness of the CX model for integrating the information in the NOAA decision making process in FY 2023-2026

Deliverables:

- Database representing NOAA's services and alignment with underserved communities, and proposed barriers to access
- Action plans to address access barriers and reports on incorporating lessons learned into other NOAA programs
- CX model to inform future evaluations

Performance Measures	2023	2024	2025	2026	2027
Number of Plans to Address Equity Barriers ns of					
With Increase	2	2	2	2	2
Without Increase	0	0	0	0	0

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(Dollar amounts in thousands)

Number of High Impact Programs with Improved Delivery to Underserved Communities					
With Increase	1	2	2	2	2
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	900	900	900	900	900
Capitalized	0	0	0	0	0
Uncapitalized	900	900	900	900	900
Budget Authority	900	900	900	900	900
Outlays	558	558	558	558	558
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,446	0
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Miltary personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,433	0
12	Civilian personnel benefits	25,096	27,376	30,375	30,375	0
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,133	0
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	11,343	900
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	498	0
31	Equipment	460	462	567	567	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	171,527	900

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PROGRAM CHANGE PERSONNEL DETAIL

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	632	171,427	7	800
	FTE/OBL	594	170,627	599	171,427	5	800

NOAA Finance Transaction Processing (+$800, 5 FTE/7 Positions) - Additional funds will be used to support staff to ensure successful processing and appropriate oversight of financial transactions associated with the additional appropriated resources requested in the FY 2023 President's Budget.

NOAA Finance supports the NOAA mission by processing financial transactions such as payments to vendors, collections of fees, support of loan programs, and billing and payment of reimbursable agreements with partner agencies and the private sector. At the current level of funding, NOAA Finance typically processes over 100,000 invoices valued at approximately $1.7 billion. Invoices must be processed within 30 days of receipts or interest will accrue. Given the proposed increases in ORF and PAC funding (45 percent and 21 percent, respectively, over current year funding), the number of transactions are likely to increase significantly. Additional staff will improve NOAA's capacity to ensure timely processing of transactions and avoid interest penalties.

Additionally, financial oversight, reporting, and audit activities will be required to support this increased level of funding for NOAA. The significant increase in PAC funding directly translates to capitalized property which requires specialized financial policy support, oversight, and reporting. Additional staff will support the NOAA Finance Office in reviewing internal controls, supporting external audit requests and analysis, and providing financial policy guidance and reporting related to the increase in funding level.

While the Finance Office may not be carrying out NOAA's mission in the field, it directly supports those who do by ensuring the appropriate and timely financial transactions to make that work possible. This includes critical restoration and resilience priorities integral to the Administration's climate strategy.

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PROGRAM CHANGE PERSONNEL DETAIL

Schedule and Milestones:
FY 2023-2027:

- Hire and train additional staff

Deliverables:

- Financial transactions that are processed timely and accurately
- Policy and analysis related to additional capitalized assets
- Complete deliverables for financial statement audit
- Financial oversight of additional funding in internal control reviews

	2023	2024	2025	2026	2027
Outyear costs:					
Direct Obligations	800	800	800	800	800
Capitalized	0	0	0	0	0
Uncapitalized	800	800	800	800	800
Budget Authority	800	800	800	800	800
Outlays	496	496	496	496	496
FTE	5	7	7	7	7
Positions	7	7	7	7	7

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National Oceanic and Atmospheric Administration
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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: NOAA Finance Transaction Processing

Title		Grade	Number	Annual Salary	Total Salaries
Auditor		ZA-III	1	100,000	100,000
Accountant		ZA-II	1	80,000	80,000
Accountant		ZA-III	1	100,000	100,000
Financial Management Specialist		ZA-II	4	77,000	308,000
Total			7		588,000
Less lapse	25.00%		(2)		(147,000)
Total full-time permanent (FTE)			5		441,000
2023 Pay Adjustment (4.6%)					20,286
					461,286
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			5		
Total FTE			5		
Authorized Positions:					
Full-time permanent			7		
Total Positions			7		

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National Oceanic and Atmospheric Administration
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,907	461
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Military Personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,894	461
12	Civilian personnel benefits	25,096	27,376	30,375	30,513	138
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,299	166
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	512	14
31	Equipment	460	462	567	588	21
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	171,427	800

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National Oceanic and Atmospheric Administration
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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services	Pos./BA	625	170,627	629	173,927	4	3,300
and Management	FTE/OBL	594	170,627	597	173,927	3	3,300

NOAA Open Data Dissemination (+$3,300, 3 FTE/4 Positions) – Funds requested will evolve NOAA's proven, cost-effective Big Data Program into an Enterprise-wide Service, NOAA Open Data Dissemination (NODD). NODD will provide worldwide cloud access to all of NOAA's rapidly increasing open data, including climate data and other Earth System dynamics crucial to improve climate modeling. NODD allows for enhanced collaboration and creation of new business opportunities, while also aligning with Executive Order 14008 and supporting the advancement of environmental justice and improved local and community decision making by democratizing access to data. NODD also enables new access to NOAA data that was previously difficult to obtain, such as non-confidential, acoustical fisheries data archives that provide deep insight into the Nation's fisheries. Users access data outside the security boundary, which eliminates obstacles and improves access while avoiding future IT infrastructure costs and improving NOAA's cybersecurity posture.

NOAA has developed low cost, public-private partnerships with commercial cloud service providers (CSPs) that provide for a minimum of 15 petabytes in free storage; provide free public egress for all data from NODD or other Line Office (LO) storage contracts with the CSPs; allow for integration of NOAA data into existing cloud-based access and analytical tools and with other datasets on the CSP platforms; and provide a feasible dissemination model for other Federal agencies with open data. NOAA's Cooperative Institute for Satellite Earth System Studies in North Carolina serves as the Trusted Data Broker, coordinating secure data deliveries from NOAA to the CSPs; and researches, develops and implements technical solutions, data usage analytics, and User Engagement adoption efforts that provide a feedback loop on both dataset delivery and user needs. Full funding of this initiative will support new staff who can provide dedicated engagement, technical, and business coordination, Cooperative Institute grants, and contract funding to support LOs in quickly enabling solutions for open data requirements. Without requested funding, gaps in data availability will result in lost user confidence in NODD; CSPs are less likely to renew the contracts; dissemination costs will continue to erode mission investment; and users will continue the struggle to find and access NOAA's environmental, oceanographic, weather, and climate related data.

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Schedule and Milestones:
FY 2023-2027

- Complete NOAA Operational Model Archive & Distribution System (NOMADS) via NODD Pilot Phase II -- Sep 2023
- Award renewals of CSP (3) contracts (2nd Option year) -- (2) Sep 2023 & (1) Dec 2023
- Hire permanent NODD staff -- Oct 2022
- Continue advanced development and implementation of dashboards for real-time statistics -- Oct 2022
- Continue uploading data to NOAA CSP Allocations -- Oct 2022-Sep 2027

Deliverables:

- User or CSP requested datasets
- Targeted Climate datasets and related products to support EO 14008 and environmental justice
- CSP open dataset catalog information to enable NOAA public data discovery
- Statistics and metrics to monitor data set usage (volume, accession, etc.)
- Approaches to ensure end-to-end data integrity
- Backfill near real time cloud holdings with complete period of record holdings for select NOAA archive datasets
- Conversion to cloud optimized formats for select datasets
- Software to monitor data transfers, detect failures, determine mitigation, re-spawn processes as needed
- User Engagement activities with CSPs and LOs to encourage transition to NODD, provide insight into user needs

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Performance Measures	2023	2024	2025	2026	2027
Annual Percentage Increase in Datasets					
With Increase	10	20	20	30	30
Without Increase	1	1	1	1	1
Monitoring System Status Frequency					
With Increase	Weekly	Weekly	Weekly	Weekly	Weekly
Without Increase	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Outyear Costs:					
Direct Obligations	3,300	3,300	3,300	3,300	3,300
Capitalized	0	0	0	0	0
Uncapitalized	3,300	3,300	3,300	3,300	3,300
Budget Authority	3,300	3,300	3,300	3,300	3,300
Outlays	2,046	2,046	2,046	2,046	2,046
FTE	3	4	4	4	4
Positions	4	4	4	4	4

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Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: NOAA Open Data Dissemination

Title		Grade	Number	Annual Salary	Total Salaries
Strategy and Engagement Director		ZP-V	1	172,500	172,500
Technical Innovation Director		ZA-V	1	172,500	172,500
Program Manager		ZP-IV	1	168,987	168,987
Communications Lead		ZA-IV	1	168,987	168,987
					0
Total			4		682,974
Less lapse	25.00%		(1)		(170,744)
Total full-time permanent (FTE)			3		512,231
2023 Pay Adjustment (4.6%)					23,563
					535,793

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	3
Total FTE	3
Authorized Positions:	
Full-time permanent	4
Total Positions	4

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,982	536
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Military personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,969	536
12	Civilian personnel benefits	25,096	27,376	30,375	30,536	161
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	244	150
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	25,351	1,218
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	512	14
31	Equipment	460	462	567	588	21
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	1,259	1,200
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	173,927	3,300

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	626	173,127	1	2,500
	FTE/OBL	594	170,627	595	173,127	1	2,500

NOAA Cloud Program (+$2,500, 1 FTE/1 Positions) – This request establishes a NOAA Enterprise Cloud Program Office to streamline and accelerate the transition of NOAA mission areas to the cloud and access to innovative cloud inherent technologies. The program will deliver comprehensive multi-cloud services, avoiding the need for duplication of effort across NOAA in the following areas: acquisition support, networking, cybersecurity, authentication services, cloud subject matter expertise, and customer advocacy. The program will provide coordination for multi-cloud services through a dedicated project manager that will facilitate cloud onboarding. The program will bring in expertise from the NOAA Open Data Dissemination (the evolution of NOAA's Big Data Program) and High Performance Computing Program, and cloud architects. The program will ensure comprehensive security and networking to deliver a complete solution that meets customer requirements. Through the utilization of innovative cloud technologies, NOAA's Enterprise Cloud Program further promotes the national priorities of Data Democratization, Climate Science and Quality of Science, Technology & Data Integrity.

Schedule and Milestones:
FY 2023-2027:

- Establish Security Boundary for cloud services
- Update NOAA Cloud Committee Terms of Reference
- Develop Cloud Service Portal (Intranet)
- Transition Cloud Service Desk to ServiceNow
- Update Enterprise Cloud Standard Operating Procedures
- Implement mandatory controls for major providers
- Authentication service implementation for major providers
- Cloud Onboarding Process in ServiceNow
- Cloud Concept of Operations review and update

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

- Develop a NOAA Cloud Workshop

Deliverables:

- Dashboard for customers to track cloud onboarding requests
- Establish a cloud test environment with security guardrails for R&D
- Architectural model for delivering network, authentication, security and billing for cloud services
- Governance structure for delivering the shared services of network, billing/contracts, authentication services and IT security
- Cloud portal to disseminate information

Performance Measures	2023	2024	2025	2026	2027
Cloud Infrastructure as a Service Onboarding Time (Avg)					
With Increase	90 days	60 days	60 days	60 days	60 days
Without Increase	180 days	180 days	180 days	180 days	180 days
Software as a Service Approval Time (Avg)					
With Increase	60 days	45 days	45 days	45 days	45 days
Without Increase	240 days	240 days	240 days	240 days	240 days
Customer Experience					
With Increase	75%	80%	85%	85%	85%
Without Increase	0%	0%	0%	0%	0%
User Engagement with NOAA LOs & Cloud Service Providers					
With Increase	8	12	16	20	20

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Without Increase	1	1	1	1	1
Outyear Costs:					
Direct Obligations	2,500	2,500	2,500	2,500	2,500
Capitalized	0	0	0	0	0
Uncapitalized	2,500	2,500	2,500	2,500	2,500
Budget Authority	2,500	2,500	2,500	2,500	2,500
Outlays	1,550	1,550	1,550	1,550	1,550
FTE	1	1	1	1	1
Positions	1	1	1	1	1

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: NOAA Cloud Program

Title		Grade	Number	Annual Salary	Total Salaries
Program Manager		ZP-IV	1	168,987	168,987
					0
					0
Total			1		168,987
Less lapse	25.00%		(0)		(42,247)
Total full-time permanent (FTE)			1		126,740
2023 Pay Adjustment (4.6%)					5,830
					132,570
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			1		
Total FTE			1		
Authorized Positions:					
Full-time permanent			1		
Total Positions			1		

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Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,579	133
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Military personnel compsation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,566	133
12	Civilian personnel benefits	25,096	27,376	30,375	30,415	40
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	26,460	2,327
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	498	0
31	Equipment	460	462	567	567	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	173,127	2,500

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	627	172,397	2	1,770
	FTE/OBL	594	170,627	596	172,397	2	1,770

Enterprise Infrastructure Solution (EIS) (+$1,770, 2 FTE/2 Positions) – This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

The funds specifically requested here for CIO will also enable the NOAA Enterprise Network Program Office (ENPO) to provide two dedicated staff and an enterprise management tool to support common ordering, invoicing, and inventory management to facilitate effective management of the telecommunications contracts and services throughout the lifecycle GSA estimates this approach results in approximately five percent of administrative cost avoidance each year.

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023-2027:

- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NOAA's current and planned needs
- Transition 100 percent NOAA Legacy GSA inventory to EIS

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Transition of NOAA Telecommunication services to GSA's EIS					
With Increase	35%	60%	80%	100%	0%
Without Increase	20%	45%	55%	65%	75%
Outyear Costs:					
Direct Obligations	1,770	1,770	1,770	1,770	1,770
Capitalized	0	0	0	0	0
Uncapitalized	1,770	1,770	1,770	1,770	1,770
Budget Authority	1,770	1,770	1,770	1,770	1,770
Outlays	1,097	1,097	1,097	1,097	1,097
FTE	2	2	2	2	2
Positions	2	2	2	2	2

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: Enterprise Infrastructure Solution (EIS)

Title		Grade	Number	Annual Salary	Total Salaries
Management and Program Analyst		ZP-03	2	114,498	228,996
Total			2		228,996
Less lapse	25.00%		(1)		(57,249)
Total full-time permanent (FTE)			1		171,747
2023 Pay Adjustment (4.6%)					7,900
					179,647
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			1		
Total FTE			1		
Authorized Positions:					
Full-time permanent			2		
Total Positions			2		

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Enacted	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,626	180
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Miltary personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,613	180
12	Civilian personnel benefits	25,096	27,376	30,375	30,429	54
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	2,802	1,536
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,133	0
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	498	0
31	Equipment	460	462	567	567	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	172,397	1,770

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	627	171,127	2	500
	FTE/OBL	594	170,627	596	171,127	2	500

Spectrum (+$500, 2 FTE/2 Positions) – This request will improve the capacity of the agency's radio-frequency spectrum management services. With these funds NOAA will have the ability to effectively manage its access to this vital resource, protect mission capabilities that rely on it, and provide data and analyses that inform spectrum sharing initiatives to support wireless broadband that will benefit underserved communities across the Nation. Radio spectrum is a finite resource used by NOAA and by the private sector for commerce. NOAA's workload is increasingly driven by demand for radio spectrum by commercial and government operations, and has far outpaced NOAA spectrum management staffing and support resources. NOAA's leadership in climate sciences is highly dependent on radio-frequency spectrum to enable its operational systems for observations and communication.

The request will provide the funding and HR to perform engineering studies and radio interference modeling to increase the potential for successful spectrum sharing. Effective management and administration of the agency's radio spectrum needs requires: increased participation in domestic and international fora for spectrum regulations; greater engagement in policy making and decisions impacting the agency's mission services; complex technical studies to inform the establishment of regulatory protections for spectrum-dependent systems and foster more efficient use of radio spectrum resources; coordination of our incumbent services with new operators, including other Federal agencies; radio spectrum monitoring in reallocated bands that are susceptible to interference; and increasing management of mitigating actions to resolve radio interference events in more congested frequency bands.

Schedule and Milestones:
FY 2023-2027:

- Establish organization positions and functions
- Establish engineering analysis capability

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Deliverables:

- Database to support spectrum management of NOAA's spectrum dependent systems
- Interdepartmental Radio Advisory Committee and Sub-committee actions reviewed, analyzed and acted upon in a timely manner in the best interests of the agency
- Protection of access to spectrum and new spectrum as needed for NOAA operations via active participation in the International Telecommunications Union - Radiocommunication
- Improved representation at quadrennial, international World Radio Conference meetings to establish protections for new and incumbent operational systems
- Radio interference events are tracked and the time to resolve them is reduced.

Performance Measures	2023	2024	2025	2026	2027
Spectrum Policy Engagements with Regulators and External Partners					
With Increase	1	2	3	3	3
Without Increase	1	1	1	1	1
Concurrent Participation in World Radio Conference Meetings for Commerce/NOAA-related Agenda Items					
With Increase	4	5	6	6	6
Without Increase	4	4	4	4	4
Outyear Costs:					
Direct Obligations	500	500	500	500	500
Capitalized	0	0	0	0	0
Uncapitalized	500	500	500	500	500
Budget Authority	500	500	500	500	500
Outlays	310	310	310	310	310
FTE	2	2	2	2	2

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(Dollar amounts in thousands)

Positions	2	2	2	2	2

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: Spectrum

		0	0	0
Total		2		337,974
Less lapse	25.00%	(1)		(84,494)
Total full-time permanent (FTE)		1		253,481
2023 Pay Adjustment (4.6%)				11,660
				265,141

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	1
Total FTE	1
Authorized Positions:	
Full-time permanent	2
Total Positions	2

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,711	265
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Military personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,698	265
12	Civilian personnel benefits	25,096	27,376	30,375	30,455	80
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,288	155
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	498	0
31	Equipment	460	462	567	567	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	171,127	500

Department of Commerce
National Oceanic and Atmospheric Administration
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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	625	171,027	0	400
	FTE/OBL	594	170,627	594	171,027	0	400

Strengthen Diversity in NOAA IT (+$400, 0 FTE/0 Positions) – In coordination with the Office of Human Capital Services (OHCS), the Office of the Chief Information Officer (OCIO) will expand on an IT Fellowship Program to move NOAA forward in developing a high-quality, diverse, entry-level Information Technology (IT) workforce. OCIO will leverage partnerships with minority-serving institutions and public-private partnerships, such as the Partnership for Public Service Cybersecurity Talent Initiative to attract, recruit, develop and retain highly skilled IT professionals at entry-grade levels. The funds will provide for a contracted IT Fellowship Program manager and support to administer the program. Demand for IT professionals is high nationwide and especially in the National Capital Region. In order to compete with the private sector and other government agencies NOAA must expand the opportunities it provides to promising candidates, including IT professionals of color.

The IT Fellowship Program leverages existing hiring authorities (Pathways, Recent Graduate Programs, Schedule A(r)) to recruit undergraduate and graduate-level college students and recent graduates of IT and cybersecurity disciplines to join NOAA as Federal employees. The Program provides opportunities to gain early career job skills and professional experience with the Federal government. Students return to the classroom with “real world” learning experience and an ongoing relationship with NOAA to collaborate on development of use cases for classroom instruction. NOAA will infuse new, diverse talent into its workforce to fill existing vacancies and address succession planning challenges. This approach introduces IT Fellows to support NOAA’s unique mission, provides group training and mentoring opportunities, and creates connections to peers and IT leaders in NOAA.

The IT Fellowship Program will address objectives in the NOAA Information Resource Management Strategy (2021-2025) and the IT Workforce Strategic Plan (2018-2023) to establish a pipeline to infuse new talent within the current NOAA workforce while focusing on Diversity and Inclusion.

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Schedule and Milestones:
FY 2023 – 2027:

- In coordination with OHCS, send out Data Call to all Hiring Officials within NOAA
- Open recruiting case with OHCS for each hiring authority at all three bands (four total)
- Annual IT Fellowship Program execution briefing to the CIO Council to review goals, objectives, targets and performance relative to the NOAA Information Resource Management Strategy and IT Workforce Strategic Plan.
- Data call sent via OHCS to all Hiring Officials prior to engaging Line/Staff Offices with the IT Fellowship Program
- Development of Smartsheet dashboard and reports to track data call results, status of candidate recruiting and onboarding, and program performance measures
- Kick-off New Cohort

Deliverables:

- SOP for IT Fellowship – Interns, Recent Graduates, and Partnership for Public Service Cybersecurity Talent Initiative
- Smartsheet dashboard and reports
- Onboarding schedule
- Training plan for IT Fellowship Program participants
- Recruiting material for virtual or in-person recruiting events for the IT Fellowship Program

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of IT Fellows in the Program					
With Increase	12	15	20	20	25
Without Increase	8	10	10	10	10
Outyear Costs:					
Direct Obligations	400	400	400	400	400
Capitalized	0	0	0	0	0
Uncapitalized	400	400	400	400	400
Budget Authority	400	400	400	400	400
Outlays	248	248	248	248	248
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,446	0
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.8	Special personnel services payments	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,433	0
12	Civilian personnel benefits	25,096	27,376	30,375	30,375	0
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,533	400
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	498	0
31	Equipment	460	462	567	567	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	171,027	400

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	626	172,127	1	1,500
	FTE/OBL	594	170,627	595	172,127	1	1,500

NOAA Recruiting Program ($1,500, 1 FTE/1 Position) – This request will enable the Office of Human Capital Services (OHCS) to develop and execute a NOAA-wide recruiting program. It will provide our internal recruitment consultants with tools and processes to optimally inform and partner with front line supervisors to satisfy diverse recruitment needs and significantly expand NOAA outreach work. This program will derive major inputs from ongoing initiatives throughout the organization specifically focused on recruiting top minority and underserved community candidates with STEM educations and professional backgrounds. Additionally, it will significantly enhance NOAA recruiting by employing the results of ongoing workforce and succession planning efforts. This program will improve entry level hiring outreach and create a student-in-residence program to engage and employ students on a part time basis year round to assist with recruiting efforts on the campuses of targeted MSIs.

This request is integral to market NOAA through formal partnerships by branding, building, and expanding upon NOAA's name and mission with MSIs (i.e. Tribal Colleges, Historically Black Colleges and Universities, Hispanic Servicing Institutions, etc.) and targeted communities as we continue to enhance long term commitments to sponsor partnerships (i.e. with League of United Latin American Citizens, Society of Advancement of Chicanos/Hispanics and Native Americans in Science, National Association for the Advancement of Colored People, United Negro College Fund, Hispanic Association of Colleges and Universities, etc.). NOAA will become a more widely known preferred employer in all science environments, thereby expanding upon opportunities to recruit top talent from diverse backgrounds into the organization.

Nearly 40 percent of NOAA's science workforce is projected to be eligible to retire in the next five years. Therefore, we need more efficient and effective tools to position NOAA as a diverse, world-premiere organization. This initiative will also provide a single online portal that presents various NOAA internship programs as well as links to advertised internship opportunities on USAJobs to potential interns, entry

level job candidates, and supervisors/managers. This recruitment program will work closely with the Office of the Chief Information Officer (OCIO) to staff their IT Fellowship program with candidates from minority serving institutes.

Schedule and Milestones:
FY 2023-2027:

- Conduct virtual and in-person hiring fairs
- Develop an automated database of candidates that can be data-mined (e.g. by occupation or eligibility for special hiring authority) to enable quick identification of potential hires
- Employ results of the workforce analysis to identify specific skill needs and respective diverse recruiting audiences
- Employ our consultative services efforts to approach candidates who are not familiar with NOAA and capture their interest for current and future recruitment
- Craft the NOAA Recruiting Program, engaging our Employee Resource Groups, the NOAA Office of Education, and LO/SOs to address priorities and future requirements
- Partner with OICR to execute NOAA's diversity and inclusion recruitment initiatives to improve NOAA's standing as a best place to work in government
- Develop and deploy tailored support for interns including mentoring and professional development

Deliverables:

- NOAA-wide recruiting program supported by tools and processes to identify, target and engage specific skilled diverse audiences through multiple avenues, including substantial expansion of the use of social media
- Web-based solution that delivers a central clearing house of information on our internships and open entry-level job opportunities, with a focus on increasing the ease of applying for internship opportunities, marketing NOAA more extensively, and ensuring we outreach/recruit/hire individuals from diverse backgrounds
- A student in residence program to recruit undergraduate and recent graduates into NOAA positions
- Hiring metrics that will enhance skill to position requirements for each Line and Staff Office
- Database of candidates with STEM backgrounds

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Performance Measures	2023	2024	2025	2026	2027
Targeted Recruitment Outreach Events					
With Increase	3	5	10	15	15
Without Increase	2	2	2	2	2
Student In Residence Participants					
With Increase	2	5	10	10	10
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	1,500	1,500	1,500	1,500	1,500
Capitalized	0	0	0	0	0
Uncapitalized	1,500	1,500	1,500	1,500	1,500
Budget Authority	1,500	1,500	1,500	1,500	1,500
Outlays	930	930	930	930	930
FTE	1	1	1	1	1
Positions	1	1	1	1	1

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: NOAA Recruiting Program

Title		Grade	Number	Annual Salary	Total Salaries
HR Specialist		ZA-IV	1	159,000	159,000
Total			1		159,000
Less lapse	25.00%		(0)		(39,750)
Total full-time permanent (FTE)			1		119,250
2023 Pay Adjustment (4.6%)					5,486
					124,736
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			1		
Total FTE			1		
Authorized Positions:					
Full-time permanent			1		
Total Positions			1		

Exhibit 15

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,571	125
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,980	3
11.7	Military personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,561	128
12	Civilian personnel benefits	25,096	27,376	30,375	30,413	38
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	119	25
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,224	0
25.2	Other services from non-Federal sources	30,080	19,928	24,133	25,407	1,274
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	518	20
31	Equipment	460	462	567	582	15
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	172,127	1,500

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	626	171,227	1	600
	FTE/OBL	594	170,627	595	171,227	1	600

NOAA Facilitation Network (+$600, 1 FTE/1 Position) – This request will formalize and manage a NOAA Facilitation Network, an internal, cross-line office effort to develop organizational excellence by promoting more inclusive, productive and efficient meetings, planning sessions and training workshops. The Network will accomplish this by training, certifying and employing a diverse group of NOAA employees who will serve as professional meeting facilitators. NOAA is capitalizing on recent years' success of volunteers who offered ad hoc facilitation services and found NOAA organizations to be an eager audience.

Many other Federal government agencies provide certified facilitation services with great success. Facilitation by a neutral third-party has been proven to be an effective way to manage and streamline meetings, amicably resolve workplace conflicts, empower teams to operate at their full creative potential, and promote dynamic group processes to maximize outcomes. Organizations who employ certified facilitators consistently report that they have learned to work smarter, better and faster while building significant rapport among all types of teams. An in-house cadre of facilitators will serve NOAA in the same way by providing process expertise, improving meeting outcomes, and reducing the cost and need for contracted services.

This Network will build on the success of an ad hoc program pilot that has facilitated over 100 events at a cost savings of $450 thousand compared to an external vendor over the past several years. The former ad hoc effort will be replaced by one program manager who will organize existing certified facilitators and provide immediate services to NOAA organizations while managing the recruitment, training and qualification of new facilitators. Formalizing the program will increase its visibility and meet the demand for facilitation services expressed by Line and Staff Offices. Collectively, the Network will facilitate meetings, discussions and working groups based on proven principles and practices. Facilitation Network topics will include: Strategy Planning, Action Planning, Issue Mapping, Process Mapping, Problem Solving, Conflict Resolution, Project Planning, Organizational Change, Business Re-engineering, Regulatory/Policy Development, Innovation/Creativity Sessions and Senior Management Meetings.

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(Dollar amounts in thousands)

The Network will provide facilitators who are geographically distributed thereby providing trained personnel who understand local work environments and the many sub-cultures that affect NOAA operations. A distributed network will also moderate costs of required travel while increasing availability of facilitators to users.

Schedule and Milestones:
FY 2023-2027:

- Establish a Facilitation Program Manager.
- Build a cadre of facilitators from those currently qualified and recruit and train new personnel
- Train the first new NOAA cohort using a contract vendor. Build the cohort to a project total of approximately 50 participants by the end of FY 2023
- Develop a Facilitation Community of Practice to promote standardization of service, share best practices, and refine continual learning opportunities for the facilitators
- Market the capability to all NOAA organizations while offering readily available facilitation services. Develop internal training course to train NOAA staff in FY 2023 (train the trainer approach) and provide an additional 50 facilitators during FY 2023

Deliverables:

- Certified facilitators geographically dispersed and representing all of NOAA's diverse and inclusive population
- Facilitation services to NOAA

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Number of facilitations completed					
With Increase	50	100	125	150	175
Without Increase	0	0	0	0	0
Number of facilitators officially certified					
With Increase	15	30	40	40	40
Without Increase	1	1	1	1	1
Outyear Costs:					
Direct Obligations	600	600	600	600	600
Capitalized	0	0	0	0	0
Uncapitalized	600	600	600	600	600
Budget Authority	600	600	600	600	600
Outlays	372	372	372	372	372
FTE	1	1	1	1	1
Positions	1	1	1	1	1

Department of Commerce
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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: NOAA Facilitation Network

Title		Grade	Number	Annual Salary	Total Salaries
HR Specialist		ZA-IV	1	159,000	159,000
Total			1		159,000
Less lapse	25.00%		(0)		(39,750)
Total full-time permanent (FTE)			1		119,250
2023 Pay Adjustment (4.6%)					5,486
					124,736
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			1		
Total FTE			1		
Authorized Positions:					
Full-time permanent			1		
Total Positions			1		

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National Oceanic and Atmospheric Administration
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,571	125
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,980	3
11.7	Military personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,561	128
12	Civilian personnel benefits	25,096	27,376	30,375	30,413	38
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	97	3
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,598	8
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	15,644	420
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,133	0
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	499	1
31	Equipment	460	462	567	569	2
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	171,227	600

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	631	173,527	6	2,900
	FTE/OBL	594	170,627	599	173,527	5	2,900

Accelerate NOAA's Diversity and Inclusion Plan (+$2,900, 5 FTE/6 Positions) – In 2020, during a time of civil unrest within our Nation, there was been an urgent call to promote diversity, equity, and inclusion (DEI). In response, government agencies have increased efforts to affirm their support of these initiatives. the Biden administration has placed even greater emphasis on DEI. To that regard, several Executive Orders have been published to hold Federal agencies accountable and to document progress (or lack thereof) of DEI initiatives. Historically, NOAA's Office of Civil Rights primarily performed Equal Employment Opportunity (EEO) functions mandated by U.S. laws and the EEO Commission. The office recently transited to the Office of Inclusion and Civil Rights (OICR) to include affirmative employment and DEI programs. NOAA requests additional funds to fully implement its Diversity and Inclusion (D&I) Plan.

Additional resources will also enable NOAA to comply with the provisions of EO 13985, Advancing Racial Equity and Support for Underrepresented Communities Through the Federal Government. EO 13985 calls for agencies to pursue a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality. Agencies are required to assess current programs and policies which perpetuate systemic barriers to opportunities and benefits for people of color and other underserved populations. Training and outreach resources are required for staff, supervisors and leaders. Tools will be developed to track progress and measure DEI outcomes.

Statistics show that between 2010 and 2019, changes within NOAA's workforce demographics have been minimal. NOAA needs to increase efforts to attract, recruit, hire, and retain a diverse workforce. Underrepresentation of women and minorities continues to be an area of great concern. NOAA's vision for diversity and inclusion is one where NOAA leverages diversity to achieve mission goals and business objectives and maximizes the potential of individuals and the organization. The investment in additional personnel within OICR will make NOAA's DEI vision a reality.

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Schedule and Milestones:
FY 2023-2027:

- DEI data collection
- Extensive barrier analysis to identify and affirm root causes of under representation
- Develop DEI training resources for leaders and workforce
- Enhance targeted outreach to attract underrepresented populations
- Acquire additional IT Support
- Enhance virtual training platform to accommodate larger volume of participants
- Develop tools to track progress and measure DEI outcomes
- Expand efforts to market NOAA as an “Employer of Choice”
- Develop DEI training for Managers, Supervisors, and workforce
- Develop DEI Incentive Award Program
- On-going evaluation of DEI initiatives; suggested revisions as deemed necessary

Deliverables:

- DEI organizational assessment Report of Findings
- D&I Accomplishments Incentive Award Program
- EEO Library for facilitated and/or self-study DEI training
- DEI Dashboard to monitor and report progress
- DEI training agency-wide for leaders and workforce
- Increased numbers of underrepresented populations within the workforce
- A diverse workforce and a culture of inclusion within NOAA

Performance Measures	2023	2024	2025	2026	2027
Number of D&I Goals and Objectives Achieved					
With Increase	50	60	70	80	90
Without Increase	20	30	35	45	50

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	2023	2024	2025	2026	2027
Percent of Workforce Trained					
With Increase	40	90	90	90	90
Without Increase	25	40	90	90	90
Outyear Costs:					
Direct Obligations	2,900	2,900	2,900	2,900	2,900
Capitalized	0	0	0	0	0
Uncapitalized	2,900	2,900	2,900	2,900	2,900
Budget Authority	2,900	2,900	2,900	2,900	2,900
Outlays	1,798	1,798	1,798	1,798	1,798
FTE	5	6	6	6	6
Positions	6	6	6	6	6

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: Accelerate NOAA's Diversity and Inclusion Plan

Title		Grade	Number	Annual Salary	Total Salaries
Chief Diversity Officer		ZA-IV	1	140,000	140,000
Special Emphasis Program Manager		ZA-IV	1	140,000	140,000
Statistician		ZA-IV	1	140,000	140,000
Social Scientist		ZA-IV	1	140,000	140,000
EEO Specialist		ZA-IV	1	140,000	140,000
Administrative Specialist		ZS-III	1	90,000	90,000
Total			6		790,000
Less lapse	25.00%		(1)		(197,500)
Total full-time permanent (FTE)			5		592,500
2023 Pay Adjustment (4.6%)					27,255
					619,755

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	5
Total FTE	5
Authorized Positions:	
Full-time permanent	6
Total Positions	6

Exhibit 15

Department of Commerce
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Enacted	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	80,066	620
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Military personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	82,053	620
12	Civilian personnel benefits	25,096	27,376	30,375	30,561	186
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	94	0
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,266	0
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	17,315	2,091
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,133	0
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	499	1
31	Equipment	460	462	567	569	2
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	173,527	2,900

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Mission Services and Management	Pos./BA	625	170,627	628	172,319	3	1,692
	FTE/OBL	594	170,627	596	172,319	2	1,692

Workplace Violence Prevention and Response Program – Racial Equity/Wellness (+$1,692, 2 FTE/3 Positions) – The Workplace Violence Prevention and Response Program (WVPRP) develops comprehensive, trauma-informed support services for victims of sexual assault and sexual harassment (SASH) for all NOAA employees, contractors, and affiliates. WVPRP tracks incidents and cases of workplace violence, and coordinates the annual congressional report, provides ongoing consultation to leadership, and coordinates the development of the workplace violence prevention plan which creates goals to be reviewed biannually.

WVPRP requests funds to establish three full-time positions, and procure contract services. Increased staffing will support program evaluations such as needs assessments, and gap analyses for both NOAA and WVPRP ensuring culturally competent victim services, social justice, and racial equity. WVPRP will co-lead the implementation of E.O. 13985, including achieving the Order's Section 8 goals of strengthening engagement of underserved communities, by embedding "community liaisons" strategically in selected NOAA programs to build more meaningful coordination. WVPRP will also be able to expand services specifically for Alaska, the highest risk area in NOAA. An Alaska program coordinator will provide SASH victim services for the entire Alaska region, recruit and train victim advocate liaisons, and assist in prevention efforts and initiatives. Through contract services WVPRP continue to work, and collaborate with offices that are enforcing Executive Order 14035 *Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce*; Section 3, Government-Wide Diversity, Equity, Inclusion, and Accessibility Initiative and Strategic Plan. WVPRP will also serve those impacted persons (IP) through developing an Evaluation & Tracking Database to provide an experience management (XM) platform that allows the WVPRP to capture the employee experience as well as assess the development and impact of the Volunteer Advocacy Liaisons (VAL) Program. Lastly, WVPRP will be able to conduct local wellness activities quarterly, implementing a NOAA wellness strategy to improve a safe and healthy work environment based on the results of NOAA's first-of-its-kind "We Are NOAA" workplace culture survey. The unfortunate reality is that mental health and substance abuse are on the rise nationally due to COVID-19, with repercussions sure to last. With WVPRP support, NOAA will proactively enhance its Wellness activities regionally as Wellness has been shown in recent studies to enhance productivity by addressing employees' emotional well-being directly.

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Schedule and Milestones:
FY 2023 – 2027:

- Increase prevention services with computer-based training and in-person bystander intervention, development of resiliency training
- Maintain service contracts to include a dedicated hotline/helpline for SASH response services through RAINN; training and credentialing for the Volunteer Advocacy Liaisons (VAL); and maintaining a secured workplace violence database
- Develop tool kits for employees and management, outreach materials
- Expand the program to include a social scientist, a technical writer/editor, and regional coordinator specifically for Alaska
- Develop methods to address intersectionality, racial equity, and mission related needs
- Increase response services spanning across all of NOAA's regions
- Develop and maintain a workplace violence prevention website
- Participate in the National Academies of Science Action Collaborative

Deliverables:

- Expanded workplace violence database
- Response services spanning across all of NOAA's regions
- Program evaluations for culturally competent services
- Victim advocate response satisfaction survey
- Mandate NOAA-wide discrimination and harassment training
- SASH/workplace violence training satisfaction survey
- Biannual workplace violence attitudes survey
- Expanded toolkits for employee and management
- Wellness Newsletter and quarterly wellness activities

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Performance Measures	2023	2024	2025	2026	2027
Percent of workforce trained					
With Increase	100	100	100	100	100
Without Increase	90	90	90	90	90
Outyear Costs:					
Direct Obligations	1,692	1,692	1,692	1,692	1,692
Capitalized	0	0	0	0	0
Uncapitalized	1,692	1,692	1,692	1,692	1,692
Budget Authority	1,692	1,692	1,692	1,692	1,692
Outlays	1,049	1,049	1,049	1,049	1,049
FTE	2	3	3	3	3
Positions	3	3	3	3	3

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Mission Services and Management
Subactivity: Mission Services and Management
Program Change: Workplace Violence Prevention and Response Program

Title		Grade	Number	Annual Salary	Total Salaries
Communications: Writer/Editor		ZA-III	1	124,212	124,212
Social Scientist		ZA-IV	1	151,352	151,352
Alaska Program Coordinator		ZP-IV	1	151,352	151,352
Total			3		426,916
Less lapse	25.00%		(1)		(106,729)
Total full-time permanent (FTE)			2		320,187
2023 Pay Adjustment (4.6%)					14,729
					334,916

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	2
Total FTE	2
Authorized Positions:	
Full-time permanent	3
Total Positions	3

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Mission Services and Management
Subactivity: Mission Services and Management

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	69,159	75,442	79,446	79,781	335
11.3	Other than full-time permanent	10	10	10	10	0
11.5	Other personnel compensation	1,978	1,978	1,977	1,977	0
11.7	Military personnel compensation	659	661	0	0	0
11.9	Total personnel compensation	71,806	78,091	81,433	81,768	335
12	Civilian personnel benefits	25,096	27,376	30,375	30,476	101
13	Benefits for former personnel	35	35	35	35	0
21	Travel and transportation of persons	94	94	94	104	10
22	Transportation of things	161	162	169	169	0
23	Rent, communications, and utilitites	0	0	0	10	10
23.1	Rental payments to GSA	5,439	5,457	5,590	5,590	0
23.2	Rental Payments to others	662	664	664	664	0
23.3	Communications, utilities and misc charges	667	669	1,266	1,269	3
24	Printing and reproduction	61	61	69	69	0
25.1	Advisory and assistance services	20,057	15,124	15,224	16,447	1,223
25.2	Other services from non-Federal sources	30,080	19,928	24,133	24,143	10
25.3	Other goods and services from Federal sources	8,841	7,339	10,443	10,443	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	469	471	498	498	0
31	Equipment	460	462	567	567	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	59	59	59	59	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	8	8	8	8	0
44	Refunds	0	0	0	0	0
99	Total obligations	163,995	156,000	170,627	172,319	1,692

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		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Office of Space Commerce (OSC)	Pos./BA	20	10,000	35	87,700	15	77,700
	FTE/OBL	16	10,000	27	87,700	11	77,700

Office of Space Commerce (+$77,700, 11 FTE/15 Positions) - NOAA requests an increase for the Office of Space Commerce (OSC) program to support the development of a space situational awareness (SSA) capability informed by Space Policy Directive-3. This includes supporting partnerships between the Department of Defense (DOD) and other Federal agencies, and commercial industry to share SSA information through an Open Architecture Data Repository (OADR). The additional funding reflects the importance the Administration places on the SSA mission and will support NOAA's efforts to accelerate the development of the OADR from a pilot demonstration to an initial operating capability no later than FY 2024, with full operational capability expected by FY 2025. A substantial portion of the increase will be used to provide cloud services to host the OADR and deliver SSA products and services, procure commercial data, services and infrastructure to populate the OADR, and build out the proving ground, or test area, for use by government, industry and academia to innovate. With significant increases in commercial launches, operations, and manned spaceflight, the OADR is being developed to manage a future environment which is expected to comprise 57,000 new satellites in orbit by the year 2030. As of 2022, there are approximately 6,100 satellites on orbit, roughly 1,000 of which launched in 2021.

OSC requires additional funding to meet the objectives in the National Space Policy Directives to begin the transition of SSA services from DOD. Currently, the DOD tracks tens of thousands of space objects and the number is steadily rising. The prototype of the cloud-based OADR has been tested against 20,000 space objects in collaboration with DOD, NASA and the commercial sector, and it offers an interactive platform for academia, government and industry to innovate and promote new services.

DOD will maintain the authoritative space object catalog during this period, and will continue its focus on national security. OSC will build on the success of the OADR prototype demonstrated in 2022, and leverage the availability of commercial data to better manage understanding of the space operating environment through improved coverage and accuracy.

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Schedule and Milestones:
FY 2023 – FY 2027:

- Continue to support SSA through assessments, advanced analytics developments, and end-to-end functional demonstrations
- Further develop SSA OADR capabilities in preparation for transition to operations
- Develop an operational OADR proving ground
- Negotiate data sharing agreements with commercial and international operators and organizations
- Continue hiring processes to increase full-time staff

Deliverables:

- Award contract for OADR/SSA to cloud service provider in FY 2023
- Procure commercial data to populate the OADR in FY 2023
- OADR Initial Operational Capability in FY 2024
- OADR Full Operational Capability in FY 2025

Performance Measures	2023	2024	2025	2026	2027
Milestones achieved towards establishment of space situational awareness (SSA) services for civil and commercial stakeholders					
With Increase	50%	75%	100%	100%	100%
Without Increase	40%	40%	40%	40%	40%
Outyear Costs:					
Direct Obligations	77,700	77,700	77,700	77,700	77,700
Capitalized	0	0	0	0	0
Uncapitalized	77,700	77,700	77,700	77,700	77,700
Budget Authority[2]	77,700	77,700	77,700	77,700	77,700

[2] NOAA's budget presentation reflects outyear estimates that remain constant, however NOAA is developing estimated program requirements that will be reflected in future budget submissions.

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Outlays	48,174	48,174	48,174	48,174	48,174
FTE	11	11	11	11	11
Positions	15	15	15	15	15

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Office of Space Commerce
Subactivity: Office of Space Commerce
Program Change: Office of Space Commerce

Title		Grade	Number	Annual Salary	Total Salaries
Space Advocacy Division Director (ZA-0343)		ZA-V	1	172,500	172,500
Policy Analyst (ZA-0343)		ZA-IV	1	159,286	159,286
Program Management Analyst (ZA-0343)		ZA-IV	1	159,286	159,286
Legislative Affairs (ZA-0343)		ZA-IV	1	159,286	159,286
General Counsel (GS-0905-12/15)		GS-12/15	1	176,300	176,300
Communications Specialist (ZA-1001)		ZA-IV	1	159,286	159,286
Low Earth Program Manager (ZP-0801)		ZP-IV	1	159,286	159,286
Geosynchronous Earth Program Manager (ZP-0801)		ZP-IV	1	159,286	159,286
Engineering Lead (ZP-0801)		ZP-IV	1	159,286	159,286
Space Operations Manager (ZP-1301)		ZP-IV	1	159,286	159,286
Commercial Data Program Manager (ZP-1301)		ZP-IV	1	159,286	159,286
Enterprise Architect (ZP-2210)		ZP-IV	1	159,286	159,286
Systems Software Lead (ZP-2210)		ZP-IV	1	159,286	159,286
Network Lead (ZP-2210)		ZP-IV	1	159,286	159,286
Cybersecurity Lead (ZP-2210)		ZP-IV	1	159,286	159,286
Total			15		2,419,518
Less lapse	25.00%		(4)		(604,880)
Total full-time permanent (FTE)			11		1,814,639
2023 Pay Adjustment (4.6%)					83,473
					1,898,112

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	11
Total FTE	11
Authorized Positions:	
Full-time permanent	15
Total Positions	15

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National Oceanic and Atmospheric Administration
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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Office of Space Commerce
Subactivity: Office of Space Commerce

	Object Class	FY 2021 Enacted	FY 2022 Continuing Resolution	FY 2023 Base	FY 2023 Estimate	Increase from 2023 Base
11	Personnel compensation					
11.1	Full-time permanent	1,309	1,647	1,647	3,545	1,898
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	20	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	1,329	1,647	1,647	3,545	1,898
12	Civilian personnel benefits	446	527	527	1,134	607
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	35	200	200	450	250
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	227	227	454	227
23.2	Rental Payments to others	157	0	0	0	0
23.3	Communications, utilities and misc charges	18	28	28	49	21
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	526	600	600	6,000	5,400
25.2	Other services from non-Federal sources	1,451	5,836	5,836	73,582	67,747
25.3	Other goods and services from Federal sources	4,917	900	900	2,400	1,500
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	3	3	4	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	8	4	4	26	22
31	Equipment	11	28	28	56	28
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	1	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	8,899	10,000	10,000	87,700	77,700

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Office of Education	Pos./BA	16	33,451	16	36,451	0	3,000
	FTE/OBL	16	33,451	16	36,451	0	3,000

Educational Partnership Program Climate Cooperative Science Center (+$3,000, 0 FTE/0 Positions) –This request establishes a NOAA Climate Cooperative Science Center as part of the Jose E Serrano Educational Partnership Program with Minority Serving Institutions (EPP/MSI). The Center will be established at a lead institution designated as an MSI by the U.S. Department of Education. Through a national competition, the Center will be established to train post-secondary students in climate science and related multi-disciplinary fields including, atmospheric sciences, oceanography, Earth science, meteorology, hydrology, geography, physics, chemistry and computer sciences. Within the MSI community, these disciplines exist at various levels and can be enhanced through financial assistance and research collaborations with NOAA scientists. These collaborations will enhance the training of the next generation of STEM graduates thereby creating opportunities to tap into the significant talent of students from traditionally underrepresented groups.

Funding for direct student support, including scholarships, graduate fellowships and post-doctoral studies will be made available to qualified students attending the established Climate Center. The Center will build capacity at a consortium of institutions composed primarily of MSIs. Using NOAA data and resources, the Climate Center would engage marginalized populations to develop solutions to climate issues with communities that are often more vulnerable and significantly impacted by flooding, hurricanes, tornadoes and other severe weather associated with climate change. The students, faculty, and researchers of the Climate Center will work with communities to enhance resilience and integrate research projects that address studies at the intersection of climate change, environmental justice and equity that underpin economic growth and stability. The graduates from the centers will be a resource for the Nation in addressing climate change and will contribute to a more diverse and equitable workforce.

Schedule and Milestones:
FY 2023-2027:

- Award financial assistance to an MSI that represents a consortium of academic institutions

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

- Develop capacity to educate train and to graduate students with the scientific knowledge and skills to approach climate studies from a comprehensive interdisciplinary approach
- Develop partnerships with the MSI community ensuring the Climate Center encompasses community resilience, equity and social justice projects that incorporate participation of environmental and economically vulnerable communities

Deliverables:

- Qualified pool of graduates trained in climate science, climate policy, and associated disciplines to successfully compete for positions at NOAA and other organizations with similar needs.
- Trained and graduated experts with the capacity to work with climate-vulnerable communities, including but not limited to low-income communities and traditionally underserved and underrepresented minority communities.
- Institutional capacity at supported MSIs, including addition of faculty, degree programs and professional development opportunities for students.

Performance Measures	2023	2024	2025	2026	2027
New students supported and trained through the Climate Cooperative Science Center.					
With Increase	15	15	15	15	15
Without Increase	0	0	0	0	0
Cumulative total of students supported and trained through the Climate Cooperative Science Center.					
With Increase	15	30	45	55	60
Without Increase	0	0	0	0	0
Degrees awarded to students who graduate with STEM degrees that focus on climate change.					
With Increase	0	5	10	15	15
Without Increase	0	0	0	0	0

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Costs:					
Direct Obligations	3,000	3,000	3,000	3,000	3,000
Capitalized	0	0	0	0	0
Uncapitalized	3,000	3,000	3,000	3,000	3,000
Budget Authority	3,000	3,000	3,000	3,000	3,000
Outlays	2,807	2,807	2,807	2,807	2,807
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Office of Education
Subactivity: Office of Education

	Object Class	2021 Actuals	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	2,160	2,366	2,496	2,496	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	100	100	100	100	0
11.7	Military personnel compensation	0	0	0	0	0
11.9	Total personnel compensation	2,260	2,466	2,596	2,596	0
12	Civilian personnel benefits	788	863	968	968	0
13	Benefits for former personnel	0	0	0	10	10
21	Travel and transportation of persons	0	0	3	3	0
22	Transportation of things	2	2	2	2	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	158	155	183	183	0
23.2	Rental Payments to others	197	193	193	193	0
23.3	Communications, utilities and misc charges	4	4	12	12	0
24	Printing and reproduction	3	3	3	3	0
25.1	Advisory and assistance services	157	154	154	154	0
25.2	Other services from non-Federal sources	3,054	3,340	3,513	3,588	75
25.3	Other goods and services from Federal sources	16	16	16	16	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	50	49	51	51	0
31	Equipment	12	12	14	14	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	26,246	25,743	25,743	28,658	2,915
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	32,947	33,000	33,451	36,451	3,000

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National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Office of Education	Pos./BA	16	33,451	20	36,351	4	2,900
	FTE/OBL	16	33,451	19	36,351	3	2,900

Engaging New and Diverse Audiences with NOAA Science (+$2,900, 3 FTE/ 4 Positions) – The Office of Education requests an increase to expand engagement with new and diverse audiences about NOAA's science, service and stewardship. This request will allow NOAA to provide funding for and build on its most successful public engagement programs, such as NOAA Heritage initiatives and the Coastal Ecosystem Learning Centers Network. This initiative will increase NOAA's capacity to bring NOAA's cutting-edge science and compelling history to new audiences, with a focus on enhancing equity by engaging cultural and racial minorities. These programs will be supported by a new program, NOAA Ambassadors, which empowers NOAA staff to share their expertise through outreach events and by working with community partners. These expanded engagement efforts directly support NOAA's mission of sharing scientific knowledge and information and enable NOAA to further implement the American Innovation and Competitiveness Act.

Given our changing climate and the increase in severe weather events, droughts and wildfires, there has never been a more critical need to educate the public about how and why our planet is changing. Increased education about NOAA science can address this need. As NOAA continues to observe and predict changes in the planet, it is imperative that the public understand NOAA data and trust the Agency to provide accurate scientific products and services. Investments in science have a greater impact when paired with public engagement efforts, and NOAA has a powerful story to tell of enriching life through science and providing critical environmental data to the world. Importantly, NOAA also must expand its educational efforts to reach new audiences, including those from underserved communities that are often the most vulnerable to environmental hazards like climate change.

This initiative will support NOAA's vast network of 172 education partners and build new partnerships with those that have the ability to take complex issues and make them understandable and accessible by the public. Importantly, it enhance NOAA's work with the Nation's premier aquariums to better engage the public in protecting coastal and marine ecosystems, supporting community resilience, advancing equity and promoting other NOAA priorities. Through the Heritage program it will deepen the public's understanding and appreciation of NOAA's history, science, and service to the Nation. Additionally, NOAA will develop new capacity for outreach and community engagement to vulnerable and underserved groups, especially around climate change issues, so that they may become better prepared and resilient.

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023-2027:

- Develop capacity for NOAA employees and affiliates to actively engage with informal science institutions and local communities to inform their communities about NOAA's mission
- Build awareness of NOAA careers through student outreach programs that target underrepresented populations
- Provide grants and in-kind support to external partners that offer exhibits and public programs around NOAA's mission
- Catalog, maintain, interpret and make available to partners NOAA's historical artifacts and other assets
- Maintain and build data products and technology that enable continuous delivery of near real-time data visualizations and other data products to NOAA's education partners

Deliverables:

- Science, products and services accessible to all residents of the United States
- NOAA's non-governmental partners have increased capacity to engage their audiences with NOAA's science, products and services
- Recognition of NOAA as a Federal agency operating with scientific integrity, providing trusted sources of scientific information, and conducting science that addresses today's problems
- NOAA engages with public audiences in ways that honor and center justice, equity, diversity, and inclusion goals

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
People reached through NOAA engagement programs (in millions).					
With Increase	70	72	75	77	80
Without Increase	61	61	59	55	52
Institutions that engage the public with a NOAA exhibit.					
With Increase	225	230	235	240	245
Without Increase	172	170	166	163	161
Real-time NOAA datasets and updated research models visualized and interpreted and made available to the public.					
With Increase	60	62	65	68	70
Without Increase	40	30	20	10	10
Number of NOAA staff who participate in public engagement programs through the NOAA Ambassadors program.					
With Increase	50	70	90	110	130
Without Increase	0	0	0	0	0
Outyear Costs:					
Direct Obligations	2,900	2,900	2,900	2,900	2,900
Capitalized	540	540	540	540	540
Uncapitalized	2,360	2,360	2,360	2,360	2,360
Budget Authority	2,900	2,900	2,900	2,900	2,900
Outlays	1,800	1,800	1,800	1,800	1,800
FTE	3	4	4	4	4
Positions	4	4	4	4	4

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Office of Education
Subactivity: Office of Education
Program Change: Engaging new and diverse audiences with NOAA science

Title		Grade	Number	Annual Salary	Total Salaries
Supervisory Program Analyst		14	1	137,413	137,413
Communications Specialist		14	1	137,413	137,413
Outreach Specialist		12	1	96,639	96,639
IT Specialist		12	1	96,639	96,639
Total			4		468,104
Less lapse	25.00%		(1)		(117,026)
Total full-time permanent (FTE)			3		351,078
2023 Pay Adjustment (4.6%)					16,150
					367,228

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	3
Total FTE	3
Authorized Positions:	
Full-time permanent	4
Total Positions	4

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Office of Education
Subactivity: Office of Education

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	2,160	2,366	2,496	2,863	367
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	100	100	100	100	0
11.7	Military personnel compensation	0	0	0	0	0
11.9	Total personnel compensation	2,260	2,466	2,596	2,963	367
12	Civilian personnel benefits	788	863	968	1,078	110
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	3	28	25
22	Transportation of things	2	2	2	2	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	158	155	183	183	0
23.2	Rental Payments to others	197	193	193	213	20
23.3	Communications, utilities and misc charges	4	4	12	12	0
24	Printing and reproduction	3	3	3	3	0
25.1	Advisory and assistance services	157	154	154	154	0
25.2	Other services from non-Federal sources	3,054	3,340	3,513	4,110	597
25.3	Other goods and services from Federal sources	16	16	16	16	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	50	49	51	76	25
31	Equipment	12	12	14	79	65
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	26,246	25,743	25,743	27,434	1,691
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	32,947	33,000	33,451	36,351	2,900

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Office of Education	Pos./BA	16	33,451	16	35,451	0	2,000
	FTE/OBL	16	33,451	16	35,451	0	2,000

Environmental Literacy Grants for Community Resilience Education (+$2,000, 0 FTE/0 Positions) – The Office of Education will increase environmental literacy grants for community resilience education projects. Funded projects will develop and implement innovative approaches to building community resilience through formal and informal education and engage the most vulnerable children, youth, and adults in learning about and creating resilience for their communities. This increase will enable the Office of Education to fund more projects that involve the communities that bear a disproportionate share of the burden of climate change, i.e. communities of color, low income communities, and tribal and indigenous communities.

Since 2015, the Environmental Literacy Grants program has prioritized equitable approaches to building community resilience to extreme weather, climate change, and other environmental hazards, providing $12.5 million in Federal funding and reaching 180 communities. NOAA has only been able to fund four percent of the applications submitted, leaving $312 million of applications unfunded. This request provides critical funding and in-kind support for community resilience education projects that engage and involve people, especially those from historically marginalized communities. This funding will also enable NOAA to more fully implement the American Innovation and Competitiveness Act.

Schedule and Milestones:
FY 2023-2027:

- Compete and award additional grants to implement equitable community resilience education projects utilizing NOAA's science, data and expertise
- Develop partnerships with community-based organizations to further engage with historically marginalized communities

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Deliverables:

- Each year, 13 new institutions and/or community-based organizations have greater capacity to help their communities increase resilience
- Each year, 30 new communities are served by resilience education projects
- Biennial grantee workshop to identify best practices and expand community of practice

Performance Measures	2023	2024	2025	2026	2027
Youth and adults participating in informal community resilience education programs					
With Increase	16,570	16,570	16,570	16,570	16,570
Without Increase	9,200	9,200	9,200	9,200	9,200
K-12 students participating in formal community resilience education programs					
With Increase	6,130	6,130	6,130	6,130	6,130
Without Increase	3,400	3,400	3,400	3,400	3,400
Educators participating in professional development programs for community resilience education					
With Increase	1,100	1,100	1,100	1,100	1,100
Without Increase	615	615	615	615	615
Outyear Costs:					
Direct Obligations	2,000	2,000	2,000	2,000	2,000
Capitalized	0	0	0	0	0
Uncapitalized	2,000	2,000	2,000	2,000	2,000
Budget Authority	2,000	2,000	2,000	2,000	2,000
Outlays	1,240	1,240	1,240	1,240	1,240

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Office of Education
Subactivity: Office of Education

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	2,160	2,366	2,496	2,496	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	100	100	100	100	0
11.7	Military personnel compensation	0	0	0	0	0
11.9	Total personnel compensation	2,260	2,466	2,596	2,596	0
12	Civilian personnel benefits	788	863	968	968	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	3	3	0
22	Transportation of things	2	2	2	2	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	158	155	183	183	0
23.2	Rental Payments to others	197	193	193	193	0
23.3	Communications, utilities and misc charges	4	4	12	12	0
24	Printing and reproduction	3	3	3	3	0
25.1	Advisory and assistance services	157	154	154	154	0
25.2	Other services from non-Federal sources	3,054	3,340	3,513	3,663	150
25.3	Other goods and services from Federal	16	16	16	16	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	50	49	51	51	0
31	Equipment	12	12	14	14	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	26,246	25,743	25,743	27,593	1,850
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	32,947	33,000	33,451	35,451	2,000

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Construction

Goal Statement

The Construction activity ensures that NOAA has safe and modern facilities to support NOAA's critical science, service, and stewardship mission.

Base Program

NOAA's facilities constitute a significant capital investment with over 690 different facilities across 160 markets and 6,965,592 total Usable Square Feet, including 401 NOAA-owned facilities with an estimated replacement value of $3 billion. These facilities require financial investments for maintenance, repairs, and modernization to effectively support NOAA mission, current and future. Construction acquisition and project planning enables NOAA to complete the analyses, pre-design work, and initial preparation that make the actual construction phase of projects more efficient and effective. Activities include National Environmental Policy Act (NEPA) planning, special environmental studies, condition surveys, site work, and any other preliminary development needed to ensure successful acquisition and completion of construction projects within budget and schedule.

Statement of Operating Objectives

Schedule and Milestones/Deliverables:

- In FY 2023, NOAA will:
  - Allocate $4.0 million for the repayment of the Judgment Fund for the La Jolla Settlement.
  - Prioritize funding for NOAA's capital investment facilities needs
  - Conduct Business Case Analysis (BCA) program of requirements for the Southeast and Northeast Fisheries Science Centers based on the recommendations from the Regional Footprint Studies
  - Conduct further planning to implement the Northwest Regional Footprint Study, prepare for the relocation of the Montlake Laboratory and develop Analysis of Alternatives for the Western Regional Center (WRC)
  - Complete Phase 2 SSMC Consolidation Project
  - Begin Phase 3 design SSMC Consolidation Project
  - Complete design work for Charleston Pier project to support solicitation for a future construction contract
  - Complete design and permitting effort for the Newport Pier to support solicitation for a future construction contract

Department of Commerce
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Procurement, Acquisition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

Comparison by subactivity		2021 Actual Personnel	2021 Actual Amount	2022 Annualized CR Personnel	2022 Annualized CR Amount	2023 Base Personnel	2023 Base Amount
Construction	Pos/BA	1	42,954	1	43,000	1	43,000
	FTE/OBL	2	27,603	1	43,000	1	43,000
Total Construction	Pos/BA	1	42,954	1	43,000	1	43,000
	FTE/OBL	2	27,603	1	43,000	1	43,000

NOAA Construction

Constructing new facilities and reinvesting in existing facilities in accordance with a Facilities Strategic Plan and/or compliance with the NOAA Facilities Council guidance is critical to NOAA's mission accomplishment. Conducting and effectively managing construction projects on facilities that have major deferred maintenance issues corrects health and life safety issues, averts emergency repairs and associated costs, reduces energy costs through creation of more efficient and sustainable building systems, brings facilities up to current safety, environmental and building code standards and minimizes overall sustainment costs.

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA Construction	Pos./BA	1	43,000	1	126,200	0	83,200
	FTE/OBL	1	43,000	1	126,200	0	83,200

Northwest Fisheries Science Center Facilities Consolidation and Realignment (+$83,200, 0 FTE/0 Position) – NOAA requests an increase to consolidate and realign the Northwest Fisheries Science Center (NWFSC) facilities in the vicinity of Seattle, Washington. The research and innovation conducted at the NWFSC helps build sustainable fisheries, restore threatened and endangered species, safeguard healthy ecosystems, and reduce risks to human health.

The vast majority of the NWFSC work takes place at the Montlake campus in Seattle, Washington. Aging and inadequate facilities at the Montlake facility, combined with the impacts from the adjacent Washington State Highway 520 project have significantly impacted the NWFSC mission. This investment will prevent mission failure that would occur if this functionally obsolete facility continues to be subjected to the adjacent highway construction activities over the next decade. Additionally, the canceled Mukilteo Research Station project and disposal of that campus have necessitated a transfer of program space to NWFSC's Manchester Research Station and NOAA's Western Regional Center (WRC) facilities. However, these facilities are insufficient to support Mukilteo's mission requirements.

Specifically, the additional $83.2 million, combined with existing funds previously appropriated for Mukilteo construction, will support the award and buildout of the Montlake lease, and construction at the WRC and Manchester NOAA locations. Construction required to meet the NWFSC's consolidated requirements includes renovation and/or new construction of approximately 16,000 Gross Square Feet (GSF) at the WRC campus, and construction of approximately 21,000 GSF at Manchester.

Facilities recapitalization is critical to NOAA's ability to support research as one of its core capabilities. NOAA's facilities support activities directly aligned with Administration priorities, including EO 14008, through support for a science-based climate response and Made in America initiatives to benefit the American economy.

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Schedule and Milestones (assumes new construction at WRC):
FY 2023:
- Montlake lease award, begin design
- WRC design award, begin design

FY 2024:
- Begin Montlake TI construction
- Begin WRC construction

Deliverables:
- Complete Montlake TI, move and occupancy
- Complete WRC construction, move and occupancy

Outyear Costs:					
Direct Obligations	83,200	83,200	83,200	83,200	83,200
Capitalized	83,200	83,200	83,200	83,200	83,200
Uncapitalized	0	0	0	0	0
Budget Authority	83,200	83,200	83,200	83,200	83,200
Outlays	29,120	29,120	29,120	29,120	29,120
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Outyear Funding Estimates:

NOAA Construction	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	83,200	0	0	0	0	N/A	TBD
Total Request	40,057	126,200	43,000	43,000	43,000	43,000	N/A	TBD

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: NOAA Construction
Subactivity: NOAA Construction

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	101	114	114	114	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0		0	0
11.9	Total personnel compensation	101	114	114	114	0
12	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	17	17	17	17	0
22	Transportation of things	11	11	11	11	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	7	7	7	7	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	1,091	1,078	1,078	1,078	0
25.2	Other services from non-Federal sources	16,888	32,394	32,394	48,494	16,100
25.3	Other goods and services from Federal sources	757	748	748	748	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	868	858	858	858	0
31	Equipment	7,863	7,773	7,773	7,773	0
32	Lands and structures	0	0	0	67,100	67,100
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	27,603	43,000	43,000	126,200	83,200

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Procurement, Acquisition, and Construction
PROGRAM INCREASE/ FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA	Pos./BA	1	43,000	1	62,500	0	19,500
Construction	FTE/OBL	1	43,000	1	62,500	0	19,500

NOAA Construction (+$19,500, 0 FTE/0 Positions) – NOAA requests an increase in funds for facilities investment and construction to ensure NOAA has safe, modern, energy efficient, and sustainable facilities to support NOAA's critical science, service, and stewardship missions.

NOAA's real property footprint is distributed across the continental United States delivering world class science products to all Americans'. As a result of this geographical diversity and lack of investment, NOAA's facilities and infrastructure are vulnerable to the full range of weather and climate extremes and further structural degradation. The overall owned real property portfolio condition is rated 'poor' and current repair needs exceed $700 million based on FY 2022 data in NOAA Asset Management system database, the U.S. Army Corps of Engineers (USACE) BUILDER Sustainment Management System (SMS). The National Institute of Standards and Technology (NIST) similarly use BUILDER. The current repair needs are negatively impacting mission resources and growing repair needs are outpacing annual appropriations.

This request is integral to ensuring sustained funding for major and minor capital improvement projects at facilities supporting marine operations and scientific research, as NOAA's long-term strategy for funding the highest mission critical priorities. NOAA is committed to a corporate vision and working towards mitigating long-term facility risks associated with rising sea-levels and extreme weather-related events from disrupting mission operations.

With the additional funding, NOAA aims to design and construct new facilities and reinvest in existing facilities in accordance with its current facilities investment and strategic plans, studies, and business case analyses that inform NOAA and DOC on how to prioritize and fund competing objectives from a portfolio perspective.

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With this increase, combined with base funding, NOAA will support the following projects:

Project Name	FY 2023 Estimate
Newport Pier	$17,000
SSMC Consolidation	$12,000
Charleston, South Carolina Pier and Facility Recapitalization	$14,000
DM&R (PAC)	$4,500
La Jolla Judgement Fund	$4,000
Seattle/WRC Design & Related Studies (NW Strategic Initiatives)	$2,500
NE & SE Strategic Initiatives	$2,500
Leasehold Improvements	$3,000
Property Disposal	$3,000
Total	**$62,500**

Schedule and Milestones:

- Award multiple contracts to reduce backlog of Deferred Maintenance and Repair projects
- Award WRC Master Plan contract
- Award construction for Phase III of the SSMC Consolidation Project
- Continue funding of capital investment of pier projects at Charleston
    - Award Pre-Construction Services with construction

Deliverables:

- Further reduction of backlog of Deferred Maintenance and Repair Projects
- Program of requirements for National Capital Region
- Preliminary WRC Master Plan
- Continued design and permitting for future capital investment of pier projects at Newport and Charleston

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(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Reduce Deferred Maintenance & Repair Backlog *FY 2022 Builder Baseline of >$700M					
With Increase/Decrease	1%	1%	1.50%	1.50%	2.0%
Without Increase/Decrease	<1%	<1%	<1%	<1%	<1%
Outyear Costs:					
Direct Obligations	19,500	19,500	19,500	19,500	19,500
Capitalized	17,000	17,000	17,000	17,000	17,000
Uncapitalized	2,500	2,500	2,500	2,500	2,500
Budget Authority	19,500	19,500	19,500	19,500	19,500
Outlays	6,825	6,825	6,825	6,825	6,825
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Outyear Funding Estimates:

NOAA Construction	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	19,500	19,500	19,500	19,500	19,500	N/A	TBD
Total Request	127,000	62,500	62,500	62,500	62,500	62,500	N/A	TBD

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National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: NOAA Construction
Subactivity: NOAA Construction

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	101	114	114	114	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0		0	0
11.9	Total personnel compensation	101	114	114	114	0
12	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	17	17	17	17	0
22	Transportation of things	11	11	11	11	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	7	7	7	7	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	1,091	1,078	1,078	3,578	2,500
25.2	Other services from non-Federal sources	16,888	32,394	32,394	32,394	0
25.3	Other goods and services from Federal sources	757	748	748	748	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	868	858	858	858	0
31	Equipment	7,863	7,773	7,773	24,773	17,000
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	27,603	43,000	43,000	62,500	19,500

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Department of Commerce
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations
Budget Estimates, Fiscal Year 2022

Executive Summary

For FY 2023, NOAA requests a total of $450,354,000 and 1,088FTE/ 1,133positions for the Office of Marine and Aviation Operations (OMAO), a net increase of $22,421,000 and 36 FTE/ 49 positions in program changes.

OMAO manages a variety of specialized ships and aircraft that make up the NOAA Fleet and plays a critical role in the in-situ collection of oceanographic, atmospheric, hydrographic, and fisheries data in support of NOAA's missions. The NOAA Fleet operates throughout the world supporting a wide array of NOAA missions including climate research, fisheries research, nautical charting, hurricane reconnaissance and research, snow surveys, and specialized atmospheric and ocean research. In addition, NOAA ships and aircraft provide emergency response capabilities. Following major natural and environmental disasters, NOAA ships and aircraft conduct emergency navigation hazard surveys that help ports reopen quickly and obtain aerial images of disaster-torn areas. These surveys are often the only source of data providing critical information for first responders, disaster response, and residents.

NOAA ships range from large oceanographic research vessels capable of exploring the world’s deepest oceans to smaller ships responsible for charting the shallow bays and inlets of the United States. NOAA aircraft range from high altitude jets, capable of penetrating hurricanes and tracking ocean winds, to aircraft well-suited for water resource management data collection and marine mammal surveys where slower airspeeds and low altitudes are essential. OMAO is charged with the safe and efficient operation and maintenance of this NOAA fleet; developing annual Fleet Allocation Plans; conducting lifecycle maintenance; and providing centralized fleet management including: standard procedures, safety inspections, and medical services in partnership with the U.S. Public Health Service Commissioned Corps. OMAO also provides centralized coordination, support and guidance for uncrewed marine and aircraft systems (UxS) across NOAA, and administers the NOAA-wide Diving and Small Boat Programs. OMAO is committed to maintaining a safe field environment through the coordination of training and certification of officers, crew members, and scientists in at-sea and airborne safety procedures.

OMAO staff includes civilians along with the NOAA Commissioned Officer Corps (NOAA Corps), one of the Nation’s eight uniformed services. NOAA is authorized for 500 NOAA Corps officers, including flag officers. The NOAA Corps has the skills to plan, prepare, and execute the acquisition of environmental and scientific data on land, at sea, and in the air. It supports all NOAA’s Line Offices, NOAA Headquarters, and the Department, and commands the NOAA fleet.

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National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations
Budget Estimates, Fiscal Year 2022

Significant Adjustments:

Inflationary Adjustments
NOAA's FY 2023 Base includes a net increase of $14,310,000 and 0FTE/ 0 positions to account for the full funding requirement for certain inflationary adjustments to current programs for OMAO activities. This includes inflationary increases for labor and non-labor activities including benefits and rent charges from the General Services Administration.

Technical Adjustments
NOAA also requests the following transfers for a net change of $0 and 0 FTE/ 0 positions to the agency:

From Office	Subactivity	To Office	Subactivity	Amount
NOS	Navigation, Observations, and Positioning	OMAO	NOAA Commissioned Officer Corps	$2,044,000 / 18 FTE / 18 Positions
NOS	Coastal Science, Assessment, Response and Restoration	OMAO	NOAA Commissioned Officer Corps	$319,000 / 4 FTE / 4 Positions
NOS	Sanctuaries and Marine Protected Areas	OMAO	NOAA Commissioned Officer Corps	$563,000 / 2 FTE / 2Positions
NMFS	Fisheries Data Collections, Surveys, and Assessments	OMAO	NOAA Commissioned Officer Corps	$1,562,000 / 13 FTE / 13 Positions
OAR	Climate Laboratories & Cooperative Institutes	OMAO	NOAA Commissioned Officer Corps	$261,000 / 2 FTE / 2 Positions
OAR	Ocean Laboratories and Cooperative Institutes	OMAO	NOAA Commissioned Officer Corps	$390,000 / 3 FTE / 3 Positions
OAR	Ocean Exploration and Research	OMAO	NOAA Commissioned Officer Corps	$130,000 / 1 FTE / 1 Positions
OAR	Sustained Ocean Observations and Monitoring	OMAO	NOAA Commissioned Officer Corps	$130,000 / 1 FTE / 1 Positions

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Budget Estimates, Fiscal Year 2022

NWS	Observations	OMAO	NOAA Commissioned Officer Corps	$324,000 / 2 FTE / 2 Positions
NWS	Central Processing	OMAO	NOAA Commissioned Officer Corps	$346,000 / 2 FTE / 2 Positions
NWS	Analyze, Forecast and Support	OMAO	NOAA Commissioned Officer Corps	$54,000 / 1 FTE / 1 Positions
NESDIS	Satellite and Product Operations	OMAO	NOAA Commissioned Officer Corps	$277,000 / 2 FTE / 2 Positions
NESDIS	Product Development, Readiness & Application	OMAO	NOAA Commissioned Officer Corps	$276,000 / 2 FTE / 2 Positions
MS	Mission Services and Management	OMAO	NOAA Commissioned Officer Corps	$661,000 / 4 FTE / 4 Positions

NOAA requests to transfer a total of $7,337,000 and 57 FTE/ 57 positions to OMAO's NOAA Commissioned Officer Corps PPA to allow for better alignment of funding and greater transparency over the full cost of the NOAA Corps. Currently, other Line Offices pay a portion of salaries for NOAA Corps Officers stationed in their programs through Service Level Agreements with OMAO. As a result, OMAO must process administratively burdensome agreements just to pay the salaries of its workforce. This process obscures the true cost of the NOAA Corps, and hinders OMAO's ability to meet its financial obligations when operating under a Continuing Resolution. With this transfer, funding for all NOAA Corps personnel will reside within OMAO. This increases efficiency within the program by reducing administrative burdens, eliminates wasted resources recovering funds within NOAA, and allows NOAA to better manage personnel requirements consistent with the NOAA Corps Amendments Act of 2020.

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TRANSFER CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: NOAA Commissioned Officer Corps
Subactivity: NOAA Commissioned Officer Corps (ORF) - transfer from Multple PPAs (ORF)

	Object Class	2022 Annualized CR	2023 Transfer	2023 Base
11.1	Full-time permanent compensation	1,417	0	1,524
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	22	0	24
11.7	Military personnel compensation	29,819	7,337	39,424
11.9	Total personnel compensation	31,258	7,337	40,948
12	Civilian personnel benefits	5,202	0	5,589
13	Benefits for former personnel	237	0	255
21	Travel and transportation of persons	298	0	298
22	Transportation of things	641	0	641
23	Rent, communications, and utilitites	0	0	0
23.1	Rental payments to GSA	0	0	0
23.2	Rental Payments to others	0	0	0
23.3	Communications, utilities and misc charges	0	0	0
24	Printing and reproduction	1	0	1
25.1	Advisory and assistance services	0	0	0
25.2	Other services from non-Federal sources	1,393	0	1,028
25.3	Other goods and services from Federal sources	2,554	0	2,554
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equipment	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	88	0	88
31	Equipment	0	0	0
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	0	0	0
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	41,672	7,337	51,401

*The 2023 Base column reflects the full 2023 base for the subactivity, including calculated ATBs and any additional transfers.

Exhibit 10

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
OFFICE OF MARINE AND AVIATION OPERATIONS (OMAO)											
Marine Operations and	Pos/BA	522	163,380	628	166,000	628	175,261	661	203,646	33	28,385
Maintenance	FTE/OBL	600	180,238	596	166,000	596	175,261	621	203,646	25	28,385
Aviation Operations and Aircraft	Pos/BA	72	31,817	72	32,000	72	34,292	82	39,292	10	5,000
Services	FTE/OBL	72	33,183	72	32,000	72	34,292	79	39,292	7	5,000
Autonomous Uncrewed	Pos/BA	3	13,651	9	13,665	9	14,358	9	14,358	0	0
Technology Operations	FTE/OBL	6	14,108	9	13,665	9	14,358	9	14,358	0	0
NOAA Commissioned Officer Corps	Pos/BA	286	41,958	282	42,000	339	51,401	349	55,437	10	4,036
	FTE/OBL	272	41,672	282	42,000	339	51,401	347	55,437	8	4,036
TOTAL OMAO - ORF	**Pos/BA**	**883**	**250,806**	**991**	**253,665**	**1,048**	**275,312**	**1,101**	**312,733**	**53**	**37,421**
	FTE/OBL	**950**	**269,201**	**959**	**253,665**	**1,016**	**275,312**	**1,056**	**312,733**	**40**	**37,421**
Marine and Aviation Capital	Pos/BA	19	122,541	30	120,000	30	120,000	26	105,000	(4)	(15,000)
Investments	FTE/OBL	26	68,422	30	120,000	30	120,000	26	105,000	(4)	(15,000)
TOTAL OMAO - PAC	**Pos/BA**	**19**	**122,541**	**30**	**120,000**	**30**	**120,000**	**26**	**105,000**	**(4)**	**(15,000)**
	FTE/OBL	**26**	**68,422**	**30**	**120,000**	**30**	**120,000**	**26**	**105,000**	**(4)**	**(15,000)**
Medicare Eligible Retiree Health	Pos/BA	0	1,591	0	1,591	0	1,617	0	1,617	0	0
Care Fund	FTE/OBL	0	1,591	0	1,591	0	1,617	0	1,617	0	0
NOAA Corps Commissioned	Pos/BA	0	33,270	0	30,861	0	31,004	0	31,004	0	0
Officers Retirement	FTE/OBL	0	30,149	0	30,861	0	31,004	0	31,004	0	0
TOTAL OMAO	**Pos/BA**	**902**	**408,208**	**1,021**	**406,117**	**1,078**	**427,933**	**1,127**	**450,354**	**49**	**22,421**
	FTE/OBL	**976**	**369,363**	**989**	**406,117**	**1,046**	**427,933**	**1,082**	**450,354**	**36**	**22,421**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollars amounts in thousands)

Activity: Marine Operations and Maintenance

Goal Statement

Optimize NOAA's observational platforms and unique workforce capabilities through continual development and diversification of our personnel. Attract, train and retain the skilled workforce required to maintain safe and efficient operations through employee focused organizational changes to optimize retention through quality of life and mission performance. Support present and future NOAA data collection requirements, maximize the service life of the NOAA Fleet through maintenance and repair, support NOAA's prioritized ship requirements through execution of the annual Fleet Allocation Plan (FAP), increase utilization of the NOAA Fleet.

Base Program

Marine Operations and Maintenance supports centralized management for NOAA's research and survey vessels, which operate throughout the world supporting multiple missions including climate research, fisheries research, nautical charting and ocean research. Given the diverse portfolio of NOAA Line Office Program requirements and responsibilities, a single vessel type cannot meet all of NOAA's mission requirements. Thus, NOAA ships range from large oceanographic research vessels capable of exploring the world's deepest oceans, to smaller ships responsible for charting the shallow bays and inlets of the United States. Marine Operations is based in Newport, Oregon, and manages OMAO's three Marine Centers located in Norfolk, Virginia, Newport, Oregon, and Honolulu, Hawaii, and additional port offices around the country. It also supports marine operation activities in Headquarters, including the Small Boat program and the NOAA Diving Program.

Statement of Operating Objectives

Schedule and Milestones:

FY 2023 - FY 2027

- Improve the quality of life for deployed crews through staffing models, training, and onboard technologies.
- Implement rotational staffing models across the fleet and achieve 96% staffing level of authorized positions (402 of 429 positions required to implement).
- Implement professional marine training within current job descriptions
- Expand rotational assignments across the fleet

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Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollars amounts in thousands)

- Integrate Fleet Maintenance Plan based on Material Condition Assessments for each vessel and developed through close collaboration with American Bureau of Shipping
- Ensure Operational Readiness Training for all ship personnel is completed (show training requirements on the NOAA FAP)
- Uphold safety standards on all NOAA vessels
- Execute 95 percent of approved Days at Sea (DAS) in the FAP, less any DAS lost for weather or removed from the schedule at the request of NOAA Line Office Programs
- Perform program funded and reimbursable DAS as scheduled in the FAP

Deliverables:

FY 2023

- Provide approximately 1,710 DAS, to include mission and non-mission base funded, program funded and reimbursable funded days to all NOAA Line Offices
- Survey Square Nautical Miles in support of NOS hydrographic survey activities
- More detailed deliverables are determined on a project-by-project basis as documented in the FAP

FY 2023 - FY 2026

- Meet annual ship schedules and milestones as outlined in the FAP

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Marine Operations and Maintenance	Pos/BA	522	163,380	628	166,000	628	175,261
	FTE/OBL	600	180,238	596	166,000	596	175,261
Total Marine Operations and Maintenance	Pos/BA	522	163,380	628	166,000	628	175,261
	FTE/OBL	600	180,238	596	166,000	596	175,261

Like many sectors, NOAA's world class professional mariner workforce is experiencing increased attrition across all positions. When the ships do not have the appropriate staffing, it can be a safety issue and leads to lost days at sea. In FY 2022, OMAO is using more base funding from variable operations to invest in personnel and training to support hiring and retention of qualified professional mariners, improve diversity, crew readiness, and the quality of life aboard its vessels. NOAA is aggressively taking steps to improve quality of life through crew recruitment and retention initiatives. A wage mariner hiring portal has been launched, recruitment and hiring bonuses are being utilized, employee recognition programs are being expanded, and tuition reimbursement finalized. Rotational assignment opportunities are also being increased across the fleet. More transparent paths for advancement are being developed, and we are integrating a Total Worker Health Program into the everyday lives of all OMAO personnel. Professional Mariner quality of life is an industry issue and there is competition for these positions across federal, state, private sector and international employers.The COVID pandemic continues to stress professional mariners serving on the ships. The burnout, uncertainty, and constant changes to the workplace are contributing to crew retention and safety issues. Investments in our workforce that support crew retention are critical to quality of life and future research operations.

Other activities funded under Marine Operations and Maintenance include the repair and maintenance of NOAA ships necessary to meet the rigorous demands of NOAA's scientific and regulatory missions. Regular maintenance, including proper preventive maintenance, is scheduled to ensure readiness prior to and during the field season. This funding allows OMAO to provide ships capable of meeting prioritized, geographical and temporal, at-sea NOAA requirements. NOAA's Fleet Council uses input from across NOAA to define these requirements and inform ship schedules, as captured in the FAP. The FAP details the objective and duration of individual NOAA projects, outlines the annual schedule and milestones to be achieved as agreed to and signed by the NOAA Fleet Council, identifies OMAO scheduled repair and maintenance periods, and operational readiness training on NOAA ships.

As part of the preventative maintenance process, Marine Operations continues to implement a Material Condition Assessment (MCA) Program. The MCA is an in-depth survey that will uncover additional maintenance items that have become apparent between major maintenance cycles. MCAs will funnel items directly into work packages for repair periods in order to correct deficiencies and ensure items are addressed before they impact fleet readiness. MCAs are conducted by Marine Operations engineering personnel with assistance from NOAA's fleet inspection team and ship's crew.

Funds also support unscheduled maintenance costs, which can be attributed to the aging of NOAA's fleet. These costs can include unplanned maintenance requirements discovered while completing scheduled operational maintenance; scheduled repairs requiring

more extensive work than planned initially; costs in excess of the standard 20 percent estimated cost overrun; and urgent responses to machinery or equipment casualties.

NOAA vessels must adhere to safety and emissions requirements and regulations established by a variety of organizations. The American Bureau of Shipping certifies ships as seaworthy. OMAO uses their rules to design its maintenance program and conduct Ship Structure and Machinery Evaluations on the NOAA Fleet. Under the Clean Air Act, the Environmental Protection Agency issues regulations governing airborne emissions that affect ship engine and exhaust components. The U.S. Coast Guard issues regulations on all discharges from ships to ensure marine environments are protected from harmful discharges.

In FY 2023, OMAO will provide approximately 1,710 DAS to support NOAA's highest-priority requirements. DAS may include OMAO base funded days, DAS funded by other NOAA Line Office programs, and DAS funded by Agencies external to NOAA, as determined during the year of budget execution, based on the availability of vessels and funds. NOAA estimates base funded DAS annually based on a variety of factors including maintenance, staffing, training, outfitting, fuel, and other costs necessary to support reliable and safe ship operations. Program funded DAS are established through Service Level Agreements with NOAA Line Office programs as well as reimbursable agreements with other agencies.

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(Dollars amounts in thousands)

The following table outlines the diversity of the active NOAA Fleet and primary mission areas of each vessel:

Ship	Length	Class	Primary Mission	Homeport	Year Launched
Rainier	231 ft.	Ocean	2	Newport, OR	1967
Fairweather	231 ft.	Ocean	2	Ketchikan, AK	1967
Oregon II	170 ft.	Regional	1	Pascagoula, MS	1967
Oscar Elton Sette	224 ft.	Ocean	3	Honolulu, HI	1987
Okeanos Explorer	224 ft.	Ocean	1, 2	Newport, RI	1988
Gordon Gunter	224 ft.	Ocean	1	Pascagoula, MS	1989
Nancy Foster	187 ft.	Ocean	1	Charleston, SC	1990
Thomas Jefferson	208 ft.	Ocean	2	Norfolk, VA	1991
Ronald H. Brown	274 ft.	Global	3	Charleston, SC	1996
Oscar Dyson	209 ft.	Ocean	1	Kodiak, AK	2003
Henry B. Bigelow	209 ft.	Ocean	1	Newport, RI	2005
Pisces	209 ft.	Ocean	1	Pascagoula, MS	2007
Bell M. Shimada	209 ft.	Ocean	1	Newport, OR	2008
Ferdinand R. Hassler	124 ft.	Regional	2	New Castle, NH	2009
Reuben Lasker	209 ft.	Ocean	1	San Diego, CA	2012

Mission 1: Assessment and Management of Living Marine Resources
Mission 2: Charting and Mapping
Mission 3: Oceanographic Monitoring, Research, and Modeling

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollars amounts in thousands)

In addition to vessel management, Marine Operations and Maintenance supports the following activities:

NOAA Dive Program: The NOAA Dive Center provides diver certification, technical advice, and a standardized equipment program. The NOAA Dive Center, in cooperation with the NOAA Diving Control and Safety Board, issues safe diving standards and practices, according to the Standards of Training, Certification and Watch keeping for Seafarers and the International Maritime Organization conventions. NOAA maintains approximately 369 divers who perform over 14,000 dives annually in support of NOAA's mission. Fleet divers help maintain NOAA's ships with tasks such as cleaning propellers and sea strainers, surveying hulls for damage, and installing transducers. NOAA divers' work also includes installation of observing systems such as tide gauges. Scientists trained as divers study and describe the habitats and species that NOAA is mandated to protect and manage. These activities enable NOAA to meet requirements and mandates, enhance customer service and operational safety, and facilitate self-sufficiency at sea.

NOAA Small Boat Program: The Small Boat Program is designed to reduce risk, promote standardization, and enhance the safety of NOAA's small-boat operations. It enforces the policy of the safety program and ensures compliance through onsite inspections, risk assessments and marine incident investigations. NOAA maintains over 400 small boats, which are operated and funded within the Line Offices. The Small Boat Program provides technical and marine engineering assistance to Line Office field units as needed and to the NOAA Small Boat Safety Board to ensure compliance with the NOAA Small Boat Standards and Procedures Manual requirements.

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Marine Operations and Maintenance	Pos./BA	628	175,261	661	202,246	33	26,985
	FTE/OBL	596	175,261	621	202,246	25	26,985

Enhanced NOAA Fleet Operations (+$26,985, 25 FTE/ 33 Positions) – NOAA requests an increase for NOAA's Fleet Operations to support 1,130 additional DAS, enabling NOAA to provide 2,840 DAS. This increase is required to restore the operating budget so that NOAA can deliver the DAS necessary for at sea data collection and other critical mission requirements. This increase supports staffing, ship operations and maintenance, including mission systems and advancements in safety systems, increased Very Small Aperture Terminal (VSAT) bandwidth, and preparation for NOAA's new ships, which are critical for sustaining operations. In FY 2022, OMAO has seen significant increases in costs required for fuel (46 percent), maintenance and supply chain (10-15 percent) and additional requirements addressing Professional Mariner retention (20 percent), directly impacting the available funds to complete operational days at sea. This increase supports the requirements for completing a day at sea, including Professional Mariner overtime pay, rotational crew travel, commuted subsistence (funds for meals when the ship is unavailable), fuel, maintenance and supplies, and VSAT for quality of life.

NOAA's world class professional mariner workforce is currently experiencing increased attrition across all positions. When the ships do not have the appropriate staffing, it can be a safety issue and leads to lost days at sea. Within the maritime industry there is competition for professional mariners across federal, state, private sector, and international employers. Investments to improve quality of life is critical to sustainably maximize every DAS. Civilian professional mariners fill the licensed and unlicensed engineering, unlicensed deck, steward, and survey technician positions aboard NOAA ships. From FY 2020 through FY 2022, significant DAS were lost due to staffing shortfalls. Historically, when the price of oil significantly increased, OMAO lost DAS due to staffing shortfalls. Funding for highly qualified and capable professional mariner staffing, including increased rotational and relief pool staffing, is essential to compete for qualified personnel in the maritime industry and for sustainable fleet operations.

NOAA is aggressively taking steps to improve quality of life through crew recruitment and retention initiatives. A wage mariner hiring portal has been launched, recruitment and hiring bonuses are being utilized, employee recognition programs are being expanded,

and tuition reimbursement finalized. Rotational assignment opportunities are also being increased across the fleet. FY 2023 funds will continue to support these initiatives and NOAA's long-term goal of making all professional mariner positions rotational – a vital step for improving quality of life for professional mariners and allowing NOAA to be more in-line with industry best practices. NOAA's newest ships, *Discoverer* and *Oceanographer,* will be delivered with quality of life enhancements such as crew rotations to fully support NOAA's world class professional mariner workforce. When hiring new crew, NOAA's primary focus will continue to be qualified mariners that foster a respectful workplace, diversity and inclusivity. In addition, NOAA will continue to increase VSAT bandwidth. Increased bandwidth allows for increased connection for data transmission to meet scientific requirements and internet connection to improve quality of life.

The current operational environment induces stress and strain on ship systems, the personnel that support ship systems, and NOAA must ensure that significant improvements in Fleet reliability are not degraded despite an aging fleet. NOAA will need to focus on ship habitability, enhanced mission system maintenance and upgrades, ship system updates, acoustic sonar refreshes, advancements in the marine operations' safety management systems and fulfilling regulatory requirements, to ensure every DAS is maximized.Ship investments in mission systems are critical to sustaining Fleet readiness, expanding ship capabilities, and executing the Fleet Allocation Plan in support of NOAA's rigorous scientific and regulatory missions. NOAA will also continue preparations to bring its first two new vessels, the *Oceanographer* and the *Discoverer,* on-line.

Actions necessary to provide increased DAS posture:

- Staff ship wage mariner complements at 96 percent, invest in additional recruitment and retention incentives, and invest in crew quality of life improvements including enabling crew rotations, and increased VSAT bandwidth
- Provide additional funding to address higher variable costs taking into account increased fuel pricing
- Fund scheduled lifecycle ship maintenance requirements including ship systems, habitability, observing system refresh, safety management, and regulatory requirements taking into account higher pricing for supplies and associated maintenance contract labor
- Ensure full ship preparations including staffing for new vessels

Schedule and Milestones:

FY 2023

- Maintain 96% wage mariner crew staffing
- Continue staffing NOAA Vessels *Oceanographer* and *Discoverer*

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(Dollar amounts in thousands)

- Continue growth in VSAT bandwidth
- Invest in Marine Operations safety management system
- Perform required scheduled ship maintenance requirements

Deliverables:

FY 2023

- Execute 2,840 DAS, an increase of 1,130 more DAS than can be accomplished without additional funding
- Improve collaboration and sharing of scientific data through increased VSAT capacity
- Improve retention rates for professional mariners

FY 2024 - FY 2027

- Meet annual ship schedules and milestones as outlined in the FAP

Performance	2023	2024	2025	2026	2027
Days at Sea					
With Increase	2,840	2,840	2,840	2,840	2,840
Without IncIncrease	1,710	1,710	1,710	1,710	1,710
Outyear Costs:					
Direct Obligations	26,985	26,985	26,985	26,985	26,985
Capitalized	0	0	0	0	0
Uncapitalized	26,985	26,985	26,985	26,985	26,985
Budget Authority	26,985	26,985	26,985	26,985	26,985
Outlays	13,168	13,168	13,168	13,168	13,168
FTE	25	33	33	33	33
Positions	33	33	33	33	33

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PROGRAM CHANGE PERSONNEL DETAIL

Activity: Marine Operations and Maintenance
Subactivity: Marine Operations and Maintenance
Program Change: Enhanced NOAA Fleet Operations

Title		Grade	Number	Annual Salary	Total Salaries
Able Seaman		ZT-2	2	61,222	122,443
Survey Technician		WM-12	2	60,424	120,847
Chief Engineer		WM-1	2	161,870	323,739
Port Engineer		ZT-4	1	154,050	154,050
General Engineer		WM-1	4	161,870	647,478
1st Asst Engineer		WM-1	3	140,116	420,347
Chief Boatswain		WM-1	8	91,477	731,816
Electronic Technician		ZT-4	11	104,754	1,152,294
Total			33		3,673,014
Less lapse	25.00%		(8)		(918,254)
Total full-time permanent (FTE)			25		2,754,761
2023 Pay Adjustment (4.6%)					126,719
					2,881,480

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	25
Total FTE	25
Authorized Positions:	
Full-time permanent	33
Total Positions	33

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Marine Operations and Maintenance
Subactivity: Marine Operations and Maintenance

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	31,670	37,982	41,482	44,364	2,882
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	13,830	13,095	13,095	14,295	1,200
11.8	Special personnel services payments	0	0	620	1,220	600
11.9	Total personnel compensation	45,500	51,077	55,197	59,879	4,682
12	Civilian personnel benefits	14,770	16,595	17,295	18,848	1,553
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	2,635	3,332	3,332	3,582	250
22	Transportation of things	525	590	590	590	0
23	Rent, communications, and utilitites	5,730	7,085	7,450	7,493	43
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	800	800	800	800	0
24	Printing and reproduction	1	50	50	50	0
25.1	Advisory and assistance services	73,202	68,574	72,466	82,666	10,200
25.2	Other services from non-Federal sources	0	0	0	0	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	25,000	16,548	16,632	26,789	10,157
31	Equipment	12,075	1,349	1,449	1,549	100
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	180,238	166,000	175,261	202,246	26,985

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Operations, Research, and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Marine Operations and Maintenance	Pos./BA	628	175,261	628	176,461	0	1,200
	FTE/OBL	596	175,261	596	176,461	0	1,200

Office of Health Services Increase (+$1,200, 0 FTE/ 0 Positions) – NOAA requests an increase to Marine Operations and Maintenance for the Office of Health Services (OHS), to expand NOAA's ability to address behavioral and mental health within the workforce. The increase will allow NOAA to hire health professionals that will supplement current health officers, supporting the expansion of the program throughout NOAA. These additional resources will help build and shape a total worker wellness program for the agency.

NOAA will also develop and begin the implementation of a program management plan. OHS program management will identify components of OMAO's health service program that can translate NOAA-wide, as well as the unique behavioral and mental health needs of the entire NOAA workforce.

OHS is committed to the occupational health, safety, and readiness of all people diving, flying and sailing, while utilizing OMAO platforms and facilities throughout the world. OHS is staffed by U.S. Public Health commissioned health officers who work to maximize deployment readiness and minimize medically related disruptions to fleet, aircraft, and diving operations. OHS programs assess and promote mental and physical readiness.

OHS health officers are also responsible for preventing and containing disease in both nearby and geographically remote operational environments. Medical officers use their expertise, specialized training, and experience in the assessment, prevention, and treatment of urgent and emergent medical problems that especially prevalent in high-risk operational environments. Most importantly, officers are dedicated to advocating for the physical and mental health and safety of individuals in all workplaces.

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(Dollar amounts in thousands)

Schedule and Milestones:
FY 2023

- Hire two health professionals
- Develop Health Services program management plan

Deliverables:
FY 2023

- Implement NOAA Health Services plan to improve the management of Health Services throughout the NOAA workforce
- Address behavioral and mental health on NOAA platforms throughout the NOAA community
- Advocacy for physical and mental health of NOAA workforce in all workplaces

Performance Measures	2023	2024	2025	2026	2027
Health Services program management plan					
With Increase	yes	yes	yes	yes	yes
Without Increase	no	no	no	no	no
Outyear Costs:					
Direct Obligations	1,200	1,200	1,200	1,200	1,200
Capitalized	0	0	0	0	0
Uncapitalized	1,200	1,200	1,200	1,200	1,200
Budget Authority	1,200	1,200	1,200	1,200	1,200
Outlays	1,200	1,200	1,200	1,200	1,200
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Marine Operations and Maintenance
Subactivity: Marine Operations and Maintenance

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	31,670	37,982	41,482	44,364	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	13,830	13,095	13,095	14,295	0
11.8	Special personnel services payments	0	0	620	1,220	0
11.9	Total personnel compensation	45,500	51,077	55,197	59,879	0
12	Civilian personnel benefits	14,770	16,595	17,295	18,848	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	2,635	3,332	3,332	3,582	0
22	Transportation of things	525	590	590	590	0
23	Rent, communications, and utilitites	5,730	7,085	7,450	7,493	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	800	800	800	800	0
24	Printing and reproduction	1	50	50	50	0
25.1	Advisory and assistance services	73,202	68,574	72,466	82,666	1,200
25.2	Other services from non-Federal sources	0	0	0	0	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	25,000	16,548	16,632	26,789	0
31	Equipment	12,075	1,349	1,449	1,549	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	180,238	166,000	175,261	202,246	1,200

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Marine Operations and Maintenance	Pos./BA	628	178,377	628	178,577	0	200
	FTE/OBL	596	178,377	596	178,577	0	200

Enterprise Infrastructure Solutions (EIS) (+$200, 0 FTE/ 0 Positions) - This increase will enable NOAA to conduct a technology modernization and support an accelerated transition of telecommunications services to the GSA EIS contract vehicle. DOC currently uses GSA's Networx, Washington Interagency Telecommunications System 3, and regional contracts to acquire telecommunication services. These contracts expire in May 2023. Between now and then, DOC will be transitioning telecommunications services to the GSA EIS follow-on contract.

The modernization enables NOAA to re-architect its network infrastructure to gain efficiencies and resilience, realize significantly reduced costs for network services after transition, and minimize risk as legacy services are discontinued. Increased funding will accelerate the transition and enable NOAA to: (a) contract for engineering services to re-architect the network infrastructure and establish detailed transition plans; (b) issue awards for new hardware and telecommunication services; (c) trench and lay new lines, decommission and provision circuits; and (d) establish funding for administrative services to provide ordering, invoice processing, and inventory management. By expediting the technology modernization and migration to the new EIS vendors, NOAA will realize significant reductions in price and cost-avoidance. This funding will reduce risks related to service delivery and operations due to termination of GSA legacy service contracts.

Schedule and Milestones:
FY 2023 - 2027

- Award NOAA task orders under EIS to support modernization needs
- Establish a sustainable, resilient architecture to meet NOAA's current and planned needs
- Transition 100% NOAA Legacy GSA inventory to EIS

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(Dollar amounts in thousands)

Deliverables:

- Modernized telecommunications infrastructure capable of meeting the agency's mission
- Provide a centralized ordering and management platform
- Provide a secure infrastructure resistant to extreme weather impacts

Performance Measures	2023	2024	2025	2026	2027
Transition of NOAA Telecommunication services to GSA's EIS					
With Increase	35%	60%	80%	100%	0%
Without Increase	20%	45%	55%	65%	75%
*Assumes full funding of EIS initiatives NOAA-wide					
Outyear Costs:					
Direct Obligations	200	200	200	200	200
Capitalized	0	0	0	0	0
Uncapitalized	200	200	200	200	200
Budget Authority	200	200	200	200	200
Outlays	200	200	200	200	200
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Marine Operations and Maintenance
Subactivity: Marine Operations and Maintenance

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	31,670	37,982	41,482	41,482	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	13,830	13,095	13,095	13,095	0
11.8	Special personnel services payments	0	0	620	620	0
11.9	Total personnel compensation	45,500	51,077	55,197	55,197	0
12	Civilian personnel benefits	14,770	16,595	17,295	17,295	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	2,635	3,332	3,332	3,332	0
22	Transportation of things	525	590	590	590	0
23	Rent, communications, and utilitites	5,730	7,085	7,450	7,450	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	800	800	800	800	0
24	Printing and reproduction	1	50	50	50	0
25.1	Advisory and assistance services	73,202	68,574	72,466	72,666	200
25.2	Other services from non-Federal sources	0	0	0	0	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	25,000	16,548	16,632	16,632	0
31	Equipment	12,075	1,349	1,449	1,449	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	180,238	166,000	175,261	175,461	200

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollars amounts in thousands)

Activity: Aviation Operations and Aircraft Services

Goal Statement

Provide centralized aircraft systems management and coordination of all airborne activity, support NOAA's prioritized airborne requirements through execution of the Aircraft Allocation Plan (AAP), and safely modify, maintain, and operate NOAA aircraft.

Base Program

NOAA's Aviation Operations and Aircraft Services provide scientists with airborne platforms equipped with comprehensive data collection systems that are capable of assessing severe weather, coastal and marine resources, and the dynamics of complex ecosystems and their climate induced changes. Among their missions, NOAA's diverse and versatile aircraft fly into hurricanes to help predict their track and intensity. They also collect snow water equivalent measurements for forecasting water supplies and spring flooding, species data critical to managing commercial and recreational fish stocks and air chemistry data critical for public health. NOAA aircraft are capable of carrying specialized sensors for coastal mapping and shallow-water bathymetric data collection, providing essential data to nautical charting and safe navigation.

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 – FY 2027

- Perform base funded, program funded and reimbursable Flight Hours as scheduled in the AAP

Deliverables:
FY 2023

- Provide approximately 5,518 flight hours[1] to include an estimated 3,387 mission and non-mission base funded hours and 2,120 program and reimbursable funded hours to all NOAA Line Offices
- Detailed deliverables are determined on a project-by-project basis as documented in project flight instructions

[1] Flight hour estimates assume non-hurricane hours are distributed between heavy and light aircraft as they were in the FY 2022 Draft Aircraft Allocation Plan. Heavy aircraft cost more than light aircraft to fly so changes in that distribution can cause significant variations in NOAA estimates.

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollars amounts in thousands)

FY 2023 - FY 2026

- Meet annual aircraft schedules and milestones as outlined on the AAP
- Maintain NOAA aircraft to continue to provide data to NOAA programs

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base Program	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Aviation Operations and Aircraft Services	Pos/BA	72	31,817	72	32,000	72	34,292
	FTE/OBL	72	32,000	72	32,000	72	34,292
Total Aviation Operations and Aircraft Services	Pos/BA	72	31,817	72	32,000	72	34,292
	FTE/OBL	72	32,000	72	32,000	72	34,292

OMAO's Aircraft Operations Center (AOC), located at the Lakeland Linder Regional Airport in Lakeland, Florida, operates NOAA's Aircraft Fleet in support of NOAA's mission to understand and predict changes in climate, weather, oceans and coasts, and to assist in conserving and managing coastal and marine ecosystems and resources. The aircraft operate throughout the United States and around the world over open oceans, mountains, coastal wetlands, and the Arctic. AOC provides capable, mission-ready aircraft and professional crews to safely meet NOAA's scientific and operational mission requirements by assisting with coastal mapping, flood prediction, hurricane prediction modeling, marine mammal population assessments, coastal erosion surveys, oil spill investigations and air quality studies.

AOC flight crews operate in some of the world's most demanding flight regimes, including flying into the eye of a hurricane and at low altitudes over mountainous terrain and open ocean areas. Each aircraft requires a minimum number of qualified NOAA Corps pilots to conduct operations safely and efficiently. OMAO continues efforts to recruit and retain pilots to reduce excessive administrative burdens and time away from base. OMAO also ensures that contracted aviation operations are conducted safely by providing technical support, services, and equipment to NOAA Line Office programs.

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In FY 2023, AOC will provide approximately 5,518 flight hours in support of NOAA scientific airborne requirements. Demands for time aboard NOAA aircraft are prioritized by the NOAA Fleet Council and outlined in the AAP. These include base funded hours and additional flight hours, which may be funded by programs during the year of budget execution, based on funding and aircraft availability. NOAA's aircraft also perform non-mission hours including training, calibration, and maintenance flights. These hours ensure AOC can safely and accurately collect data in support of NOAA's scientific missions. Program funded flight hours can support any NOAA mission approved by the Fleet Council, including hurricane surveillance and reconnaissance, and are established through Service Level Agreements with NOAA programs, and reimbursable agreements with other agencies. The AAP details the objective and duration of individual NOAA projects and identifies OMAO scheduled repair and maintenance periods on specific NOAA aircraft.

NOAA’s aircraft are versatile and can conduct a variety of missions. The following table outlines the diversity of the NOAA aircraft and primary mission areas of each one:

Aircraft	Type	Max Gross Weight (lbs.)	Primary Mission	Aircraft Age (years)
N42RF	WP-3D	135,000	3	46
N43RF	WP-3D	135,000	3	46
N49RF	G-IV-SP	74,600	3	27
N57RF	DHC-6-300 Twin Otter	12,500	1, 3	40
N56RF	DHC-6-300 Twin Otter	12,500	1, 3	39
N48RF	DHC-6-300 Twin Otter	12,500	1, 3	40
N46RF	DHC-6-300 Twin Otter	12,500	1, 3	36
N68RF	King Air 350ER	16,500	2	12
N67RF	King Air 350ER	16,500	2	2

Mission 1: Assessment and Management of Living Marine Resources
Mission 2: Charting and Surveying
Mission 3: Weather Forecasting, Research, and Modeling

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(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Aviation Operations and Aircraft Services	Pos./BA	72	34,292	82	39,292	10	5,000
	FTE/OBL	72	34,292	79	39,292	7	5,000

Increased Aircraft Operations in Support of Cross-NOAA Climate Objectives (+$5,000, 7 FTE/ 10 Positions) – NOAA will increase aircraft operations in support of NOAA's climate objective with staffing for 24-hour hurricane operations and additional flight hours.

This request will strengthen NOAA's ability to meet current and growing demands for airborne data requirements resulting from more frequent and intense storms, rapidly intensifying storms, and the reliability and significant impact of NOAA aircraft data to hurricane forecasts. For example, demand for hurricane hours on NOAA's P-3s has more than doubled since 2015. Additional staff at NOAA's Aircraft Operations Center, combined with additional pilots (OMAO-35), will enable NOAA to better meet demand for data, maximizing the critical data sets that only NOAA aircraft can collect. NOAA currently has two P-3 crews. Legal requirements for crew rest and working hour limitations prevent around the clock missions for the single crew assigned to each P-3.

With an additional crew, NOAA will rotate crews with little aircraft downtime, closing data gaps in hurricane forecasting, fully leveraging the capabilities of NOAA aircraft data collection critical to accurate hurricane forecasts, and allowing NOAA to support more climate research missions. Crewmembers consist of pilots, flight crew, and critical ground support personnel. Increased staffing is essential to aircraft reliability, especially as flight hour demands continue to increase. It will also improve NOAA's ability to collect climate observations, enabling better climate modeling and aiding in the reduction and mitigation of severe weather and climate change events.

Additional funding will also allow OMAO to rent engines for its G-IV without reducing flight hours. The G-IV is the only observational system aircraft in the world capable of collecting data for hurricane surveillance. These engines are required to provide essential data for hurricane forecasting during the 2023 hurricane season. The G-IV's current engines require an overhaul by the summer of 2023 to remain airworthy. Rental engines are essential to keep the G-IV operating until the G-550, the G-IV replacement aircraft, comes

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online until 2024, NOAA will rent engines for the G-IV. Without additional funds for the rental engines, OMAO would need to reduce flight hours to cover the cost.

Schedule and Milestones:
FY 2023 - 2027

- Provide 6,283 flight hours
- Hire additional civilian personnel

Deliverables:

- 6,283 flight hours
- Increased staff capacity to meet NOAA missions
- More data to understand and mitigate the impacts of climate change

Performance Measures	2023	2024	2025	2026	2027
Flight Hours					
With Increase	6,283	6,283	6,283	6,283	6,283
Without Increase	5,294	5,294	5,294	5,294	5,294
Outyear Costs:					
Direct Obligations	5,000	5,000	5,000	5,000	5,000
Capitalized	0	0	0	0	0
Uncapitalized	5,000	5,000	5,000	5,000	5,000
Budget Authority	5,000	5,000	5,000	5,000	5,000
Outlays	3,350	3,350	3,350	3,350	3,350
FTE	7	10	10	10	10
Positions	10	10	10	10	10

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Aviation Operations and Aircraft Services
Subactivity: Aviation Operations and Aircraft Services
Program Change: Maximize Aircraft Operations in Support of Cross-NOAA Climate Objectives

Title		Grade	Number	Annual Salary	Total Salaries
Flight Engineer		GS-12	2	91270	182,540
Flight Engineer		GS-13	1	108528	108,528
Deputy Maintenance Officer		ZA-4	1	139275	139,275
Meteorologist		GS-12	1	91270	91,270
Meteorologist		GS-13	1	108528	108,528
Aircraft Technician		GS-9	1	62937	62,937
Electronics Technician		GS-10	2	69307	138,614
Electronics Engineer		GS-11	1	72281	72,281
Total			10		903,973
Less lapse	25.00%		(3)		(225,993)
Total full-time permanent (FTE)			7		677,980
2023 Pay Adjustment (4.6%)					31,187
					709,167

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	7
Total FTE	7

Authorized Positions:

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Aviation Operatins and Aircraft Services
Subactivity: Aviation Operations and Aircraft Services

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	6,373	6,545	6,853	7,562	709
11.3	Other than full-time permanent	738	758	794	794	0
11.5	Other personnel compensation	335	344	360	513	153
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	7,446	7,647	8,007	8,869	862
12	Civilian personnel benefits	3,006	3,087	3,232	3,534	302
13	Benefits for former personnel	211	217	227	227	0
21	Travel and transportation of persons	1,418	1,418	1,489	2,102	613
22	Transportation of things	407	407	427	427	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	3,136	3,136	3,136	3,136	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	28	1	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	12,095	10,651	12,326	14,962	2,636
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	5,032	5,032	5,032	5,619	587
31	Equipment	242	242	254	254	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	160	160	160	160	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	2	2	2	2	0
44	Refunds	0	0	0	0	0
99	Total obligations	33,183	32,000	34,292	39,292	5,000

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Autonomous Uncrewed Technology Operations (AUTO)

Goal Statement

Provide centralized coordination, support and guidance for uncrewed marine and aircraft systems across NOAA. Evaluate emerging uncrewed systems technologies for acquisition and induction into operations. Determine where opportunities exist to more cost-effectively carry out NOAA mission-critical activities.

Base Program

The Uncrewed Systems (UxS) Operations Center provides centralized UxS management and standardization of safety, training, inspections, and operational reviews and is responsible for the strategic planning of UxS acquisition and operations within NOAA, consistent with NOAA's priorities and data needs. In addition, the UxS Operations Center is building a capability to provide UxS services to NOAA missions through corporately owned, operated and maintained UxS systems. UxS technology encompasses a wide range of platforms, from very small UxS such as uncrewed aerial drones, to large multi-million dollar surface and underwater marine systems designed to operate in remote locations for extended periods of time. UxS include Uncrewed Aircraft Systems (UAS), Uncrewed Marine Systems (UMS) surface and underwater vehicles, and Remote Operated Vehicles. The technology continues to evolve rapidly and is invaluable in supporting NOAA prioritized mission requirements such as hydrographic and habitat mapping, fishery stock assessment, and oceanographic and atmospheric observations that support weather forecasting and extreme weather events.

OMAO partners with OAR to develop new technologies and applications of uncrewed systems to cost effectively meet NOAA's missions. The NOAA Uncrewed Systems Executive Oversight Board (co-chaired by OAR and OMAO) will continue to coordinate UxS activities between line offices.

Statement of Operating Objectives

Schedule and Milestones:

FY 2023 – FY 2027

- Execute prioritized missions for UxS mission development and operations

- Develop, maintain and coordinate UxS policies and a community of practice in partnership with other NOAA Line Offices
- Continue development of safety, training, operational, privacy and cyber requirements
- Continue development of UxS capabilities to include Beyond Visual Line of Site, and data collection in remote environments
- Provide operational support to all field locations including Newport, OR, Newport, RI, Gulfport, MS, and Lakeland, FL
- Continue collaborative partnerships with other Federal agencies, academia, and industry
- Plan UxS acquisitions within NOAA
- Provide UAS operational approvals, airworthiness inspections, standardization of training, and coordination of airspace approvals
- Train OMAO and other NOAA personnel to operate UxS
- Maintain new platforms

Deliverables:

FY 2023 – FY 2027

- Establish the long-term OMAO UMS Operations Center in Gulfport, MS
- UxS pilot/operator support to NOAA Line Offices
- Acquisition expertise and guidance, to include oversight of the purchase and/or lease of proven UxS
- Funding, operational, and technical support of UxS projects in support of NOAA prioritized requirements
- Payload development and integration
- Safety and compliance with aviation regulations and policy
- Uncrewed System operational capacity for climate, mapping and fisheries missions

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base Program	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Autonomous Uncrewed	Pos/BA	3	13,651	9	13,665	9	14,358
Technology Operations	FTE/OBL	6	14,108	9	13,665	9	14,358
Total Autonomous Uncrewed	Pos/BA	3	13,651	9	13,665	9	14,358
Technology Operations	FTE/OBL	6	14,108	9	13,665	9	14,358

The UxS program promotes the safe, efficient and economical operation of UxS that NOAA uses to collect high-quality environmental data for the agency's science, products and services. It centrally manages and standardizes safety, training, inspections, and operational reviews for UxS technologies. It is responsible for the strategic planning of UxS acquisition within NOAA, consistent with NOAA's priorities and data needs. NOAA currently uses UxS for seafloor and habitat mapping, ocean exploration, marine mammal and fishery stock assessments, emergency response, and at-sea observations that improve forecasting of extreme events, such as harmful algal blooms and hypoxia.

OMAO's UxS Operations Center has pivoted NOAA's investment in UxS from research to operations. Its services include training, cybersecurity, airworthiness evaluations, operational planning, acquisition and other expert support to ensure safe, cost-effective operations across the agency. The Center also supports efforts across NOAA to use UxS of all types. In FY 2021, OMAO in collaboration with the OAR and the UxS Executive Oversight Board, provided $7.9 million to projects across NOAA to evaluate emerging technologies, determine where opportunities exist to more cost effectively carry out NOAA's mission-critical activities using UxS, and deploy these systems rather than using existing means. With UxS funds, programs across NOAA have used UxS to assess protected species, develop under-ice ecosystem observations, ecosystem monitoring, survey hydrologic and storm damages, validate satellite data, collect data on coastal change, and improve hurricane intensity prediction. Additionally, NOAA provided nearly $3.5 million to UxS efforts with external government, industry, and academic partners.

The program also helps meet the objectives of the Commercial Engagement Through Ocean Technology Act of 2018, which requires NOAA to coordinate research, assess and acquire UMS with the U.S. Navy, other Federal agencies, industry and academia. NOAA has established a new UMS Center in Gulfport, MS that will advance the use of UMS data across NOAA through partnerships, training, research, and testing.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: NOAA Commissioned Officer Corps

Goal Statement

Provide a highly specialized workforce with the skills to plan, prepare, and execute the acquisition of environmental and scientific data on land, at sea, and in the air. Provide centralized human resources support for all active duty NOAA Commissioned Officer Corps (NOAA Corps) officers. Provide the commensurate pay and benefits, accession, relocation, training, and military Human Resources (HR) support and policy functions that are unique to operating a uniformed service.

Base Program

The NOAA Corps is one of the Nation's eight uniformed services. NOAA Corps officers command NOAA's fleet of ships and aircraft and support all NOAA's Line Offices, NOAA Headquarters, and the Department. They manage research projects, conduct diving operations, and serve in NOAA staff positions to fulfill NOAA's mission requirements. This activity supports the actual cost of the NOAA Corps', including the majority of officers' salaries, as well as benefits, accession, relocation, training, promotions, separations, Tricare payments, and HR support for NOAA Corps officers working across all NOAA Line Office programs.

Statement of Operating Objectives

Schedule and Milestones:
FY 2023 – FY 2027

- Recruit NOAA Corps officers for up to two Basic Officer Training Classes
- Coordinate the minimum number of assignment changes and permanent change of station moves for NOAA Corps officers to support operations of NOAA vessels and aircraft
- Track and administer the medical requirements of active duty officers
- Conduct workforce planning to stabilize affordability of the NOAA Corps

Deliverables:
FY 2023 – FY 2027

- Transparent NOAA Corps that is externally recognizable and operationally meaningful

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

- Minimum number of NOAA Corps assignment charges required to support operations NOAA vessels and aircraft
- Medical readiness of active duty officers is maintained

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA Corps	Pos/BA	286	41,958	282	42,000	339	51,401
	FTE/OBL	272	41,672	282	42,000	339	51,401
Total Activity	Pos/BA	286	41,958	282	42,000	339	51,401
	FTE/OBL	272	41,672	282	42,000	339	51,401

The NOAA Corps is one of NOAA's critical mission programs. It strives to integrate leadership, experience, and technology to optimize NOAA's mission of science, service and stewardship at home and around the world. NOAA Corps officers are NOAA's operational leaders and are an integral part of NOAA's workforce. They operate and manage NOAA's fleet of ships and aircraft, serve in positions of leadership and command in NOAA and the Department of Commerce, and essential positions in other agencies as well as in the military during times of war or national emergency.

Centrally managed within OMAO's Commissioned Personnel Center in Silver Spring, MD., the NOAA Corps provides a unique and valuable capability to the Nation, and NOAA Corps officers provide a responsiveness and flexibility inherent in a commissioned personnel system. NOAA Corps officers serve throughout the agency's Line and Staff Offices to support nearly all of NOAA's programs and missions. The combination of commissioned service and scientific expertise makes the NOAA Corps uniquely capable of leading some of NOAA's most important initiatives. The NOAA Corps provides a cadre of professionals trained in engineering, earth sciences, oceanography, meteorology, fisheries science, and other related disciplines. More information on the NOAA Corps can be found at https://www.omao.noaa.gov/learn/noaa-corps/about.

The NOAA Corps protects lives, livelihoods, and valuable natural resources for the American public by commanding and operating NOAA's ships and aircraft to meet at-sea and airborne data collection requirements. It also identifies best management practices,

based on proven practices used by NOAA and other uniformed services, to extend and sustain the capabilities provided by the NOAA Corps. Each ship and aircraft has minimum staffing requirements to safely and effectively accomplish mission and performance objectives. At current funding levels, OMAO will provide approximately 330 NOAA Corps officers, including admirals, in FY 2023.

NOAA strives to recruit and retain a diverse, world class workforce to serve as pilots and mariners in the NOAA Corps. Adequate staffing ensures qualified officers are available to meet NOAA missions safely and effectively. It also reduces excessive administrative burdens and reduces deployment times–an important factor in officer retention. In FY 2022, NOAA and Kansas State University (K-State) Salina Aerospace and Technology Campus signed a groundbreaking agreement to prepare students to serve as officers and pilots with the NOAA Corps. While in its early stages, this agreement has the potential to provide a pipeline of NOAA Corps pilots and put graduates on the fast track to support NOAA flight operations. This is particularly important in the face of a global pilot shortage. Demand for pilots is growing and the aviation industry requires over 600,000 new pilots to meet commercial demand over the next 20 years.

While the NOAA Corps serves across all of NOAA, it is funded out of OMAO. Funds for retired NOAA Corps officers are appropriated in the mandatory NOAA Corps Commissioned Officers Retirement funds (see OMAO-XX), and the Medicare Eligible Retiree Health Care Fund discretionary account (see OMAO-XX).

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA Commissioned Officer Corps	Pos./BA	339	51,401	349	54,537	10	3,136
	FTE/OBL	339	51,401	347	54,537	8	3,136

Grow the NOAA Corps (+$3,136, 8 FTE/10 Positions) - This request will strengthen NOAA's ability to meet current and growing demands for airborne and marine data requirements resulting from climate-induced changes by hiring ten additional NOAA Corps Officers, consisting of eight aviators and two marine officers. As climate change results in floods and droughts, spurs more frequent and intense hurricanes, alters the distribution of fisheries, and threatens coastal resources, scientists and decision-makers increasingly require data from NOAA aircraft and ships—operated by NOAA Corps officers—to inform products and services for the Nation.

An increase in the number of pilots is essential to meet NOAA aircraft flight demands, increase pilot retention, reduce assignment gaps when officers rotate, and secure a sustainable workforce. Current staffing constraints limit NOAA's ability to collect airborne data, and place undue strain on current staffing impacting retention. NOAA often extends pilot deployments and duties, and pulls officers from essential supervisory positions, due to short staffing. This model is not sustainable or efficient and has resulted in multiple resignations and early retirements. Coupled with enhanced operational support (OMAO-XX), additional NOAA Corps pilots are required to provide around-the-clock hurricane observations critical for collecting airborne data in concurrent storms, and accurately tracking rapid intensification of hurricanes. These pilots will improve NOAA's ability to collect climate observations, enabling better climate modeling and aiding in the reduction and mitigation of severe weather and climate change events.

Additional marine officers will provide initial staffing for NOAA's first new vessel in more than a decade, the NOAA Ship *Oceanographer*. The officers will participate in the construction phase of this new vessel to acquire ship design and systems knowledge, establish ship specific processes and establish the ship's crew. This front-end work is essential to bring the ship on-line safely, and efficiently. Once the *Oceanographer* is added to NOAA's current fleet of 15 vessels, NOAA will be better prepared to respond to requests for additional DAS in support of a wide array of NOAA missions including: climate research, fisheries research, nautical charting, and specialized atmospheric and ocean research.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Measuring and predicting climate change impacts are core to NOAA's mission. This request will help NOAA meet the Administration's climate science goals, including EO 14008, through improved observations and forecasting for the American public.

Schedule and Milestones:

FY 2023
- Hire and train additional pilots
- Hire two officers to begin staffing N/V *Oceanographer*

FY 2024 – FY 2027
- Make P-3s available for around the clock hurricane surveillance missions
- Provide officers the ship's crew a clear understanding of ship design and systems before the ship is operational

Deliverables:

FY 2023
- Increased pilot retention
- More reliable support for NOAA Line Offices

FY 2024 – FY 2027
- Reduced Hurricane Hunter downtime due to crew rotations
- Officers able to take command as soon as ship becomes operational

Performance Measures	2023	2024	2025	2026	2027
NOAA Corps Officers (including Admirals)					
With Increase	340	334	334	334	334
Without Increase	330	324	324	324	324

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Direct Obligations	3,136	3,136	3,136	3,136	3,136
Capitalized	0	0	0	0	0
Uncapitalized	3,136	3,136	3,136	3,136	3,136
Budget Authority	3,136	3,136	3,136	3,136	3,136
Outlays	2,101	2,101	2,101	2,101	2,101
FTE	8	10	10	10	10
Positions	10	10	10	10	10

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: NOAA Commissioned Officer Corps
Subactivity: NOAA Commissioned Officer Corps
Program Change: Grow the NOAA Corps

Title		Grade	Number	Annual Salary	Total Salaries
Captain		O-6	1	219,252	219,252
Commander		O-5	1	185,291	185,291
Lieutenant Commander		O-4	2	155,124	310,248
Lieutenant		O-3	2	126,183	252,366
Lietenant (Junior Grade)		O-2	2	107,834	215,668
Ensign		O-1	2	73,496	146,992
Total			10		1,329,817
Less lapse	25.00%		(2)		(332,454)
Total full-time permanent (FTE)			8		997,363
2023 Pay Adjustment (4.6%)					45,879
					1,043,241

Personnel Data Summary	
Full-time Equivalent Employment (FTE)	
Full-time permanent	8
Total FTE	8
Authorized Positions:	
Full-time permanent	10
Total Positions	10

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: NOAA Commissioned Officer Corps
Subactivity: NOAA Commissioned Officer Corps

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	1,417	1,455	1,524	1,390	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	22	23	24	24	0
11.7	Miliitary Personnel Compensation	29,819	30,624	39,424	41,438	1,391
11.9	Total personnel compensation	31,258	32,102	40,948	42,852	1,391
12	Civilian personnel benefits	5,202	5,343	5,589	5,946	872
13	Benefits for former personnel	237	243	255	294	40
21	Travel and transportation of persons	298	298	298	348	50
22	Transportation of things	641	641	641	748	107
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	1	1	1	1	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	1,393	730	1,028	1,706	676
25.3	Other goods and services from Federal sources	2,554	2,554	2,554	2,554	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	88	88	88	88	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	41,672	42,000	51,401	54,537	3,136

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA Commissioned Officer Corps	Pos./BA	339	51,401	339	52,301	0	900
	FTE/OBL	339	51,401	339	52,301	0	900

NOAA Corps Recruitment (+$900, 0 FTE/ 0 Positions) - This request will allow NOAA to accelerate and improve NOAA Corps recruitment, with a focus on increasing diversity to more effectively serve the U.S. population we serve, Actions will focus on leveraging programs to underserved communities and building partnerships with Minority Serving Institutions (MSIs) and Historically Black Colleges and Universities (HBCUs). A NOAA Corps that reflects the population will better understand and meet the needs of the community. An inclusive environment will improve individual and organizational performance and result in better value to customers and other stakeholders. Through these partnerships, NOAA will expand internships and scholarships within the aviation, marine and uncrewed workforce for all positions. NOAA will also begin executing provisions contained in the NOAA Commissioned Officer Corps Amendments Act of 2020 such as pre-commissioned education assistance programs and the repayment of education loans for students with critical skills.

NOAA's cutting-edge climate forecasting and service delivery, coupled with a robust approach to diversity, equity and inclusion, position the agency as a critical leader to make tangible improvements to vulnerable communities. NOAA is aligned with the Administration priority of environmental justice and equity and will further support EO 13985 by laying the framework and foundations for successfully integrating equity across the organization to reach a broader range of Americans in underserved or disadvantaged communities.

Schedule and Milestones:
FY 2023

- Accelerate recruitment levels to strengthen diversity
- Build partnerships with HBCUs
- Begin pre-commissioned education assistance program

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National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

FY 2024 – FY 2027
- Expand internships and scholarships through HBCU partnerships

Deliverables:
FY 2023
- Increase diversity within the rising Basic Officer Training Class (BOTC)
- Repayment of NOAA Corps education loans

FY 2024 – FY 2027
- Increase diversity of the NOAA Corps workforce

Performance Measures	2023	2024	2025	2026	2027
Repayment of Education Loans					
With Increase	25%	50%	75%	100%	100%
Without Increase	0%	0%	0%	0%	0%
Outyear Costs:					
Direct Obligations	900	900	900	900	900
Capitalized	0	0	0	0	0
Uncapitalized	900	900	900	900	900
Budget Authority	900	900	900	900	900
Outlays	584	584	584	584	584
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: NOAA Commissioned Officer Corps
Subactivity: NOAA Commissioned Officer Corps

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	1,417	1,455	1,524	1,524	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	22	23	24	24	0
11.7	Military Personnel Compensation	29,819	30,624	39,424	39,424	0
11.9	Total personnel compensation	31,258	32,102	40,948	40,971	0
12	Civilian personnel benefits	5,202	5,343	5,589	5,589	0
13	Benefits for former personnel	237	243	255	255	0
21	Travel and transportation of persons	298	298	298	298	0
22	Transportation of things	641	641	641	641	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	1	1	1	1	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	1,393	730	1,028	1,828	800
25.3	Other goods and services from Federal sources	2,554	2,554	2,554	2,554	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	88	88	88	88	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	41,672	42,000	51,401	52,225	800

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acqusition, and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: Marine and Aviation Capital Investments

Goal Statement

Acquire effective and efficient aircraft and ship platforms to support NOAA's prioritized airborne and at-sea data requirements, maintain NOAA's current fleet at a higher state of readiness, and advance coastal and worldwide ocean survey and data collection through investment in new vessel construction.

Base Program

The Marine and Aviation Capital Investments activity includes three major Programs: Platform Capital Improvements and Technology Infusion, Vessel Recapitalization and Construction, and Aircraft Recapitalization and Construction. Each program plays a specific part in ensuring the continued health of NOAA's vessel and aircraft fleet to ensure the continued support of NOAA's mission requirements.

Statement of Operating Objectives

Platform Capital Improvements and Technology Infusion
Schedule and Milestones:
FY 2023 – FY 2027

- Perform phased overhauls, upgrades, and replacements of ship's systems through infrastructure improvement plans
- Restore and replace ship mission systems
- Address ship corrosion
- Develop and execute long-term maintenance plans to achieve the operational service life of all NOAA vessels
- Complete Service Depot Level Maintenance for NOAA's first P-3 aircraft
- Acquire uncrewed systems for NOAA corporate use
- Modify ships and aircraft to effectively deploy and recover uncrewed systems

Deliverables:
FY 2023 – FY 2027

- Improve the reliability of the fleet and reduce lost Days at Sea from unscheduled maintenance

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(Dollar amounts in thousands)

- Ensure the continued capability of the NOAA Fleet
- Attain the planned operational service life of all vessels
- Keep NOAA's first P-3 operational through 2030
- Uncrewed system capacity for climate-related mapping, ecosystem assessment and fisheries missions

Vessel Recapitalization and Construction
Schedule and Milestones:
FY 2023
- Begin detailed design and construction of N/V Class B

FY 2024
- Initial operating capability for N/V *Oceanographer*[2]

FY 2025
- Initial operating capability for *Discoverer*

FY 2026
- Initial operating capability for first N/V Class B
- Contract close out and full operating capability for the N/V *Oceanographer* and *Discoverer*
- Begin detailed design and construction of N/V Class C

Deliverables:
FY 2023 – FY 2027
- N/V *Oceanographer*
- N/V *Discoverer*

[2] Initial operating capability indicates the beginning of the warranty/post-shakedown availability (PSA) period in which limited operations will be conducted.

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Aircraft Recapitalization and Construction
Schedule and Milestones:
FY 2023

- Continue to provide oversight over high altitude acquisition
- Initiate acquisition of a 3rd King Air
- Initiate acquisition of a 5th Twin Otter
- Complete requirements analysis for P-3 Replacements

FY 2024

- Delivery of the G-550
- Install final G-550 instruments and systems
- Test and calibrate G-550
- Induct the first G-550 into NOAA's Fleet
- Complete NOAA modifications for the King Air
- Complete NOAA modifications for the Twin Otter
- Calibrate the Twin Otter

FY 2025

- Calibrate the King Air
- Induct the King Air into NOAA's fleet
- Induct the Twin Otter into NOAA's fleet

Deliverables:
FY 2024

- One fully operational G-550
- One fully operational King Air
  One fully operational Twin Otter

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(Dollar amounts in thousands)

Out-year Funding Estimates ($ in Thousands):

Platform Capital Improvements & Tech Infusion	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	0	0	0	0	0	TBD	TBD
Total Request	226,857	25,000	25,000	25,000	25,000	25,000	TBD	TBD

Vessel Recapitalization and Construction	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	0	0	0	0	0	TBD	TBD
Total Request	530,050	75,000	75,000	75,000	75,000	75,000	TBD	TBD

Aircraft Recapitalization and Construction	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	(20,000)	TBD	TBD	TBD	TBD	TBD	TBD
Total Request	182,000	0	TBD	TBD	TBD	TBD	TBD	TBD

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JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Explanation and Justification

		2021 Actual		2022 Annualized CR		2023 Base	
Comparison by subactivity		Personnel	Amount	Personnel	Amount	Personnel	Amount
Platform Capital Improvements & Tech Infusion	Pos/BA	9	24,139	13	25,000	13	25,000
	FTE/OBL	11	25,057	13	25,000	13	25,000
Vessel Recapitalization & Construction	Pos/BA	6	63,422	13	75,000	13	75,000
	FTE/OBL	10	11,567	13	75,000	13	75,000
Aircraft Recapitalization & Construction	Pos/BA	4	34,980	4	20,000	4	20,000
	FTE/OBL	5	31,798	4	20,000	4	20,000
Total Marine & Aviation Capital Investments	Pos/BA	19	122,541	30	120,000	30	120,000
	FTE/OBL	26	68,422	30	120,000	30	120,000

PLATFORM CAPITAL IMPROVEMENTS AND TECHNOLOGY INFUSION

The Platform Capital Improvements and Technology Infusion Program allows NOAA to plan and perform cyclic depot-level capital investments across the fleet, designed to maintain and extend the service life of NOAA's vessel and aircraft fleet. It ensures that the required upgrades to aircraft and ship-board systems and mission equipment comply with safety requirements and the needs of the programs. Aircraft and ships receive regular upgrades and replacements of mission support equipment and technology infusions such as data processing and storage capacity, multi-beam sonars and sensors. The program also supports the future acquisition of UxS, and uncrewed launch and recovery systems.

OMAO monitors the material condition of aircraft through periodic Service Life Assessments (SLAs) and Service Life Extension

Programs. The SLA documents completed for all aircraft in FY 2016 by a third-party vendor provide key data on maintenance costs and trends; sustainability costs; reliability metrics and issues; all of which guide future capital investment decision making. In addition, OMAO uses manufacturer provided Service Life Extension costs such as re-winging, major overhauls and upgrades to help determine economic feasibility, cost benefit and reliability data. These data are critical to maximizing future maintenance investments and capital investments.

For vessels, OMAO monitors their material condition through Ship Structure and Machinery Evaluation. The Ship Structure and Machinery Evaluation document the results of inspections and identify future work requirements to guide capital investment decision making. Additionally, OMAO uses manufacturer-provided information for new ships to develop maintenance profiles. To address regular capital improvements for NOAA ships, progressive lifecycle maintenance ensures the service life of vessels by proactively overhauling, upgrading, or replacing shipboard systems before they fail. Repairs completed through progressive lifecycle maintenance improve the material condition of the ships, provide sustained critical technology refresh, and ensure NOAA ships remain capable of collecting environmental data to support NOAA's mission to provide accurate and reliable products services critical for national security, public safety, and economic security.

The chart below lists the types of capital investments that vary from year-to-year based on the results of Ship Structure and Machinery Evaluation that assess the material condition of the ships and determine priority repairs:

Crew Space Refurbishment	Science/ Mission Space Refurbishment	Shipboard Systems	Underwater Body	Mission Systems Refresh
Refrigeration systems HVAC refurbishment Renovation of habitability spaces	Renovation of laboratory spaces Modifications to allow for emerging technologies	Propulsion & generation systems overhaul Re-piping Fire suppression upgrades Machinery monitoring upgrades Environmental equipment replace	Blast hull Refurbish props/shafts Refurbish valves/ piping	Multi-beam sonars and sensors Ship-board electronic data processing and storage UxS Launch/ Recovery System Small boats and launches Cranes, winches, davits

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(Dollar amounts in thousands)

VESSEL RECAPITALIZATION AND CONSTRUCTION

Acquisition of new ships is the best way for NOAA to reliably and consistently sustain its at-sea data collection capability. NOAA's Fleet Plan, released in 2016, assesses NOAA's at-sea observational infrastructure needs through 2028 for carrying out its mission of protecting lives, livelihoods, and valuable natural resources for the American public. It identifies an integrated approach consisting of best management practices and long-term recapitalization levers to extend and sustain capabilities. The plan includes the critical long-term strategy of designing and constructing up to eight new ships specifically designed to meet NOAA core capability requirements based on mission and activities.

Since releasing the Fleet Plan, NOAA has made concerted efforts to strengthen its knowledge of the condition of the fleet. Material condition assessments paired with the American Bureau of Shipping SLAs have resulted in better confidence in the condition of NOAA ships; that and increased funding have improved the readiness of the fleet. As a result of these efforts and other best practices, the end of service lives for many of NOAA's ships have been extended from the dates published in the 2016 Fleet Plan. However, the trend of condition deterioration remains the same. To most efficiently meet its prioritized data requirements, NOAA needs new purpose-designed and constructed vessels.

NOAA's ships need to be multi-mission adaptable and provide the infrastructure and capabilities necessary to meet mission requirements now and in the future. In contrast to the wide variety of vessel types that currently comprise the NOAA Fleet, NOAA intends to reduce the number of ship classes in the future. Each class will focus on a core mission with secondary missions that make the best use of the vessel's capabilities. The table below identifies the primary and secondary missions met by each ship. NOAA will standardize core equipment as much as possible and incorporate the latest technologies across the Fleet. Up to date technology and standardization are critical for NOAA to sustain optimal crewing and efficient operations and maintenance.

The Vessel Recapitalization and Construction program supports vessel acquisition, including instrumentation specific to NOAA missions. The program oversees these activities, which include a rigorous analysis of mission requirements, design, and alternative options to meet prioritized requirements. The new ship acquisition process consists of four phases: requirements analysis, concept design, preliminary design, and detail design and construction. These phases are immediately followed by warranty and fleet introduction activities before the ship is ready for full operation. Efforts will be made throughout the process to leverage design aspects of previous ship classes and to create standardization across the Fleet to meet multiple core mission requirements.

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(Dollar amounts in thousands)

Ship	Primary Mission	Secondary Mission(s)
N/V Class A	Oceanographic Monitoring, Research and Modeling	Assessment and Management of Living Marine Resources (no trawl); Charting and Surveying
N/V Class B	Charting and Surveying	Assessment and Management of Living Marine Resources (no trawl); Oceanographic Monitoring, Research and Modeling
N/V Class C	Assessment and Management of Living Marine Resources (trawl-capable, shallow-draft)	Charting and Surveying
N/V Class D	Assessment and Management of Living Marine Resources (trawl capable, near-shore and deep ocean, longer endurance)	Charting and Surveying; Oceanographic Monitoring, Research and Modeling

Progress on NOAA's Fleet Plan has helped put NOAA on a steady path toward a more reliable fleet that supports NOAA's science needs. In FY 2022, construction will begin on the first two vessels in NOAA's Fleet Plan—the NOAA Ships *Oceanographer* and *Discoverer.* These ships will be NOAA Class A vessels (also known as NOAA AGOR variant) with primary missions of oceanographic monitoring, research and modeling. The *Oceanographer* will be homeported in Honolulu, Hawaii. The *Discoverer* will be homeported at Naval Station Newport, Rhode Island.

The FY 2023 funding will support acquisition of part of a Class B vessel, Class C requirements, and on-going program management of Class A construction. In FY 2023, NOAA will begin the detailed design and construction of N/V Class B. NOAA completed the requirements analysis phase for the N/V Class B in 2021. Class A construction continues through an assisted acquisition funded prior to FY 2022. Requirements analysis for the N/V Class C is also underway. Class B vessels will have the primary missions of charting and surveying, helping NOAA ensure safe navigation, while Class C vessels are trawl-capable ships that have the primary missions of assessing and managing living marine resources.

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(Dollar amounts in thousands)

AIRCRAFT RECAPITALIZATION AND CONSTRUCTION

NOAA's aircraft are and continue to be vital, national assets for collecting observational data and providing critical products and services to government agencies, communities, and businesses around the country. Aircraft recapitalization is necessary for NOAA to keep its fleet of aircraft operational and continue to provide essential services to the Nation, including accurate flood planning, hurricane forecasting, and data used by the Nation's emergency managers; fisheries data that supports the seafood and fishing industries; and hydrographic data to support safe navigation and maritime trade. These services affect individuals throughout the country and beyond, contributing to the Nation's $4.6 trillion seaport-generated economic activity and $200-billion fisheries industry.

NOAA's aircraft are vital in collecting observational data in support of hurricane, water supply and weather forecasting, nautical charting, and fisheries management.

In FY 2021, NOAA acquired one new King Air 350. This aircraft, which replaced the Turbo Commander, greatly enhances NOAA's ability to collect data vital to forecasters, researchers and emergency managers. With funds provided in FY 2022, NOAA is also finalizing the acquisition of one G-550 to replace the current G-IV.

In FY 2023, NOAA will add another Twin Otter and a third King Air. The Twin Otter will better meet prioritized NOAA airborne requirements to include water resource management, living marine resources, charting and mapping, and emergency response. This aircraft will increase capacity for improved water resource management, weather forecast modeling and air chemistry research. The King Air will eliminate a single point of failure for high-resolution mapping; this critical data provides emergency managers and the public vital imagery immediately following hurricanes, floods and earthquakes, as well as critical water forecast data. This aircraft is also critical for meeting living marine resource requirements. The King Air has longer range and endurance than NOAA's other aircraft, making it perfectly suited for remote survey areas, like the Beaufort and Chukchi Seas. The Twin Otter and the King Air will both be fully operational in FY 2024. Both aircraft will require additional operational support, maintenance, NOAA Corps pilots and civilian personnel when they come online.

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Platform Capital Improvements & Technology Infusion	Pos./BA	13	25,000	13	30,000	0	5,000
	FTE/OBL	13	25,000	13	30,000	0	5,000

P-3 Service Depot Level Maintenance (+5,000, 0 FTE/ 0 Positions) – This request will support Service Depot Level Maintenance (SDLM) for NOAA's two P-3 Hurricane Hunter aircraft. This maintenance is required to keep the aircraft operating by maintaining the aircraft's airworthiness certification, a legal requirement to fly. The P-3s are critical airborne tools for NOAA's climate products and services. They collect data that informs hurricane forecasts, fire predictions, tornado warnings and much more.

Additional funding in FY 2023 will ensure both aircraft remain airworthy and can continue support for hurricanes, and many other impactful missions. With additional funds, OMAO will complete SDLM on the first P-3 during the 2023 hurricane season. After hurricane season 2023, NOAA will initiate a SDLM on NOAA's second P-3. SDLM maintenance will extend the service life of the aircraft through 2030.

Continued service of the aircraft is critical to observing changes in climate and aiding in forecasting major weather events. These forecasts and models provide emergency managers, policy-makers, industry, and scientific data users with the information they will need to plan for, respond to and mitigate the impacts of climate events. Measuring and predicting climate change impacts are core to NOAA's mission. This request is fundamental to NOAA's mission in meeting the Administration's climate science goals, including EO 14008, through improved observations and forecasting for the American public.

Schedule and Milestones:
FY 2023

- First aircraft arrives at maintenance facility, as soon as reasonably practicable given 2022 hurricane season
- Conduct SDLM inspection on first P-3
- Repair all defects identified during inspection

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

FY 2024

- Second aircraft arrives at maintenance facility, as soon as reasonably practicable given 2023 hurricane season
- Conduct SDLM inspection on second P-3

Deliverables:

- Successful maintenance on a critical hurricane surveillance aircraft
- Reduced downtime due to unscheduled maintenance and repairs
- Continued service life until 2030

Performance Measures	2023	2024	2025	2026	2027
P-3 Flight Hours					
-With Increase	800	800	800	800	800
Without Increase	400	0	0	0	0
Outyear Costs:					
Direct Obligations	5,000	5,000	5,000	5,000	5,000
Capitalized	5,000	5,000	5,000	5,000	5,000
Uncapitalized	0	0	0	0	0
Budget Authority	5,000	2,500	0	0	0
Outlays	1,750	2,625	2,375	750	0
FTE	0	0	0	0	0
Positions	0	0	0	0	0

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PROGRAM INCREASE FOR 2023
(Dollar amounts in thousands)

Outyear Funding Estimates:

Subactivity/PPA	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	5,000	0	(2,500)	0	0	0	0	0
Total Request	5,000	5,000	2,500	0	0	0	12,500	0

*2022 and prior assumes funding from FY 2022 Enacted.

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PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Platform Capital Improvements and Technology Infusion
Subactivity: Platform Capital Improvements and Technology Infusion

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase from 2023 Base
11.1	Full-time permanent compensation	755	775	812	812	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	17	17	18	18	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	772	792	830	830	0
12	Civilian personnel benefits	252	260	271	271	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	59	59	59	59	0
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	27	27	27	27	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	9,755	9,755	9,706	9,706	0
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	9	307	307	307	0
31	Equipment	14,183	13,800	13,800	18,800	5,000
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	25,057	25,000	25,000	30,000	5,000

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PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

		2023 Base		2023 Estimate		Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Aircraft Recapitalization & Construction	Pos./BA	4	20,000	0	0	(4)	(20,000)
	FTE/OBL	4	20,000	0	0	(4)	(20,000)

Suspend Aircraft Recapitalization (-$20,000, -4 FTE/ -4 Positions) – NOAA will suspend its aircraft recapitalization program. Based on current information, remaining funds from prior year appropriations will enable NOAA to complete acquisition and outfitting of a G-550 to replace the G-IV. NOAA will utilize NASA's G-V high altitude jet in a back-up capability, when available, to meet tasking during the hurricane season when the NOAA G-IV is out of service. NOAA will not acquire any additional aircraft at this funding level. Staff will continue to support ongoing aircraft acquisitions using prior year funds.

NOAA is currently updating its Aircraft Recapitalization Plan, which will inform future budget requests.

Schedule and Milestones:

FY 2023

- Continue to provide oversight for high altitude jet acquisition (G-550)

FY 2024

- Delivery of the G-550
- Install final G-550 instruments and systems
- Test and calibrate G-550
- Induct the G-550 into NOAA's Fleet

Deliverables:

FY 2023-FY 2027

- A G-550

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PROGRAM DECREASE FOR 2023
(Dollar amounts in thousands)

Performance Measures	2023	2024	2025	2026	2027
Operational Aircraft					
With Decrease	9	9	9	9	9
Without Decrease	9	11	11	11	11
Outyear Costs:					
Direct Obligations	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)
Capitalized	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)
Uncapitalized	0	0	0	0	0
Budget Authority	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)
Outlays	(7,000)	(7,000)	(7,000)	(7,000)	(7,000)
FTE	0	0	0	0	0
Positions	0	0	0	0	0

Outyear Funding Estimates:

Subactivity/PPA	2022 & Prior	2023	2024	2025	2026	2027	CTC	Total
Change from 2023 Base	N/A	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	0	0
Total Request	182,000	0	0	0	0	0	0	0

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National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Aircraft Recapitalization and Construction
Subactivity: Aircraft Recapitalization and Construction
Program Change: Suspend Aircraft Recapitalization

Title		Grade	Number	Annual Salary	Total Salaries
General Engineer		ZP-5	-2	153,739	(307,478)
Acquisition Specialist		ZA-4	-2	140,460	(280,920)
Total			(4)		(588,398)
Less lapse	0.00%		0		0
Total full-time permanent (FTE)			(4)		(588,398)
2023 Pay Adjustment (4.6%)					(27,066)
					(615,464)
Personnel Data Summary					
Full-time Equivalent Employment (FTE)					
Full-time permanent			(4)		
Total FTE			(4)		
Authorized Positions:					
Full-time permanent			(4)		
Total Positions			(4)		

Department of Commerce
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Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: Aircraft Recapitalization and Construction
Subactivity: Aircraft Recapitalization and Construction

	Object Class	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Decrease from 2023 Base
11.1	Full-time permanent compensation	179	588	615	0	(615)
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	3	3	3	0	(3)
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	182	591	618	0	(618)
12	Civilian personnel benefits	30	207	217	0	(217)
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	16	16	16	0	(16)
22	Transportation of things	0	0	0	0	0
23	Rent, communications, and utilitites	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental Payments to others	0	0	0	0	0
23.3	Communications, utilities and misc charges	0	0	0	0	0
24	Printing and reproduction	1	1	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services from non-Federal sources	1,691	197	197	0	(197)
25.3	Other goods and services from Federal sources	0	0	0	0	0
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
25.8	Subsistence and support of persons	0	0	0	0	0
26	Supplies and materials	348	307	307	0	(307)
31	Equipment	29,530	18,681	18,645	0	(18,645)
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	31,798	20,000	20,000	0	(20,000)

Department of Commerce
National Oceanic and Atmospheric Administration
NOAA Corps Retirement Pay (Mandatory)
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
Annualized CR, 2022	0	0	30,861	30,861
plus: 2023 Adjustments to Base	0	0	143	143
2023 Base	0	0	31,004	31,004
Plus: 2022 Program Changes	0	0	0	0
2023 Estimate	0	0	31,004	31,004

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/Decrease from 2023 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA Corps Retirement Pay	POS/BA	0	33,270	0	30,861	0	31,004	0	31,004	0	0
	FTE/OBL	0	30,149	0	30,861	0	31,004	0	31,004	0	0
Total: NOAA Corps Retirement Pay	POS/BA	0	33, 270	0	30,861	0	31,004	0	31,004	0	0
	FTE/OBL	0	30,149	0	30,861	0	31,004	0	31,004	0	0

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
NOAA Corps Retirement Pay (Mandatory)
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	30,149	0	30,861	0	31,004	0	31,004	0	0
Total Obligations	**0**	**30,149**	**0**	**30,861**	**0**	**31,004**	**0**	**31,004**	**0**	**0**
Adjustments to Obligations:										
Unobligated balance	0	3,121	0	0	0	0	0	0	0	0
Total Budget Authority	**0**	**33,270**	**0**	**30,861**	**0**	**31,004**	**0**	**31,004**	**0**	**0**
Financing from Transfers and Other:										
	0	0	0	0	0	0	0	0	0	0
Net Appropriation	**0**	**33,270**	**0**	**30,861**	**0**	**31,004**	**0**	**31,004**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
NOAA Corps Retirement Pay (Mandatory)
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollar amounts in thousands)

Activity: NOAA Corps Retirement Pay (Mandatory)

Goal Statement

Provide payment of benefits to retired NOAA Commissioned Officer Corps (NOAA Corps) Officers and their families.

Base Program

In FY 2020, there were 403 retired NOAA Corps officers receiving retired pay benefits, and 31 spouses or 34 dependents of deceased retired officers, who are still eligible to receive benefits.

Statement of Operating Objectives

Schedule and Milestones:

- Transfer funds to the U.S. Coast Guard (USCG)
- Administer Healthcare funds for non-Medicare-eligible retirees, dependents, and annuitants

Deliverables:

- Benefits for retired NOAA Corps Officers and their families

Explanation and Justification

The retirement system for the uniformed services provides a measure of financial security after release from active duty for service members and their survivors. It is an important factor in the choice of a career in the uniformed services, and the legal mandate for rates to be paid is the same for all uniformed services, see 10 USC. Retired pay is an entitlement to NOAA Commissioned Corps officers under 33 USCA 3044, 33 USCA 3045, and 33 USCA 3046. Retired pay funds are transferred to the USCG, which handles the payments each year as adjusted pursuant to the National Defense Authorization Act (NDAA). Healthcare funds for non-Medicare-eligible retirees, dependents, and annuitants are administered by OMAO.

This line includes funding for the modernized retirement system, which includes matching Thrift Savings Plan (TSP) contributions, continuation pay, and retirement itself. Public Law 114-92, the NDAA for FY 2016—provides the Secretary the authority to provide TSP contributions for members of the uniformed services effective January 1, 2018. Public Law 114-92, as amended by P.L. 114-

328, the NDAA for FY 2017—modifies section 356 of title 37 and the use of continuation pay for full TSP members. Members must have “completed not less than [eight] and not more than [twelve] years of service” and “[enter] into an agreement of not less than [three] additional years of obligated service.” Continuation pay applies across the board to all military members who are in the modernized retirement system and is intended to help ensure retention after a member has the ability to acquire significant retirement benefits.

Legal authority for retirement of NOAA Corps officers is contained in 33 USCA 3044. Retired officers of the NOAA Corps receive retirement benefits that are administered by USCG, in accordance with a Memorandum of Agreement between the USCG and NOAA, with funds certified by the Commissioned Personnel Center within OMAO.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
NOAA Corps Retirement Pay (Mandatory)
SUMMARY OF RESOURCE REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
Object Class					
13 Benefits for Former Personnel	26,949	29,841	29,984	29,984	0
25.3 Other goods and services from Federal sources	3,200	1,020	1,020	1,020	0
Total Obligations	30,149	30,861	31,004	31,004	0
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	0	0	0	0	0
Plus unobligated balance, EOY	3121	0	0	0	0
Offsetting collections, Mandatory	0	0	0	0	0
Less: Previously Unavail. Unoblig. Bal.	0	0	0	0	0
Total Budget Authority Mandatory	33,270	30,861	31,004	31,004	0
Personnel Data					
Full-Time Equivalent Employment					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Medicare Eligible Retiree Health Fund Contribution – NOAA Corps
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
Annualized CR, 2022	0	0	1,591	1,591
Plus: 2023 Adjustments to Base	0	0	26	26
2023 Base	0	0	1,617	1,617
Plus: 2022 Program Changes	0	0	0	0
2023 Estimate	0	0	1,617	1,617

		2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase from 2023 Base	
		Personnel	Amount	Personnel	Amoun	Personnel	Amount	Person	Amount	Person	Amount
Medicare Eligible Retiree Health Fund Contribution	Pos/BA	0	1,591	0	1,591	0	1,617	0	1,617	0	0
	FTE/OBL	0	1,591	0	1,591	0	1,617	0	1,617	0	0
Total: Medicare Eligible Retiree Health Fund Contribution	Pos/BA	0	1,591	0	1,591	0	1,617	0	1,617	0	0
	FTE/OBL	0	1,591	0	1,591	0	1,617	0	1,617	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Medicare Eligible Retiree Health Fund Contribution – NOAA Corps
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	2021 Actual		2022 Annualized CR		2023 Base		2023 Estimate		Increase/ Decrease from 2023 Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	1,591	0	1,591	0	1,617	0	1,617	0	0
Total Obligations	**0**	**1,591**	**0**	**1,591**	**0**	**1,617**	**0**	**1,617**	**0**	**0**
Adjustments to Obligations:										
Unobligated balance	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	**0**	**1,591**	**0**	**1,591**	**0**	**1,617**	**0**	**1,617**	**0**	**0**
Financing from Transfers and Other:										
Net Appropriation	**0**	**1,591**	**0**	**1,591**	**0**	**1,617**	**0**	**1,617**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
Medicare Eligible Retiree Health Fund Contribution – NOAA Corps
JUSTIFICATION OF PROGRAM AND PERFORMANCE
(Dollars amounts in thousands)

Activity: Medicare-Eligible Retiree Healthcare Fund Contribution - NOAA Corps

Goal Statement

This account is NOAA's contribution to a health care accrual fund for NOAA Commissioned Officer Corps (NOAA Corps) officers. The accrual fund pays for the future health care benefits for current officers once they retire and become Medicare-eligible, as well as for their dependents and annuitants.

Base Program

For FY 2023, payments to the accrual fund are estimated at $1,617.

Statement of Operating Objectives

Schedule and Milestones: (On-going)

- Contribute to healthcare accrual fund
- Provide healthcare benefits to eligible retired NOAA Corps Officers and their dependents and annuitants

Deliverables:

- Healthcare benefits of present, active-duty NOAA offices and their dependents and annuitants

Explanation and Justification

The FY 2003 NDAA requires all uniformed services, including NOAA, to participate in an accrual fund for Medicare-eligible retirees. Payments into this accrual fund will cover the future health care benefits of present, active-duty NOAA officers and their dependents and annuitants.

Department of Commerce
National Oceanic and Atmospheric Administration
Medicare Eligible Retiree Health Fund Contribution – NOAA Corps
SUMMARY OF RESOURCE REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	2021 Actual	2022 Annualized CR	2023 Base	2023 Estimate	Increase/Decrease from 2023 Base
Object Class					
25.3 Other goods and services from Federal sources	1,591	1,591	1,617	1,617	0
Total Obligations	**1,591**	**1,591**	**1,617**	**1,617**	**0**
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	0	0	0	0	0
Plus unobligated balance, EOY	0	0	0	0	0
Offsetting collections, Mandatory	0	0	0	0	0
Less: Previously Unavail. Unoblig. Bal.	0	0	0	0	0
Total Budget Authority	**1,591**	**1,591**	**1,617**	**1,617**	**0**
Personnel Data					
Full-Time Equivalent Employment					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**

Department of Commerce
National Oceanic and Atmospheric Administration
APPROPRIATION LANGUAGE AND CODE CITATIONS

For expenses necessary for activities authorized by law for the National Oceanic and Atmospheric Administration,

5 USC 5348	15 USC 1514	16 USC 3645	33 USC 2706	
5 USC 4703	15 USC 1517	16 USC 4101 et seq.	33 USC 2712	
7 USC 1622	15 USC 1537-40	16 USC 4701 et seq.	33 USC 2801 et seq.	
10 USC 1072	15 USC 8511-8521	16 USC 5001 et seq.	33 USC 3001 et seq.	
10 USC 1116	16 USC 6804 note	16 USC 8206	33 USC 3402	
10 USC 1409	16 USC 46a	196 USC 4732	33 USC 3501	
10 USC 2311	16 USC 661 et seq.	31 USC 1105	33 USC 3601	
10 USC 8931	16 USC 757a et seq.	31 USC 6401	33 USC 3703	
12 USC 1715m	16 USC 1361	33 USC 706 et seq.	33 USC 4001	
15 USC 313	16 USC 1431 et seq.	33 USC 883 a-i et seq.	33 USC 4213	
15 USC 313a	16 USC 1447a et seq.	33 USC 891 et seq.	42 USC 8902-05	
15 USC 313b	16 USC 1451 et seq.	33 USC 893 et seq.	42 USC 9601 et seq.	
15 USC 313 note	16 USC 1456a	33 USC 1121 et seq.	43 USC 1347e	
15 USC 325	16 USC 1456-1	33 USC 1141	43 USC 3102	
15 USC 330b	16 USC 1467	33 USC 1251 note	44 USC 1307	
15 USC 330e	16 USC 1531 et seq.	33 USC 1321	49 USC 44720	
15 USC 1511 b-e	16 USC 1801 et seq.	33 USC 1441-44	51 USC 6061	

Government Organization and Employees

5 USC 5348 - Crews of Vessels
"...the pay of officers and members of crews of vessels excepted from chapter 51 of this title by section 5102(c)(8) of this title shall be fixed and adjusted from time to time as nearly as is consistent with the public interest in accordance with prevailing rates and practices in the maritime industry."

5 USC 4703- Demonstration Projects
"…the Office of Personnel Management may, directly or through agreement or contract with one or more agencies and other public and private organizations, conduct and evaluate demonstration projects."

Department of Commerce
National Oceanic and Atmospheric Administration
APPROPRIATION LANGUAGE AND CODE CITATIONS

Agriculture

7 USC 1622 - Distribution and Marketing of Agricultural Products

"The Secretary ... is directed and authorized: ...

(a) to determine the needs and develop or assist in the development of plans for the proper assembly, processing, transportation, storage, distribution, and handling of agricultural (fish) products.

(f) to conduct and cooperate in consumer education for the more effective utilization and greater consumption of agricultural products (fish)...

(g) to collect and disseminate marketing information... for the purpose of ... bringing about a balance between production and utilization of agricultural (fish) products.

(h) to inspect, certify, and identify the class, quality, quantity and condition of agricultural (fish) products ...

(m) to conduct ... research ... to determine the most efficient ... processes for the handling, storing, preserving, protecting...of agricultural (fish) commodities ..."

(h) - Duties of Secretary relating to agricultural products; penalties

"Whoever knowingly shall falsely make, issue, alter, forge, or counterfeit any official certificate, memorandum, or other identification, with respect to inspection, class, grade, quality, size, quantity, or condition, issued or authorized under this section or knowingly cause or procure, or aid, assist in, or be a party to, such false making, issuing, altering, forging, or counterfeiting, or whoever knowingly shall possess, without promptly notifying the Secretary (of Commerce) or his representative, utter, published, or used as true, any such falsely made, altered forged, or counterfeited official certificate, memorandum, mark, identification, or device, or whoever knowingly represents that an agricultural product has been officially inspected or graded...when in fact such commodity has not been so graded or inspected shall be fined not more than $1,000 or imprisoned not more than one year, or both."

Armed Forces

10 USC 1072 Medical and Dental Care

"…The term "uniformed services" means the armed forces and the Commissioned Corps of the National Oceanic and Atmospheric Administration and of the Public Health Service."

Department of Commerce
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APPROPRIATION LANGUAGE AND CODE CITATIONS

10 USC 1116 Determinations of Contributions to the Fund

"At the beginning of each fiscal year after September 30, 2005, the Secretary of the Treasury shall promptly pay into the Fund from the General Fund of the Treasury--(1) the amount certified to the Secretary by the Secretary of Defense under subsection (c), which shall be the contribution to the Fund for that fiscal year required by section 1115; and (2) the amount determined by each administering Secretary under section 1111(c) as the contribution to the Fund on behalf of the members of the uniformed services under the jurisdiction of that Secretary."

10 USC 1409 - Retired pay multiplier

"(4) Modernized retirement system.-(A) Reduced multiplier for full tsp members .-Notwithstanding paragraphs (1), (2), and (3), in the case of a member who first becomes a member of the uniformed services on or after January 1, 2018, or a member who makes the election described in subparagraph (B) (referred to as a "full TSP member")- (i) paragraph (1)(A) shall be applied by substituting "2" for "2½"; (ii) clause (i) of paragraph (3)(B) shall be applied by substituting "60 percent" for "75 percent"; and (iii) clause (ii)(I) of such paragraph shall be applied by substituting "2" for "2½". (B) Election to participate in modernized retirement system .-Pursuant to subparagraph (C), a member of a uniformed service serving on December 31, 2017, who has served in the uniformed services for fewer than 12 years as of December 31, 2017, may elect, in exchange for the reduced multipliers described in subparagraph (A) for purposes of calculating the retired pay of the member, to receive Thrift Savings Plan contributions pursuant to section 8440e(e) of title 5. (C) Election period.- (i) In general .-Except as provided in clauses (ii) and (iii), a member of a uniformed service described in subparagraph (B) may make the election authorized by that subparagraph only during the period that begins on January 1, 2018, and ends on December 31, 2018. (ii) Hardship extension .-The Secretary concerned may extend the election period described in clause (i) for a member who experiences a hardship as determined by the Secretary concerned. (iii) Effect of break in service .-A member of a uniformed service who returns to service after a break in service that occurs during the election period specified in clause (i) shall make the election described in subparagraph (B) within 30 days after the date of the reentry into service of the member."

10 USC 2311 Assignment and Delegation of Procurement Functions and Responsibilities

(a) In General.--Except to the extent expressly prohibited by another provision of law, the head of an agency may delegate, subject to his direction, to any other officer or official of that agency, any power under this chapter.

(b) Procurements For or With Other Agencies.--Subject to subsection (a), to facilitate the procurement of property and services covered by this chapter by each agency named in section 2303 of this title for any other agency, and to facilitate joint procurement by those agencies--

(1) the head of an agency may delegate functions and assign responsibilities relating to procurement to any officer or employee within such agency;

(2) the heads of two or more agencies may by agreement delegate procurement functions and assign procurement responsibilities from one agency to another of those agencies or to an officer or civilian employee of another of those agencies; and
(3) the heads of two or more agencies may create joint or combined offices to exercise procurement functions and responsibilities.

10 USC 8931 – National Oceanographic Partnership Program
The Secretary of the Navy shall establish a program to be known as the "National Oceanographic Partnership Program."

Banks and Banking

12 USC 1715m - Mortgage Insurance for Servicemen [NOAA Corps]
This section authorizes payment of Federal Housing Administration (FHA) home mortgage insurance premiums to NOAA Corps Officers.

Commerce and Trade

15 USC 313 - Duties of Secretary of Commerce [National Weather Service]
"The Secretary of Commerce...shall have charge of the forecasting of weather,...issue of storm warnings,...weather and flood signals,... gauging and reporting of rivers,...collection and transmission of marine intelligence...,...reporting of temperature and rainfall conditions..., the display of frost and cold-wave signals, the distribution of meteorological information..., and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties."

15 USC 313a - Establishment of Meteorological Observation Stations in the Arctic Region
"... The Secretary of Commerce shall ... take such actions as may be necessary in the development of an international basic meteorological reporting network in the Arctic region of the Western Hemisphere..."

15 USC 313b - Institute for Aviation Weather Prediction
"The Administrator of the National Oceanic and Atmospheric Administration shall establish an Institute for Aviation Weather Prediction. The Institute shall provide forecasts, weather warnings, and other weather services to the United States aviation community.…"

15 USC 313d – National Integrated Drought Information System (NIDIS) Program

Department of Commerce
National Oceanic and Atmospheric Administration
APPROPRIATION LANGUAGE AND CODE CITATIONS

"The Under Secretary, through the National Weather Service and other appropriate weather and climate programs in the National Oceanic and Atmospheric Administration, shall establish a National Integrated Drought Information System to better inform and provide for more timely decisionmaking to reduce drought related impacts and costs."

15 USC 313 note - Weather Service Modernization Act (a)
As part of the budget justification documents submitted to Congress in support of the annual budget request for the department of Commerce, the Secretary shall include a National Implementation Plan for modernization of the National Weather Service for each fiscal year following fiscal year 1993 until such modernization is complete. The Plan shall set forth the actions, during the 2-year period beginning with the fiscal year for which the budget request is made, that will be necessary to accomplish the objectives described in the Strategic Plan.

15 USC 325 - Spending Authority for the National Weather Service
"...Appropriations now or hereafter provided for the National Weather Service shall be available for: (a) furnishing food and shelter...to employees of the Government assigned to Arctic stations; (b) equipment and maintenance of meteorological offices and stations, and maintenance and operation of meteorological facilities outside the United States... (c) repairing, altering, and improving of buildings occupied by the National Weather Service, and care and preservation of grounds...(d) arranging for communication services... and
(e) purchasing tabulating cards and continuous form tabulating paper.

15 USC 330b - Duties of Secretary relating to Weather Modification Activities or Attempts - Reporting Requirement
"The Secretary shall maintain a record of weather modification activities, including attempts, which take place in the United States and shall publish summaries thereof from time to time as he determines."
(a) "All reports, documents, and other information received by the Secretary under the provisions of this chapter shall be made available to the public to the fullest practicable extent."

15 USC 330e - Authorization of Appropriations relating to Weather Modification Activities or Attempts - Reporting Requirement
This section provides funding authority to support the reporting requirements specified in this chapter.

15 USC 1511b - United States Fishery Trade Officers
"For purposes of carrying out export promotion and other fishery development responsibilities, the Secretary of Commerce…shall appoint not fewer than six officers who shall serve abroad to promote United States fishing interests. These officers shall be knowledgeable about the United States fishing industry, preferably with experience derived from the harvesting,

processing, or marketing sectors of the industry or from the administration of fisheries programs. Such officers, who shall be employees of the Department of Commerce, shall have the designation of fishery trade officers."

15 USC 1511c - NOAA Estuarine Programs Office

"... The Estuarine Programs Office shall develop, coordinate, and implement the estuarine activities of the administration with the activities of other Federal and State agencies. There are authorized to be appropriated to the Administration not to exceed $560,000 for fiscal year 1989, and $600,000 for fiscal year 1990."

15 USC 1511d - Chesapeake Bay Office

The Secretary of Commerce shall establish, within the National Oceanic and Atmospheric Administration, an office to be known as the Chesapeake Bay Office…which shall provide technical assistance on processes impacting the Chesapeake Bay system, its restoration and habitat protection; develop a strategy to meet the commitments of the Chesapeake Bay Agreement; and coordinate programs and activities impacting the Chesapeake Bay, including research and grants.

15 USC 1511e - Office of Space Commercialization

"There is established with the Department of Commerce an Office of Space Commercialization" which shall "promote commercial provider investment in space activities…assist United States commercial providers in [their efforts to] conduct business with the United States Government, [act] as an industry advocate within the executive branch…, ensure that the United States Government does not compete with United States commercial providers…, [promote] the export of space-related goods and services, [represent] the Department of Commerce in the development of United States policies…and [seek] the removal of legal, policy, and institutional impediments to space commerce."

15 USC 1514 - Basic Authority for Performance of Certain Functions and Activities of Department

"Appropriations are authorized for the following activities of the Department of Commerce:

(a) furnishing to employees...and their dependents, in Alaska and other points outside the continental United States, free emergency medical services...and supplies;
(b) purchasing, transporting, storing, and distributing food and other subsistence supplies for resale to employees...and their dependents, in Alaska and other points outside the continental United States at a reasonable value...; the proceeds from such resales to be credited to the appropriation from which the expenditure was made;
(c) ...establishment, maintenance, and operation of messing facilities, by contract or otherwise, in Alaska and other points outside the continental United States..., such service to be furnished to employees...and their dependents,...
(d) reimbursement...of officers or employees in or under the Department...for food, clothing, medicines, and other supplies furnished by them in emergencies for the temporary relief of dislocated persons in remote localities;

(e) providing motion-picture equipment and film for recreation of crews of vessels..., for recreation for employees in remote localities..., and for training purposes;
(f) erecting, altering, repairing, equipping, furnishing, and maintaining...such living and working quarters and facilities as may be necessary to carry out its authorized work at remote localities not on foreign soil where such living and working accommodations are not otherwise available."

15 USC 1517 - Transfer of Statistical or Scientific Work

"The President is authorized, by order in writing, to transfer at any time the whole or any part of any office, bureau, division, or other branch of the public service engaged in statistical or scientific work, from the Department of State, the Department of the Treasury, the Department of Defense, the Department of Justice, the United States Postal Service, or the Department of the Interior, to the Department of Commerce; and in every such case the duties and authority performed by and conferred by law upon such office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall be thereby transferred with such office, bureau, division, or other branch of the public service, or the part thereof which is so transferred. All power and authority conferred by law, both supervisory and appellate, upon the department from which such transfer is made, or the Secretary thereof, in relation to the said office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall immediately, when such transfer is so ordered by the President, be fully conferred upon and vested in the Department of Commerce, or the Secretary thereof, as the case may be, as to the whole or part of such office, bureau, division, or other branch of the public service so transferred."

15 USC 1537 Needs Assessment for Data Management

"Not later than 12 months after October 29, 1992, and at least biennially thereafter, the Secretary of Commerce shall complete an assessment of the adequacy of the environmental data and information systems of NOAA."

15 USC 1538 – Notice of reprogramming

(a) In general

The Secretary of Commerce shall provide notice to the Committee on Commerce, Science, and Transportation and Committee on Appropriations of the Senate and to the Committee on Merchant Marine and Fisheries, Committee on Science, Space, and Technology, and Committee on Appropriations of the House of Representatives, not less than 15 days before reprogramming funds available for a program, project, or activity of the National Oceanic and Atmospheric Administration in an amount greater than the lesser of $250,000 or 5 percent of the total funding of such program, project, or activity if the reprogramming-
(1) augments an existing program, project, or activity;
(2) reduces by 5 percent or more (A) the funding for an existing program, project, or activity or (B) the numbers of personnel therefor as approved by Congress; or

(3) results from any general savings from a reduction in personnel which would result in a change in an existing program, project, or activity.

(b) Notice of reorganization
The Secretary of Commerce shall provide notice to the Committees on Merchant Marine and Fisheries, Science, Space, and Technology, and Appropriations of the House of Representatives, and the Committees on Commerce, Science, and Transportation and Appropriations of the Senate not later than 15 days before any major reorganization of any program, project, or activity of the National Oceanic and Atmospheric Administration.

15 USC 1539 – Financial Assistance
(a) Processing of applications
Within 12 months after October 29, 1992, the Secretary of Commerce shall develop and, after notice and opportunity for public comment, promulgate regulations or guidelines to ensure that a completed application for a grant, contract, or other financial assistance under a nondiscretionary assistance program shall be processed and approved or disapproved within 75 days after submission of the application to the responsible program office of the National Oceanic and Atmospheric Administration.
(b) Notification of applicant
Not later than 14 days after the date on which the Secretary of Commerce receives an application for a contract, grant, or other financial assistance provided under a nondiscretionary assistance program administered by the National Oceanic and Atmospheric Administration, the Secretary shall indicate in writing to the applicant whether or not the application is complete and, if not complete, shall specify the additional material that the applicant must provide to complete the application.
(c) Exemption
In the case of a program for which the recipient of a grant, contract, or other financial assistance is specified by statute to be, or has customarily been, a State or an interstate fishery commission, such financial assistance may be provided by the Secretary to that recipient on a sole-source basis, notwithstanding any other provision of law.
(d) "Nondiscretionary assistance program" defined
In this section, the term "nondiscretionary assistance program" means any program for providing financial assistance—
(1) under which the amount of funding for, and the intended recipient of, the financial assistance is specified by Congress; or
(2) the recipients of which have customarily been a State or an interstate fishery commission.

<u>15 USC 1540 – Cooperative Agreements</u>
"The Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere, may enter into cooperative agreements and other financial agreements with any nonprofit organization to (1) aid and promote scientific and educational activities to foster public understanding of the National Oceanic and Atmospheric Administration or its programs; and (2) solicit private donations for the support of such activities."

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15 USC 8511-8521 – United States Weather Research and Forecasting Improvement
In conducting research, the Under Secretary shall prioritize improving weather data, modeling, computing, forecasting, and warnings for the protection of life and property and for the enhancement of the national economy.

Conservation

16 USC 6804 note – John D. Dingell Jr. Conservation, Management, and Recreation Act
(b)EVERY KID OUTDOORS PROGRAM.—
"(1)ESTABLISHMENT.—The Secretaries shall jointly establish a program, to be known as the 'Every Kid Outdoors program', to provide free access to Federal land and waters for students and accompanying individuals in accordance with this subsection.

16 USC 46a - Marine Fisheries Program Authorization Act
This Act authorizes NMFS fisheries programs not otherwise authorized by law, including research to reduce entanglement of marine mammals in fishing gear, development of habitat restoration techniques, restoration of Chesapeake Bay, and conservation of Antarctic living marine resources.

16 USC 661 et seq.- Declaration of Purpose; Cooperation of Agencies; Surveys and Investigations; Donations
"...the Secretary of the Interior is authorized (1) to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat, in controlling losses of the same from disease or other causes, in minimizing damages from overabundant species, in providing public shooting and fishing areas, including easements across public lands for access thereto, and in carrying out other measures necessary to effectuate the purposes of said sections; (2) to make surveys and investigations of the wildlife of the public domain, including lands and waters or interests therein acquired or controlled by any agency of the United States; and (3) to accept donations of land and contributions of funds in furtherance of the purposes of said sections."

16 USC 757a et seq.- Anadromous, Great Lakes, and Lake Champlain Fisheries
The Act authorizes cooperative agreements with States "that are concerned with the development, conservation, and enhancement of [anadromous] fish" (section 757a(a)).

16 USC 1361 - Congressional Findings

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"The Congress finds that - (1) certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities;"

"The Secretary is authorized to make grants, or to provide financial assistance in such other form as he deems appropriate, to any Federal or State agency, public or private institution, or other person for the purpose of assisting such agency, institution, or person to undertake research in subjects which are relevant to the protection and conservation of marine mammals, and shall provide financial assistance for, research into new methods of locating and catching yellow-fin tuna without the incidental taking of marine mammals."

16 USC 1431 et seq. - Findings, Purposes, and Policies [The National Marine Sanctuaries Act, as amended]
(b) Purposes and Policies

"The purposes and policies of this title are -

(1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance;
(2) to provide authority for ... conservation and management of these marine areas ...
(3) to support, promote, and coordinate scientific research on, and monitoring of, the resources of these marine areas...
(4) to enhance public awareness, understanding, appreciation, and wise use of the marine environment;
(5) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;
(6) to develop and implement coordinated plans for the protection and management of these areas...;
(7) to create models of, and incentives for, ways to conserve and manage these areas..."
(8) to cooperate with global programs ...; and
(9) to maintain, restore, and enhance living resources ..."

16 USC 1447a et seq. - Regional Marine Research Programs
Authorizes NOAA/EPA and Governors of certain states to appoint members to a number of regional marine research boards. Each board is to develop a comprehensive four year marine research plan and "the Administrator of the National Oceanic and Atmospheric Administration shall administer a grant program to support the administrative functions of each Board."

Authorization for the Boards expires on October 1, 1999. The authorization for appropriations expired at the end of fiscal year 1996.

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16 USC 1451 et seq. - Findings, Purposes, and Policies [Coastal Zone Management Act]
Establishes a voluntary partnership between the Federal Government and coastal States. It also establishes the National Estuarine Reserve Research program, in which the Secretary of Commerce may designate an estuarine area as a national estuarine research reserve in consultation with governor of affected state.

16 USC 1456a – Coastal Zone Management Fund
"(b) (1) The Secretary shall establish and maintain a fund, to be known as the 'Coastal Zone Management Fund', which shall consist of amounts retained and deposited into the Fund under subsection (a) of this section and fees deposited into the Fund under section 1456 (i) (3) of this title"

16 USC 1456-1 – Coastal and Estuarine Land Conservation Program
Amends the Coastal Zone Management Act of 1972 to authorize the Secretary of Commerce to conduct a Coastal and Estuarine Land Conservation Program to protect important coastal and estuarine areas. Requires related property acquisition grants to coastal states with approved coastal zone management plans or National Estuarine Research Reserve units. Authorizes appropriations.

16 USC 1467 – Establishment of the Digital Coast
(a)ESTABLISHMENT
(1)IN GENERAL
The Secretary shall establish a program for the provision of an enabling platform that integrates geospatial data, decision-support tools, training, and best practices to address coastal management issues and needs. Under the program, the Secretary shall strive to enhance resilient communities, ecosystem values, and coastal economic growth and development by helping communities address their issues, needs, and challenges through cost-effective and participatory solutions.

16 USC 1531 et seq. – Congressional Findings and Declaration of Purposes and Policy
The purposes of the Act are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in [the statute]" (section 1531(b)).

16 USC 1801 et seq. - Magnuson-Stevens Fishery Conservation and Management Act
The primary purpose of the Act is "to take immediate action to conserve and manage the fishery resources found off the coasts of the United States (section 1801(b)(1))."

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16 USC 3645 - Pacific Coastal Salmon Recovery
"(A) For salmon habitat restoration, salmon stock enhancement, and salmon research, including the construction of salmon research and related facilities, there is authorized to be appropriated for each of fiscal years 2000, 2001, 2002, and 2003, $90,000,000 to the States of Alaska, Washington, Oregon, and California. Amounts appropriated pursuant to this subparagraph shall be made available as direct payments. The State of Alaska may allocate a portion of any funds it receives under this subsection to eligible activities outside Alaska."

Amended in PL109-479 Section 302(d) as follows: Section 16(d)(2)(A) of the Pacific Salmon Treaty, as transferred by paragraph (1), is amended—

(1) by inserting "sustainable salmon fisheries," after "enhancement,";
(2) by inserting "2005, 2006, 2007, 2008, and 2009," after "2003"; and
(3) by inserting ''Idaho,'' after ''Oregon,''.

16 USC 4101 et seq. – Interjurisdictional Fisheries
"The purposes of this chapter are - (1) to promote and encourage State activities in support of the management of interjurisdictional fishery resources, and (2) to promote and encourage management of interjurisdictional fishery resources through their range" (3) to promote and encourage research in preparation for the implementation of the use of ecosystems and interspecies approaches to the conservation and management of interjurisdictional fishery resources throughout their range."

16 USC 4701 et seq. **-** Aquatic Nuisance Prevention and Control
Establishes an interagency Aquatic Nuisance Species Task Force, of which the Administrator of NOAA is a co-chair. The task force's responsibilities include developing and implementing "a program for waters of the United States to prevent introduction and dispersal of aquatic nuisance species; to monitor, control and study such species; and to disseminate related information."

16 USC 5001 et seq. - Purpose of Convention
"It is the purpose ... to implement the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean, signed in Moscow, February 11, 1992."

16 USC 8206 – America's Conservation Enhancement Act

(a) In general

The Director, the National Oceanic and Atmospheric Administration Assistant Administrator, the Environmental Protection Agency Assistant Administrator, and the Director of the United States Geological Survey, in coordination with the Forest Service

and other appropriate Federal departments and agencies, may provide scientific and technical assistance to Partnerships, participants in fish habitat conservation projects, and the Board.

Customs Duties

19 USC 4732 – United States-Mexico-Canada Agreement Implementation
(a) IN GENERAL.—Upon the request of the Trade Representative, the Administrator of the Environmental Protection Agency, the Director of the U.S. Fish and Wildlife Service, and the Administrator of the National Oceanic Atmospheric Administration may detail, on a reimbursable basis, one employee of each such respective agency to the Office of the United States Trade Representative to be assigned to the United States Embassy in Mexico to carry out the duties described in subsection (b).

Money and Finance

31 USC 1105 - Budget Contents and Submission to Congress
(a) On or after the first Monday in January but not later than the first Monday in February of each year, the President shall submit a budget of the United States Government for the following fiscal year. Each budget shall include a budget message and summary and supporting information.

Amended in PL108-447 (FY 2005 Omnibus Appropriations Act) as follows: "*Provided further,* That beginning in fiscal year 2006 and for each fiscal year thereafter, the Secretary of Commerce shall include in the budget justification materials that the Secretary submits to Congress in support of the Department of Commerce budget (as submitted with the budget of the President under section 1105(a) of title 31, 10 United States Code) an estimate for each National Oceanic and Atmospheric Administration procurement, acquisition and construction program having a total multiyear program cost of more than $5,000,000 and simultaneously the budget justification materials shall include an estimate of the budgetary requirements for each such program for each of the 5 subsequent fiscal years."

31 USC 6401 - Grant Reporting - Efficiency and Agreements Transparency Act of 2019
To modernize Federal grant reporting and other purposes.

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Navigation and Navigable Waters

33 USC 706 et seq. - Department of Commerce; Current Precipitation Information; Appropriation
"There is authorized an expenditure as required,..., for the establishment, operation, and maintenance by the Secretary of Commerce of a network of recording and non-recording precipitation stations, known as the Hydroclimatic Network, whenever...such service is advisable..."

33 USC 883a et seq. - Surveys and Other Activities
"...the Secretary...is authorized to conduct the following activities:

(1) Hydrographic and topographic surveys;
(2) Tide and current observations;
(3) Geodetic-control surveys;
(4) Field surveys for aeronautical charts;
(5) Geomagnetic, seismological, gravity, and related geophysical measurements and investigations, and observations ..."

33 USC 883b - Dissemination of Data; Further Activities
"...the Secretary is authorized to conduct the following activities:

(1) Analysis and prediction of tide and current data;
(2) Processing and publication of data...;
(3) Compilation and printing of nautical charts...;
(4) Distribution of nautical charts..."

33 USC 883c - Geomagnetic Data; Collection; Correlation, and Dissemination
"To provide for the orderly collection of geomagnetic data...the Secretary ... is authorized to collect, correlate, and disseminate such data."

33 USC 883d - Improvement of Methods, Instruments, and Equipments; Investigations and Research
"...the Secretary ... is authorized to conduct developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences..."

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33 USC 883e - Cooperative Agreements for Surveys and Investigations; Contribution of Costs Incurred by National Oceanic and Atmospheric Administration
"(1) The Secretary of Commerce is authorized to enter into cooperative agreements with, and to receive and expand funds made available by... for surveys or investigations... or for performing related surveying and mapping activities... and for the preparation and publication of the results thereof."

"(2) The Secretary of Commerce is authorized to establish the terms of any cooperative agreement entered into ... including the amount of funds to be received ... which the Secretary determines represents the amount of benefits derived ... from the cooperative agreement."

33 USC 883f - Contracts with Qualified Organizations
"The Secretary is authorized to contract with qualified organizations for the performance of any part of the authorized functions of the National Ocean Survey..."

33 USC 883h - Employment of Public Vessels
"The President is authorized to cause to be employed such of the public vessels as he deems it expedient to employ, and to give such instructions for regulating their conduct as he deems proper in order to carry out the provisions of this subchapter."

33 USC 883i - Authorization of Appropriations
"There are hereby authorized to be appropriated such funds as may be necessary to acquire, construct, maintain, and operate ships, stations, equipment, and facilities and for such other expenditures, including personal services at the seat of government and elsewhere and including the erection of temporary observatory buildings and lease of sites therefore as may be necessary..."

33 USC 891 et seq. - Fleet Replacement and Modernization Program
"The Secretary is authorized to implement... a 15-year program to replace and modernize the NOAA fleet."

33 USC 893 et seq. - Research, Development, and Education
"The Administrator….shall establish a coordinated program of ocean, coastal, Great Lakes, and atmospheric research and development….that shall focus on the development of advanced technologies and analytical methods that will promote United States leadership in ocean and atmospheric science and competitiveness in the applied uses of such knowledge."

33 USC 1121 et seq - National Sea Grant College Program Amendments Act of 2020
(a)FINDINGS - The Congress finds and declares the following:

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(1)The national interest requires a strategy to—
(A) provide for the understanding and wise use of ocean, coastal, and Great Lakes resources and the environment;
(B) foster economic competitiveness;
(C) promote public stewardship and wise economic development of the coastal ocean and its margins, the Great Lakes, and the exclusive economic zone;
(D) encourage the development of preparation, forecast, analysis, mitigation, response, and recovery systems for coastal hazards;
(E) understand global environmental processes and their impacts on ocean, coastal, and Great Lakes resources; and
(F) promote domestic and international cooperative solutions to ocean, coastal, and Great Lakes issues.

33 USC 1141 Young Fisherman's Development Act
To preserve United States fishing heritage through a national program dedicated to training and assisting the next generation of commercial fishermen.

33 USC 1251 note - Water Pollution Prevention and Control
Through the National Shellfish Indicator Program, authorizes the Secretary of Commerce, in cooperation with the Secretary of Health and Human Services and the Administrator of EPA, to establish and administer a 5-year national shellfish research program for the purpose of improving existing classification systems for shellfish growing waters using the latest technological advancements in microbiology and epidemiological methods.

33 USC 1321 **-** Oil and Hazardous Substances [Clean Water Act]
Authorizes the recovery of damages to natural resources in the event of an oil spill in waters of the United States. This authority has been delegated to several Federal agencies, including the Department, pursuant to an Executive Order.

33 USC 1441 **-** Monitoring and Research Program [Marine Protection, Research and Sanctuaries Act]
Authorizes the Secretary of Commerce, in coordination with other agencies, to initiate a comprehensive and continuing program of monitoring and research regarding the effects of the dumping of material into ocean waters or other coastal waters where the tide ebbs and flows or into the Great Lakes or their connecting waters.

33 USC 1442 - Research Program Respecting Possible Long-range Effects of Pollution, Overfishing, and Man-induced Changes of Ocean Ecosystems
Authorizes the Secretary of Commerce, in consultation with other agencies, to … "initiate a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems."

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33 USC 1443 - Regional Management Plans for Waste Disposal in Coastal Areas
Authorizes the Secretary of Commerce to assist the Environmental Protection Agency in assessing "the feasibility in coastal areas of regional management plans for the disposal of waste materials."

33 USC 1444 - Annual Report
Requires the Secretary of Commerce to provide Congress with an annual report on the Department's activities to monitor ocean dumping and research the long-range effects of pollution on ocean ecosystems.

33 USC 2706 - Natural Resources [NOAA Oil and Hazardous Substance Spill Cost Reimbursement]
"...the National Oceanic and Atmospheric Administration acts as trustee of said marine environment and/or resources, shall be deposited in the Damage Assessment and Restoration Revolving Fund ... for purposes of obligation and expenditure in fiscal year 1991 and thereafter, sums available in the Damage Assessment and Restoration Revolving Fund may be transferred, upon the approval of the Secretary ..., to the Operations, Research, and Facilities appropriation of the National Oceanic and Atmospheric Administration."

33 USC 2712 – Use of Oil Spill Liability Trust Fund
Amends Section 1012(a)(5) of the Oil Spill Liability Trust Fund Act by: "(2) by inserting after subparagraph (A) the following:''(B) not more than $15,000,000 in each fiscal year shall be available to the Under Secretary of Commerce for Oceans and Atmosphere for expenses incurred by, and activities related to, response and damage assessment capabilities of the National Oceanic and Atmospheric Administration.''

33 USC 2801 et seq. - National Coastal Monitoring Act
"The purposes of this chapter are to -

(1) establish a comprehensive national program for consistent monitoring of the Nation's coastal ecosystems;
(2) establish long-term water quality assessment and monitoring programs for high priority coastal waters that will enhance the ability of Federal, State, and local authorities to develop and implement effective remedial programs for those waters;
(3) establish a system for reviewing and evaluating the scientific, analytical, and technological means that are available for monitoring the environmental quality of coastal ecosystems;
(4) establish methods for identifying uniform indicators of coastal ecosystem quality;
(5) provide for periodic, comprehensive reports to Congress concerning the quality of the Nation's coastal ecosystems;
(6) establish a coastal environment information program to distribute coastal monitoring information;

(7) provide state programs authorized under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) with information necessary to design land use plans and coastal zone regulations that will contribute to the protection of coastal ecosystems; and
(8) provide certain water pollution control programs authorized under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) with information necessary to design and implement effective coastal water pollution controls."

33 USC 3001 et seq.- NOAA Corps Officers
There shall be in the National Oceanic and Atmospheric Administration a commissioned officer corps.

33 USC 3402 – Coordinated National Ocean Exploration Program
The Administrator of the National Oceanic and Atmospheric Administration shall, in consultation with the National Science Foundation and other appropriate Federal agencies, establish a coordinated national ocean exploration program within the National Oceanic and Atmospheric Administration that promotes collaboration with other Federal ocean and undersea research and exploration programs. To the extent appropriate, the Administrator shall seek to facilitate coordination of data and information management systems, outreach and education programs to improve public understanding of ocean and coastal resources, and development and transfer of technologies to facilitate ocean and undersea research and exploration.

33 USC 3501 – Ocean and Coastal Mapping Integration
Directs the President to establish a coordinated federal program to develop an ocean and coastal mapping plan for the Great Lakes and coastal state waters, the territorial sea, the exclusive economic zone, and the continental shelf of the United States that enhances ecosystem approaches in decision-making for conservation and management of marine resources and habitats, establishes research and mapping priorities, supports the siting of research and other platforms, and advances ocean and coastal science. Requires a plan for an integrated ocean and coastal mapping initiative within NOAA. Authorizes appropriations.

33 USC 3601 – Reauthorization of Integrated Coastal and Ocean Observation System Act
The purposes of this chapter are to—
(1) establish a national integrated System of ocean, coastal, and Great Lakes observing systems, comprised of Federal and non-Federal components coordinated at the national level by the National Ocean Research Leadership Council and at the regional level by a network of regional information coordination entities, and that includes in situ, remote, and other coastal and ocean observation, technologies, and data management and communication systems, and is designed to address regional and national needs for ocean information, to gather specific data on key coastal, ocean, and Great Lakes variables, and to ensure timely and sustained dissemination and availability of these data to—

(A) support national defense, marine commerce, navigation safety, weather, climate, and marine forecasting, energy siting and production, economic development, ecosystem-based marine, coastal, and Great Lakes resource management, public safety, and public outreach training and education;
(B) promote greater public awareness and stewardship of the Nation's ocean, coastal, and Great Lakes resources and the general public welfare; and
(C) enable advances in scientific understanding to support the sustainable use, conservation, management, and understanding of healthy ocean, coastal, and Great Lakes resources;
(2) improve the Nation's capability to measure, track, explain, and predict events related directly and indirectly to weather and climate change, natural climate variability, and interactions between the oceanic and atmospheric environments, including the Great Lakes; and
(3) authorize activities to promote basic and applied research to develop, test, and deploy innovations and improvements in coastal and ocean observation technologies, modeling systems, and other scientific and technological capabilities to improve our conceptual understanding of weather and climate, ocean-atmosphere dynamics, global climate change, physical, chemical, and biological dynamics of the ocean, coastal and Great Lakes environments, and to conserve healthy and restore degraded coastal ecosystems.

33 USC 3703 – Federal Ocean Acidification Research and Monitoring
the Joint Subcommittee on Ocean Science and Technology of the National Science and Technology Council to: (1) coordinate federal activities on ocean acidification and establish an interagency working group; and (2) develop a strategic plan for federal research and monitoring on ocean acidification. Requires specified ocean acidification programs in NOAA, the National Science Foundation (NSF), and the National Aeronautics and Space Administration (NASA). Authorizes appropriations.

33 USC 4001 **-** Harmful Algal Bloom and Hypoxia Research and Control Amendments Act of 2017
The President, through the Committee on Environment and Natural Resources of the National Science and Technology Council, shall establish an Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia. The Task Force shall consist of a representative from—the Department of Commerce (who shall serve as Chairman of the Task Force) among others.

33 USC 4213 – Rights and Obligations of the Foundation
(f) Consultation with NOAA – The Foundation shall consult with the Under Secretary during the planning of any restoration or remediation action using funds resulting from judgments or settlements relating to the damage to trust resources of the National Oceanic and Atmospheric Administration.

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The Public Health and Welfare

42 USC 8902-8905 - Acid Precipitation Program
Authorized the Administrator of NOAA to serve as co-chair of a task force to prepare a comprehensive research plan for a program to study the causes and effects of acid precipitation. Also authorizes the Administrator of NOAA to serve as the director of a related research program.

42 USC 9601 et seq. (CERCLA)
Through associated regulations and delegations, authorizes the Administrator to provide technical assistance to the Administrator, EPA, for hazardous waste response under CERCLA and the National Contingency Plan and authorizes the Administrator to act as a natural resource trustee with authority to bring a cause of action for damages resulting from an injury to, destruction of or loss of resources under NOAA's jurisdiction.

Public Lands

43 USC 1347e - Safety and Health Regulations
Authorizes the Secretary of Commerce in cooperation with other Federal entities, to conduct studies of underwater diving techniques and equipment "suitable for protection of human safety and improvement of diver performance…."

43 USC 3102 – National Landslide Preparedness Act
(a) ESTABLISHMENT.—The Secretary shall establish a program, to be known as the ''National Landslide Hazards Reduction Program'' (referred to in this section as the ''program'')— (1) to identify and understand landslide hazards and risks; (2) to reduce losses from landslides; (3) to protect communities at risk of landslide hazards; and (4) to help improve communication and emergency preparedness, including by coordinating with communities and entities responsible for infrastructure that are at risk of landslide hazards.
(3) there is authorized to be appropriated to the National Oceanic and Atmospheric Administration, $1,000,000 to carry out this section.

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Public Printing and Documents

44 USC 1307 - Sale and Distribution of NOAA Nautical and Aeronautical Products
"All nautical and aeronautical products created or published ... shall be sold at ... prices ... the Secretary of Commerce shall establish annually ... so as to recover all costs attributable to data base management, compilation, printing, and distribution of such products."

Transportation

49 USC 44720 - Meteorological services
The Administrator of the Federal Aviation Administration shall make recommendations to the Secretary of Commerce on providing meteorological services necessary for the safe and efficient movement of aircraft in air commerce. In providing the services, the Secretary shall cooperate with the Administrator and give complete consideration to those recommendations.

"To promote safety and efficiency in air navigation to the highest possible degree, the Secretary shall -(1)observe, measure, investigate, and study atmospheric phenomena, and maintain meteorological stations and offices...(2) provide reports to the Administrator (3)cooperate with persons engaged in air commerce in meteorological services...(4)maintain and coordinate international exchanges of meteorological information... (5) participate in developing an international basic meteorological reporting network...(6)coordinate meteorological requirements in the United States to maintain standard observations...;(7)promote and develop meteorological science.

National and Commercial Space Programs

51 USC 60601 – Promoting Research and Observations of Space Weather to Improve the Forecasting of Tomorrow Act
(a)FINDINGS.—
(1) SPACE WEATHER.—Congress makes the following findings with respect to space weather:
(A) Space weather phenomena pose a significant threat to ground-based and space-based critical infrastructure, modern technological systems, and humans working in space.
(B) The effects of severe space weather on the electric power grid, satellites and satellite communications and information, aviation operations, astronauts living and working in space, and space-based position, navigation, and timing systems could have significant societal, economic, national security, and health impacts.
(C) Space-based and ground-based observations provide crucial data necessary to understand, forecast, and prepare for space weather phenomena.

(D) Clear roles and accountability of Federal departments and agencies are critical for efficient and effective response to threats posed by space weather.
(E) Space weather observation and forecasting are essential for the success of human and robotic space exploration.
(F) In October 2015, the National Science and Technology Council published a National Space Weather Strategy and a National Space Weather Action Plan seeking to integrate national space weather efforts and add new capabilities to meet increasing demand for space weather information.
(G) In March 2019, the National Science and Technology Council published an updated National Space Weather Strategy and Action Plan to enhance the preparedness and resilience of the United States to space weather.
(2)ROLE OF FEDERAL AGENCIES.—Congress makes the following findings with respect to the role of Federal agencies on space weather:
(A) The National Oceanic and Atmospheric Administration provides operational space weather monitoring, forecasting, and long-term data archiving and access for civil applications, maintains ground-based and space-based assets to provide observations needed for space weather forecasting, prediction, and warnings, provides research to support operational responsibilities, and develops requirements for space weather forecasting technologies and science.

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ADVISORY AND ASSISTANCE SERVICES
(Dollar Amounts in Thousands)

	2021 Actual	2022 Annualized CR	2023 Estimate
Management and Professional Support Services	$163,002	$160,556	$189,008
Studies, Analysis and Evaluations	$47,752	$58,384	$68,730
Engineering and Technical Services	$359,171	$267,594	$315,013
Total	$569,925	$486,534	$572,750

Consulting Services are those services of a pure nature relating to the governmental functions of agency administration and management and agency problem management. These services are normally provided by persons or organizations generally considered to have knowledge and special abilities that are not usually available within the agency. Such services can be obtained through personnel appointments, procurement contracts, or advisory committees.

Management and professional services deal with management data collection, policy review or development, program development, review or evaluation, systems engineering and other management support services. Special studies and analyses deal with the highly specialized areas of agency activity, e.g., air quality, chemical, environmental, geophysical, oceanographic, technological, and etc. Management and support services for research and development are procurement actions that meet the description of management and professional services or special studies and analyses but are funded under research and development.

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PERIODICAL, PAMPHLETS, AND AUDIOVISUAL PRODUCTS
(Dollar Amounts in Thousands)

	2021 Actual	2022 Annualized CR	2023 Estimate
Periodicals	$1,561	$2,031	$2,180
Pamphlets	$1,124	$1,464	$1,571
Audiovisuals	$533	$694	$745
Total	$3,218	$4,189	$4,496

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AVERAGE GRADE AND SALARY

	2021 Actual	2022 Annualized CR	2023 Estimate
Average executive and SES level pay plans	$191,138	$195,586	$204,583
Average GS/GM grade	12	12	12
Average GS/GM salary	$104,529	$109,039	$114,055
Average Pay Band salary	$119,182	$124,014	$129,719
Average Commissioned Officers salary	$82,687	$84,920	$88,826
Average salary for other positions (FWS/Wage Marine)	$59,885	$61,669	$64,504

Average salaries provided here reflect Federal Civilian and Military pay raises for 2021, 2022 and 2023, respectively.

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IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

31 U.S.C. 720, as amended January 3, 2019, requires the head of a federal agency to submit a written statement of the actions taken or planned on Government Accountability Office (GAO) recommendations to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 180 calendar days after the date of the report.

The Good Accounting Obligation in Government Act (GAO-IG Act), passed on January 3, 2019, (P.L. 115-414) requires each agency to include, in its annual budget justification, a report that identifies each public recommendation issued by GAO and the agency's Office of the inspector general (OIG) which has remained unimplemented for one year or more from the annual budget justification submission date. In addition, the Act requires a reconciliation between the agency records and the IGs' Semiannual Report to Congress (SAR).

Section 1. Recommendations for which action plans were finalized since the last appropriations request.

Include information on recommendations for which an action plan has been completed since the last budget report. If you have nothing to report, state Nothing to Report."

Report Number	
Report Title	
Issue Date	
Recommendation Number	
Recommendation	
Action(s) Planned	
Action Status (Planned, In-Progress, or Complete)	
Target Completion Date	
Recommendation Status (Planned, In-Progress, or Complete)	

Alternative form if more than one report:

Report Number	Report Title	Issue Date	Rec. Number	Recommendation	Action(s) Planned	Action Status (Planned, In-Progress, or Complete)	Target Completion Date	Recommendation Status (Planned, In-Progress, or Complete)
OIG-22-015-A	Redesigned GOES-T is Ready for Launch, but NOAA Should Reassess Its Assumptions for Satellite Launch Planning and Storage	1/20/22	1	That the NOAA Deputy Under Secretary for Operations ensure that the Assistant Administrator for Satellite and Information conduct an analysis of alternatives or similar assessment to determine whether to continue the Program's approach of managing schedules toward the earliest possible launch dates.	NESDIS will revise the GOES-U launch date recommendation analysis, which was last updated in November 2020. This will include an analysis of numerous critical and interdependent variables such as the health and reliability of on-orbit assets, user needs for new observations, and cost of ground storage.	Complete. Action plan was submitted to OIG on 2/25/22. OIG approved the action plan on 3/3/22.	8/31/22	In-Progress

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OIG-22-015-A	Redesigned GOES-T is Ready for Launch, but NOAA Should Reassess Its Assumptions for Satellite Launch Planning and Storage	1/20/22	2	That the NOAA Deputy Under Secretary for Operations ensure that the Assistant Administrator for Satellite and Information conduct a cost-benefit analysis of selected geostationary coverage availability thresholds, and update its geostationary launch policy as appropriate.	NESDIS will perform an analysis of a range of geostationary imager availability thresholds to identify cost, benefit, and risk at different threshold levels. The launch policy will be updated, if needed, to reflect the conclusion of the analysis,	Complete. Action plan was submitted to OIG on 2/25/22. OIG approved the action plan on 3/3/22.	11/30/22	In-Progress
OIG-22-015-A	Redesigned GOES-T is Ready for Launch, but NOAA Should Reassess Its Assumptions for Satellite Launch Planning and Storage	1/20/22	3	That the NOAA Deputy Under Secretary for Operations ensure that the Assistant Administrator for Satellite and Information determine the cost of operating spare satellites on orbit versus alternative options, including consideration of constellation longevity and satellite development risks, to help inform optimal acquisition and launch strategies.	NESDIS will provide an estimate of operating costs for excess spare satellites for use in the geostationary imager availability threshold analysis.	Complete. Action plan was submitted to OIG on 2/25/22. OIG approved the action plan on 3/3/22.	4/15/22	In-Progress

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OIG-22-015-A	Redesigned GOES-T is Ready for Launch, but NOAA Should Reassess Its Assumptions for Satellite Launch Planning and Storage	1/20/22	4	That the NOAA Deputy Under Secretary for Operations ensure that the Assistant Administrator for Satellite and Information assess the cost effectiveness of satellite ground and on-orbit storage options using current cost, schedule, and technical performance data that can inform NESDIS satellite storage decisions.	The cost of satellite ground storage will be assessed and used in the geostationary imager availability threshold analysis.	Complete. Action plan was submitted to OIG on 2/25/22. OIG approved the action plan on 3/3/22.	11/30/22	In-Progress
OIG-22-015-A	Redesigned GOES-T is Ready for Launch, but NOAA Should Reassess Its Assumptions for Satellite Launch Planning and Storage	1/20/22	5	That the NOAA Deputy Under Secretary for Operations ensure that the Assistant Administrator for Satellite and Information on future satellite series, document storage option considerations early in the acquisition process to optimize satellite storage alternatives.	Ground storage is already specified in the GeoXO Phase A instrument and spacecraft studies Statement of Work. Requirements will be updated, if needed, to reflect the results of the geostationary imager availability threshold analysis.	Complete. Action plan was submitted to OIG on 2/25/22. OIG approved the action plan on 3/3/22.	1/31/23	In-Progress

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GAO-21-560	Sexual Assault and Harassment: NOAA Has Made Substantial Progress in Prevention and Response but Could Further Improve Its Processes	9/27/21	1	The Administrator of NOAA should that future updates to the agency's sexual harassment and sexual assault prevention and response policy are consistent with all relevant legal requirements.	NOAA is collaborating to modify its Sexual Assault and Sexual Harassment (SASH) policy to ensure it is consistent with all relevant legal requirements.	Complete. Action plan was submitted to GAO and Congress on 2/16/22.	4/29/22	In-Progress
GAO-21-560	Sexual Assault and Harassment: NOAA Has Made Substantial Progress in Prevention and Response but Could Further Improve Its Processes	9/27/21	2	The Administrator of NOAA should implement a mechanism requiring oversight by senior agency leaders of all disciplinary actions involving misconduct related to sexual assault and sexual harassment before such actions are finalized.	NOAA is collaborating with stakeholders to modify its SASH policy to include the oversight of disciplinary matters. NOAA will also conduct training for managers and decision-makers on roles and responsibilities related to SASH.	Complete. Action plan was submitted to GAO and Congress on 2/16/22.	12/30/22	In-Progress

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IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

GAO-21-560	Sexual Assault and Harassment: NOAA Has Made Substantial Progress in Prevention and Response but Could Further Improve Its Processes	9/27/21	3	The Administrator of NOAA should ensure that the agency provides specific and readily accessible information on its website, through frequently asked questions (FAQs) and in staff training. The information should describe and explain the differences among complaint systems and what to expect from each when reporting allegations of sexual harassment or assault.	NOAA is collaborating with stakeholders and affiliates on streamlining access to information and is updating its websites to include FAQs, contact mechanisms, and cross-posting resources. Each office that receives SASH allegations will include information on their respective public facing sites and also include a link to the NOAA Workplace Violence Prevention and Response Office, which will have additional information.	Complete. Action plan was submitted to GAO and Congress on 2/16/22.	3/31/22	In-Progress
GAO-21-560	Sexual Assault and Harassment: NOAA Has Made Substantial Progress in Prevention and Response but Could Further Improve Its Processes	9/27/21	4	The Administrator of NOAA should require that training for supervisors and managers include critical NOAA-specific information, such as how to report allegations up the chain of command, how to identify and minimize potential risk factors, explanations of NOAA's confidentiality rules, and the consequences for failing to fulfill this staff's responsibilities.	NOAA is collaborating with stakeholders on modifying its SASH policy to clarify managerial requirements related to SASH incidents. NOAA also hired a contractor that is creating evidence-based trainings that highlight existing programs and processes and provide tools to address risk factors and bystander intervention methods. NOAA will mandate that all supervisors and managers take these trainings.	Complete. Action plan was submitted to GAO and Congress on 2/16/22.	6/30/22	In-Progress

Department of Commerce
National Oceanic and Atmospheric Administration
IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

GAO-21-560	Sexual Assault and Harassment: NOAA Has Made Substantial Progress in Prevention and Response but Could Further Improve Its Processes	9/27/21	5	The Administrator of NOAA should ensure the agency provides more information to specific individuals and the larger NOAA workforce about how the agency is responding to allegations of sexual assault and sexual harassment, as appropriate, such as regularly updating individuals on the status of their cases and by annually developing summary-level information for the workforce about the number, type, and resolution of cases.	NOAA holds a monthly SASH Council meeting where specific NOAA offices share data and trends tied to SASH. Also, NOAA is training its volunteer assistance advocates on trauma-informed care and response, clarifying expectations on transparency and ongoing communications. NOAA will also provide an annual report to the NOAA workforce that includes aggregate data, such as the total number of open and closed SASH cases and types of corrective actions implemented. The report will also be available on the NOAA website.	Complete. Action plan was submitted to GAO and Congress on 2/16/22.	3/31/22	In-Progress
GAO-21-560	Sexual Assault and Harassment: NOAA Has Made Substantial Progress in Prevention and Response but Could Further Improve Its Processes	9/27/21	6	The Administrator of NOAA should ensure that the central tracking system being developed will collect consistent data and appropriately document the number and type of incidents of sexual assault and sexual harassment across complaint systems.	NOAA is developing a database that will streamline case data for reporting to Congress, as well as provide consistent trend data to NOAA leadership and employees.	Complete. Action plan was submitted to GAO and Congress on 2/16/22.	6/30/22	In-Progress

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IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

GAO-21-474	Spectrum Management: Agencies Should Strengthen Collaborative Mechanisms and Processes to Address Potential Interference	7/19/21	11	The NOAA Administrator should clarify and document NOAA's internal processes for identifying and raising concerns about potential interference to NOAA satellite instruments.	NOAA has begun to address this recommendation. This includes NOAA documenting its processes for participation in domestic spectrum management activities with an anticipated completion date of 9/30/22. Once the work on processes relating to domestic spectrum management is complete, NOAA will begin documenting processes for participation in international spectrum management activities, pending availability of required resources. A completion date of 9/30/23 is anticipated for the procedures relating to the international activities.	Complete. Action plan was submitted to GAO and Congress on 2/9/22.	9/30/23	In-Progress
GAO-21-413	Small Business Innovation Research: Agencies Need to Fully Implement Requirements for Managing Fraud, Waste, and Abuse	6/30/21	2	The Administrator of NOAA should ensure that the SBIR Program collects the required certifications from new SBIR awardees, beginning in future funding opportunity announcements, without material differences from the language in the SBIR/STTR policy directive.	The certification language has been modified to ensure there are no material differences from NOAA certification forms and the language in the SBIR/STTR Policy Directive. As of April 2021, the updated forms are available on the NOAA SBIR Program website. The updated language will be included in all future funding opportunity announcements. Also, NOAA completed collection of updated certifications with corrected language from past and present SBIR awardees by 10/12/21.	Complete. Action plan was submitted to GAO and Congress on 12/16/21.	10/31/21	Complete 10/21/21. Closure requested to GAO on 12/21/21.

Department of Commerce
National Oceanic and Atmospheric Administration
IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

OIG-21-027-I	OMAO Must Define and Implement a Disciplined Requirements Management Process to Ensure Future Acquisitions Meet User Needs	5/21/21	1	That the NOAA Deputy Under Secretary for Operations ensure that OMAO develop and regularly update a long-range vessel acquisition plan that lays out the dependencies between fleet objectives, funding, inventory, technology, and sustainment costs, among others and supports program milestone requirements.	The NOAA Fleet Plan will be updated regularly to provide an internal long-range vessel acquisition plan that lays out the dependencies between fleet objectives, funding, inventory, and technology.	Complete. OIG approved NOAA's audit action plan on 8/11/21.	9/30/22	In-Progress
OIG-21-027-I	OMAO Must Define and Implement a Disciplined Requirements Management Process to Ensure Future Acquisitions Meet User Needs	5/21/21	2	That the NOAA Deputy Under Secretary for Operations ensure that OMAO establish a requirements management and change control process to ensure guidance is consistent, repeatable, regularly updated, and baselined. Ideally, this would be developed at the NOAA level and disseminated to NOAA program managers and appropriate Line Office representatives.	NOAA will update the NOAA Program Observation Requirements documents and establish a requirements management and change control policy.	Complete. OIG approved NOAA's audit action plan on 8/11/21.	3/31/22 (original) 9/30/22 (extended)	In-Progress

Department of Commerce
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OIG-21-027-I	OMAO Must Define and Implement a Disciplined Requirements Management Process to Ensure Future Acquisitions Meet User Needs	5/21/21	3	That the NOAA Deputy Under Secretary for Operations ensure that OMAO develop and implement a systems engineering policy that integrates systems engineering principles into program management processes across the entire acquisition lifecycle.	OMAO is continuing to apply lessons learned from the National Environmental Satellite, Data, and Information Service (NESDIS) to create an OMAO system systems engineering policy	Complete. OIG approved NOAA's audit action plan on 8/11/21.	3/31/22 (original) 9/30/22 (extended)	In-Progress
OIG-21-027-I	OMAO Must Define and Implement a Disciplined Requirements Management Process to Ensure Future Acquisitions Meet User Needs	5/21/21	4	That the NOAA Deputy Under Secretary for Operations ensure that OMAO incorporate guidance on the use of Interagency Agreements in acquisition policies, with an emphasis on tailoring documentation to minimize duplication while meeting agency requirements.	OMAO is continuing to review existing guidance and will work to develop OMAO-level policies pertaining to acquisitions planning, systems engineering, requirements management, and program management	Complete. OIG approved NOAA's audit action plan on 8/11/21.	3/31/22 (original) 9/30/22 (extended)	In-Progress
OIG-21-027-I	OMAO Must Define and Implement a Disciplined Requirements Management Process to Ensure Future Acquisitions Meet User Needs	5/21/21	5	That the NOAA Deputy Under Secretary for Operations ensure that OMAO develop a requirements management guide and traceability process that follows the Scalable Acquisition Project Management Guidebook (SAPMG) and system engineering standards (e.g., International Council on Systems Engineering).	OMAO is continuing to work with NESDIS to review their requirements management plan and systems engineering policy. OMAO will develop a requirements traceability and implementation plan that follows SAPMG and system engineering standards.	Complete. OIG approved NOAA's audit action plan on 8/11/21.	12/31/22	In-Progress

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IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

OIG-21-027-I	OMAO Must Define and Implement a Disciplined Requirements Management Process to Ensure Future Acquisitions Meet User Needs	5/21/21	6	That the NOAA Deputy Under Secretary for Operations ensure that OMAO leverage mission requirements and at-sea data collection requirements to provide OMAO with a verifiable means of capturing the annual mission performance.	OMAO is working to develop a requirements traceability and implementation plan (that also follows SAPMG and system engineering standards) to ensure fleet requirements are properly recorded, understood, and tracked in technical and programmatic documentation	Complete. OIG approved NOAA's audit action plan on 8/11/21.	12/31/22	In-Progress
OIG-21-027-I	OMAO Must Define and Implement a Disciplined Requirements Management Process to Ensure Future Acquisitions Meet User Needs	5/21/21	7	That the NOAA Deputy Under Secretary for Operations ensure that OMAO document and implement a disciplined approach to validating requirements through increased Line Office communication	OMAO is continuing to implement a disciplined approach to validating requirements, which has been described in more detail in our response to recommendations 5 and 6.	Complete. OIG approved NOAA's audit action plan on 8/11/21.	12/31/22	In-Progress

Section 2. Implementation of GAO public recommendations issued no less than one year ago that are designated by GAO as 'Open' or 'Closed-Unimplemented.'

Open Recommendation(s) the Department has decided not to implement.

Include information on all open recommendations made one year or more ago that the Department / bureau do not plan to implement. GAO recommendations are open until officially closed by GAO.

Report Number	**None**
Report Title	
Issue Date	
Recommendation Number	
Recommendation	
Reason for the Decision not to Implement	

Alternative form if more than one report:

Department of Commerce
National Oceanic and Atmospheric Administration
IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

Report Number	Report Title	Issue Date	Recommendation Number	Recommendation	Reason for the Decision Not to Implement

Open Recommendation(s) the Department plans to implement.

Include information on all open recommendations made one year or more ago that the Department / bureau plans to implement. GAO recommendations are open until officially closed by GAO.

Report Number	
Report Title	
Issue Date	
Recommendation Number	
Recommendation	
Target Implementation Date	
Closure Request Pending with GAO (Yes/No)	
Clear Budget Implications (Yes/No)	

Alternative form if more than one report:

Report Number	Report Title	Issue Date	Rec. Number	Recommendation	Target Implementation Date	Closure Request Pending with GAO (Yes/No)	Clear Budget Implications (Yes/No)
GAO-21-129	Earthquakes: Progress Made to Implement Early Warning System, But Actions Needed to Improve Its Program Management	3/25/21	8	The Secretary of Commerce, jointly with the Secretary of the Interior, should fully implement memorandum of understanding between USGG and NOAA by establishing the Interagency Committee for Program Coordination.	6/30/22 (original)	No	No
GAO-20-216	Mixed-Use Fisheries: South Atlantic and Gulf of Mexico Councils Would Benefit From Documented Processes for Allocation Reviews	3/31/20	1	NMFS Assistant Administrator for Fisheries should work with the South Atlantic and Gulf of Mexico Councils, and other councils as appropriate, to develop documented processes for conducting allocation reviews.	6/30/22 (original) 11/30/22 (extended)	No	No
GAO-20-216	Mixed-Use Fisheries: South Atlantic and Gulf of Mexico Councils Would Benefit From	3/31/20	2	NMFS Assistant Administrator for Fisheries should work with the South Atlantic and Gulf of Mexico	6/30/22 (original) 11/30/22 (extended)	No	No

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IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

	Documented Processes for Allocation Reviews			Councils, and other councils as appropriate, to specify how the councils will document their allocation reviews, including the basis for their allocation decisions, whether fishery management plan objectives are being met, and what factors were considered in the reviews.			
GAO-20-81	Federal Research: Additional Actions Needed to Improve Public Access to Research Results	11/21/19	27	The National Oceanic and Atmospheric Administration Administrator should fully develop and implement a mechanism to ensure researcher compliance with the public access plan and associated requirements.	12/31/20 (original)	Yes – Closure requested on 8/2/20. However, during 2020 and 2021, GAO had follow up questions or needed more information. NOAA continues to make progress and provide periodic updates to GAO.	No
GAO-20-81	Federal Research: Additional Actions Needed to Improve Public Access to Research Results	11/21/19	36	As the Subcommittee on Open Science moves forward, the National Oceanic and Atmospheric Administration co-chair, in coordination with other co-chairs and participating agencies, should take steps to fully implement leading practices that enhance and sustain collaboration.	10/30/20 (original)	Yes – Closure requested on 8/2/20. However, during 2020 and 2021, GAO had follow up questions or needed more information. NOAA continues to make progress and provide periodic updates to GAO.	No
GAO-19-653	Marine Debris: Interagency Committee Members Are Taking Action, but Additional Steps Could Enhance the Federal Response	9/25/19	3	The chair of the interagency committee, in coordination with member agencies, should develop and implement a process to analyze the effectiveness of the interagency committee's recommendations and strategies, and include the results in its biennial reports.	12/30/20 (original) 6/30/21 (extended)	Yes – Closure requested on 6/30/21. GAO disagreed with closure on 9/30/21 and wanted NOAA to provide more information, but it will not be available until FY 2023.	Yes

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IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

GAO-17-510	Hydrographic Surveying: NOAA Needs Better Cost Data and a Strategy for Expanding Private Sector Involvement in Data Collection	6/15/17	2	The Secretary of Commerce should direct the NOAA Administrator to develop a strategy for expanding NOAA's use of the private sector in its hydrographic survey program, as required by law.	12/31/19 (original) 6/30/21 (extended) 12/31/21 (extended) 3/31/22 (extended)	No	Yes
GAO-16-827	Federal Fisheries Management: Additional Actions Could Advance Efforts to Incorporate Climate Information into Management Decisions	9/28/16	2	In finalizing the regional action plans for implementing the NOAA Fisheries Climate Science Strategy, (1) incorporate the key attributes associated with successful performance measures in the final performance measures developed for the plans and (2) assess whether agency-wide performance measures may be needed to determine the extent to which the objectives of the Strategy overall are being achieved, and develop such measures, as appropriate, that incorporate the key attributes of successful performance measures.	12/31/17 (original) 10/31/18 (extended)	Yes. Although NOAA requested closure on 9/21/18, GAO will continue to monitor the status of NMFS efforts. NOAA provided status updates in 2019, 2020, and 2021. Closure is still pending until July 2022 because GAO wants to see if NMFS will update 7 regional action plans having performance metrics to include measureable targets.	Yes

Recommendations designated by GAO as "Closed-Unimplemented for the past 5 years (2015-2019). Future reports will cover a one-year period.

Report Number	
Report Title	
Issue Date	
Recommendation Number	
Recommendation	
Reason Not Implemented	

Alternative form if more than one report:

Report Number	**Report Title**	**Issue Date**	**Recommendation Number**	**Recommendation**	**Reason Not Implemented**

Department of Commerce
National Oceanic and Atmospheric Administration
IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

GAO-08-1045	Coastal Zone Management: Measuring Program's Effectiveness Continues to Be a Challenge	9/12/08	4	To enhance NOAA's ability to evaluate the overall progress of the National Coastal Zone Management Program, NOAA should create targets for performance measures already developed that can be used to assess the effectiveness of the national program.	NOAA's National Ocean Service reported completion of this recommendation on 1/27/12. NOAA provided documentation to GAO for consideration of closure, but was not accepted. GAO closed this recommendation as unimplemented in December 2016.
GAO-11-800	Climate Monitoring: NOAA Can Improve Management of the U.S. Historical Climatology Network	8/31/11	2	To improve the National Weather Service's (NWS) ability to manage the USHCN in accordance with performance management guidelines and federal internal control standards, as well as to strengthen congressional and public confidence in the data the network provides, the Acting Secretary of Commerce should direct the Administrator of NOAA to develop an NWS agency wide policy, in consultation with the National Climatic Data Center, on the actions weather forecast offices should take to address stations that do not meet siting standards.	NWS issued a revised policy for stations in July 2017. The revisions included new direction to weather forecast offices regarding steps to take to maintain proper stations. However, the revised policy did not clarify under what circumstances stations that do not meet siting standards should be closed, relocated, or maintained in their present condition. GAO closed this recommendation as unimplemented in September 2017.
GAO-12-576	Geostationary Weather Satellites: Design Progress Made, but Schedule Uncertainty Needs to be Addressed	6/26/12	1	To improve NOAA's ability to execute GOES-R's remaining planned development with appropriate reserves, improve the reliability of its schedules, and address identified program risks, the Secretary of Commerce should direct the NOAA Administrator to assess and report to the NOAA Program Management Council the reserves needed for completing remaining development for each satellite in the series.	While the GOES program expanded its reporting of contingency reserve information to NOAA's Program management council by showing detailed contingency calculations, it does not report on contingency reserves broken out for each satellite in the GOES-R series. GAO closed this recommendation as unimplemented in August 2016.

Section 3. Implementation of OIG public recommendations issued no less than one year for which Final Action has not been Taken or Action Not Recommended has been Taken

Department of Commerce
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IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

Include information on all OIG recommendations that are still officially open. Commerce OIG recommendations are open until closed by the Department OIG Liaison.

Report Number	
Report Title	
Issue Date	
Recommendation Number	
Recommendation	
Target Implementation Date	
Reason No Final Action Taken or Action Not Recommended Taken	
Closure Request Pending (Yes/No)	

Alternative form if more than one report:

Report Number	Report Title	Issue Date	Rec. Number	Recommendation	Target Implementation Date	Reason No Final Action Taken or Action Not recommended taken	Closure Request Pending (Yes/No)
OIG-21-001-A	The Department Has Made Progress Meeting Its Responsibilities Under the Geospatial Data Act But Must Improve Controls to Ensure Full Compliance	10/1/20	3	That the Deputy Secretary of Commerce and the Senior Agency Official for Geospatial Information develop Department-wide procedures to ensure operating units consistently implement the Department's Policy on Planned Geospatial Acquisitions.	9/30/21 (original) 9/30/22 (extended)	NOAA requested an extension from September 2021 to September 2022 because OMB has not issued a revision to Circular A-16, which will provide specific guidance to agencies on geospatial budget and financial reporting. This revised circular directly impacts the proposed Department's policy and process.	No
OIG-20-006	NOAA's Office Of Marine And Aviation Operations Needs to Improve the Planning and Governing of Its Ship Fleet Recapitalization Effort	11/12/19	1	That the Director of NOAA Corps and OMAO develop a detailed contingency plan to reduce the risks associated with delays. The plan should address (a) capability and capacity gaps and (b) the cost of maintaining aging ships and utilizing alternatives.	03/31/20 (original) 9/30/21 (extended) 6/30/22 (extended)	NOAA requested closure on 8/31/20. DOC wanted the final contingency plan on 9/25/20, but NOAA is still making revisions and undergoing clearances during 2021 and 2022.	No
OIG-19-022-A	Geostationary Operational Environmental	8/12/19	5	That the Deputy Under Secretary for Operations ensure that NOAA	5/28/21 (original) 9/31/21 (extended) 2/28/22 (extended)	NOAA requested several extensions for this recommendation with the latest one until May 2022. The launch activities for the	No

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	Satellite–R Series: Program Success Requires Added Attention to Oversight, Risk Management, Requirements, and the Life-Cycle Cost Estimate.			conducts analysis to determine distinct geomagnetic field measurement accuracy threshold and objective requirement specifications and ensure appropriately supported requirements are reflected in GOES-R program documents.	5/31/22 (extended)	GOES-T satellite on 3/1/22 caused delays in implementing this recommendation by the GOES-R Program Office.	
OIG-19-022-A	Geostationary Operational Environmental Satellite–R Series: Program Success Requires Added Attention to Oversight, Risk Management, Requirements, and the Life-Cycle Cost Estimate.	8/12/19	7	That the Deputy Under Secretary for Operations ensure NOAA assesses whether GOES are the optimal satellites to achieve geomagnetic field observation requirements, using an analysis of alternatives or similar cost-benefit approach.	03/31/22 (original)	NOAA is working to implement this recommendation.	No
OIG-18-021-A	Polar Follow-On: NOAA Must Maintain Cost Efficiencies and Refine Launch Strategy for JPSS-3 and JPSS-4 Missions	7/9/18	6	That the Under Secretary of Commerce for Oceans and Atmosphere ensures that NOAA provides Congress with satellite system estimated costs in accordance with requirements for its major satellite programs specified in annual appropriations laws.	12/30/19 (original) 9/31/21 (extended) 8/31/22 (extended)	NOAA requested closure on 6/25/20. During 2020 and 2021, DOC requested more information. NOAA requested an extension from September 2021 to August 2022. The major program satellite congressional report is not finalized yet, which is still undergoing clearances within NOAA and DOC, and then it can be sent to OMB.	No

Section 4. Discrepancies between this report and the semiannual reports submitted by the Commerce Office of Inspector General or reports submitted by the GAO

Report Number	**None**
Report Title	
Issue Date	
Recommendation Number	

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IMPLEMENTATION STATUS OF GAO AND OIG RECOMMENDATIONS

Discrepancy	
Reason for Discrepancy	

Alternative form if more than one report:

Report Number	Report Title	Issue Date	Recommendation Number	Recommendation	Discrepancy	Reason for Discrepancy

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FY21/23 ANNUAL PERFORMANCE PLAN AND REPORT

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Overview of Bureau Accomplishments:

SO 1.7 - DOC Space Situational Awareness - NOAA successfully designed, developed, tested, and demonstrated a prototype of an Open Architecture Data Repository (OADR) capable of assuming the commercial space situational awareness (SSA) functions from the United States Space Force (USSF). The prototype ingests, hosts and processes SSA data from the USSF, commercial SSA providers, and satellite operators. The prototype processed two months of data of over 20,000 space objects and identified close approaches to notify/warn satellite operators. Lessons learned will inform NOAA's design and development of an operational OADR system. NOAA hosted a series of industry days to promote commercial participation in the OADR. **(NESDIS)**

SO 1.7 - **Participation in the National Space Council** - The Office of Space Commerce supported the Commerce Secretary at the December 2020 National Space Council meeting. The office participated in National Space Council decision processes that led to the release of a new National Space Policy, Space Policy Directives 6 and 7, and other space policy documents. **(NESDIS)**

SO 1.7 - Supporting Space Companies - The Office of Space Commerce engaged in dialogue with U.S. space companies and organized a government-industry event focusing on cybersecurity for commercial space systems. **(NESDIS)**

SO 1.7 - Operational use of Commercial Data for Weather Forecasting - NOAA awarded its first contracts for commercial radio occultation (RO) data buys. As of the end of FY 2021, NOAA had placed three delivery orders, purchasing up to 3,000 profiles per day. As of May 2021, this commercial RO data is used in NOAA's numerical weather prediction models. **(NESDIS)**

SO 3.1 - Development of Geostationary Extended Observations (GeoXO) Program - In FY 2021, NOAA successfully completed the Mission Concept Review (MCR) and Key Decision Point-A (KDP-A) for the GeoXO satellite program, indicating that the program is ready to enter Phase A. Formal program initiation began following the Commerce Department Milestone 1 decision, completed in November 2021. GeoXO will continue and expand observations provided by the GOES-R Series, bringing new capabilities to address emerging environmental issues and challenges that threaten the security and well-being of every American. **(NESDIS)**

SO 3.1 - Low Earth Orbit (LEO) Concept Development - NOAA completed the LEO Weather Satellites program Milestone-0 Review in March 2021, validating that there is a capability need for NESDIS to provide global measurements to address NOAA missions following the JPSS and PFO series of satellites and that there is sufficient justification to apply resources to study and develop a LEO Weather Satellite mission concept. During the concept development phase, NOAA will examine the partially disaggregated LEO architecture approach recommended through the congressionally mandated NOAA Satellite Observing System Architecture study, including launching satellites more frequently to enhance, refresh, and augment global observations beginning in the mid to late 2020s to provide resiliency to the Polar Weather Satellites mission. **(NESDIS)**

SO 3.1 - Advancing Space Weather Observation Capabilities - NOAA successfully completed the Space Weather Follow On (SWFO) Program Key Decision Point B (KDP-B) in June 2021. The NOAA SWFO Lagrange 1 (L1) mission will ensure continuity of space weather data beyond NOAA's Deep Space

Climate Observatory (DSCOVR) and NASA-European Space Agency research Solar and Heliospheric Observatory (SOHO), which are well past their design life. NOAA also completed the Space Weather Next (SW Next) mission Milestone-0 Review, which validated there is a capability need following SWFO and sufficient justification to apply resources to meet NOAA mission requirement and the PROSWIFT Act. **(NESDIS)**

SO 3.1 - Cloud Advancing NOAA Data Use & Accessibility - NOAA transitioned initial services to a cloud architecture in FY 2021, which is more efficient, flexible, and scalable than on-premise systems and enables advanced processing capabilities, such as artificial intelligence and machine learning. NOAA completed the migration of the Comprehensive Large Array-data Stewardship System (CLASS) to the cloud in September 2021, which provides the long-term preservation of and access to the ever-increasing input of data from observing systems (e.g., satellites, radar, and other ground observations). **(NESDIS)**

SO 2.1 - 100% of CARES Act Funds Obligated, 76.8% Disbursed (COVID-19) - As of February 11, 2022, $282.3 million of $300 million in CARES Act funds for fisheries assistance have been disbursed and used. **(NMFS)**

SO 2.1 - Aquaculture Opportunity Areas (AOA) - NOAA selected regions (Gulf of Mexico and Southern California) to begin focused evaluation and analysis to identify the first two out of a total of ten AOAs, as directed by the Executive Order on Promoting American Seafood Competitiveness and Economic Growth. NMFS conducted an initial public comment period, continued analysis in the process of identifying the first two AOAs. An AOA is a defined area in federal or state waters that has been evaluated to determine its potential suitability for aquaculture. AOAs will encourage aquaculture to occur within areas that are compatible with a broad range of environmental, economic, social and cultural considerations. **(NMFS)**

SO 2.1 - Improved Efficiency and Timeliness of Consultation and Permitting Processes - NOAA continued to improve the efficiency and timeliness of endangered species consultation. Time to complete informal consultations remained below the regulatory standard of 60 days, at an average of just 41 days. The number of environmental reviews that exceed regulatory or statutory deadlines fell to just 28, from 74 in 2019. And in the Southeast, NOAA Fisheries was able to decrease the processing time for permits for community fishermen from 45 minutes to four minutes using a low-code platform cloud solution. This solution can be used as a standard method for other permit systems across the Fisheries enterprise. **(NMFS)**

SO 2.1 - U.S. Fish Stocks Maintain Sustainability The Status of the U.S. Fisheries report for 2020 shows 92 percent of the stocks managed are not subject to overfishing and 80 percent are not overfished. Forty-seven U.S. marine fish stocks have been rebuilt since 2000. Ending overfishing and rebuilding stocks supported $238 billion of commercial and recreational sales and 1.7 million jobs in 2018. This shows that the U.S. fishery management system is achieving its long-term sustainability goals. **(NMFS**)

SO 2.1 - **First Major Offshore Wind Authorization Issued under the MMPA** - In May, NOAA issued an Incidental Harassment Authorization (IHA) for the Taking of Marine Mammals Incidental to the Vineyard Wind Offshore Wind Project, Massachusetts, the first major offshore wind authorization under the MMPA. The IHA contains extensive mitigation and monitoring measures to protect marine mammals, including enhanced protection for North Atlantic right whales and acoustic monitoring requirements. The second major offshore wind IHA (South Fork) is on schedule for a final decision in FY 2022. **(NMFS)**

SO 2.1 - Significant Progress Achieved Towards Protecting Right Whales - In 2021, NOAA completed two actions that will significantly reduce human-caused threats to the critically endangered North Atlantic right whale. In May, we finalized a long-range 10-year Conservation Framework that outlines our commitment to implement measures necessary for the survival and recovery of right whales, while providing a phased, adaptive management approach and flexibility to the fishing industry. Then in August, we announced the final rule to reduce risk of serious injury and mortality to right whales caused by entanglement in northeast Jonah crab and lobster trap/pot fisheries. This rule represents years of work and collaboration on the part of fishermen, scientists, conservationists, and state and federal officials, and it will achieve a 60- to 69-percent entanglement risk reduction for right whales. **(NMFS**)

SO 2.1 - Innovative Sonar Technologies Help NOAA Scientists Track Commercially Valuable Fish Stocks in Alaska With reduced research vessel surveys due to the pandemic, technology helped NOAA fill some critical data gaps. NOAA scientists worked with research partners to use uncrewed sailing vehicles (saildrones) to gather critical data to inform the commercially-important pollock stock assessment and 2021 fish catch limits. Building on several years of research and development, NOAA scientists and partners used saildrones to collect acoustic data in an area normally surveyed by crewed research vessels. These data were used to partially mitigate the loss of research surveys in the stock assessment process for the Nation's largest fishery. **(NMFS**)

SO 2.1 - NOAA Launches Pilot Using Advanced Analytics and Artificial Intelligence for Seafood Traceability and to Combat IUU Fishing Through collaboration between NOAA and tech giants such as Google, SAIC, and Spring ML, the Global Seafood Data System (GSDS) will provide advanced analytics, reporting, machine learning and artificial intelligence capabilities that will allow traceability programs, like the U.S. Seafood Import Monitoring Program, to leverage the extensive data now collected through import and export trade data to respond to inquiries more efficiently, and identify trends, incidents, practices, and issues that expose potential IUU fishing practices and shipments. GSDS will transition from a pilot test and demonstration project into a full production level system within the coming year. **(NMFS**)

SO 3.1 -Life-Saving Severe and Tropical Weather Response during COVID-19 During both the record-setting tropical and wildfire season, the coordination across Weather Forecast Offices, Regional Operations Centers/National Weather Service Operations Center, and National Centers was exemplary. Whether working remotely or in the office, NWS employees provided consistent and accurate forecasts, warnings, and pre-event messaging about public sheltering informed by CDC guidelines. The NWS recognized in advance that local officials would still need highly tailored forecast information and developed detailed plans to ensure support would continue to meet customer needs, including revised procedures for the dispatch of incident meteorologists (IMETS) during the pandemic. **(NWS)**

SO 3.1 - Upgraded National Water Model - In April 2021, NOAA deployed the National Water Model Version 2.1 (NWM v2.1) into operations, marking the fourth upgrade to the NWM since August 2016. As a result, NWM v2.1 realized a 48% improvement in the CONUS threat score for major flood events during the model evaluation period and a notable reduction in Hawaii-domain false alarms. Leveraging the new and improved forecast guidance afforded by NWM v2.1, NOAA continues to increase the accuracy and availability of mission critical hydrologic services to the nation. **(NWS)**

SO 3.1 - Upgraded Flagship U.S. Global Weather Model - NOAA upgraded its Global Forecast System (GFS) weather model to boost weather forecasting capabilities across the United States and the world. These advancements improved forecasting hurricane development, modeling for snowfall location,

heavy rainfall forecasts, and overall model performance. This is the first major upgrade to the new Unified Forecast System (UFS) version of the GFS with key components including doubling the vertical resolution, updated model physics, improved data assimilation algorithm, and assimilation of additional observations. Also for the first time ever, the global wave model is now coupled with the atmospheric model to provide improved wave forecasts for the marine and coastal regions around the globe. **(NWS)**

SO 3.1 - Initiated a Service Equity Assessment - Utilizing social science, NWS initiated a service equity assessment of severe weather impacts to underserved areas to identify gaps in service delivery. The goal of this assessment was to ensure NOAA products and services meet user needs, are delivered equitably, and will improve resilience to and understanding of weather, water, and climate events within historically underserved, at-risk communities. NWS is currently working to develop a draft NWS Service Equity Framework and Action Plan to act on the recommendations identified in the assessment. **(NWS)**

SO 3.1 - Release of National Blend of Models (NBM v4.0) - NOAA implemented the latest version of the National Blend of Models (NBM) which centered around improvements for aviation weather, water resources, marine, and tropical weather. The NBM is a nationally consistent suite of calibrated forecast guidance based on a blend of both NWS and non-NWS model output. The goal of the NBM is to create a highly accurate, skillful, and consistent starting point for forecasts and is a foundational component in evolving NWS capabilities to achieve a Weather-Ready Nation. **(NWS)**

SO 3.1 - Establishing a Collaborative Forecast Process - NWS established a standard definition for a Collaborative Forecast Process (CFP) that is guiding development of a plan for field demonstration. The CFP ensures NWS provides weather, water, and climate data forecasts and warnings for the protection of life and property and the enhancement of the national economy in the most efficient and effective way possible. Regional Operations Centers were established with Initial Operating Capability at each of the six NWS Regional Headquarters. These elements all establish the building blocks needed to enter into a FY 2022 field demonstration of a CFP using the National Blend of Models as a starting point to produce a singular NWS Quantitative Precipitation Forecast. (**NWS)**

SO 3.1 - Communicating Forecast Uncertainty and Probabilistic Information - NOAA has expanded the availability of The Weather and Society Dashboard to the National Weather Service MDL cloud platform. The Dashboard, developed by the University of Oklahoma's Center for Risk and Crisis Management through the NOAA Joint Technology Transfer Initiative (JTTI) Program, is a dynamic interface and database of survey information reflecting the public's perception, response, and readiness to severe and tornadic events. The Dashboard enables forecasters to better understand public perception and the nuances associated with demographics to best message and prepare the public to respond to severe weather events. The Dashboard will also allow NWS to develop a baseline and performance metrics for NWS to refine messaging associated with severe and tornadic events to improve impact-based decision support services (IDSS) in saving lives and property. **(NWS)**

SO 3.1 - Sustained Atmospheric Observations - NOAA supports and enhances its atmospheric observing systems that will allow NOAA to support, as a requirement of the Paris Climate agreement, a Global stocktake. This will assess the progress in reducing greenhouse gases and mitigating the climate impacts. In order to evaluate progress on meeting Nationally Determined Contributions (NDCs) and the effectiveness of NDCs in limiting global average temperature increases to 2 degrees C above pre-industrial levels. **(OAR)**

SOI 3.1 - **NOAA High Performance Compute Capacity** - NOAA's Research high-performance compute capacity is at the highest level in program history at over 20 petaflops with further investments underway. Increasing research compute capacity improves forecast modeling, advances weather, climate, and ecosystem prediction and provides AI/ML capabilities to NOAA scientists. With additional capacity and capability, NOAA's ability to meet its mission through the delivery of continually improved products and services is enhanced. **(OAR)**

SOI 3.1 - Earth Prediction Innovation Center NOAA developed an Earth Prediction Innovation Center (EPIC) to serve as NOAA's core research-to-operations pipeline for advancing community-developed enhancements to the Next Generation Global Prediction System. EPIC awarded a contract, on April 26, 2021, for the creation of a publicly accessible community earth system model. **(OAR)**

SOI 3.1 - Providing Climate Change Projections out to 2050 to Inform Risk Management NOAA developed standardized and accessible climate projections with co-developed society-relevant data delivery services to improve climate risk information equity and assist decision making across a wide range of stakeholders and economic sectors. There is a critical need for improved projections of how the climate will change on regional scales through the next several decades (2021 through 2050). **(OAR)**

SOI 3.1 - Fire Weather - NOAA developed a collaborative and integrated fire weather research program to enable new research into the coupled modeling for both the short-term fire-atmosphere and S2S modeling systems. A new NOAA Fire Weather Testbed will be established that will bring together OAR, NWS, NESDIS, and emergency managers from across the fire weather community to develop new impact-based decision support tools, products, and models, which will improve the ability to provide timely and accurate guidance to safeguard lives and property and manage downstream air quality impacts. **(OAR)**

SOI 3.1 - Phased Array Radar - NOAA advanced priority activities in Tornado/Severe Storm Research line through the implementation of the Weather Radar Follow-On Plan that was delivered to Congress in June 2020. **(OAR)**

SOI 3.1 - Fleet Recapitalization - NOAA continued acquisition of two general purpose Oceanographic Ships through a Navy assisted acquisition. The Navy and NOAA teams conducted the design evaluations of three competing contractors and in December 2020 selected one contractor for the multi-year Detail Design and Construction. **(OMAO)**

SOI 3.1 - Aircraft Recapitalization NOAA continued its acquisition of a new Gulfstream G550 aircraft. Phase 2 Modifications (fabrication and certification) were awarded in mid-FY21, and the Preliminary Design Review was held in June 2021. The G550 is a replacement for NOAA's current Gulfstream G-IV but offers enhanced data collection technologies including those for advanced climate data. The acquisition of a new King Air aircraft was completed in FY21, and that aircraft is operational. This platform was outfitted with remote sensing equipment to measure snow water equivalent data for flood, river level and water supply forecasts. **(OMAO)**

SOI 3.1 - Uncrewed Systems (UxS) - OMAO, in collaboration with the OAR and the UxS Executive Oversight Board, completed a 2021 NOAA Request for Proposals (RFP) for Uncrewed Systems (UxS). OMAO funded projects that totaled $6.7m for the development, testing, and evaluation of mature UxS technologies that have high potential to transition to routine operations in NOAA and will eventually provide a NOAA product or service. OMAO continued to fund $2.5m of existing UxS research, development, and operations across NOAA with support from OAR. With UxS funds, programs across

NOAA will use UxS to assess protected species, develop under-ice ecosystem observations, ecosystem monitoring, survey hydrologic and storm damages, validate satellite data, collect data on coastal change, and improve hurricane intensity prediction. **(OMAO)**

SO 2.1 - NOAA Rolls Out Two New Visualization Tools As Part of Their One-Stop Shop for Marine Navigation - Building on the benefit valuation strategies identified in the Precision Navigation Socioeconomic Study, NOAA's Precision Marine Navigation program introduced two new visualization tools to support economic development and infrastructure enhancements across the Nation. Their one-stop shop website, Marine Navigation, includes links to various NOAA navigation resources, providing mariners a one-stop shop for critical, relevant and timely information. The two new tools, the Precision Marine Navigation Data Gateway and the Precision Marine Navigation Data Dashboard, demonstrate how NOAA is working to expand services within ports and throughout the U.S. EEZ to maximize the economic benefits across the Marine Transportation System. These services will support users across the maritime industry to make safer, more efficient, and more-educated economic decisions regarding navigation. **(NOS)**

SO 2.1 - Addressing the Climate Crisis by Informing and Advancing Offshore Wind Energy Projects - NOAA data and analyses are informing the Bureau of Ocean Energy Management's (BOEM) offshore wind energy siting decisions. NOAA is working jointly with BOEM along the nation's coasts to provide geophysical assessments of the seafloor, study the living resources found there, and create models that predict the broader spatial and temporal distribution and abundance of fish, birds, corals, and marine mammals. NOAA's social value surveys measure coastal community support for or against offshore wind energy development, enabling BOEM to anticipate concerns and engage stakeholders more meaningfully. These products are helping advance the President's clean energy goal of deploying 30 gigawatts of offshore wind energy by 2030, while minimizing the wind industry's impacts on protected species, habitats, and commercial and recreational fishing. **(NOS)**

SO 2.1 - NOAA Carries Out Over Half of the Shoreline Mapping Needed in Alaska - Over half of the needed shoreline mapping efforts in Alaska were carried out in FY 2021, improving coastal resilience efforts through a more accurate vertical reference framework. NOS flew 14 missions over the remote Aleutian Islands in Alaska for the Gravity for the Redefinition of the American Vertical Datum (GRAV-D) project, resulting in collection of approximately 78,000 mi^2, an area the size of the state of Nebraska. By incorporating this data into a new national geoid model, NOS's mean sea level model will have more precise surface elevations. The GRAV-D project in Alaska is nearly 90% complete; resulting data will provide a vertical reference framework emphasizing how sea level changes at the local level compare against the global frame. **(NOS)**

SO 2.1 - PORTS® Increases Navigation Safety in Busy Shipping Areas - In July 2021, NOAA celebrated the 30th anniversary of the Physical Oceanographic Real Time System program (PORTS®). NOS collaborated with partners across the Nation to expand several existing PORTS®, providing vessel operators with quality controlled real-time status of environmental parameters to enable better safety of life and property decisions. New sensors were added to seven systems and announced the establishment of three future PORTS in Freeport, Texas; Kitsap Peninsula, Washington; and Pearl Harbor-Honolulu, Hawaii. NOS now has 36 PORTS nationwide and looks forward to expanding this important program in future fiscal years. **(NOS)**

SO 3.2 - NOAA Designates Wisconsin Shipwreck Coast National Marine Sanctuary - The 2,491.57 square kilometer area of Lake Michigan, named Wisconsin Shipwreck Coast National Marine Sanctuary,

was designated in August 2021 by NOAA with widespread support from a diverse coalition at the local, state, regional, and national levels. The sanctuary will protect and celebrate the region's maritime cultural heritage while creating unique research, educational, recreational, and tourism opportunities. In addition to the 36 known shipwreck sites, there may be an additional 60 ships yet to be discovered within the boundaries of this new sanctuary. This brings the total protected area of underwater parks to more than 600,000 square miles, and 15 National Marine Sanctuaries. The excellent preservation and archaeological condition, their diverse roles in the development of the Midwest and the nation, and their location on a historically significant transportation corridor make the collection of shipwrecks within the Wisconsin Shipwreck Coast National Marine Sanctuary a national treasure. **(NOS)**

SO 3.2 - Identifying Actions to Advance Equity of NOAA Products and Services - NOAA developed a pilot Service Equity Assessment with a focus on the Office for Coastal Management's coastal resilience planning tool, the Sea Level Rise Viewer, and its associated data, tools, and training. The pilot aligns with the goals set forth in the Presidential Executive Order 13985 On Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. The assessment identified barriers to the use of the tool by underserved communities, and outlined recommendations for increasing service equity. As a result, actions are underway to reduce the barriers that may exist within grant procedures, technical assistance offerings, training opportunities, and fellowship programs. **(NOS)**

SO 3.2 - $131.9 Million Recovered from Polluters for Restoration - In 2021, NOAA worked with partners to recover $131.9 million from polluters at 10 contaminated waterways in six coastal states. This funding will be used to restore marine environments and communities damaged from oil spills and hazardous waste pollution. These efforts will restore robust fisheries, endangered species, coastal habitats, and outdoor recreation. This work will also benefit blue economies, coastal resilience, and affected local communities, including underserved and indigenous localities, which are often impacted by pollution. Restoration will include $51.5 million to create habitats for salmon in the Lower Duwamish River in Washington State; $25 million to restore freshwater habitats and outdoor recreation in the Kalamazoo River in Michigan; and $19.2 million to restore salt marsh and estuarine wildlife on the Calcasieu River in Louisiana. **(NOS)**

SO 3.1 - High Performance Computing (HPC) - Research HPC program continues significant compute, network, and storage upgrades to support internal and external HPC Research requirements. Enterprise cloud compute capability is available and in use with Google, Amazon, and Microsoft. Artificial Intelligence / Machine Learning (AI/ML) and Cloud compute activities within the Incubator programs have been expanded. AI/ML expertise in NOAA has been further increased through Industry engagements, bootcamp training seminars, and hackathon events. **(OCIO)**

SO 3.1 - Big Data Program (BDP) - Throughout FY 2021, the BDP team has significantly increased the footprint of the program throughout the organization and provided public data dissemination services via cloud service providers to NOAA line and program offices. In addition to routine data delivery, the program participated in a demonstration project with NWS to provide critical weather model datasets to the public. This project was key to alleviating strain on the NWS NOMADS system and provided access to the data in the cloud. To date there are over 13 petaflops and 220 datasets in the BDP, and the BDP has saved NOAA a conservatively estimated $5M in CY 2021 alone in storage and egress costs. See full list of data by NOAA line office. **(OCIO)**

Analysis of Performance Indicators:

Explanation of Trends

NESDIS:

- A key milestone "Pre-Ship Review (PSR) of Compact Coronagraph (CCOR) for GOES-U" was not completed as planned in FY 2021 due to impacts from COVID-19 and technical issues. PSR was completed in Q2 FY22. This was one of two milestones contributing to the NESDIS "Key milestones completed on time for satellite deployments" performance measure in FY 2021.

NMFS:

- Recent trends in NMFS performance reflect the challenges posed by climate change, which affects not just living marine resource populations but also the scientific models we use to estimate those population levels and trends. Changing conditions, especially warming waters, have not only affected the fish and other populations themselves, but by causing locational shifts, they have made it harder for our science to estimate their sizes and trends. The number of overfished stocks and stocks subject to overfishing has begun a gradual increase, and as a result, the FSSI is expected to show a decrease for FY22. The number of FSSI stocks with adequate assessments has also leveled off and is anticipated to decrease next year. Some protected species have had to be moved from stable or increasing to unknown, and as a result the number of listed species with stable or increasing populations has decreased and is anticipated to decrease further.
- There is more positive news regarding permit processing and efficiency. The number of environmental reviews that exceed regulatory or statutory deadlines has fallen to an all-time low of 28, from 74 just two years ago. And the average number of days to complete informal ESA Section 7 consultations remains well below the statutory requirement of 60 days.

NOS:

- NOS exceeded targets related to training due to successful implementation of virtual course offerings following the start of the pandemic.
- NOS measure of hydrographic data collected exceeded targets. This measure has high inherent variability due to the environmental factors (e.g. water depth of specific areas surveyed) that strongly affect the relationship between level of effort and square nautical miles of hydrographic data acquired.

NWS:

- The performance indicator for the Global Ensemble Forecast System length of forecast considered accurate exceeded the FY 2021 target and the indicator for the Global Forecast System length of forecast considered accurate met the FY 2021 target. This may be attributed to FY 2020 upgrades to the Global Ensemble Forecast System highlighted under the accomplishments section (Page 5).
- The probability-of-detection for geomagnetic storms in the space weather program remained below the target goal for FY 2021. This measure is averaged over the 60 most recent geomagnetic storms to maintain statistical significance. Periods of active space weather are cyclical, and during periods of inactive space weather, the 60 storm average may include under-forecasted storms from previous fiscal years.
- The U.S. seasonal surface temperature skill score can be quite variable, so the metric is a 48 month running average which attempts to smooth out some of that variability. Since its inception, the measure has varied between a low value of about 15 to high values reaching the 40's. Much of this variability is due to the predictability of different climate regimes (i.e. El Niño or La Niña periods compared to neutral periods).
- Tornado Lead Time and Accuracy: The FY 2021 (similar to previous years) national targets for lead time and probability-of-detection of tornadoes were not met due to the high number of

low-end intensity tornadoes (EF0-1) which have limited predictability due to their small size and short duration. However, the lead time and probability-of-detection for strong tornadoes (EF2-5) greatly exceed targets.

OMAO:

- OMAO Ship Recapitalization: OMAO continues the multiple vessel class recapitalization program with the new NOAA ships Oceanographer and Discoverer (NAV/Class A) and the new Class B ship acquisitions. Milestones tailored to these acquisitions provided evidence of successful contractor and government progress. During FY21, the Detail Design and Construction contract for both *Oceanographer* and *Discoverer* was awarded on time. Delays on NAV/Class A occurred from Hurricane Ida, with the project now experiencing a 6 month delay (2 months for a Contract Mod and 4 months from Hurricane Ida impacts). The Class B ship continues its early phase of the acquisition cycle as it refines requirements and prepares documents for a Request for Proposal release to industry.
- OMAO Aircraft Recapitalization: OMAO continues the acquisition and outfitting of a new Gulfstream G550 to deliver an advanced capability scientific data collection platform. The aircraft recapitalization program awarded a second modification phase on time in FY21 as the work progresses toward delivery in FY24. The program was successful in delivery of a new, modified King Air 350 aircraft in FY21. That aircraft is operationally in service to support NOAA's missions, including snow survey and coastal mapping.
- OMAO Facilities (NE Marine Operations Hub Consolidation, Newport, RI): OMAO continues its ship and support facility hub consolidation work according to project milestones to improve climate resilience and reduce environmental impact while also improving NOAA ship operations and maintenance.
- OMAO Ship Days at Sea (DAS): OMAO will continue to provide ships for data collection capabilities required by the NOAA scientific community while working with the NOAA Fleet Council to prioritize and schedule these scientific missions furthering NOAA goals with appropriations received.

Explanation of Targets for FY 22 and FY 23

NESDIS

- The scope of milestones contributing as part of key milestones completed on time for satellite deployments target in FY 2022 and FY 2023 will depend on the level of funding provided to NESDIS for next-generation ground and satellite programs. Dependent on timing and amount of appropriations, milestones included in the target may be delayed or deferred to another fiscal year.

NMFS:

- Targets reflect the challenges of COVID and climate change. COVID has further limited our data collection days at sea, which had already declined substantially prior to the pandemic, and climate change has also affected both fish (and other marine species) populations as well as the effectiveness of the scientific methods we use to estimate populations and predict population trends.
- Three of our most significant performance measures—FSSI, percentage of FSSI stocks with adequate population assessments and forecasts, and number of protected species designated as threatened, endangered or depleted with stable or increasing population levels—have FY 22 targets below their FY 21 actuals. These reflect the growing adversity of the environment.

- NMFS measures are focused mainly on outcomes, so making or missing FY 22 targets is unlikely to be affected by FY 22 funding levels. FY 22 funding levels will have a significant effect on making out year targets and reaching long-term goals, however.
- Targets for permit processing efficiency should not be interpreted as targeting a decrease in efficiency, but as setting a minimum level of performance NMFS seeks to ensure.

NOS

- Targets for two metrics from the National Marine Sanctuary Program are lower than previous performance due to COVID-19 impacts: 1) Number of youth learning about national marine sanctuaries in hands-on or distance learning and the 2) Number of volunteer hours supporting science, education, and public engagement programs to raise awareness and meet science needs of national marine sanctuaries.

NWS

- **The target** for the number of new StormReady communities was increased to 60 for FY 2022, from 40 in FY 2021, but remains lower than the FY 2020 target of 100 due to ongoing COVID-19 impacts to travel and engagement. The target for the number of new StormReady communities for FY 2023 is 75, an increase above the FY 2022 target. Targets for the number of new and renewed TsunamiReady communities continue at the FY 2021 target of 20 for FY 2022 and will be increased to 50 for FY 2023. Both StormReady and TsunamiReady communities are required to renew their designation every four years. Communities are dynamic and mitigation, preparation, and response strategies change over time. This renewal process ensures that requirements continue to be met and that accurate contact information exists between the NWS and the designated Community.
- Targets for the proposed measures of "Percentage of Weather-Ready Nation Ambassador, StormReady, or TsunamiReady communities serving socially vulnerable populations and U.S. businesses" has yet to be determined in both FY 2022 and FY 2023 as NWS is still working to establish a baseline for this new metric.

OAR

- The NOAA Science Council set the publications annual and quarterly targets as an average of the previous three years of actual data. The FY 2022-2025 targets will be adjusted to be an average of the FY 2019-2021 actuals.

OMAO

- **Ship Days-at-Sea (DAS):** Regular maintenance, including proper preventive maintenance, is scheduled to ensure readiness prior to and during the field season. NOAA vessels will be more mission ready, and therefore, able to execute DAS at a higher level. The FY 2022 and FY 2023 DAS targets also assume that the number of DAS lost due to unscheduled maintenance will be reduced, increasing the utilization rate of the entire NOAA ship fleet. This allows OMAO to provide ships capable of meeting prioritized, geographical and temporal, at-sea NOAA requirements. The ship Fleet Allocation Plan for each fiscal year is approved by the NOAA Fleet Council based on numerous considerations such as customer scientific requirements, priorities, funding, COVID-19 procedures, and available ships to perform specific missions.
- **Milestones (Aircraft and Ship Acquisitions):** The aircraft and ship acquisitions are mission critical programs designated by DOC and NOAA for special in-depth management reviews where evidence of progress is provided against planned targets/milestones. Each aircraft and ship acquisition has a customized milestone schedule for assessing readiness to enter the next program/project phase. The next milestone for the G550 aircraft program is Critical Design Review, scheduled for March 2022. NOAA new ships Oceanographer and Discoverer are scheduled to begin construction in FY 2022.

- **North East Marine Operations Hub, Naval Station (NAVSTA) Newport, Rhode Island:** NOAA will continue the FY 2021 start of consolidation activities for the NAVSTA Newport, RI location. Currently NOAA has two ships homeported at NAVSTA, the *Henry B. Bigelow* and *Okeanos Explorer*. In order to remain in compliance with the CENOTE Act, NOAA is required to co-locate with the Navy whenever possible to increase technological sharing capabilities. This consolidation also aligns with NOAA's regional facilities plans.

Progression of the Performance Indicators

The performance indicators are reviewed throughout the fiscal year by NOAA leadership and include quarterly NOAA Level Annual Operating Plan (AOP) updates, as well as the Mid-Year and End-of-Year Performance Reviews.

NESDIS

- The annual target for major satellite milestones completed will include applicable Commerce Major Acquisition Milestones or Key Decision Points.

NOS

- NOS developed its Adequate Hydrographic Health Index (AHHI) to better measure and track progress in acquiring hydrographic data needed to support nautical mapping and charting for the U.S.

NMFS

- NMFS did not make any changes to its measures for FY 2022. We try to maintain outcome-focused measures over a long period of time in order to track and gauge the trend in achievement of our long-term goals. We therefore seek stability in our performance measurement enterprise and do not make changes to measures on an annual basis. However, there are efforts in the works to improve measurement of our Protected Resources program which we hope will be complete in time for FY 2023.

NWS

- Change in observations dataset used for calculating U.S. Temperature Forecast Skill Score: The NWS Climate Prediction Center (CPC) has replaced the observational dataset formerly used to verify the seasonal temperature outlooks with a new dataset. This change aligns the Temperature Skill Score with the other Climate Prediction Center Outlook measures, which use the same observational dataset for verification, ensuring consistency. The previous dataset used to verify the CPC seasonal temperature outlook had developed a cold bias across large parts of the western United States during the past 5-10 years, stemming from the inclusion of new data from the expanding network of stations in the Hydrometeorological Automated System (HADS), many of which are at higher elevations. These additional stations were not included in the dataset used to create the climatology. This resulted in a cold bias with regards to the observations across parts of the Western U.S., which negatively impacted the Temperature Forecast Skill Score verification. This change will not impact the measure itself, nor how it is reported, but will remove biases identified in the old verification dataset, resulting in a more accurate performance indicator.

OAR

- Annual number of peer-reviewed publications - There is a lag in indexing publications, so some articles published will not appear until a refreshed actual is produced during the subsequent quarter. The NOAA Science Council set the publications annual and quarterly targets as an average of the previous three years of actual data. The FY 2022-2025 targets will be updated based on the FY 2021 actuals.

OMAO

- **Acquisitions (Ships and Aircraft):** In accordance with the DOC Scalable Acquisition framework, major milestones are performance indicators for these high-profile ship and aircraft acquisition programs that must be reviewed and approved by the DOC Deputy Secretary as the Department's Milestone Decision Authority, as well as the DOC Office of Acquisition Management and Senior Procurement Executive, before moving to next project milestone phase activities. Each acquisition is customized to meet the uniqueness of the platform and requires the level of evidence necessary for well-informed program/project decision-making. If future improvements in program management techniques/methodology become accepted in the program management community, DOC/NOAA could consider inclusion into its management framework.
- **Ship Days-At-Sea:** NOAA ships used Total Funded DAS starting in FY 2020 for both planned and actual DAS, instead of the previous OMAO Base Funded only. Total DAS include OMAO base funded DAS, program funded DAS, and reimbursable funded DAS. This approach enables NOAA to expand its performance planning and tracking to encompass the full scope of asset management. In addition, an internal NOAA ship DAS planning and reporting database (Ship Daily Activity Log System) assists leadership in asset management and performance analysis. The system's historical records are maintained and analyzed for performance evidence showing improvement opportunities.

Performance Data Validation and Verification

NOAA has robust institutional performance management processes to track progress on each strategic objective. All NOAA Line Offices (LO) and Staff Offices (SO) develop Annual Operating Plans (AOPs) with performance measures and milestones that demonstrate progress on the DOC Strategic Plan Objectives. These NOAA AOPs set ambitious goals (i.e., measures and milestones with associated targets) to demonstrate clear progress in achieving programmatic and organizational priorities, including implementation of the DOC Strategic Plan.

NOAA conducts an Annual Performance Review to evaluate key performance indicators to ensure we can demonstrate compelling progress in support of strategic priorities. Based on the Annual Performance Review results, NOAA develops an Annual Action Plan to develop new measures and to improve the utility of monitoring and increasing results of existing measures.

NOAA LOs and SOs:

- Ensure consistency and reliability of data used to measure progress by developing supporting documentation, or business rules, to record the process for setting targets and taking measurements for all reported measures.
- Track performance indicators and brief senior management on their progress each quarter.
- Routinely check data linked to the performance indicators for quality controlled for accuracy and reliability.

NESDIS

- NESDIS reviews the progress and achievement of its performance indicators and major milestones on a quarterly basis through a Quarterly Program Review process, which includes updates to the NOAA Annual Operating Plan.

NMFS

- The NMFS scientific enterprise ensures a sound scientific basis for NMFS's resource conservation and management decisions. They collect data and coordinate information and research to ensure science-based management and stewardship. They carry out at-sea resource surveys, stock assessments, fisheries observer programs, cooperative research, and socioeconomic research and data collection. All NMFS science products and programs are subject to independent peer review. There are many challenges involved in collecting and analyzing data on fish stocks and other marine species and their habitats that can result in both uncertainty and knowledge gaps, but management decisions and performance reporting are based on the best scientific information available.

NWS

- The NWS shares the performance data with NWS personnel and specific users via a Performance Management Web Portal, and the public.
- NWS Performance indicators are used to accelerate service improvement and set ambitious, yet achievable, goals to challenge the workforce and find new and creative ways to raise their level of performance to meet the more difficult targets. Tracking performance reveals areas of service deficiency and potential areas of new technology or training investment. They are tracked and briefed to senior management of the NWS each quarter.

OMAO

- **OMAO Ship Days at Sea:** The ship DAS performance indicator is reviewed throughout the fiscal year by the Maine Operations Center and NOAA leadership, the latter including the quarterly NOAA Level AOP updates, as well as End-of-Year Performance Reviews. The underlying performance drivers are discussed for increased understanding, research or opportunities for improved reporting/utilization.
- **OMAO Enhanced Fleet Operations:** NOAA is aggressively taking steps to improve wage marine retention rates, including plans to increase rotational assignments across the fleet.
- **OMAO Acquisition Milestones (Aircraft and Ships):** Once mission critical ship and aircraft acquisitions are identified by DOC/NOAA, each is structured to implement the Office of Acquisition Management scalable framework, containing key milestones. These acquisitions are required to report progress during special in-depth management reviews where evidence is provided against planned targets. Incomplete evidence may hold the program from moving to the next phase, and gaps in data require correction to the satisfaction of the oversight bodies.
- **OMAO Facilities:** Naval Station (NAVSTA) Newport, Rhode Island OMAO Ship and Support Facility Consolidation (re-title as North East Marine Operations Hub, Naval Station (NAVSTA) Newport, Rhode Island): The facility related effort started in FY21. Reliability of data for tracking progress requires supporting documentation with recorded processes and procedures to set targets and measuring actuals for all reported metrics. Indicators will be briefed to senior managers throughout the year and reviewed by NOAA analysts.

<u>Planned Actions for FY 2023</u>

NESDIS

- **SO 1.7** - Support Commercial Space Situational Awareness - NOAA will develop a cloud-based open architecture data repository (OADR) providing space situational awareness (SSA) services blending government and commercial data and software for civil and commercial stakeholders. In addition, NOAA will develop a proving ground to provide an environment to support further government-public-private collaboration for applications and algorithm development to advance space science and technology.

- **SO 1.7** - Improve Space Regulations - Continue to advocate for U.S. industry interests in ongoing rulemaking processes affecting commercial space activities, including exports, and support and participate in efforts to define a new mission authorization framework for novel activities in space.
- **SO 1.7** - Continue Commercial Data Program - Expand use of commercial satellite data buys which could include new types of Earth observation and space weather data. Support the continued development and sustainment of NOAA's infrastructure and capabilities to securely ingest, process, assimilate, distribute, and archive data from commercial providers for operational use.
- **SO 1.7** - Participate in National Space Council - Support Commerce leadership's participation in the activities and tasks of the National Space Council.
- **SO 3.1** - Transition JPSS-2 into Operations - Following a successful planned launch in FY 2022, the Polar Weather Satellite (PWS) program will transition JPSS-2 into operations in FY 2023.
- **SO 3.1** - Transition GOES-T into GOES West location - Following the launch on March 1, 2022, the GOES-R Series program will transition GOES-T into the GOES West location in FY 2023.
- **SO 3.1** - Initiate Formulation of the Space Weather Next Program - NOAA will conduct pre-formulation activities in FY 2023 and prepare a comprehensive space weather program plan of execution that will identify the mission performance enabled by the five-year profile for FY 2023 through FY 2027. Initial projects include providing continuity in observations for operational forecasting use from Lagrange Point 1 and adding observations from Lagrange Point 5 through a partnership with the European Space Agency.
- **SO 3.1** - Continue development of the Geostationary Extended Observations (GeoXO) Program - NOAA will continue the development of the GeoXO program in FY 2023 by conducting Phase A studies and awarding instrument development contracts for the imager and other selected instruments.
- **SO 3.1** - Increase data accessibility and dissemination - Contingent on the availability of funding, NOAA will expand and accelerate the development of, and migration to, the NOAA cloud infrastructure. This initiative will build the near-term infrastructure capacity needed to accommodate increased data volumes and diversity of sources as well as provide tools, platforms, information, products & services, and skilled personnel to enhance public access, usability, and use of data for climate and other applications.
- **SO 3.1** - Expand Regional Climate Services - NOAA will expand the Regional Climate Services (RCS) to enable NOAA to better articulate user needs for prioritization, improve development and delivery of operational regional information, and support engagement experts to showcase user needs by sector, geography, and timescale. NOAA has also proposed to re-invigorate the State Climate partner, and to train the local forecast office focal points on NOAA's climate assets available at local levels.

NMFS

<u>COVID Mitigation</u>:

- **SO 2.1** - Continue disbursement of COVID Fisheries Assistance Funds.

<u>Enhancing the Climate Science and Management of the Nation's Fisheries</u>:

- **SO 2.1** - Add 120 days at sea with expanded use of industry chartered vessels and NOAA ships as available.
- **SO 2.1** - Improve data processing, analysis, and modeling efforts to produce timely stock assessments through the addition of twelve new positions, two at each of the NMFS science centers.

- **SO 2.1** - Reduce uncertainty in estimates of stock abundance and improve scientific understanding of current and projected living marine resource distributions.
- **SO 2.1** - Implement strategic goals 1 and 2 in the NOAA Uncrewed System (UxS) Strategic Plan to cost-effectively augment existing surveys with UxS technology and address uncertainties related to spatial coverage.
- **SO 2.1** - Implement strategic goal (2) of the NOAA Artificial Intelligence (AI) Strategic Plan to improve the quality and timeliness of scientific information from emerging technologies through the implementation of AI and machine learning analytics.
- **SO 2.1** - Improve efficiency and survey capacity through investment in advanced ocean sampling and data processing technologies and the addition of six new positions to manage their integration, one at each of the NMFS science centers.
- **SO 2.1** - Eliminate in-stream barriers to fish passage and restore coastal habitat to rebuild productive and sustainable fisheries, contribute to the recovery and conservation of protected resources, and promote resilient ecosystems.

Environmental Justice and Equity:

- **SO 2.1** - Develop an online Fishing Community Adaptation Toolkit including a suite of decision-support tools, information, and on-line assessments designed to help fishing communities evaluate risks and identify adaptation options for a changing climate.
- **SO 2.1** - Five fishing-dependent communities engaging in climate adaptation efforts
- **SO 2.1** - Two regions with online Coastal Community Vulnerability Risk Dashboard
- **SO 2.1** - Enhanced efficiency of NOAA social impact assessments and disaster responses (e.g. hurricane, earthquake, COVID-19), facilitating improved and more equitable distribution of disaster funding.
- **SO 2.1** - Demonstration projects to foster and promote the involvement of western Pacific communities in fisheries and may identify and apply traditional Indigenous fishing practices; develop or enhance western Pacific community-based fishing opportunities; and involve research, community education, or the acquisition of materials and equipment to carry out such demonstration projects.
- **SO 2.1** - Provide financial support for students who pursue fishery-related degrees at six higher education institutions based in Hawaii, American Samoa, Guam and the Commonwealth of the Northern Mariana Islands (CNMI).
- **SO 2.1** - Approximately 20 Alaska and West coast internships per year supporting research and management for fisheries, marine mammals, and habitat conservation

Wind Energy:

- **SO 2.1** - Five independent peer reviewed literature documenting the effects and impacts of offshore wind development on fisheries and protected species recovery and conservation
- **SO 2.1 -** 25 wind energy projects where early and comprehensive coordination with BOEM and industry yields sufficient information and analysis to inform NMFS consultations and reviews, resulting in improved protection of NOAA Trust Resources

NOS

- **SO 2.1** - Provide HAB, pathogen, and hypoxia forecasts that protect communities (drinking water) and support the blue economy (recreation and seafood) in the Gulf of Maine, Chesapeake Bay, Gulf of Mexico, Lake Erie, and the Pacific Northwest (ongoing).
- **SO 2.1** - Conduct 120 hydrographic surveys that provide data for use in electronic navigational charts.

- **SO 2.1** - Coordinate with Alaska Mapping Executive Committee on the implementation and development of the interagency mapping strategy to map, explore, and characterize the U.S. EEZ, Arctic and sub-Arctic shoreline, and nearshore of Alaska.
- **SO 2.1** - Expand, update, and maintain key observing networks, including the National Water Level Observation Network (NWLON), Continuously Operating Reference Stations (CORS) and High Frequency Radar.
- **SO 2.1 -** Update 1,250 square miles of topographic-bathymetric lidar data and 2500 linear miles of shoreline data in Alaska
- **SO 3.2 -** Increase capacity for conservation, education, Indigenous and Native communities coordination, acquisitions, designations, restoration and climate coordination.
- **SO 3.2 -** Execute a Federal Funding Opportunity for up to four projects that enable the expanded use of nature-based solutions to mitigate coastal inundation under sea level rise and deliver guidance to support adaptation planning to underserved communities
- **SO 3.2 -** Develop a sanctuary observation plan in collaboration with key internal partners
- **SO 3.2 -** Increase capacity for long-term coastal planning by improving tools and products for modeling impacts of sea-level rise and assessing vulnerabilities of marshes and beaches to sea level rise and coastal storms.
- **SO 3.2** - Merge the first generation high tide bulletin, state of high tide report and outlook generated at tide gauge locations into a single, integrated product into the Coastal Inundation Dashboard.
- **SO 3.2** - Support the implementation of local policies, plans, and projects that reduce future damage from hazards (including climate impacts).
- **SO 3.2** - Conduct equity assessments to uncover barriers and constraints to serving underserved and minority communities and implement specific and systemic changes to OCM engagement, service delivery, and training.
- **SO 3.2** - Train 2,500 emergency responders and remove 800 metric tons of marine debris.

NWS

- **SO 3.1** - Reduce critical staffing gaps in field offices and national centers.
- **SO 3.1** - Initiate implementation of significant components of the Integrated Dissemination Program (IDP) Plan.
- **SO 3.1** - Conduct demonstration of Collaborative Forecast Process (CFP) for Quantitative Precipitation Forecast (QPF).
- **SO 3.1** - Initiate requirements analysis and planning for FY 2025 Weather and Climate Operational Supercomputing System (WCOSS) Phase II augmentation
- **SO 3.1** - Develop prototype cloud-computing based Weather Event Simulator (WES) for NWS Weather Forecast Offices
- **SO 3.1** - Complete 80% of the Pedestal Refurbishment and 100% of the Generator Replacement for Next Generation Weather Radar (NEXRAD) system

OAR

<u>Phased Array Radar Research and Development Follow-On Plan:</u>

- **SO 3.1 -** Advance industry engagement to prototype a dual polarization Phased Array Radar (PAR) for a weather surveillance PAR testbed. This critical step would allow NOAA to evaluate industry's potential to deliver dual polarization PAR technology to meet NOAA's weather radar requirements. PAR is a promising technology that could advance NOAA's current radars from 1988-based technology to radars that would be viable until the end of the 21st century.

<u>Climate Smart Communities:</u>

- **SO 3.1 -** Launch a new, four-year Climate-Smart Communities Initiative (CSCI) designed to scale up, accelerate the pace, and reduce the cost of climate resilience-building, inclusively and equitably, in hundreds of communities all across the United States.

Sustained Atmospheric Observations:

- **SO 3.1** - Support and enhance its atmospheric observing systems, which will allow NOAA to support, as a requirement of the Paris Agreement, a Global Stocktake. NOAA will conduct GHG measurement and modeling and competitively utilize and incorporate expertise from the extramural research community to help quantify actual emissions, and assess carbon-climate feedbacks and the magnitude of permissible emissions to support the U.S. government in implementing its commitments towards mitigation of climate change.

Global-Nested High-Resolution Model:

- **SO 3.1** - Develop a global-high-resolution atmospheric model with a 3km or below resolution to improve NOAA's understanding and prediction of extreme events on all time scales beginning at 2 weeks.

Tribal Drought Resilience:

- **SO 3.1** - Tribal engagement through the National Integrated Drought Information System (NIDIS). Tribal Nations will benefit from increased support to improve: drought observations and monitoring; prediction and forecasting; communication and outreach; planning and preparedness; and interdisciplinary research.

Marine Ecosystem Responses to Climate Change:

- **SO 3.1** - Provide decision-makers with the information and tools they need to prepare for changing oceans and Great Lakes, reducing climate impacts, and increasing the resilience of living marine resources (LMRs) and the communities that depend on them.

Providing Climate Change Projections out to 2050 to Inform Risk Management:

- **SO 3.1** - Develop standardized and accessible climate projections with society-relevant data delivery services to improve climate risk information equity and assist decision making across a wide range of stakeholders and economic sectors.

Precipitation Prediction Grand Challenge:

- **SO 3.1** - Enhance the skill of precipitation predictions across weather and climate timescales in a research environment and for potential transition to operations.

Uncrewed Systems (UxS):

- **SO 3.1** - Conduct directed research and proposal solicitations for R&D related to UxS concepts and technologies to support missions across NOAA's Line Offices in order to move notional ideas to testable technologies and finalize mature, transition ready projects into operational use within NOAA.

OCIO

High Performance Computing (HPC)**:**

- **SO 3.1** Continue to increase compute available to NOAA scientists across all high performance computing solutions while increasing software and model portability on internal and external compute systems. Increase network and storage capacity specifically at Fairmont to fully support WCOSS's increased capability. Support AI/ML/Cloud initiatives through R&D HPC Integrator contract and Incubator program.

Big Data Program (BDP):

- **SO 3.1** - NOAA executed option period one of the BDP contracts, as there were no contract performance issues during FY20 or FY21. There is a FY22 PCS in the President's Budget for $3.3M. During FY22, BDP plans to continue expanding its data holdings and increasing the amount of data that is being stored under the NOAA allocations, by increasing NOAA Line Office

engagement. The BDP plans to continue to build as a program and increase staff and resources as needed with increased participation and workloads.

OMAO

SOB 3.1 - OMAO Ship Recapitalization:

- Impact of Hurricane Ida on Oceanographer and Discoverer (NAV 1&2) ship acquisitions caused a 6 month delay, with FY23 activities and milestones reviewed. The Class B ship acquisition did not experience Hurricane Ida impacts to its schedule and is still planning for award of Detail Design & Construction in FY23.

SOB 3.1 - OMAO Aircraft Recapitalization:

- The new Gulfstream G550 airframe is scheduled to be in the modification phase during all of FY23 and therefore no further FY23 milestone is required during this time period. The FY23 contractor activity will move the airframe toward a scheduled delivery in FY24.

SOB 3.1 - OMAO Facilities:

- North East Marine Operations Hub at Naval Station (NAVSTA) Newport, Rhode Island- In FY23, a Request for Proposal (RFP) will be issued. In FY23, proposals will be evaluated and the contract awarded. Construction period for the NE Hub is projected at 512 days once contract is awarded (OCAO).

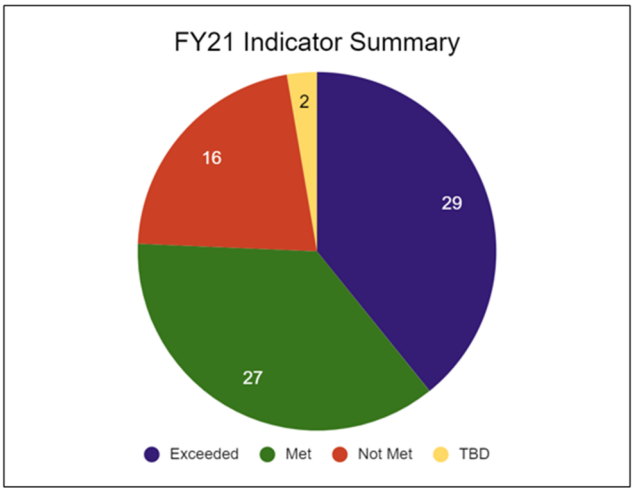
SOB 3.1 - OMAO DAS:

- NOAA will continue to support scientific data collections with its current fleet of 15 ships configured for various mission capabilities. The FY2023 ship target is 2,840 DAS. The final agreed upon DAS will be based on the availability of vessels, mission requirements and appropriations, with a Fleet Allocation Plan approved by the NOAA Fleet Council.

SOB 3.1 - NOAA Ship Ronald H. Brown Mid-Life Repair:

- In FY22, NOAA will conduct final evaluations of shipyard proposals with contract award expected at the end of the fiscal year. In FY23, the Ron Brown (RB) will enter the shipyard, dependent on long lead times, to begin the repair. Once the RB enters repair, NOAA will make every effort to mitigate the loss of the ship during the repair period.

NOAA Performance Indicators



Class	SO	Performance Indicator	FY 2017 Actual	FY 2018 Actual	FY 2019 Actual	FY 2020 Actual	FY 2021 Actual	FY 2021 Target	FY 2021 Status	FY 2022 Target	FY 2023 Target
Proposed New	1.7	Number of workshops, reports, and other tools produced to facilitate growth and advancement of the U.S. commercial space industry (NESDIS)	1	1	4	3	5	N/A	N/A	6	7
Current / Recurring	1.7	Number of space policy related decision processes, rulemakings, statements, or other	10	10	16	16	18	18	Met	20	20

		governmental activities influenced/led by the Department of Commerce (NESDIS)									
Proposed New	1.7	Milestones achieved towards establishment of space situational awareness (SSA) services for civil and commercial stakeholders (NESDIS)			10%	25%	30%	N/A	N/A	40%	50%
Proposed New	1.7	Number of actions taken in response to stakeholder requests for advocacy support (NESDIS)	N/A	N/A	N/A	40	60	N/A	N/A	70	80
Current / Recurring	2.1	Annual economic and societal benefits from Sea Grant activities as measured by jobs created/retained (OAR)	7100	11764	7600	10000	11044	7500	Exceeded	7500	7500
Current / Recurring	2.1	Number of fishermen, seafood processors and aquaculture industry personnel who modify their practices using knowledge gained in fisheries sustainability and	19900	17796	23000	12950	11,359	15,000	Not Met	12,500	12,500

		seafood safety (OAR)									
Current / Recurring	2.1	Annual economic and societal benefits from Sea Grant activities as measured by economic benefits of businesses ($M dollars) (OAR)			$523M	$316M	$369M	$450M	Not Met	$300M	$300M
Current / Recurring	2.1	Average number of days to complete informal ESA Section 7 consultations (NMFS)	53	45	40	43	41	45	Exceeded	45	45
Current / Recurring	2.1	Percent of top 175 U.S. seaports with access to Physical Oceanographic Real-Time Systems (PORTS®) data (cumulative) (NOS)	37	38	43	45	46	46	Met	47	48
Current / Recurring	2.1	Fish Stock Sustainability Index (FSSI) 3.0 (NMFS)	756.6	757.5	758.5	788.5	791	791	Met	787	797.0
Current / Recurring	2.1	Percent of stocks for which catch is below the specified Annual Catch Limit (NMFS)	91.9	90.2	88.3	89.3	90.4	89.4	Met	89.6	90.9
Current / Recurring	2.1	Percentage of FSSI 3.0 stocks with adequate population	63.3	57.8	56.8	69.1	69.10	69.7	Not Met	66.9	69.1

		assessments and forecasts (NMFS)									
Current / Recurring	2.1	Number of protected species stocks with adequate population assessments and forecasts (NMFS)	83	87	96	99	101	126	Not Met	128	132
Current / Recurring	2.1	Number of protected species designated as threatened, endangered or depleted with stable or increasing population levels (NMFS)	30	30	30	28	26	28	Not Met	24	24
Current / Recurring	2.1	Number of actions ongoing or completed to recover endangered and threatened species (NMFS)	2185	2234	2358	2416	2511	2443	Exceeded	2464	2491
Current / Recurring	2.1	Number of environmental reviews that exceed regulatory or statutory deadlines (NMFS)			74	36	28	55	Exceeded	40	40
Current / Recurring	3.2	Number of youth learning about national marine sanctuaries in hands-on or distance learning. (NOS)			68900	71891	82000	20000	Exceeded	50000	50000

Current / Recurring	3.2	Number of volunteer hours supporting science, education, and public engagement programs to raise awareness and meet science needs of national marine sanctuaries (NOS)			117746	61518	41685	5000	Exceeded	10000	40000
Current / Recurring	3.2	Sanctuary and Monument reporting areas that can adequately assess resource condition (NOS)			82%	80%	83%	80%	Exceeded	80%	80%
Current / Recurring	3.1	Annual number of peer-reviewed publications related to environmental understanding and prediction (OAR)	1678	1794	3171	3366	3356	3410	Met	3408	3408
Current / Recurring	3.1	Cumulative number of NOAA datasets made openly available via partners' cloud platforms to the public, America's Weather Enterprise and other environmental information stakeholders (OCIO)	6	40	84	132	221	170	Exceeded	223	225

Current / Recurring	3.1	U.S. Temperature Forecasts Skill 1.0 (old observational dataset) (NWS)	34	43	35	28	22	27	Not Met	27	DISC
Current / Recurring	3.1	Key milestones completed on time for satellites deployments (NESDIS)	2	2	2	2	1	2	Not Met	2	2
Current / Recurring	3.1	Key milestones completed on time for ship deployments (Class A & B) (OMAO)		1	1	1	1	1	Met	3	1
Current / Recurring	3.1	Aircraft Key Milestones completed on time for aircraft acquisitions (OMAO)			0	0	2	2	Met	1	0
Current / Recurring	3.1	Total Funded Days-At-Sea for NOAA ships (OMAO)				917	2,010	2,322	Not Met	2,647	2,840
Current / Recurring	3.1	Percentage of data processed and delivered to operational users from NOAA-managed satellites (NESDIS)	99.49	99.45	99.40	99.46	99.30	98.50	Exceeded	98.50	98.50
Current / Recurring	3.1	Severe weather warnings tornadoes - Storm based lead time (minutes) (NWS)	9	8	10	9	9	13	Not Met	13	13
Current / Recurring	3.1	Severe weather warnings tornadoes -	58	57	64	63	61	72	Not Met	72	72

		Storm based accuracy (%) (NWS)									
Current / Recurring	3.1	Severe weather warnings tornadoes - Storm based false alarm ratio (%) (NWS)	72	69	70	69	71	71	Met	71	71
Current / Recurring	3.1	Severe weather warnings for flash floods - Lead time (minutes) (NWS)	73	62	65	66	62	65	Met	65	65
Current / Recurring	3.1	Severe weather warnings for flash floods - accuracy (%) (NWS)	77	78	77	80	77	76	Met	76	76
Current / Recurring	3.1	Accuracy of Day 1 precipitation forecasts (%) (NWS)	34	36	37	36	36	34	Exceeded	34	34
Current / Recurring	3.1	Winter storm warnings - Lead time (hours) (NWS)	22	18	21	23	22	20	Met	20	20
Current / Recurring	3.1	Winter storm warnings - accuracy (%) (NWS)	87	80	82	82	84	90	Met	90	90
Current / Recurring	3.1	Marine wind - Percentage of accurate forecasts (NWS)	81	82	82	81	81	80	Met	90	90
Current / Recurring	3.1	Marine wave heights - Percentage of accurate forecasts (NWS)	84	85	85	84	85	83	Met	83	83

Current / Recurring	3.1	Aviation ceiling/visibility forecast accuracy Instrument Flight Rules (%) (NWS)	63	63	64	65	64	65	Met	65	65
Current / Recurring	3.1	Aviation ceiling/visibility forecast false alarm ratio Instrument Flight Rules (%) (NWS)	37	35	33	33	36	38	Exceeded	38	38
Current / Recurring	3.1	Geomagnetic storm forecast accuracy (%) (NWS)	65	60	62	55	50	59	Not Met	60	60
Current / Recurring	3.2	Number of communities that utilize Digital Coast (NOS)	7040	6903	6678	6608	6766	5000	Exceeded	5750	6000
Current / Recurring	3.2	Percentage of U.S. coastal states and territories demonstrating annual improvement in resilience capacity to weather and climate hazards (NOS)	69	74	77	83	94	50	Exceeded	55	60
Proposed Discontinued	3.2	Percent of all coastal communities susceptible to harmful algal blooms verifying use of accurate HAB forecasts (NOS)	23	23	23	23	23	23	Met	DISC	DISC
Proposed Discontinued	2.1	Hydrographic data acquired to support safe and efficient	2480	3403	8745	3408	2935	2319	Exceeded	DISC	DISC

		maritime commerce and for community resilience to storms and other coastal hazards (NOS)									
Current / Recurring	2.1	Cumulative percent of U.S. and territories surveyed to improve vertical reference system for modernized height/elevation data (NOS)	64	72	79	82	90	84	Exceeded	93	95
Current / Recurring	3.1	Annual number of OAR R&D products transitioned to a new stage(s) (i.e., development, demonstration, or application) (OAR)	65	66	65	104	85	80	Exceeded	85	85
Current / Recurring	3.1	Total capacity (in petaflops) resulting from reduction in gap between high-performance computing deployed and what is needed to meet modeling requirements (OCIO)	13	16.4	17.8	18.9	23.7	20	Exceeded	26	28
Current / Recurring	3.1	Percentage of ingested environmental data safely archived to ensure consistent long-term	98	98	98	98	99.96	98	Exceeded	98	98

		stewardship and usability of the data (NESDIS)									
Current / Recurring	3.1	Annual number of NOAA partnerships with the private sector: number of Cooperative Research & Development Agreements executed (OAR)			14	8	17	13	Exceeded	16	16
Current / Recurring	3.1	Subseasonal temperature skill score (NWS)			40	30	36	36	Met	36	36
Current / Recurring	3.1	Global Ensemble Forecast System length of forecast considered accurate (NWS)			9.8	9.95	10.46	10	Exceeded	10.05	10.1
Current / Recurring	3.1	American Customer Satisfaction Index (NWS)	82	85	86	86	81	81	Met	81	81
Current / Recurring	2.1	Annual number of ocean acidification observations collected by the National Ocean Acidification Observing Network (OAR)			7211	11037	7525	7665	Not Met	8278	8278
Current / Recurring	2.1	Percent of deepwater ocean U.S. Exclusive Economic Zone mapped (OAR)			51	52	52.5	51	Exceeded	54	56
Current / Recurring	2.1	Annual number of sites characterized in the U.S. Exclusive			135	30	89	100	Not Met	100	100

		Economic Zone (OAR)									
Current / Recurring	3.1	Number of forecast and mission improvements, based on The Weather Research and Forecasting Innovation Act of 2017, to weather applications at operational U.S. weather services and in the U.S. weather commercial sector (OAR)			12	8	15	10	Exceeded	10	10
Current / Recurring	3.1	Global Forecast System (GFS) 500 hPA Anomaly Correlation: Length of Forecast Considered Accurate (NWS)	8.25	8.35	8.4	8.37	8.31	8.5	Met	8.6	8.6
Current / Recurring	3.1	Percent Extended Range Climate Prediction Center Outlooks Exceeding Threshold: All Temperature/Precipitation Outlooks (NWS)			78	78	74	78	Met	78	78
Current / Recurring	3.1	Percent Extended Range Climate Prediction Center Outlooks Exceeding Threshold:All Temperature Outlooks (NWS)			81	76	75	80	Met	80	80

Current / Recurring	3.1	Percent Extended Range Climate Prediction Center Outlooks Exceeding Threshold: All Precipitation Outlooks (NWS)			75	75	72	75	Met	75	75
Current / Recurring	3.1	Percent Long Range Climate Prediction Center Outlooks Exceeding Threshold: All Temperature/Precipitation Outlooks (NWS)			50	52	54	48	Exceeded	48	48
Current / Recurring	3.1	Percent Long Range Climate Prediction Center Outlooks Exceeding Threshold:All Temperature Outlooks (NWS)			64	67	64	60	Exceeded	60	60
Current / Recurring	3.1	Percent Long Range Climate Prediction Center Outlooks Exceeding Threshold:All Precipitation Outlooks (NWS)			36	36	44	36	Exceeded	36	36
Current / Recurring	3.1	Percent Extended and Long Range Climate Prediction Center Outlooks Exceeding Threshold:All Temperature/Precipitation Outlooks (NWS)			76	77	72	75	Exceeded	75	75

Current / Recurring	3.1	Percent Extended and Long Range Climate Prediction Center Outlooks Exceeding Threshold:All Temperature Outlooks (NWS)			80	76	74	80	Exceeded	80	80
Current / Recurring	3.1	Percent Extended and Long Range Climate Prediction Center Outlooks Exceeding Threshold:All Precipitation Outlooks (NWS)			73	78	70	70	Met	70	70
Other / Revised	3.1	Number of StormReady Communities (cumulative) (NWS)	2750	3060	3191	3297	3346	3337	Met	3406	3481
Other / Revised	3.1	Number of TsunamiReady Communities (cumulative) (NWS)	203	210	216	216	221	216	Exceeded	221	221
Current / Recurring	2.1	Number of projects advanced that improve the efficiency and predictability of the federal aquaculture permitting process (NMFS)			16	26	29	31	Not Met	27	29
Current / Recurring	2.1	Annual number of aquaculture research projects completed that address key production			57	53	62	61	Met	91	106

		challenges (NMFS)									
Current / Recurring	2.1	Percent of Seafood Import Monitoring Program import records that are compliant (NMFS)			64	54	55	66	Not Met	57	59
Current / Recurring	3.1	Hurricane Forecast track error (48 hour) (NWS)	56	60	75	64.5	TBD	57	*TBD	55	53
Current / Recurring	3.1	Hurricane Forecast intensity error (48 hour) (NWS)	13	10	10	11.6	TBD	11	*TBD	10	10
Current / Recurring	2.1	Annual number of ocean acidification observations transmitted to NOAA (OAR)			71	66	66	70	Met	70	70
Proposed New	2.1	Percent of U.S. EEZ surveyed to an appropriate level of certainty to support safe navigation per the Adequate Hydrographic Health Index (AHHI) (NOS)				N/A	36.60	33.80	Exceeded	34.70	35.60
Proposed Discontinued	3.1	OMAO Ship Facility - South East Marine Operations Hub Recapitalization, North Charleston, SC (OMAO)					1	1	Met	DISC	DISC

Current / Recurring	3.1	OMAO Ship Facility - North East Marine Operations Hub at NAVSTA Newport, RI (OMAO)					0	1	Not Met	2	1
Proposed New	3.1	U.S. Temperature Forecasts Skill 2.0 (Updated Observational Dataset) (NWS)					N/A	N/A	N/A	27	27
Proposed New	3.1	Percentage of the continental U.S. population served by flood inundation mapping services (NWS)					N/A	N/A	N/A	0	10
Proposed New	3.1	Improved Precipitation Services: Threat Score for Heavy Precipitation Events (2 inches) made 3 days in advance (NWS)					N/A	N/A	N/A	0.14	0.15
Proposed New	3.1	Number of Weather-Ready Nation Ambassador serving socially vulnerable populations and U.S. businesses (NWS)					N/A	N/A	N/A	7157	7207
Proposed New	3.1	Number of StormReady communities serving socially vulnerable populations and U.S. businesses (NWS)					N/A	N/A	N/A	390	395

Proposed New	3.1	Number of Climate-smart communities enabled for resilience planning, including but not limited to extreme heat in urban communities, enhanced fire weather prediction for emergency management partners, expanded drought monitoring in Tribal areas, and climate impacts to coastal communities (OAR)					N/A	N/A	N/A	20	50
Proposed New	3.1	Number of national-level NWS partner meetings held with businesses and emergency managers to bolster weather enterprise relationships, advance weather and climate readiness (NWS)					N/A	N/A	N/A	3	3

Proposed New	3.1	Number of economic sectors regionally engaged by the Regional Climate Services (RCS) program with sectoral needs documented and prioritized (NESDIS)					N/A	N/A	N/A	N/A	30
Proposed New	3.2	Number of square miles of new area advanced through one or more steps of the National Marine Sanctuaries or National Estuarine Research Reserves (NERRs) designation or expansion processes (NOS)					N/A	N/A	N/A	591981	593681
Proposed New	3.2	Number of Sea Grant tools, technologies and information services that are used by our partners/customers to improve ecosystem-based management (OAR)	N/A	200	200	192	172	N/A	N/A	200	200

**Data will be available in April, 2022*

	Exceeded		Met		Not Met