

NOAA Blue Economy

Strategic Plan 2021–2025



**National Oceanic and
Atmospheric Administration**
U.S. Department of Commerce



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NOAA Blue Economy Pillars:

Marine Transportation ■ Seafood Production ■ Ocean Exploration ■ Coastal Resilience ■ Tourism & Recreation



NOAA Blue Economy Strategic Plan

APPROVED:

Tim Gallaudet, Ph.D., Rear Admiral, U.S. Navy (Ret.)
Assistant Secretary of Commerce for
Oceans and Atmosphere / Deputy NOAA Administrator
SPONSOR

Nicole LeBoeuf
Acting Assistant Administrator
For Ocean Services and Coastal
Zone Management
NBEEC CO-CHAIR

Craig McLean
Assistant Administrator
for Oceanic and Atmospheric Research
NBEEC CO-CHAIR

Chris Oliver
Assistant Administrator
For Fisheries

Mary Erickson
Deputy Assistant Administrator
for National Weather Service

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Mary Wohlgemuth
Director, National Centers for
Environmental Information
National Environmental Satellite, Data, and
Information Service

Rear Admiral Nancy Hann
Deputy Director for Operations
for Office of Marine and Aviation
Operations & Deputy Director of the
NOAA Commissioned Officer Corps



NOAA Blue Economy Strategic Plan

I. Introduction.

The United States is an ocean nation with a growing Blue Economy. In 2018, the American Blue Economy, including goods and services, contributed about \$373 billion to the nation's gross domestic product, supporting 2.3 million jobs and grew faster than the nation's economy in its entirety. Marine-related gross domestic product grew 5.8% from 2017 to 2018, faster than the 5.4% growth of the total U.S. gross domestic product as measured in current dollars. The economic activity from America's seaports alone grew from 2014-2018 by 17% to \$5.4 trillion, comprising nearly 26% of the nation's \$20.5 trillion gross domestic product (GDP). Despite the challenges posed by the COVID-19 pandemic, American seaports are adding terminals and piers, and demand for maritime commerce is expected to triple by 2030. Furthermore, coastal counties in the U.S. are home to 127 million people, or 40% of the population. From 2010-2016, the population of shore-adjacent counties along the Gulf of Mexico grew by 24.5%, the fastest of any region in the nation, which averaged 14.8%. If American coastal counties were an individual country, they would rank third in the world in GDP, surpassed only by the United States and China. The prosperity and security of this nation is therefore predicated on the understanding, health, and sustainable use of our Oceans, Coasts, and Great Lakes.

NOAA expands and strengthens the American Blue Economy by leading agency-wide initiatives in the following areas:

1. Marine Transportation
2. Ocean Exploration
3. Seafood Competitiveness
4. Tourism & Recreation
5. Coastal Resilience

NOAA further supports the growth of Blue Economy sectors by leveraging dynamic public-private partnerships, innovative Science, Technology, Engineering, and Math (STEM) education & outreach, transformative ocean science, and emerging technologies to monitor and maximize sustainable economic contributions of ocean, coastal, and Great Lakes resources. Since 2017, NOAA Leadership has supported advancing the American Blue Economy as a top budget and outreach priority. An important milestone in advancing this priority area was the November 2019 White House Summit on Ocean Science & Technology (S&T) Partnerships, where the agency arranged over a dozen ocean S&T partnership initiatives to advance American competitiveness, security, and prosperity.

The agency has had a leading role in implementing the National Ocean Policy of 2018, 2018 National Strategic Plan for STEM Education, 2019 Presidential Memorandum on Mapping the U.S. EEZ and Shoreline & Nearshore of Alaska, 2020 National Strategy for Mapping, Exploring, & Characterizing the U.S. Exclusive Economic Zone (NOMECS), 2020 Executive Order on Promoting

Seafood Competitiveness and Economic Growth, and 2020 U.S. Federal Strategy for Addressing the Global Challenge of Marine Litter. It has also implemented several agency strategies to advance resource conservation, S&T, and mapping, such as the 2020 NOAA Office of Coast Survey (OCS) National Ocean Mapping Strategy (Mapping U.S. Marine and Great Lakes Waters: Office of Coast Survey Contributions to a National Ocean Mapping Strategy), which highlights OCS contributions toward the NOMECS Strategy. Through these and other initiatives, NOAA has been advancing the U.S. Blue Economy, and preparing the nation for an economy that is increasingly dependent on data and technology. The 5-year NOAA Blue Economy Strategic Plan is aligned with these initiatives.

NOAA has contributed to the American Blue Economy in diverse and powerful ways, such as the designation and expansion of National Marine Sanctuaries. NOAA designated the new Mallow Bay-Potomac River National Marine Sanctuary in 2019, and is working to finalize two shipwreck sanctuaries in Wisconsin and Lake Ontario, and to expand the Monitor and Flower Garden Banks National Marine Sanctuaries. NOAA offices are actively engaged in efforts to improve weather forecasts, conserving coral reefs, removing marine debris, restoring habitat, protecting endangered species, and responding to oil spills. The ongoing implementation of the 2018 NOAA Coral Reef Conservation Program Strategic Plan and 2020 NOAA Strategy to Respond to and Prevent the Spread of Stony Coral Tissue Loss Disease, for example, support cross-line efforts that enhance coastal resilience, tourism, and recreation.

In 2020, NOAA published a new NOAA Uncrewed Systems (UxS) Strategy to guide advancements in UxS applications and to increase the use of these systems across NOAA mission areas. Shortly thereafter, the agency collaborated with partners to use uncrewed systems to adapt research operations, exploration, and fisheries management to the restrictions posed by the COVID-19 pandemic and mitigate impacts to operations to ensure the timely delivery of critical data and services. For Seafood Production, NOAA deployed uncrewed surface vessels to perform stock assessments for Pollock, and to produce updated nautical charts ensuring safe passage of commercial vessels. Underwater gliders were also deployed along the U.S. Gulf of Mexico and South Atlantic Coast to provide sustained ocean temperature profiles to improve 2020 hurricane forecasts. NOAA will continue to develop innovative solutions to support mission areas that are essential to the nation.



NOAA has also made great progress in quantifying agency blue economy contributions. The agency established the Ocean Economic Satellite Account with the U.S. Bureau of Economic Analysis (BEA) to conduct economic valuation assessments for individual NOAA programs and agency wide efforts. This effort has produced marine economy statistics to understand the value of the marine economy and individual sectors, compare it with other contributions to the U.S. economy, track changes, and inform plans for America’s economic recovery.

At the request of the NOAA Administrator in late 2019, the Ocean Exploration Advisory Board (OEAB) formed a Blue Economy Subcommittee to recommend actionable steps NOAA can take to contribute to the doubling of the nation’s Blue Economy over the next decade. The Subcommittee first met in February, 2020, and has since developed initial recommendations as summarized in the Interim Report: Accelerating Growth of the U.S. Blue Economy. The OEAB voted to approve this Interim Report, which identifies preliminary opportunities that can be accomplished with six- to twelve-month efforts that are intended to support longer term efforts.

One such opportunity was the establishment of an executive committee to further demonstrate NOAA’s leadership in advancing the American Blue Economy by evaluating opportunities identified in the OEAB Interim Report, maintaining awareness of new developments, promoting partnerships, and implementing the recommendations outlined therein. In August 2020, the NOAA Administrator convened the NOAA Blue Economy Executive Committee (NBEEC), which worked to develop the 5-year NOAA Blue Economy Strategic Plan (2021-2025). This Plan is aligned with the recommendations from the OEAB Interim Report, and includes efforts across line and staff offices that are either planned or in progress.

The NOAA Blue Economy Strategic Plan is organized along the following lines of effort: 1) Marine Transportation, 2) Ocean Exploration, 3) Tourism and Recreation, 4) Seafood Competitiveness, 5) Coastal Resilience, 6) Internal Focus Areas, and 7) External Opportunities (Table 1). In addition to providing a framework for agency-wide contributions to the 5 pillars of NOAA’s Blue Economy initiative (Goals 1-5), this Plan outlines actions that will maximize agency capacity to contribute data and services and engage with multisector partners by improving cross-cutting internal focus areas and leveraging external opportunities (Goals 6-7). Actions under Goals 6-7 focus on strategic communications and engagement, partnership agreements, finance and business development, S&T transition and applications, workforce development, policy and legislation, and socioeconomic evaluations.

The NOAA Blue Economy Strategic Plan provides concrete examples of how NOAA’s people, policies, products, and services intersect to support Blue Economy growth in a sustainable and responsible manner. Additionally, the Plan highlights how the agency is leveraging private sector capabilities and applying emergent science and technology to further innovation in all Blue Economy sectors. This approach has been instrumental to the continuation of ocean science operations and other efforts to adapt activities in support of the NOAA mission and nation following the onset of the COVID-19 pandemic. The actions in this plan will accelerate and grow these contributions in support of a resilient and thriving economy.

Table 1:

Strategy Goals	Objectives & Actions
<p>1. Advance NOAA Contributions to Marine Transportation</p>	<p>Optimize Marine Highway Infrastructure</p> <ul style="list-style-type: none"> · Distribute Precision Marine Navigation data · Develop products to enhance safety & utility · Improve operational marine weather forecasts <p>Improve Marine Navigation</p> <ul style="list-style-type: none"> · Maximize observations for navigation services · Provide accurate water level measurements · Modernize National Spatial Reference System · Innovate tools for port safety & efficiency <p>Describe Marine Commerce</p> <ul style="list-style-type: none"> · Provide marine economy data · Characterize data for transportation & industry



<p>2. Map, Explore & Characterize the U.S. EEZ</p>	<p>Coordinate & Execute Mapping</p> <ul style="list-style-type: none"> · Complete ocean mapping campaigns · Archive, inventory, & make available expedition data <p>Perform Exploration & Characterization</p> <ul style="list-style-type: none"> · Develop priorities · Leverage funding & partnerships · Archive & make accessible expedition data · Develop data collection & quality standards · Report campaign progress <p>Streamline Permitting & Authorization</p>
<p>3. Implement the Executive Order on Promoting Seafood Competitiveness and Economic Growth</p>	<p>Promote U.S. Fishing & Seafood</p> <ul style="list-style-type: none"> · Engage regional fisheries management councils · Develop an American Seafood Campaign · Inform investments & advocacy · Leverage citizen science networks & data · Advance Ecosystem-Based Fisheries Management <p>Combat IUU Fishing</p> <ul style="list-style-type: none"> · Implement the Port State Measures Agreement · Advance S&T for detection & monitoring <p>Grow Domestic Aquaculture</p> <ul style="list-style-type: none"> · Streamline permitting · Develop Aquaculture Opportunity Areas · Improve regulatory transparency · Establish Regional Aquaculture Training Centers
<p>4. Expand Tourism and Recreation Opportunities in the America's Oceans, Coasts, & Great Lakes</p>	<p>Increase Options & Access</p> <ul style="list-style-type: none"> · Expand & designate new National Marine Sanctuaries · Improve access to coastal recreation areas · Assessing & addressing access opportunities · Support accessible, sustainable recreational fishing · Develop partnerships for safety & messaging <p>Improve Ocean Health</p> <ul style="list-style-type: none"> · Assess, restore, & protect coral reefs · Implement the National Marine Debris Strategy <p>Understand & Communicate Economic Value</p>
<p>5. Enhance the Resilience of America's Oceans, Coasts, & Great Lakes Coastal Communities</p>	<p>Inform & Communicate</p> <ul style="list-style-type: none"> · Increase Support for the Parametric Insurance Sector · Develop coastal & economic data-comparisons & tools · Create & deliver regional normal calculations products · Develop marine oil spill remediation satellite products <p>Manage & Model Data</p> <ul style="list-style-type: none"> · Update local & regional digital elevation models · Operationalize Coastal Wind & Water Events Database · Improve coastal relief models & ocean climatologies <p>Advance Cross-cutting Strategies</p> <ul style="list-style-type: none"> · Develop an Integrated Water Prediction strategy · Expand opportunities for increasing resilience · Develop an Ecosystem Forecasting Portfolio strategy



<p>6. Improve Cross-cutting Internal Focus Areas to Grow the American Blue Economy Sustainably</p>	<p>Measure Contributions</p> <ul style="list-style-type: none"> · Develop internal metrics · Conduct valuation reports · Measure Ocean Economy growth & trends <p>Increase Literacy</p> <ul style="list-style-type: none"> · Develop an Economically Literate Workforce <p>Streamline Internal Processes</p> <ul style="list-style-type: none"> · Evaluate contracting, acquisitions, stewardship · Increase ROI of NOAA Programs · Expand & Accelerate S&T Transitions
<p>7. Leverage Cross-cutting External Opportunities to Grow the American Blue Economy</p>	<p>Enhance & Leverage Strategic Partnerships</p> <p>Develop Policy & Legislation</p> <p>Communicate & Engage</p> <p>Expand Extramural Research</p>

II. Overarching Purpose.

The NOAA Blue Economy Strategic Plan aims to:

1. Strengthen and improve NOAA data, services, and technological resources that contribute to the American Blue Economy,
2. Collaborate with partners to support the growth of American business and entrepreneurship that contributes to the development and sustainability of the blue economy across the United States, and
3. Identify and support the growth of sectors of the Blue Economy that will help accelerate the nation's economic recovery.

III. 5-year Strategic Plan (2021-2025).

1. Goal: Advance NOAA Contributions to Marine Transportation.

1.1. Objective: Provide marine economy data specific to the marine transportation sector that would be useful for investment and advocacy purposes to public audiences and stakeholders.

1.1.1. Action: Continue to provide economic time series data on the marine transportation sector through the Economics National Ocean Watch dataset (ENOW) and the Marine Economy Satellite Account (MESA).

Lead Offices: National Ocean Service (NOS), Office for Coastal Management (ENOW)

Supporting Offices: NOAA Office of the Chief Financial Officer (CFO) Office of Performance, Risk & Social Science (PRSSO), Office of the NOAA Chief Economist (MESA)

Due Date: Provided annually in June (ENOW); provide as available (MESA)

1.2. Objective: Optimize the safety and utility of the nation's marine highway infrastructure.

1.2.1. Action: Disseminate Precision Marine Navigation data, such as surface current forecasts, marine weather hazards, and high resolution

bathymetry via the S-100 framework in top U.S. ports, waterways, and sea routes to decrease risk to life and property, optimize cargo loading, and improve route planning.

Lead Offices: NOS Office of Coast Survey, Center for Operational Oceanographic Products and Services

Supporting Offices: National Geodetic Survey, National Weather Service (NWS) Analyze, Forecast and Support Office (AFS) and Ocean Prediction Center (OPC)

Due Date: Ongoing through 2030

1.2.2. Action: Increase safety of maritime transportation and commercial shipping activities.

1.2.2.1. Action: Complete development of satellite iceberg detection product in collaboration with the U.S. Coast Guard's International Ice Patrol and in support of the North American Ice Service (NAIS) and International Ice Charting Working Group (IICWG).

Lead Office: National Environmental Satellite, Data, and Information Service (NESDIS)/Center for Satellite Applications and Research (STAR), Supporting Offices: NWS OPC, Cooperative Institute for Meteorological Satellite Studies (CIMSS)

Due Date: Q1FY24

1.2.2.2. Action: Evaluate experimental ocean convection product capability of nowcasting which storms will produce severe weather and explore operational NWS forecast applications.

1.2.2.2.1. Action: Current model is specific to NWS/OPC Atlantic domain.

Lead Office: NESDIS/STAR

Supporting Office: NWS

Due Date: Q4FY22

1.2.2.3. Action: Refine and improve satellite ocean surface vector wind products for routine utilization by marine forecasters for making wind warning, nowcast, and forecast decisions.

1.2.2.3.1. Action: These products are integral in determining the radius of gale, storm, and hurricane force winds associated with tropical and extratropical cyclones.

Lead Office: NESDIS/STAR

Supporting Offices: NWS OPC, NWS National Hurricane Center (NHC)

Due Date: Ongoing



1.2.2.4. Action: Develop Alaskan coastal wind climatologies useful for identifying wind channels where mountain ranges funnel winds and create channels of 0-35 mph winds in a spatial distance of 30 miles, and explore potential utility for NWS wind grids.

Lead Office: NESDIS/STAR

Supporting Office (Potential): NWS Office of Science and Technology Integration (STI)

Due Date: Q1FY23

1.2.3. Action: Improve operational marine weather forecasts for efficient maritime commerce.

1.2.3.1. Action: Expand marine model grids to cover all U.S. Metareas to improve operational marine weather forecasts and facilitate ship avoidance to prevent economic losses.

Lead Office: NWS OPC

Due Date: Q4FY23

1.2.3.2. Action: Provide all marine and high seas warnings in polygon format using S-41X metadata standards to enable real-time ingestion of operational high impact information into shipboard electronic chart display.

Lead Office: NWS OPC

Supporting Office: NWS STI

Due Date: Q4FY24

1.2.3.3. Action: Develop predictive sea ice capabilities through the U.S. National Ice Center to improve coupled operational marine/sea ice forecasts for current and expanding navigation routes in support of marine commerce.

Lead Office: NWS OPC

Supporting Office: NESDIS/STAR

Due Date: Q4FY24

1.2.3.4. Action: Development of coupled ocean/sea ice/atmosphere/wave unified forecast modeling system prototype to save lives and property and support marine commerce.

Lead Office: NWS STI

Due Date: Q4FY21

1.2.3.5. Action: Implement high-resolution coupled wave/surge/inland flooding/atmosphere hindcast modeling system (Named Storm Event Model) to accurately simulate landfalling tropical storm conditions.

Lead Office: NWS STI

Due Date: Q3FY22

1.2.3.6. Action: Implement social science recommendations to improve the communication of risks related to sea ice to impacted activities and communities in Alaska.

Lead Office: NWS STI

Due Date: Q4FY21

1.2.3.7. Action: Work with private industry to innovate new cost-effective and portable (e.g. miniature) technology for oceanographic and marine meteorological observations to improve marine forecasts and warnings.

Lead Office: NOAA Technology Partnerships Office

Supporting Offices: NWS Office of Observations and NDBC, NWS OPC, NOS/U.S. Integrated Ocean Observing System (IOOS), NOAA Technology Partnerships Office, NCEI, GOMO

Due Date: Q4FY24

1.3 Objective: Maximize the value and impact of real-time data observations for navigation services.

1.3.1. Action: Increase the cumulative percent of the top 175 U.S. ports covered by the NOAA PORTS (Physical Oceanographic Real-Time System) partnership program by 1% each fiscal year.

Lead Office: NOS Center for Operational Oceanographic Products and Services (CO-OPS)

Due Date: Ongoing through 2025

1.3.2. Action: Improve safe navigation at sea and enhance safety services through better weather warnings and forecasts by expanding participation in the Voluntary Observing Ship (VOS) program by 20%.

Lead Office: NWS Office of Observations

Due Date: Q4FY24

1.3.3. Action: Update the National Tidal Datum Epoch and the International Great Lakes Datum to continue to provide accurate water level measurements that support safe maritime commerce and coastal resilience.

Lead Office: NOS CO-OPS

Due Date: Ongoing through 2025

1.4. Objective: Update the National Tidal Datum Epoch and the International Great Lakes Datum to continue to provide accurate water level measurements that support safe maritime commerce and coastal resilience.

1.4.1. Action: Complete the GNSS field campaign in FY22 at over 200 locations in the Great Lakes.

Lead Offices: NOS National Geodetic Survey, CO-OPS

Due Date: FY22 (COVID dependent)

1.4.2. Action: Collect seasonal gauge data in the Great Lakes.

Lead Offices: NOS National Geodetic Survey, CO-OPS

Due Date: FY21 (COVID dependent)

1.4.3. Action: Calculate new tidal datums at over 100 primary control water level stations.

Lead Office: NOS CO-OPS

Due Date: FY23

1.4.4. Action: Publish updated tidal datums and bench mark sheets for over 2000 locations.

Lead Office: NOS CO-OPS

Due Date: FY25

1.4.5. Action: Publish updated International Great Lakes Datum water level heights.

Lead Office: NOS CO-OPS

Due Date: FY25

1.5. Objective: Modernize and improve the National Spatial Reference System (NSRS) to support centimeter level accuracy for latitude, longitude, and geometric height using GNSS positioning techniques at any location in the Nation, which will greatly reduce errors.



1.5.1. Action: Complete the Gravity for the Redefinition of the American Vertical Datum (GRAV-D) project.

Lead Office: NOS National Geodetic Survey

Due Date: 2024

1.5.2. Action: Update the National Shoreline in priority ports and other areas of interest to update nautical chart features and improve the safety of navigation.

Lead Office: NOS National Geodetic Survey

Due Date: Annual

1.5.3. Action: Deliver a revised West Coast VDatum model.

Lead Offices: NOS National Geodetic Survey, Center for Operational Oceanographic Products and Services, and Office of Coast Survey

Due Date: FY22

1.6. Objective: Characterize global and U.S. coastal ocean surface wind patterns for Marine Transportation as well as offshore wind energy industries.

1.6.1. Action: Create global and regional gridded high resolution sea surface winds products from NOAA and Partners' satellite and in-situ platform observations, and make them freely available to the public and marine transportation and offshore wind power communities.

Lead Office: NESDIS/National Centers for Environmental Information (NCEI)

Due Date: Q4FY21

1.6.1.1. Action: Integrate Synthetic Aperture Radar wind products to 1.6.1.

Lead Office: NESDIS/STAR

Due Date: Q3FY23

1.7. Objective: Improve marine navigation at U.S. ports and waterways.

1.7.1. Action: Expand operational fog visibility tools at U.S. ports to promote safe navigation and efficient marine commerce activities.

1.7.1.1. Action: Evaluate applicability of NOAA's GOES-16 Fog and Low Stratus (FLS) product for forecasting ground fog at US ports (NWS). If necessary, adjust the FLS algorithm to provide more accurate, fit-for-purpose ground fog information. The FLS product, developed for aviation applications, helps identify areas with cloud ceilings <1000 feet and/or surface visibility <3 miles and provides estimates for fog depth. It became operational for the east CONUS sector on 9 Sep 2020.

Lead Office: NESDIS/STAR

Supporting Office (Potential): NWS/STI

Due Date: Q1FY24

1.7.1.2. Action: Complete satellite product development for ship detection and ship size estimates for monitoring increases/decreases in maritime activity in and around US ports.

Lead Office: NESDIS/STAR

Due Date: Q4FY23

1.7.2. Action: Develop marine channel forecast including fog forecasts and associated decision support services for at least one new Gulf Coast port.

Lead Office: NWS/AFS

Due Date: Q4FY23

2. Goal: Map, Explore and Characterize the U.S. EEZ.

2.1. Objective: Coordinate and Execute Campaigns to Map the U.S. Exclusive Economic Zone (EEZ).

2.1.1. Action: Complete ocean mapping campaigns with public and private sector partners in accordance with the NOMECS Strategy and meeting established standards and protocols.

Lead Offices: Oceanic and Atmospheric Research (OAR) Office of Ocean Exploration and Research (OER) and NOS Office of Coast Survey

Due Date: Ongoing (waters ≥ 40 m complete by 2030 and < 40 m by 2040)

2.1.2. Action: Archive and make accessible crowdsourced (CSB) data sent to NCEI/DCDB

Lead Office: NESDIS/NCEI

Due Date: Q4FY21

2.1.3. Action: 90% of Ocean and Coastal Mapping data submitted is archived, inventoried and available within 90 days of receipt.

Lead Office: NESDIS/NCEI

Due Date: Q4FY21.

2.2. Objective: Coordinate and execute campaigns to explore and characterize the U.S. EEZ, in concordance with the National Ocean Mapping, Exploration, and Characterization Council (NOMECS) Strategy and in support of Blue Economy goals.

2.2.1. Action: Provide strategic exploration and characterization priorities identified with intra-agency, interagency, and cross-sectoral input.

Lead Office: OAR/OER

Due Date: Q3FY21

2.2.2. Action: Use available funding mechanisms (e.g., grants, contracts, etc.) and leverage new and external partnerships to support ocean exploration and characterization missions.

Lead Office: OAR/OER

Due Date: Ongoing

2.2.3. Action: Archive and make accessible ocean exploration and characterization data from NOAA, partner, and other appropriate expeditions to the public in a timely way.

Lead Office: NESDIS/NCEI

Due date: Ongoing

2.2.4. Action: Develop data collection and quality standards for ocean exploration and characterization for robust datasets that can be used for multiple objectives across sectors.

Lead Office: OAR/OER

Due date: Ongoing

2.2.5. Action: provide climatological mean maps of surface and subsurface carbon variables to assist in quantifying ocean acidification (North American Coastal Carbon Synthesis).

Lead Office: NESDIS/NCEI

Supporting Offices: lead with PMEL/AOML and others at NOAA

Due Date: Q2FY21



2.3. Objective: Support efforts to facilitate permitting for ocean mapping and exploration projects.

2.3.1. Action: Coordinate with the Ocean Resource Management (ORM) Subcommittee in streamlining the permitting and authorization process.
Lead Offices: Office of Coast Survey, Ocean Exploration and Research, NMFS Office of Protected Resources (OPR)
Supporting Offices: in coordination with NOAA representatives to the ORM
Due Date: Ongoing throughout 2022

2.4 Objective: Advance S&T in support of ocean mapping, exploration, and characterization.

2.4.1. Action: Include ocean mapping, exploration, and characterization applications in the implementation of the 6 NOAA S&T Focus Area Implementation Plans.
Lead Office: S&T Synergy Committee of the NOAA Science Council
Due Date: Ongoing through 2025

3. Goal: Implement the Executive Order on Promoting Seafood Competitiveness and Economic Growth.

3.1. Objective: Remove Barriers to American Fishing.

3.1.1. Action: Collect recommendations from the regional fisheries management councils to reduce burdens on domestic fishing and to increase production within sustainable marine fisheries.
Lead Office: NOAA Fisheries
Due Date: Q4FY21

3.2. Objective: Combat Illegal, Unreported and Unregulated (IUU) Fishing.

3.2.1. Action: Take action to fully implement the Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated fishing, including further efforts related to capacity building.
Lead Office: NOAA Fisheries
Due Date: Q4FY22

3.2.2. Action: Complete satellite product development for ship detection and identification in open ocean waters and transition product to operations.
Lead Office: NESDIS/STAR
Supporting Office: NMFS Office of Law Enforcement (OLE)
Due Date: Q4FY23

3.3. Objective: Remove Barriers to Aquaculture Permitting as per Executive Order (E.O.) 13921 and E.O. 13807.

3.3.1. Action: Work with Federal, state, and tribal agencies to implement coordinated, efficient, timely, and cost-effective permitting of marine aquaculture in state and Federal waters.
Lead Office: NOAA Fisheries
Supporting Offices: NOS
Due Date: Ongoing

3.3.2. Action: Serve as the lead agency for aquaculture projects in federal waters that require an EIS.
Lead Office: NOAA Fisheries
Due Date: Ongoing

3.4. Objective: Implement Aquaculture Opportunity Areas (AOAs) as per E.O. 13921.

3.4.1. Action: Identify AOAs in the Gulf of Mexico and off Southern California, then prepare programmatic Environmental Impact Statement (EIS) analyses for the selected AOAs.
Lead Office: NOAA Fisheries
Supporting Office: NOS
Due Date: AOA identification by May 7, 2021, completion of programmatic EISs for the two AOAs by May 7, 2023 (two years later)

3.4.1.1. Action: Conduct spatial planning and stakeholder engagement to identify location alternatives for two Aquaculture Opportunity Areas within the Gulf of Mexico and Southern California.
Lead Office: NMFS Office of Aquaculture
Supporting Office: National Centers for Coastal and Ocean Science
Due Date: May 2021

3.4.1.2. Action: Develop carrying capacity models to forecast production potential for aquaculture in AOAs and inform the programmatic environmental impact statement (contingent on funding).
Lead Office: NMFS Office of Aquaculture
Supporting Office: National Centers for Coastal Ocean Science.
Due Date: May 2023 for first two AOAs

3.5. Objective: Improve Regulatory Transparency for Aquaculture.

3.5.1. Action: Develop and host a website with information regarding Federal regulatory requirements and grant programs for marine aquaculture, referencing Section 8 of E.O. 13921
Lead Office: NOAA Fisheries
Due Date: End January 2021

3.6. Objective: Develop and Implement an “American Seafood” Campaign.

3.6.1. Action: Work with Congress and the seafood industry to reauthorize the Seafood Promotion Act and set up a national seafood promotion board as recommended by NOAA’s Marine Fisheries Advisory Committee
Lead Office: NOAA Fisheries
Supporting Office: NOAA Office of Legislative and Intergovernmental Affairs
Due Date: Q1FY22

3.7. Objective: Better inform decision-making on future investments and advocacy to grow the seafood sector.

3.7.1. Action: Continue to provide economic time series data on the local, state and national level through the Economics: National Ocean Watch (ENOW) to public audiences and stakeholders.
Lead Office: NOS Office for Coastal Management
Due Date: Annually in June



3.7.2. Action: Leverage the Whale Alert network /data to prioritize and incentivize the use of ropeless gear technology in relevant areas.

Lead Office: Office of Sustainable Fisheries

Supporting Office: NOS Office of National Marine Sanctuaries, NMFS OPR

Due Date: Ongoing

3.7.3. Action: Better incorporate citizen science data and applications (ex. Whale Alert) into NMFS scientific documents that ultimately impact regulatory decisions.

Lead Office: NMFS Office of Science & Technology

Supporting: NOS Office of National Marine Sanctuaries, NMFS OPR

Due Date: Ongoing

3.7.4. Action: Advance ecosystem-based fisheries management (EBFM) through widespread adoption of uncrewed systems (UxS), Artificial Intelligence, Omics, Cloud, Big Data, and Citizen Science in NOAA Fisheries Surveys.

Lead Offices: NMFS, NOS National Centers for Coastal Ocean Science, OAR

Due Date: Ongoing through 2025

3.8. Objective: Establish Regional Aquaculture Training Centers through consortia of federal, university and industry partners to support regional aquaculture workforce development needs around the country.

3.8.1. Action: Seek resources and academic partners to achieve Regional Aquaculture Training Centers.

Lead Office: OAR National Sea Grant College Program

Due Date: Two pilot regional training centers by Q4 FY22 expanding to seven regional training centers by Q4 FY24 (contingent on funding).

4. Goal: Expand Tourism and Recreation Opportunities in the America's Oceans, Coasts, and Great Lakes.

4.1. Objective: Expand, Select and Designate New National Marine Sanctuaries.

4.1.1. Action: Finalize designation of Wisconsin Shipwreck Coast National Marine Sanctuary.

Lead Office: NOS Office of National Marine Sanctuaries

Due Date: FY21

4.1.2. Action: Finalize designation of Lake Ontario National Marine Sanctuary.

Lead Office: NOS Office of National Marine Sanctuaries

Due Date: Dependent on public comment periods, designate by FY22

4.1.3. Action: Expand Monitor National Marine Sanctuary.

Lead Office: NOS Office of National Marine Sanctuaries

Due Date: Dependent on public comment periods, publish final rule by FY22

4.1.4. Action: Expand Flower Garden Banks National Marine Sanctuary.

Lead Office: NOS Office of National Marine Sanctuary

Due Date: FY21

4.1.5. Action: Issue proposed and final rule for Florida Keys National Marine Sanctuary to expand the boundary of the sanctuary, update sanctuary-wide regulations, update the individual marine zones and their associated regulations, and revise the sanctuary management plan.

Lead Office: NOS Office of National Marine Sanctuaries

Supporting Office: National Centers for Coastal and Ocean Science

Due Date: Proposed rule in FY21; Final rule in FY22

4.2. Objective: Assess, Restore, and Protect American Coral Reef Systems.

4.2.1. Action: Execute Implementation Plans for the Coral Reef Conservation Program's Strategic Plan (2018).

Lead Offices: NOS Office for Coastal Management, Coral Reef

Conservation Program

Due Date: CRCP's FY21-23 implementation plan will be finalized Oct 2020 and implemented over fiscal years 2021-2023

4.2.2. Action: Implement the NOAA Strategy to Respond to and Prevent the Spread of Stony Coral Tissue Loss Disease (2020).

Lead Offices: NOS Office for Coastal Management, Coral Reef Conservation

Program and the Office of the Administrator

Due Date: Ongoing

4.2.3. Action: Expand partnerships and support for Mission Iconic Reefs to restore seven iconic reefs in the Florida Keys National Marine Sanctuary.

Lead Offices: NOS Office for Coastal Management, Coral Reef Conservation

Program, Office of National Marine Sanctuaries, and NMFS Office of Habitat Conservation

Due Date: Ongoing

4.2.4. Action: Produce the 2nd iteration of National Coral Reef Monitoring Program status reports, capturing status and trends of the Nation's coral reefs and human connections.

Lead Offices: NOS Office for Coastal Management, Coral Reef

Conservation Program

Due Date: 2025

4.2.5. Action: Operationalize one or more potential coral interventions reviewed in the NAS Research Review of Interventions to Increase the Persistence and Resilience of Coral Reefs.

Lead Office: NOS Office for Coastal Management, Coral Reef

Conservation Program

Supporting Offices: NMFS Office of Habitat Conservation and NMFS

Office of Science and Technology

Due Date: 2025

4.2.6. Action: Develop coral restoration plans in all seven states and territories with coral reefs, using the Manager's Guide to Coral Restoration Planning and Design.

Lead Offices: NOS Office for Coastal Management, Coral Reef

Conservation Program

Due Date: 2023



4.2.7. Action: Develop Coral Reef Emergency Response and Resource Recovery Guidelines and distribute to the seven U.S. coral reef jurisdictions.

Lead Offices: NOS Office for Coastal Management, Coral Reef Conservation Program
Due Date: 2022

4.2.8. Action: Estimate the values that U.S. coral reefs provide to society in order to best manage the ecosystem services and economic opportunities that rely on these systems over time.

Lead Offices: NOS Office for Coastal Management, Coral Reef Conservation Program with partners across NOAA
Due Date: 2025

4.3. Objective: Implement the National Marine Debris Strategy.

4.3.1. Action: Coordinate with federal partners to identify actions to support the National Marine Debris Strategy.

Lead Offices: NOS Office of Response and Restoration, Marine Debris Division
Due Date: Q2FY21

4.3.2. Action: curate a database of microplastics to facilitate the understanding of and monitoring of distribution and effects of microplastics on the ocean environment and biota, on recreation and on fisheries.

Lead Office: NESDIS/NCEI
Supporting Office: NOAA Marine Debris Program
Due Date: Q4FY21

4.4. Objective: Develop partnership strategies to improve beach and surf zone safety and messaging in close coordination with life saving organizations and coastal tourism sectors.

4.4.1. Action: Work with all Weather-Ready Nation Ambassadors (including Surfing.com's World of Waves and Ocean Positive) to amplify safety messaging to new sectors, including rip currents and shorebreak.

Lead Office: NWS AFS
Supporting Office: NWS STI
Due Date: Ongoing

4.4.2. Action: Provide coastal modeling guidance (waves, surge, freshwater impacts, rip currents) to the public to save lives and property and enhance the national economy.

Lead Office: NWS STI
Due Date: Ongoing

4.4.3. Action: Provide U.S. Coastal Water Temperatures (near real-time and averages) to the public

4.4.3.1. Action: Enhance the NCEI Coastal Water Temperature guide to improve user interface and update monthly averages.

Lead Office: NESDIS/NCEI
Due Date: Q1FY22

4.4.4. Action: Provide updated local emergency information to coastal U.S. residents through the NOAA Extreme Weather Information Sheets (NEWIS).

4.4.4.1 Action: Provide climatological low temperature maps for the surface ocean to assist the Coast Guard in setting passenger survival craft requirements.

Lead office: NESDIS/NCEI
Due date: Q1FY21

4.5. Objective: Understand and communicate the value of the tourism and recreation sector to the Nation, coastal states, and communities.

4.5.1. Action: a) Continue to provide economic time series data particular to the tourism and recreation sector through the Economics: National Ocean Watch (ENOW) data set. b) Provide economic time series data particular to the tourism and recreation sector through the Marine Economy Satellite Account (MESA) (subject to available resources) to public audiences and stakeholders.

Lead Office: NOS Office for Coastal Management (ENOW)
Supporting Office: PRSSO Chief Economist Office (MESA)

Due Date: Annually in June (ENOW), provided as available (MESA)

4.5.2. Action: Complete assessments of the type, distribution and intensity of uses in national marine sanctuaries.

Lead Office: NOS Office of National Marine Sanctuaries
Supporting Office: National Centers for Coastal Ocean Science
Due Date: Ongoing. Site specific or activity specific (ie. Whale watching) are happening at some sites now.

4.5.3. Action: Use the 50th Anniversary of the NMSA to expand visibility of and build support for national marine sanctuaries and the recreation and tourism opportunities they offer.

Lead Office: NOS Office of National Marine Sanctuaries
Due Date: FY 2022 (50th Anniversary of the NMSA)

4.5.4. Action: Create a National Marine Sanctuary System wide Business Recognition Program

Lead Office: NOS Office of National Marine Sanctuaries.
Due Date: FY2021

4.5.5. Action: Complete the Comprehensive Ecosystem Services Valuation of U.S. Coral Reefs.

Lead Offices: NOS Office for Coastal Management, NOAA Coral Reef Conservation Program
Due Date: Q4FY23

4.5.6. Action: Quantify the economic impacts and costs of mitigation of Harmful Algal Blooms in regions across the nation.

Lead Office: National Centers for Coastal Ocean Science
Due date: 2022 - 2024



4.6. Objective: Assessing and addressing access opportunities.

4.6.1. Action: Improve accessibility to coastal recreation areas to ensure that we engage and promote an inclusive outdoors.

Lead Offices: NOS Office of National Marine Sanctuaries, Office for Coastal Management

Due Date: Ongoing through 2025

4.6.2. Action: Hold a regional symposium with state, local, tribal, territorial, non-profit and private sector to identify new/existing opportunities to support expansion of tourism and recreation.

Lead Office: NOS Office of National Marine Sanctuaries, with support from other programs

Due Date: Q1FY22

4.7. Objective: Implement the National Saltwater Recreational Fisheries Policy

4.7.1. Action: Work across NOAA and with external partners to foster and support publicly accessible and sustainable recreational fishing opportunities.

Lead Office: NOAA Fisheries

Due Date: Q4FY21

5. Goal: Enhance the Resilience of America's Oceans, Coasts, and Great Lakes Coastal Communities.

5.1. Objective: Increase Support for the Parametric Insurance Sector.

5.1.1. Action: Maintain data accessibility to private partners that develop personal risk products.

Lead Office: NOS CO-OPS

Supporting Office: Office for Coastal Management

Due Date: Ongoing through 2025

5.2. Objective: Inform and communicate using data and tools focused on the marine economy and useful in resilience efforts for planning and rebuilding after storms.

5.2.1. Action: Provide economic business employment data overlaid on the Sea Level Rise Viewer and Lake Level Viewer useful for resilience planning to protect jobs (project underway).

Lead Office: NOS Office for Coastal Management

Supporting Office: Bureau of Labor Statistics partners

Due Date: 2022

5.2.2. Action: Provide snapshots of all coastal county areas that feature marine businesses and jobs data with sea level rise and flooding data using ESRI Business Analyst, given their particular vulnerability to flooding (project underway).

Lead Office: NOS Office for Coastal Management

Due Date: 2021

5.2.3. Action: Provide trainings to help coastal managers identify economic sectors and jobs vulnerable to flooding from coastal hazards and provide methods useful to describe potential economic losses from coastal hazards.

Lead Office: NOS Office for Coastal Management

Due Date: 2021

5.2.4. Action: Collect and share up-to-date cost and benefit data through the Green Infrastructure Database for use in estimating economic effects resulting from coastal green infrastructure projects.

Lead Office: NOS Office for Coastal Management

Due Date: 2021

5.3. Objective: Creating Coastal Normals for the U.S. coastal ocean, by region.

5.3.1. Action: Deliver normals calculations and a web-based product for the Atlantic Seaboard (North Atlantic, South Atlantic, and Gulf of Mexico).

Lead Office: NESDIS/NCEI and the Southern Regional Climate Center

Supporting Office: NOS/IOOS and other partners

Due Date: FY20, FY21, FY22 respectively

5.4. Objective: Continuously update coastal digital elevation models.

5.4.1. Action: Updates of regional and local DEMs

Lead Office: NOAA/NCEI

Supporting Office: NWS/STI

Due Date: Q4FY21

5.5. Objective: Operationalize the Coastal Wind and Water Events Database (CWWED)

5.5.1. Action: CWWED V1.0 is operational.

Lead Office: NOAA/NCEI

Supporting Office: NWS/STI

Due Date: Q3FY22

5.6. Objective: Improved coastal relief models for the U.S.

5.6.1. Action: Updated CRMs for West/Central Gulf, New England, and Hawaii

Lead Office: NOAA/NCEI

Due Date: Q4FY21

5.7. Objective: Provide improved Ocean Climatologies.

5.7.1. Action: Provide monthly updated ocean heat content, salt content and steric sea level time series to understand global and regional changes affecting coastal communities.

Lead Office: NESDIS/NCEI

Supporting Office: OAR

Due Date: Q3FY21



5.8. Objective: Complete development of the satellite product suite for marine oil spill remediation.

5.8.1. Action: Develop oil platform change detection product in the Gulf of Mexico and transition to operations.

5.8.1.1. Action: Product will detect changes in platform location/orientation due to severe weather events. Changes could be indicative of oil leakage.

5.8.1.2. Action: Consistent, slow oil leak seepage affects aquaculture and recreational fishing activities.

Lead Offices: NESDIS/STAR, Office of Satellite and Product Operations (OSPO)

Supporting Office: with consultation from the Office of Response and Restoration

Due Date: Q1FY24

5.8.2. Action: Complete development of oil spill thickness product and transition to operations.

5.8.2.1. Action: Product is useful for deciding if remediation is necessary or even possible, including around shipwrecks.

Lead Offices: NESDIS/STAR, OSPO

Supporting Office: with consultation from the Office of Response and Restoration

Due Date: Q1FY24

5.8.3. Action: Maintain oil spill cover product for detection and tracking of event-driven oil spills.

Lead Office: NESDIS/STAR

Supporting Office: with consultation from the Office of Response and Restoration

Due Date: Ongoing

5.9. Objective: Develop a Comprehensive Integrated Water Prediction strategy across NOAA lines and the Weather, Water, Climate Enterprise to support coastal resilience and safeguard commerce.

5.9.1. Action: Support Coastal Tourism Opportunities by developing a pilot satellite coastal flood mapping product.

Lead Office: NESDIS/STAR

Supporting Office: NWS/AFS, ONMS, OCM

Due Date: Q1FY23

5.9.2. Action: Implement non-tropical storm surge modeling capabilities to improve both accuracy and coverage of coastal inundation models to better inform both emergency managers and the general public.

Lead Office: NWS Science and Technology Integration

Supporting Office: NOS

Due Date: Q4FY24

5.9.3. Action: Deploy National Water Model v3.0 with initial coastal coupling capabilities providing integrated water prediction that includes freshwater, storm surge, and tides.

Lead Office: NWS Office of Water Prediction

Supporting Office: NWS STI

Due Date: Q4FY23

5.9.4. Action: Implement Flood Inundation Mapping operationally for near 100% of U.S. residents providing improved decision support products to Emergency Managers.

Lead Office: NWS Office of Water Prediction

Due Date: Q4FY26

5.10. Objective: identify new/existing methods to support expansion of opportunities for increasing coastal resilience.

5.10.1. Action: Hold a regional symposium with state, local, tribal, territorial, non-profit and private sectors.

Lead Office: NOS Office for Coastal Management

Due Date: FY21

5.10.2. Action: Develop a National Goal of increasing wetlands and other protective coastal ecosystems in endangered areas (suffering wetland and marsh losses) and identify partners to support this effort.

Lead Office: NOS Office for Coastal Management

Supporting Offices: National Centers for Coastal and Ocean Science, NOAA Restoration Center, with support from external partners including US Army Corps of Engineers and the National Fish and Wildlife Foundation

Due Date: FY21

5.10.3. Action: Work with FEMA and the BRIC program to determine if there are priorities that can be developed for funding coastal resilience efforts.

Lead Office: NOS Office for Coastal Management

Supporting Office: NOS Office of Response and Restoration (OR&R) Disaster Preparedness Program

Due Date: Q4FY21

5.10.4. Action: Advance existing modeling methods to assess coastal marsh health, and identify opportunities to encourage resilience of existing marshes, or allow for marsh migration and growth.

Lead Office: National Centers for Coastal Ocean Science

Due Date: FY22 - FY24

5.10.5. Action: Evaluate the effectiveness of and provide implementation guidance for natural and nature-based infrastructure for shoreline stabilization, ecosystem restoration, and habitat protection.

Lead Office: National Centers for Coastal Ocean Science

Due Date: FY21 - FY23

5.11. Objective: Develop an Ecosystem Forecasting Portfolio strategy across NOAA Line Offices that supports coastal community resilience in the areas of public health and safety.



5.11.1. Action: Write a NOAA Ecosystem Forecasting Portfolio Strategic Plan that includes actions to improve Ecosystem Forecast Bulletins (e.g. Harmful Algal Blooms, Sargassum) and actions to improve transition of ecological forecast products and services.

Lead Office: National Centers for Coastal Ocean Science
Supporting Office: NESDIS/NCEI, NESDIS/STAR
Due Date: FY21

6. Goal: Improve Cross-cutting Internal Focus Areas to Grow the American Blue Economy Sustainably.

6.1. Objective: Regularly assess NOAA Blue Economy efforts to measure progress.

6.1.1. Action: Develop metrics that quantify agency wide economic impacts.

Lead Office: NOAA CFO/PRSSO
Due Date: Q4FY22

6.1.2. Action: a) Measure the contribution of the ocean economy sectors and activities to the U.S. economy. Maintain and update (subject to availability of resources) the Marine Economy Satellite Account (MESA); and b) Maintain and update the Economics: National Ocean Watch national, state and county reports for measuring the Marine Economy growth and trends. Continue to invest in MESA and ENOW data production to monitor our success in achieving the majority of the goals in the plan.

Lead Offices: NOAA CFO/PRSSO (MESA), Office for Coastal Management (ENOW)
Due Date: May/June 2021 (release of updated statistics; MESA), annually in June (ENOW database)

6.1.3. Action: Conduct valuation reports for individual NOAA Programs like that for the National Geodetic Survey's Aeronautical Survey Program (ASP).

Lead Office: NOS Office for Coastal Management
Supporting Offices: economists across NOAA
Due Date: Specific due date contingent on the program being valued.
Estimated 2021 - 2025

6.1.4. Action: Conduct valuation reports for ecosystem indicators developed by NOAA's Ecosystem Indicators Working Group (e.g. assessing value of marginal changes in one or more ecosystem indicator(s) and the value of the information that NOAA makes available about a particular indicator).

Lead Office: NOAA CFO/PRSSO
Due Date: Q2FY22

6.1.5. Action: Complete final reports for U.S. Extended Continental Shelf Project (ECS) areas for core regions

Lead Office: NESDIS/NCEI
Supporting Office: OAR
Due Date: Q4FY22

6.2. Objective: Develop an Economically Literate Workforce.

6.2.1. Action: Prioritize Blue Economy and Blue Tech in projects conducted by NOAA scholars, fellows, and interns.

Lead Office: NOAA Office of Education

Supporting Office: with assistance of a coordinating body such as the NOAA Research Council

Due Date: Q1FY22

6.2.2. Action: Prioritize Blue Economy and Blue Tech in projects conducted by NOAA rotational assignments.

Lead Office: NOAA Office of Human Capital Services (OHCS)
Due Date: Q1FY22

6.2.3. Action: Post and regularly update International Ocean Science and Technology Industry Association (IOSTIA) career center and other opportunities on our NOAA Blue Economy website.

Lead Offices: NOAA OAR Technology and Partnerships Office, OHCS
Due Date: Q4FY21

6.2.4. Action: Support the implementation of NOAA's Diversity and Inclusion Strategic Plan by engaging Educational Partnership Program (EPP) scholars and their associated MSIs and HBCUs to inform them about NOAA's Blue Economy activities to recruit a more diverse and inclusive Blue Tech workforce.

Lead Office: NOAA Office of Education
Supporting Office: CFO/PRSSO
Due Date: Q4FY21

6.2.5. Action: Develop and execute a Blue Economy Personnel Exchange and Liaison Program.

Lead Office: NOAA Office of the ASOA
Due Date: Q1FY22

6.2.6. Action: Develop an economic valuation guidance tool and webinar to assist local, state and regional stakeholders on economics terminology, concepts, and methods to aid in their project decision-making.

Lead Office: NOS Office for Coastal Management
Due Date: Late Spring 2021 (project underway)

6.2.7. Action: Establish an internal Blue Economy Toolkit with facts and figures, talking points, and graphics/pictures. Establish a schedule of articles and blog posts from each line office on how it is supporting the overall effort.

Coordinating Office: NOAA Office of Communications
Content Producing Offices: NOS, NMFS, OAR, OMAO, NWS, and NESDIS communications offices
Due Date: Ongoing

6.3. Objective: Streamline Internal Processes to Increase the Return on Investment (ROI) of NOAA Programs.

6.3.1. Action: Explore efficiencies in executing multi-year contracts for mapping and exploration.

Lead Office: NOAA Acquisition and Grants Office
Due Date: Q1FY22

6.3.2. Action: Further support Blue Economy acquisition initiatives to advance innovative approaches such as examining the use of Other Transaction Authority (OTA).

Lead Office: NOAA Acquisition and Grants Office
Due Date: Ongoing



6.3.3. Action: Expand and Enhance Coastal Data Stewardship to develop integrated datasets for use in Blue Economy decision-making activities.

Lead Office: NESDIS/NCEI

Due Date: Ongoing

6.3.4. Action: Improve NOAA data stewardship (archive and access) processes to ensure data is made available to the public more quickly and efficiently

Lead Office: NESDIS/NCEI

Due Date: Ongoing

6.3.5. Action: Aggregate essential data from NOAA and external monitoring sources, quality control, upload to databases, and provide back to communities for enhanced study and monitoring utilizing all programs' major asset - data.

Lead Office: NESDIS/NCEI

Due Date: Ongoing

6.4. Objective: Expand and Accelerate Science and Technology Transitions.

6.4.1. Action: Expand the scope of NOAA's Office of Research Transitions and Applications (ORTA) to identify "relationship managers" for each partnership inventoried under 7.1.1.

Lead Office: NOAA OAR/ORTA

Due Date:

6.4.2. Action: Support and improve ocean, coastal, and Great Lakes observing capabilities through IOOS' Ocean Technology Transition (OTT) Project.

Lead Office: Integrated Ocean Observing System

Due Date: Ongoing multi-year cycles

7. Goal: Leverage Cross-cutting External Opportunities to Grow the American Blue Economy.

7.1. Objective: Strengthen and Expand Partnerships.

7.1.1. Action: Develop and track monthly a NOAA blue economy partnership inventory, using the NOAA Center for Artificial Intelligence (NCAI) Partner Tracking Process as a model. Conduct semi-annual reviews of the inventory and brief the NBEEC during periodic committee meetings.

Lead Office: OAR Technology and Partnerships Office

Due Date: January, 2022

7.1.2. Action: Develop a federally-established public-private Roundtable to Advance American Blue Technology.

Lead Office: NOAA Office of the Assistant Secretary of Commerce for Oceans and Atmosphere (ASOA)

Supporting Offices: OAR Technology and Partnerships Office, DOC (Office TBD)

Due Date: Q4FY21

7.1.3. Action: Identify and execute funding opportunities offered by Department of Commerce (DOC) Bureaus (Bureau of Industry and Security (BIS), U.S. Bureau of Economic Analysis (BEA), International Trade Administration (ITA), U.S. Economic Development Administration (EDA), Minority Business Development Agency (MBDA)), the Small Business Innovation Research Program (SBIR), and other Departments such as the Department of Energy Powering the Blue Economy Ocean Observing Prize.

Lead Office: NOAA Office of the ASOA

Supporting Office: DOC Office of Policy and Strategic Planning (OPSP)

Due Date: Q4FY21

7.1.4. Action: Identify and execute funding opportunities from key interagency partners (DHS/U.S. Coast Guard, DOD/U.S. Navy, DOT/U.S. Maritime Administration, DOI, etc).

Lead Office: NOAA Office of the ASOA

Supporting Office: NOAA representative to the White House Office of Science and Technology Policy (OSTP) Subcommittee on Ocean Science and Technology (SOST) and National Oceanographic Partnership Program (NOPP)

Due Date: Q4FY21

7.1.5. Action: Expand our initiatives with zoos, aquariums and other partner organizations to educate more people about marine protected areas, NOAA Blue Economy, and other Agency priorities and initiatives.

Lead Office: NOAA Office of National Marine Sanctuaries

Supporting Office: Office of Education

Due Date: Ongoing through 2025

7.1.6. Action: Establish and strengthen the Office of National Marine Sanctuaries Business Advisory Council and other similar councils.

Lead Office: Office of National Marine Sanctuaries

Due Date: Q2FY22

7.1.7. Action: Identify international partners with similar and/or complementary Blue Economy strategies, such as Canada's Ocean Supercluster (OSC), and integrate Blue Economy discussions into bilateral and multilateral engagements with those partners to explore possible cooperative activities for mutual gain.

Lead Office: NOAA Office of International Affairs

Supporting Offices: OAR, IOOS

Due Date: Q4FY22

7.1.8. Action: Work with the Department of the Interior (DOI) Bureau of Ocean Energy Management (BOEM), DOC Bureaus (e.g. EDA), and others to identify and incentivize targeted activities that support U.S. Blue Tech (e.g. robotics) and other industries such as offshore mining and energy.

Lead Office: NOAA Office of the ASOA

Supporting Office: DOC (OPSP)

Due Date: Q4FY21



7.1.9. Action: Leverage established UxS partnerships to prototype the UxS Data Enterprise through agile development of one or more use cases in alignment with NOAA Science and Technology Data, Cloud and AI strategies. Identify how this action aligns with emerging NOAA and U.S. Navy collaborations to execute provisions of the Commercial Engagement Through Ocean Technology Act of 2018 (CENOTE) pertaining to the assessment, acquisition, and use of uncrewed maritime systems.

Lead Office: NESDIS/NCEI

Supporting Offices: OAR (PMEL and OER) and OECI (USM), OMAO
Due Date: Q4FY21

7.1.10. Action: Collaborate with organizations and principals from Blue Technology clusters nationwide, such as the Gulfport, Mississippi, Blue Economy Innovation District (BEID) and others in New England, San Diego, and Seattle, to gather user requirements and demonstrate the return on investment in UxS data collections. Evaluate how this action aligns with emerging NOAA/U.S. Navy CENOTE collaborations per uncrewed maritime systems.

Lead Office: OAR

Supporting Offices: NESDIS/NCEI, OECI (USM), IOOS
Due Date: Q4FY21

7.1.11. Action: Coordinate with University partners to define a workforce development plan including opportunities in Science & Technology supporting technologies (i.e. business and data science, and computer science/engineering), and evaluate how these activities can align with similar emerging NOAA/U.S. Navy CENOTE collaborations on uncrewed maritime systems.

Lead Office: OAR

Supporting Offices: Office of Education, OHCS, NESDIS/NCEI with OECI (USM)
Due Date: Q4FY21

7.1.12. Action: Conduct a formal tribal consultation with federally recognized tribes in coastal areas, in accordance with E.O. 13175 Consultation and Coordination With Indian Tribal Governments, to gather input from tribes on how they contribute to the blue economy, how the strategy impacts NOAAs government to government relationship with tribal sovereign nations and ways we can partner with tribes to grow blue economy.

Lead Offices: NOAA Office of Legislative and Intergovernmental Affairs (Tribal Relations), OAR (EEO)

Due Date: Q2FY22

7.1.13. Action: Develop a strategy for NOAA engagement in the Blue Economy internationally via The United Nations Decade of Ocean Science for Sustainable Development (2021-2030).

Lead Office: OAR

Due Date: Q4FY21

7.2. Objective: Develop Policy and Legislation.

7.2.1. Action: Consider and develop language on what NOAA would like to see in a CENOTE reauthorization bill that can help advance the Blue Economy.

Lead Office: NOAA Office of Legislative and Intergovernmental Affairs
Due Date: Q1FY22

7.2.2. Action: Pursue passage of an Ocean Exploration, Mapping and Characterization Act.

Lead Office: NOAA Office of Legislative and Intergovernmental Affairs

Supporting Offices: In coordination with NOAA line offices and the Office of General Counsel

Due Date: Q1FY23

7.2.3. Action: Inclusion of NOAA in Conservation Corps legislation.

Lead Office: NOAA Office of Legislative and Intergovernmental Affairs

Due Date: Q1FY23

7.3. Objective: Expand Targeted Strategic Communications and Engagement.

7.3.1. Action: Develop an Annual NOAA Blue Economy Engagement Plan that identifies key White House, Congressional, interagency, international, media, private sector and philanthropic entities, events, and the messages we want to convey to each, informing 7.3.3.

Lead Office: NOAA Office of the ASOA

Due Date: Q4FY21

7.3.2. Action: Establish a NOAA Blue Economy website.

Coordinating Office: NOAA Office of Communications

Content Producing Offices: NOS, NMFS, OAR, OMAO, NWS and NESDIS communications offices

Due Date: Existing and website updated as milestones are met

7.3.3. Action: Develop a NOAA Blue Economy Annual Report and disseminate it to partners and stakeholders during outreach events listed in 7.2.1.

Lead Office: NOS Office for Coastal Management

Supporting Offices: NOAA CFO/PRSSO, with partners that include Bureau of Economic Analysis, Bureau of Labor Statistics

Due Date: Existing and updated annually in June

7.3.4. Action: Establish an external Blue Economy Toolkit with facts and figures, talking points, and graphics/pictures, along with a public/private team of "Champions" who can speak at conferences and external events. Establish a schedule of articles and blog posts from the consortia or champions on supporting the overall effort.

Coordinating Office: NOAA Office of Communications

Content Producing Offices: NOS, NMFS, OAR, OMAO, NWS, and NESDIS communications offices

Due Date: Ongoing

7.4. Objective: Leverage Partnerships from 7.1. to support Finance and Business Development.

7.4.1. Action: Explore options to develop Blue Tech opportunity zones, including legislative, public-private partnership, and other activities, and assess the feasibility of this action. Leverage connections with existing blue tech clusters forged through Action 7.1.10. and work with the DOC to identify programs to apply to blue economy efforts.

Lead Office: OAR

Supporting Offices: OAR Technology and Partnerships Office, IOOS, DOC

Due Date: Q4FY21



7.5. Objective: Expand Support for Extramural Research.

7.5.1. Action: With attention to objectives 7.1. and 7.4., increase involvement in NOAA Research & Development (R&D) by Cooperative Institutes (CI), and include language in the forthcoming CI prospectus on targeting research and technology that will support science leading to Blue Economy economic gain.

Lead Office: OAR

Supporting Office: NOAA Cooperative Institutes

Due Date: Q4FY21

7.5.2. Action: Increase involvement in NOAA R&D by private sector and philanthropic organizations.

Lead Office: OAR

Due Date: Q4FY21

IV. Execution.

The NOAA Blue Economy Executive Committee (NBEEC) will meet monthly to oversee the execution of this plan, raising issues that require Line or Staff Office resolution to the NOAA Ocean and Coastal Council (NOCC), NOAA Executive Panel (NEP), or NOAA Executive Council (NEC) as appropriate. As execution of the plan has dependency on future year appropriation, this Committee will monitor any resource constraints as they arise and modify the plan as needed on an annual basis.

V. Conclusion.

The United States is an ocean nation, and our future prosperity and security depend upon the understanding, health, and sustainable use of our Oceans, Coasts, and Great Lakes. NOAA's data and services are powering our economic recovery in the wake of COVID-19, and the actions in this plan will accelerate and grow these contributions.



