

SOCIAL SCIENCE

VISION AND STRATEGY—2016 ANNUAL REPORT



SUPPORTING NOAA'S MISSION WITH SOCIAL SCIENCE



ABOUT THIS DOCUMENT

This is the first Annual Report on social science at the National Oceanic and Atmospheric Administration (NOAA) since the release of the *Vision and Strategy: Supporting NOAA's Mission with Social Science* in July 2015. The *Vision and Strategy* was created to institutionalize social science efforts in each of the line offices. The last two pages of this document contain a summary of the goals from the *Vision and Strategy*.

Social Science Committee

The document was developed by the Social Science Committee (SSC). The following experts from across the line offices serve on the SSC:

Monica Grasso (Incoming Chair, Chief Economist, PRSS)
Tracy Rouleau (Acting Chair, PRSS)
Douglas Lipton (Vice-Chair, NMFS)
Jennifer Sprague (Vice-Chair, NWS)
Kate Becker (Member, NESDIS)
Nancy Beller-Simms (Member, OAR)
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Other Participants

Valerie Were (SSC Executive Secretary, PRSS)
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Cover: Bering Sea pollock fleet prepares to depart Dutch Harbor, Alaska.

Photo: NOAA



Our Vision

NOAA's mission and priorities more effectively drive positive environmental, societal, and economic change.



Restored coastal wetlands in New York-New Jersey harbor's Arthur Kill ecosystem. Photo: NOAA.

Our Strategy

Integrate Social, Behavioral, and Economic science end-to-end in NOAA's mission and priorities.



Photo: NOAA.

INTRODUCTION

In 2015, the Social Science Committee released the *Social Science Vision and Strategy: Supporting NOAA's Mission with Social Science* to provide a corporate-level vision of the goals and strategies for integrating the social, behavioral, and economic sciences across NOAA. The *Vision and Strategy* provides strategic opportunities to align office and programmatic efforts with the social sciences to increase the impact of NOAA investments and improve the creation and communication of societal value.

Social sciences continue to play a key role in NOAA's mission and priorities. This document presents the Social Sciences achievements since the release of the *Vision and Strategy*. It highlights four stories on how NOAA uses social sciences to achieve the agency's mission. In the "Social Science: By the Numbers" section, we track social science progress quantitatively. Other notable advances in the social science at NOAA over the past year include the launch of the Department of Commerce Natural Capital Website (<https://www.commerce.gov/naturalcapital>) which will help businesses integrate Natural Capital into their operations and planning, and the release and rollout of *Risk Communication and Behavior: Best Practices and Research Findings* -intended to be used by NOAA field personnel to help improve the public's response to risk information, leading to greater protection of life and property, and more resilient communities.

We are in a time of transition. America will elect a new president in 2016 and the change in administration will bring changes to NOAA's leadership. There is also transition on the Social Science Committee. It has been at least a year since NOAA had a Chief Economist, and an official Chair of the Social Science Committee. I have been honored to serve as Acting Chair and I am pleased to pass the mantle on to Dr. Monica Grasso, who assumed the role of Chief Economist in May, 2016. Dr. Grasso is committed to implementing the Social Science Vision and Strategy goals and will continue to actively engage of the Social Science Committee, Line Offices, and external stakeholders to produce cutting edge and innovative approaches to incorporate social sciences into NOAA's mission and priorities.

Despite the transition, there will always be a need for social science at NOAA. The *Vision and Strategy* started to focus the agency's efforts on integrating social, behavioral, and economic science. This and subsequent reports will provide updates on the agency's progress toward using social sciences to help NOAA better serve society and build a stronger and more resilient Nation.

Tracy Rouleau
Deputy Chief Economist
Outgoing Chair (A), NOAA Social Science Committee

Monica Grasso
Chief Economist
Chair, NOAA Social Science Committee

VISION

NOAA's mission and priorities more effectively drive positive environmental, societal, and economic change.

STRATEGY

Integrate Social, Behavioral, and Economic science end-to-end in NOAA's mission and priorities.

Make communities more resilient

Evolve the Weather Service

Invest in observational infrastructure

Achieve organizational excellence

GOAL 1

NOAA's impact on society is defined and measured.

- ◆ **Quantify** and promote the value and impact of NOAA's products and services in serving communities and meeting its mandates.
- ◆ **Standardize** approaches for defining and measuring high profile economic data.
- ◆ **Strengthen** the impact of investment by valuing improvements in NOAA products and services.

GOAL 2

NOAA's products and services strengthen societal decision-making.

- ◆ **Incorporate** social science research in management decisions to increase community resilience.
- ◆ **Use** social science methods to assess and communicate risk while reducing vulnerability to changing environmental conditions.
- ◆ **Consistently collect** social science data and information to strengthen the implementation of ecosystem-based management.

GOAL 3

Institutionalize social science to further NOAA's mission.

- ◆ **Integrate** social science in program planning and budgeting.
- ◆ **Apply** social science methods to enhance internal agency operations and decision-making.
- ◆ **Use** only the most high-quality, robust, and innovative social science in NOAA products and services.

Science, Service, and Stewardship



GOAL 1

NOAA's impact on society is defined and measured.

- ◆ **Quantify and promote** the value and impact of NOAA's products and services in serving communities and meeting its mandates.
- ◆ Identify key products and services that need to be valued to more effectively deliver on NOAA's priorities.
- ◆ Use value chain models to demonstrate how key NOAA products and services advance community resilience.
- ◆ Improve the discoverability, accessibility, usability, and re-purposing of NOAA products and services through enhanced communications.
- ◆ **Standardize** approaches for defining and measuring high profile economic data.
- ◆ Provide accuracy and address biases in methodology used in developing the disaster loss assessments.
- ◆ Develop and implement a strategic approach for valuing NOAA's products and services that will generate comparable and scientifically defensible estimates.
- ◆ **Strengthen** the impact of investment by valuing improvements in NOAA products and services.
- ◆ Develop guidance needed to understand the value of marginal improvements.
- ◆ Conduct tradeoff analyses of management decisions.

GOAL 2

NOAA's products and services strengthen societal decision-making.

- ◆ **Incorporate** social science research in management decisions to increase community resilience.
- ◆ Develop metrics, performance measures, and benchmarks that demonstrate improved societal outcomes.
- ◆ Identify and inventory best practices in stakeholder engagement in decision processes.
- ◆ Apply research results to fisheries management decisions to enhance resilience of coastal communities.
- ◆ Estimate and apply ecosystem services valuation to demonstrate connections between ecological health and community well-being.
- ◆ **Use** social science methods to assess and communicate risk while reducing vulnerability to changing environmental conditions.
- ◆ Improve decision-support tools for communities.
- ◆ Use innovative communication approaches to deliver more effective warnings.
- ◆ **Consistently collect** social science data and information to strengthen the implementation of ecosystem-based management.
- ◆ Identify and inventory socio-economic data gaps.
- ◆ Establish partnerships to improve access to sources of socio-economic data.
- ◆ Integrate socio-economic data to ecosystem based management (models and practices) and other decision-making tools.

GOAL 3

Institutionalize Social Science to further NOAA's mission.

- ◆ **Integrate** social science in program planning and budgeting.
- ◆ Create incentives and opportunities for incorporating social science in planning and budget.
- ◆ Integrate impact of investment in FFOs and internal research processes.
- ◆ **Apply** social science methods to enhance internal agency operations and decision-making.
- ◆ Foster awareness and commitment to use social science by developing social science training modules.
- ◆ Build support for NOAA social science by engaging emerging NOAA leadership.
- ◆ Leverage social science capacity across NOAA's external partners.
- ◆ **Use only** the most high-quality, robust, and innovative social science in NOAA products and services.
- ◆ Apply scientific integrity principles in the practice of social science at NOAA.
- ◆ Attract and retain targeted social science expertise.
- ◆ Evaluate a select suite of products and services to confirm the integration and effective use of social science.

How Climate Integrates Social Science into Existing Tools

NOAA uses social science to assess and communicate risk while reducing vulnerability to changing environmental conditions.



Photo: NOAA.

Climate change is among the greatest challenges facing the nation. NOAA uses social science to integrate climate knowledge and information to improve resilience and preparedness. The agency's social science efforts include work with various sectors who must reexamine their future plans and decision-making processes to embrace any uncertainty in climate change predictions.

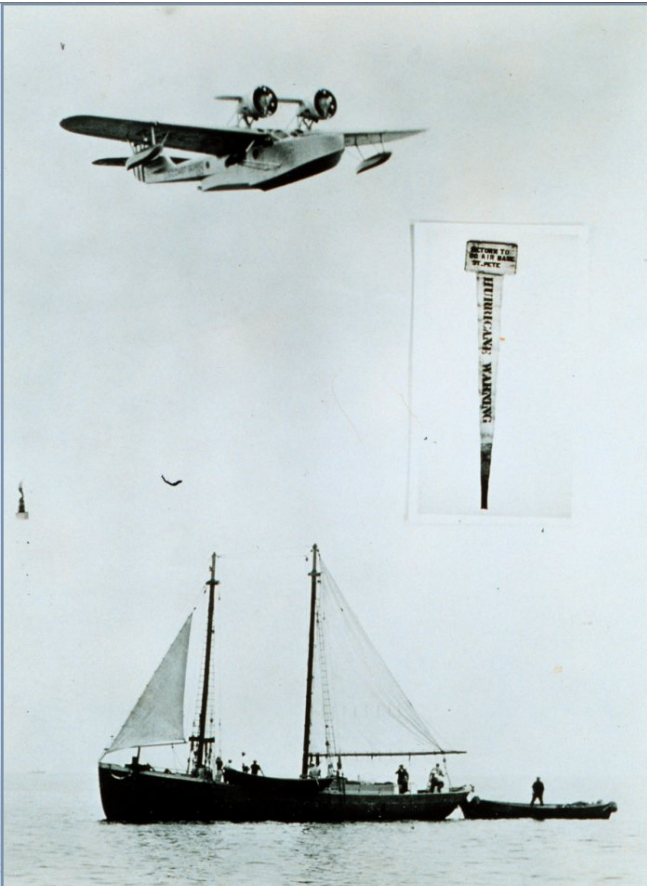
Water managers, for example, now demand more information about climate variability and change so they can incorporate the information into their risk management plans. NOAA's Climate Program Office works with those managers and other communities of decision makers to examine economic impacts and cost of climate-related extremes and adaptation and to assess vulnerability to extreme hydrologic events in urban areas. The work also helps decision makers develop tools and methods to help them better understand, use, and communicate scientific information in planning and adapting to climate related changes, and integrate climate data, forecast and projects into water resources management.



Flooding at Hains Point, Washington, D.C. Photo: NOAA.

Evolution of the Weather Service

NOAA incorporates social science research in management decisions to increase community resilience.



Coast Guard aircraft drops hurricane warning to sponge fishermen. Photo: NOAA.



Photo: NOAA.

Institutionalizing social science into NOAA's mission requires increasing awareness about what social science can do for the agency. The National Weather Service (NWS) is in the process of developing a five-course program to expose weather professionals at NWS to equip them with a basic understanding of social science approaches and tools to assist them in their work. The program is geared toward staff such as Meteorologists In Charge, Science and Operations Officer, and Warning Coordination Meteorologists. Specifically, these professionals will learn to interpret social science research, as well as use social science information and tools in an integrated way to improve decision-making with regard to their field discipline. They will complete an applied social science research project, developed through each course of the program, culminating in a presentation with potential operational recommendations from their work. At the end of the courses participants will have the ability to:

- ◆ Identify the relevant social science disciplines with specific weather research questions.
- ◆ Understand the research methodology tools and assumptions of those tools for human factors research.
- ◆ Evaluate social science research to determine its validity and application

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The Value of NOAA's Infrastructure for Earth Observations

NOAA strengthens the impact of investment by valuing improvements to the Agency's products and services.

Federal agencies grapple with understanding the value of the information resources they produce. In March 2016, NOAA and the U.S. Geological Survey (USGS) co-sponsored a full-day, interagency workshop to improve assessments of the value of scientific information. The objectives were to identify the needs of the user community related to the value of scientific information, identify methodological needs to advance VOI studies, and begin to identify interested participants in a community of practice. This community of practice will coordinate input from U.S. agencies to use in international discussions on the value of information and ensure implementation of the strategic goals set up by international bodies such as the Organization for Economic Co-operation and Development.

In Fiscal Year 15, NOAA's Chief Scientist announced a provisional intramural opportunity for potential funding from a new Research Transition Acceleration Program (RTAP) to accelerate transition of research and development (R&D) products created to fulfill NOAA's Mission needs. Transition of R&D Products towards applications, operations, and other uses will enable NOAA to accelerate delivery through the established Readiness Levels of the most mission-relevant research activities. One of the five critical criteria used for evaluating these proposals is the Societal Benefit of the transition results including potential downstream applications and uses and broader economic benefit. Inclusion of Societal Benefits in the RTAP proposals is an example of how NOAA integrates social science in the research planning process.



The *Reuben Lasker* in Alaska.
Photo: Lt. Cmdr. Christopher Skapin, NOAA Corps.



NOAA Lockheed WP-3D Orion "Hurricane Hunter"
Photo: NOAA.



The *Nancy Foster* visits Havana Cuba, 2016.
Photo: David Hall, NOAA.

Economics and Social Science to Support Decision making in Fisheries Management

NOAA collects social science data and information to strengthen the implementation of ecosystem management



Cod catch inspection during a research cruise.
Photo: Sandra Neidetcher, NOAA Alaska Fisheries Science Center.

In 2014, NOAA Fisheries released a web-based mapping tool that allows managers and other stakeholders to assess the social vulnerability and resilience of over 2,900 coastal communities from Maine to Texas of which one third were involved in either commercial and/or recreational fishing activity. Thirteen indicators of social vulnerability, gentrification pressure, and fishing engagement and reliance were included. The indicators represent the first set of quantitative, statistically robust measures at the community level that can add depth to social impact assessments of proposed fishery management actions.

In 2015, the Toolbox was expanded to nearly 4,000 communities that now include the West Coast, Alaska and Hawai'i. In addition, the tool now also maps sea level rise risk. Currently, the Agency is working on linking catch share programs to fishing communities. In the coming year, the Agency will release a report that will identify fishing communities that are engaged in the harvest of catch share-managed species and, importantly, will be able to understand the social vulnerabilities of these particular communities. An out-year goal is to adapt these measures to assess how fishing dependent businesses may be affected by sea level rise and community impacts from changes in distribution or landings of climate vulnerable species.



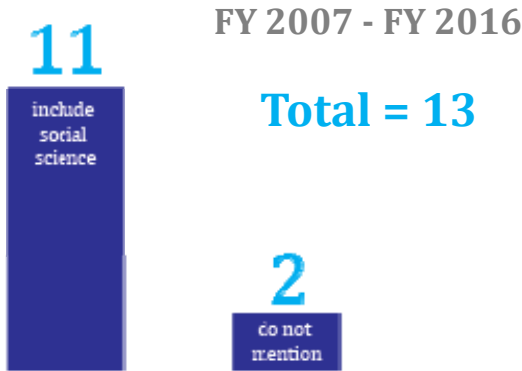
Photo: NOAA

Social Science by the Numbers

NOAA institutionalizes social science to further the agency's mission.

Guidance Memoranda

Human Dimensions **Social**
Socioeconomic
Economic

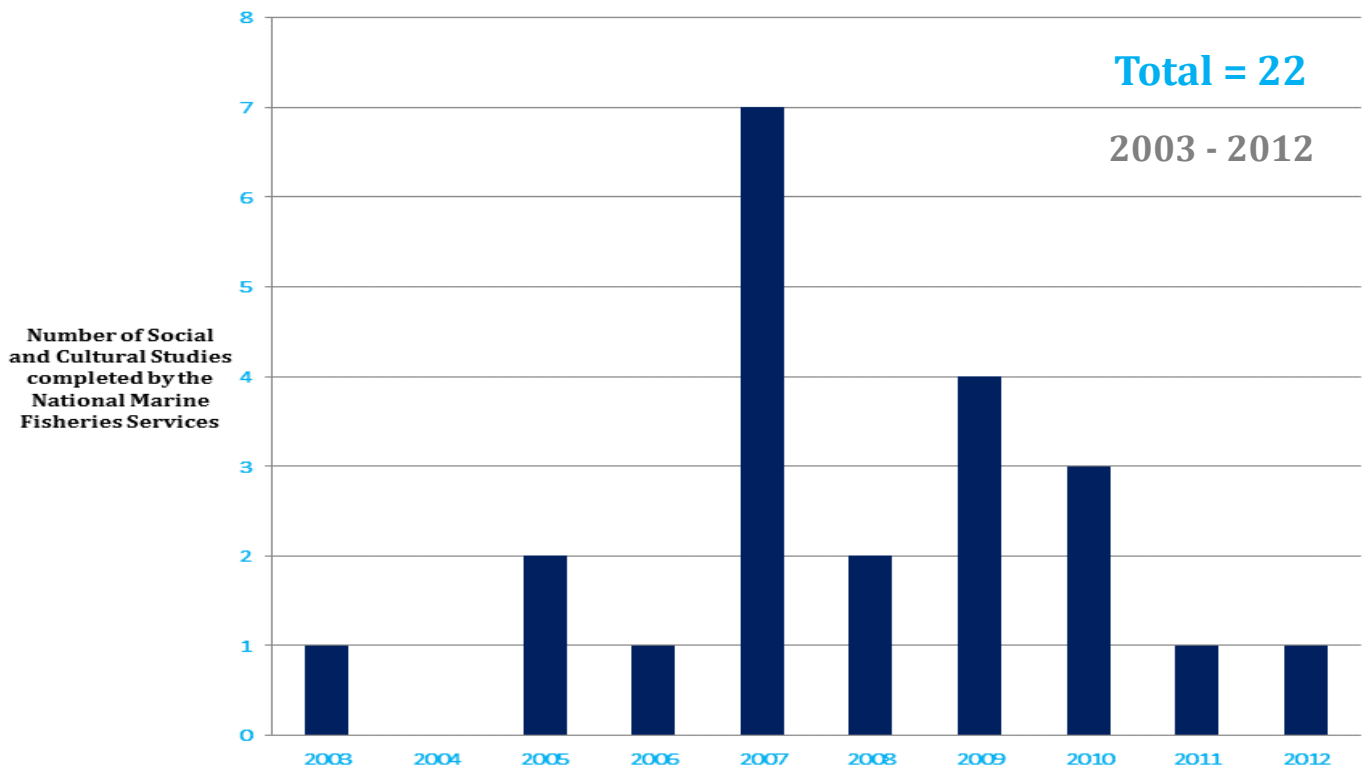


A review of Guidance Memoranda issued by NOAA Leadership since FY 2007 revealed that Leadership often mentions social science as a tool to meet its long-term strategy, address priorities, and follow effective planning processes. "Socioeconomic" was the term used most often.

Graphics courtesy of Brooke Carney, NOAA Office of Oceanic and Atmospheric Research

National Marine Fisheries Service (NMFS) Social and Cultural Studies

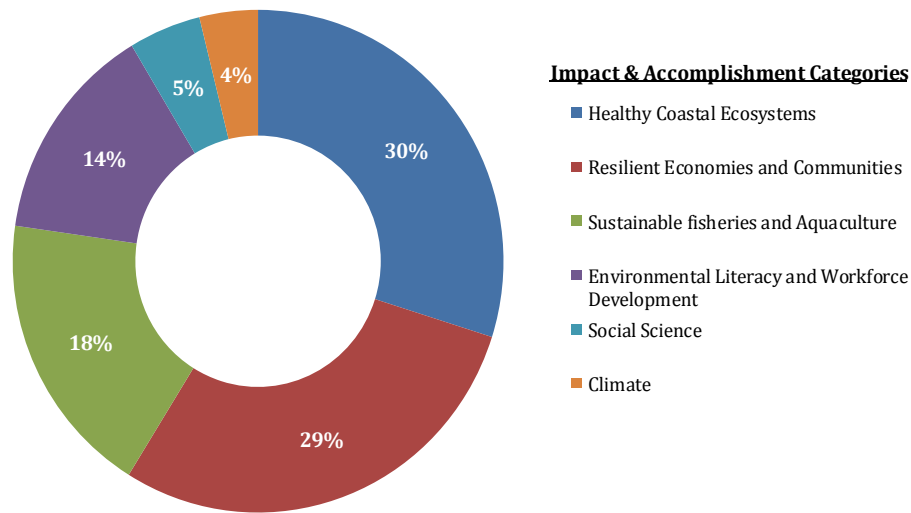
In coastal communities where fishing is culture, projects conducted by the NMFS Office of Science and Technology (OST) describe both past and present community ties to fishing and how they change over time. The projects meld traditional knowledge with contemporary social research. Since 2003, NMFS OST has completed twenty cultural studies and two studies on traditional knowledge.



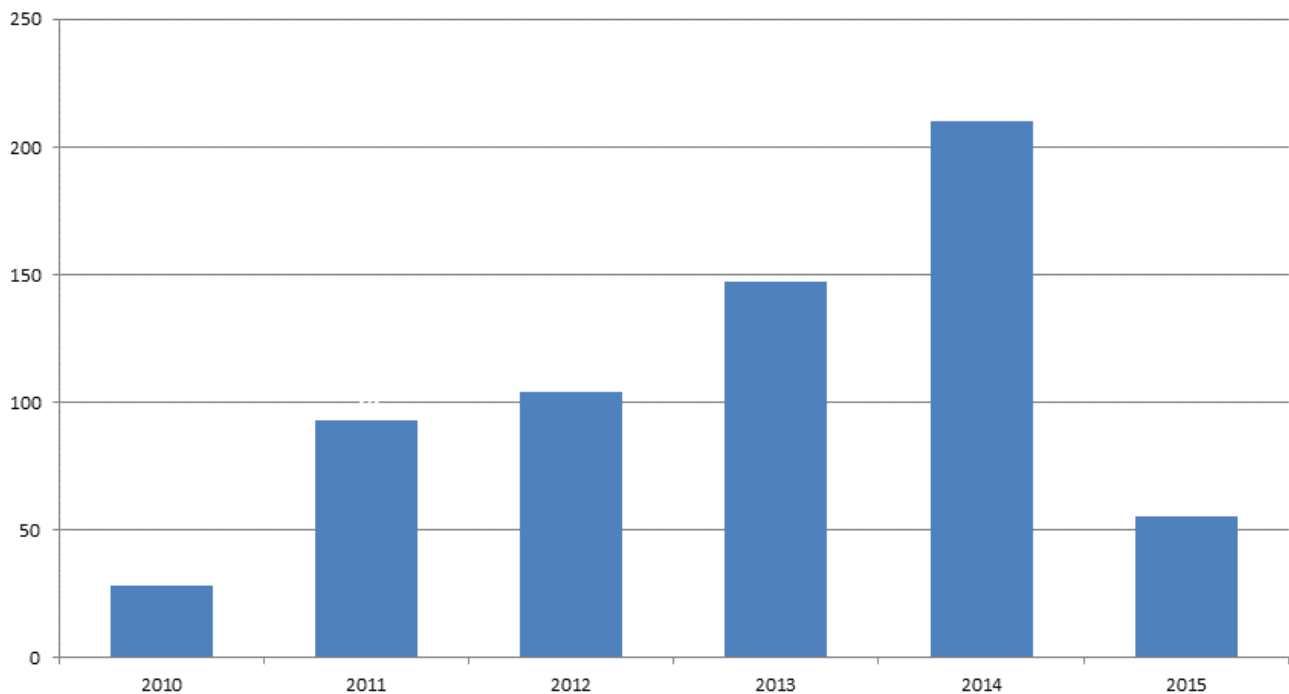
Sea Grant Social Science Impacts & Accomplishments

The Sea Grant program tracks its impacts and accomplishments in a searchable database. An impact is a summary of verifiable economic, societal, and/or environmental benefits of Sea Grant’s work. Accomplishments are the key actions, activities or products resulting from Sea Grant activities. Although they may not yet be quantifiable, accomplishments are no less important because perhaps the project laid the foundation for key behavioral changes within a community or resulted in an important targeted committee Sea Grant programs spend a considerable amount of effort reporting their best and strongest quantifiable impacts.

Number of Sea Grant Program Impacts and Assessments (2010-2015)



Number of Sea Grant Social Science Impacts & Accomplishments by Year (2010 - 2015) Total = 637



National Estuarine Research Reserve System Science Collaborative Research Projects

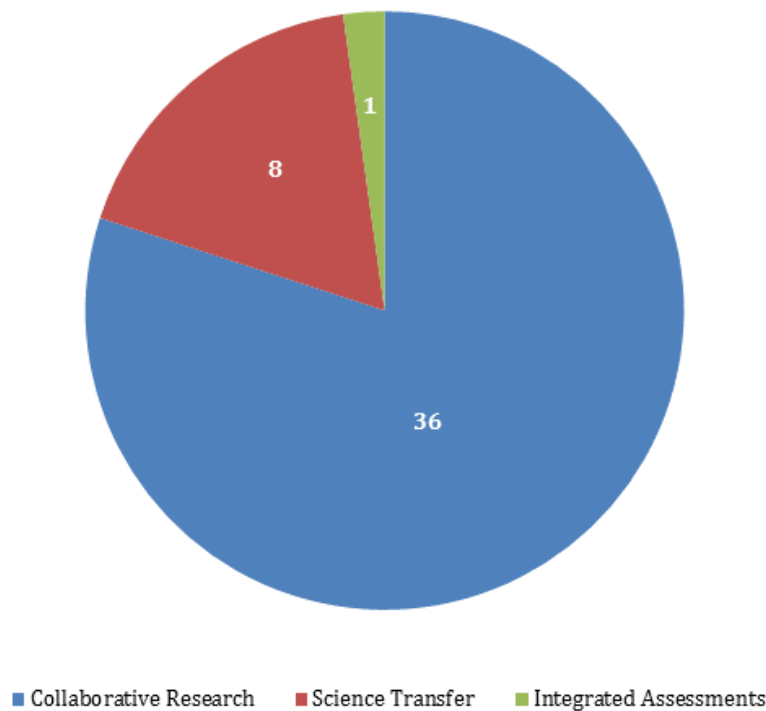
The National Estuarine Research Reserve System (NERRS) Science Collaborative, created in 2009, is a competitive grants program by which most of the NOAA-funded research undertaken at the nation’s research reserves is accomplished. An average of \$3 million is awarded each year. The Collaborative is jointly administered by NOAA and the University of Michigan.

Science Transfer, Integrated Assessment, and Collaborative Research are the types of projects that receive funding. Science transfer projects provide opportunities for sharing and applying information within and beyond the reserve system. Integrated assessment projects analyze existing data and engage stakeholders to evaluate options for addressing a particular management or policy issue while Collaborative Research projects conduct new research that informs management of natural resources problems.

Although all the projects contribute to the national effort to make the coast more resilient to natural and man-made changes, the Collaborative Research projects are unique in their level of social science application. Local people who need the science help design and carry out each project.

Total Science Collaborative Projects = 45

2009 - 2016



Quantitative Social Science Measures: The Future

We continue to refine measures to indicate progress with social science at NOAA. Some of the ideas for future tracking include:

- Number of times a NOAA-authored publication related to social science is cited
- Number of NOAA office-level strategic plans that address or track societal outcomes



Photo: NOAA.

