



NOAA FISHERIES

Office of Science and
Technology

Fiscal Year 2016 Annual Guidance Memorandum

Introduction

The mission of the NOAA National Marine Fisheries Service (NMFS) Office of Science and Technology (OST) is to sustain and enhance NMFS science programs to enable sound conservation and management of the Nation's living marine resources and their ecosystems. The OST supports NMFS core mandates to ensure the productivity and sustainability of fisheries and fishing communities through science-based decision-making and compliance with regulations and to recover and conserve protected resources through the use of sound natural and social sciences.

NMFS Vision

American people enjoying the riches and benefits of healthy and diverse marine ecosystems

NMFS Mission

Stewardship of living marine resources through science-based conservation and management, and the protection and restoration of healthy ecosystems

The OST's five-year Strategic Science Plan identifies four overarching themes that guide these long-term endeavors:

1. collect data and conduct assessments,
2. advance the underlying science for data collections and assessments,
3. manage and disseminate scientific information, and
4. integrate and coordinate support services.

The OST works on many activities that address these four broad themes and respond to NMFS' core mandates. This Annual Guidance Memorandum provides a retrospective look at the OST's accomplishments over the past year as they relate to the OST's Strategic Science Plan and identifies those specific programmatic priorities that will be undertaken during fiscal year (FY) 2016 to address our mission.

Fiscal Year 2015 in Review

In FY 2015, the OST had authority for \$80.7M. The priority areas listed below exemplify the achievements of the past year, several of which continue as priorities for FY 2016.

Collect Data and Conduct Assessments

- The OST published national reports that detailed the status, trends, and economic importance of commercial and recreational fishing and peer-reviewed fisheries research, including *Fisheries of the United States*; *Fisheries Economics of the United States*; *The Economic Contribution of Marine Angler Expenditures on Fishing-Related Durable Goods in the United States, 2014*; *Economics of Marine Recreational Fishing Bait and Tackle Retail Stores in the United States, 2013*; *Productivity Change in U.S. Catch Shares Fisheries*; and *The Economic Performance of Non-Catch Share Fisheries*; quarterly issues of *Fishery Bulletin*, bimonthly issues of *Marine Fisheries Review*; and the Technical Memorandum and Professional Papers series.
- The OST conducted a survey to evaluate mariners' attitudes and responses to the North Atlantic Right Whale Mandatory Ship Reporting System (MSR). This survey gathered information directly from the maritime community to identify ways to improve the MSR program and increase its conservation value while minimizing impacts to ship operations.
- The OST supported observer coverage in 48 fisheries, helping to maintain the number of sea days observed at adequate or near-adequate levels in 31 fisheries.
- The OST completed the 2015 National Fish Habitat Partnership fish habitat assessment for estuarine and coastal waters. This assessment included a reanalysis of the 2010 national assessment, as well as a more in-depth assessment of coasts and estuaries in the Gulf of Mexico.
- The OST published *Our Living Oceans: Habitat*, the first national summary of the status of the habitats of the living marine resources under NMFS' purview, completing the *Our Living Oceans* series, which also includes six editions of the *Report on the Status of U.S. Living Marine Resources* and the *Report on the Economic Status of U.S. Fisheries*.

Advance the Underlying Science for Data Collections and Assessments

- The OST continues to lead the Protected Species Toolbox effort. We have conducted seven projects focused on developing analytical tools to better assess anthropogenic impacts on sea turtles and other taxa that are now hosted here in the OST (<https://www.st.nmfs.noaa.gov/prtoolbox/>). The OST also initiated a 3-year funding initiative to develop new protected species management support tools.
- The OST worked to improve surveys of recreational fisheries, supporting the Marine Recreational Information Program (MRIP) to further development of the Access-Point Angler Intercept Survey along the Atlantic and Gulf of Mexico coasts and implementing a new design of the Fishing Effort Survey that will be administered concurrently with the Coastal Household Telephone Survey for a 3-year period of calibration.

- The OST completed the NMFS Climate Science Strategy and launched development of Regional Action Plans to increase production, delivery, and use of climate-related information in fulfilling NMFS mission activities.
- The OST played a key role in numerous climate-related accomplishments, including completion of a Climate Vulnerability Assessment of 80 fish species in the northeastern United States, launching two new Fish Stock Climate Vulnerability Assessments in the California Current and Bering Sea ecosystems, and development of an online tool that uses NMFS Stock Survey information to track changes in the distribution of fish stocks over time (<http://www.st.nmfs.noaa.gov/ecosystems/climate/activities/oceanadapt>).
- The NOAA Integrated Ecosystem Assessment (IEA) program partnered with multiple fishery management councils (FMC) to successfully incorporate ecosystem considerations into their decision processes. For example, one FMC used ecosystem considerations in stock synthesis models, improving model fit and enhancing explanation of stock variability.
- The OST finalized the Ocean Noise Strategy, a long-term agency-wide strategy to more comprehensively and effectively meet NOAA's science and management responsibilities related to understanding and addressing effects of anthropogenic ocean noise.
- The OST, in collaboration with the Office of Naval Research, the Bureau of Ocean Energy Management, and the Marine Mammal Commission, has successfully initiated a National Research Council expert panel review entitled "Assessment of the Cumulative Effects of Anthropogenic Stressors on Marine Mammals."
- The OST organized a 2-day workshop held in April 2015 for scientists and managers from NMFS, state agencies, academia, industry, non-governmental organizations, regional FMCs, and Sea Grant to provide input on a Discard and Release Mortality Science plan.
- The OST cochaired the Electronic Technologies Working Group to support development of six Regional Electronic Technology Implementation Plans.

Manage and Disseminate Scientific Information

- The OST successfully designed, developed, and deployed the Protected Resources Module of the Species Information System that allows for electronic, internal NMFS reporting and monitoring of the stock status of protected species, and we also implemented the Protected Resources Science Investment Planning Process to identify and address science needs.
- The OST developed a new NMFS science newsroom and authored more than 10 new web stories. Two of these stories were picked up by news outlets.
- The OST redesigned several websites on core NMFS science topics, including climate, stock assessment, and ecosystem-based fisheries management, to increase visibility of scientific information and facilitate use of data. The Program Information Management System, a web-based application for communication of project funding opportunities and management of the project life cycle, was expanded to accommodate an additional program request for proposal processes and served as the framework to develop a new NMFS-wide online research publication tracking system (RPTS).

- The OST provided NMFS coauthorship for the NOAA Public Access to Research Results Plan that describes how NOAA will meet the goals and requirements of the White House Memorandum to increase public access to publications and digital data produced by Federal researchers or recipients of Federal funds.
- The OST expanded the Social Indicator Toolbox, an online mapping tool that provides community vulnerability and resiliency indicators, to include the West Coast and Alaska (initial deployment in 2014 was limited to the 20 states from Maine through Texas). In addition, this toolbox now also maps risk of sea level rise. This work, done in conjunction with the Agency's social scientists, enhances the ability of NMFS and the FMCs to meet regulatory requirements to understand social vulnerability and resilience of fishing communities.

Integrate and Coordinate Support Services

- The OST and the NMFS Science Board continued the successful implementation of science program reviews across the NMFS scientific enterprise, examining the Agency's protected species science programs in 2015.
- The OST completed a number of activities to support the stock assessment process: developing the NMFS fish stock assessment prioritization process with the Northeast and Northwest Fisheries Science Centers, providing national leadership for stock assessments by coordinating the development of the draft of the new NMFS stock assessment improvement plan, organizing the 12th National Stock Assessment Workshop to bring together stock assessment scientists to discuss important and emerging topics, and implementing responses to the 2014 stock assessment program review.
- Through an effort led and managed by the OST, NMFS is engaged in ensuring that NMFS fisheries research activities are compliant with relevant U.S. Federal statutes in a comprehensive and consistent manner. In 2015, the Southwest Fisheries Science Center is the first center to obtain a Marine Mammal Incidental Take Authorization. By November 2015, we anticipate that the remaining five centers will release to the public their draft environmental assessments and requests for incidental take authorization application.

Organizational Excellence Fiscal Year 2015

During FY 2015, the OST implemented organizational changes to enhance office functions and improve communications, including the following changes:

- The OST created an Operations, Management, and Information Division that consolidated science planning and administrative functions that were formerly performed across the office into a single organizational unit.

- The OST established a science communications team with a focus on enhancing written and visual communications support for NMFS science products developed by the OST, the NMFS Chief Science Advisor, and NMFS Senior Scientists.

Budget Outlook

The FY 2016 President’s Budget request for NMFS is \$990.1M, which is a net increase of \$31.9M from the FY 2015 enacted budget. However, the Senate mark is a net decrease of \$29.1M from the FY 2015 enacted budget, and the House mark is a net decrease of \$30.9M from the FY 2015 enacted budget, although the final conference language has not been completed (Table 1).

There are increases in the President’s Budget request that would benefit the OST program activities (Table 1), including \$2.8M to fill critical gaps in and implement the framework for next-generation stock assessments and \$7M to expand the Agency’s electronic monitoring and reporting activities. Additionally, the President’s Budget includes a new \$5M initiative for Ecosystem Solutions for Fisheries Management to expand understanding of the connections between inshore and offshore habitats to support management of fisheries and protected species.

Depending on the final conference language, several changes would affect some of the OST programs (Table 1). Stock assessments would receive increases of \$9.7M from the Senate mark and of \$5.0M from the House mark, with the funds directed to external entities in the Gulf of Mexico. Funding for electronic monitoring and reporting would not change under the House mark but would increase by \$2.3M under the Senate mark. Funding for observers would decrease by \$600,000 under the House mark but would not change under the Senate mark. Overall, the FY 2016 President’s Budget request should generally maintain funding at levels comparable to FY 2015 for the rest of the OST programs.

Table 1. Summary of Potential Impacts to NMFS Total Budget and ST Programs.

	President’s Budget	House Mark	Senate Mark
Total Budget	\$990,121,000	\$927,278,000	\$929,102,000
Next-generation Stock Assessments	+ \$2,815,000	+ \$9,729,000	+ \$5,000,000¹
Electronic Monitoring and Reporting	+ \$5,600,000	No Change	+ \$2,300,000
Observer Program	+ \$484,000	– \$655,000	No Change
Ecosystem Solutions for Fisheries Management	+ \$5,000,000	No change	No Change

¹ Directed toward external entities in the Gulf of Mexico.

Fiscal Year 2016 Priorities: Science, Collaboration, Conservation, and Management

Our general priorities will be to strive for improvement in the OST's four strategic focal areas. The OST plays a central role in NMFS' efforts to fulfill its goals in fisheries management and resource conservation by supporting and collaborating with the science centers and fostering partnerships with NOAA and external collaborators. Among other activities and priorities, in FY 2016, the OST will endeavor toward the following priorities:

Next-generation Stock Assessments

As the coordinating body of national stock assessment program, the OST will continue to strengthen and support the science that enhances the Agency's ability to provide high-quality, right-sized, and timely stock assessments in support of an ecosystem approach to fishery management. By working with the NMFS Chief Science Advisor, Senior Scientist for Stock Assessment, and science centers, the OST will advance the Agency's stock assessment program to operate the framework for next-generation stock assessments. Specifically, the OST will focus on the following efforts:

- Coordinate full implementation of the new NMFS prioritization process for fish stock assessments and associated reporting criteria in the Species Information System.
- Finalize the new NMFS stock assessment improvement plan and use this plan in concert with the stock assessment program reviews conducted in 2013–14 to fill gaps in the stock assessment enterprise, making improvements across the Agency in data collection and assessment capabilities, performance tracking and reporting, and communication.
- Continue supporting development of advanced sampling technologies for surveys and associated strategic initiatives that will transition technologies from research and development to operational use.

Ecosystem Considerations

NOAA has adopted ecosystem-based approaches to management for meeting its mandates to sustainably manage the nation's trust marine resources, and NMFS is developing the scientific tools required to implement ecosystem-based fisheries management. The OST coordinates national science programs to enable the integration of ecosystem (including climate, oceanographic, habitat, and ecological) information into management of living marine resources and to explicitly address tradeoffs between fisheries, fishery species, protected resources, and other ecosystem components and processes. The following list highlights key activities planned for 2016:

- The OST and the NMFS science centers will conduct science program reviews focused on ecosystem, climate, and habitat programs.
- Implement the Fish Climate Vulnerability Assessment in at least one new region and develop and test the Protected Species Climate Vulnerability Assessment to provide information to effectively prioritize science and monitoring activities for fish and protected species.
- Work with science centers and other partners to complete Regional Action Plans to implement the NMFS Climate Science Strategy.
- Co-lead the U.S. Interagency Arctic Research Policy Committee Distributed Biological Observatory Collaboration Team during the development of a 10-year implementation plan focused on the coordination of international oceanographic sampling of biological hotspots in the Arctic.
- Strengthen cross-line office participation in the NOAA IEA program to advance this comprehensive, agency-wide ecosystem-based approach as a way to do business in all NOAA regional ecosystems. Enhance IEA efforts on climate change, human dimensions, and reference points.
- Implement habitat science programs to inform managers on the quantitative importance of habitat to fisheries production.
- Continue coordination of fisheries habitat science activities with cross-agency initiatives, such as the NOAA Habitat Conservation Team and the NOAA Ecological Forecasting Roadmap to increase support, recognition, and resources for habitat science, and continue funding science projects in the Habitat Focus Areas under the NOAA Habitat Blueprint.

Collect and Disseminate Fishery-dependent Data

The OST will continue to support and coordinate programs that promote the implementation of scientifically sound and technologically efficient approaches to the collection of data, estimation of statistics, and dissemination of information on the performance of marine commercial and recreational fisheries at both regional and national levels.

- The OST will work to improve comprehensiveness, quality, timeliness, and accessibility of commercial and recreational fishery-dependent information on the regional and national scale. The OST will facilitate incorporating electronic monitoring and reporting across the Agency through the Fisheries Information System, National Observer Programs, MRIP and will cochair the Electronic Technologies Working Group.
- The OST will continue to support MRIP efforts to improve the performance of marine recreational fishing effort and catch, benchmark the new Fishing Effort Survey against the current Coastal Household Telephone Survey, and coordinate with the Fishery Information Networks to develop Regional MRIP Implementation Plans that identify preferred MRIP-certified regional survey designs and priorities for future improvements. The OST also will initiate the National Research Council's review of the MRIP.

- The OST will continue to develop and update publications, including *Fisheries of the United States* (national reports on commercial fisheries, processors, and trade), a second update of the U.S. National Bycatch Report (species- and fishery-level bycatch estimates for 2011–2013), *Fisheries Economics of the United States* (update national seafood industry economic impact model estimates and conduct a national economic survey of seafood processors).
- The OST staff will serve as Guest Editor for a special issue of *Marine Policy* to be titled “Productivity Change in Catch Share Fisheries.” The papers for this issue are products of the OST’s initiative to assess the economic performance of U.S. catch share programs.

Data Management

In addition to the ongoing server operations, application development and maintenance, and database management essential for the OST and NMFS science and management, our priorities in FY 2016 include furthering the value of our data holdings and scientific results through greater access, quality, transparency, and use. We will implement the Providing Access to Research Results Plan, by completing the metadata cataloging of all NMFS data in InPort and by providing open access to our research publications. A second focus will be the Program Information Management System for tracking and managing the OST research programs and the process for requests for proposals, from budgeting through completion, including reporting, performance metrics, and output. This activity will include linking program management with our data and metadata (through InPort) and scientific publications (through the Research Publications Tracking System). Another set of activities will increase our capability to store, locate, and use data, modeling and analytical tools, and assessments relevant to the Agency’s fish stock and protected resource assessments. Our International Trade Database System will be expanded to improve monitoring of fish imports and exports.

Protected Species Science

Our protected species science programs will provide support in the following ways:

- Support three collaborative NMFS Protected Species Toolbox themes: 1) demography and trends for corals listed under the Endangered Species Act, 2) population assessment trends, and 3) spatial analysis through FY 2015–18. These tools will be useful for managers to address priority management needs in multiple regions.
- Continue and expand the implementation of NOAA's Ocean Noise Reference Station Network, a coordinated passive acoustic monitoring network deployed throughout U.S. waters.
- Continue to support research and modeling that incorporates habitat and ecosystem data into protected species stock assessments and other management decisions and consultations. Add new modeling and statistical tools that are developed by protected species thematic projects to the NOAA Protected Species Toolbox as they become operational.

Communications

The OST science communications team will continue to focus on developing communications products, including new websites, infographics, visually savvy PowerPoint presentations, web-based scientific tools, web stories, publications, social media posts, rollout plans, webinars, and communications strategies. By providing high-quality outreach products, the OST communications team will continue to strengthen and support the science that enhances sustainable management of the nation's living marine resources and the communities that depend upon them.

- Increase output of infographics, web stories, and other proactive scientific communications efforts.
- Increase collaboration on communications projects with the NMFS Communications Office, Headquarters Offices, and NMFS science centers.
- Develop a communications strategic plan for the OST.

Capacity Building

The OST is involved in a number of efforts to increase the scientific capacity to support fisheries and protected species management. These activities are geared toward both enhancing the skills of existing staff through training and developing future staff through educational opportunities. In FY 2016, the OST will provide support in the following manner:

- Emphasize professional development for staff through appropriate training and rotational assignment opportunities.
- Enhance the Quantitative Ecology and Socioeconomics Training program to enhance education and training for the next generation of stock assessment scientists, ecosystem scientists, and economists.
- Fund graduate students through a joint NMFS and Sea Grant Fellowship Program to increase capacity in population and ecosystem dynamics.

Organizational Excellence Fiscal Year 2016

In closing, during FY 2016, the OST will continue to implement organizational changes to enhance office efficiency and functionality, including the continued recruitment of personnel for Branch Chief positions (Pay Band 4 supervisors) to improve the management efficiency of the office and provide leadership opportunities for succession planning.