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October 2021

A Report by a Panel of the

NATIONAL ACADEMY OF PUBLIC ADMINISTRATION

for the National Marine Fisheries Service

National Marine Fisheries Service Budget Structure and Allocation Review

NOAA FISHERIES 150TH ANNIVERSARY 1871-2021

NATIONAL ACADEMY OF PUBLIC ADMINISTRATION®

July 2021

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National Marine Fisheries Service Budget Structure and Allocation Review

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Established in 1967 and chartered by Congress in 1984, the Academy continues to make a positive impact by helping federal, state and local governments respond effectively to current circumstances and changing conditions. Learn more about the Academy and its work at www.napawash.org.

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Foreword

The National Marine Fisheries Service (NOAA Fisheries, or the Agency) is one of six major line agencies of the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce. As the principal federal agency that monitors and protects the nation's living marine resources, the NOAA Fisheries provides science-based conservation and management for sustainable fisheries and aquaculture, marine mammals, endangered species, and their habitats.

The origin of this report is found in 2020 legislative report language in which Congress directs NOAA to contract with an independent organization to consider options to restructure the NOAA Fisheries budget to better inform and connect budgetary, planning, and decision-making processes with the distinct needs of each region served by the Agency. The Agency selected the National Academy of Public Administration (the Academy) to do this work.

As a congressionally chartered, independent, non-partisan, and non-profit organization with over 900 distinguished Fellows, the Academy has a unique ability to bring nationally-recognized public administration experts together to help government agencies address challenges. I am deeply appreciative of the work of the five Academy Fellows who served on this project Panel. I also commend the Academy study team that researched, analyzed, and contributed valuable insights and expertise throughout the project.

This report benefits from the constructive engagement of more than 80 individuals representing NOAA Fisheries and a broad array of stakeholders who provided important observations and context to inform this report. I wish to particularly convey appreciation to the many senior budget officers and staff members from seven federal science agencies who contributed important insights and effective practices to inform the report's findings and recommendations. This report stands at the critical intersection of science and governance, and addresses the Academy's Grand Challenge to Steward Natural Resources and Address Climate Change by focusing on how the Agency's management tools can enable more effective efforts to protect marine life and ecology.

I trust that this report will not only assist NOAA Fisheries in its continuing efforts to improve budget planning, mission operations, and transparency with key stakeholders, but will also inform the efforts of other federal agencies to enhance their performance in these spheres.

Teresa W. Gerton
President and Chief Executive Officer
National Academy of Public Administration

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Acronyms and Abbreviations

Acronym or Abbreviation	Definition
AA	Assistant Administrator
Academy	National Academy of Public Administration
ACL	Annual Catch Limit
APP	Activity Plan Prioritization
ARS	Agricultural Research Service
BRR	Base Resource Review
CAO	Chief Administrative Officer
CFO	Chief Financial Officer
CLD	Contract Law Division
DAA	Deputy Assistant Administrator
DOC	Department of Commerce
DOE SC	Department of Energy Office of Science
DUS/O	NOAA Deputy Secretary for Operations
EDP	Executive Decision Process

EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FCIP	NOAA Facility Capital Investment Plan
FMC	Financial Management Center
FSSI	Fish Stock Sustainability Index
FTE	Full-Time Equivalent
FY	Fiscal Year
GAO	U.S. Government Accountability Office
GFOA	Government Finance Officers Association
GPRA	Government Performance and Results Act of 1993
GPRAMA	GPRA Modernization Act of 2010
HQ	Headquarters
IEMP	Integrated Enterprise Management Program
IFMA	International Facility Management Association
JES	Joint Explanatory Statement
Leadership Council	The NOAA Fisheries Leadership Council: The NOAA Fisheries Assistant Administrator, Deputy Assistant

	Administrators, HQ Program Office Directors, and Regional Office and Science Center Directors
MB	National Marine Fisheries Service Office of Management and Budget
MMPA	Marine Mammal Protection Act
MRB	Milestone Review Board
MSA	Magnuson-Stevens Act
NASA	National Aeronautics and Space Administration
NEP	NOAA Executive Panel
NEPA	National Environmental Policy Act
NESDIS	National Environmental Satellite, Data and Information Service
NFC	NOAA Facilities Council
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries, NMFS	National Marine Fisheries Service
NOS	National Ocean Service
NPL	National Program Leader

NWS	National Weather Service
OAR	Oceanic and Atmospheric Research
OECD	Organization for Economic Co-Operation and Development
OGC	Office of the General Counsel
OHCS	Office of Human Capital Services
OMAO	Office of Marine and Aviation Operations
OMB	Office of Management and Budget
OMI	Operations, Management, and Information Chief
ORF	Operations, Research, and Facilities
P/PM	Project/Program Management
PAC	Procurement, Acquisition, and Construction
PMC	Program Management Council
PMIAA	Program Management Improvement Accountability Act
PMPC	Program Management Policy Council
POC	Points of Contact
PPA	Program, Project, or Activity Account

PPBE	Planning Programming Budgeting and Execution
PRSSO	Performance Risk and Social Science Office
RFMC	Regional Fishery Management Council
SAM	Strategic Asset Management
SFP	Strategic Facilities Planning
SPG	Strategic Planning Guidance
SRM	Strategic Resource Management
The District	Washington District of Columbia Municipal Government
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

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Executive Summary

The National Marine Fisheries Service (referred to as NMFS, or NOAA Fisheries, or as the Agency) is one of several agencies within the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). It is the principal federal agency that monitors and protects the marine environment. The Agency assesses and predicts the status of fish stocks and sets catch limits for hundreds of marine species to enhance the sustainability of the commercial and recreational fishing industry. It also is responsible for the protection, conservation, and recovery of 165 endangered and threatened marine and anadromous species.

The genesis of this report is found in the appropriators' fiscal year (FY) 2020 legislative report language, in which NOAA is directed to "enter into a contract with an independent organization for the purposes of evaluating efficiencies that can be made to NMFS's budgetary operations. This review shall consider options to restructure the NMFS budget to better inform and connect budgetary, planning, and decision-making processes with the distinct needs of each region served by NMFS."[1] As can be inferred by this legislative directive, this report is intended to evaluate how NOAA Fisheries connects these three important processes (budgetary, planning, and decision-making) with the Agency's regional mission requirements.

Key parts of the current budget, planning and decision-making processes are summarized in Chapter 2. The topics covered include strategic planning, key elements of the NMFS budget structure, preparation of fish surveys and assessments, and important features of how NOAA Fisheries headquarters (HQ) engages with regions, external stakeholders, and congressional staff and members. The descriptions in this chapter provide a baseline for further analysis that is built on in the subsequent two chapters.

The report expands analysis into more granular aspects of the budget process in Chapter 3, where insights into key elements of budgetary, planning and decision-making processes are introduced. In this respect the following themes, deemed to be focal points for this report, include strategic planning; program management; functional planning and facilities management; communications and transparency; and budget account structure. These themes first serve as the analytical structure to identify challenges and then become the focal points for report recommendations in Chapter 4. Chapter 3 offers descriptions of several effective practices taken from documentary research and from interviews with budget (and other) leaders of other federal science agencies. The narratives provided by benchmarking agencies were vetted with each agency and approved for use in this report. These are valuable because they detail practices and approaches found to have been successful across a variety of dimensions that are pain points for NOAA Fisheries and concerns for appropriators.

The final chapter melds information provided in Chapters 2 and 3 to devise recommendations on how NOAA Fisheries might modify some of its practices to enhance its mission planning and execution, as well as its engagement with congressional, external, and even internal stakeholders. Chapter 4 contains five interconnected recommendations for NOAA Fisheries that track with focal

[1] 116th U.S. Congress, *Commerce and Justice, Science and Related Agencies Appropriations Bill, 2020, Report by the Committee on Appropriations*. https://www.govinfo.gov/content/pkg/CRPT-116srpt127/html/CRPT-116srpt127.htm.

point themes. A sixth recommendation is directed to Congress, calling for approving a change in NOAA Fisheries budget structure, decreasing the number of Program, Project, or Activity (PPA) accounts. All six of the report recommendations are listed at the bottom of the Executive Summary.

Recommendations directed to the Agency form an integrated set of actions that can be implemented in a manner that accommodates requisite policy contours from NOAA and the Department. Implementation of the recommendations must also encompass respect for important Agency organizational norms.

The final recommendation directed to Congress comes with an important caveat: that NOAA Fisheries take clear actions to demonstrably advance implementation of the five recommendations directed to the Agency as reciprocity with Congress for agreeing to take this action.

Finally, notwithstanding the relatively small number of recommendations, the totality of changes that this report calls for are substantial and will require unequivocal leadership commitment and diligence in implementation. Certain operational patterns in NMFS, particularly between headquarters and regions, will inevitably be impacted and replaced by new ones. However, the set of recommendations offers NOAA Fisheries an opportunity to implement an important organizational transformation that can better respond to its many important stakeholders, and most importantly, serves to advance its critical mission.

While a complete list of report recommendations is provided below, the reader is directed to Chapter 4 to review explanatory text for each one to receive further insights and understanding.

Recommendation #1 – Strategic Planning
Re-evaluate the strategic planning process. The NOAA Fisheries strategic planning process should be a major driver of the budgetary process. Assess mission requirements against anticipated needs such as changing technology and shifting fish stocks. Develop a robust process for collecting and integrating stakeholder input on strategic priorities, in keeping with Recommendations 5.1, 5.2, and 5.3.
Recommendation #2 – Program Management
Implement stronger program management at the headquarters (HQ) level. Designate, enhance, and elevate program managers to have responsibility for developing strategic plans, setting budgets, and providing program direction. This should be done in close collaboration with the Agency's Financial Management Centers (FMCs) and external partners.

Recommendation #3 – Functional Planning
Implement stronger functional planning. Functional planning includes operations (surveys, stock assessments, programs) and mission support (information technology, human resources, facilities). Each operational and mission support component should have functional plans, which integrate with the overall strategic planning process and account for budget out-years. Enhance assessment of the condition, cost of ownership, decommissioning and disposal costs, and deferred maintenance of facilities across NOAA Fisheries through long-term functional planning to better inform NOAA's Facility Capital Investment Plan (FCIP) and promote transparency. To this end, standardize processes for tracking facilities data across the FMCs, and collect those data centrally.
Recommendation #3.1 – Fish Surveys and Stock Assessments
Produce and circulate an annual fish survey and stock assessment priority list to the following parties: all regional offices, all science centers, NOAA Fisheries leadership (including the budget office), NOAA leadership, Department of Commerce leadership, the Office of Management and Budget (OMB), congressional appropriators, and all relevant external stakeholders. This sub-recommendation references Recommendation #5.3, to incorporate external stakeholder input into the building of the annual fish survey and stock assessment priority list.
Recommendation #4 – Facilities Resourcing
Request funding for the NOAA Fisheries facilities portfolio's requirements through NOAA and its Facility Capital Investment Plan by conducting robust assessments of the portfolio. NOAA Fisheries should use its own functional facilities planning process and implementation strategy to assess the cost of ownership of its facilities portfolio, including deferred maintenance, and use that assessment to recommend a prioritization of facilities investments by NOAA. In communicating with NOAA, include suggestions on, and the costs associated with capital construction, renovation, renewal, and decommissioning or disposal. Strong functional planning and communication by NOAA Fisheries, together with the efforts of other NOAA line offices, will support NOAA's efforts to secure sufficient appropriations for bureau-wide prioritization of capital investments. Functional facilities planning and implementation will also benefit NOAA Fisheries' approach to address deferred maintenance, for which related expenses and resources should remain part of the ORF account. Use the effective practices and processes in Recommendation #3 to demonstrate efficiency, transparency, and sound process to NOAA, DOC, OMB, and congressional stakeholders.
Recommendation #5.1 – Congressional Communications
Devise and implement a more robust and comprehensive congressional engagement strategy, giving particular attention to providing insights into key elements of the budget. Areas of

particular focus should include topics regularly raised by appropriators in the Joint Explanatory Statement. In addition, there should be greater clarity provided around mission delivery and mission support across program costs, including the process for determining administrative costs and facilities maintenance assessments applied to appropriated dollars, and what the amounts/percentages taken are. Communications with Congress should be done in close collaboration with NOAA and OMB.

Recommendation #5.2 – Intra-Agency Communications

Develop and implement a comprehensive internal budgetary communications strategy beyond NOAA Fisheries' Budget Decision and Carryover Memos. The strategy should include:

- Holding annual FMC presentations to NOAA Fisheries leadership on work accomplished and future priorities including analysis on the impacts of projects or programs going unfunded;
- Justifying and explaining leadership prioritization and funding decisions;
- Analyzing the impacts of projects or programs that go unfunded; and
- Issuing guidance on coordination between relevant program managers, FMCs, and headquarters' offices for re-allocating dollars following the conclusion of a project.

Recommendation #5.3 – External Communications

Develop and implement a comprehensive external budgetary communications strategy. The strategy should include:

- Holding annual workshops with participation from Regional Fishery Management Councils (RFMCs), state fishery commissions, and other relevant external stakeholder groups to provide opportunities to offer their input for consideration in the NOAA Fisheries' budget process;
- Requiring strategic plans from each RFMC;
- Developing and issuing annual surveys to RFMC and other relevant external stakeholders soliciting feedback on accomplishments and impacts due to NOAA Fisheries' budget allocations; and
- Issuing, to the extent possible, the rationale for NOAA Fisheries' budgetary decision and subsequent analysis on the impacts of projects that go unfunded.

Recommendation (for Appropriators) #6 – Account Structure Change

Embracing and implementing all other recommendations in this report, NMFS should ask Congress to provide greater discretion that allows it to be more strategic in its use of resources, using an evidenced-based approach to identify and organize around Agency priorities and

giving managers more flexibility to address those priorities. The Panel offers two illustrative restructuring options, including:

- Eliminating or reducing the number of PPAs.
- Reducing the amount of specific congressional direction on appropriated dollars.

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Chapter 1: Project Background

The National Marine Fisheries Service (referred to as NMFS, or NOAA Fisheries, or as the Agency) is one of several agencies within the U.S. Department of Commerce's (DOC) National Oceanic and Atmospheric Administration (NOAA). It is the principal federal agency that monitors and protects the complex amalgamation of living marine resources that range hundreds of thousands of square miles, spanning east to west, and north to south, surrounding our vast Nation. NOAA Fisheries "provides science-based conservation and management for sustainable fisheries and aquaculture, marine mammals, endangered species, and their habitats."[2] A critical part of the Agency's mission is to conduct fish surveys that guide catch limits for over 470 species, which is a principal source of evidence needed to manage the complex dimensions connected with competing demands of this essential industry and the ecosystem. The Agency's mission also includes "protection, conservation, and recovery of 165 endangered and threatened marine and anadromous species[3] under the Endangered Species Act."[4]

The importance of the NOAA Fisheries mission for the nation and the world cannot be overstated. From a nutritional viewpoint, seafood is an increasing part of the American diet. According to a February 2020 report released by NMFS, Americans consumed on average 16.1 pounds of seafood in 2018, which showed an uptick from the previous year.[5] Outside of the United States and around the world, seafood is rising as a source of nutrition.[6]

This report speaks about how budget structure and other financial planning issues can be improved to enhance mission performance and strengthen implementation of the Agency's strategic plan. The report also seeks to heighten transparency and communication between NOAA Fisheries and Congress, external stakeholders, and within the Agency as well.

1.1 Scope of Work and Methodology

The origin of this report is found in Appropriators' 2020 legislative report language, in which NOAA is directed to "enter into a contract with an independent organization for the purposes of evaluating efficiencies that can be made to NOAA Fisheries' budgetary operations. This review shall consider options to restructure the Agency's budget to better inform

[2] U.S. National Marine Fisheries Service, *Fisheries*. https://www.noaa.gov/fisheries.
[3] The Oxford Dictionaries define anadromous as "(of a fish such as the salmon) migrating up rivers from the sea to spawn". See https://www.lexico.com/en/definition/anadromous.
[4] U.S. National Marine Fisheries Service, *Laws & Policies: Endangered Species Act*. https://www.fisheries.noaa.gov/topic/laws-policies#endangered-species-act.
[5] Kearns, *U.S. Seafood Consumption Rises to Highest Level Since 2007*. https://www.seafoodsource.com/news/supply-trade/us-seafood-consumption-rises-to-the-highest-level-seen-since-2007-but-falls-short-of-usda-recommendations#:~:text=On%20average%2C%20Americans%20consumed%2016.1,NOAA%20Fisheries%20on%2021%20February.
[6] Mossler, *In 2050, Fish Will Play an Important Role in Sustainable Diets*. https://sustainablefisheries-uw.org/fish-will-play-an-important-role-in-sustainable-diets/.

and connect budgetary, planning, and decision-making processes with the distinct needs of each region served by NMFS."[7]

The analysis focuses on such issues as:

1. Tracking spending;
2. Flexibility in allocating funds;
3. Transparency in how allocations are determined; and
4. Aligning spending with the mission and Agency strategic plan.

In its review, the report includes discussion of:

1. Strategy and alignment of spending;
2. Overhead allocations;
3. Program, project, or activity accounts;
4. Transparency and communications;
5. Agency culture; and
6. Federal benchmarks with respect to budget processes, particularly with scientific agencies.

Interviews were conducted with more than 100 individuals, both from within the Agency and with external stakeholders (a full list of interviewees is provided in Appendix B). Extensive interviews were completed with nearly 60 headquarters and field Agency employees to understand how the broad scope of engagement within the Agency occurs.

Furthermore, there were several discussions with congressional staff, particularly with those involved in requesting this work. Meetings with a broad array of external stakeholders were convened, to include commercial and recreational fishers, members of fisheries councils, and experts in public sector budgeting.

A key part of the report's analysis considers insights from other federal scientific agencies. The study team received significant assistance from senior budgetary and financial officials from the Office of Management and Budget (OMB), Agricultural Research Service (ARS), U.S. Fish and Wildlife Service (USFWS), National Aeronautics and Space Administration (NASA), U.S. Geological Survey (USGS), the Department of Energy's (DOE) Office of Science (SC), the Environmental Protection Agency (EPA), and National Institute of Standards and Technology (NIST). Input from budget experts in these agencies contributed in vital ways to the findings and recommendations in this report.

[7] 116th U.S. Congress, *Commerce and Justice, Science and Related Agencies Appropriations Bill, 2020, Report by the Committee on Appropriations*. https://www.govinfo.gov/content/pkg/CRPT-116srpt127/html/CRPT-116srpt127.htm.

In addition, documentary research provides important findings incorporated into this report. Documents reviewed included administrative guidance; budgetary and strategic planning documents; best practice literature; and past internal and external assessments of NOAA Fisheries' operations and performance.

Research and drafting of this Academy Panel report was prepared under the leadership and guidance of a five-member Panel of Academy Fellows that guided the work of a five-member professional study team (biographical information on the Panel and study team is provided in Appendix A).

1.2 Organization of the Report

Besides this chapter, the report is organized into three other chapters, briefly summarized below:

Chapter 2 offers important background description of how NOAA Fisheries currently manages its budgetary operations. This chapter serves as the baseline for further evaluation of opportunities for the Agency to enhance its operations. Several key topics are identified in this chapter that are adopted as evaluative tools throughout the report.

Chapter 3 provides insights into effective practices used by other science-based federal agencies and how they organize their budgetary operations. It also describes best practices found in other credibly researched sources and pertinent U.S. government directives on budgetary processes as issued by OMB.

Chapter 4 synthesizes and distills information on key topics as observed in Chapter 2 with effective practices described in Chapter 3 in order to devise recommendations to NOAA Fisheries. This chapter leverages specific, effective actions adopted by other federal science agencies that might be adapted by NOAA Fisheries to enhance its budgetary operations, improve mission performance, and allow for greater transparency and accountability with stakeholders, both internal and external to the Agency.

Chapter 2: Background on NOAA Fisheries

This chapter provides background information on NOAA Fisheries and its budget processes, offering context for the analysis, findings, and recommendations provided later in the report. It provides insights into organizational structure and complexity of the interaction between headquarters (HQ) and the regional offices and science centers. With this as background, the chapter describes the interaction between strategic planning, budget structure, and budget processes. In addition, given their importance in this report, background descriptions on fish stock assessments and fish surveys are provided. Finally, the chapter provides summaries on how budget-related communications are currently executed with key stakeholders, including internal Agency communication.

2.1 Mission and Functions

NOAA Fisheries is responsible for the management, conservation, and protection of living marine resources within the United States' Exclusive Economic Zone, or, "the 4.4-million-square-mile zone that extends from 3 to 200 nautical miles off the coast…".[8] Respective coastal states are generally responsible for fisheries from their coastline out to three miles, and NOAA Fisheries works with governments at various levels to ensure the sustainable management of fisheries around the country. It assesses and predicts the status of fish stocks, ensures compliance with fisheries regulations, works to reduce wasteful fishing practices, and recovers populations of protected marine species. In describing its mission, NOAA Fisheries states it "is responsible for the stewardship of the nation's ocean resources and their habitat. We provide vital services for the nation, which ensure productive and sustainable fisheries, safe sources of seafood, the recovery and conservation of protected resources, and healthy ecosystems – all backed by sound science and an ecosystem-based approach to management."[9]

It conducts its research and science operations principally within its six Science Centers and their laboratories and field stations, and regulatory and policy functions within its five Regional Offices and headquarters program offices. This allows NOAA Fisheries to work with communities on fishery management issues. It regulates over 470 fish stocks and stock complexes in 46 fishery management plans across the country, in partnership with eight Regional Fishery Management Councils, and four Interstate Commissions.[10]

NOAA Fisheries is bound by four main statutory authorities, among others:

- **Magnuson-Stevens Fishery Conservation and Management Act (MSA):** The MSA was first passed in 1976 and most recently reauthorized in 2007.[11] It is the primary law governing fisheries management in federal waters of the United States, aimed at

[8] U.S National Marine Fisheries Service, *Understanding Fisheries Management in the United States*. https://www.fisheries.noaa.gov/insight/understanding-fisheries-management-united-states.
[9] U.S. National Marine Fisheries Service, *Strategic Plan 2019-2022*. https://media.fisheries.noaa.gov/dam-migration/noaa_strategicplan_2019_singlesv5.pdf.
[10] U.S. National Marine Fisheries Service, *About Us*. https://www.fisheries.noaa.gov/about-us.
[11] U.S. National Marine Fisheries Service, *Law & Policies: Magnuson-Stevens Act*. https://www.fisheries.noaa.gov/topic/laws-policies#magnuson-stevens-act.

preventing overfishing, rebuilding overfished stocks, increasing long-term economic and social benefits, and ensuring a safe and sustainable supply of seafood. The Sustainable Fisheries Act, an amendment to the MSA, "sets standards for fishery management plans to specify objective and measurable criteria for determining stock status", and the MSA Reauthorization Act establishes annual catch limits (ACLs). In 2018, the MSA was amended to improve recreational fishing data and the management of mixed-use fisheries by requiring new reports, studies, and guidance related to fisheries management and science.

- **Endangered Species Act (ESA):** Passed in 1973, the ESA establishes protections for the natural heritage of the United States, and defines the terms "endangered species", "threatened species", and "critical habitat."[12] NOAA Fisheries and the U.S. Fish and Wildlife Service (USFWS) share responsibility for implementing the ESA for marine and terrestrial species. NOAA Fisheries has promulgated regulations and issued national policies and guidance to implement the ESA's requirements to conserve and recover listed marine species.

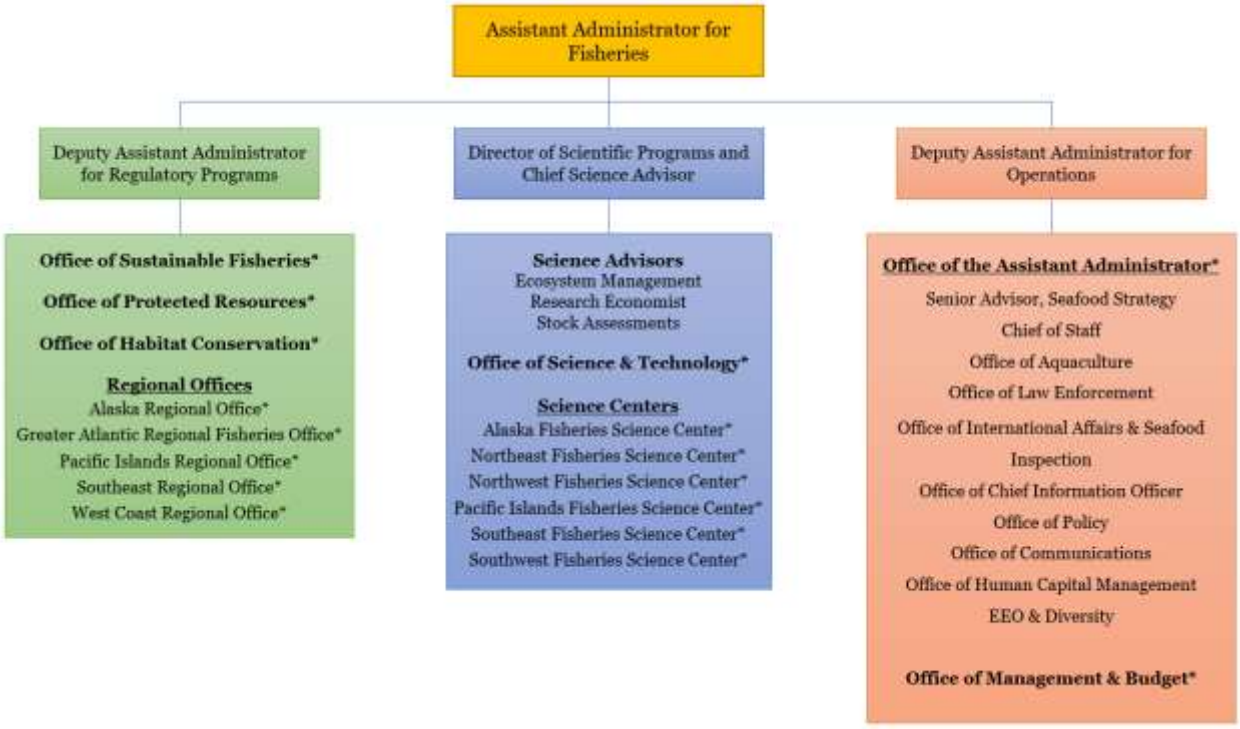
- **Marine Mammal Protection Act (MMPA):** Congress passed the MMPA in 1972, establishing a national policy to prevent marine mammal species from declining beyond the point where they ceased to be functioning elements of the ecosystems of which they are a part.[13] NOAA Fisheries, USFWS, and Marine Mammal Commission share responsibility for implementing the MMPA. NOAA Fisheries is responsible for the protection of whales, dolphins, porpoises, seals, and sea lions.

- **National Environmental Policy Act (NEPA):** Enacted in 1969, NEPA "requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their major proposed actions". NEPA provides the basis for "environmental impact statements", as well as the public and internal processes therein.[14] NOAA Fisheries produces these environmental impact statements and assessments when it undertakes a federal action and provides information for use in NEPA documents prepared by other federal agencies.

[12] U.S. National Marine Fisheries Service, *Laws & Policies: Endangered Species Act*. https://www.fisheries.noaa.gov/topic/laws-policies#endangered-species-act.
[13] U.S. National Marine Fisheries Service, *Laws & Policies: Marine Mammal Protection Act*. https://www.fisheries.noaa.gov/topic/laws-policies#marine-mammal-protection-act.
[14] U.S. National Marine Fisheries Service, *Laws & Policies: National Environmental Policy Act*. https://www.fisheries.noaa.gov/topic/laws-policies#national-environmental-policy-act.

2.2 Organizational Structure

This Section provides an overview of the NOAA Fisheries organization (as shown in Figure 1 below), including the number staff it employs, the role of HQ and regional units, and the function of Financial Management Centers (FMCs).



* *Financial Management Center*

Figure 1: NOAA Fisheries Organization Chart. Figure adapted by the National Academy of Public Administration. (Source: NOAA Fisheries).[15]

NOAA Fisheries employed 2,976 full-time equivalent (FTE) staff and approximately 1,300 contractors in fiscal year (FY) 2020.[16] Figure 1 above shows it is divided into three topical areas: Regulatory Programs (green fill), Science Programs (blue fill), and Operations (orange fill). Organizational units in each of the three areas report to the Director of Scientific Programs, Deputy Assistant Administrator for Regulatory Programs, and the Deputy Assistant Administrator for Operations, respectively. The organizational units shown above are centrally located at HQ in Silver Spring, Maryland, except for the eleven Regional Offices and Science Centers. The NOAA Fisheries Leadership Council (the Leadership Council) consists of the Assistant Administrator (AA), Deputy Assistant Administrators (DAAs), HQ program office Directors, and Regional Office and Science Center Directors.[17] The Leadership Council advises the

[15] U.S. National Marine Fisheries Service, *Organizational Chart*. https://media.fisheries.noaa.gov/dam-migration/noaa_fisheries_org_chart-july-2020.pdf.
[16] U.S. Department of Commerce, *FY2021 NOAA Congressional Budget Justification*. https://www.commerce.gov/files/fy-2021-noaa-congressional-budget-justification.
[17] This report uses the term Deputy Assistant Administrators to refer to the Deputy Assistant Administrator for Regulatory Programs, Director of Scientific Programs and Chief Science Advisor, and Deputy Assistant Administrator

AA on Agency policy, strategic planning, setting priorities, budget and governance initiatives, integration of science and management, and other high-level decisions.[18] As a group, the AA and DAAs prepare the first drafts of strategic plans, annual priorities, and budgets before they are shared with the full Leadership Council. For the purposes of this report, program refers to activities and organizational units which have a direct tie to mission (for example, fish survey activities), while mission support refers to those administrative functions, processes, and organizational units which support programs (for example, information technology, human resources, finances). The seven NOAA Fisheries HQ program offices are the Offices of:

- Aquaculture;
- Habitat Conservation;
- International Affairs and Seafood Inspection;
- Law Enforcement;
- Protected Resources;
- Science and Technology; and
- Sustainable Fisheries.

Headquarters Units and Financial Management Centers

NOAA Fisheries is a dispersed and decentralized organization. Even so, it implements some programs centrally, thus lending to significant complexity in managing its programs and mission support functions at the enterprise level. NOAA Fisheries implements programs through its seventeen FMCs. As indicated in Figure 1 above, six FMCs are located at HQ, while the remaining eleven are positioned at the regional level. FMCs are responsible for the day-to-day management and operations of their programs and mission support functions.[19] FMCs have discretion in how they plan for and operate projects and activities as they relate to the programmatic focus of the respective FMC, and in how they design their processes for tracking and administrating functions like overhead and facilities. They also play important roles in the annual federal budgeting process, particularly in executing the budget, as described in more detail in Section 2.3 of this Chapter.

In general, the HQ program offices promulgate regulations, advise NOAA Fisheries leadership on policy issues, provide programmatic guidance to regional and local organizational units, and in many cases spearhead programs in their respective mission areas. NOAA Fisheries' Office of Management and Budget (MB) at HQ is particularly important to highlight here for its role in supporting the Agency on budgetary and strategic matters. MB "lead[s] national budget processes,

for Operations collectively. The Director of Scientific Programs and Chief Science Advisor is on the same level in the organizational hierarchy as the other two Deputy Assistant Administrators, and is part of the Leadership Council.

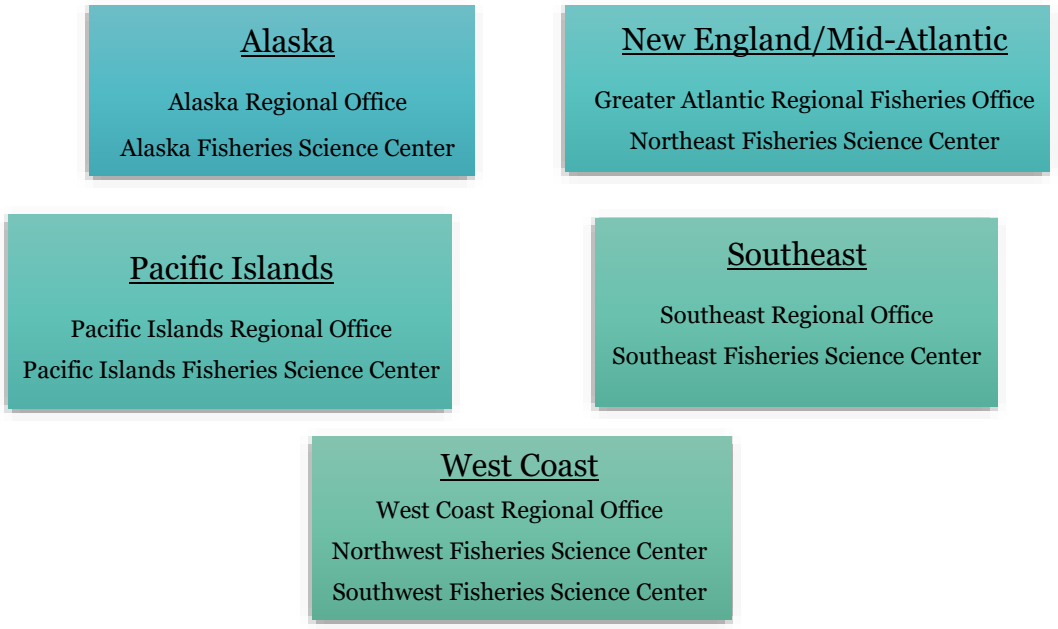
[18] U.S. National Marine Fisheries Service Office of Policy, *About Us*. https://www.fisheries.noaa.gov/about/office-policy.

[19] U.S. Government Accountability Office, *NOAA Needs to Better Document Policies and Procedures for Management and Administration Services*. https://www.gao.gov/assets/a315347.html.

including execution, development, formulation, and performance reporting for NOAA Fisheries."[20]

NOAA Fisheries Regions, Regional Offices, and Science Centers

As shown in Figure 2 below, NOAA Fisheries administers its programs through five regional offices and six science centers around the country. All eleven are classified as FMCs, in addition to the six HQ FMCs. The regional offices and science centers, as well as their field offices, work collaboratively in their geographic jurisdictions to implement NOAA Fisheries policies and programs. The science centers collect and provide data and scientific advice to fishery managers and regional offices within their respective region. They, in collaboration with their state government partners, conduct the fish surveys and stock assessments which form the basis of the ACLs submitted for approval to the Secretary of Commerce by Regional Fishery Management Councils (RFMCs) and NOAA Fisheries' regional offices. Section 2.4 discusses fish surveys and stock assessments in more detail.



**International Region not shown in the above.*

Figure 2: NOAA Fisheries Regions, Regional Offices and Science Centers. Figure created by the National Academy of Public Administration. (Source: NOAA Fisheries).[21]

2.3 Strategy and Budget

This Section describes NOAA Fisheries' strategic planning process, budget trends (shown in Figure 3, below), budget structure, and the mechanisms it uses to plan and implement the budget

[20] U.S. National Marine Fisheries Service, *About Office of Management and Budget*. https://www.fisheries.noaa.gov/about/office-management-budget.
[21] U.S. National Marine Fisheries Service, *Regions*. https://www.fisheries.noaa.gov/regions.

throughout the annual federal budgeting process to provide context for our analysis in later chapters of the report.

Strategic Planning

The NOAA Fisheries Strategic Plan for 2019-2022 has three Agency *strategic goals*:[22]

1. Amplify the economic value of commercial and recreational fisheries while ensuring their sustainability;
2. Conserve and recover protected species while supporting responsible fishing and resource development; and
3. Improve organizational excellence and regulatory efficiency.

NOAA Fisheries' *Strategic Goal 1* includes managing stocks for maximum sustainable yield, increasing marine aquaculture production, and adequately assessing fish stocks as well as maintaining information on currently assessed stocks. *Strategic Goal 2* involves working to stabilize priority protected species, reviewing permits and authorizations for energy development and national defense (offshore wind farms, for example), and minimizing bycatch and entanglement of protected species. In order to achieve *Strategic Goal 3*, NOAA Fisheries has articulated its intention to match its workforce to its mission needs, recapitalize its infrastructure and facilities, and institutionalize prioritization and performance management practices.

NOAA Fisheries creates four-year strategic plans to align with the terms and priorities of presidential administrations. The strategic goals are primarily derived from its statutory requirements and mission. The first drafts of NOAA Fisheries' strategic plans and priorities are developed by the AA and DAAs. Once these officials agree on their main positions, a draft strategic plan is sent to the Directors of the program offices at HQ, who have the opportunity to fill any gaps in topics covered or provide their vision for alternative strategies. Following this step, a revised draft is sent to the entire Leadership Council – which includes the FMCs – and the RFMCs for their feedback. NOAA Fisheries has placed greater emphasis on receiving feedback and comments from program and field offices in the ongoing development of its next Strategic Plan. Once the strategic plan is approved by the Leadership Council, it is disseminated to the regions for development of regional plans congruent with national themes and priorities. To promote such alignment with the agency-level strategic plan and priorities, the science centers and regional offices collaborate to develop five four-year regional strategic plans, as well as annual operating plans. NOAA Fisheries HQ also identifies annual corporate priorities in its Fisheries Priorities and Annual Guidance to provide direction across the country in meeting its three strategic goals, as well as to detail planned accomplishments for a given year.[23]

[22] U.S. National Marine Fisheries Service, *Strategic Plan 2019-2022*. https://media.fisheries.noaa.gov/dam-migration/noaa_strategicplan_2019_singlesv5.pdf.
[23] U.S. National Marine Fisheries Service, *Priorities and Annual Guidance 2021*. https://media.fisheries.noaa.gov/2020-12/NOAAPrioritiesReport2021Final_508.pdf.

Budget Trends

As shown in Figure 3 below, NOAA Fisheries' budget for FY2021 was $954,985,000.[24] Its budget has remained relatively flat in nominal terms since the amount of $845,238,000 was approved in FY2011. Adjusting for inflation, the FY2011 amount would constitute $1,003,978,000 in buying power in January 2021.[25] NOAA Fisheries' budget has decreased in real terms over the last ten years by nearly 16 percent – even as the scope and complexity of its responsibilities has expanded in new and existing areas, such as aquaculture and in monitoring the migration of its managed species due to climate change.[26]

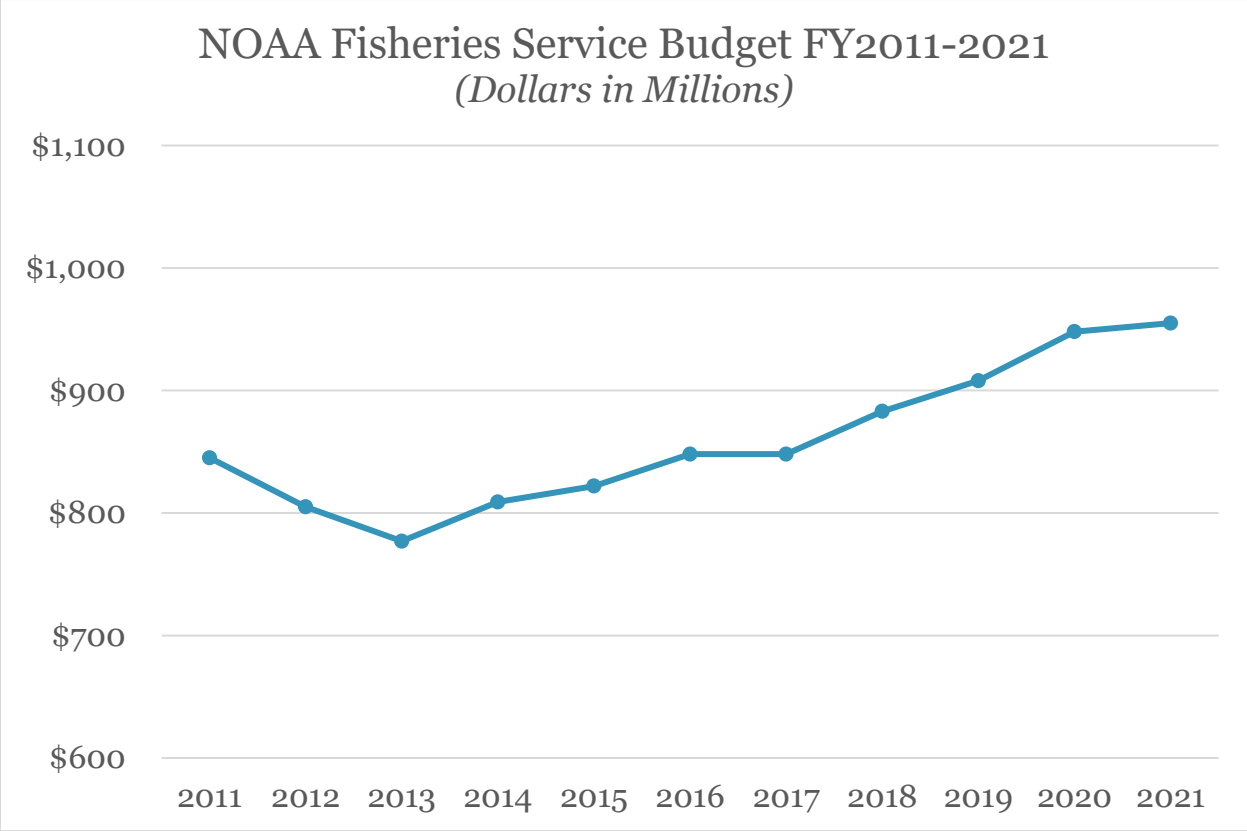


Figure 3: NOAA Fisheries Budget (Fiscal Years 2011-2021). Figure created by the National Academy of Public Administration. (Source: National Oceanic and Atmospheric Administration; Senate and House Appropriations Committees).[27]

[24] Note: This report refers to the enacted amounts (FY2015 and FY2018) and spend plans (FY2011-2014, FY2016-2017, and FY2019-2021) under NOAA Fisheries' Operations, Research, and Facilities account as the Agency's budget. These figures are based on data provided to the Academy by NOAA Fisheries on July 27, 2021.; Congressional Record, *Joint Explanatory Statement*. https://www.appropriations.senate.gov/download/fy21-explanatory-statement-division-b.; U.S. Department of Commerce, *FY2021 NOAA Congressional Budget Justification*. https://www.commerce.gov/files/fy-2021-noaa-congressional-budget-justification.
[25] U.S. Bureau of Labor Statistics, *CPI Inflation Calculator*. https://www.bls.gov/data/inflation_calculator.htm.
[26] U.S. National Marine Fisheries Service, *Understanding Our Changing Climate*. https://www.fisheries.noaa.gov/insight/understanding-our-changing-climate
[27] U.S. National Oceanic and Atmospheric Administration, *Budget and Reports*. https://www.noaa.gov/organization/budget-finance-performance/budget-and-reports.; U.S. National Oceanic and

Budget Structure

As shown in Table 1 below, NOAA's discretionary appropriations are broken up into two broad accounts: Operations, Research, and Facilities (ORF) and Procurement, Acquisitions, and Construction (PAC).[28] This structure largely dictates how NOAA Fisheries can fund mission support activities such as the construction and maintenance of buildings and facilities, as well as administrative overhead expenses like salaries. NOAA and its line offices use their ORF accounts for administration of their programs and for facilities maintenance. NOAA is appropriated PAC funding for HQ facilities construction, acquisition, modification, and alteration at the bureau level, as are most other NOAA line offices for their facilities not limited to HQ. NOAA's PAC funds are also used for the maintenance, operation, and hire of aircraft and vessels, as well as satellite procurement.

NOAA Fisheries is generally not appropriated PAC funds. Virtually all of its appropriations come through its ORF account. The ORF is, in effect, a single account through which to distribute funding among both program and mission support activities. NOAA Fisheries funds facilities and administrative overhead expenses, such as salaries for both program and mission support staff, by levying a percentage-based assessment on all of its budget lines in the ORF category on both its base budget and on appropriations increases for special purposes. At the bureau-level, NOAA draws the same type of assessment from each of its line offices to fund HQ facilities and administrative overhead expenses. Line offices also take their own assessment on programs for facilities maintenance and administrative overhead expenses.

While Table 1 shows that NOAA Fisheries' counterpart line offices do receive PAC funding, it should be noted that most of that PAC funding is for aircraft, vessels, satellites, and other tools or technological capabilities. Gradually, NOAA is moving toward an approach that would standardize and centralize its process for investing in buildings and facilities at the bureau-level. With this approach, NOAA seeks to promote greater strategic alignment and to better justify its requests for facilities resources across the bureau. As one part of the effort, the NOAA Facilities Council (NFC) is developing a bureau-level Facility Capital Investment Plan (FCIP) for FY2023-2027 in collaboration with its line offices, DOC, OMB, and congressional stakeholders.

Atmospheric Administration, *Budget Archive*. https://www.noaa.gov/organization/budget%2C-finance-performance/budget-archive.; Congressional Record, *Joint Explanatory Statement*. https://www.appropriations.senate.gov/download/fy21-explanatory-statement-division-b.

[28] Congressional Research Service, NOAA FY2020 Budget Request and Appropriations. https://crsreports.congress.gov/product/pdf/IF/IF11185.; Congressional Research Service, NOAA FY2021 Budget Request and Appropriations. https://www.everycrsreport.com/files/2020-04-24_IF11518_99093aa3995389a50286be855d886dad5f0a6c24.pdf.; Congressional Record, *Joint Explanatory Statement*. https://www.appropriations.senate.gov/download/fy21-explanatory-statement-division-b.

	NMFS	NESDIS	NOS	NWS	OAR	OMAO
ORF	$964,862,000	$291,533,000	$619,700,000	$1,100,776,000	$570,590,000	$253,665,000
PAC	$0	$1,226,924,000	$8,500,000	$103,634,000	$43,500,000	$120,000,000

Table 1: NOAA FY2021 Enacted Appropriations to Discretionary ORF and PAC Accounts. Table created by the National Academy of Public Administration. (Source: Senate and House Appropriations Committees).[29]

In the ORF category, NOAA Fisheries structure is defined by its budget lines, or Program, Project, or Activity (PPA) accounts. The PPAs are the accounts which receive congressionally appropriated funds. As shown in Figure 4 below, PPAs are divided into sets of tiers, each with a greater degree of specificity, down to the activity level. The tiers are: four Major Enterprises, 14 Summary PPAs, 64 Detail PPAs.[30]

Figure 4: NOAA Fisheries Budget Structure to Summary-Level PPA. (Source: NOAA Fisheries).[31]

Generally, congressional appropriations committees allocate funds down to the Summary PPA level. Once congressional direction is received, NOAA Fisheries leadership then allocates funding

[29] Congressional Record, *Joint Explanatory Statement*. https://www.appropriations.senate.gov/download/fy21-explanatory-statement-division-b.
Note: Discretionary Appropriations to NOAA Fisheries' ORF account in FY2020 amounted to $964,862,000, compared to the Agency's total budget of $992,288,000. The difference is accounted for by mandatory spending generally governed by statutory criteria.
[30] Note: Detail-level PPAs are not shown in Figure 4.
[31] Briefing for the National Academy of Public Administration on October 30, 2020.

in the prescribed amounts in each activity area to the FMCs. While it has begun to implement processes to allocate these funds toward strategic priorities, NOAA Fisheries flexibility is limited by a combination of statutory requirements, the historical precedence of past budget allocation decisions among its various components, and funding appropriated for special purposes. To provide NOAA Fisheries with greater flexibility, OMB worked with the Agency to consolidate the number of Detail PPAs from 104 down to 64 in 2013 (see Appendix C for a list of Detail PPAs). However, NOAA Fisheries still appears to have a greater amount of congressional direction than other NOAA line offices, as measured by a review of the previous three Fiscal Years of Senate and House appropriations committee report language and in the Joint Explanatory Statement (JES) documents prepared by both chambers.

In many instances, congressional direction informs decisions on resources beyond the Summary PPA Level, down to the Detail PPA Level. NOAA Fisheries uses congressional direction to structure its Detail PPA budget lines. As an example, the Detail PPA "Right Whale Activities (ESA)" in FY2021 is helpful to illustrate the step-by-step process by which funding moves through appropriations to the Detail PPA Level. The Consolidated Appropriations Act, 2021, provides FY2021 appropriations for NOAA's ORF and PAC accounts.[32] NOAA's ORF account is used to administer its programs and fund facility maintenance. NOAA's PAC account is used to fund its HQ facility acquisition and construction, including alteration and modification. The Senate and House appropriations committee reports, as well as the JES, provide details on appropriations for NOAA Fisheries.[33] In FY2021, NOAA Fisheries is appropriated $964,862,000 and $0 for its ORF and PAC accounts, respectively. Within the NOAA Fisheries ORF account, $205,664,000 is appropriated for the Major Enterprise "Protected Resources and Science Management" shown in Figure 4, above. Within that category, $125,165,000 is allocated to the Summary PPA "Marine Mammals, Sea Turtles, and Other Species." In the written notes of the FY2021 JES, congressional appropriators provide direction beyond the Summary PPA Level. For example, the agreement provides an additional $2,000,000 above the FY2020 level for North Atlantic Right Whale research and conservation. This note corresponds to NOAA Fisheries' Detail PPA "Right Whale Activities (ESA)."

NOAA Fisheries cannot transfer funding between Major Enterprises or Summary PPAs without a reprogramming request to Congress. It could potentially move resources between Detail PPAs, but even that discretion is limited because congressional direction shapes, and often controls, funding at the Detail PPA Level. For example, the JES for FY2021 contained 32 congressional directives through various provisions of report language.[34] NOAA Fisheries' internal database contained 68 directives in FY2021.

Annual Budget Process

After NOAA Fisheries HQ, with consultation from the FMCs, develops annual priorities and formulates its budget requests for the coming fiscal year, the Agency sends them through NOAA

[32] 116th U.S. Congress, *Consolidated Appropriations Act, 2021*. https://www.congress.gov/bill/116th-congress/house-bill/133/text.
[33] Congressional Record, *Joint Explanatory Statement*. https://www.appropriations.senate.gov/download/fy21-explanatory-statement-division-b.
[34] In addition to report language in the Senate, House, and Conference reports, NOAA Fisheries also closely tracks expressions of congressional interest, as gathered from correspondence and agency-member interactions.

HQ and DOC to OMB. While this section of the report focuses on NOAA Fisheries' annual budget process, it is important to note that NOAA Fisheries also works with NOAA HQ, DOC leaders, as well as OMB on developing priorities for two fiscal years into the future. The organizations involved then iterate NOAA Fisheries' annual direction to bring it into alignment with the priorities of the sitting presidential administration.

NOAA Fisheries has devised a relatively nascent process called Strategic Resource Management (SRM) to identify more efficient ways for HQ leaders to allocate funding toward priority areas across the organization. The Agency also uses SRM to collect and share data with FMCs at certain points of the annual strategic planning and budget processes to inform them of the opportunity costs involved in moving resources from one priority area to another. At this stage of maturity, SRM is used to look back on how NOAA Fisheries has spent its funding, which helps it to identify annual priorities at the agency level. After the President's Budget is released and while the appropriations bill is being drafted, NOAA Fisheries works through NOAA and DOC on fund apportionment (when dollars can be used) and allocation (where dollars are directed). This process is discussed further in Section 2.5.

As part of SRM, FMCs develop Activity Plan Prioritizations (APPs), which identify and rank their planned activities, as well as assign planned costs to each PPA. APPs include a list of both funded and unfunded activities. The APP activity rankings are based on five broad criteria discussed and agreed upon by the NMFS Leadership Council and regionally specific scoring measures:

1. Mission requirement;
2. Substitutability;
3. Strategic alignment;
4. Return on investment and risk if not funded; and
5. Capacity to successfully execute to scale.

After the APP's are complete, the Agency utilizes a process called Base Resource Review (BRR) to identify unfunded activities, emerging requirements, or program-wide issues, and evaluate options to address, including but not limited to allocation adjustments within base funding, prioritization of use with carryover funds, as well as potential to include in future budget formulation. Two major governance boards oversee the activity: the Regulatory Board and the Science Board. The board chairs for each are the DAA for Regulatory Programs and the Director of Scientific Programs and Chief Science Adviser, respectively. During this time, the governance boards will identify carryover funds (if any), and other resources it is authorized to redirect. Once the boards come to decisions on how funding can be allocated differently, the entire Leadership Council at NOAA Fisheries is able to offer its input. While the Agency's strategic processes focus on issues one and two years in advance, BRR is its venue for discussing more emergent needs for the coming fiscal year.

Once the appropriations are signed into law, the Agency uses the President's priorities, congressional intent, and its own annual priorities to develop an annual operating plan. MB then issues a budget allocation decision memo to notify the FMCs on how the appropriations will be

distributed and detail the considerations that led to those decisions. Next, the FMCs generate spend plans detailing the amounts they plan to spend in each month by object class codes such as labor, supplies, equipment, and travel.

During the budget execution phase, HQ and the FMCs track how their spending of allocations match their operations and spend plans. HQ maintains a dialogue with FMCs on questions related to variance, as well as performance and risk assessment. Operations, Management, and Information Chiefs (OMIs) are responsible for the administrative and operations management for their respective FMCs. OMIs work directly with the NOAA Fisheries MB Chief Financial Officer (CFO) and support the Deputy Assistant Director for Regulatory Programs and the Director of Scientific Programs and Chief Science Advisor with high level information on budget requirements and implementation.

NOAA Fisheries manages and collects performance data in a manner consistent with the Government Performance and Results Modernization Act of 2010 (GPRAMA). The GPRAMA reporting requirements are based on categories identified through strategic planning and other processes. Agencies develop performance measures and targets specified in performance plans which relate to those categories identified in their strategic plans.[35] While GPRAMA does not dictate the specific metrics agencies should measure and use to inform performance improvement, it provides the framework and process by which they should identify, develop, and select those metrics. For example, NOAA Fisheries monitors overfishing in its managed fisheries and uses performance metrics to determine whether ACLs are set to the maximum sustainable yield in those fisheries. For over ten years, NOAA Fisheries has developed metrics for, and tracked, a specific subset of the fish stocks that are of particular economic importance to the country through the Fish Stock Sustainability Index (FSSI). See Section 2.4 and Appendix D for more information on FSSI.

At the end of the fiscal year, NOAA Fisheries closes out that year's accounting and identifies unspent funds to carry over to the next fiscal year. It then prepares its end of the year performance report for its leadership and analyzes its spending trends across program areas. NOAA Fisheries produces the end of the year performance report to capture progress on priorities and key performance indicators. NOAA Fisheries' annual budget planning process begins in January of each calendar year with the drafting of annual corporate priorities for the coming fiscal year.

2.4 Fish Surveys and Stock Assessments

Overview

Fish surveys and stock assessments for use in the management process are considered by NOAA Fisheries, Congress, and other external stakeholders to be among the most important outputs of NOAA Fisheries. Its science centers conduct fish surveys using numerous platforms (e.g., ships, aircraft, unmanned systems, and other advanced technologies), and the data collected by these surveys are processed to provide indicators of changes in the number of fish in a given stock. These abundance trends are integrated with other data sources (e.g., fishery catch and effort,

35 111th U.S. Congress, *Government Performance and Results Modernization Act of 2010*. https://www.congress.gov/111/plaws/publ352/PLAW-111publ352.pdf.

biological data, and occasionally ecosystem and economic data) to be analyzed using mathematical stock assessment models to determine the approximate number of fish in a given stock and support the implementation of sustainable annual catch limits (ACLs). NOAA Fisheries provides the results of stock assessments to the regional Fishery Management Councils and then works with the Councils to evaluate the status of fish stocks and subsequently set ACLs.[36] An ACL is the largest number of fish that commercial and recreational fisheries can sustainably harvest from a stock in one year, taking into account management and scientific uncertainty. The ACL attempts to allow the maximum number of fish caught while preventing overfishing. The ACL is of utmost importance to commercial and recreational fishers, as it determines the quantity of fish they can harvest. Additionally, stock assessments provide results necessary to inform other management decisions, such as the development of rebuilding plans for stocks considered to be overfished, as well as information to other external stakeholders who have vested interests in the fish stock.

NOAA Fisheries uses stock assessments to monitor the condition of nearly 500 fish stocks and stock complexes (groups of similar stocks managed together). Stock assessments are a scientific effort that involves data collection, data processing, and mathematical modeling to:

- estimate the health and size of a fish stock;
- measure how fishing affects the stock; and
- project harvest levels that achieve the largest sustainable long-term yield.

NOAA Fisheries does not assess all stocks every year due to a variety of factors. Within each region, NOAA Fisheries works with its management partners (Councils and others) to prioritize stock assessments based on the regional processes for scheduling, reviewing, and using stock assessment results in management. Examples of considerations commonly used in the regional processes include:

- the available data;
- the complexity of available data;
- the duration of time since a previous assessment;
- the structure and diversity of local fisheries;
- its available resources; and
- economic importance and political pressures.

Generally, stocks with higher levels of commercial, recreational, or ecological value (FSSI stocks) are prioritized for more frequent and more comprehensive assessments; however, NOAA Fisheries conducts stock assessments of all stocks (including non-FSSI stocks) in order to provide the necessary management advice for them. For further information on the FSSI process, please refer to Appendix D.

Stock Assessment Types

Stock assessments are done with the intention of providing an accurate depiction of stock status and the information needed to set catch limits that optimize the sustainable harvest of a species by balancing commercial and recreational fishing opportunities while preventing overfishing. The

[36] NOAA Fisheries also provides stock assessment results to numerous non-federal fishery management organizations, including state, interstate, and international partners. In these cases, management decisions are made in accordance with the organization's mandates and processes.

cost involved in the stock assessment process and the product created by it vary around the United States. Because stock assessments are major scientific efforts, some regions conduct intermediate analyses that update ACLs in-between full assessments. This creates two distinct categories of stock assessment activities, operational stock assessments and stock monitoring updates:

1. **Operational Stock Assessments** – Analyses conducted to provide scientific advice to fishery managers. These are NMFS' principal assessment-related activities and include efforts to create new assessment models and efforts that update existing models with the most recent data. At minimum, operational stock assessments make ACL recommendations. Those with more complex models also inform decisions related to stock status.
2. **Stock Monitoring Updates** – Activities that provide stock management advice to fishery managers between operational stock assessments. These analyses involve re-running the latest model (completed during an operational stock assessment) and/or forecast with updated catch information to develop new catch advice.

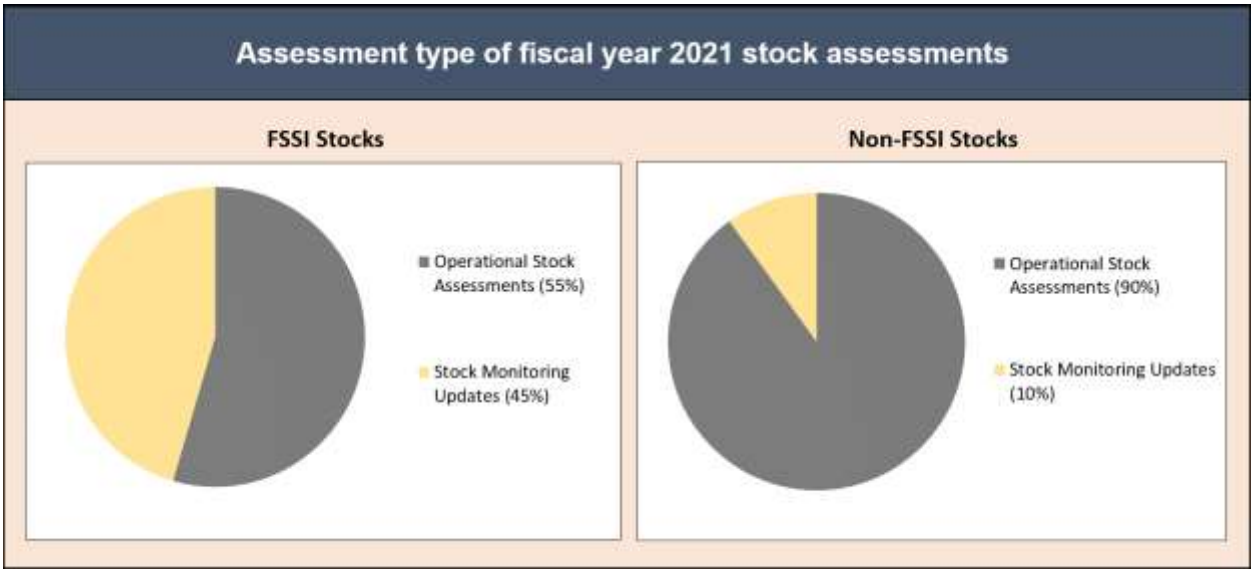


Figure 5: Stock Assessment Types. (Source: NOAA Fisheries).[37]

Fisheries Data Collection

NOAA Fisheries' fish surveys are the primary method used to collect data on the number of fish in a given stock. These surveys, conducted aboard NOAA ships, chartered vessels, with remote technology, or by collaborative partners (i.e. research universities or state governments), follow a statistical sampling design that estimates a stock's abundance. During a survey, scientists also collect biological and ecosystem data necessary for ecosystem-based fisheries management. These surveys are the essential inputs for NMFS to prepare its regulations for each species.

Scientific data collection and stock assessments are of utmost concern to NOAA Fisheries' primary stakeholders, including Congress, the commercial fishing industry, the recreational fishing

[37] U.S. National Marine Fisheries Service, *Fish Stock Assessments Report*. https://www.fisheries.noaa.gov/national/population-assessments/fish-stock-assessment-report

industry, and other nongovernmental groups. Commercial and recreational fishers depend on fish surveys and stock assessments to determine their annual harvest from the ocean.

Figure 6, listed below, shows the status of NOAA Fisheries' stock assessments over the past ten years. The purpose of this visual is to illustrate how many FSSI stock assessments are completed in a given year compared with the stocks that have been adequately assessed in that year. The figure does not include statistics for non-FSSI stocks.

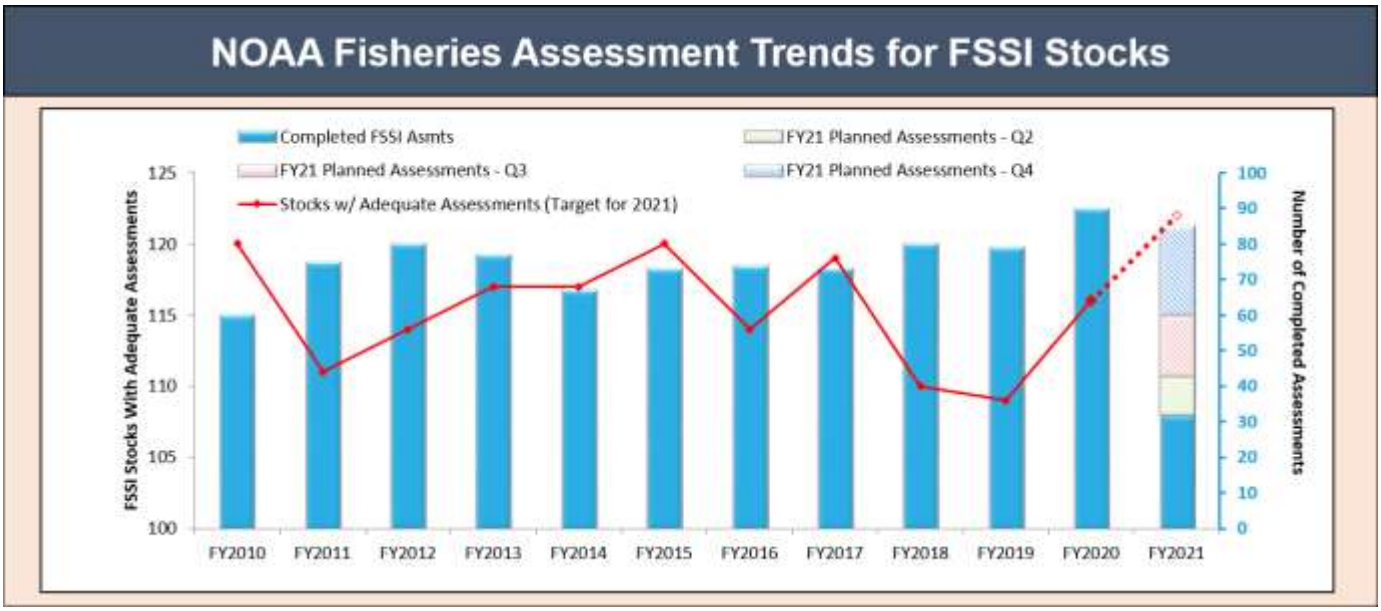


Figure 6: Assessment Trends for FSSI Stocks (Source: NOAA Fisheries).[38]

2.5 Transparency and Communications

Congressional Communications

Effective Agency engagement with congressional appropriators and its authorizing committees (House Committee on Science, Space, and Technology, and Senate Commerce, Science, and Transportation) is a vital part of the budget process. As one of six line offices within NOAA, the Agency's Office of Management and Budget (NMFS-MB) closely collaborates with NOAA's Office of Management and Budget (NOAA-MB) to finalize a budget proposal. NOAA, with support from NOAA Fisheries, works closely with the White House Office of Management and Budget (OMB) to prepare the portion of the President's budget proposal allocated to the Agency. This proposal is considered by appropriators as they draft their annual appropriations bill.

An essential part of the budget-related engagement that all agencies have with Congress is preparation and submission of the Congressional Budget Justification (CBJ). As part of NOAA, the NMFS budget request is captured within the NOAA Congressional Budget Justification. The

[38] U.S. National Marine Fisheries Service, *Fish Stock Assessments Report*. https://www.fisheries.noaa.gov/national/population-assessments/fish-stock-assessment-report

NOAA document for FY2021 was 1,034 pages long and covered all NOAA line offices.[39] The CBJ elaborates on the president's budget request by documenting financial analysis and program information vital to congressional understanding and consideration of agency budget requests. It is often briefed in some detail with congressional committee staffers to assist them in budget formulation.

After the CBJ is delivered to Congress, NOAA Fisheries leaders, program managers, and legislative liaisons provide briefings and answer questions on specific programs and activities covered in the request. The Senate and the House separately consider the NOAA Fisheries budget request, holding hearings, then marking up and passing separate appropriations bills. The two bodies reconcile differences through an annual Conference that produces a final bill accompanied by a detailed JES developed in consultation between authorizers and appropriators in both the House and Senate. Crafted and issued annually by appropriators, the JES offers important insights into how appropriators wish to direct NOAA Fisheries with respect to various agency activities. The JES not only allows insight into which priority topics are important to the congressional appropriators and authorizers, but also provides the Agency with directives that the appropriators intend for the Agency to follow.

Topics presented in the JES also highlight concerns and priorities of external stakeholders. In the case of NOAA Fisheries, congressional members and staff regularly receive briefings and appeals from a variety of sources connected with the Agency's work. These groups may include commercial and recreational fishers, scientists and researchers, associations and organizations with interests in the marine environment, indigenous groups, and international governments.

A review of JES documents connected with NMFS for the past three years - FYs 2019, 2020, and 2021 – reveals that appropriators have a wide variety of explicit focuses from a program perspective. These include, but are not limited to, such topics as fish surveys, fish monitoring, research grants, data collection, and restoration of facilities. With respect to more granular operational issues, the JES also gives direction on Agency spending on facilities, scientific research, ship maintenance, and particular species monitoring and protection. For example, during FY 2019, there were 16 different topics addressed in the JES. In FY 2020, there were nine, and in FY 2021, 32 separate topics were addressed in the JES. While the large number of directives put by appropriators to the Agency suggests a desire to guide the Agency's actions, it can also have the effect of constraining Agency flexibility in addressing its mission.

It is notable that the FY 2020 JES contained the following language: "*NMFS Quarterly Briefings*.—In lieu of House report language regarding quarterly updates on red snapper, the agreement directs NMFS to provide quarterly briefings on relevant operational, regulatory, and policy matters."[40] This is a clear indication of a desire by congressional appropriations staff to be kept regularly updated with respect to important matters, to include operational, regulatory, and policy matters. NMFS took requisite action in response.

39 U.S. Department of Commerce, *FY2021 NOAA Congressional Budget Justification*. https://www.commerce.gov/files/fy-2021-noaa-congressional-budget-justification.
40 Congressional Record, *Joint Explanatory Statement*. https://www.govinfo.gov/content/pkg/CREC-2019-12-17/pdf/CREC-2019-12-17-house-bk3.pdf.

NMFS MB leaders meet periodically with congressional committee staff members to review important developments and receive questions. In the annual appropriations bill, appropriators provide allocations based on the existing PPA structure. NOAA Fisheries leaders, in turn, distribute funds internally based on a formula that is deemed largely opaque by appropriators, causing them to be concerned about whether funds are being used as intended to support of regional needs. Appropriators express concerns that PPAs do not map well to NMFS programs; nor is there clear line of sight into how funds are allocated to the various regions.

Separate from issues connected with PPAs, the concerns articulated by appropriators are exacerbated by their view that NOAA Fisheries' leadership engagement with congressional stakeholders has declined over the past four to five years. In the past, in their view, there was more direct and robust engagement between NOAA Fisheries financial leaders and appropriators. NOAA Fisheries is deemed to have the greatest challenges in its engagement with appropriators of any NOAA line office. Agency leaders agree that, several years ago, there was more direct and frequent congressional communication. Recently, more approval layers and policies governing congressional engagement have been added at the Department and NOAA levels, changing the nature of Hill communications. Finally, the frequency of circling back to appropriators to advise them of changes in allocations arising during the year fell short of expectations and is of lower quality than that provided by other agencies. The resulting decline in communication frequency, clarity, and transparency has, in part, led to the work of this report.

There appears to be an opportunity for NMFS-Senior Leaders and Program Managers to enhance their future engagement with congressional staff with respect to the budget. The congressional request for this report issued by appropriators suggests that more effective communication between NOAA with Congress is needed.

Internal Communications

Agency leadership determination of allocations for the various regional offices and science centers, which implement the Agency mission with support from the NOAA Fisheries program offices, is a critical component of NOAA Fisheries budget execution. In order to communicate allocation decisions to the regional offices and science centers, the NOAA Fisheries' CFO delivers an Allocation Decision Memo and Carryover Funding Decision Memo with approval from Agency leadership.

The Allocation Decision Memo's purpose is to document the allocation of the given FY's budget, including increases provided in the appropriations and within-base adjustments for the NOAA Fisheries' priorities and emerging needs. The allocations are derived from analysis of appropriations legislation and reports of the House and Senate Appropriations Committees, as well as an evaluation of historical funding, with the intention to most efficiently allocate congressional intent.

The Carryover Decision Memo's purpose is to request NOAA Fisheries' approval of recommended distributions of the previous FY's carryover to address the current FY's BRR proposals and

emerging requirements.[41] The Regulation and Science Boards review proposals brought up through the BRR process, and the boards subsequently select the proposals appropriate for prioritization for funding from carryover. In FY 2021, for example, the Regulation and Science Boards reviewed 41 proposals for consideration through the BRR process, and the boards determined that 11 of those proposals would be prioritized for carryover funding. The Carryover Decision Memo is the mechanism used to communicate these decisions to the regional offices and science centers.

The Allocation Decision Memos and the Carryover Decision Memos are the primary mechanisms NOAA Fisheries leadership use to communicate their budgetary decisions to the various FMCs. The FMCs have the opportunity to be involved in these decisions by submitting their BRR for consideration to be funded. However, NOAA Fisheries leadership makes these decisions with little internal communication prior to issuing the two memos every year. FMC representatives expressed little clarity into why leadership chose to fund some projects over others.

External Communications

Stock assessments and fish surveys are at the forefront of services that NOAA Fisheries provides to the Nation and the world. As noted in 2.5 above, its science centers collect data and analyze the data to produce stock assessments for their partner headquarters and regional offices as well as RFMCs and other nonfederal management partners). The RFMCs and regional offices subsequently use the stock assessments to help determine ACLs, which are of utmost importance to commercial and recreational fishers, as they determine how many fish can be harvested from the ocean in a given year.

The Agency partners with RFMCs to communicate the scientific data collected and determine fishery management measures. RFMCs are quasi-governmental bodies made up of NOAA Fishery personnel, commercial fishers, recreational fisherman, state fishery personnel, local fishery personnel, and other external stakeholders who have vested resources in fishery management within their region. There are eight RFMCs located in the following regions:

- New England
- South Atlantic
- Gulf of Mexico
- Western Pacific
- Mid-Atlantic
- Caribbean
- Pacific
- North Pacific

The eight RFMCs are fundamental partners in U.S. fisheries management, and are responsible for developing the management measure recommendations for the fisheries in their region. RFMC meetings are critical to the science-based process that results in the development of management

[41] At the close of FY 2020, NMFS had approximately $59.0 million in unobligated funds from Operations, Research and Facilities (ORF). These funds were carried over into FY 2021 for obligation. Of the $59.0 million in total carryover, approximately $7.6 million was specific to the United States-Mexico-Canada Agreement (USCMA) supplemental; $0.9 million for reprogrammed funds in Marine Mammals, leaving approximately $44.1 million for Regional Offices, Science Centers and HQ Program Offices; and $6.4 million in Headquarters Administrative functions (OAA, Reserve, MB, and Common Services) available for carryover review and prioritization.

measures for U.S. fisheries. RFMC meetings are open to the public and are led by a Council chair who is a member of the Councils and elected by the members of the RFMC.

In addition to the stock assessments, fish surveys, and fishery management measures discussed at the RFMC meetings, NOAA Fisheries will also present their planned stock assessments and fish surveys for the coming year. These are of vital importance to external stakeholders for a multitude of reasons. In order to provide the best scientific advice to fishery managers, data collection and assessment frequency should be optimized in accordance with a fish stock's life history and population dynamics, as well as the needs and objectives of fishery managers (with input from stakeholders). When this is done, ACLs can be established using more accurate information, and therefore, management and scientific uncertainty is reduced, or at least better characterized. On the other hand, when management and scientific uncertainty are high, often due to a lack of data collection, the resultant management advice may need to be treated with an added degree of caution to ensure overfishing does not occur for the stock. For instance, a fish stock that has limited or less frequent surveys and assessments is generally treated with this added degree of caution, which may result in a reduction of ACLs. Annual funding influences whether or not the desired frequency of any given survey or stock assessment is maintainable. Hence, the updates on whether stock assessments or fish surveys will be completed during that year are of utmost interest to RFMC participants, as livelihoods will be affected.

2.6 Conclusion

This chapter provides insights into how NOAA Fisheries prepares, implements, and communicates its budget. Based on this review, the Panel concludes that there are several opportunities to enhance transparency, mission-specific planning, and NOAA-level partnership in the Agency's budget preparation process. Key budget process and communication themes addressed in this chapter serve as launch points addressed in the next chapter, where effective practices are outlined using benchmark science agencies and other sources. These discussions lead to recommendations for NOAA Fisheries in Chapter 4.

Chapter 3: Effective Federal Practices

This chapter provides insights into best practices in budget preparation and processing drawn from the literature and detailed interviews with seven federal science agencies. Building on background information on the NOAA Fisheries budget planning cycle, the chapter focuses on several important elements in budgeting that give rise to the recommendations in this report.

3.1 Budget Planning Cycle

Figure 7 below depicts the model annual federal budget process as it relates to the responsibilities of federal departments and agencies. The cycle starts with strategic planning, and concludes with evaluating results. This model practice serves to set the context for the benchmarking data, effective practices, and recommendations issued in this report. Chapter 2 described NOAA Fisheries' current strategic planning and annual budgeting processes, while Figure 7 represents a model practice connected to the effective practices and recommendations in Chapters 3 and 4. The effective practices and recommendations contained in these chapters are included to enhance NOAA Fisheries' current processes, thereby aligning them more closely to the model.

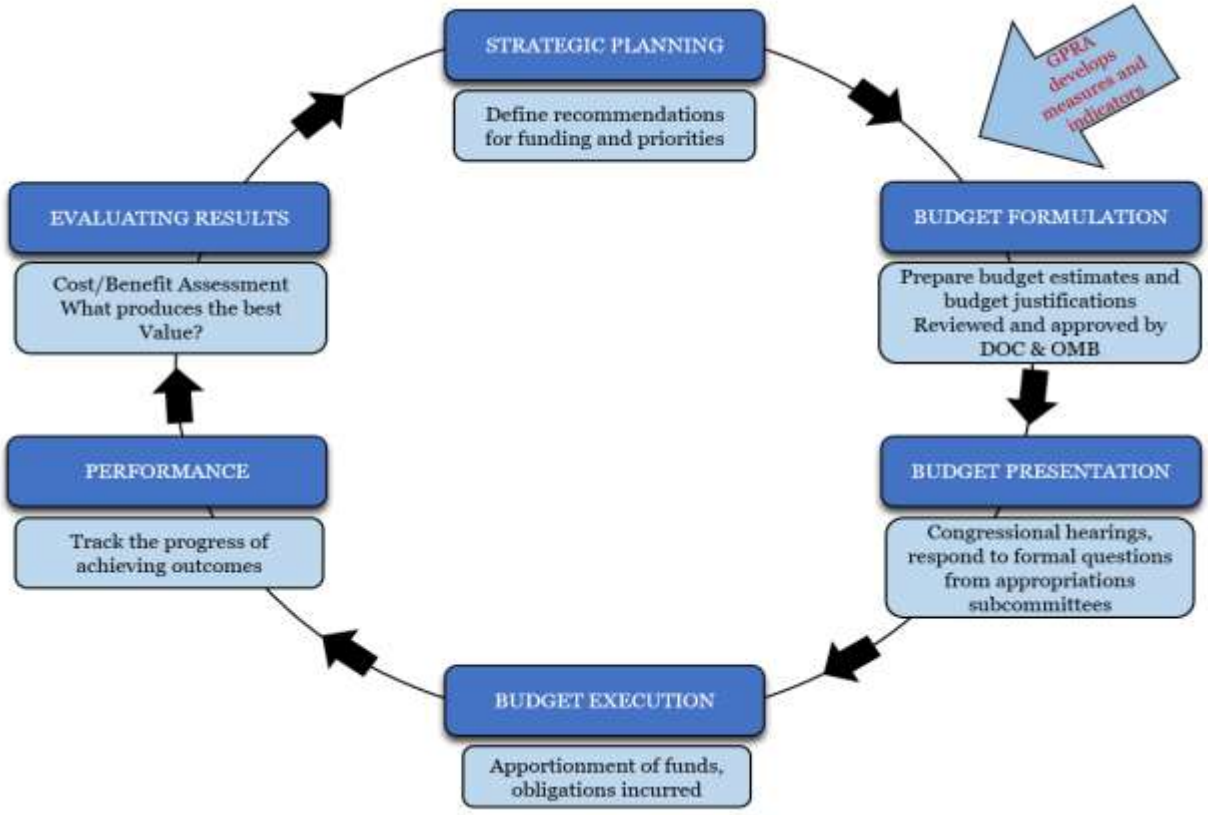


Figure 7: The Federal Budget Process. Figure adapted by the National Academy of Public Administration. (Source: U.S. Centers for Disease Control).[42]

[42] U.S. Centers for Disease Control and Prevention, *Financial Management Course*. https://www.cdc.gov/publichealthgateway/grantsfunding/docs/basics_of_federal_budget_and_financial_mgmt_508.pdf.

The federal government's fiscal year runs from October 1 of one year to September 30 of the next. Under the Government Performance and Results Act of 1993 (GPRA), federal departments and agencies prepare strategic plans and strategic priorities.[43] GPRA's successor, GPRAMA, requires agencies to align the timing of that process to better account for changing presidential administrations.[44] Strategic plans also inform the annual priorities of departments and agencies, to which appropriations are to be directed as reflected in the President's budget. During formulation of that budget, agencies work with OMB to establish their resource requirements for the coming fiscal year.[45] Once the request is approved by OMB, the President submits the budget proposal to Congress. During budget presentation, department and agency leaders attend congressional hearings to respond formally to questions of the appropriation subcommittees. The House and Senate analyze the President's budget proposal and draft a resolution on overall spending levels. Appropriations committees from both chambers draft appropriations bills setting the funding for each agency, consistent with allocations made in the budget resolution and by the appropriations committee in each house to its subcommittees.

After the appropriations bills are enacted, the agencies allocate the appropriations among their respective organizational units. In the budget execution phase, agencies implement their planned budgets, and monitor actual costs for comparison with that plan during the budget year. After execution, agencies compile performance data to track progress on the outcomes of activities specified in their strategic plans and annual priorities. These data are reported annually to the public. They are also used by Agency leaders and Congress to evaluate the results of the agencies' programs and identify process inefficiencies and gaps. From this analysis, agencies adjust their strategic plans, and address the identified shortcomings in planning for the next fiscal year.

In reading the best practices and recommendations offered by this report, it is important to conceptualize them as integrated parts of the continuous budget and strategic planning processes. Each plays a role in phases of the federal budget cycle. For example, the best practices and recommendations related to functional planning and facilities have important uses in budget formulation, presentation, and execution, as explained later in this Chapter. By comparing the model annual federal budget cycle and best practices to NOAA Fisheries' process, it is possible to identify gaps between the Agency's current state and desired states. The recommendations that follow this analysis are aimed at bringing NOAA Fisheries in line with effective practices and the model annual federal budget cycle.

3.2 Strategic Planning and Guidance

An agency's strategy in setting out organizational goals and plans serves a critical role in the budget process. A strategy shows where an organization wants to focus in the future, typically many years in the future, and sets forth specific steps to do so. A strategic plan serves as a detailed agency blueprint for the organization's activities, while associated strategic guidance informs its specific resource allocations. Because that plan and guidance have impact on funding and the activities on which the organization focuses, a strategic plan impacts stakeholders, both within and outside the organization. These internal and external groups have concrete interests, and

[43] 103rd U.S. Congress, *Government Performance and Results Act of 1993*. https://www.congress.gov/bill/103rd-congress/senate-bill/20.
[44] 111th U.S. Congress, *GPRA Modernization Act of 2010*. https://www.congress.gov/111/plaws/publ352/PLAW-111publ352.pdf.
[45] USAGov (U.S. General Services Administration), *Budget of the U.S. Government*. https://www.usa.gov/budget.

their involvement in the development and implementation can be critical to the plan's success. Furthermore, GPRAMA requires this engagement with interested parties.[46] This section develops an evidentiary basis for Recommendation #1 in Chapter 4.

There are three areas of concern relative to how NOAA Fisheries develops its strategy, including: (1) focus of the plan on the medium term, versus the long term; (2) the role of detailed strategic guidance; and (3) the involvement of stakeholders in the development of the plan and guidance.

Medium-Term Orientation of Strategic Planning

As discussed in Chapter 2, the NOAA Fisheries Strategic Plan sets forth several key goals (e.g, sustainably increasing commercial fisheries, conserving protected species).[47] It lays out the Agency's mission, focus areas, and how the organization's activities will align with the NOAA, the Department of Commerce, and the Administration's agenda.[48] The NOAA Fisheries Strategic Plan, developed in accordance with the requirements of the GPRAMA, clearly sets out such baseline requirements as its mission statement, goals and objectives, alignment of those goals with other governmental agencies, and means (human capital processes, technologies) to achieve those ends.[49] NOAA Fisheries has a strong approach to its Strategic Plan relative to several other sciences agencies. The regular focus on developing a foundational document that, at a minimum, lays out the priorities and potential challenges is a critical step in the budgeting process, as well as in the larger management of NOAA Fisheries activities. That is likely to be a large advantage for the Agency, especially when budget increases come about and decision-makers in OMB and Congress consider whether an agency is prepared to expand its operations with additional resources.

Because of the considerable demand placed on short-term science to support annual catch limits, the NOAA Fisheries approach to strategic planning has placed less emphasis on the longer-term challenges and trends that will impact NOAA Fisheries mission in the decades ahead, as well as how its budgets, along with associated processes, will need to adjust to meet challenges. While the NOAA Fisheries Strategic Plan delineates these challenges, the immediacy of ACL science support makes it difficult to strategically invest in long-range challenges. It does not present a clear path forward nor a strategy describing how it will actually address those issues through policies, funding, and its activities.

Several governmental agencies, including several with a strong science orientation, like the Departments of Energy and Defense, have conducted extensive assessments of the strategic environment and long-range challenges through Quadrennial Reviews.[50] These reviews, which

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[46] GPRA Modernization Act of 2010, Public Law 111-352, *U.S. Statutes at Large*, January 4, 2011. https://www.congress.gov/111/plaws/publ352/PLAW-111publ352.pdf

[47] U.S. National Marine Fisheries Service, *Strategic Plan 2019-2022*. https://media.fisheries.noaa.gov/dam-migration/noaa_strategicplan_2019_singlesv5.pdf.
Insert citations and discussion of regional plans.

[48] U.S. Department of Commerce, *Strategic Plan 2018-2022*. https://www.commerce.gov/sites/default/files/2020-08/us_department_of_commerce_2018-2022_strategic_plan.pdf.

[49] 111th U.S. Congress, *Government Performance and Results Modernization Act of 2010*. https://www.congress.gov/111/plaws/publ352/PLAW-111publ352.pdf.

[50] Example of long-term trend reviews include the Department of Energy "Quadrennial Technology Review" and the Department of Defense "Quadrennial Defense Review," which are large-scale, multi-year planning efforts that can serve as a model for which NOAA Fisheries can tailor a review. Department of Energy, *Quadrennial Technology Review 2015*. https://www.energy.gov/quadrennial-technology-review-2015.; Department of Defense, *Quadrennial*

can take several months and, in some cases, years, examine the basic mission of an agency and how it will have to adjust to carry out that mission as the strategic landscape and other trends, like emerging technologies, evolve. These assessments feed directly into the organization's strategic and budgetary plans.

NOAA Fisheries, in interviews, cites the strong operational focus on its mission centers and their extensive science, regulatory, and mission-support activities as the reason that the Agency has not focused on long-term assessments in its strategic plans. It is important to note that long-range issues, whether climate change or new technologies (such as remotely controlled underwater systems, for example) are constantly discussed across NOAA Fisheries. The impact, though, of not having a concrete plan to respond to those long-term trends is that NOAA Fisheries does not incorporate long-range and risk analyses into its decisions, activities, or budgets.

Role of the Strategic Plan in the Budget Process and Planning Guidance

The NOAA Fisheries Strategic Plan contributes to the organization's budget formulation - development of the budget request before it is submitted for review to NOAA, the DOC, and OMB. The leadership group that puts this initial draft budget together refers to the Strategic Plan to ensure it at least adheres to its broad contours. NOAA Fisheries budget officials explained that the Strategic Plan informs, more than provides clear direction on, specific funding, as the strategic plan focuses more on broad priorities and the strategic landscape. The Plan will, for example, explain that the organization plans to increase commercial fishing in a sustainable fashion, which supports commensurate increases (or protection against cuts) within the realm of fish surveys, stock assessments, and the like.

The Strategic Plan covers four years, whereas budgets cover a one-year period. Separate strategic planning guidance that is based on the Strategic Plan and the specific circumstances that change year-to-year becomes necessary to translate the strategic plan into annual budgets. NOAA Fisheries develops strategic planning guidance every year, which feeds into the SRM process which is more focused on allocating resources after funding has already been appropriated from Congress. NOAA Fisheries, during the budget formulation phase before this request goes to NOAA, the Department of Commerce, OMB, and Congress, does not put out strategic planning guidance developed through detailed discussions with key external stakeholders.

The NOAA Fisheries approach of using strategic planning guidance in developing budget requests contrasts with other federal science agencies, especially NASA. Formulating budgets guided by strategy and plans is the linchpin of NASA's Planning Programming Budgeting and Execution (PPBE) process, evolved from a method developed in the Department of Defense in the late 1960s. Consistent with requirements in OMB Circular A-11, NASA develops a quadrennial strategic plan. The strategic plan informs the annual PPBE process. NASA conducts a planning phase (approximately nine months) that culminates in Strategic Planning Guidance (SPG) that strongly directs the programming phase of budget formulation. During SPG development, conducts

Defense Review 2014.
https://history.defense.gov/Portals/70/Documents/quadrennial/QDR2014.pdf?ver=tXH94SVvSQLVw-ENZ-a2pQ%3d%3d.

strategic implementation planning meetings with Agency councils. It also accounts for the priorities of key external stakeholders like Congress and other groups.

The reason NOAA Fisheries does not use detailed budgetary planning guidance is that budgets are formulated among a relatively small group of offices, including the AA and DAAs. As discussed in Section 2.3, FMCs and other headquarters offices have the chance to review and provide comment and coordination after this small group develops the plan. NOAA Fisheries decides how it will specifically allocate resources after Congress has already appropriated funding, during the execution. The effect is that budget formulation and the budget requests that NOAA Fisheries puts together are not based as much on the organization's basic strategy as could be, hindering the shift of resources to the most critical challenges.

Involvement of Stakeholders in Development of the Strategic Plan

Its recent efforts with the Strategic Plan currently under development, as discussed in Chapter 2, NOAA Fisheries has not conducted an open, collaborative process to develop its Strategic Plan, nor, in the way of NASA, its strategic planning guidance. Instead, it relies on a discussion between Agency HQ senior executives and its politically appointed leaders. As such, it misses out on an opportunity to gain institutional buy-in from its field offices, including Science Center and Regional Office leaders, and receive the helpful perspective of those external groups familiar with the Agency's mission.[51] A 2021 workshop, convened by the Partnership for Public Service on best practices for developing strategic plans for 2022-2026 highlighted the importance of engaging key stakeholders.

> *To generate buy-in, it is important to do a robust stakeholder analysis before the strategic plan is developed. Doing so can help ensure the plan reflects the priorities of those impacted by, influencing or overseeing an agency's work—both the political leaders who set policy and the career staff who manage important programs. Agencies should also consider talking to stakeholders who didn't shape previous strategic plans.*[52]

3.3 Program Management

This section of the report describes the various levels of program management activities at NOAA, NOAA Fisheries, the Department of Commerce headquarters, as well as other science agencies. It captures how program managers interact with agency leadership, what is working as a best practice in these relationships, and what areas may need additional improvement. It also re-emphasizes the essential role program management and program managers can play in an effective strategic and budgetary planning process.

Program Management is not just a challenge for NOAA Fisheries. Rather, it is a government-wide concern. OMB developed three different definitions for what constitutes a "program" or "program activity" that it provided to agencies in its Program Management Improvement Accountability Act (PMIAA), GPRAMA, and DATA Act guidance, respectively. OMB developed each of these definitions independently and in response to three different statutory requirements and

[51] Tama, *Maximizing the Value of Quadrennial Planning*. http://www.businessofgovernment.org/sites/default/files/Maximizing%20the%20Value%20of%20Quadrennial%20Strategic%20Planning.pdf.
[52] Garcia and Troy, *Five Best Practices for Strategic Planning*. https://ourpublicservice.org/blog/strategic-planning-best-practices/.

maintains that these three requirements differ in their legislative intent. The definitions and their associated guidance are in the Table 2 below.

For the purposes of this report, definitions of programs, projects, and portfolios are consistent with how those terms are defined in OMB's PMIAA strategic plan. OMB defines program as the functions or activities which agencies are authorized and funded by statute to administer and enforce. Programs typically involve broad objectives. OMB views projects as temporary efforts with defined scopes to create products or services to improve the efficient and effective implementation of programs. Because programs are comprised of projects, programs inherently address the projects subsumed with them. OMB defines portfolios as organized groupings of programs whose coordination in implementation enables agencies to achieve their objectives.[53]

OMB guidance	Definition
Program Management Improvement Accountability Act Strategic Outline OMB Memorandum M-18-19	A program is described as the mission, functions, projects, activities, laws, rules, and regulations which an agency is authorized and funded by statute to administer and enforce.
GPRA Modernization Act of 2010 Overview of the Federal Performance Framework OMB Circular A-11, Part 6, Section 200	A program is generally an organized set of activities directed toward a common purpose or goal that an agency undertakes or proposes to carry out its responsibilities.
Guidance for the Digital Accountability and Transparency Act of 2014 OMB Circular A-11, Section 210.11 referencing 31 U.S.C. § 1115(h)(11)	"Program activity" means a specific activity or project as listed in the program and financing schedules of the annual budget of the United States Government.

Table 2: Three Different Definitions of Program or Program Activity in Various Office of Management and Budget (OMB) Guidance [54]

In 2016, the PMIAA was signed into law with the intent to improve project/program management (P/PM) practices within the Federal Government. According to the Senate Committee on Homeland Security and Governmental Affairs, both prior to and following the enactment of the law, the Government Accountability Office (GAO) has reported on many federal programs with weaknesses in management capacity (that is, the people and other resources to resolve the risks),

[53] U.S. Office of Management and Budget, *Improving the Management of Federal Programs and Projects through Implementing the Program Management Improvement Accountability Act*, OMB Memorandum M-18-19, Washington, D.C.: June 25, 2018.
[54] U.S. Government Accountability Office, *Improving Program Management,* Report #GAO-20-44, December 2019, https://www.gao.gov.assets/gao-20-44.pdf.

both government-wide and in individual agencies, that impaired efficient and effective government operations. Effective program and project management could improve the likelihood that a given program or project meets its intended purpose, remains on schedule, and is managed efficiently.[55]

In many ways, the requirements of the PMIAA can be of great benefit to NOAA Fisheries, as Departments are required to appoint essential roles, such as the Program Management Improvement Officer (PMIO) responsible for implementing program management policies to enhance the role, influence, involvement, and engagement of program managers. The PMIAA also requires two separate types of portfolio reviews: (1) annual portfolio reviews of agency programs; and (2) the portfolio reviews of programs identified as high risk on the GAO High Risk List.

The Act also requires the establishment of the Program Management Policy Council (PMPC), comprised of OMB and CFO-Act agency officials, which will oversee implementation of the Act's major provisions and serve as the principal interagency forum for improving agency practices. The council has produced a set of common, principle-based government-wide program management standards that agencies can leverage to ensure they produce their desired outcomes and effectively contribute towards the achievement of agency mission and strategic goals and objectives. The long-term vision is for program managers in government to become a trained and competent workforce with the program and project management experience, knowledge, and expertise to solve management challenges and support agency decision-making.

Program Management Standards and Principles

The 15 principle-based standards have been developed with consideration given to the variation among programs implemented by agencies (See Figure 8, below). The breadth and scope of the standards/principles, which are expected to be refined over time, range from change management to customer service, to financial management and portfolio management. Detailed descriptions of each standard/principle for each core area can be viewed in the Appendix E.

Agency managers should apply these standards to internal management processes for planning, implementing, and reviewing the performance of programs and activities. Adoption of these principles and application of their practice should be incorporated into or aligned with existing agency-specific program management policies and practices, and tailored to reflect the size, scope, structure, organizational placement, and characteristics that affect delivery of the program.

[55] U.S. Government Accountability Office, *Improving Program Management: Key Actions Taken, but Further Efforts Needed to Strengthen Standards, Expand Reviews, and Address High-Risk Areas,* GAO-20-44, December 2019.

Change Management	Evaluation	Performance Management	Requirements Development and Management
Communications Planning, Stakeholder Engagement, and Coalition Building	Financial Management	Portfolio Management	Risk Management
Contracting and Acquisition Management	Human Capital Management	Process Improvement	Strategic Planning
Customer Service	Information Management	Project Management	

Figure 8: Program and Project Management Core Areas. (Source: U.S. Government Accountability Office). [56]

Program Management Practices in Other Science Agencies

Chapter 2 discussed the importance of transparency and communications, and the positive impact it has on stakeholder engagement. Science agencies similar to NOAA Fisheries, such as the DOE, USGS, and ARS have reported positive interactions between headquarters and program managers as it relates to informing the budget process. This interaction has proven to be beneficial for both the programs and agency leadership in understanding program needs, challenges, and opportunities.

Here are a few highlights of program management best practices taken from other science agencies:

Department of Energy, Office of Science (DOE SC)

DOE SC has numerous program managers, most of whom are scientists located at SC's seventeen national laboratories. The Office of Budget (OB) has strong collaboration with the national labs, including regular advisory meetings that filter up to the HQ level. As with most agencies, there are limited resources to fund all program proposals, so prioritization of these proposals is crucial. The SC organization depends on the voice of the science community to help set these priorities. As a primary mode of communication between the laboratories' program managers and HQ leadership, the labs are required to deliver a presentation to HQ yearly to share what the programs have accomplished and priorities going forward. These presentations give HQ leadership an overall status of the projects and programs which include reviews of milestones, planned and actual budgets and costs, as well as any issues/concerns and successes.

United States Geological Survey (USGS)

At the USGS, the role of program managers is described as both impactful and influential. Program managers are engaged with USGS HQ leaders and are involved in the budget formulation and allocation process. Each mission area is split into programs and each program has a program

[56] U.S. Office of Management and Budget, *OMB Circular A-11, Section 270: Program and Project Management*, pages 8-9, 2020.

coordinator who leads it. The program coordinator, working through their Mission Area's Associate Director, plays a key role in the budget formulation and the allocation of the funds. When the funding comes in, the Mission Area Associate Directors allocate the funds to the program managers and set the strategic direction of programs. The Mission Areas work with the Regions to understand priorities and allocate the appropriate funding based on the strategic direction that has been set, or expectations of Congress in the final Report language, and where work is best performed. While the Agency is making demonstrable progress in this area, maturing program management activities also remains a top priority for the USGS. In FY2021, the agency began program management efforts based on the PMIAA, which includes identifying its community of program managers across the organization.

Agricultural Research Service (ARS)

The ARS currently has a cadre of 15 National Program Leaders (NPLs) which is a centralized group at HQ. The role of a NPL is to set the research direction, and at a high level, set the action plan and program objectives for a broad but specific piece of ARS research. A key activity of an NPL is to organize National Program workshops. The workshops are significant to leadership because they bring customers and stakeholders together to have conversations about the national agenda. The ARS budget activity comprises multiple phases such as an input phase, planning phase, and implementation phase. During the input phase, national workshops afford national programs the opportunity to articulate the scope of their program. For ARS, this is key to developing priorities. Even though budgets are developed at a high level within the organization, the ARS leadership works with specific individuals by location to keep the lines of communication open and to provide specific budget details.

Program Management at Department of Commerce (DOC)

At the Departmental level, DOC instituted program management practices in 2018 prior to the issuance of guidance under the PMIAA. The Department has continued to progress and recently conducted a survey identifying 300+ program managers across the Department's 12 bureaus and bureau line offices. This is a major milestone, as DOC previously lacked a clear understanding of the makeup of its program management community. One critical program management activity that was established is the Milestone Review Board (MRB). Launched in 2013, the MRB is the authorizing body for approval of an identified Departmental high-profile acquisition program or project to proceed from one phase of completion to the next. The Department, through the MRB, provides for coordinated oversight, review, and approval of planning, acquisition, and management of high-profile acquisition programs and projects.

Mission-critical acquisition programs and projects across the NOAA line offices are required to brief the internal NOAA Program Management Council (PMC) prior to their MRB briefings to the Department. But despite early pushback from program managers regarding the subjection to HQ oversight, DOC leadership has held firmly to the view that the MRB serves to elevate the visibility of a program while potentially garnering the political, as well as financial support of Department leadership. This includes offering program transparency; demonstrating why the program matters to constituents and stakeholders; providing headquarters with insights and clarity into program challenges, opportunities, risks and resource needs. NOAA is seeking to instill this level of interaction and program management thought-model as it implements the PMIAA at the bureau level and within its line offices.

Shifts in Program Management

Through implementation of the PMIAA, there is a government-wide effort to strengthen program management practices; pushing from the traditionally stove-piped way of managing programs and towards an enterprise-wide view of programs as a way to more effective program management by coordinating across programs. This improves the likelihood that a given program meets its intended purpose and is managed efficiently. This push also requires that agency leadership champion a core principle of program management -- coalition building. Coalition building includes aspects of partnering and team building; developing networks, building teams and alliances. It also includes collaborating across boundaries to build strategic relationships to achieve program goals, as well as sharing program information to help set priorities.

Both the USGS and ARS have demonstrated the effectiveness of coalition building, with examples of program managers playing impactful and influential roles in budget formulation and the allocation process, as well as engagement at the highest level of the budget process that incorporates workshops in which regional program managers are encouraged to contribute their input about national program priorities.

NOAA is also supporting the government-wide effort by using requirements of the PMIAA as catalysts to build upon and further enhance its current program management practices. One action involves establishing an official definition of the term "program manager" suitable for use within NOAA and across DOC. Currently, the criteria used to identify program managers across DOC and its bureaus vary. Competencies for a program manager in the National Weather Service differ from those needed at other NOAA line offices, and PMs identified by the DOC headquarters are usually solely acquisition focused.

NOAA proposes a definition that is universal and broader in application:

> *"A Program/Project Manager is anyone who functions in a role (or aspires) to manage any PPA of any size/value/scope. P/PMs are not limited to specific career fields or restricted to acquisition-based activities."*

This proposed standard definition helps pave the way for program managers to be represented throughout the organization at all levels, including at headquarters; thus, expanding the breadth and reach for extensive coalition building between leadership and program managers.

Program Management Oversight - NOAA

Similar to DOC's MRB process, NOAA's PMC has been in operation for the past decade. It is the key forum for NOAA senior managers to engage and understand the risks, challenges, and successes of the organization's program execution and acquisition activities. It is also an opportunity for direct interaction with key NOAA Staff Members to request assistance as needed.

Each Line and Staff Office (including NOAA Fisheries) has one or more PMC Points of Contact (POC) who coordinate PMC related activities. The PMC POC serves as the liaison between the

Performance Risk and Social Science Office (PRSSO) and the line office programs, helping to coordinate briefing schedules and submissions and track action.

The PMC assists NOAA in meeting the Federal requirements for corporate major project reviews. Chaired by NOAA's Deputy Under Secretary for Operations (DUS/O), the Council oversees select NOAA PPAs, to help coordinate NOAA's Enterprise objectives and ensure performance assessment based on Budget, Schedule, Technical and Risk factors.

PMC Membership

The NOAA PMC is composed of a cross representation of internal NOAA members and advisors that includes AA and DAA representatives from NOAA Fisheries.

Council Members	Advisors
1. Deputy Under Secretary for Operations (DUS/O) - (PMC Chair) 2. Chief Financial Officer (CFO) 3. Director, Acquisition and Grants Office (AGO) 4. Chief Information Officer (CIO) 5. Director, Office of Human Capital Services (OHCS) 6. Chief Administrative Officer (CAO) 7. Assistant Administrator (AA) (affected Line Office(s))* *Often AA attendance is delegated to Deputy Assistant Administrators (DAAs) of the impacted Line Office(s)	8. Chief, Contract Law Division (CLD), Office of the General Counsel (OGC), DOC 9. Deputy Assistant Administrator (non-affected Line Office(s)) 10. Subject Matter Expert(s) 11. Supporting Office Director for Program / Project, or Activity 12. Director, Performance, Risk and Social Science Office (PRSSO) 13. Director, Office of Legislative Affairs 14. PMC Executive Secretariat

Table 3: NOAA PMC Members and Advisors (Source: NOAA Program Management Council Guidebook, January 2020, Version 1.1)

Executive Decision-making for PPAs

The PMC also plays an integral role in NOAA's Executive Decision Process (EDP). NOAA's EDP provides a framework for systematic management, review, and oversight of NOAA's operations. The purpose of the EDP is to advise the NOAA Administrator before final decisions on NOAA-wide policy (including, but not limited to, budget, procedure, organizational direction, organizational assessments, and resolving conflicts) are made. As one of NOAA's Operational Councils, the PMC determines when an issue should be elevated to the NOAA Executive Panel (NEP) to address organizational equities. The NEP is the next level above the PMC in the executive decision process.

PMC Scope / Key Activities

NOAA's PMC provides executive oversight and assessment of designated High and Medium rated programs, projects, and activities, and helps facilitate decisions for the NEP. Using a risk-based approach, the PMC ensures the efficient execution of NOAA's acquisition, information technology, and internal control responsibilities by providing consistency of program management direction, continuity of life-cycle reviews, and coordination of risk communication. The range of PMC activities includes but is not limited to the activities noted in Table 4.

Integrated assessments of performance vs. plan for a portfolio of NOAA Programs, Projects, and Activities, specifically examining:
1. Budget Performance – actual vs. planned costs (earned value, as applicable), status of funds, budget uncertainties, budget reserves posture, including plan for use of contingency funding for current year and life cycle
2. Technical Performance – actual vs. planned performance
3. Risk and Issue identification and mitigation strategies
4. Schedule Performance – critical path analysis, changes since the previous report, schedule threats, and schedule reserve posture
5. Architecture compliance, cybersecurity and enterprise architecture compliance
6. Alignment with Agency priority and strategic goals

Table 4: Integrated Assessments of Performance vs. Plan for a Portfolio of NOAA Programs, Projects, and Activities (Source: NOAA Program Management Council Guidebook, January 2020, Version 1.1).

3.4 Functional Planning and Facilities

This Section discusses functional planning, with particular focus on facilities and maintenance, including best practices observed in relevant literature and other federal regulatory and science-oriented agencies, as well as the District of Columbia municipal government (the District). It develops an evidentiary basis for Recommendations #3, #3.1, and #4 in Chapter 4.

Functional Planning

Functional planning, also referred to as tactical planning, "is intermediate-range (one to three years) planning that is designed to develop relatively concrete and specific means to implement

the strategic plan. Middle-level managers often engage in tactical planning".[57] It is named as such because it addresses the functional areas of an organization, such as communications, human resources, finance, risk management, or specific programs. Functional plans describe how, when, and where strategic goals and objectives will be accomplished for their respective functional area. Their formulation involves setting more specific goals and objectives for each functional area than those described in strategic plans and determining the nature and sequence of actions to be taken by each area to achieve those goals and objectives.[58]

While the definition of the term itself is important to understanding functional planning, it is also useful to distinguish it from other types of planning. At one unit of analysis above functional planning, strategic planning takes place over longer time scales (three to five years, or more). Strategic planning analyzes the competitive strengths and weaknesses of the organization, as well as the opportunities and threats in its operational environment in order to set goals and objectives for the organization as a whole. At one unit of analysis below functional planning, operational planning "generally assumes the existence of organization-wide or subunit goals and objectives and specifies ways to achieve them." Operational planning targets actions that can be taken in less than a year to support the strategic and functional plans. Operational plans focus on the day-to-day execution of functional plans.

Functional planning promotes the strategic alignment of an organization's programs and activities, increases the effectiveness of middle-level managers by helping them to identify inefficiencies, and provides management with information that can facilitate transparency with stakeholders.[59] It can be used in developing budgets, comparing budgets with actual costs, and to indicate how budgetary resources will be managed. Economists at North Dakota State University illustrate how such benefits can be derived through the example of agricultural operations "the production plan should provide details about the type, quantity, and timing for inputs. This information can then be used in the development of enterprise budgets and the whole-farm cash flow budget… the labor management plan should provide an indication as to whether there will be sufficient workers available throughout the year."[60]

Functional Planning at NOAA Fisheries

Some of NOAA Fisheries' management processes for its functional areas are not as effective, efficient, and informed as they could be with stronger functional planning. NMFS develops annual lists of planned and executed surveys and communicates this information to various stakeholders, including posting to a public website. While not yet complete, NMFS is actively improving its processes for tracking and communicating the cost of data collection for stock assessments. NOAA Fisheries closely monitors top priority fish stocks based on their commercial

[57] Mudu Innovation Lab, *Strategic, Functional and Operational Planning*. https://mudu.io/digital-marketing/digital-marketing-strategy/strategic-functional-and-operational-planning/; Saxowsky, et al., *Functional Plans*. https://www.ag.ndsu.edu/aglawandmanagement/agmgmt/reference/strategic-business-planning/functional-plans; University of Minnesota Libraries, *Principles of Management*. https://open.lib.umn.edu/principlesmanagement/chapter/1-5-planning-organizing-leading-and-controlling-2/
[58] Vancil and Lorange, *Strategic Planning in Diversified Companies*. https://hbr.org/1975/01/strategic-planning-in-diversified-companies.
[59] Saxowsky, et al., *Functional Plans*. https://www.ag.ndsu.edu/aglawandmanagement/agmgmt/reference/strategic-business-planning/functional-plans.
[60] Ibid.

and ecological value to communities, among other factors, but does not compile a comprehensive list of fish surveys (the process used to monitor the fish stocks) that details the estimated costs of each. These gaps in information could potentially impact resource allocation decisions and strategic tradeoffs. While this report focuses primarily on functional planning for facilities, many of the principles and best practices it discusses may be applicable to other functional areas.

Facilities is a functional area which is of critical mission importance to NOAA Fisheries, with the portfolio encompassing 163 locations and an estimated replacement value of over $400 million.[61] For context, ARS is an agency with a similar annual budget in terms of size, and it values its facilities portfolio at $5 billion. NOAA Fisheries' facilities include office buildings, labs, animal housing, warehouses, machine shops, and boat storage. Its facilities are the oldest in NOAA, with two-thirds of its owned structures over 30 years of age, and the remainder over 50. NOAA Fisheries has difficulty funding recapitalization projects because its facilities and overhead are funded through percentage-based assessments on its programmatic budget lines. It also has difficulty meeting the funding requirements for significant repair requests (those greater than $10,000), which contributes to a backlog of deferred maintenance estimated at $21 million in 2020.

Figure 9 below illustrates the relationship between the lifecycle of facilities and renewal and maintenance costs. It shows that renewal and maintenance costs increase at an exponential rate as the condition of a facilities portfolio degrades over time.[62] Together with inflation, these factors create pressure on NOAA Fisheries' budget, and consume an increasing proportion of the funding available for programmatic activities which tie directly to its mission.

[61] The source of this information is a confidential white paper internal to NOAA Fisheries.
[62] Prabhu, *Strategic Asset Management*. https://gfoaorg.cdn.prismic.io/gfoaorg/ab005d8a-0903-4a96-8f23-2cecf0ba0ac6_StrategicAssetManagement_GFR0421.pdf.

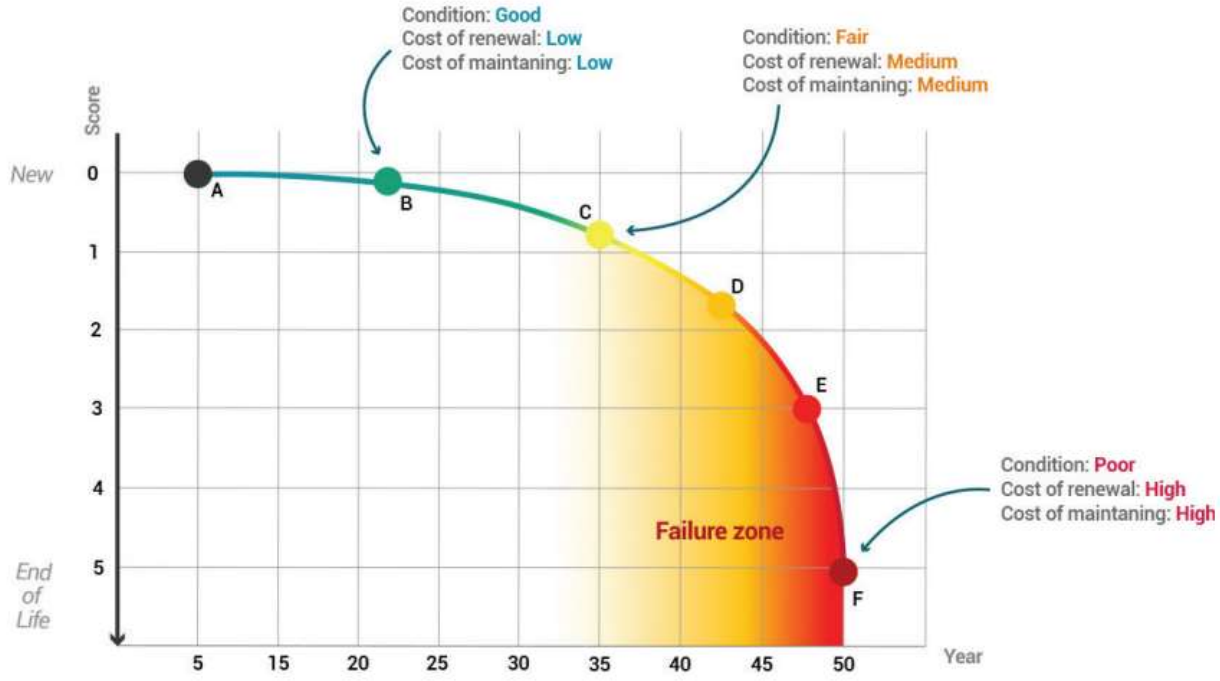

Figure 9: American Society of Civil Engineers Rating Scale. (Source: Government Finance Officers Association).[63]

As discussed in Chapter 2, FMCs are responsible for day-to-day operations, maintenance, and administrative overhead. The diverse set of practices among the FMCs for tracking the conditions and maintenance of their facilities is a challenge that NOAA Fisheries must overcome to be able to determine the cost of ownership and deferred maintenance of its facilities portfolio with accuracy. Such an evaluation is a prerequisite for prioritizing facility recapitalizations and maintenance in a functional plan for facilities. In 2020, an independent contractor issued recommendations to NOAA Fisheries on its facilities portfolio. The thrust of those recommendations involves NOAA Fisheries standardizing its processes for tracking and reporting facilities, operations, and maintenance data; instituting a more rigorous process for estimating the true cost of ownership of its portfolio; and creating a long-term facilities plan to identify and prioritize future locational needs.

At the time of the writing of this report, NOAA Fisheries is developing a NOAA Fisheries facilities management framework. This framework details the current state and challenges involved in managing the NOAA Fisheries facilities portfolio. It describes the desired future state of facilities management procedures at NOAA Fisheries and lists a set of initiatives the Agency is undertaking to move toward that future state. For example, NOAA Fisheries is developing a 5-year strategic facilities plan, as well as facility dashboard to identify imbalances in facility investments, project future budget requirements, and improve communication on facility information between HQ and the FMCs.

In a similar vein, and as noted in Chapter 2, NOAA's NFC is developing a bureau-level FCIP for FY2023-2027 in collaboration with its line offices, DOC, OMB, and congressional stakeholders.

[63] Ibid, page 73.

This is one facet of NOAA's efforts to standardize or centralize certain processes and functions across the line offices, particularly those related to communication on budget requirements. With this approach, NOAA seeks to promote greater strategic alignment from the department level to the line office level, and to better substantiate its requests for funding and resources for facilities investments across the Bureau. NOAA reported securing about $43 million in FY2021 in new funding for buildings and facilities.

Best Practices in Facilities Planning from Relevant Literature

Best practices, such as strategic asset management (SAM), emerge in a review of the literature related to facilities management. SAM is defined as "a future-focused lifecycle modeling approach that balances budgets, communities' services needs and asset condition for sustainable facilities and infrastructure into the future."[64] A government facilities portfolio valued at $1 billion degrades at around 2.5 percent each year, or about $25 million.[65] Using the SAM approach can significantly reduce the depreciation of assets over time. Maintaining assets in this manner can reduce such rates by as much as $15 million a year. Managing facilities with the SAM approach over longer timescales (10 years, for example) will help organizations to allocate funds optimally to best extend the lifetimes of their assets. Instead of investing only in facilities that occupy points "E" and "F" on Figure 9, which are close to failing, organizations may decide to consider factors related to cost-effectiveness and the time it would take to complete a given facilities project. In some cases, intervention earlier on in a facility's lifecycle can prevent exponential increases in maintenance and renewal costs farther down the line. There are three broad steps involved in instituting SAM:[66]

1. *"**Understand the assets:** identify exactly which assets the organization has responsibility for and compile relevant information such as age, location, and condition through data collection activities. This helps identify where each asset is in its lifecycle based on condition data.*
2. ***Set up a framework:** tap into internal and external experts to create a framework for evaluation options and determining when to intervene for each asset. Identify the points where investment might be appropriate, along with the cost of treatment and its impact on asset condition and portfolio-maintenance costs.*
3. ***Make better decisions:** apply the framework to provide clarity about available options. At this point, financial optimization models are used to determine the best combination of investments across the portfolio. Modeling software can be used to determine the type, timing, and level of investment that will produce the lowest renewal and maintenance costs and deliver the best service."*

Strategic facility planning (SFP) is a tool which integrates with SAM and can satisfy the requirements of its steps. In its 2009 white paper, the International Facilities Management

[64] Flack, *Q&A Series: Strategic Asset Management*. https://www.dudesolutions.com/blog/qa-series-strategic-asset-management.
[65] Prabhu, *Strategic Asset Management*. https://gfoaorg.cdn.prismic.io/gfoaorg/ab005d8a-0903-4a96-8f23-2cecfoba0ac6_StrategicAssetManagement_GFR0421.pdf.
[66] Ibid.

Association (IFMA) defines SFP, master plans, and tactical plans.[67] IFMA's categorization differs somewhat from that of this report (strategic plan, functional plans, and operational plans). To avoid confusion, this report considers SFP to be a type of functional planning, while master and tactical plans are considered operational planning.

SFP is defined as "a two-to-five-year plan encompassing the entire portfolio of owned and/or leased space that sets… facility goals based on the organization's strategic objectives… The SFP identifies the type, quantity and location of spaces needed by the organization and contains two main components – the first being an in-depth analysis of existing facilities, and the other an achievable and affordable plan to meet the organization's needs." As is also the case with SAM, this involves financial analysis to determine the highest return for investment at the lowest risk.

As shown in Figure 10 below, SFP is a four-step process that begins with understanding and continues through analysis and planning, culminating in action:

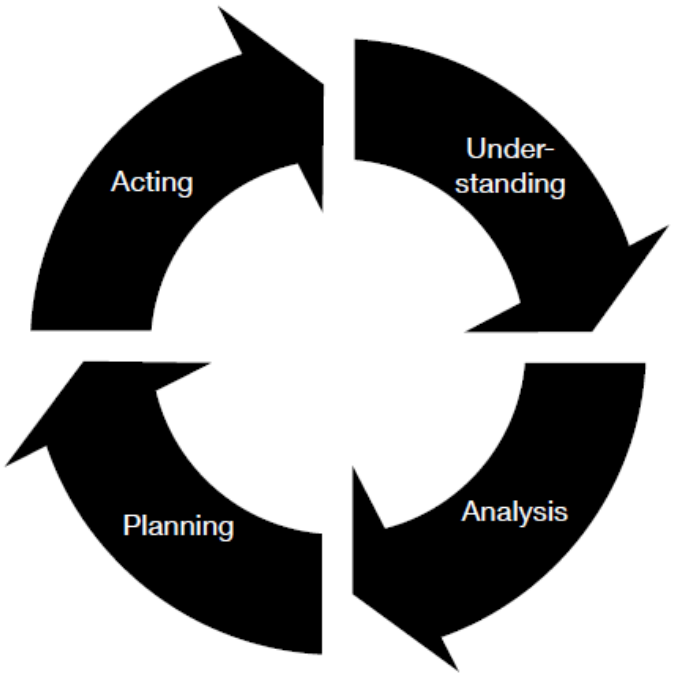

Figure 10: IFMA's SFP Four-Step Process. (Source: International Facility Management Association).[68]

1. Understanding

It is vital for the SFP to integrate with the organization's strategic plan, as the later establishes the organization's long-term vision and needs. The organization should consider its mission, vision, and strategic goals and objectives in combination with a thorough understanding of the current

[67] International Facility Management Association, *Strategic Facility Planning: A White Paper*. https://community.ifma.org/cfs-file/__key/telligent-evolution-components-attachments/13-463-00-00-01-05-69-96/2009_5F00_Strategic-Facility-Planning_5F00_White-Paper.pdf.
[68] Ibid.

condition of its facilities portfolio in order to understand its needs and compare existing conditions with those needs. The team at the helm of the SFP effort should explore the goals of each unit of the organization and integrate them into the facility analysis to properly address the sustained delivery of the organization's services. In terms of the facility portfolio itself, the organization should collect data such as building assessments, square footages, and space utilization, and study that data with modeling tools and scenario alternatives.

2. Analyzing

Once the current state of the organization is established and compared to its strategic plan and desired state, the SFP team can begin to balance current facility needs and long-term needs. In this stage, the organization has identified the gap which it will analyze. IFMA details a set of analytical techniques, such as strengths, weaknesses, opportunities, and threats (SWOT) analysis, as well as scenario planning and simulation to explore the range of possible futures.

3. Planning

Once the analyses are completed, the SFP team can support a recommended course of action based on evidence. IMFA emphasizes six major steps in constructing the plan:

- Document the primary objectives to be addressed (the gap) in the SFP;
- Evaluate sites, zoning, costs, labor, competition and all factors critical for success;
- Conduct financial and risk analysis to focus on finding the maximum value;
- Develop alternatives with recommendations and priorities;
- Develop a process for marketing the recommended SFP to gain management approval; and
- Obtain financial and other approvals needed to launch the action phase.

At a minimum, the SFP should be reviewed annually and updated periodically.

4. Acting

Following approval, the organization should use operational plans to implement the SFP. These include, but are not limited to, site-specific physical plans, phased plans for building, construction estimates, maintenance schedules, and operating budgets. Feedback from actions can be incorporated into the plan to provide continuous improvement. The cyclical nature of planning for the future and changing plans along the way is necessary to ensure plans are achievable.

Appendix F shows IFMA's process model for SFPs, which illustrates how the four-step SFP process should be implemented by different levels of managers and staff throughout the organization. The organization's executives should manage the high-level vision and goals for the SFP during the understanding phase and assemble a focused team of middle-level managers to develop plans and conduct analysis throughout the remaining three phases, while staff-level employees support the effort by gathering data on the facilities portfolio and monitor the implementation of the SFP across each of the four phases. This approach allows managers to establish rigorous estimates for the total cost of ownership and full lifecycle costs from individual facilities to the entire portfolio.

In addition to the processes laid out by IFMA, it is important for organizations to develop asset disposal plans and integrate them with their SFPs, and SAM overall "because the disposal of assets accounts for a significant part of the full life-cycle costs of an asset. Asset disposal includes any

activity associated with the disposal of a decommissioned asset such as its sale, demolition, or relocation."[69] Organizations should also align the timing of future asset disposal for their facilities portfolios and forecast cash flows to facilitate strategic facilities planning and their prioritization of actions therein.

Effective Practices from External Government Agencies

The following is a list of government organizations which plan and implement effective processes for facilities and other functional areas.

National Institute of Standards and Technology (NIST)

NIST collects data which informs its facilities condition index. Its facilities condition index, along with other data and analysis, allows NIST to prioritize future facilities investments through its facilities master plan. The Agency also contracts out periodically for an external assessment and review of its facilities portfolio.

National Aeronautics and Space Administration (NASA)

NASA uses its PPBE process to integrate critical management information for each of its functional areas. By compiling this critical information from across the organization, NASA is able to make more informed decisions to support resource allocation and the implementation of its strategic plan. NASA conducts an Agency-level business process reporting (BPR) meeting each month for each of its functional areas on a rotating basis. This includes ongoing assessments of how programs and projects are performing relative to cost and schedule plans, and how mission support organizations are performing. The buildings, facilities, and equipment expenses which are unique to particular programs are funded by individual mission directorates. However, many of the facilities are utilized by more than one program, and are funded by NASA's mission support budget account, Safety, Security and Mission Services (SSMS). NASA uses master planning to define long-term plans for its facilities across the country. For example, each field Center has a master plan with goals to reduce their square footage, carbon footprints, and improve efficiency. The master plans inform the prioritization that occurs during the PPBE process, in particular for demolition of old facilities and construction of new facilities that are funded in the construction and environmental compliance and restoration (CECR) account.

Department of Energy (DOE) Office of Science (SC)

DOE is a relatively centralized organization, with many of its functional areas relying on a "shared services" model, which the Agency directly attributes to its overall efficiency. One element of this model is program budget planning of which SC is intimately involved. Like other DOE programs, SC plans its budgets up to ten years into the future. This allows SC to establish a direction by which to achieve the Agency's strategic goals and objectives, while maintaining flexibility to make new investments and manage for changes in strategic priorities, variance in planned expenses, and emerging needs. SC maintains a twenty-year dataset for its facilities and prepares five-year plans for facilities and maintenance. Such long-term planning enables SC to anticipate the funding needs of facilities operations and to adjust those funding plans along the way.

[69] Banton, *Asset Disposal Plan for Infrastructure*. https://www.investopedia.com/terms/a/asset-disposal-plan.asp.

United States Geological Survey (USGS)

USGS maintains a database in which facilities and maintenance costs are detailed down to the individual facility level. This provides managers with helpful information such as rent per square foot. USGS can also roll these data on costs up to the program level, creating a snapshot of facilities expenses across the agency and allowing for examination of trends in facilities costs over time. The Agency also prepares and iterates a five-year deferred maintenance plan to communicate its requirements to Congress.

Agricultural Research Service (ARS)

ARS receives the bulk of its funding in a salaries and expenses account, rather than through a program account in the case of NOAA Fisheries. This difference set aside, ARS uses a similar process to fund facilities and maintenance to NMFS. That is, ARS uses a certain percentage of the dollars it is appropriated for salaries and expenses to fund facilities and maintenance expenses. ARS' facilities portfolio is valued at around $5 billion, and the average age of its facilities is greater than 45 years. As many of these facilities are in need of major repair, ARS was asked by Congress in 2012 to develop a long term, multi-year plan to guide capital asset construction decisions. ARS began a capital plan for this project which involved compiling data on its facilities and devising a weighted process to prioritize investments among its facilities. As a result, the facilities in the worst condition, where high priority research projects were also based, were given highest priority for repair and modernization. As ARS demonstrated sound process and progress on this task, it promoted transparency with Congress. Since 2015, Congress has provided ARS with appropriations for this purpose.

Washington, District of Columbia Municipal Government (the District)

The District's approach, as viewed through Government Finance Officers Association's (GFOA) Financial Foundations for Thriving Communities, is another example of note among contemporary users of a long-term capital spending strategy.[70] GFOA's Financial Foundations for Thriving Communities are:

1. Establish a long-term vision

In the District, the Mayor and CFO recognized that consistently deferred maintenance led to the deterioration and poor condition of school buildings. The District needed a vision to institute a strategic capital planning and asset management program. In order to take action on that vision, the District used a method called "rapid incrementalism", which connects vision and implementation by relying on small, planned changes which add up to larger changes. This promoted consistent momentum, while allowing for flexibility over time. The District began the effort with three asset classes: school buildings, school buses, and streets. It then built a data-driven model to represent the assets in each class. The model includes data which are granular enough to facilitate decision-making, but not so granular as to weigh the model down. Over time, the District collected new types of data, provided they added value to decision-making processes. For example, bus data focused on mileage and age as conditions for replacement from the onset. Engine hours were later added to the model as an indicator of asset health, as well as the costs of

[70] Kavanagh, et al., *Capital Planning and the DC Government*. https://www.gfoa.org/materials/capital-planning-dc-gfr.

maintaining vehicles. These data points eventually became part of a point system which characterized the condition of individual vehicles.

2. Build trust and open communication

The District's data management system for assets is maintained by each of its operating departments. Because each department enters its own data into the system, the departments see it as objective truth. In a resource allocation process in which activities need to be prioritized, it is important for departments to feel comfortable disclosing all their information. In 2018, the District's bond ratings were upgraded, in part due to its commitment to a long-term capital plan. "This led to lower borrowing costs and thus, the capacity to do more capital projects." The District's capital planning process is largely the same each year, with some incremental improvements made between cycles. Stakeholders know what to expect, and the criteria the District uses to prioritize projects for the plan are made transparent and applied consistently.

3. Use collective decision-making

When members of an organization are empowered to participate in decision-making processes for a project, they are likely to support it. One key success indicator of organizational change management efforts is the extent of buy-in leaders secure across the organization.[71] One strategy to help secure buy-in is collective planning and decision-making processes. With regard to the District, a team of representatives from across the government meet each year to score capital projects that have been proposed for the capital plan and budget. Each representative has an opportunity to provide input and is aware of the procedures for determining the scores.

In terms of public feedback on the capital plan, the District implements a process which is indirect, yet robust. The District holds meetings at a neighborhood school in each of its wards during its budget formulation process every year. The meetings focus on big picture priorities of the public. These priorities are used to shape the criteria used to evaluate proposed projects in the capital plan. "This approach of indirect public input to the capital plan allows the district to give the plan democratic legitimacy and benefit from the technical expertise of departments in picking the best projects within the criteria the public helped define.

4. Create clear rules

The District institutes rules which support strong asset management. For example, funding allocations for departments' assets are based on the quality of their asset plan, not how much funding they received in previous years. Additionally, the CFO files a report each year with the Mayor, the City Council, and the public on the condition of the District's assets and the amount of unfunded or deferred maintenance.

5. Treat everyone fairly

The District addressed issues of procedural justice, as well as distributive justice, in its approach to capital planning.[72] With the former, it developed a comprehensive information system that is perceived to be accurate, and which gained wide legitimacy throughout the organization. For the

[71] National Academy of Public Administration, *Effective Practices in Strategic Planning and Change Management*. https://s3.us-west-2.amazonaws.com/napa-2021/studies/federal-bureau-of-prisons-medical-data-managment/D2-D3_HSD_Final_Report.pdf.

[72] Procedural justice concerns the objectivity of the process and how individuals are treated during the process, while distributive justice concerns the outcomes for individuals as a result of the process.

latter, the District institutionalized a transparent and consistent set of decision-making criteria and applied them equally.

3.5 Communications and Transparency

An important theme in this report is the importance of NOAA Fisheries taking steps to enhance communications and transparency with Congress, internally between HQ and regions, and with external stakeholders. This section develops an evidentiary basis for Recommendations #5.1, #5.2, and #5.3 in Chapter 4.

Congressional

In a research paper conducted for the Administrative Conference of the United States in September 2015 entitled "Federal Agencies in the Legislative Process: Technical Assistance in Statutory Drafting," Dr. Christopher J. Walker writes: "the agency must cultivate its relationship with congressional staffers by visiting them in person and by engaging in extensive efforts to educate them about the agency's statutory and regulatory scheme, its effective programs and initiatives, and its current challenges. In-person, face-to-face meetings on Capitol Hill are critical to developing these relationships."[73] While such a finding is not particularly complex nor surprising, mobilization of a coherent agency approach to communicate effectively and transparently with Congress requires focused time and effort. This is a theme that must be underscored as a part of this report.

The Walker paper contains the following three best practices to strengthen agency-Congress relationship in the legislative process:

1. Engage in more congressional education efforts and in-person interaction.
2. Explore opportunities for detailing agency staff to Congress.
3. Consider leveraging expertise to provide other forms of assistance.

In short, best practice advice can be summarized as an agency proactively maintaining an open and comprehensive dialog with congressional committees that has twofold aims:

1. Build trust relationships; and
2. Educate on agency programs, initiatives, challenges, and so on, with special attention paid to new members and staff.

Budget transparency with Congress is an important research topic for this study, investigated consistently across all seven benchmarking science agencies in this work. The following commentary has been reviewed by each agency cited below. In summary, all seven agencies place a high priority on engaging effectively and transparently with congressional committees. Commentary below offers insights into how three science agencies approach effective and transparent communication with Congress.

[73] Walker, *Federal Agencies in the Legislative Process.* https://www.acus.gov/sites/default/files/documents/technical-assistance-draft-report.pdf.

Effective Practices from External Government Agencies

National Aeronautics and Space Administration (NASA)

The NASA CBJ is prepared to include a substantial amount of detail on Agency program priorities and investment plans. The Agency iterates back and forth with Congress and OMB in preparing it to provide full transparency on what is proposed. Emphasis is placed on integration between budget and Agency performance. There is no communication with Congress while the CBJ is being formulated, as it is vital for engagement with congressional stakeholders to be coordinated with OMB.

NASA also focuses a briefing, as required, for congressional staffers with respect to how the agency's financial systems work and how the budget is prepared. In short, NASA's financial leaders carefully identify which topics appear to lead to transparency concerns of the appropriators, and they take steps to address these issues in the next CBJ. In this way, NASA seeks to understand congressional expectations with respect to budget information so that there is a consistent template for presenting the data. Doing so enhances trust and confidence between the Agency and congressional staff.

Agricultural Research Service (ARS)

The ARS Director of Budget and Program and Management Staff notes that the majority of the Agency budget is congressionally directed. As such, a robust engagement with congressional staffers is paramount to a smooth operational environment. The relationship is described as requiring astute mutual awareness of what Congress wants ARS to achieve, and what ARS sees opportunity to achieve in their scientific efforts.

As a practical matter, the more than 690 on-going research projects are categorized into four research groups, which are further divided into 15 National Programs. Each National Program has an NPL, as noted in Chapter 3 Section 3. The NPL convenes periodic National Program Workshops (NPW) in order to engage with external stakeholders and exchange information as to on-going projects and new scientific research that should be added to the Agency's portfolio. Results of the National Program Workshops for each NP are amalgamated and serve as the basis for Agency engagement with stakeholders and congressional staff as the budget is prepared. The NPWs provide insights into research direction and can be shared with both congressional staff and the broader Agency.

U.S. Fish and Wildlife Service (USFWS)

Congressional oversight committees require Section 403 in the CBJ in order to review outlines for all of the assessments taken to support the Agency's programs.[74] This approach has helped those committees understand where funds are invested. USFWS tries to tie all spending to specific authorities outlined in Section 403 in order to offer greater transparency to Congress.

Senior staff at the USFWS Budget Office interact frequently with appropriators. Particular attention is given to having a more granular budget discussion. This follows a high-level meeting convened between executive Agency and congressional staff members to speak specifically and in more detail about individual interests of appropriations staff and members.

[74] Section 403 is a list of authorities and definitions connected with U.S. Fish and Wildlife Service. See: https://www.fws.gov/policy/403fw2.html.

These examples of other science agency engagement with congressional committees offer insights into how NMFS might consider improvements in its interactions with appropriators and authorizing committees.

Internal

Budget communication and transparency between leadership and the rest of an organization are critical to ensure the entire organization is working toward the same goals and objectives. Transparent budget communication to all the offices of an organization helps the offices understand why leadership is making funding decisions and allocating dollars to specific areas over others. The budget decisions by leadership inevitably define the organization's strategic direction by funding prioritized projects. During this process, leadership gathers not only each offices' top priorities but also the offices' justifications for why their priorities should be funded.

For scientific organizations, budget transparency between leadership and labs, regional offices, and other offices below the leadership level is critical to inform changes in funding between FYs. Many scientific organizations develop their budgets based on previous FYs; however, there is typically room for reallocation that helps the organization adjust its priorities by funding the projects leadership thinks will help best set the organization's strategic direction.

A budget transparency toolkit paper published by the Organization for Economic Co- operation and Development (OECD) suggests that re-allocations to the historical annual budgets "should be used to authorize significant additions or changed allocations" to help the organization be flexible in adapting to emerging priorities and issues that were not accounted for in the historic annual budget.[75] In order to have complete transparency throughout the organization, leadership must "include an explanation of the basis for the supplementary budget measures and show the effect on fiscal policy objectives."[76] By examining all requested re-allocations, explaining leadership decisions on those re-allocations, and showing the effects of those changes, leadership can effectively and transparently communicate budget decisions and impacts throughout their organization to avoid any confusion or resentment as to why one area is being funded over another.

Budget transparency internal to an agency is crucial at the end of a program or project. The science agencies examined during this study cite the benefit of having open and transparent communications with all internal stakeholders that have vested interest in programs or projects that reach completion. This is a critical communication line, as the program or project coming to a close will generally precipitate reallocation of the funds for a program or project to other activities. Open communications about why and where those funds are being reallocated allow all relevant parties to have understanding of and input and into that process.

Budgetary communication internal to NOAA Fisheries has been a key focus throughout the course of this project and investigated across all seven benchmarking agencies. In summary, each agency benchmarked on this topic placed a high importance on transparent budget communications

[75] Organization for Economic Co-operation and Development, *OECD Budget Transparency Toolkit: Practical Steps for Supporting Openness Integrity and Accountability in Public Financial Management*, Ch. 2, Pg. 49, https://www.oecd-ilibrary.org/docserver/9789264282070-en.pdf?expires=1621950231&id=id&accname=guest&checksum=879B360A97C7CED7F77255A90BC055D5

[76] OECD, *Budget Transparency Toolkit*, https://www.oecd-ilibrary.org/docserver/9789264282070-en.pdf?expires=1621950231&id=id&accname=guest&checksum=879B360A97C7CED7F77255A90BC055D5.

between leadership and the offices and components throughout the organization. The following commentary has been reviewed by each agency for accuracy.

Effective Practices from External Government Agencies

Department of Energy Office of Science (DOE SC)

The DOE SC engages their various internal labs through budget presentations. Each year, in the summer, the DOE SC labs will meet with leadership and discuss what they have accomplished in that year. They will also present what their future priorities are. These presentations give leadership a status update on projects and other expenses like facilities portfolios.

DOE SC leadership uses the annual presentations to help give them a clear understanding of the organization's emerging needs and priorities each year. The labs are engaged and asked for input into the annual budget process to ensure budget decisions are being made with their input incorporated. DOE SC does not have funds for all lab proposals, so they must prioritize them. These decisions are clearly communicated to the labs. Additionally, the impact of not funding a certain lab's priority is also clearly communicated to show the lab why the decision was made to not fund a certain project over another one. The communication of the impact of not funding a project is also critical to holding leadership accountable for their decision making. By presenting the impacts of not funding a project, leadership inherently recognizes the impacts of their decisions and can clearly point to why the decision was made.

United States Geological Survey (USGS)

USGS successfully coordinates between its HQ leadership and the regional offices to ensure project funding and prioritization is clearly communicated throughout the Agency. Similar to many scientific organizations, USGS develops a historically based budget; however, USGS institutes mechanisms to ensure prioritization of projects is flexible to emerging needs, such as science planning process that incorporates annual guidance on priorities. Final Appropriations report language is treated as a bureau priority and is normally adhered to.

External

Similar to establishing transparency and high-quality congressional communication, an agency must build trust and transparency with constituents that have investments in the work and agency connections. While each federal organization differs in the scope of its work and services produced to the public, many federal scientific organizations conduct projects that directly impact stakeholders, including private organizations and people, state and local governments, and others who require services from the federal government to succeed in their activities.

NOAA Fisheries is a prime example of a federal scientific organization that provides key services to their constituents across the country and enables them to be successful without causing negative ecological or environmental impacts. A way to ensure these relationships are successful is through transparent communication of budgetary deliberations and decisions that could have potential monetary impacts on the external stakeholders' livelihoods.

As noted in Chapter 2, NOAA Fisheries utilizes RFMCs to engage their external stakeholders including commercial and recreational fishers, state and local governments, and others who have interest in NOAA Fisheries' services for that particular region. The desire to improve NOAA Fisheries' relationships with its external stakeholders was communicated throughout the course

of this study. Transparent budget communication on both prioritization and administrative overhead taxes on certain programs to their relevant external stakeholders is a key concern for Congress, as they receive feedback from their relevant constituents.

Budgetary communications and transparency have been a key research topic for this study and has been investigated across all seven benchmarking scientific agencies for this review. All seven science agencies interviewed for this report placed a high value on the communication lines and transparent relationship they have with their external stakeholders. However, some had more formal and established processes than others. Commentary below has been reviewed by the relevant scientific agency for accuracy and offers insight into effective ways to handle communications with external stakeholders.

Effective Practices from External Government Agencies

Agricultural Research Service (ARS)

The ARS Director of Budget and Program and Management Staff describes a robust stakeholder engagement process that has developed. ARS holds National Program Workshops annually where customers and stakeholders are convened to have conversations about the national agenda for specific research areas. This is a key step in how ARS develops and determines its priorities.

Like NOAA Fisheries, ARS has many external stakeholders that are invested in a particular geographic region. During the National Program Workshops, ARS receives vast amounts of detail and input from geographic stakeholder groups. This helps ARS to develop their budget with regional input. The representation from all the geographic areas also allows ARS to be flexible and address concerns and emerging issues for each geographic area. This allows ARS to address congressional desires, as congressional representatives are primarily interested in the stakeholders they represent. This allows ARS to address both external stakeholder concerns and those from Congress.

The first phase of the National Program Workshops is the input phase. During this phase, national program leaders articulate the scope of the program, and external stakeholders are given the opportunity to provide input and help ARS develop its national plan. This phase of the process is considerably one of the most important, as it gives ARS a clear and comprehensive idea of how to best serve its stakeholders. While the external stakeholders cannot dictate how the federal budget process will unfold, their input is considered highly valuable for determining ARS's course and directions.

Department of Energy, Office of Science (DOE SC)

The DOE SC Office of Budget Director elaborated on both the variety of external stakeholders and the processes of including them in budgetary discussions. Similar to NOAA Fisheries, DOE SC provides scientific services to its constituents and is constantly striving to be world leaders in their programs.

In order to be at the forefront of scientific developments, DOE SC must understand where to make its investments. DOE SC holds workshops with advisory groups, labs, and other external stakeholders to help establish priorities for funding and developing the budget. Services for the public and research requirements drive DOE SC's allocations and investments. While budget constraints exist and constrain the organization, the workshops give DOE SC a clear idea what projects and funding can benefit stakeholders.

The DOE SC workshops are considered a critical part of the budget building process. The workshops bring together many different perspectives that contribute to a report delivered to DOE SC leadership. This is a critical juncture where external stakeholder input is taken into consideration during the federal budget building process. The DOE SC Office of Budget Director cited these workshops as part of its continued long-term success and planning. While the workshops do not necessarily address all short-term concerns, they allow the office to strategically plan and follow a path that most effectively serves those who have invested resources in DOE SC's programs.

National Aeronautics and Space Administration (NASA)

NASA's Science Mission Directorate offers a different approach towards engaging external stakeholders than ARS and DOE SC. Rather than holding workshops and events to receive external stakeholders' input, NASA engages science community stakeholders through decadal surveys to set priorities for scientific investigations. NASA partners with the National Academy of Science to conduct these surveys and help define areas for further inquiry.[77]

While NASA offers a slightly different approach to external stakeholder engagement, it shares the same understanding of the importance that stakeholders play in informing the budgetary process. External stakeholders are the ultimate customers of NASA; therefore, external stakeholders' thoughts, ideas, and inputs are instrumental to the direction of the organization.

These examples of how scientific agencies engage their external stakeholders offer insights into how NOAA Fisheries can provide greater transparency, involvement, and enhanced communication to external stakeholders. The three agencies featured above share the common trait of soliciting and incorporating external stakeholder feedback into project prioritization, project funding, and strategic direction. The communication channels and tools enable the science agencies to accurately provide desired services and deliverables for their ultimate customer, external stakeholders.

3.6 Budget Account Structure

This section develops an evidentiary basis for Recommendation #6 in Chapter 4 of this report. The idea of budget structure is a balance between flexibility and transparency. The former refers to an agency's budget structure that has sufficient ability to apply resources to deal with emergencies and opportunities and to adjust resource uses as circumstances change. The need for Agencies to have this flexibility arises in part from the delay between when budget requests are developed and when an appropriations bill is enacted. The gap between budget request and budget legislation can often last several months into the fiscal year, sometimes ending only after several continuing resolutions. Michelle Mrdeza and Kenneth Gold of Georgetown's Government Affairs Institute describe one of the key rationales for providing agency flexibility.

> *The President begins putting his budget together a full one and a half years before the start of the new fiscal year. A lot can change in 18 months. When you tack on months of continuing resolutions and budget uncertainty, plans can change dramatically. At the*

[77] The National Academies of Sciences, Engineering, and Medicine, *Planetary Science and Astrobiology Decadal Survey 2023 – 2032*, September, 2020, https://www.nationalacademies.org/our-work/planetary-science-and-astrobiology-decadal-survey-2023-2032.

end of the day, when the ink is dry on the final bill, all too often agencies are faced with either over-funding or under-funding in different programs. Things happen—programs are delayed; priorities change; RFP's (i.e., requests for proposals) don't go out; proposals come in over or under budget. The result—agencies need to move the money around either through a transfer of funds or a reprogramming request.[78]

Flexibility must be balanced with transparency, providing Congress and the concerned public with assurance that the agency is putting resources where Congress desires. Congress holds the power of the purse, which it uses to fulfill its Constitutional responsibilities. Restrictions on the ability of agencies to move funding between accounts and within accounts, the latter often only with explicit approval from Congress, create safeguards to ensure funding goes where Congress intended. This balancing between Agency-desired flexibility and congressionally demanded transparency plays out in the account structure, as agencies have more flexibility to move funds within each account, but lack the ability to move funding between accounts due to legal, regulatory, and other strictures set by their appropriators. Fewer accounts in a governmental agency mean greater flexibility, and vice versa.

Effective Practices from External Government Agencies

Environmental Protection Agency (EPA)

The EPA is a much larger Agency than NOAA Fisheries, with its budget roughly six times greater. The EPA has a budget structure that has explicit overhead and facilities lines, which creates clarity and transparency for Congress. The Agency possesses several large accounts to which Congress appropriates funding, including Science and Technology and Environmental Programs and Management. The EPA can move resources within those accounts without the need to go through a reprogramming request to Congress, though it must follow the specific guidance included in the Joint Explanatory Statements of the appropriators. This structure has been in place for the past half decade.

National Aeronautics and Space Administration (NASA)

NASA is another Agency, much larger than NOAA Fisheries, with a combined budget of more than $23 billion in Fiscal Year 2021. The Administration has several key external stakeholders with strong, high-profile commercial and policy interests that draw attention and focus in Congress. NASA possesses a budget structure very similar to NOAA Fisheries, as Congress appropriates funding to accounts tied to its programs, including Science, Exploration, Technology, and Space Operations. Several of these appropriations accounts have several components, equivalent to the Summary PPAs of NOAA Fisheries, where Congress sets specific funding. The Administration's Science account, for example, has five different subordinate accounts, including planetary sciences and earth sciences, among others. Congress appropriates funding to several accounts without further dividing into sub-accounts, as the case with Aeronautics. Congress provides further direction that it expects NASA to follow in the JES, as well in the House and Senate's respective reports, whether a particular account includes sub-accounts. NASA's budget also has crosscutting appropriations accounts for Safety, Security, and Mission Services (SSMS), as well as Construction and Environmental Compliance and Restoration (CECR). This approach mirrors

[78] Mrdeza and Gold, R*eprogramming Funds: Understanding the Appropriators' Perspective*. https://gai.georgetown.edu/reprogramming-funds-understanding/.

NOAA Fisheries in key respects but covers a series of programs and activities significantly larger in scope and scale.

Congress receives the assurance that funding will go where it specifically intends, while giving NASA the ability to carry out its series of programs that it has developed through its planning and programming process before submitting its budget requests.

National Institute of Standards and Technology (NIST)

The NIST budget is similar in size to NOAA Fisheries. Congress provides program funding in two broad accounts, along with a separate account for facilities.[79] The NIST budget comes specifically in three appropriations buckets: (1) laboratories, (2) manufacturing extension programs; and (3) construction of research facilities. Similar to the Aeronautics account of NASA, Congress does not divide funding into sub-accounts (Summary PPAs), but provides specific direction through the JES and report language. NIST, as a result, has flexibility to carry out its programs as presented to OMB and Congress, while shifting resources without requiring a reprogramming action to meet emerging needs.

[79] 117th U.S. Congress, *Consolidated Appropriations Act, 2021,* pages 149-150. https://www.govinfo.gov/content/pkg/CPRT-117HPRT43749/pdf/CPRT-117HPRT43749.pdf.

Chapter 4: Recommendations by Focal Area

Recommendations delivered in each section of this chapter map to the focal areas found in Chapter 3. Each is based on effective practices identified in both documentary research and taken from researching the practices of other federal science-based agencies. Each section begins with a recommendation. A list of science agencies used to help shape the recommendation is then provided; that list is taken from Chapter 3, where effective practices of each agency are described to help provide greater support to each recommendation. Further explanatory text is provided to add clarity and specificity.

The recommendations are sequenced to build upon one another, concluding with a recommendation directed principally to appropriators rather than to NOAA Fisheries. Notwithstanding inclusion of a single recommendation to Congress, the Panel recognizes that this one is inextricably intertwined with Agency implementation of each of the preceding recommendations in this report. As such, decisions to embrace all report recommendations requires demonstrable shifts in NOAA Fisheries' approach to budget processes and communications among HQ and regions on the one hand, and congressional willingness to provide some additional flexibility to the Agency with respect to budget structure on the other. A mutual engagement in this manner offers incentives to introduce significant changes in how Congress, the Agency, and external stakeholders function and collaborate that can lead to mutual benefits and improved Agency performance.

4.1 Strategic Planning

Recommendation for NOAA Fisheries #1*: Re-evaluate the strategic planning process. The NMFS strategic planning process should be a major driver of the budgetary process. Assess mission requirements against anticipated needs such as changing technology and shifting fish stocks. Develop a robust process for collecting and integrating stakeholder input on strategic priorities, in keeping with Recommendations 5.1, 5.2, and 5.3.*

Recommendation Precedent by Benchmarking: ARS, EPA, DOE SC

There are several opportunities for NOAA Fisheries to enhance the role of strategy and high-level planning in its budgeting process.

Understanding long-range trends, how the environment in which the NOAA Fisheries might be changing, or how the tools and technologies used to conduct its mission might be evolving, is vital to ensure the Agency can carry out its mission in the years ahead. Other science-focused agencies, especially some of the larger agencies like the Department of Homeland Security and the Department of Defense, have directly fed the results of long-range assessments into the development of their strategic plans, which in turn translates into specific strategic guidance for formulating budgets.

GPRA and GPRAMA envision an Agency's strategic plan serving not just as the keystone to budgeting but also as central drivers of its longer-term management agenda. To that end, NOAA Fisheries should bring great focus and rigor to the development of its Strategic Plan and consider adopting some of the key practices larger agencies use in strategic plan development and use.

NOAA Fisheries can, for example, set ambitious goals consistent with NOAA and the Department of Commerce strategic plans, which might include expanding surveys or applying new technologies to carry out its missions. Annual targets can be set in its performance plans, along with quarterly data-driven reviews that use performance-related evidence to make decisions. Strategic reviews of programs, looking at performance, should feed directly into the budgetary process. NOAA Fisheries should leverage its quarterly performance and risk reports for this process. The results of the rigorously developed Strategic Plan should feed into the development of the annual planning guidance.

Stakeholder involvement is a critical element of both long-term assessment of the strategic plan as well as the planning guidance. Several specific recommendations are addressed later in this section, but suffice it to say here that interested individuals and groups, internal to NOAA Fisheries and outside should have more input into the strategic planning process, having the opportunity to provide significant input and, in the case of internal NOAA Fisheries organizations, review plan drafts.

4.2 Program Management

Recommendation for NOAA Fisheries #2: *Implement stronger program management at the HQ level. Designate, enhance, and elevate program managers to have responsibility for developing strategic plans, setting budgets, and providing program direction. This should be done in close collaboration with FMCs and external partners.*

The study has shown that oversight can be both formal and informal and can be leveraged to elevate the awareness of and provide additional insights into the programs to both NOAA Fisheries and NOAA HQ level leadership. The Department of Commerce and internal NOAA HQ have demonstrated this through the PMC and MRB processes. Coupled with the government-wide push towards portfolio views of program management, OMB is committed to creating resources to assist agencies in their program management efforts, at every level. NOAA Fisheries can take advantage of these resources to further connect with program managers.

Recommendation Precedent by Benchmarking: DOE SC, USGS, ARS

NOAA Fisheries is the second largest line office by budget level at NOAA, funded at nearly $1 billion for FY2021. The Fisheries organization is an extremely flat, highly matrixed one with core programs aligned to achieve the agency mission. However, NOAA Fisheries leaders at the HQ level lack clear oversight of and insight into the agency's mission critical programs. As a practicing standard in program management, high-level program managers are responsible for guiding and directing a series of initiatives and programs in an area. Senior program managers ensure thorough planning, budgeting, and mission execution in the assigned space. Senior program managers also look across an enterprise, act as the representative of that area in all aspects of HQ deliberations and communicate those enterprise-level priorities back to the field.

While the NOAA Fisheries regional offices conduct ongoing, quarterly program evaluations, information from the assessments is not elevated to the HQ level for further review or additional insight. This creates a fragmentation in program management functions, information sharing, and oversight. And even though NOAA Fisheries HQ engages in conversations regarding certain elements of programs during the Annual Priorities and Base Review Activities, the focal point is

limited, touching only on the specific performance metrics and milestones in relation to the strategic plan cycle. Holistic evaluation of program goals, objectives and outcomes is lacking.

Several program management best practices instituted by USGS, ARS, DOC and NOAA HQ demonstrate the beneficial impact of continuous engagement with programs regarding budgets, prioritization, allocation, and strategic direction. As a result, leaders are better prepared to support, defend, advise and provide foresight to programs in a timely manner.

At the Agency, senior policy and functional officials in HQ in DC only partly carry out the key responsibilities of a senior program manager.[80] The key responsibilities at the Agency are decentralized and devolved down to the field. In contrast, the HQ program management structure has very loose program oversight and coordination authorities.

Senior Functional and Operational Program Managers

The following is a bulleted description of the responsibilities, distilled from governmental reports, of a senior functional or operational program manager, along with a description *(in italics)* of our assessment of how nearly NMFS program managers at headquarters meet those attributes.[81]

Planning	**Participate and represent that functional area in development of an overall agency strategic plan.** • *NMFS: Strategic planning is largely a small-group, headquarters-oriented program. The politically appointed leadership largely drives this process in collaboration with senior officials.* • **Develop functional and operational plans, including priority areas, in conjunction with key stakeholders, including field managers.** • *NMFS: The Agency does not have strong operations and functional plans for how it will carry out a broad nationwide program, as discussed in Chapter 3 Section 4. The Service has regional plans.*
Budgeting	**Represent functional areas during budget formulation discussions.**

[80] A 2015 NAPA-PMI working paper highlighted that it is very common for federal agencies to fail to provide clear roles and responsibilities to agency leadership and functional and operational executives. The National Academy of Public Administration sponsored by the Project Management Institute, *Improving Program Management in the Federal Government*, July 2015. https://www.pmi.org/-/media/pmi/documents/public/pdf/business-solutions/improve-program-management-federal-government.pdf?v=b72d4e14-85a5-45ba-9c50-c6ea41dc6f6f.

[81] The National Academy of Public Administration sponsored by the project management institute, *Improving Program Management*, July 2015. https://www.pmi.org/-/media/pmi/documents/public/pdf/business-solutions/improve-program-management-federal-government.pdf?v=b72d4e14-85a5-45ba-9c50-c6ea41dc6f6f.

	• *NMFS: Budget Formulation is a closely held process involving a small group of people. Headquarters and functional / policy managers are consulted along the process.* **Assist in the presentation of the functional portion of the budget to Congress.** • *NMFS: Program/Policy managers testify and participate in congressional meetings.*
Overseeing Execution	**Participate in the budget execution process, representing the field during discussions, while also representing headquarter enterprise priorities.** • *NMFS: Execution, through the SRM process, is more a process between officials in the Office of Administration than with the regional offices. In budget terms, policy managers are designated FMCs, making them bureaucratically equivalent at the same level of authority, rather than positioned in more of an oversight, let alone, controlling position.* **Monitor ongoing programs and adjust resources.** • *NMFS: Headquarters managers do participate in allocating new resources or available carry-over funds.* **Track results and be responsible and accountable for outcomes.** • *NMFS: Headquarters program and policy largely focus on performance of the programs they directly administer, rather than tracking performance of field activities.*

Table 5: Senior Functional and Operational Program Managers (Source: NAPA)

4.3 Functional Planning

Recommendation for NOAA Fisheries #3: *Implement stronger functional planning. Functional planning includes operations (surveys, stock assessments, programs) and mission support (information technology, human resources, facilities). Each operational and mission support component should have functional plans, which integrate with the overall strategic planning process and account for budget out-years. Enhance assessment of the condition, cost of ownership, decommissioning and disposal costs, and deferred maintenance of facilities across NOAA Fisheries through long-term functional planning to better inform NOAA's FCIP and promote transparency. To this end, standardize processes for tracking facilities data across the FMCs, and collect those data centrally.*

> ***Recommendation Precedent by Benchmarking***: NIST, NASA, DOE SC, USGS, ARS, the District

Strong functional planning promotes the strategic alignment of an organization's programs and activities, increases the effectiveness of middle-level managers by helping them to identify inefficiencies, and provides management with information that can facilitate transparency with stakeholders.[82] It can be used in developing budgets, comparing budgets with actual costs, and to indicate how budgetary resources will be managed. As discussed in Chapter 3 Section 4, some of NOAA Fisheries' management processes for its functional areas preclude it from being as effective, efficient, and informed as it could be with stronger functional planning. While this report focuses primarily on functional planning for facilities, many of the principles and best practices it discusses are applicable to other functional areas.

Functional planning for facilities and other functional areas can also enhance transparency for stakeholders by providing managers with useful information on the inputs, outputs, and outcomes of projects and programs. As noted in Chapter 3 Section 4, NOAA Fisheries is currently developing a facilities management framework and a 5-year strategic facilities plan. It should continue to develop its strategic facilities plan while making connections with its agency-level strategic plan. A well-executed SFP process will improve NOAA Fisheries' ability to collect data on the state of its facilities portfolio and relate that data to stakeholders. These initiatives should integrate with, and serve to inform, NOAA's bureau-level FCIP for FY2023-2027.

NOAA Fisheries should also understand the needs of the plan and consider the level of detail that is appropriate for individuals in different positions of the organization, whether functional or operational, to focus on. The IFMA process model provided in Appendix F offers an illustration of the responsibilities of management and staff units within an organization across the four phases of facilities planning. Within the processes laid out by IFMA, NOAA Fisheries should develop asset disposal plans and integrate them with their SFPs, and SAM overall "because the disposal of assets accounts for a significant part of the full life-cycle costs of an asset."[83] The Agency should also align the timing of future asset disposal for their facilities portfolios and forecast cash flows to facilitate strategic facilities planning and their prioritization of actions therein. SAM, as detailed in Chapter 3 Section 4, will help NOAA Fisheries identify resources for

[82] Saxowsky, et al., *Functional Plans*. https://www.ag.ndsu.edu/aglawandmanagement/agmgmt/reference/strategic-business-planning/functional-plans.
[83] Banton, *Asset Disposal Plan for Infrastructure*. https://www.investopedia.com/terms/a/asset-disposal-plan.asp.

investment in facilities and maintenance, as well as recommend a prioritization of those investments to NOAA through its FCIP process to produce mission improvement and cost savings over time.

Other federal agencies, as well as the District, have implemented effective practices which might be adapted to enhance NOAA Fisheries' functional planning.[84]

- NIST: Facilities managers across the Agency provide data in a standardized format which informs its facilities condition index, allowing NIST to prioritize facilities investments through its facilities master plan.
- NASA: The PPBE process allows NASA to review and make incremental annual adjustments to functional plans across functional areas. This supports, and promotes alignment with, the Agency's strategic plan.
- DOE SC: SC plans its budgets for up to ten years into the future, establishing a direction by which to support the Agency's strategic priorities, while providing for short-term flexibility. It also maintains a twenty-year dataset for its facilities and prepares five-year plans for facilities and maintenance.
- USGS: A database in which facilities and maintenance costs are detailed down to the individual facility level and can be rolled up to the program level enables USGS to establish trends in facilities costs and condition over time. It also prepares a five-year deferred maintenance plan to communicate its funding requirements to Congress.
- ARS: ARS was asked by Congress to repair and modernize its facilities in 2012. The Agency began a capital plan which assessed the condition of its facilities and prioritized investments among them. As ARS demonstrated sound process and progress on this task, Congress later provided ARS with appropriations for this purpose.
- The District: Recognizing challenges with deferred maintenance in the Districts schools, the municipal government used rapid incrementalism - small, planned changes over time that add up to larger implementation of its vision.

Sub-Recommendation for NOAA Fisheries #3.1*: Produce and circulate an annual fish survey and stock assessment priority list to the following parties: all regional offices, all science centers, NOAA Fisheries leadership (including the budget office), NOAA leadership, Department of Commerce leadership, the Office of Management and Budget (OMB), congressional appropriators, and all relevant external stakeholders. This sub-recommendation references Recommendation #5.3, to incorporate external stakeholder input into the building of the annual fish survey and stock assessment priority list.*

In addition to the strategic alignment benefits noted above, strong functional planning also allows for a more strategic and coordinated approach towards internal and external communications, which are further discussed in Recommendations #5.1, #5.2, and #5.3. Fish surveys and stock assessments are a functional component of NOAA Fisheries and gather the greatest external

[84] Refer to Chapter 3 Section 4 for a more expansive discussion of external government effective practices in functional planning.

stakeholder audience including Congress. Fish surveys and stock assessments are the backbone of NOAA Fisheries. Sub-recommendation 3.1 addresses opportunities for NOAA Fisheries to improve fish survey and stock assessment prioritization and communication.

NOAA Fisheries, in particular, has a unique set of functional planning challenges related to their fish surveys and stock assessments.

NOAA Fisheries should be commended for the *Prioritizing Fish Stock Assessments* memorandum that was published in August of 2015. This memorandum helped place a priority on stock assessments and planned for future strategic initiatives in the area, but NOAA Fisheries still lacks a tactical process to create an annual fish survey and stock assessment priority list that is distributed to all internal and external stakeholders. Functional planning would be a mechanism to create such an annual fish survey and stock assessment priority list which would help improve communication lines internally and externally. The priority list could give greater clarity on the prioritization decisions made by leadership and allow for all relevant internal and external parties to understand what is anticipated in the upcoming year. The prioritization list will serve as a tool for leadership to communicate where priorities are while concurrently enabling all internal and external stakeholders to enhance their own functional planning capabilities around the prioritization list.

4.4 Facilities Resourcing

Recommendation for NOAA Fisheries #4: *Request funding for the NOAA Fisheries facilities portfolio's requirements through NOAA and its Facility Capital Investment Plan by conducting robust assessments of the portfolio. NOAA Fisheries should use its own functional facilities planning process and implementation strategy to assess the cost of ownership of its facilities portfolio, including deferred maintenance, and use that assessment to recommend a prioritization of facilities investments by NOAA. In communicating with NOAA, include suggestions on, and the costs associated with capital construction, renovation, renewal, and decommissioning or disposal. Strong functional planning and communication by NOAA Fisheries, together with the efforts of other NOAA line offices, will support NOAA's efforts to secure sufficient appropriations for bureau-wide prioritization of capital investments. Functional facilities planning and implementation will also benefit NOAA Fisheries' approach to address deferred maintenance, for which related expenses and resources should remain part of the ORF account. Use the effective practices and processes in Recommendation #3 to demonstrate efficiency, transparency, and sound process to NOAA, DOC, OMB, and congressional stakeholders.*

Recommendation Precedent by Benchmarking: ARS, USGS, NASA

Since expenses for mission support functions such as procurement and personnel are embedded in NOAA Fisheries' program budget lines, it can be difficult for congressional appropriators to see the discrete requirements and expense trends over time that correspond to mission support. In other words, the erosion of program resources, as well as the increase in mission support costs behind that erosion, are not broken out and made readily clear. As discussed in Chapter 3 Section 4, assessments on program lines to fund mission support expenses and inflation reduce the

amount of resources NOAA Fisheries has available to spend on those programs. They put program and mission support in direct competition with one another for finite resources.

A NOAA Fisheries functional facilities plan, as well as plans for other functional areas, will help NOAA Fisheries to show and justify its resource requirements. These plans will promote the standardization of data collection processes across the Agency and will strengthen its capabilities to aggregate and analyze the information it collects. Aggregating and analyzing more complete information will improve NOAA Fisheries' ability to separate program and mission support costs, as well as to point to pressures on its resources. The latter will enable NOAA Fisheries to better demonstrate the impact of those pressures on its mission delivery activities. Such improvements should be used to facilitate transparency and build trust between NOAA Fisheries, NOAA, DOC, OMB, and congressional stakeholders.

To that end, NOAA Fisheries should develop functional plans in consultation with NOAA and deliver completed versions and revisions to NOAA to contribute to its bureau-wide FCIP for FY2023-2027. This collaboration is important for three key reasons. First, it will provide NOAA and other NOAA Fisheries stakeholders with greater visibility over the most significant overhead costs that are eroding program spending. Second, this provides NOAA Fisheries a voice in bureau-wide discussions to establish priorities on NOAA funding for facilities. Third, NOAA Fisheries' functional facilities plan can strengthen NOAA's FCIP and contribute to a strong case for sufficient appropriated resources for the NOAA-wide facilities portfolio.

Funding for, and the management of the maintenance of NOAA Fisheries facilities should remain in its own ORF account, as is the case at the NOAA bureau-and line office-levels. This is the standard practice at NOAA because it allows managers some flexibility to quickly respond to relatively small, infrequent, or unpredicted operations and maintenance expenses. Further, deviation from this approach would not only require the Agency to adopt management and administrative changes but would run counter to NOAA's efforts to move toward a corporate, standard approach to processes among its line offices.

In addition to the above, functional planning will enhance NOAA Fisheries' ability to identify and prioritize investments in maintenance and operations, thereby producing efficiencies within its own ORF account. This will allow NOAA Fisheries to demonstrate sound process and progress on improving the condition of its facilities. New data on facilities and maintenance, as well as more standardized tracking procedures by FMCs, should enable the Agency to display clearly how and where investments are being made, promoting trust and transparency. This creates a positive feedback loop, in which internal stakeholders have input into, and ownership of, planned activities under the functional facilities plan.

Figure 11 below illustrates the role of improved data and planning in fostering a positive reinforcement loop in governmental organizations' annual budget process. A successful planning effort can secure buy-in among the organization's management and staff, and result in improved asset management and fulfilled budget requests.

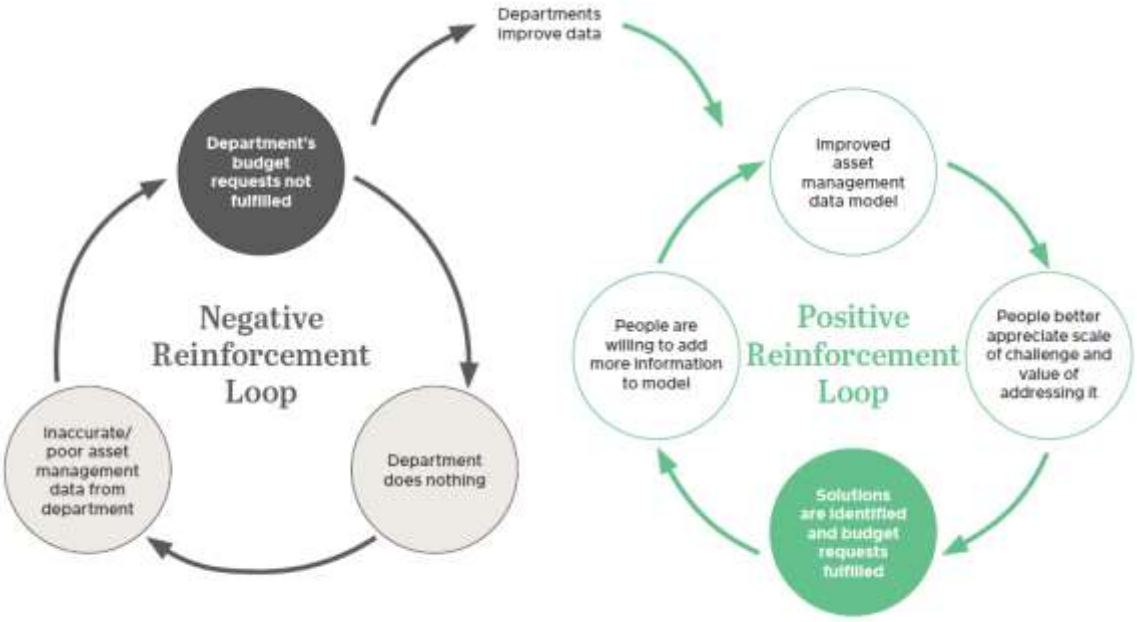

Figure 11: Negative and Positive Reinforcement Loops. (Source: Government Finance Officers Association).[85]

Other federal departments and agencies use their buildings and facilities lines effectively and have secured regularly appropriated accounts by demonstrating sound process and progress on facilities condition and costs.

- ARS: as noted in Chapter 3.4 and Chapter 4.3, ARS developed a process to assess its facilities portfolio, and prioritize investments along it. As ARS made progress, congressional appropriators provided ARS with an appropriated budget account for buildings and facilities.
- USGS: the budget includes a buildings and facilities line backed by strong data collection and a five-year facilities plan.
- NASA: within NASA's buildings and facilities budget, programs fund buildings and facilities which are unique to their individual mission areas. However, most of NASA's facilities are utilized by more than one program and are therefore funded centrally. NASA also implements a standard template for issues congressional stakeholders are looking for in its congressional budget justifications, further promoting transparency on facilities requirements and expenses.

[85] Kavanagh, et al., *Capital Planning and the DC Government,* page 49. https://www.gfoa.org/materials/capital-planning-dc-gfr.

4.5 Communications and Transparency

In some respects, an underlying and overarching theme of this report is the need for a more rigorous, transparent, and systematic approach to NOAA Fisheries' internal and external communications. However, as this report makes very clear, there are even more fundamental issues to address than simply urging NOAA Fisheries to enhance communication and transparency within the Agency and with congressional and external stakeholders. When each of the first five recommendations in this chapter are amalgamated and embraced as an integrated whole, the Agency's complex mission can be better managed and explained to its many essential partners, as well as within NOAA.

Congressional

Recommendation for NOAA Fisheries #5.1: *Devise and implement a more robust and comprehensive congressional engagement strategy, giving particular attention to providing insights into key elements of the budget. Areas of particular focus should include topics regularly raised by appropriators in the Joint Explanatory Statement. In addition, there should be greater clarity provided around program and mission support costs across the Agency. including the process for determining administrative costs and facilities maintenance assessments applied to appropriated dollars, and what the amounts/percentages taken are. Communications with Congress should be done in close collaboration with NOAA and OMB.*

Recommendation Precedent by Benchmarking: NASA, ARS, USFWS

At the outset, it is important to stress that NOAA Fisheries recognizes the importance of high-quality engagement with congressional stakeholders; nothing in this report should be taken as implying otherwise. However, this report offers insight into how the Agency could enhance its engagement, and in so doing, build greater confidence and trust with congressional appropriators and oversight committees. To this end, taking lessons as appropriate from other science agencies outlined in Chapter 3, there are actions that NOAA Fisheries might adopt to achieve these improvements.

NOAA Fisheries can use the JES to guide its focus. Important areas to guide communication enhancement should include, but not be limited to: fish surveys, fish monitoring, research, grants, data collection, and restoration of facilities. In addition, the JES also gives direction to Agency spending on facilities, scientific research, ship maintenance, and the monitoring and protection of particular species. Congress will benefit from enhanced transparency with respect to costs of overhead, the salary and benefits line, and transfers of funds appropriated for specific programs and locales that the Agency makes in order to respond to stakeholder requests.

Providing greater transparency for appropriators with respect to mission support costs can be cause for concern among financial executives and other leaders in federal agencies. There is, after all, congressional preference to be more generous when considering program delivery funding requests, rather than to fund administrative and other mission support costs. It is vital for NOAA Fisheries to be specific in providing information on program support costs, such as salaries and expenses, among other categories, in its budget briefings, presentations, and other engagements with appropriators. This would engender a more comprehensive mutual understanding of how funds flow for program delivery and support.

It is critical for Agency Senior Executives to have direct, frequent, engagement with appropriators throughout the year, both to better understand congressional concerns, and to also clarify how its budget is allocated across programs, overhead, and other important expenditures. To support NOAA Fisheries' implementation of the recommendations in this report, Agency Senior Executives should be encouraged to discuss high-level matters of long-term strategy and budget requirements with congressional appropriators. This will position NOAA Fisheries to craft fiscally informed strategies for the future, which is essential for its mission performance. As with other science-based agencies, NOAA Fisheries can work with greater coordination and collaboration between stakeholders (see below), regions, and others to explain with more precision how funds are planned, distributed, and invested with mission performance results.

As congressional staff members gain greater clarity into how the Agency prepares its budget and manages it against appropriated funds, mutual confidence will grow, opening room to enhance mission outcomes and eventually producing a healthier, more constructive oversight environment. The science agencies benchmarked in this study have reaped the benefits of taking this tact.

NOAA and the Agency have an opportunity to make improvements in congressional communications. While doing so may not call for additional investment of funds, the targeted improvements in congressional communications will require an investment of focused time and effort to enhance relationships, build greater trust, and address specific pain points that have arisen over time.

Internal

Recommendation for NOAA Fisheries #5.2*: Develop and implement a comprehensive internal budgetary communications strategy beyond NOAA Fisheries' Budget Decision and Carryover Memos. The strategy should include:*

- *Holding annual FMC presentations to NOAA Fisheries leadership on work accomplished and future priorities including analysis on the impacts of projects or programs going unfunded;*
- *Justifying and explaining leadership prioritization and funding decisions;*
- *Analyzing the impacts on projects or programs that go unfunded; and*
- *Issuing guidance on coordination between relevant program managers, FMCs, and headquarters' offices of re-allocating dollars following the conclusion of a project.*

Recommendation Precedent by Benchmarking: DOE SC, USGS

The description of NOAA Fisheries' internal communication mechanisms outlined in Chapter 2, paired with the scientific agencies practices in Chapter 3 present the foundation for the NOAA Fisheries' internal budgetary communications strategy recommendation. If accepted by NOAA Fisheries, the recommended course has the potential to enhance budget transparency between NOAA Fisheries' leadership and the FMCs.

Opportunities for improvement are present, but NOAA Fisheries should be commended for the annual Budget Decision and Carryover Memos. The memos give some clarity to the FMCs on where money is being re-allocated and what decisions were made by leadership. While these mechanisms are useful, FMCs still have an appetite for increased participation in budget development and increased transparency on why the budget decisions were made. By increasing FMC participation and issuing the rationale behind leadership's budget decisions, NOAA Fisheries can improve the transparency and buy-in from FMCs to leadership's budget decisions while improving overall budget transparency within the Service.

The four components of the internal communications strategy in the preceding recommendation are steps towards improving communication and engagement on budgetary processes throughout the agency. First, the annual presentations by FMCs will allow the FMCs to both express their priorities and include analysis on what the impacts of not funding a given project. This allows leadership to have insight into how their future budget decisions may impact NOAA Fisheries. Second, the justification and explanation of leadership's decisions allow FMCs to have a full understanding of the funding decision process. Knowing why a project has gone unfunded allays the suspicions that can arise when budget decisions are made at the leadership level. Third, the analysis of impacts on projects and programs that go unfunded shows FMCs that leadership has a full understanding of their decisions' impacts. Additionally, the process creates accountability for leadership, as the analysis should show leadership has weighed the impacts of funding or not funding a project. By acknowledging those impacts, leadership can point to a single decision point and rationale for any future questions as to why certain projects were completed over others. Fourth, the coordination policy once a project has ended will create a higher quality communications line from the program managing the project to their respective FMC and their respective headquarters' office.

The recommendation and its components offer NOAA Fisheries opportunities to improve budget communications internally. While the recommendation is founded in practices of the two scientific agencies described in Chapter 3, all scientific agencies benchmarked during the study placed a high value on clear budget communication throughout the organization. The result can be a more effective organization, whose components more fully understand each other's priorities and needs while collectively working towards the strategic direction of the whole.

External

Recommendation for NOAA Fisheries #5.3*: Develop and implement a comprehensive external budgetary communications strategy. The strategy should include:*

- *Holding annual workshops with participation from RFMCs, state fishery commissions, and other relevant external stakeholder groups to provide opportunities to offer their input for consideration in the NOAA Fisheries' budget process;*
- *Requiring strategic plans from each RFMC;*
- *Developing and issuing annual surveys to RFMC and other relevant external stakeholders soliciting feedback on accomplishments and impacts due to NOAA Fisheries' budget allocations;*

- *Issuing, to the extent possible, rationale for NOAA Fisheries' budgetary decision and subsequent analysis on the impacts of projects that go unfunded.*

  Recommendation Precedent by Benchmarking: ARS, DOE SC, NASA

The description of NOAA Fisheries' external communication functions in Chapter 2 contrasted with scientific agencies' best practices in Chapter 3 presents opportunities for improvement. A comprehensive external budgetary communications strategy could considerably benefit NOAA Fisheries by improving communication and transparency between NOAA Fisheries and its diverse and numerous external stakeholders.

While opportunities for improvement are present, NOAA Fisheries should be commended for engagement and participation with the RFMCs. Regional Office Directors sit on the RFMCs, and Science Center Directors provide scientific analysis, including stock assessments, to the diverse group of external stakeholders represented on the RFMCs. The RFMC meetings were described as having open and honest communications between NOAA Fisheries and external stakeholders. While the RFMCs have been successful, external stakeholders still have a thirst for higher levels of communication and transparency from NOAA Fisheries.

The four components of the external communications strategy suggested in Recommendation #5.3 are derived from best practices outlined in other scientific organizations. First, annual workshops should include all RFMCs and external stakeholder representatives that have invested resources in NOAA Fisheries' functions. The workshops should create a feedback mechanism for NOAA Fisheries. The annual workshops should produce a clear list or report on the priorities established by the external stakeholder pool. These priorities should be taken into consideration by NOAA Fisheries' leadership when making budgetary decisions, as those decisions are geared towards providing services to those external stakeholders. Second, two RFMCs currently have strategic plans, and both cited them as a best practice by increasing alignment and improving understanding of objectives and priorities between RFMCs and NOAA Fisheries. If all eight RFMCs produce strategic plans, NOAA Fisheries and the external stakeholders can see greater alignment in priorities and objectives. Third, the survey mechanism would allow NOAA Fisheries to keep a pulse check on whether the Service is effectively serving stakeholders throughout the course of a year. These can serve as intermediary checkpoints between the annual workshops, the first component in the recommendation, and keep NOAA Fisheries informed about the accomplishments and shortfalls of the budget throughout the year. Fourth, the rationale and justification behind budgetary decisions should give external stakeholders greater insight into why leadership decided to fund certain projects over others. These decisions inevitably point to leadership's vision for future NOAA Fisheries' priorities. By producing rationale and justifications behind the decisions, external stakeholders will be left with less questions about why their project of interest went unfunded.

The three scientific agencies whose practices are described in Chapter 3 present unique and creative ways to engage external stakeholders. Solutions that have proven successful in other scientific organizations provide an opportunity for NOAA Fisheries to enhance its communications lines with external stakeholders. While only three scientific agencies were highlighted on this topic, all scientific agencies benchmarked for this study placed an emphasis on having clear, open, and frequent communications with external stakeholders. NOAA Fisheries provides services to external stakeholders, with emphasis on stock assessments and surveys, so

increased communications and stakeholder input will ensure NOAA Fisheries is accurately and effectively serving external stakeholders.

4.6 Budget Structure

Recommendation (for Appropriators) #6: *Embracing and implementing all other recommendations in this report, NMFS should ask Congress to provide greater discretion that allows it to be more strategic in its use of resources, using an evidenced-based approach to identify and organize around Agency priorities and giving managers more flexibility to address those priorities. The Panel offers two illustrative restructuring options, including:*

- *Eliminating or reducing the number of PPAs.*
- *Reducing the amount of specific congressional direction on appropriated dollars.*

Recommendation Precedent by Benchmarking: ARS, EPA DOE SC

NOAA Fisheries lacks flexibility in executing its budget and carrying out its mission. Other agencies with far larger budgets and equal, or even more intense interest from external stakeholders, have funding appropriated to fewer accounts and with less explicit congressional direction. The detailed and explicit guidance and limits on how NOAA Fisheries funding is to be applied each year reflects longstanding congressional practice, in which Congress provides very specific direction, especially in the areas of surveys and assessments, previously through directed earmarks but more recently through detailed report language. The cumulative effect, in part, is that NOAA Fisheries has difficulty acting in a more strategic fashion to carry out its mission and move in an agile fashion to respond as circumstances change.

As Congress receives a better understanding of the direction of NOAA Fisheries through the trust building steps recommended in this report - reviews of its planning, closer coordination, greater budget transparency from creation of a facilities line, and other trust-building steps recommended in this report, it will be able to observe that NOAA Fisheries has a firm and comprehensive grasp of its mission. It is the Panel's hope that this would lead to a willingness to relax some of the reins of budgetary controls, with another PPA streamlining and a reduction in directive report language. The number of PPAs could, for example, collapse from 14 to five lines to correspond with NOAA Fisheries mission areas and the strategic objectives in its Strategic Plan.

Conclusion

This report casts a spotlight on five focal areas where NOAA Fisheries has an opportunity to enhance its policies and practices to both improve upon its budget processes and further build on communications and transparency with Congress, across the Agency, and with its external stakeholders. The recommendations need to be accommodated appropriately within the Agency according to its own organizational culture, making shifts acceptable to NOAA and the Department of Commerce as a whole. To that end, the Panel's recommendations are deliberately not so specific as to have every needed contour in place.

Knowing that NMFS leaders have a strong commitment to enhancing its processes and communications, and build an organizational culture that embraces continuous improvement, it

will be incumbent on its leaders in both HQ and in the regions to identify specific changes, re-direct resources as appropriate, and foster requisite organizational adjustments as needed. Successful re-direction to emphasize certain fundamental focal areas as called for in this report will require earnest commitment from top Agency leaders, with the support of NOAA. In addition, a clear and comprehensive implementation process that can advance change in the wake of any skeptical organizational elements clinging to past practices must be sure to address congressional concerns prompting the request for this report. Now may be the optimal moment to move forward with these changes.

Appendices

Appendix A: Panel and Study Team Member Biographies

Panel of Academy Fellows

Steve Redburn (Chair): Professorial Lecturer, The Trachtenberg School of Public Policy and Public Administration, The George Washington University. Former Study Director, National Academy of Sciences; H. John Heinz III College of Public Policy & Management, Carnegie Mellon University Australia; Project Director and Consultant, National Academy of Public Administration; Chief, Housing Branch, U.S. Office of Management and Budget; Economist, Special Studies, U.S. Office of Management and Budget; Program Analyst, Office of Policy Development and Research, U.S. Department of Housing and Urban Development; Director, Center for Urban Studies, Youngstown State University.

Sallyanne Harper: Board member, Federal Accounting Standards Advisory Board, former President, Association for Federal Enterprise Risk Management. Former Executive Officer and Vice President, AOC Solutions; Chief Mission Support Officer and Chief Financial Officer, U.S. Government Accountability Office. Former positions with U.S. Environmental Protection Agency: Chief Financial Officer/Acting Assistant Administrator for Administration and Resources Management; Deputy Assistant Administrator for Management and Administration and Deputy Chief Financial Officer; Finance Director; Associate Director, Superfund Procurement Operations. Former Contract Specialist and Contracting Officer in major weapons systems acquisition with Naval Air Systems Command and Naval Regional Contracting Office.

Susan Jacobs: Former Chief Strategic Planning Officer, Federal Housing Finance Agency; Associate Director, Finance and Administration, Office of Federal Housing Enterprise Oversight; Assistant Commissioner for Budget, Immigration and Naturalization Service, U.S. Department of Justice. Former positions with U.S. Office of Management and Budget: Chief, Veterans Affairs Branch; Economist, Special Studies in Economics and Government. Former Economist, Division of Economic Development and Public Finance, U.S. Department of Housing and Urban Development; Economic Policy Fellow, Brookings Institution; Instructor/Assistant Professor of Economics, Brooklyn College, City University of New York.

Kathy Sullivan: Oceanography Officer, United States Navy Reserve; Mission Specialist Astronaut, Lyndon B. Johnson Space Center, National Aeronautics and Space Administration; Chief Scientist, National Oceanic and Atmospheric Administration, U.S. Department of Commerce; President and Chief Executive Officer, Ohio's Center of Science & Industry (COSI); Director, Battelle Center for Science and Technology Policy, Ohio State University; Assistant Secretary for Environmental Observations & Prediction, National Oceanic and Atmospheric Administration, U.S. Department of Commerce; Under Secretary for Oceans and Atmosphere, National Oceanic and Atmospheric Administration, U.S. Department of Commerce; Lindbergh Chair in Aerospace History, Nat'l Air & Space Museum, Smithsonian Institution; Senior Fellow, Potomac Institute for Policy Studies.

James Taylor: Managing Director, Grant Thornton, LLP. Former Senior Advisor to the Commissioner, Affordable Care Act, Internal Revenue Service, U.S. Department of the Treasury; Chief Financial Officer, U.S. Department of Labor; Deputy Inspector General, U.S. Department of Homeland Security; Deputy Chief Financial Officer, U.S. Department of Commerce; Deputy Chief Financial Officer, Federal Emergency Management Agency.

Study Team

Brenna Isman, *Director of Academy Studies*. Ms. Isman has worked at the Academy since 2008 and oversees the Academy studies, providing strategic leadership, project oversight, and subject matter expertise to the project study teams. Prior to this, Ms. Isman was a Project Director managing projects focused on organizational governance and management, strategic planning and change management. Her research engagements have included working with the National Aeronautics and Space Administration, the Environmental Protection Agency, the Social Security Administration, the Department of Veterans Affairs, as well as multiple regulatory and Inspector General offices. Prior to joining the Academy, Ms. Isman was a Senior Consultant for the Ambit Group and a Consultant with Mercer Human Resource Consulting. Ms. Isman holds a Masters of Business Administration (MBA) from American University and a Bachelor of Science (BS) in Human Resource Management from the University of Delaware.

Roger Kodat, *Senior Project Director*. Mr. Kodat has led more than 30 projects for the Academy. He brings twenty years of commercial and investment banking experience with JPMorgan Chase, and six years of senior level federal government experience at the Department of the Treasury. Appointed by President George W. Bush in 2001 to serve as Deputy Assistant Secretary of Treasury, he was responsible for Federal Financial Policy. Some of his tasks at Treasury included policy formulation for the 2006 Postal Accountability and Enhancement Act; rule making and oversight of Federal loan and loan guarantee programs; and management of the Federal Financing Bank (a $32 billion bank at that time). Mr. Kodat holds a BS in Education from Northwestern University and both an MBA in Finance and MA in Political Science from Indiana University.

Daniel Ginsberg, *Senior Advisor*. Mr. Ginsberg has directed and provided subject matter expertise for a number of projects for the Academy and draws on his expertise as a defense, health care policy, and human capital consultant in Washington, DC. From 2009 to 2013, he served as the Assistant Secretary of the Air Force for Manpower and Reserve Affairs, leading the Air Force's efforts to provide trained and ready personnel, while transforming human capital management for the almost 700,000-person armed service. Mr. Ginsberg served for a decade as the senior defense policy advisor to U.S. Senator Patrick Leahy of Vermont. He is also a former member of the staff of the U.S. Senate Committee on Armed Services during the Chairmanship of U.S. Senator Sam Nunn of Georgia

Karen Hardy, *Senior Advisor*. Dr. Hardy is Chief Executive Officer of Strategic Leadership Advisors LLC and an Adjunct Professor at George Mason University's School of Business. Previously, she was the Deputy Chief Risk Officer and Director Risk Management at the Department of Commerce. In this role she was an Executive Member of the DOC IT Review Board and the DOC Acquisition Review Board. She served as a Senior Advisor to the U.S. Controller at

the Office of Management and Budget, Washington, DC for risk management policy development and implementation. Previously, she was a Senior Management Analyst at the National Institutes of Health and served on the U.S. Technical Advisory Group for the ISO 31000 International Standard for Risk Management. Dr. Hardy is a published scholar of the IBM Center for the Business of Government. She is the author of the first award winning textbook on Enterprise Risk Management in government and is a founding Board member of the Association for Federal Enterprise Risk Management (AFERM). She holds an Ed.D in Organizational Leadership and Human Resources Development from Nova Southeastern University, an MBA and is a RIMS Certified Risk Management Professional.

Kyle Romano, *Senior Research Associate*. Mr. Romano has provided research support for several Academy studies. Most recently, he has served on Academy projects assessing the value of a potential non-profit foundation for the Department of Energy, and high-level directions for the National Marine Sanctuary System over the next 20 years. He graduated from the Indiana University School of Public and Environmental Affairs where he earned a Master of Public Affairs. He attended the University of Central Florida for his undergraduate studies where he earned a B.A. in Political Science and a B.S. in Legal Studies.

Sean Smooke, *Senior Research Associate*. Mr. Smooke has worked for the Academy as a Research Associate since August of 2019. He has served on several Academy projects including *Tracking and Assessing Governance and Management Reform in the Nuclear Security Enterprise* and t*he Assessment of the National Park Service Museum Collections Storage Management*. Mr. Smooke currently serves on two projects with the Department of Homeland Security. He provides additional support to the Academy's Quarterly Working Capital Fund Symposium. Mr. Smooke holds a B.A. from Claremont McKenna College in Government and Legal Studies.

Appendix B: List of Interviewees

Congressional Appropriators

- **Darren Benjamin,** House Minority
- **TJ Lowdermilk,** House Majority
- **Blaise Sheridan,** Senate Minority
- **Matt Womble,** Senate Majority

Department of Commerce

- **Mike Phelps**, Director, Office of Budget

National Oceanic and Atmospheric Administration

- **Mark Seiler**, Chief Financial Officer

National Marine Fisheries Service

- **Jim Balsiger***,* Regional Administrator, Alaska Regional Office
- **Lori Budbill***,* Director, Operations, Management, and Information Services Division, Alaska Fisheries Science Center
- **Nicole Cabana**, Deputy Director, Northeast Fisheries Science Center
- **Roy Crabtree**, Regional Administrator, Southeast Regional Office
- **Kimberly Damon-Randall***,* Deputy Regional Administrator, Greater Atlantic Regional Fisheries Office
- **Kelly Denit**, Director, Office of Sustainable Fisheries
- **Lisa Desfosse**, Deputy Director, Southeast Fisheries Science Center
- **David Detlor***,* Deputy Director, Office of Science and Technology
- **Dawn Difiore**, Budget Execution Chief, Office of Management and Budget
- **Paul Doremus***,* Deputy Assistant Administrator for Operations
- **Robert Foy**, Director, Alaska Fisheries Science Center
- **Perry Gayaldo**, Chief, Strategic Planning and Performance
- **Jon Hare**, Director, Northeast Fisheries Science Center
- **Evan Howell**, Director, Office of Science and Technology
- **Kristen Koch**, Director, Southwest Fisheries Science Center

- **Patrick Lynch**, OST Assessment and Monitoring Division Chief, Office of Science and Technology
- **Kate Naughten**, Director, Office of Communications
- **Nancy Majower**, Deputy Chief Information Officer
- **Sarah Malloy**, Deputy Regional Administrator, Pacific Islands Regional Office
- **Catherine Marzin**, Deputy Director, Office of Protected Resources
- **Doug Mecum**, Deputy Regional Administrator, Alaska Regional Office
- **Stuart Merrill**, Deputy Chief Financial Officer
- **David O'Brien**, Deputy Director, Office of Aquaculture
- **Michael Pentony**, Regional Administrator, Greater Atlantic Regional Fisheries Office
- **Clay Porch**, Director, Southeast Fisheries Science Center
- **Larissa Plants**, Chief of Staff, Office of Protected Resources
- **Samuel Rauch**, Deputy Assistant Administrator for Regulatory Programs
- **Scott Rumsey**, Deputy Regional Administrator, West Coast Regional Office
- **Jeremy Rusin**, Deputy Director, Alaska Fisheries Science Center
- **Michael Seki,** Director, Pacific Islands Fisheries Science Center
- **Carrie Selberg-Robinson**, Director, Office of Habitat Conservation
- **Andy Strelcheck**, Deputy Regional Administrator, Southeast Regional Office
- **Mark Strom**, Deputy Director, Northwest Fisheries Science Center
- **Barry Thom**, Regional Administrator, West Coast Regional Office
- **Michael Tosatto**, Regional Administrator, Pacific Islands Regional Office
- **Roy Varghese**, Chief Information Officer
- **Jenni Wallace**, Deputy Director, Office of Sustainable Fisheries
- **Ming Warren**, Budget Formulation Chief
- **Jeff Weir**, Division Chief, Office of International Affairs and Seafood Inspection
- **Cisco Werner**, Director, Scientific Programs and Chief Science Advisor
- **Kevin Werner**, Director, Northwest Fisheries Science Center
- **Donna Wieting**, Director, Office of Protected Resources

National Weather Service

- **Deirdre Jones**, Director, Office of Facilities
- **John Potts**, Chief Financial Officer

Pacific Fishery Management Council

- **Bob Dooley**, Councilmember
- **Chuck Tracey**, Executive Director

North Pacific Fishery Management Council

- **Craig Cross**, Councilmember

New England Fishery Management Council

- **Tom Nies**, Executive Director

Mid-Atlantic Fishery Management Council

- **Christopher Moore**, Executive Director

Caribbean Fishery Management Council

- **Miguel Rolón**, Executive Director

South Atlantic Fishery Management Council

- **John Carmichael**, Executive Director

Pacific States Fisheries Commission

- **Randy Fisher**, Executive Director

Gulf States Fisheries Commission

- **Dave Donaldson**, Executive Director

Washington Governor's Salmon Recovery Office

- **Erik Netherlin**, Executive Director

Government Accountability Office

- **Krista Anderson**, Senior Analyst
- **Scott Heacock**, Assistant Director, Natural Resources and Environment Team
- **Alyssa Hundrup**, Acting Director, Health Care Team
- **Cardell Johnson**, Acting Director, Natural Resources and Environment Team
- **Patricia Moye**, Analyst
- **Rebecca Sandulli**, Analyst

Environmental Protection Agency

- **Glen Cuscino**, Staff Director, Multi-Media Analysis Staff, Office of the Chief Financial Officer
- **Hamilton Humes**, Budget Analyst, Office of the Chief Financial Officer

Department of Energy

- **Kathleen Klausing**, Director, Office of Budget, Office of Science

Agricultural Research Service

- **Mike Arnold**, Director, Budget and Program Management Staff

Office of Management and Budget

- **Kimberly Miller**, Program Examiner, Commerce Branch

National Institute of Standards and Technology

- **Mojdeh Bahar**, Associate Director, Innovation and Industry Services
- **Jason Boehm**, Director, Program Coordination Office
- **Ann Marie DeBlasi**, Budget Officer

U.S. Fish and Wildlife Service

- **Chris Nolin**, Budget Officer

U.S. Geological Survey

- **Anne Barrett**, Associate Director, Office of Budget, Planning, and Integration
- **Shari Delung**, Program Analyst
- **Jennifer Fox**, Financial Analyst
- **Jackie Johnson**, Program Analyst, Ecosystem and Land Resources, Office of Budget, Planning, and Integration
- **Pamela Kutsko**, Chief, Office of Accounting and Financial Management
- **Arista Maher**, Budget Officer, Office of Budget, Planning, and Integration
- **Andrew Street**, Chief of Staff, Budget, Planning, and Integration

National Aeronautics and Space Administration

- **Doug Comstock**, Deputy Chief Financial Officer

Government Finance Officers Association

- **Chris Morrill**, Chief Executive Officer, Academy Fellow

At-Sea Processors

- **Stephanie Madsen**, Executive Director

Alaska Bering Sea Crabbers

- **Jamie Goen**, Executive Director

O'Hara Corporation

- **Mary Beth Tooley**, Government Affairs, Former Councilmember, New England Fishery Management Council

University of Maryland Center for Environmental Science

- **Dennis King**, Visiting Professor

Other

- **Phil Anderson**, Retired, Former Pacific Fisheries Management Council Chair
- **Gary Reisner**, Retired, Former Chief Financial Officer, National Marine Fisheries Service

Appendix C: NOAA Fisheries Detail-Level PPAs

Protected Resources Science and Management
Marine Mammals, Sea Turtles and Other Species
Protected Species Research and Management Programs
Other Protected Species
Marine Mammal Protection (MMP)/NMFS Activities
Marine Mammal Strandings - Prescott Grant Program
Alaska Native Marine Mammal Co-management
Cook Inlet Beluga
North Pacific Southern Resident Orca Population (PSM)
Recovery of Endangered Large Whales
Right Whale Activities (ESA)
Right Whale Activities - Cooperative State Plans
Dolphin Encirclement/Yellowfin Tuna Research
Hawaiian Monk Seals
Alaska Seals and Sea Lions
Sea Turtles
Hawaiian Sea Turtles
Species Recovery Grants
Atlantic Salmon
Pacific Salmon

Enforcement
Enforcement
Driftnet Act Implementation
NMFS Activities (Science & Technology Driftnet Act)
Enforcement & Surveillance
Cooperative Agreements w/ States
Vessel Monitoring System

Habitat Conservation & Restoration
Habitat Management and Restoration
Sustainable Habitat Management
Fisheries Habitat Restoration
Chesapeake Bay Protection and Restoration

Fisheries Science and Management
Fisheries and Ecosystem Science Programs and Services
Fisheries Science Base Activities
Economics & Social Sciences Research
National Standard 8
Fisheries Oceanography
Antarctic Research
Climate Regimes & Ecosystem Productivity
NMFS Facilities Operations and Maintenance
Computer Hardware and Software - FY 2004 Omnibus Funded in PAC
Information Analyses & Dissemination
Fisheries Data Collections, Surveys and Assessments
Expand Annual Stock Assessments - Improve Data Collection
Fisheries Statistics
Fish Information Networks
Survey and Monitoring Projects
American Fisheries Act
Marine Resources Monitoring, Assessment & Prediction Prgm (MarMap)
Cooperative Research
Southeast Area Monitoring & Assessment Program (SEAMAP)
Observers/Training
Atlantic Coast Observers
East Coast Observers
Hawaii Longline Observer Program
N. Pacific Marine Resources Observers/N. Pacific Observer Program
NE Fisheries Observers
National Observer Program
S. Atlantic/Gulf Shrimp Observers
West Coast Observers
Reducing Bycatch - Observers
Fisheries Management Programs and Services
Fisheries Management Base
National Catch Share Program
Reducing Bycatch
Product Quality and Safety
Aquaculture
Salmon Management Activities
Columbia River Facilites and Hatcheries
Pacific Salmon Treaty
Chinook Salmon
Regional Councils and Fisheries Commissions
Regional Councils
International Fisheries Commissions
Interstate Fish Commissions: 3 Commissions
Interstate Fish Commissions: Atlantic Cooperative Management
Interjurisdictional Fisheries Grants

Figure 12: NOAA Fisheries Detail-Level PPAs. (Source: NOAA Fisheries).

Appendix D: Fish Stock Sustainability Index (FSSI)

The Fish Stock Sustainability Index (FSSI) is a quarterly index that measures the performance of U.S. federal fisheries. Currently, the index includes 175 stocks selected for their importance to commercial and recreational fisheries. These stocks represent over 80 percent of total U.S. fishing catch. The index score increases when NOAA Fisheries determines the status of a stock and/or when its status improves (either no longer subject to overfishing, no longer overfished, and stock size increases to at least 80% of target or is rebuilt).

Each quarter, NOAA Fisheries calculates the FSSI score incorporating information from new stock assessments and stock status determinations. The index is calculated on a 1,000 point scale using the following methodology:

Step 1: Assign weighted criteria points for each stock based on the following:

Criteria	Criteria Points
"Overfished" Status is known.	0.5
"Overfishing" status is known.	0.5
Overfishing is not occurring (for stocks with known "overfishing" status).	1.0
Stock biomass is above the "overfished" level defined for the stock.	1.0
Stock biomass is at or above 80% of the biomass that produces maximum sustainable yield (BMSY).	1.0

Table 6: FSSI Criteria (Source: NOAA Fisheries)[86]

Step 2: Calculate the sum of criteria points for all index stocks.

Step 3: Calculate maximum criteria points possible: multiply number of index stocks (175) x maximum criteria points per stock (4 points).

Step 4: Calculate a raw total point score: divide sum of criteria points / maximum criteria points possible.

Step 5: Convert raw total point score to a 1,000 point scale: total raw point score x 1,000.

[86] NOAA Fisheries, *Fish Stock Assessments Report,* April 4, 2021, https://www.fisheries.noaa.gov/national/population-assessments/fish-stock-assessment-report

Appendix E: Government-wide Standards and Principles of Program Management that can be Applied at NOAA Fisheries

Areas	Standard/Principle
Change Management	Development of methods for recording changes to established baselines and requirements within a program lifecycle on a procedural, operational or organizational level, and communications plan for disseminating identified changes to increase awareness and cooperation to facilitate execution.
Communications Planning, Stakeholder Engagement, and Coalition Building	Building coalitions internally and with other Federal agencies, State, and local governments, or nonprofit and private sector organizations to achieve program goals. Includes aspects of: Partnering and Team Building- developing networks, building teams and alliances, and collaborating across boundaries to build strategic relationships to achieve program goals.
Contracting and Acquisition Management	Development of statements of objectives, statements of work, concept of operations, cost, schedule, scope, earned value management, and supporting documents to best plan and track the procurement of program requirements and projects.
Customer Service	Delivering customer satisfaction by employing effective time management skills, clear communication, product/service knowledge and goal-oriented focus in program implementation.
Evaluation	Systematically assessing how well an entire program, or a specific strategy or an aspect of a program, is working to achieve intended result or outcomes.
Financial Management	Applying budget, accounting, financial controls and audit principles to ensure the stewardship of taxpayer resources throughout program execution.
Human Capital Management	Building and managing the program's workforce requirements based on organizational and program goals, budget considerations, and staffing needs. Includes strategies and actions for ensuring employees are appropriately recruited, selected, appraised and rewarded, trained, and action taken to address conduct or performance issues.
Information Management	Activities related to the planning, budgeting, manipulating, and controlling of information throughout the program's life cycle, encompassing both information itself and the related resources, such as personnel, equipment, funds, and information technology that support the program.
Performance Management	Use of goals, measurement, evaluation, analysis, and data-driven reviews to improve program results.
Portfolio Management	Defining a set of programs, projects, contracts and other work that support strategic goals.
Process Improvement	Employing a systematic application of disciplined problem-solving techniques to impact the operations of systems or programs. Uses Continuous Process Improvement (CPI) models to leverage strategy and performance management

	data to identify and eliminate waste, reduce variation, and satisfy the needs of customers.
Project Management	Applying general and specialized knowledge, skills, expertise, and practices to temporary endeavor with a defined scope, cost and completion date. A project may be part of a larger program or portfolio.
Requirements Development and Management	Identifying program needs and matching identified needs to the organization's mission and goals. Developing preliminary and subsequent capital planning, budget formulation, cost/benefit analysis, and investment decision document for evaluation and justification of program costs.
Risk Management	Coordinated activities to direct and control challenges or threats to achieving a program's goals and objectives, and includes developing risk mitigation plans to overcome potential barriers to program performance.
Strategic Planning	Planning activity to present the long-term objectives the program hopes to accomplish, what actions the agency will take to realize those goals, and how the agency will deal with the challenges likely to arise as barriers to achieving the desired outcomes.

Table 7: Government-wide Standards and Principles of Program Management (Source: OMB Circular A-11, Section 270.11)

Appendix F: International Facilities Management Association Strategic Facility Planning Process Model

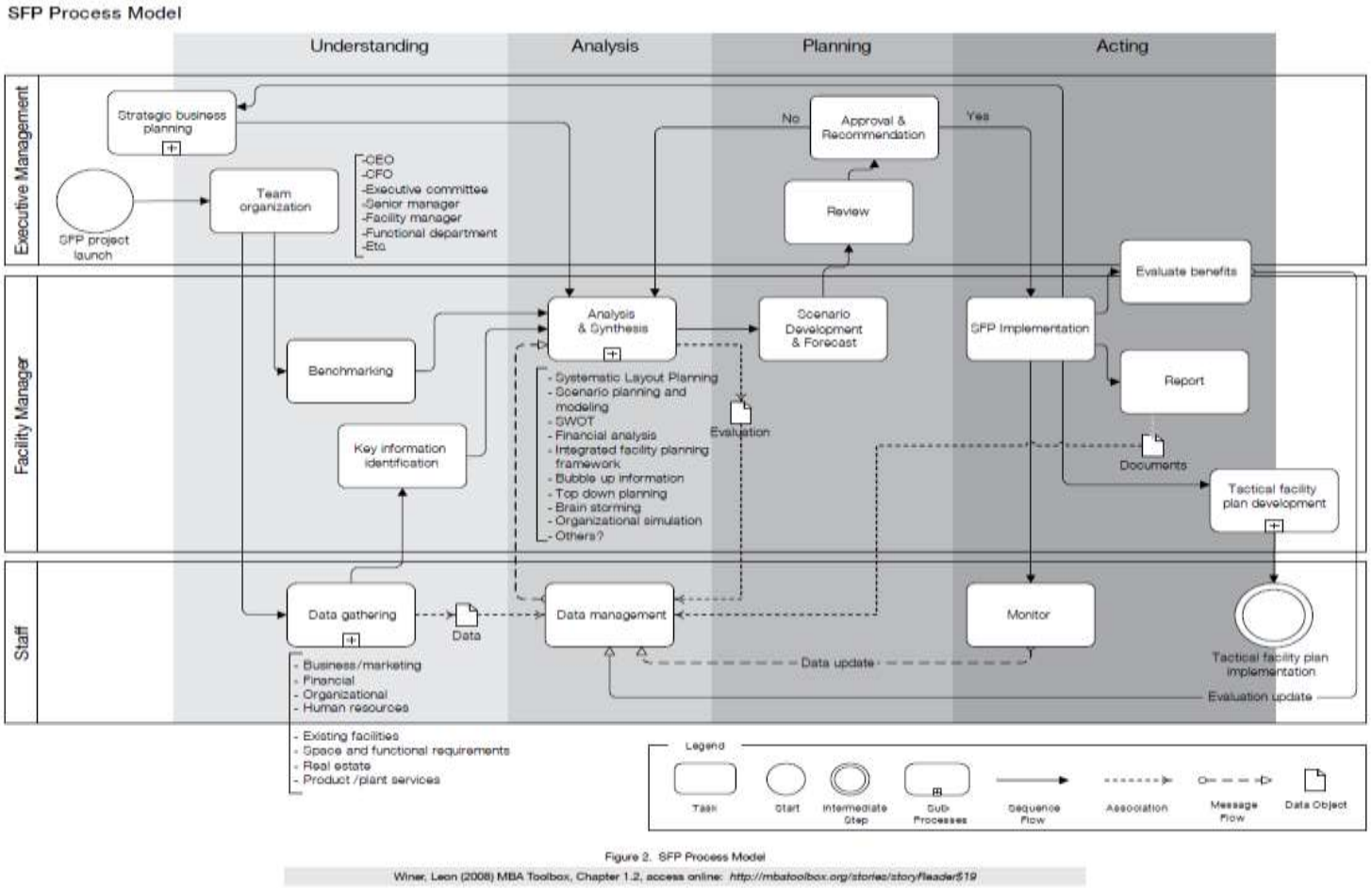

Figure 2. SFP Process Model

Winer, Leon (2008) MBA Toolbox, Chapter 1.2, access online: http://mbatoolbox.org/stories/story/leader$19

Figure 13: IFMA SFP Process Model. (Source: International Facilities Management Association).[87]

[87] International Facility Management Association, *Strategic Facility Planning: A White Paper*. https://community.ifma.org/cfs-file/__key/telligent-evolution-components-attachments/13-463-00-00-01-05-69-96/2009_5F00_Strategic-Facility-Planning_5F00_White-Paper.pdf.

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