

**NOAA FISHERIES SERVICE**

# Fisheries Information System

## Program Management Plan

### Version 1.1

February 9, 2006

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SERVICE

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## Executive Summary

Marine fisheries management organizations have long understood that the quantity and quality of fisheries-dependent information about commercial and recreational fisheries directly relate to the quality of the scientific analysis supporting resource management and allocation decisions. In its 1998 Report to Congress, the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service made the case that significant long-term investment would be required to ensure that the right information of the right quality is readily available to form the basis of these management decisions. In that Report, NOAA and its partners delivered a high-level strategy and rough order-of-magnitude investments needed to realize a National Fisheries Information System (FIS).

The United States Congress has recently provided the resources to initiate an FIS Program. The FIS Program will improve the existing framework for partnership and collaboration with NOAA partners who collect, manage, and disseminate fisheries information. The FIS Program Management Team (PMT) has the opportunity and responsibility to allocate the FIS Program's limited resources to the highest priorities.

The FIS Program vision of "a comprehensive, continuously updated time-series of well-documented, high-quality, easily-accessible information on the nation's fisheries that supports living marine resource stewardship" will guide the PMT in executing the FIS Program mission:

*NOAA's FIS Program delivers fisheries information collection, management, and dissemination solutions to improve accuracy, completeness, timeliness, and accessibility. The Program leverages Federal-State partnerships and investments to provide the information needed to help understand the effects of fishing on living marine resources, and to improve the quality of resource management decisions.*

Achieving the following four goals will help NOAA Fisheries to realize the FIS Program vision and mission:

- Expand and adapt data collection to meet current and future needs.
- Build and integrate information management systems within and across regions.
- Establish regional and national standards (minimum guidelines) for information collection, management, and dissemination to ensure high quality, completeness, timeliness and accessibility.
- Implement and maintain effective partnerships to support collaboration among stakeholders and to leverage investments across regions and the nation.

FIS design principles are to:

- Avoid costs by reducing duplicative efforts, leveraging current and projected investments;
- Establish an overall FIS Program Architecture that includes business and technology perspectives, standards of measurement, and standards of quality; and
- Reduce industry and reporting burden.

These design principles represent guiding elements for FIS Program execution. Recent initiatives within NOAA and with its domestic and international partners also show the importance of an ecosystem management approach to resource management. This will require tight integration of FIS and its products with major NOAA programs like the Integrated Ocean Observing Systems (IOOS) and the Global Earth Observing System of Systems (GEOSS).

State, State-Federal, Regional Offices, and Fisheries Science Centers' data collection and management programs have progressed during the past decade. The concept of a "one-stop shop" for fisheries information at State, Regional, and National levels is achievable if funding and executive sponsorship continues during the next five to ten years.

Initial investments have established a program management plan for the FIS Program. The greatest progress has occurred in developing governance, in particular the processes for project selection and

resource allocation. The PMT has begun work on communications and outreach, program architecture, and risk management, and soon will investigate knowledge management practices. The PMT is implementing program management best practices by:

- Establishing clear roles and responsibilities for the participants;
- Developing a portfolio management approach to the array of diverse projects to be executed;
- Ensuring that project management expectations are standardized and well-documented; and
- Establishing the expectations and means to monitor and evaluate progress and performance.

The Program Management Team (PMT) has organized projects into eight FIS Program portfolios. These portfolios represent the core areas of investment:

- 1: FIS One-Stop Shop
- 2: FIS Information Catalog
- 3: Information Quality
- 4: Common Identifiers
- 5: Establish and Meet Minimum Information Requirements
- 6: Electronic Reporting and Registration Systems
- 7: Program Management Support
- 8: FIS Program Architecture

The PMT developed initial high-level work plans and identified the desired outcomes for each portfolio. Additional analyses will establish critical paths, inter-relationships, and dependencies between and among these portfolios.

The PMT has identified the following portfolios as those that can contribute the most to FIS and to NMFS regions, headquarters program offices, and NOAA partners:

- 1: FIS One-Stop Shop
- 5: Establish and Meet Minimum Information Requirements
- 6: Electronic Reporting and Registration Systems

Initial and ongoing investments in data reconciliation protocols, system identification and metadata collection tools, and analysis of requirements of a national fisheries permit system have provided momentum to these portfolios.

The FIS Program has much to do to achieve its goals and to describe the process that leads to achieving those goals. The FIS Program Management Plan (PMP) describes how the FIS Program plans to achieve its goals. During the coming months, the PMT will work collaboratively to refine the FIS Program's governance plans and to develop detailed plans for communications and outreach, program architecture, knowledge management, and risk management. The FIS PMP is where the PMT will archive those descriptions. The PMT will update the FIS PMP continuously as projects are completed and as resources are allocated and re-allocated according to current and emerging priorities.

The FIS Program can achieve the vision, mission, and goals described here if it has significant executive commitment (and funding) within NOAA Fisheries and its partner agencies. It will also require persistence on the part of the Program Director, the Program Manager, and the PMT. The rebuilding and health of the nation's marine fisheries resources are well worth the investment of energy and funding in the FIS Program.

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# 1. Introduction

## 1.1 Purpose

The Fisheries Information System (FIS) Program Management Plan provides the context, direction, plans, and accomplishments of fisheries information collection, management, and dissemination. This Program Management Plan describes:

- The FIS Program's goals, and
- Its plans for achieving those goals.

This document is a repository for the FIS Program's basic program management components, principles, and standards. New members of the FIS Program's committees will find this document to be a useful resource for understanding the FIS Program's objectives and processes. Current committee members, sponsors, and executive managers will use this document as a reference to confirm their understanding of processes and procedures.

Over time, the National Marine Fisheries Service (NOAA Fisheries Service) will revise this program management plan to meet the FIS Program's stakeholders' needs, and to adapt to changes in the following areas:

- Fisheries management legislation and regulation that drives the need for fisheries statistics;
- System requirements as old requirements are satisfied and new requirements emerge;
- NOAA's stewardship initiative; and
- Software, hardware, and communications technology changes.

## 1.2 Background

The NOAA Fisheries Service is one of five line agencies of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). NOAA is responsible for collecting, managing, and disseminating information about the nations' fisheries resources. Its long-standing stewardship mission drives a need for fisheries information. To achieve this mission, NOAA Fisheries Service integrates fisheries-dependent and fisheries-independent information about the resources to understand the status and health of fisheries stocks.

Many organizations and people rely on fisheries data to make decisions affecting the stewardship of the Nation's living marine resources. Organizations that collect, share, and use these data include fisheries science centers, fisheries information networks, regional fishery management councils, interstate fishery commissions, and State fishery agencies. Fishermen and citizens of the United States also rely on fisheries statistics and information to make decisions regarding their participation in, investment in, and use of commercial and recreational marine fisheries. In addition, fisheries statistics can help measure how effectively government agencies are meeting stewardship goals and objectives. The quality of resource stewardship decisions and the predictability of the outcomes are strongly dependent on the quality of the data used for those decisions.

During the past three decades, NOAA Fisheries Service and its fishery management partners have significantly stepped up their investments in resource monitoring and assessment. Federal-State data

"There are several commercial fishery information network programs being conducted currently, as well as recreational fishery information programs. These networks have been funded on a regional basis. The Committee is concerned about the accuracy and effectiveness of these data collection efforts, and expects NMFS to create an umbrella program to coordinate the techniques used to gather and disseminate data on a national basis while continuing to take into account the unique characteristics of regional commercial and recreational fisheries."

—July 1997 Senate Appropriation Committee for Commerce, Science, and Transportation FY98 NMFS Budget Appropriation report

collection programs have formalized and advanced collaboration and communication. In some cases, this collaboration resulted in sophisticated regional fisheries data collection and management consortia in the Atlantic Coast, Gulf of Mexico, Pacific Coast, Alaska, and Western Pacific. While fisheries statistics programs have improved over the past decade, the quality and completeness of fisheries data and statistics are often inadequate. Fisheries data are often not accessible in an appropriate form or in a timely manner. Methods for data collection and management are frequently burdensome and inefficient. These problems result in the inability to answer basic questions regarding the state of the Nation's fisheries, such as:

- What is the status of marine fishery stocks?
- Which marine fishery stocks are over-fished?
- How many vessels and people are working in various fisheries?
- Are policy decisions improving the economic and biological sustainability of our fisheries, and if so, how much?
- How are different harvesters, consumers, coastal residents, non-consumptive users, and others affected by these stewardship decisions?

Answers to these kinds of questions are essential to sound resource stewardship. Managing fisheries at local, State, Regional, or National levels requires a better system for collecting, managing, and disseminating fisheries information than the one currently in place.

### 1.3 Genesis of the FIS Program

To address the shortcomings described in section 1.2, the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) as amended in 1996 required the National Marine Fisheries Service (NMFS, the NOAA Fisheries Service's predecessor) to "develop recommendations for implementation of a standardized fishing vessel registration and information management system" to improve the United States' fisheries statistics programs.

The MSFCMA (1996) required system implementation on a regional basis. Major regional information systems already exist or have matured significantly in the past decade. For this reason, the FIS Program's intent is to provide a context, standards, and an ongoing program and portfolio management approach that will improve, expand, and integrate State and Regional activities into a nationwide fisheries information system.

The MSFCMA (1996) specifies that the system would have two components. The first component, the Vessel Registration System (VRS), would enable fisheries managers to uniquely identify every United States vessel engaged in commercial and recreational for-hire fishing. To implement the VRS component of the system, NMFS recommended using an existing system. The U.S. Coast Guard's Vessel Information System (VIS) includes nearly all of the information needed for the VRS. VIS combines data from the U.S. Coast Guard vessel documentation and State vessel numbering files into one database.

Section 401(a) of the MSFCMA (1996) states: STANDARDIZED FISHING VESSEL REGISTRATION AND INFORMATION MANAGEMENT SYSTEM.--The Secretary shall, in cooperation with the Secretary of the department in which the Coast Guard is operating, the States, the Councils, and Marine Fisheries Commissions, develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis. The recommendations shall be developed after consultation with interested governmental and nongovernmental parties...

Section 401(c) of the MSFCMA (1996) states: FISHERY INFORMATION.--The proposed information management system should, at a minimum, provide basic fisheries performance information for each fishery, including--

- (1) the number of vessels participating in the fishery including charter fishing vessels;
- (2) the time period in which the fishery occurs;
- (3) the approximate geographic location or official reporting area where the fishery occurs;
- (4) a description of fishing gear used in the fishery, including the amount and type of such gear and the appropriate unit of fishing effort; and
- (5) other information required under subsection 303(a)(5) or requested by the Council under section 402.

The second component, the Fisheries Information System (FIS), would integrate and expand the current State and Regional cooperative fisheries statistics programs. Some of these programs are in use, while others are in the early stages of implementation. Control and management of these programs will remain local. The FIS will provide the framework, data standards, and protocols that allow the collection, quality assessment, integration, standardization, management, organization, summarization, and dissemination of these data into inter-regional and national views. These data will be organized to make data queries more efficient, to meet the information needs of specific users, and to protect data confidentiality in compliance with State and Federal laws and policies.

## 1.4 Drivers for the FIS Program

During the past three decades, the FIS Program has evolved in response to the development of each Federal, State, and Regional data collection and management program. While some programs have had a greater impact than others, all of them have played a part. The systems currently in place—the result of all of the efforts of many people through many years—are diverse and complex. As the FIS Program is essentially a system of systems, its drivers are quite complex too.

### 1.4.1 Legislative Mandates for Marine Resource Management

This section summarizes the drivers that affect the evolution and maturity of the FIS Program now and into the future.

In addition to Section 401 of the MSFCMA (1996), there are many legislative mandates that support the intent of the FIS Program, including:

- **Endangered Species Act (ESA).** Endangered and threatened species are relevant even though the FIS Program will focus on fishery-dependent data, and directed fishing for endangered or threatened species is prohibited. FIS is capable of capturing data on bycatch and other observer-based data. Its data might assist fishery managers and others in understanding the effects of fishing on endangered or threatened species. Consequently, permit and vessel registration programs associated with this Act fall well within the scope of the FIS Program.
- **Marine Mammal Protection Act (MMPA).** The MMPA-sponsored conservation and protection programs for protected marine mammals are relevant to the FIS Program for the same reasons as the ESA is relevant: bycatch and observer-based data may be useful to fishery managers and others, and permit and vessel registration programs associated with this Act are important components of the FIS Program.
- **International Conventions and Treaties.** The FIS Program scope includes data collection mandates associated with conventions such as the Whaling Conventions Act, Atlantic Tuna Convention Act, South Pacific Tunas Act, Pacific Salmon Treaty, and the Antarctic Marine Living Resources Convention Act.

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended in 1996, drives the FIS Program through the following regulations:

- Sec. 2. Findings, Purposes, and Policy 16 U.S.C. 1801
- Sec. 301. National Standards for Fishery 16 U.S.C. 1851
- Sec. 303. Contents of Fishery Management Plans 16 U.S.C. 1853
- Sec. 401. Registration and Information Management 16 U.S.C. 1881

See Appendix 1 Federal Reporting Requirements for a comprehensive list of the MSFCMA regulations relevant to the FIS Program, as well as the Marine Mammal Protection Act (MMPA) and international regulations.

See Appendix 1 Federal Reporting Requirements for further information associated with data collection requirements in these acts.

In addition to these acts and treaties, the FIS Program must conform to and support NOAA's overall policies and strategies.

### 1.4.2 NOAA's Vision, Mission, and Goals

NOAA is part of the U.S. Department of Commerce. NOAA Fisheries Service is one of six divisions in NOAA. All NOAA-level policy and strategy affects the NOAA Fisheries Service's goals, objectives, programs, and performance measures. NOAA's intent and direction are represented in its vision, mission, and goals.

NOAA's vision statement is:

*An informed society that uses a comprehensive understanding of the role of the oceans, coasts and atmosphere in the global ecosystem to make the best social and economic decisions*

NOAA's mission statement is:

*To understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs.*

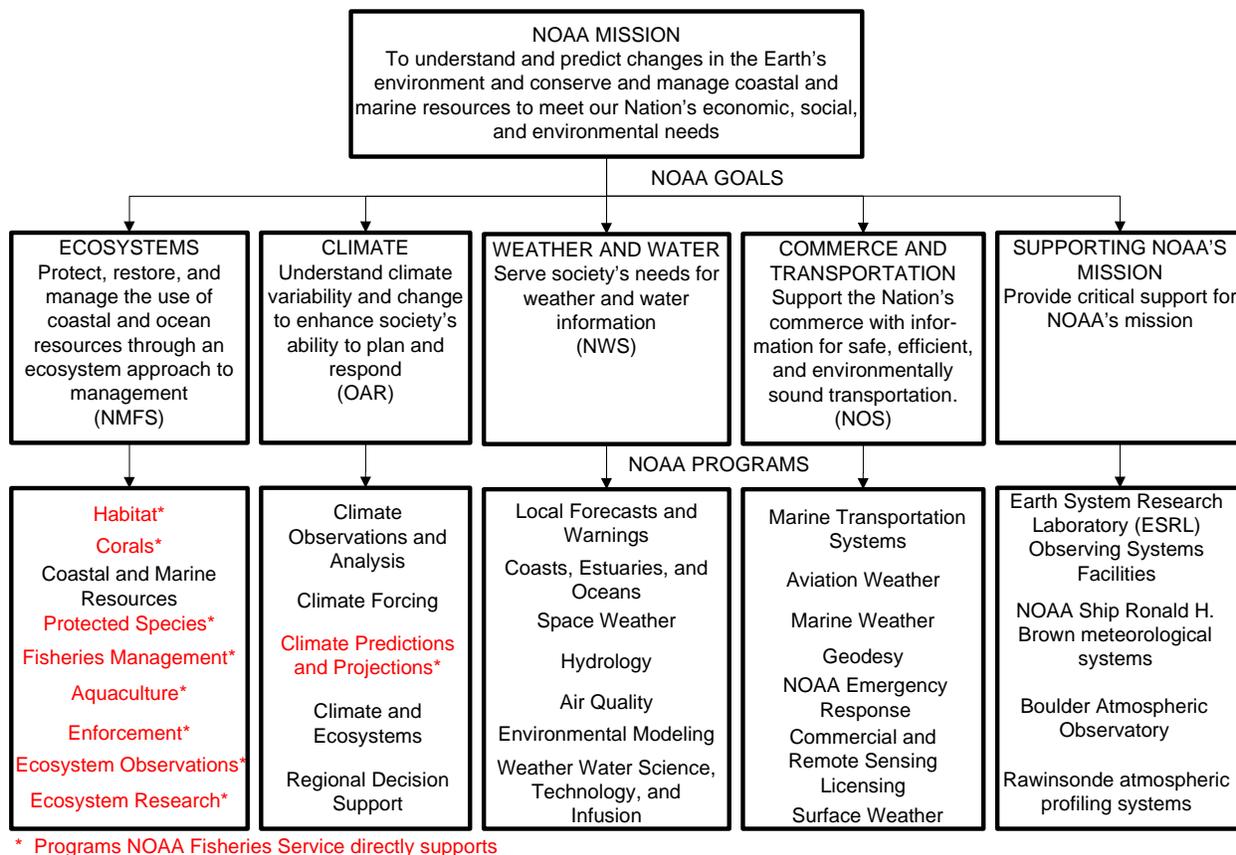
NOAA's goals are to:

- Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management;
- Understand climate variability and change to enhance society's ability to plan and respond;
- Serve society's needs for weather and water information;
- Support the nation's commerce with information for safe, efficient, and environmentally sound transportation;
- Provide critical support for NOAA's mission.

The first four goals support NOAA's line offices, such as the NOAA Fisheries Service. The fifth goal support's NOAA's internal infrastructure and services, such as accounting functions and help desk support, that enable NOAA's line offices to achieve their objectives.

### 1.4.3 NOAA Fisheries Service's Role in NOAA

Figure 1 shows that, for the first mission goal (Ecosystems), NOAA Fisheries Service directly supports eight of the nine programs. NOAA Fisheries Service also supports one of the six programs in the second mission goal (Climate). The Ecosystems goal is most relevant for the FIS Program.



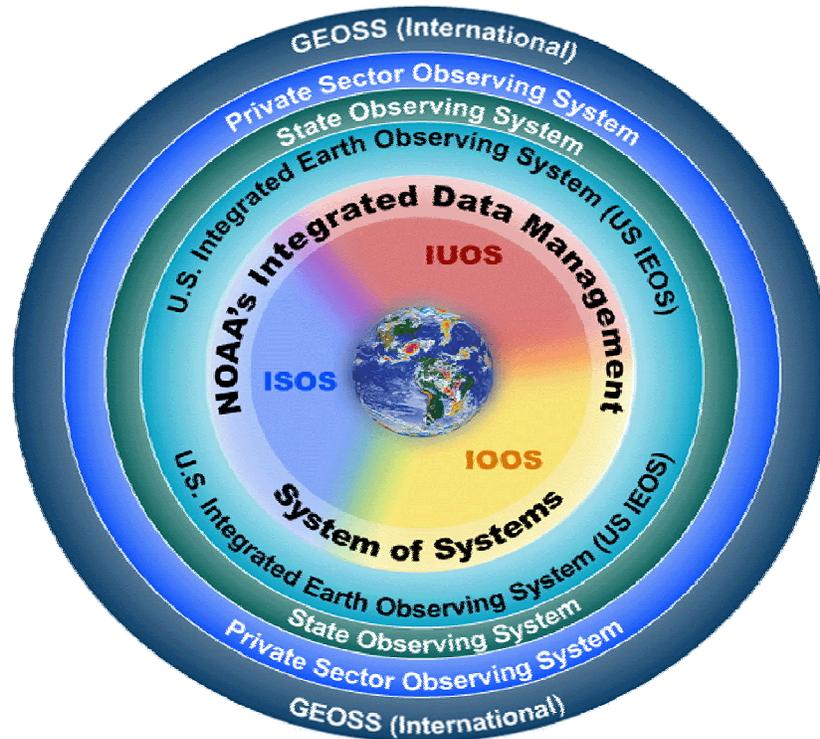
**Figure 1. NOAA's Mission, Goals, and Programs**

NOAA has priorities that transcend any of the NOAA goals. The NOAA priority that applies to the FIS Program is "Integrated global environmental observation and data management system". The specific Ecosystem Goal Program with which FIS is associated is the Ecosystem Observing Program.

The integrated observation and information management priority mentioned above provides a foundation for major, high level, domestic and international efforts to better measure and understand the interrelationships of the oceans, the atmosphere, living marine resources, and coastal communities. NOAA's contributions to these efforts have made it a world leader in design and development of the following systems:

- Global Earth Observing System of Systems (GEOSS),
- Global Ocean Observing System (GOOS), and
- Integrated Ocean Observing System (IOOS).

The FIS Program directly supports the IOOS vision of a network-centric, system of systems that will use an array of sensors, communication devices, and databases to collect and manage oceanographic and atmospheric information (spatially enabled) and deliver the information via portals to a range of end users (Figure 2).



**Figure 2. NOAA's Integrated Data Management System of Systems**

Performance measures for the FIS Program ultimately roll up through the performance measures for the NOAA Fisheries Service, NOAA, and the U.S. Department of Commerce. NOAA's Planning, Programming, Budgeting, and Execution System (PPBES) is the framework for designing and monitoring this measurement system. This links NOAA's strategy, its programs, its operating plans, and ultimately, its ability to deliver value to its stakeholders.

#### 1.4.4 Other Drivers

Other drivers that directly or indirectly affect the FIS Program planning and execution are extremely diverse. Their influence on the FIS Program also comes from many different sources. Examples of these drivers are:

- Government Performance and Results Act (GPRA)
- Information Technology Management Reform Act (ITMRA)
- Clinger-Cohen Act (CCA)
- Federal Information Security Management Act (FISMA) and Privacy Compliance
- President's Management Agenda (PMA)
- Office of Management and Budget (OMB) circulars A-11 and A-123, and Exhibit 300
- Federal Enterprise Architecture Framework (FEAF)
- Information Quality Act (IQA), formerly the Data Quality Act (DQA)
- Paperwork Reduction Act (PRA)
- Government Paperwork Elimination Act (GPEA)
- Federal Geographic Data Committee (FGDC)
- Geospatial One-Stop

- Section 508 Accessibility Standard
- U.S. Commission on Ocean Policy
- NOAA Planning, Programming, Budgeting and Execution System (PPBES), NOAA Observing System Architecture (NOSA), and NOAA Information Quality Standards (Section 515)
- National Environmental Policy Act (NEPA)
- Executive Order 12866 Regulatory Planning and Review
- Regulatory Flexibility Act (RFA)

See Appendix 2 Other Significant Drivers for further information about these drivers.

## 2. FIS Program Vision, Mission, Scope, and Stakeholders

### 2.1 FIS Program Vision

The vision of the FIS Program is defined as its desired end state. The vision describes the capability that will result from investments over the next 5 to 10 years. It is considered to be achievable but is not an easy target and may, to some, appear to be ambitious. The vision statement is:

*A comprehensive, continuously updated time series of well documented, high-quality, easily accessible information on the nation's fisheries that supports living marine resource stewardship.*

### 2.2 FIS Program Mission

The mission of the FIS Program is defined as its purpose. The mission statement is:

*NOAA's FIS Program delivers fisheries information collection, management, and dissemination solutions to improve accuracy, completeness, timeliness, and accessibility. The Program leverages Federal-State partnerships and investments to provide the information needed to help understand the effects of fishing on living marine resources, and to improve the quality of resource management decisions.*

### 2.3 FIS Program Scope

The scope of the FIS Program describes, essentially, what tasks and organizations are included in its activities, and which are not. The scope defines the system boundaries.

The FIS Program seeks to collect and manage a range of fisheries information collection, management, and dissemination efforts that span local, regional, and national geographic ranges. The FIS Program is a system of collection and management processes and supporting business processes, standards, and technologies. It is more than a computer-based information technology system.

Marine fisheries information includes any data, statistics, or other information on marine fishery activities (fishing, catching, processing, or selling of fish, shellfish, or marine animals), or the potential effects of those activities on living marine resources (fish, shellfish, and marine mammals), coastal communities, and local, regional, or national economies. Fisheries information is sometimes referred to as *fishery-dependent information* to distinguish it from information about living marine resources, communities, or economies that does not specifically measure or describe possible effects of fishing activities. Data collected by surveys of the abundance, geographic distribution, or age structure of marine animal populations are examples of *fishery-independent information* that is outside the current scope of the FIS Program.

The FIS Program's scope includes information resulting directly from marine fishing (such as harvest data, observer data, and biological samples of the catch), and any fishery-dependent processing, economic, socio-cultural, and trade information. It also includes information on both commercial and recreational fisheries, commercial and recreational for-hire (charter and head boat) fishing vessels, and permit or registration information. It includes information on all species of fish and shellfish that are currently under State, Tribal, or Federal management or might be in the future. It includes data about catch, effort, and catch per unit effort. Fisheries-independent data are outside the FIS Program's scope. This Program Management Plan presents FIS Program Portfolios that are the result of scope definition.

The FIS Program scope includes a broad set of data and diverse partners. The backbone of the FIS Program consists of well-established data collection and management programs at the regional levels (PacFIN, WestPacFIN, AKFIN, GulfFIN, and ACCSP), State data collection programs, and national data collection programs typically coordinated by staff at the NOAA Fisheries Service Headquarters Office of Science and Technology (F/ST).

Funding for the FIS Program and associated projects are broader than the FIS Program line item in the NOAA and NOAA Fisheries Service budget. For example, additional funding may become available in NOAA's new Planning, Programming, Budgeting, and Execution System (PPBES) line item for fishery observation and monitoring systems. FIS Program planning and prioritization could serve the NOAA Fisheries Service and its partners by providing documentation on options for further investment.

The scope is stable. As NOAA and the NOAA Fisheries Service's goals adapt to a changing external environment, the FIS Program's scope also will evolve. The FIS Program's scope may expand as program implementation proceeds and new areas for pursuit are identified. It is unlikely that program scope would contract over time.

## 2.4 Stakeholders

Many individuals and organizations rely on effective fisheries management and have a stake in the success of the FIS Program. These stakeholders include:

- Citizens.
- Marine fishermen (commercial, recreational, owner/operators).
- Universities and research institutions.
- Environmental groups.
- U.S. State governments.
- Regional marine fishery management entities.
- U.S. Federal government.

Successful implementation of the FIS Program requires collaboration among a subset of the fisheries management stakeholders. These organizations are:

- U.S. Congress, which asked for the FIS in the MSFCMA (1996).
- NOAA and the NOAA Fisheries Service Fisheries Statistics Division, because they are a significant source of funding at this time and into the future. These stakeholders will need to demonstrate that the FIS Program is effective to justify further investment of time and money through the duration of the program.
- NOAA Fisheries Service regional offices, science centers, and regional FINs. Failure to collaborate from any of these groups could lead to failure of the FIS Program.
- Regional marine fishery management entities. Failure to collaborate from any of these groups could lead to failure of the FIS Program.
- U.S. State government marine fishery management entities. Failure to collaborate from any of these groups could lead to failure of the FIS Program.

### 3. Goals and Objectives

This chapter describes the FIS Program goals (*what* needs to be accomplished) and objectives (*how* progress and results will be measured). As the program matures, the FIS Program will re-assess goals and objectives. The means to accomplish this task are the FIS Program's Concept of Operations (CONOPS), its business value to stakeholders, and its critical success factors.

#### 3.1 Goals and Objectives Definition

The FIS Program goals represent the vision statement, decomposed into meaningful and valuable statements of desired results. The FIS Program goals guide the investments that will achieve the mission and achieve the vision. The goals are:

- Expand and adapt data collection to meet current and future needs.
- Build and integrate information management systems within and across Regions.
- Establish regional and national standards (minimum guidelines) for data collection, management, confidentiality, and dissemination to ensure high quality, completeness, timeliness and accessibility.
- Implement and maintain effective partnerships to support collaboration among stakeholders and to leverage investments across Regions and the nation.

The FIS Program objectives represent detailed measures that indicate whether the goals are being achieved. Table 1 shows how several objectives may be associated with any goal and some objectives can be associated (and, therefore, will support) multiple goals.

**Table 1. FIS Program Goals and Objectives**

Goal	Objectives
1. Expand and adapt data collection to meet current and future needs.	<ul style="list-style-type: none"> <li>• Improve efficiency of data collection (such as eliminate redundancy, reduce burden on industry) by leveraging technology and innovation.</li> <li>• Identify and fill major gaps in fishery-dependent data (to fulfill FMP, and other requirements).</li> <li>• Identify and track industry participants.</li> <li>• Build tools to improve data collection.</li> <li>• Identify, develop, and use validation tools and methods.</li> <li>• Meet minimum sampling needs to improve accuracy and precision.</li> </ul>
2. Build and Integrate information management systems within and across Regions.	<ul style="list-style-type: none"> <li>• Build cross-regional and national tools to improve data management and data access (such as metadata, query, and response).</li> <li>• Identify and track industry participants and performance.</li> <li>• Build complete regional repositories.</li> <li>• Reconcile and link regional systems and repositories.</li> <li>• Build access, reporting and summarization tools.</li> </ul>

Goal	Objectives
3. Establish regional and national standards (minimum guidelines) for data collection, management and dissemination to ensure, quality, completeness, timeliness and accessibility.	<ul style="list-style-type: none"> <li>• Establish data quality standards, guidelines, and practices.</li> <li>• Validate and audit self-reported data.</li> <li>• Develop data documentation and a metadata repository.</li> <li>• Promote educated users of data.</li> <li>• Improve transparency for users.</li> <li>• Educate users on intended use of data and the dangers of misuse.</li> <li>• Provide what is known about data quality.</li> <li>• Establish policies and guidelines on the dissemination of data.</li> </ul>
4. Implement and maintain effective partnerships to support collaboration among stakeholders, and to leverage investments across Regions and the nation.	<ul style="list-style-type: none"> <li>• Support strategic and operational program planning and performance management.</li> <li>• Support outreach and communication to sustain partnerships, participation and required investments.</li> <li>• Listen to stakeholders and use that information for continuous fishery program improvement.</li> </ul>

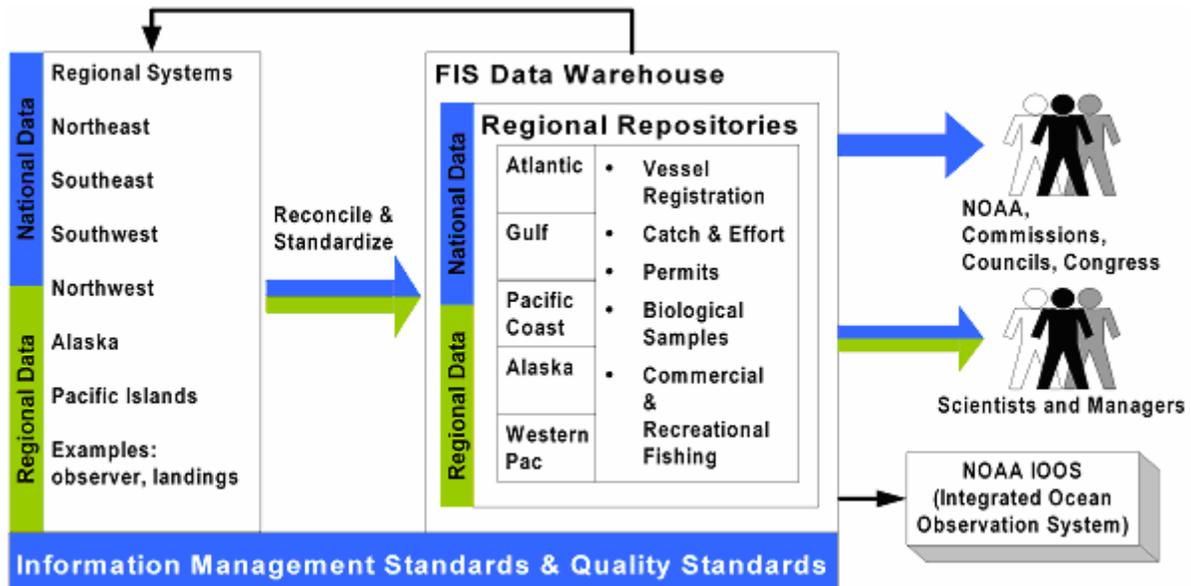
### 3.2 Concept of Operations

This section describes the FIS Program's high-level concept of operations (CONOPS). It shows the FIS Program's basic operation elements and how they will integrate. The FIS Program CONOPS should be especially useful to new participants and stakeholders.

The FIS CONOPS will be based upon several important design principles. The design principles and associated ideas for each principle are:

- Use existing programs, systems, and infrastructure investment to the maximum extent possible. Ideas associated with this principle are:
  - Avoid costs by reducing duplicative efforts, leveraging current and projected investments;
  - Reduce duplicative efforts;
  - Leverage current investments in relevant data collection programs, software applications, and other core FIS elements; and
  - Leverage cooperative agreements, partnerships, and Federal-State relationships, built over decades to advance FIS Program mission, especially in the data collection efforts.
- Establish regional and/or national standards of measurement and quality. Ideas associated with this principle are:
  - Establish standards for units of measurement, minimum critical data elements, nomenclature, coding systems, where possible;
  - Build logical bridges or translations between separate coding systems, where necessary;
  - Establish reasonable minimum data quality standards; and
  - Develop processes to ensure the timely release of information to the user community.
- Reduce reporting burden on providers of fishery information. Ideas associated with this principle are:
  - Minimize paperwork required for fishing industry participants to comply with reporting requirements; and
  - Coordinate Federal-State data collection efforts to minimize duplicative reporting.

The FIS Program's information management model complements, rather than replaces or duplicates, existing data collection and management efforts. Figure 3 shows the FIS Program's data management CONOPS model. The model illustrates how component regional and national data collection and data management programs could be integrated to deliver data of the right quality and level of detail to serve a broad array of end-users and information requirements.



**Figure 3. Concept of Operations**

Figure 3 shows that the FIS CONOPS is a combination of State-specific data aggregated to a Regional level, and national-level data, such as trade data or vessel operations data. These data are reconciled according to minimum critical specifications and stored in regional or national repositories. Fisheries managers can retrieve these data from a data warehouse via ad hoc or standard reporting tools and ultimately a web-based portal.

Regional offices and science centers, State agencies, fishery management councils, and marine fisheries commissions are important to efficient and effective collection and use of fishery dependent statistics and in measuring how well the program is meeting current needs and planning for future requirements. The CONOPS will describe how the NOAA Fisheries Service and its FIS Program partners could build on existing infrastructure wherever possible and work together to implement data collection, management, and delivery solutions. The FIS Program is the means for collaboration among many stakeholders to fulfill this objective.

Several Federal, State, and Regional programs participate in the FIS Program. Along the eastern seaboard, the Atlantic Coastal Cooperative Statistics Program (ACCSP) has developed a rapidly maturing information collection and management program, with buy-in on data standards from Maine to Florida. In the Gulf of Mexico, programs have been in place since the early 1990s that coordinate the information collection and management activities for commercial and recreational fisheries.

On the Pacific coast, the Pacific Fisheries Information Network (PacFIN) has been operational for nearly 25 years. PacFIN coordinates the database for fisheries information collected by the states of California, Oregon and Washington. The Pacific Recreational Fisheries Information Network (Pacific RecFIN) coordinates the recreational fisheries information for the same states as PacFIN.

The Alaska Fisheries Information Network (AKFIN) is a repository for historic information collected by the NOAA Fisheries Service and the State of Alaska. NOAA Fisheries Service and the Western Pacific Fisheries Information Network (WestPacFIN) coordinate information collection activities for Hawaii, Guam, American Samoa and the Commonwealth of the Northern Marianas. The FIS's design integrates the features of ongoing information collection, processing, and storage activities from these Regional programs throughout the coastal and marine jurisdiction of the United States.

Planning for the FIS largely assumes that most of the systems described above will either remain the same or will be modified somewhat to create the necessary intra-regional and national linkages. The FIS CONOPS does not depend on replacing existing systems or networks that are successful, but rather on building and improving relationships among systems.

### 3.3 Business Value

Showing business value to stakeholders will contribute to the FIS Program's long-term sustainability from a funding continuity perspective, an agency sponsorship perspective, and a partner support perspective. The FIS Program's future depends upon its ability to accomplish its goals and provide end-user satisfaction. The challenge is that the FIS Program has many stakeholder organizations and participants. Each stakeholder has its own perspective regarding the business value that FIS should provide in exchange for the investment of money, time, and for compromises among stakeholders. The anticipated required business values for different types of stakeholders are:

- For Congress and other Federal and State legislative stakeholders:
  - Better understanding of fishing's effects on specific States or regional ecosystems; and
  - Better understanding of the condition of the living resources, people, and businesses that use or benefit from them to produce better policy decisions.
- For executive leadership of sponsoring agency and partners:
  - Building information about sustainable fisheries to forward the recovery and conservation of protected species, and protecting and restoring living marine resource habitat;
  - Effective use of existing statistics, budgets, and personnel; and
  - Creation of a consensus plan to obtain long-term funding for information collection and management improvements.
- For Federal and State (and Council) fishery managers:
  - Better, faster fishery management decisions;
  - Basic information to manage fisheries (who is fishing, what fish do they seek versus catch, the frequency of fishing, where they fish, why they fish, and the means used to catch fish);
  - Better understanding of the effects of management decisions, lessening the risk of unintended results; and
  - Ability to evaluate a policy idea on its merit rather than focusing on the shortcomings of the supporting statistics and analyses as is common today.
- For fisheries scientists, statisticians, and economists:
  - Support for high-quality science;
  - Easier access to data and statistics of known quality for inputs to stock assessment or econometric models; and
  - Higher productivity, since better quality information allows greater focus on analysis and use, rather than on locating and obtaining information, then performing code transformations and quality editing to create useable information.
- For commercial and recreational fishermen, vessel owners/operators, and commercial buyers and processors:
  - Enhanced ability to make decisions on their individual or firm's participation, production, operations, and investments; and
  - Reduced reporting burden through elimination of unnecessary duplication in fishery data collection programs and/or improvements in data collection processes or technology support of these processes.

- For citizens and the general public:
  - Easier access to information about resource stewardship and relative importance of commercial and recreational fishing to their communities;
  - Spatial displays of fisheries statistics that provide relevant or place-based information; and
  - Better understanding of the performance of Federal and State agency stewardship through an enhanced ability to track the outcomes of policies on fisheries; better information about the return on investment through commitment of tax dollars to fisheries.

### 3.4 Critical Success Factors

The FIS Program is a multi-year, multi-million dollar, multi-stakeholder program with many direct and indirect connections and interdependencies with Federal and State resource stewardship programs. Layering these connections on top of those with 23 coastal states, 3 marine fisheries commissions, 8 regional fishery management councils, and 5 regional fisheries statistics programs and networks generates significant risk of unclear objectives, missed opportunities, unmet expectations, and ineffective or inefficient allocation of resources.

This complex environment surfaces the need for a special focus on critical success factors. These factors include identifying what is needed to realize expected results and benefits and to minimize risks and unmet objectives. For the FIS Program, some critical success factors are:

- Maintaining sponsorship at the executive levels of all participating organizations.
- Establishing governance structure and enabling processes (such as project selection and portfolio management) and the flexibility to respond to changes in priorities, partners' priorities, funding levels, and individual participants and leadership.
- Placing the right people in the right roles with the right experience, skills, and leadership capability.
- Using a disciplined approach to project management (industry best practices) to maximize value of project-level investments.
- Providing executives, partners and end users with smart and continuous communications that directly relates to business goals.
- Understanding the change management and technology adoption challenges of software development projects.
- Developing a clear relationship between high-level agency performance measures to project-level metrics through FIS Program measures.
- Acknowledging challenges, celebrating successes, and publicly recognizing individuals and teams for superior achievement.
- Seeking excellence while recognizing that perfection is unrealistic. Achieving an 80 percent solution may be good enough to gain and sustain program support and partner participation.

## 4. Program Management Components

The FIS Program requires several components that operate in an integrated and synchronized manner. This section describes the components of FIS Program management:

- **Governance:** Implementing a governance process and structure will ensure that the FIS Program uses its resources wisely and delivers positive, measurable results. Without governance, the FIS Program may be subject to unexpected and unwanted influences.
- **Communications and Outreach:** Developing a communications and outreach program will ensure that all stakeholders have the FIS Program information they need, when they need it, and at the level they need it
- **Program Architecture:** Developing a program architecture will provide a high-level view of the FIS Program in four dimensions: business view, data view, application view, and technology view. It can serve as a blueprint for FIS construction and integration, as a set of standards to guide these efforts, and a repository of information available for all stakeholders to see, review, and continuously improve.
- **Knowledge Management:** Using knowledge management principles and practices will support a sustainable collaboration environment as FIS Program participants change.
- **Risk Management:** Creating a risk management plan to identify and plan for risks, and to communicate those risks to stakeholders so that they can be avoided or mitigated.
- **Funding Sources and History:** Understanding funding sources and funding history to provide transparency and visibility into the critical resources available for execution of component projects.

The FIS Program will address each of these components as a project that requires resources, a delivery schedule, and management. The FIS Program has so far focused on governance. The FIS Program will address other areas (especially communications, program architecture, and knowledge management) as the program progresses and as funding and other resources become available.

Figure 4 summarizes the interactions of the FIS Program with its stakeholders, both internal and external.

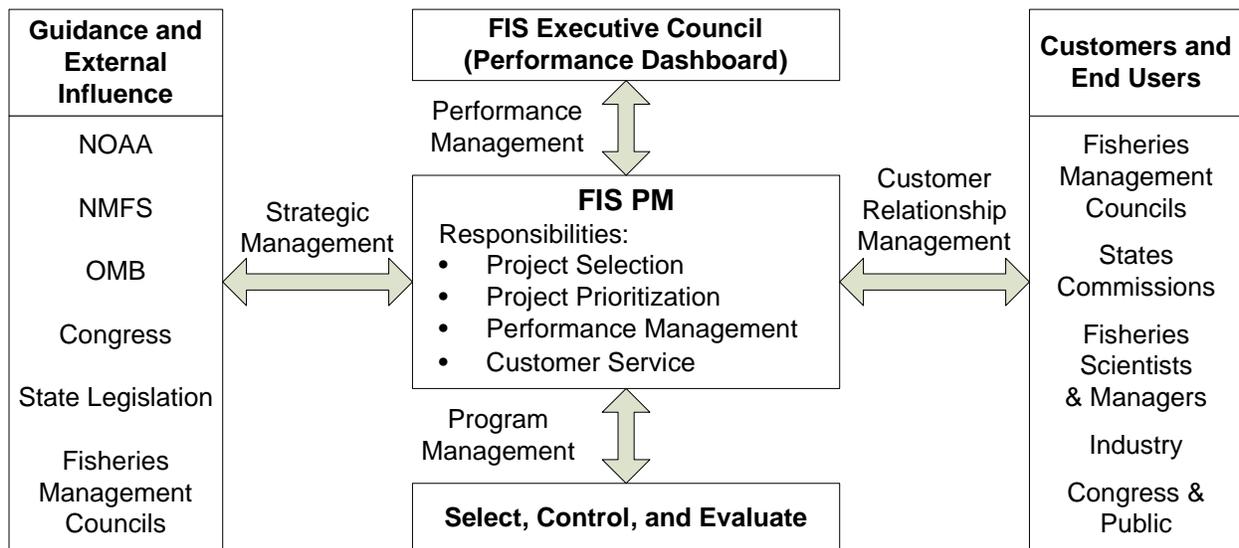


Figure 4. FIS Program Management Framework

Figure 4 also demonstrates how FIS is susceptible to external drivers and influences. Customers and end users, guidance and external influences influence program strategy. The FIS Program Manager and FIS Program Director ensure that the FIS Program is meeting the customer’s needs and constantly nurture customer relationships. The FIS Program Manager and FIS Program Director are responsible for the FIS

Program's delivering on its promises and for ensuring that NOAA senior management is monitoring program performance. Fundamental to this model is effective oversight and management of the portfolio of projects that, as accomplished, move the FIS Program to the desired end state.

## 4.1 Governance

The FIS Program will rely on its governance process to ensure high-quality management of its portfolios and projects. An appropriate governance process will:

- Articulate the sponsors' and stakeholders' roles and responsibilities;
- Establish understandable, repeatable program and management processes;
- Define objective performance criteria and use those criteria to evaluate portfolios of projects; and
- Ensure that projects are well designed, properly implemented, and effectively managed; and
- Evaluate overall FIS Program performance regularly.

By developing and executing a governance process, the NOAA Fisheries Service will help protect the FIS Program from efforts to reduce scope, commandeer funds, or divert resources to other programs in a very competitive Federal funding environment. These threats could come from the NOAA Fisheries Service, NOAA, or external sources such as the Office of Management and Budget (OMB). A process for managing the FIS Program's performance is the best insurance against these threats. Congress and the Executive Branch are enforcing rules that govern IT spending in Federal agencies more stringently than in the past. In response, agencies must provide reliable, clear assurances that technology and investment expenditures are necessary, purposeful, and will result in demonstrated improvements in mission effectiveness and service to citizens. Governance processes provide that capability.

FIS Program governance will operate in the context of the Select-Control-Evaluate framework, commonly associated with capital planning and investment control in full life-cycle information technology programs. This framework will help FIS Program decision-making teams identify, select, and finance (Section 4.1.1) the right portfolio of projects. Once selected, the governance process institutes project management controls (Chapter 4.5) to ensure that a funded project would achieve its intended objectives within cost, schedule, technical, and performance baselines. Ultimately, an evaluation phase will answer questions such as whether the portfolio of investments paid the dividends expected; if not, why not; and how to take lessons learned forward to improve performance.

### 4.1.1 Guiding Principles

The FIS Program will use the guiding principles listed below to guide its interaction among stakeholders, decision-making processes, performance evaluation, and activities:

- **Maintaining Transparency and Inclusion.** All participants may see the governance process, program plans, project plans, business processes, and other elements of the FIS Program. Stakeholders and regional partners are represented in FIS Program planning and execution.
- **Using Best Practices.** The FIS Program will use industry best practices in program management, project management, and performance management. The FIS Program will identify, document, and promote best practices for data collection, statistical estimation, and information management.
- **Improving Quality Continuously.** The FIS Program governance teams will always strive for improvement in FIS Program leadership, business processes, and customer service. This includes an overall commitment to quality management and risk management.
- **Multiple Roles, Multiple Contexts.** FIS Program managers and leadership must always consider their multiple roles as leaders within the FIS Program, leaders in their own organizations, and representatives of stakeholders. It is vital that the information from FIS meet the needs of its customers. It is also vital that the many organizations participating in the FIS Program maintain collaboration with each other and with the NOAA Fisheries Service. Ensuring that the FIS Program complies with its own governance and project management standards is necessary to achieve the goals of the program.

- **Right-Sizing Governance.** The governance overhead associated with the FIS Program will be in line with the overall program funding, and will reflect the level of maturity of the FIS Program. Early stage governance and program support activity will be proportionally greater than late stage support for mature programs.
- **Capturing and Sharing Knowledge.** The FIS Program will become a culture of capturing what is learned and carrying that forward as efficiently as possible to direct future efforts and initiatives. A learning organization also uses knowledge management techniques and fosters communities of practice.
- **Doing It Now.** The FIS Program, in many ways, is an organizational change project. It will face pockets of inertia and individuals who are not yet true believers. The FIS Program will push forward as rapidly as possible while managing risks at an appropriate level. “Do it now” is a good principle, especially if the funding is available and the planning is solid. The high-level aggregations and the coordination of the FIS Program will also help partners respond quickly to regular, frequent information requests.
- **Using Management Science.** Most participants in the FIS Program are highly educated and experienced biologists, managers, statisticians, economists, sociologists, information technology architects, and data management professionals. Because of the range of projects and collaborative nature of the project, management science and organizational development may be significant factors in the overall FIS Program performance and success.

#### 4.1.2 Stakeholders

Many individuals and organizations have stake in the success of the FIS Program. At a high level, it involves all of those that take an interest in the stewardship of marine resources, regardless of their level of involvement in the commercial or recreational fishing sectors. At the other end of the spectrum are those individuals and organizations who have a direct hand in fisheries harvests and that are involved in data capture and statistical analysis at the point of capture or shortly thereafter.

Stakeholders include:

- U.S. Federal Government
- U.S. State Governments
- Collaboration on a regional level between Federal and State marine fishery management entities
- Marine fishermen (commercial, recreational, vessel owner/operators)
- Universities and research institutions
- International fisheries commissions, treaties, and organizations
- Environmental groups
- Citizens

#### 4.1.3 Structure and Roles

Table 2 describes the proposed FIS governance structure. It lists the role, proposed membership, and responsibilities for each role.

**Table 2. Governance Roles, Memberships, and Responsibilities**

<b>Role: Executive Sponsors</b>	
Proposed Membership	Chief Science Advisor to the Assistant Administrator Deputy Assistant Administrator for Management [Still under consideration: Regional Administrator and/or Science Center Director]
Responsibilities	Provide high-level guidance and advice on national and cross regional issues and ensure that the FIS Program operates in a manner that is consistent with fundamental policies and general principles of the Agency. The executive sponsors shall: <ul style="list-style-type: none"> <li>• Provide advocacy of FIS Program to upper-level management for the NOAA Fisheries Service, NOAA, and the Department of Commerce by frequent communications with the NOAA Fisheries Service Science Board, NOAA Information Management Board, and other important policy level groups.</li> <li>• Provide advice, when needed, on program management issues.</li> <li>• Ensure that the FIS Program has adequate resources to achieve its mission and goals.</li> <li>• Assist in resolving critical, high-level issues in a timely manner.</li> <li>• Approve annual as well as long-term spending plans, including Investment Reviews, and Program Performance Evaluations.</li> <li>• Coordinate and inform the Science Directors and Regional Administrators about the overall functions of the FIS.</li> </ul>
<b>Role: FIS Program Director</b>	
Proposed Membership	Office of Science & Technology, Fisheries Statistics Division Chief (F/ST1)
Responsibilities	Provides overall strategic direction and stewardship for the FIS Program. The FIS Program Director shall: <ul style="list-style-type: none"> <li>• Serve as Chair of the Program Management Team (PMT) (described below).</li> <li>• Provide leadership to the PMT to ensure that Program Management Plans are made and executed.</li> <li>• Ensure that all FIS Program partners are engaged in planning and execution.</li> <li>• Create an environment of collaboration and constructive engagement.</li> <li>• Serve as an ambassador of the FIS Program in agency, Federal, State, and NOAA forums.</li> <li>• Provide stewardship of FIS Program funding and investments.</li> </ul>

<b>Role: FIS Program Manager</b>	
Proposed Membership	Office of Science & Technology, Fisheries Statistics Division, Appointed Staff (one full-time employee)
Responsibilities	<p>The FIS Program Manager shall report to the FIS Program Director and support the entire PMT in the execution of their responsibilities.</p> <p>The FIS Program Manager shall:</p> <ul style="list-style-type: none"> <li>• Provide day-to-day operational support to the PMT.</li> <li>• Provide project management oversight to ensure use of best practices in project management for all FIS Program portfolios, thereby creating an environment of project management excellence.</li> <li>• Provide overall program performance monitoring and documentation.</li> <li>• Provide communication and outreach support by developing and executing the FIS Program Communication and Outreach Plan.</li> <li>• Coordinate all PMT communications, meetings, and collaborations including administrative and logistical support; also provides support to Professional Specialty Groups (described below) when needed.</li> <li>• Provide program status and progress reports.</li> <li>• Support the project selection and resource allocation process.</li> </ul>

<b>Role: Program Management Team (PMT)</b>	
Proposed Membership	<p>Total of 13 members.</p> <p>Headquarters Representation (4 members):</p> <ul style="list-style-type: none"> <li>• FIS Program Director – Chair</li> <li>• FIS Program Manager</li> <li>• Office of Science and Technology (F/ST) representative</li> <li>• Office of Sustainable Fisheries (F/SF) representative</li> </ul> <p>NOAA Fisheries Service Regions and and Science Centers (6 members, one from each Region or Science Center):</p> <ul style="list-style-type: none"> <li>• Northeast Region (NER) or Science Center (NEC) representative</li> <li>• Southeast Region (SER) or Science Center (SEC) representative</li> <li>• Northwest Region (NWR) or Science Center (NWC) representative</li> <li>• Southwest (SWR) Region or Science Center (SWC) representative</li> <li>• Alaska (AKR) Region or Science Center (AKC) representative</li> <li>• Pacific (PR) Region or Science Center (PIC) representative</li> </ul> <p>Partners (3 members, one from each partner):</p> <ul style="list-style-type: none"> <li>• ACCSP</li> <li>• GulfFIN</li> <li>• PacFIN/AKFIN</li> </ul>
Responsibilities	<p>The PMT shall provide tactical/operational governance of the FIS Program to assure effective planning and execution of all projects comprising the FIS Program. The PMT shall have responsibility for achieving the mission, vision, goals, and objectives for the FIS Program.</p> <p>Specifically, the PMT shall:</p> <ul style="list-style-type: none"> <li>• Develop and continuously improve the FIS Program Management Plan.</li> <li>• Ensure program performance is consistent with program plans and expectations.</li> <li>• Provide leadership role in establishing FIS Program priorities, project selection and resource allocation, and program evaluation.</li> <li>• Promote the FIS Program in members' respective organizations and spheres of influence.</li> <li>• Facilitate facilitation of effective management of inter-project linkages to promote coordinated FIS Program development.</li> <li>• Develop and execute a plan for communication, education, and outreach.</li> <li>• Create an environment of project management excellence.</li> <li>• Facilitate effective coordination among professional specialty groups (PSGs) in project planning, development, and implementation.</li> </ul>

<b>Role: Professional Specialty Groups (PSGs)</b>	
Membership	Representatives from: <ul style="list-style-type: none"> <li>• Regional Offices</li> <li>• Science Centers</li> <li>• FINs (ACCSP, GulfFIN, PacFIN, AKFIN, WestPacFIN)</li> <li>• State agencies</li> </ul>
Responsibilities	PSGs are formed as needed to support the FIS Program’s business and technical needs. They consist of experts from multiple disciplines who are to address a specific need or issue. A PSG may address specific FIS goals, objectives, and subcomponents of the FIS Program. A PSG may be a permanent working group within FIS or established on a temporary basis to address specific issues. The PSG receives approval and direction from PMT for functions, tasks, and projects.

Table 3 shows the individuals who are currently serving on the PMT.

**Table 3. PMT Roles and Representatives**

<b>Role</b>	<b>Current Representative</b>
Proposed Executive Sponsors	Steve Murawski Jim Balsiger
FIS Program Director	Dave Van Voorhees (F/ST1)
FIS Program Manager	Ana Valentín (F/ST1)
FIS Headquarters Representatives	Tina Chang (F/ST) Galen Tromble (F/SF)
Regional Office (RO) and Science Center Representatives	John Witzig (NER) Steve Turner (SEC) Steve Freese (NWR) Al Coan (SWC) David Ackley (AKR) Karen Sender (PIC)
Fisheries Information Network (FIN) Representatives	Maury Osborn (ACCSP) Dave Donaldson (GulfFIN) Dave Colpo (PacFIN and AKFIN)

#### 4.1.4 Project Selection

As discussed in section 4.1, the FIS Program will use a continuous cycle of Select-Control-Evaluate. The Select phase will consist of selecting the right portfolio of projects in the right order at the right level of funding and effort to achieve the FIS Program mission and goals. The task list will typically exceed the funding and resource capacity of the FIS Program. Prioritizing and controlling the scope of work will be essential to managing the FIS Program’s limited resources.

The PMT is responsible for managing the FIS Program’s limited resources to leverage past investments and ensure that the most important projects are performed effectively and efficiently.

Table 4 outlines the current FIS project selection process. The PMT has adopted the general approach and schedule described in this process for the years to come.

**Table 4. Project Selection Process Timeline**

<b>Annual Scheduled Month</b>	<b>Monthly Task</b>
March	<p>Establish Regional, National Priorities</p> <ul style="list-style-type: none"> <li>This ensures that resources are allocated to the current set of FIS priorities, and that those priorities reflect needs at the regional and national levels. These priorities would also be dependent upon analysis (incomplete as of version 1 of this PMP) of the critical path of projects that need to be accomplished and a clearly defined FIS Implementation Plan, ensuring that we are executing projects in the context of the highest and best use of resources and precedent relationships among related projects and portfolios.</li> </ul> <p>Determine allocation of funds between existing dedicated projects and funds to be used for a competitive proposal program.</p>
May/June	<p>Develop (or validate previous) project proposal evaluation criteria. Describe the rules of engagement and the proposal evaluation/selection process.</p> <ul style="list-style-type: none"> <li>Evaluation criteria can be thought of as project selection objectives. These criteria will be greatly influenced by FIS Program goals and priorities, ensuring that the most important projects are selected. It is important that those engaged in the process and those submitting proposals for consideration by the PMT fully understand, in advance, these criteria. Clear description of the evaluation criteria will lead to better, more relevant proposals. The process shall be transparent to the FIS Program community.</li> </ul> <p>Call for proposals.</p>
July	Proposals Due
September	<p>PMT reviews/evaluates project proposals. PMT selects projects based on the evaluation criteria.</p> <ul style="list-style-type: none"> <li>There is some flexibility built in to this process. It could vary, in terms of rigor, depending upon the size of the funding allocation expected.</li> </ul>
October	<p>Draft Spending Plan</p> <ul style="list-style-type: none"> <li>At this point in the timeline, the NOAA Fisheries Service will have some sense of both House and Senate marks on the President's budget submission; those marks provide a sense of the potential range of expected funding, and allow plans and contingency plans to be developed.</li> </ul>
November	<p>Final Annual Spending Plan for Fiscal Year</p> <ul style="list-style-type: none"> <li>In this time frame, there may be a Conference Committee mark available, providing more clear guidance on current FY allocation expectations.</li> </ul>

Allocating resources to the right portfolio of FIS Program projects is an enormous challenge. Some of these challenges include:

- The FIS Program has numerous stakeholders who have diverse perspectives (and priorities) because of their broad geographical, functional, and technical interests. This will lead to a large set of user requirements. Those requirements are likely to conflict.
- The potential projects have complex interrelationships. The FIS Program may find it difficult to determine relative importance and precedence.
- The FIS Program may find it difficult to determine whether a project is worth doing.
- The FIS Program may find it difficult to determine who should do the project.

- The FIS Program may find expectations regarding allocation of funds to the regions. It may need to satisfy the question: “Did this region get a fair share?”
- The FIS Program will need to prioritize between fast-response, high-yield opportunities and longer-term, infrastructure-type investments.
- The FIS Program should be careful of being satisfied with the proposed projects. It needs to ask whether important projects have not been proposed.
- The FIS Program may need to address the assumption that all proposal efforts will be rewarded somehow.
- The FIS Program needs a more transparent, collaborative process for managing funding for each fiscal year.

## 4.2 Communication and Outreach

The FIS Program needs an effective communication and outreach (C/O) strategy because the stakeholders, ranging from legislators to fishermen, are important participants in the success of the program. The PMT recognizes the importance of developing a comprehensive C/O strategy and connecting a suite of tactical activities to this strategy. The C/O strategy and associated goals and objectives must be connected to the FIS Program goals. The two cannot exist independently.

During the past 18 months, the PMT has held quarterly face-to-face meetings and monthly conference calls to improve communication at all levels. These quarterly and monthly meetings serve as a forum for discussion and approval of the FIS Program Management Plan.

Other accomplishments are:

- Establishment of an annual FIS Program meeting,
- Creation of the FIS Program website, and
- Pending production of an FIS Program Snapshot.

Just as with the risk management plan and the program architecture, the C/O plan has not yet been fully resourced or developed. Staff and financial resources will eventually be allocated to support additional communication planning and implementation activities that advance the FIS Program goals.

### 4.2.1 Guiding Principles

At its August 2005, meeting, the PMT identified a set of broad goals or guidelines for the Communications Coordination Team (see section 4.2.2) to consider as it develops the C/O strategy and implementation plan:

- Build a clear and consistent set of messages that stakeholders can use to advance the FIS Program.
- Build cohesion in the form of an FIS Program brand within the NOAA and the NOAA Fisheries Service brand.
- Use simple tactics to get started by making effective use of communications resources, for example, the FIS website, e-mail lists, presentations, and snapshots.
- Define performance measures to determine whether communication tactics are having an impact or are creating value. The FIS Program needs to determine whether its message is reaching its audience, and if so, whether the message has the intended consequences.

### 4.2.2 Stakeholders

The PMT has established a Communications Coordination Team (CCT) to develop the C/O strategy and to ensure that a C/O plan is developed and executed. Table 5 shows the CCT members, who are all members of the PMT (Table 3).

**Table 5. Communications Coordination Team Members**

<b>Team Members</b>
John Witzig, Team Lead
Dave Van Voorhees
Tina Chang
Steve Freese
Karen Sender
Ana Valentín

### 4.2.3 Communication Process

The FIS Program has developed the outline for a communication process to facilitate the information exchange across the Executive Sponsors, PMT and Professional Specialty Groups (PSGs).

#### *E-Mail Groups*

The FIS Program will create the following e-mail groups addresses at NOAA directory level to facilitate and guarantee that each member of the group receive FIS Program updates and information accurately and in a timely manner.

The FIS Program Manager will create these e-mail groups' addresses:

- FIS Program Sponsors
- PMT
- PSG Chairs and Co-Chairs
- F/ST Division Chiefs

The FIS Program Director, in conjunction with the FIS Program Manager, will create and update the e-mail groups' addresses, as needed.

#### *Meetings Communication*

The FIS Program Manager informs members one month prior to the monthly, quarterly, and annual FIS Program meetings. Table 6 shows each notification and the role responsible for its occurrence.

**Table 6. Meeting Communication Strategy**

<b>Role</b>	<b>Coordinates with</b>	<b>Frequency</b>	<b>Notification Mode</b>
FIS Program Director	Executive Sponsors	Twice a year	Executive Sponsors Group e-mail
	F/ST Division Chiefs	Bi-monthly	F/ST Division Group e-mail
FIS Program Manager	F/ST Division Chiefs	Bi-monthly	F/ST Division Chiefs e-mail, website
	PMT	Monthly	PMT e-mail, website
	PSG Co-Chairs	Monthly	PSG Co-Chairs e-mail, website
PMT	PSGs	As needed	e-mail, website
PSG Chair	FIS Program Manager	Monthly	e-mail, website
	PMT	As needed	e-mail, website

The FIS Program Director will:

- Coordinate the Executive Sponsors and F/ST Divisions Chiefs meetings.

- Inform the FIS Program Manager to post the meeting information in the FIS website.

The FIS Program Manager will:

- Send an e-mail notification to the appropriate e-mail group.
- Post and update the FIS Program meetings information on the FIS website.
- Coordinate monthly meetings with each PSG’s co-chairs to communicate the PMT guidelines.
- Coordinate quarterly face-to face meetings, lasting three full days.
- Coordinate PMT and particular PSG meetings as needed.
- Verify that the PSG’s co-chairs posted their meeting information on the FIS web site.
- Invite key participants, including PSG, FIS Program partners, special guests, and/or guest speakers, as needed.

The PMT members will:

- Send an e-mail notification to the FIS Program Manager confirming their attendance to the scheduled meetings.
- Request the FIS Program Manager to coordinate a particular PSG meeting, as needed.
- Inform the FIS Program Manager to post any FIS Program-related meeting information in the FIS website.

#### 4.2.4 Stakeholder Activities

##### *Meeting Objectives*

Table 7 (PMT meetings), Table 8 (multiple stakeholder activities), and Table 9 (FIS Program activities) show the schedules of meeting and reporting activities for the PMT, activities that involve two or more stakeholder groups, and FIS Program staff.

**Table 7. PMT Meetings**

<b>Activity</b>	<b>Responsibilities</b>
Monthly PMT Conference Call	The PMT will: <ul style="list-style-type: none"> <li>▪ Identify, monitor progress; and resolve issues.</li> </ul> The FIS Program Manager will: <ul style="list-style-type: none"> <li>▪ Reserve the call-in line</li> </ul>
Quarterly PMT Working Sessions	The PMT will: <ul style="list-style-type: none"> <li>▪ Review project plans; budget planning; lessons learned; resource allocation; conducts project reviews to resolve issues.</li> </ul> The FIS Program Manager will: <ul style="list-style-type: none"> <li>▪ Address program management issues with different regional offices or science centers</li> </ul>
Professional Specialty Group (PSG) Meetings	The FIS Program Manager will: <ul style="list-style-type: none"> <li>▪ Address specific issues that contribute to project planning.</li> </ul> The PSG Co-Chairs will: <ul style="list-style-type: none"> <li>▪ Coordinate a PMT meeting depending upon specific PSG needs.</li> </ul>

**Table 8. Multiple Stakeholder Activities**

Activity	Responsibilities
FIS Program Quarterly or Semi-annual Newsletter	<p>The FIS Program Manager will:</p> <ul style="list-style-type: none"> <li>▪ Document periodic updates on program progress; highlights of latest projects; guest articles or feature articles on specific subject; program accomplishments; and recognition of key contributors.</li> <li>▪ Invite partners, stakeholders, and any interested NOAA and NOAA Fisheries Service representatives attend the meeting.</li> <li>▪ Serve as editor. Content comes from PMT, PSG, other participants.</li> </ul>
FIS Program Annual Program Meeting	<p>The PMT, PSG, FIS Program partners, key stakeholders, special guests, and/or guest speakers will:</p> <ul style="list-style-type: none"> <li>▪ Provide an opportunity for all FIS participants to interact face to face.</li> <li>▪ Share ideas and learning; hear from FIS executive sponsors and FIS Program Director about progress and direction.</li> </ul> <p>The FIS Program Manager will:</p> <ul style="list-style-type: none"> <li>▪ Organize the meeting held in the second quarter.</li> </ul>
Program Status Quarterly or Semi-annual Reports to External Stakeholders (Executive Briefs)	<p>The FIS Program Director and FIS Program Manager will:</p> <ul style="list-style-type: none"> <li>▪ Organize the meeting depends on the group size.</li> <li>▪ Plan the presentations (up to a 20-30 minute time block) for FIS Progress Reports.</li> </ul> <p>The Regional Office, Fishery Science Centers, Fishery Management Councils; and Commissions will:</p> <ul style="list-style-type: none"> <li>▪ Report to key stakeholders, partners, and industry groups the periodic status.</li> </ul>
FIS Program Annual Report of Program Accomplishments	<p>The FIS Program Director will:</p> <ul style="list-style-type: none"> <li>▪ Document and communicate program progress, evaluate investment returns, highlight accomplishments, and key contributors.</li> <li>▪ State the FIS Program's direction.</li> </ul> <p>The FIS Program Director and Manager will:</p> <ul style="list-style-type: none"> <li>▪ Lead in the development and production of the FIS Program Executive Summary at FIS Program Annual Meeting.</li> <li>▪ Consolidate content from internal and external stakeholders.</li> </ul>
Presentations at key industry trade shows and professional organizations	<p>The FIS Program Director, Manager, PMT or PSG will:</p> <ul style="list-style-type: none"> <li>▪ Participate in trade shows and annual meetings of fisheries management and information management professionals such eGov conferences, IT conferences, and NOAA Tech Fairs.</li> <li>▪ Share the FIS message. Possible venues would be annual or regional AFS meeting.</li> </ul> <p>The FIS Program Manager will:</p> <ul style="list-style-type: none"> <li>▪ Coordinate with the NOAA Fisheries Service's Constituent Services Office to schedule and determine the trade shows selected.</li> </ul>

**Table 9. FIS Program Activities**

<b>Activity</b>	<b>Responsibilities</b>
FIS Program Monthly Status Report	The FIS Program Director and Manager will: <ul style="list-style-type: none"> <li>▪ Send an e-mail to the F/ST Division Chiefs with the FIS Program updates, resource needs, and risks issues.</li> </ul>
FIS Program Quarterly Program Reviews	The FIS Program Director will: <ul style="list-style-type: none"> <li>▪ Present the FIS Program progress, budget, key projects, risks issues, and findings to the Executive Sponsors.</li> </ul>
Program Status Reports to Internal NOAA Stakeholders (Executive Briefs)	The FIS Program Director and FIS Program Manager will: <ul style="list-style-type: none"> <li>▪ Meet with the NOAA Fisheries Service Executive Board; Science Board; NIMB; Data Management Committee; NOAA: DMC; Ecosystem Goal Team for 20-30 minutes to discuss the FIS Program Status Reports to key internal executives, management teams.</li> </ul>

### 4.3 Program Architecture

A program architecture is similar to the concept of a design. The difference is that a design typically refers to a single application or product. A program architecture addresses an array or family of related applications and products using a common framework, such as the case with FIS. It is assumed that investment will be made early in the FIS Program life cycle to establish an FIS Program Architecture and associated repositories of information.

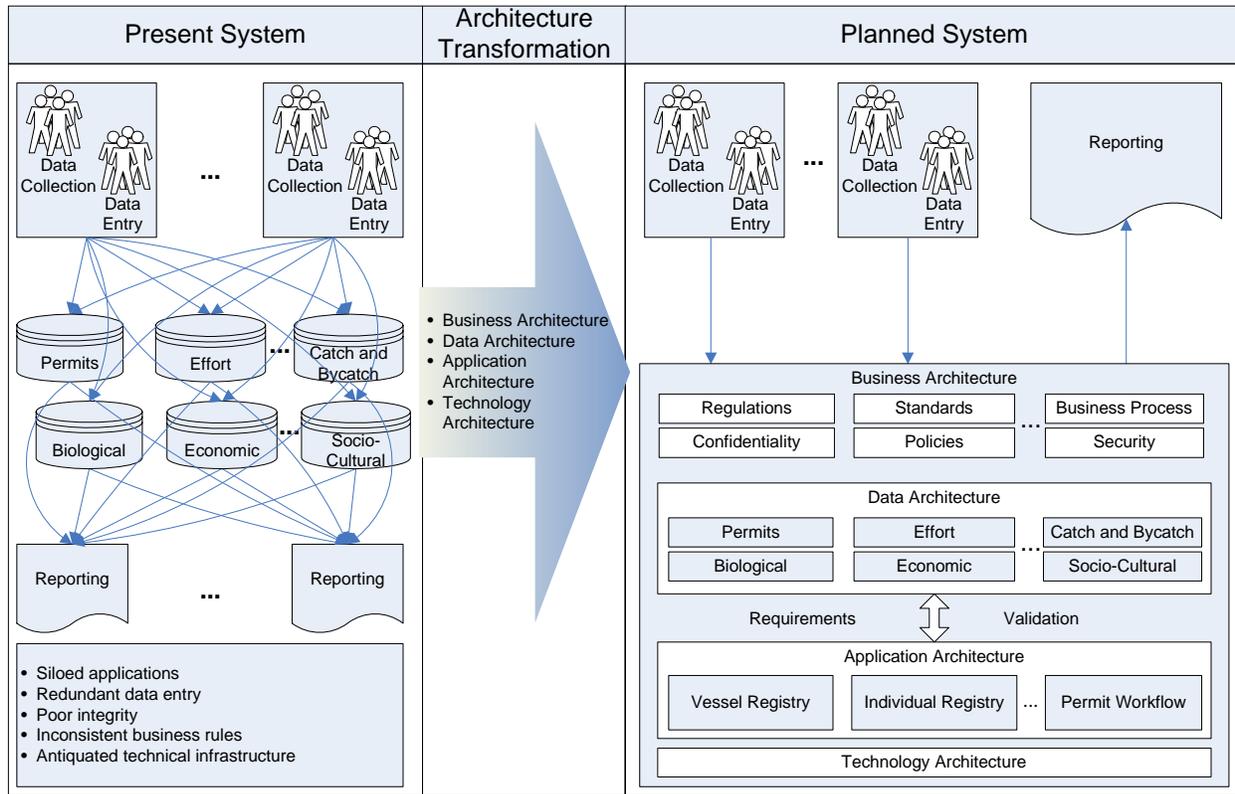
The FIS Program Architecture is incomplete at this time. It will be developed using parts of this PMP to seed information. The FIS Program Architecture will describe the FIS Program along the four basic dimensions (Business Architecture, Data Architecture, Application Architecture, and Technology Architecture) described below.

Once the FIS Program Architecture is fully developed, the FIS program manager will maintain it. The FIS Program Architecture will serve as a blueprint for change that helps the FIS program manager visualize introduction of change, moving from FIS concept to reality. The FIS Program Architecture will be designed using a framework under development by NOAA and the U.S. Department of Commerce (U.S. DOC) Federal Architecture guidelines to comply with OMB requirements.

The FIS Program Architecture will illustrate the FIS Program's business processes, the information necessary to operate the businesses, technologies necessary to support the business operations, and transitional processes for implementing new technologies that can adapt to changing business needs. The FIS Program Architecture shows what information is needed, how the information flows, when the processes are used, and who are responsible for the information.

Finally, an architectural framework defines the means to move from the current state to the desired state. An important aspect of using the framework is that you can identify common requirements and thus reduce the duplication of processes and systems. This approach focuses on the business goal of rationalization and streamlining of processes.

The FIS Program Architecture will describe the use of a Business Architecture, Data Architecture, Application Architecture, and Technology Architecture to support the FIS Program's transformation. Figure 5 illustrates the benefits of integrating these elements into a program architecture.



**Figure 5. Integration of Business, Data, Application, and Technology Architectures**

The **Business Architecture** describes the work that FIS performs in order to achieve its mission. The Business Architecture describes the required strategy, governance, organizational structure, behavior and functions for the organization.

It is important to understand how the NOAA Fisheries Service's business will be affected by the FIS Program once it is implemented, including how information will get into the FIS Program, who will be cleaning and processing the national marine fisheries data, and what kinds of management decisions will be based on it.

The FIS Program **Data Architecture** describes the information required to support those business processes and how that data is stored, collated, and integrated.

The **Application Architecture** describes information technology systems from applications, data structure, and technology points of view. This architecture exists to describe how the information systems and computer technology support the business architecture. The Application Architecture describes how individual applications are built to reduce duplication, use common infrastructure, maximize sharing, and support independent construction of applications, but at the same time enable integration of those independent applications.

The **Technology Architecture** describes the shared infrastructure that provides the standards of service across the organization to support the target systems.

These four architectures will be responsible for managing the interface between the technical solution and the business context solution so that the resulting project solution would be technologically strong and appropriately addresses the business needs.

By working across the organization, the FIS Program can use existing infrastructure, identify synergies, and avoid duplication and inconsistency across the organization.

## 4.4 Knowledge Management

This section serves as a placeholder for a description of knowledge management (KM) activities associated with the FIS Program. As the FIS Program matures, it will require increased information sharing and collaboration within the internal NOAA Fisheries Service community and among partner organizations and other stakeholders.

Ultimately, the PMT envisions a set of state-of-the-art communication and collaboration tools that allow program stakeholders (and especially, those with the most highly active roles in program management and support) to share information and to interact online. The PMT intends to employ KM best practices to address the following key issues/challenges:

- Program management and project information is spread across numerous participants, agencies, and organizations. Knowledge management can improve coordination.
- Numerous versions of program documents are circulating with minimal version control and without clear document ownership/version information.
- New NOAA Fisheries Service staff and other Program participants will be constantly entering and exiting their roles in the FIS Program. Pending retirements across the workforce may drain intellectual capital associated with fisheries statistics programs.
- Program stakeholders need a way to identify experts in areas of specialty.
- The PMT needs a way to interact and to resolve issues online via instant messaging and threaded discussion databases to support collaboration that is not real-time.
- Experts in certain specialty areas need a way to interact with each other and to share information and knowledge that can benefit participants in new ways. Information shared might include: best practices and lessons learned; and new tools or innovations. Fostering brainstorming sessions is valuable.
- The PMT and other FIS Program partners will need a means of storing ideas and information so that it can be shared and used effectively.

Currently the FIS Program website ([www.st.nmfs.gov/fis](http://www.st.nmfs.gov/fis)) provides a repository of FIS Program information. This information includes a Program Management Plan, FIS project plans, budget information, contact information, project deliverables, meeting agendas and minutes. The FIS Program Manager routinely updates the site to bring users the most current information and recent versions of documentation.

Over time, and as resources allow, the FIS Program Manager will identify web-based tools that provide solutions the challenges identified above. The FIS Program Manager will identify whether resources and tools are currently available and whether they are a good fit for the FIS Program's needs. If available tools and resources are not a good fit, the FIS Program Manager will research the market to see what is available and determine whether it is more effective to buy commercial off-the-shelf software, to build a tool, or some mix of options. The resulting solution would allow users to:

- Search for documents of interest.
- View frequently asked questions.
- Ask questions of the PMT or FIS Program Manager.
- View project and FIS Program plans (including the latest version of this PMP).
- Identify and contact experts in specific specialty areas.
- Join well-organized communities of practice. The PSG concept described in Table 2 of section 4.1, Governance describes one organizational model for these communities. The communities of practice would encourage members of that community to share lessons learned, best practices, and new ideas.

## 4.5 Risk Management

Successful management of the FIS Program requires informed, planned, and timely management of risks. Risk management involves identifying, analyzing, reporting, and controlling risk at both the program and project levels.

Many potential issues could affect implementation of the FIS Program. The following tables (Tables 10-16) describe the Program's current assessment of possible risks and their probable relative impacts. The risks are categorized as follows:

- project management
- funding
- leadership
- human resources
- scope
- social, political and economic, organizational
- technology

A detailed Risk Management Plan (RMP) for the FIS Program will be developed in FY2006 to identify and address risks early in the FIS Program and throughout the program life cycle. The FIS Program RMP will focus on program-level issues and will eventually be included in Appendix 4 of the FIS Program Management Plan. In this version, Appendix 4 provides a set of tables describing how more detailed assessments of risks and mitigation measures will be developed for the FIS RMP.

The general risks described in Tables 10-16 are described in more detail in Appendix 4. The Risk Management Actions in these tables are categorized as follows:

- Containment Plans are planning actions to reduce the probability of the risk turning into an issue or to reduce the negative impact to the project if the risk becomes an issue.
- Contingency Plans are planning actions to identify and mobilize alternative strategies for assuring progress in response to unexpected disruptions.
- Tracking Lists refer to specific mechanisms implemented to ensure that the identified risks are monitored as the project moves forward.

Each described Risk was ranked as Low, Low/Medium, Medium, Medium/High, or High with respect to both likelihood of occurrence and potential impact.

The likelihood of a risk is the probability of that risk becoming a problem during the FIS Program's period of performance.

The impact of the risk shows how much the risk would affect the FIS Program if it does become a problem.

**Table 10. Project Management Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Risk Management Action</b>
Lack of Project Resources	Medium/High	High	Containment Plan

**Table 11. Funding Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Risk Management Action</b>
Funding stream is unreliable	Medium/High	High	Contingency Plan

**Table 12. Leadership Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Risk Management Action</b>
Strategic Risks of ineffective integration	Medium	High	Contingency Plan

**Table 13. Human Resources Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Risk Management Action</b>
Loss of Experienced Staff	Medium	Medium/High	Tracking List
Limited Stakeholder Participation	High	High	Contingency Plan
Lack of technical experienced Staff	Low	Medium	Tracking List

**Table 14. Scope Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Risk Management Action</b>
Lack of Project Scope	Medium/High	High	Containment Plan

**Table 15. Social, Political, Economic, and Organizational Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Risk Management Action</b>
Organizational Change	High	High	Tracking List

**Table 16. Technology Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Risk Management Action</b>
Obsolete Technology	Low/Medium	Medium	Tracking List
Develop Adequate System Security	Low	High	Contingency Plan

The more detailed risk management assessment to be accomplished in FY2006 will do the following:

- **Identify and Categorize Risks.** While risk identification is the responsibility of all team members, tracking risks and developing contingency plans to address those risks fall in the role of the Program Manager. Risk identification begins in the early planning stages of a program. As scheduling, budgeting, and resource planning evolve, the RMP will change to reflect new risks identified in the planning stages and through the development stage. As projects progress, new risks may be added or removed based on changes during the various projects.
- **Assess and Prioritize Risks.** This section makes judgments about the relative importance of identified risks. Not all risks are created equal. Efforts to mitigate risks will be commensurate with the potential (negative) impacts of each individual risk element. Here, we will also estimate the potential costs (such as real and opportunity costs) associated with such risk.
- **Create a RMP.** Assign risk ownership for each risk, identify the response strategy and include it in the plan. Determine how this affects schedule and costs and then identify secondary and residual risks. Risks are documented so that contingency measures can be taken to mitigate their effects. Categorize risks as internal or external risks, evaluate the risk tolerances of the key stakeholders, and determine what projects are affected by selected risk.
- **Develop a Risk Communication Strategy.** It is always important for all key stakeholders (especially senior leadership in partner agencies and system end-users) to receive accurate and timely information about the highest priority risks. Sources of ideas to mitigate risks will come from the top down as well as from the bottom up, so it is important that everyone involved understand the nature and impact of risk. Effective risk communication can help to prevent crises from developing by making decisions early enough to address concerns before they become crises. It can empower and reassure stakeholders by engaging a range of participants, ensuring incorporation of a range of views and experience. Effective risk communication will build trust with FIS Program stakeholders and participants, which will reduce suspicion and uncertainty and build confidence in the PMT and program management practices.

## 5. Project Management Approach

The FIS Program is a complex, multi-year, multi-partner, multi-disciplinary project that will take many years and millions of dollars to execute. Just like any other program of this scale, implementation will require the careful execution of numerous projects.

The FIS Program's approach to project management is to group short, inter-related tasks into projects. Related projects are grouped into portfolios. Each portfolio represents an FIS investment priority and is comprised of an array of related projects that, when implemented, will achieve the intent of the portfolio.

Using portfolios will:

- Enable the organization to consider its investment of money and time in a comprehensive manner, maximizing value and minimizing risk in terms of organizational objectives;
- Enable the organization to determine balanced funding priorities aligned to an organization's strategic goals;
- Force a conscious, continuous and planned approach to implementation; and
- Improve allocation of limited resources.

A well-managed portfolio of projects has the largest impact on mission accomplishment. The FIS Program's future depends upon effective project management: achieving intended results on time and within budget. The FIS Program will insist on project management excellence. The FIS Program Management Plan will provide basic minimum requirements across all projects as well as a portfolio of tools that can be used to enhance project performance.

This section is likely to evolve rapidly in 2006 as best practices are recognized, tools are developed and leveraged, and participants learn and share knowledge.

Project management uses the following processes:

- Project planning;
- Project monitoring and control;
- Process and product quality assurance;
- Measurement and analysis;
- Requirements management; and
- Configuration management.

Due to the length and level of detail of this section, the full contents have been placed in Appendix 3 Project Management Approach.

See Chapter 6, Implementation Approach, for further description of the FIS Program's portfolios and projects.

## 6. Implementation Approach

The FIS Program will sequence its projects to ensure that the right projects are performed in the proper sequence. The project selection process will consider the precedence of the project, similarity to other projects, and available resources. This context will provide the information needed to generate decisions on the best suite of projects to tackle in each annual funding cycle.

The PMT has developed a set of eight (8) FIS Program portfolios for serious consideration in implementation planning. Each of these portfolios represents a group of projects that, if managed well and completed as planned, will allow the FIS Program to achieve its goals. Table 17 identifies and describes each portfolio.

**Table 17. FIS Program Portfolios**

<b>Portfolio</b>	<b>Desired Result</b>
1. FIS One-Stop-Shop	Have fishery-dependent data available at regional and national levels in an aggregated (rolled up) form that is easily accessible by the NOAA Fisheries Service management, employees, stakeholders and the public.
2. FIS Information Catalog	Provide a metadata catalog of critical fishery-dependent data holdings.
3. Information Quality	Assure quality of fisheries information needed to support stock assessments and FMP compliance monitoring.
4. Common Identifiers	Provide a unique key or identifier that can be used to link similar data (such as owners, vessels, and dealers) among data sources that are collected by different organizations.
5. Establish and Meet Minimum Information Requirements	Assure collection of minimum information needed to fulfill the stewardship responsibilities of NOAA, Fishery Management Councils, Interstate Fisheries Commissions, and States.
6. Electronic Reporting and Registration Systems	Electronic systems for the collection and reporting of fisheries statistics and permit information for all major fisheries.
7. Program Management	A well-managed program that delivers value to FIS Program partners and customers, and is a model for program management in the NOAA Fisheries Service.
8. FIS Program Architecture	A roadmap that describes the business and systems elements' current state, and their use in a new FIS Program state.

Further information, including proposed tasks/deliverable for each portfolio, appears in Appendix 5 Portfolios.

At the November 2005 meeting in La Jolla, CA, the PMT analyzed these eight portfolios in two ways. First, the PMT evaluated the relative contribution that each of the portfolios would make to the NOAA Fisheries Service regions and headquarters offices and to major FIS partner organizations. In that evaluation, the following portfolios appeared to have the broadest impact across the geographical regions and partners:

- Portfolio 1, FIS One-Stop Shop
- Portfolio 5, Establish and Meet Minimum Information Requirements
- Portfolio 6, Electronic Reporting and Registration Systems

Next, the PMT compared (or cross-walked) each of the eight portfolios to each of the four FIS goals. This crosswalk determined the relative contribution of each portfolio toward achieving each FIS goal. In that

analysis, the PMT included the concept of all transactional systems (including permits) in Portfolio 6, Electronic Reporting and Registration Systems. Table 18 shows the resulting cross-walk.

**Table 18. Crosswalk of Relative Contributions of Portfolios to FIS Program**

Portfolios:	FIS Program Goals			
	1. Expand and adapt data collection to meet current and future needs	2. Build and integrate information management systems within and across regions	3. Establish regional and national standards for collection, management, delivery	4. Implement and maintain partnerships
1. FIS One-Stop-Shop				
2. FIS Information Catalog				
3. Information Quality				
4. Common Identifiers				
5. Establish and Meet Minimum Information Requirements				
6. Electronic Reporting and Registration Systems				
7. Program Management				
8. FIS Program Architecture				

	Portfolio minimally supports FIS Program Goal
	Portfolio moderately supports FIS Program Goal
	Portfolio fully supports FIS Program Goal

The cross-walk results indicate the portfolios that are most relevant to the FIS Program's goals, and indicate which portfolios should be first implemented. Given the immediate information needs of fisheries managers nationwide, the rapidly evolving information requirements of modern fisheries management strategies (such as ITQs and quota monitoring), and given the support relationships described above, the PMT is satisfied that the following portfolios are likely to produce the greatest results in early phases of the FIS Program:

- Portfolio 1, FIS One-Stop-Shop;
- Portfolio 5, Establish and Meet Minimum Information Requirements
- Portfolio 6, Electronic Reporting and Registration Systems

These three portfolios will attract the greatest resources from this point forward. Most of the other portfolios support one or more of these three portfolios and, therefore, cannot be ignored. It is possible that projects in other portfolios need to be executed prior to projects within the top three portfolios.

## 6.1 Timeline and Milestones

The next step in implementation planning is to describe each portfolio's projects and tasks in detail, and to produce project-level and portfolio-level resource and scheduling requirements. This analysis will include documentation of dependencies or other logical relationships as well as a critical path analysis. The result will be a documented timeline and milestones that show which projects need to be executed when, and in what order, to realize the FIS mission and goals.

Table 19 shows an initial timeline for implementation of these eight portfolios. This information is subject to change, depending on the findings of the timeline and milestone analysis.

**Table 19. Portfolio Implementation Schedule and Duration**

Portfolio	2006				2007				2008				2009				2010			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1. FIS One-Stop Shop	[Timeline bar from Q1 2006 to Q4 2009]																			
2. FIS Information Catalog	[Timeline bar from Q1 2006 to Q3 2008]																			
3. Information Quality	[Timeline bar from Q1 2006 to Q4 2008]																			
4. Common Identifiers	[Timeline bar from Q3 2006 to Q4 2009]																			
5. Establish and Meet Minimum Information Requirements	[Timeline bar from Q1 2006 to Q4 2010]																			
6. Electronic Reporting and Registration Systems	[Timeline bar from Q1 2006 to Q3 2009]																			
7. Program Management	[Timeline bar from Q1 2006 to Q4 2009]																			
8. FIS Program Architecture	[Timeline bar from Q1 2006 to Q3 2009]																			

See Appendix 6 Portfolios and Task-Level Timelines for the portfolio implementation schedule that shows specific tasks.

## 6.2 Current Year Spending Plan

Table 20 shows the proposed FIS Program Fiscal Year 2006 spending plan.

Table 20. Proposed FIS Program FY 2006 Spending Plan

Portfolio and Subheading		Project Name	Estimated Total Cost	Previous Year Funds*	FY06 Funds
1. FIS One-Stop Shop		Development of one-stop shop for access to national commercial landings data	\$300,000	\$300,000	\$ —
2. FIS Information Catalog		InPort production support (Hawaii)	\$85,000	\$ —	\$85,000
		InPort additional development/enhancement	\$120,000	\$ —	\$120,000
		InPort deployment and maintenance (HQ ST)	\$60,000	\$60,000	\$ —
		InPort data entry	\$390,000	\$390,000	\$ —
3. Information Quality		Professional specialty group meetings to develop fisheries information quality guidelines	\$50,000	\$ —	\$50,000
4. Common Identifiers		Development of systems for reconciliation of dealer reports with vessel trip reports - SWR	\$50,000	\$ —	\$50,000
		Development of systems for reconciliation of dealer reports with vessel trip reports - AKR	\$50,000	\$ —	\$50,000
5. Establish and Meet Minimum Information Requirements		Minimum Data Elements workshop for FINs national	\$70,000	\$ —	\$70,000
6. Electronic Reporting and Registration Systems	Electronic Reporting Systems	Professional specialty group meetings to develop electronic reporting standards	\$70,000	\$ —	\$70,000
		Development of electronic reporting systems for commercial fisheries landings data (Pacific Coast pilot)	\$300,000	\$ —	\$300,000
	Electronic Registration Systems	National Permits Project (Phases 2 and 3 )	\$880,000	\$ —	\$880,000
		FTE Support for Project Leader	\$50,000	\$ —	\$50,000
		National Permits Workshop	\$70,000	\$ —	\$70,000
	7. Program Management	Program Planning and Management	Program Planning Support	\$100,000	\$ —
Program Management Support			\$200,000	\$ —	\$200,000
Infrastructure		Specialized Software	\$150,000	\$ —	\$150,000
		Agency Oracle Maintenance	\$25,000	\$ —	\$25,000
8. FIS Program Architecture		Architecture Support	\$170,000	\$ —	\$170,000
TOTALS			\$3,020,000	\$750,000	\$2,270,000

\* On FIS Support Contract

## Appendix 1 Federal Reporting Requirements

This appendix lists the reporting requirements for United States fisheries, organized by authorizing legislation. For each major authorizing legislation, the associated regulations codified in 50 CFR are noted, along with a general description of the reporting requirement, a listing of the vessel-specific information, and a listing of the instruments used to collect the data. The table shows the responsible Fishery Management Council (FMC) or international agency (if applicable), and the responsible the NOAA Fisheries Service region or office that collects or maintains the data.

### Marine Mammal Protection Act (MMPA)

See <http://www.nmfs.noaa.gov/pr/laws/mmpa.htm> for further information.

<b>MMPA Regulations at 50 CFR</b>	<b>Description</b>	<b>Vessel Information Required</b>	<b>Fishery Reporting Instruments</b>	<b>NOAA Fisheries Service Region</b>
216.24	Taking and related acts incidental to commercial fishing operations in the eastern tropical Pacific yellowfin tuna purse seine fishery	Vessel certificate of inclusion	Gear inspection Mandatory observer program Log incidental takings	SWR
216.108	Requirements for monitoring and reporting under incidental harassment authorizations for Arctic waters		Observer program Monitoring reports	AKR
216.114	Monitoring and reporting requirements for taking of ringed seals incidental to on-ice seismic activities		Letter of Authorization, Annual report (location, effort, number of seals)	HQ
216.145	Monitoring and reporting requirements for bottlenose and spotted dolphins incidental to oil/gas structure removals.		Observer program Activity report	SER
216.155	Monitoring and reporting requirements for DOD conventional underwater weapon detonations.		Activity notification Observer program Monitoring Activity final report Letter of Authorization, annual report (date, action summary, death/injury results, monitoring results, takings info. as applicable, and pop. Assess. studies)	SWR
220.45	Report filing procedures for General Permits		Potential report filing requirements	HQ

<b>MMPA Regulations at 50 CFR</b>	<b>Description</b>	<b>Vessel Information Required</b>	<b>Fishery Reporting Instruments</b>	<b>NOAA Fisheries Service Region</b>
229.6	Authorization for commercial fisheries under the MMPA reporting procedures		Report filing subsequent to takings (vessel name and ID, name and address of owner or operator, catch data)	HQ
230.8	Whaling Conventions Act, MMPA; reporting by whaling captains.		Gear description Report of whaling activities (catch)	HQ

### International

For information about international fisheries regulation, see <http://www.nmfs.noaa.gov/international.htm>.

<b>Authorizing Legislation/ Treaty and Regulation</b>	<b>Description</b>	<b>Vessel Information Required</b>	<b>Fishery Reporting Instruments</b>	<b>NOAA Fisheries Service Region</b>
Atlantic Tunas Convention Act (ATCA) at 50 CFR 285.29	Dealer recordkeeping and reporting for Atlantic bluefin tuna dealer		Sales info (date, catch) Bi-weekly sales reports (date, catch, price, effort) Maintain copies of landing card and bi-weekly reports for 2 years.	HQ
ATCA at 50 CFR 285.54	Vessel recordkeeping and reporting for Atlantic tunas (not bluefin)	Logbook	Catch report.	HQ,SER
ATCA at 50 CFR 285.56	Dealer recordkeeping and reporting for Atlantic tunas (not bluefin)		Sales info (dealer specific info, catch, price) Bi-weekly sales reports Maintain copies of reports for 2 years.	HQ,SER
Tuna Convention Act at 50 CFR 300.22	Vessel recordkeeping and reporting for Eastern Pacific tuna	Logbook	Inter-American Tropical Tuna Commission (IATTC) logbook	SWR
ATCA at 50 CFR 300.25	Dealer recordkeeping and reporting for Pacific bluefin tuna		Bi-weekly import/export reports Maintain copies of bi-weekly reports for 2 years.	NER
South Pacific Tuna Act at 50 CFR 300.34	Vessel recordkeeping and reporting for South Pacific tuna	Logbook	Forum Fisheries Agency (FFA) forms	SWR
Pacific Salmon Treaty Act at 50 CFR 300.93	Reporting requirements for Fraser River sockeye and pink salmon		Non-native fishermen req. to file WA State reports Native fishermen subject to Tribal reporting	NWR

<b>Authorizing Legislation/ Treaty and Regulation</b>	<b>Description</b>	<b>Vessel Information Required</b>	<b>Fishery Reporting Instruments</b>	<b>NOAA Fisheries Service Region</b>
Antarctic Marine Living Resources Convention Act (AMLRCA) at 50 CFR 300.107	Vessel recordkeeping and reporting for Antarctic Marine Living Resources	Logbook	Commission for the Conservation of Antarctic Marine Living Resources reporting forms (CCAMLR)	HQ
Treaty between the U.S. and Colombia at 50 CFR 300.124	Vessel recordkeeping and reporting requirements for U.S. vessels fishing in Colombia Treaty waters	Arrival and departure reports	Catch and effort reports.	SER
Agreement between the U.S. and the Russian Federation at 50 CFR 300.154	Vessel recordkeeping and reporting requirements for U.S. vessels fishing in Russian waters	Vessel permit abstraction report Vessel departure and return reports	Catch and effort reports Retain copies of all records for 1 year onboard the vessel (must make available for 2 additional years)	AKR

### **Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (1996)**

See <http://www.nmfs.noaa.gov/msa2005/> for further information.

<b>MSFCMA regulations at 50 CFR</b>	<b>Description</b>	<b>Vessel Information Required</b>	<b>Fishery Reporting Instruments</b>	<b>Council/ Agency</b>	<b>NOAA Fisheries Service Region</b>
600.507	Vessel recordkeeping and reporting requirements for foreign fishing in the U.S. Exclusive Economic Zone (EEZ)	Logbooks retained onboard 3 years.	Catch and effort log reports	All FMC	All
600.705	Relation to other laws for State responsibilities relating to data collection			All FMC	All
600.715	General recordkeeping and reporting requirements for domestic fisheries	As required by State or Federal regulations	As required by State or Federal regulations	All FMC	All

<b>MSFCMA regulations at 50 CFR</b>	<b>Description</b>	<b>Vessel Information Required</b>	<b>Fishery Reporting Instruments</b>	<b>Council/ Agency</b>	<b>NOAA Fisheries Service Region</b>
622.5	Vessel and dealer record-keeping and reporting requirements for Caribbean, Gulf and South Atlantic fisheries (coastal pelagics, reef fish, shrimp, South Atlantic snapper-grouper, South Atlantic golden crab, red drum, South Atlantic rock shrimp, coral or live rock, Caribbean spiny lobster, queen conch)	Trip reports	Catch and effort logbooks Dealer reports; must retain sales reports for 1 year after receipt	Mid-Atlantic	SER
628.4	Reporting requirements for bluefish	See 600.715	See 600.715	Mid-Atlantic	NER
630.5	Vessel and dealer record-keeping and reporting requirements for Atlantic Swordfish fishery	Logbook of effort, catch, and composition	Catch and effort logbooks Dealer reports of sales amount, type and price	NOAA Fisheries Service	SER
640.5	Vessel and dealer record-keeping and reporting requirements for spiny lobster (GOM and South Atlantic)	Reserved	Reserved	South Atlantic; Gulf of Mexico	SER
644.5	Recordkeeping and reporting requirements for Atlantic billfish tournaments (Sailfish, white marlin, blue marlin, long-bill spearfish)		Fisher specific info (name, telephone number), vessel, catch data, environmental conditions	New England; Mid-Atlantic; South Atlantic; Gulf of Mexico; Caribbean	SER
648.7	Vessel and dealer record-keeping and reporting requirements for Northeastern fisheries (Atlantic mackerel, squid, butterfly, Atlantic salmon, Atlantic sea scallops, Atlantic surf clam and ocean quahog, summer flounder, scup, black sea bass, northeast multi-species)	Fishing log; retain for 1 year onboard	Weekly and annual dealer reports of sales amount, type, locale and price; retain for 1 year after receipt	New England; Mid-Atlantic	NER

<b>MSFCMA regulations at 50 CFR</b>	<b>Description</b>	<b>Vessel Information Required</b>	<b>Fishery Reporting Instruments</b>	<b>Council/ Agency</b>	<b>NOAA Fisheries Service Region</b>
654.5	Vessel and recordkeeping and reporting requirements for Gulf of Mexico stone crab fishery	Reserved	Reserved	Gulf of Mexico	SER
660.3	Vessel and dealer recordkeeping and reporting requirements for fisheries off the West coast and Western Pacific		State required records	Pacific; Western Pacific	SWR, NWR
660.14	Vessel and dealer recordkeeping and reporting requirements for Western Pacific fisheries (pelagic, crustacean, precious corals)	Logbook for catch, effort and transshipment	Sales reports as well as catch and effort reports Packing and weighout slips Dealers must retain sales reports State required records	Western Pacific	SW
660.303	Vessel and dealer recordkeeping and reporting requirements for West coast groundfish	State required records so long as the NOAA Fisheries Service has access	State required records so long as the NOAA Fisheries Service has access	Pacific	NWR
660.404	Vessel and dealer recordkeeping and reporting requirements for West coast salmon	State and Tribal required records so long as the NOAA Fisheries Service has access	State and Tribal required records so long as the NOAA Fisheries Service has access	Pacific	NWR, SW
662.4	Vessel and dealer recordkeeping and reporting requirements for Northern anchovy	State required records so long as the NOAA Fisheries Service has access	State required records so long as the NOAA Fisheries Service has access	Pacific	SW

<b>MSFCMA regulations at 50 CFR</b>	<b>Description</b>	<b>Vessel Information Required</b>	<b>Fishery Reporting Instruments</b>	<b>Council/ Agency</b>	<b>NOAA Fisheries Service Region</b>
670.00	Vessel and dealer record-keeping and reporting requirements for Alaska groundfish	State required records so long as the NOAA Fisheries Service has access	State required records so long as the NOAA Fisheries Service has access	North Pacific	AKR
674.3	Vessel and dealer record-keeping and reporting requirements for high seas salmon off Alaska	State required records so long as the NOAA Fisheries Service has access	State required records so long as the NOAA Fisheries Service has access	North Pacific	AK
678.5	Vessel and dealer record-keeping and reporting requirements for Atlantic sharks	Logbook	Weighout slips with catch and effort data	NOAA Fisheries Service	SER
679.5	Vessel and dealer record-keeping and reporting requirements for fisheries in the EEZ off Alaska (groundfish, king and Tanner crab, scallops, sablefish and halibut IFQ)	Logbooks (retained for 3 years after end of fishing year)	Catch and effort reports; including discard estimates, transfer reports	North Pacific	AKR
680.00	Vessel and dealer record-keeping and reporting requirements for Alaska crab fisheries	State required records so long as the NOAA Fisheries Service has access	State required records so long as the NOAA Fisheries Service has access	North Pacific	AKR

## Appendix 2 Other Significant Drivers

These FIS Program drivers are identified in Section 1.4.

- Government Performance and Results Act (GPRA)
- Information Technology Management Reform Act (ITMRA)
- Clinger-Cohen Act (CCA)
- Federal Information Security Management Act (FISMA) and Privacy Compliance
- President's Management Agenda (PMA)
- Office of Management and Budget (OMB) circulars A-11 and A-123, and Exhibit 300
- Federal Enterprise Architecture Framework (FEAF)
- Information Quality Act (IQA), formerly the Data Quality Act (DQA)
- Paperwork Reduction Act (PRA)
- Government Paperwork Elimination Act (GPEA)
- Federal Geographic Data Committee (FGDC)
- Geospatial One-Stop
- Section 508 Accessibility Standard
- U.S. Commission on Ocean Policy
- NOAA Planning, Programming, Budgeting and Execution System (PPBES), NOAA Observing System Architecture (NOSA), and NOAA Information Quality Standards (Section 515)
- National Environmental Policy Act (NEPA)
- Executive Order 12866 Regulatory Planning and Review
- Regulatory Flexibility Act (RFA)

This appendix describes the drivers in detail.

### Government Performance and Results Act of 1993 (GPRA)

GPRA (also known as the Results Act) holds agencies accountable for program performance by requiring that they think strategically and set, measure and report on goals annually. GPRA was passed in response to concerns that:

- Waste and inefficiency in Federal programs undermine the confidence of the American people;
- Federal managers are disadvantaged in their efforts to improve program efficiency and effectiveness because of inadequate goal setting and performance measurement; and
- Congressional policymaking, spending decisions and program oversight are handicapped by insufficient information about program performance and results.

Performance based management and budgeting must begin with an overarching strategic plan. GPRA has specific planning and reporting requirements that include a five-year strategic plan, an annual performance plan, and an annual performance report.

GPRA challenges government leaders to reach out and understand what customers really need and expect from government. With this information, government agencies must strategically plan how they will deliver high-quality products and services to citizens through better, faster, and cheaper programs. Once

their strategic goals are established, agency leaders must establish performance measures, for which they are fully accountable, to assess and ensure that departments and agencies are indeed delivering on the promises made in their Strategic Plans.

See <http://www.whitehouse.gov/omb/mgmt-gpra/gplaw2m.html> for further information.

### **Information Technology Management Reform Act (ITMRA)**

ITMRA mandates the use of performance metrics. Section 5123 of the ITMRA, Performance and Results-Based Management, requires that the head of an executive agency shall:

*ensure that performance measurements are prescribed for information technology used by, or to be acquired for, the executive agency and that the performance measurements measure how well the information technology supports programs of the executive agency*

### **Clinger-Cohen Act of 1996 (CCA)**

CCA dramatically changed the way Federal agencies must acquire and manage information technology (IT). CCA requires executive agencies to develop a capital planning and investment control process for making technology, budget, financial and program management decisions.

CCA directs agencies to establish a comprehensive approach to planning, budgeting, procuring and managing IT. CCA also encourages the use of performance- and results-based management of these investments.

### **Federal Information Security Management Act (FISMA) and Privacy Compliance**

FISMA provides Federal guidelines for information security, requiring agencies demonstrate progress in meeting a number of security guidelines. FISMA requires every Federal agency, as well as any organization whose information systems possess or make use of Federal information, to develop, document, and implement an agency-wide risk-based information security program. Additionally, FISMA requires periodic testing and evaluation of the effectiveness of the information security policies, procedures, and practices that are in place. FISMA compliance will allow for better data sharing within a large Federal organization and its sub-agencies and allow them to operate as one unit as opposed to several autonomous units.

### **President's Management Agenda (PMA)**

PMA is a strategy for improving the management and performance of the Federal Government. It focuses on the areas where deficiencies were most apparent and where the Government could begin to deliver concrete, measurable results. The management agenda outlines goals for improvement in five areas: human capital, competitive sourcing, financial performance, budget and performance integration and e-government.

### **OMB Circular A-11**

The Program Assessment and Review Tool (PART) was developed to assess and improve program performance so that the Federal government can achieve better results. A PART review helps identify a program's strengths and weaknesses to inform funding and management decisions aimed at making the program more effective. The PART therefore looks at all factors that affect and reflect program performance including program purpose and design; performance measurement, evaluations, and strategic planning; program management; and program results. Because the PART includes a consistent series of analytical questions, it allows programs to show improvements over time, and allows comparisons between similar programs. See <http://www.whitehouse.gov/omb/part/index.html> for further information.

### **OMB Circular A-123**

This circular provides guidance to Federal managers on improving the accountability and effectiveness of Federal programs and operations by establishing, assessing, correcting, and reporting on management controls. Management controls are defined as the organization, policies, and procedures used by agencies to make sure that programs achieve their intended results; resources are used consistently with an agency's mission; program resources are protected from waste; laws and regulations are followed;

and reliable information is obtained, maintained, reported, and used for decision-making. See <http://www.whitehouse.gov/omb/circulars/a123/a123.html> for further information.

## Federal Enterprise Architecture Framework (FEAF)

FEAF is a business-based framework for Government-wide improvement created by the Office of Management and Budget (OMB) to facilitate efforts to transform the Federal Government to one that is citizen-centered, results-oriented, and market-based. FEAF is constructed through a collection of interrelated reference models (Performance, Business, Service Component, Data, and Technical Reference Model) designed to facilitate cross-agency analysis and the identification of duplicative investments, gaps, and opportunities for collaboration within and across Federal Agencies. See <http://www.whitehouse.gov/omb/egov/a-1-fea.html> for further information.

## OMB Exhibit 300

Exhibit 300 is designed to collect information that will assist OMB during budget review. Agencies must review their portfolio of capital assets each year to determine whether it continues to meet agency mission needs reconciled with existing capabilities, priorities and resources. OMB seeks to ensure that capital asset investment decisions are based on agency priorities. The information reported on Exhibit 300 helps OMB:

- Understand an agency's capital programming and investment decision-making processes;
- Ensure that spending on capital assets directly supports the agency's mission and will provide a return on investment equal to or better than alternate uses of funding;
- Identify poorly performing projects, i.e. projects that are behind schedule, over budget, or lacking in capability; and
- Identify capital assets that no longer fulfill ongoing or anticipated mission requirements or do not deliver intended benefits to an agency or its customers.

"OMB... is increasing the pressure on agencies to make solid business cases for all proposed IT projects. Exhibits 53 and 300...detail how agencies must justify a business case for their funding requests. [Agencies] must prove that the IT resources are aligned with the mission of the agency. Without this verification, funding could be cut off.

Projects that don't represent an effective business case may be tagged as ventures that need to be 'watched' closely, or that need to resubmit their business cases. About 1/3 of projects proposed for 2006 funding have been rejected by OMB. This has effectively tied up nearly \$15 billion worth of 2006 spending proposals."

—Shawn P. McCarthy, GCN, 06/20/05:

## Information Quality Act (IQA)

IQA, formerly known as the Data Quality Act (DQA), was enacted in December 2000. IQA is Congress's attempt to ensure that Federal agencies use and disseminate accurate information. IQA requires Federal agencies to issue information quality guidelines ensuring the quality, utility, objectivity and integrity of information that they disseminate and provide mechanisms for affected persons to correct such information. Congress enacted the IQA primarily in response to increased use of the internet, which gives agencies the ability to communicate information easily and quickly to a large audience. Under the IQA, Federal agencies must ensure that the information it disseminates meets certain quality standards. Congress' intent was to prevent the harm that can occur when government websites disseminate inaccurate information to the public. See <http://library.findlaw.com/2003/Jan/14/132464.html> for further information.

## Paperwork Reduction Act (PRA)

In 1980, Congress enacted the Paperwork Reduction Act to ensure that information collected from the public minimizes burden and maximizes public utility. The PRA requires all Federal agencies to obtain approval from the Office of Management and Budget (OMB) before collecting information from the public. Ways of collecting information include questionnaires, focus groups, telephone surveys, applications, performance reports, customer satisfaction surveys, studies and evaluations, interviews, forms, and any other means of requesting information from ten or more respondents.

## Government Paperwork Elimination Act (GPEA)

GPEA requires Federal agencies to allow individuals or entities that deal with the agencies the option to submit information or transact with the agency electronically, when practicable, and to maintain records electronically, when practicable. The Act specifically states that electronic records and their related electronic signatures are not to be denied legal effect, validity, or enforceability merely because they are in electronic form, and encourages Federal government use of a range of electronic signature alternatives.

## Federal Geographic Data Committee (FGDC)

The FGDC is developing the National Spatial Data Infrastructure (NSDI) in cooperation with organizations from State, local and Tribal governments, the academic community, and the private sector. The NSDI encompasses policies, standards, and procedures for organizations to cooperatively produce and share geographic data.

## Geospatial One-Stop

An intergovernmental project managed by the Department of the Interior in support of the President's Initiative for E-government, Geospatial One Stop builds upon its partnership with the Federal Geographic Data Committee (FGDC) to improve the ability of the public and government to use geospatial information to support the business of government and facilitate decision-making.

Geospatial One-Stop is an online tool for combining thousands of geospatial resources from Federal, State, local, Tribal, and private sources. The portal enables decision makers to access geospatial resources and respond more quickly during an emergency to protect lives, property, and basic services. GOS provides access to more than 72,000 Federal, State, and local government geospatial resources.

## Section 508 Accessibility Standard

In 1998, Congress amended the Rehabilitation Act to require Federal agencies to make their electronic and information technology accessible to people with disabilities. Inaccessible technology interferes with an individual's ability to obtain and use information quickly and easily. Section 508 was enacted to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies that will help achieve these goals. The law applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Under Section 508 (29 U.S.C. 794d), agencies must give disabled employees and members of the public access to information that is comparable to the access available to others.

## U.S. Commission on Ocean Policy

Authorized by Congress in the Oceans Act of 2000, and appointed by President Bush, the U.S. Commission on Ocean Policy was required to establish findings and make recommendations to the President and Congress for a coordinated and comprehensive national ocean policy. The result, *An Ocean Blueprint for the 21st Century*, contains 212 recommendations addressing all aspects of ocean and coastal policy.

## NOAA Planning, Programming, Budgeting and Execution System (PPBES)

PPBES is an integrated, requirements-based planning, programming, budgeting and execution system that provides the structure to link NOAA's strategic vision with programmatic detail and budget development *and* the framework to maximize its resources while optimizing its capabilities. NOAA PPBES is based on the Department of Defense PPBES.

PPBES ties planning, programming, budgeting, and execution together to ensure activities the agency undertakes are effective in meeting NOAA's mission and vision.

### Planning

- Examine the role and posture of NOAA in the national and international environment.
- Define the strategy necessary to achieve these national objectives.
- Determine the requirements necessary to accomplish the strategy.

- Assess progress in meeting goals.
- Set priorities.

### **Programming**

- Analyze NOAA's ability to meet its strategic goals and objectives.
- Identify critical capability gaps across all programs to be met within specified fiscal constraints.
- Provide resource allocation recommendations.
- Ensure NOAA maximizes its investments to optimize its capabilities.
- Provide foundation for development of the NOAA Budget.

### **Budgeting**

- Develop executable budget to support NOAA's missions.
- Integrate performance metrics and budget requests.
- Defend the NOAA budget during external reviews.
- Defend President's Budget.
- Develop level of effort and program allocations based on final appropriation.

### **Execution**

- Match plans to resources
- Document expectations of performance
- Provide feedback to improve execution
- Ensure accountability
- Produce results
- Apply lessons learned to future plans and programs

## **NOAA Observing System Architecture (NOSA)**

In 1992, Vice Admiral Conrad C. Lautenbacher, Jr., USN (Ret.) called for a fundamental review of NOAA's strengths and opportunities for improvement. A Program Review Team provided suggestions for building a better NOAA. These suggestions led to 68 specific recommendations. Recommendation 32 addressed centrally planning and integrating NOAA observing systems and indicated a clear need for a NOAA-wide observing system architecture. NOAA initiated its first-ever comprehensive review of all its observing systems and their interrelationships.

NOAA can manage its observation system more efficiently and effectively with an architecture that defines a consistent set of principles, policies, and standards.

NOSA's responsibilities are:

- Design observing systems that support NOAA's mission and provide maximum value.
- Avoid duplication of existing systems.
- Operate efficiently and in a cost-effective manner.

## **NOAA Information Quality Standard (Section 515)**

Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, hereinafter Section 515, directs the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidance to Federal agencies for ensuring and maximizing the

quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies.”

OMB complied by issuing guidelines which direct each Federal agency to do the following things. (A) issue its own guidelines ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by the agency. (B) establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with the OMB 515 Guidelines or the agency guidelines. (C) report periodically to the Director of OMB on the number and nature of complaints received by the agency regarding the accuracy of information disseminated by the agency and how such complaints were handled by the agency.

In compliance with OMB directives, NOAA implements the guidelines issued by the U.S. Department of Commerce (DOC) - Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Disseminated Information (available from <http://www.commerce.gov>).

This document implements Section 515 and fulfills the OMB and U.S. DOC information quality guidelines. It may be revised periodically, based on experience, evolving requirements of the National Oceanic and Atmospheric Administration (NOAA) and concerns expressed by the public. Covered information disseminated by NOAA will comply with all applicable OMB, U.S. DOC, and the NOAA Information Quality Guidelines.

In implementing these guidelines, NOAA acknowledges that ensuring the quality of information is an important management objective that takes its place alongside other NOAA objectives, such as ensuring the success of NOAA missions, observing budget and resource priorities and restraints, and providing useful information to the public. NOAA intends to implement these guidelines in a way that will achieve all these objectives in a harmonious way.

## National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4347) is a basic national charter for protection of the environment. NEPA declares its purposes to be: “To declare a national policy that encourages productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.” According to section 101. (a) of NEPA “it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.” According to the Council on Environmental Quality’s regulations for implementing NEPA documents should concentrate on issues that are significant to the action in question, rather than amassing needless detail. Federal agencies shall to the fullest extent possible produce environmental impact statements (EISs) that are concise, clear, and to the point, and shall be supported by evidence that agencies have done the necessary environmental analysis. Federal agencies are also directed, to the fullest extent possible, to integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively.

According to section 102(2)(C) of NEPA “all agencies of the Federal Government shall-- Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on--”

- (i) The environmental impact of the proposed action,
- (ii) Any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) Alternatives to the proposed action,
- (iv) The relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and

(v) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Section 201 of NEPA created the Council on Environmental Quality (CEQ). Its duties, among others, were to: assist and advise the President in preparation of the annual Environmental Quality Report, gather timely and authoritative information on environmental quality trends, review and appraise the various programs and activities of the Federal Government in light of the policy set forth in Title I of NEPA, and develop and recommend to the President national policies to foster and promote the improvement of environmental quality to meet the conservation, social, economic, health, and other requirements and goals of the Nation.

The CEQ issued regulations (40 CFR 1500-1508) in 1978 implementing NEPA. The regulations include procedures for Federal agencies to use in the environmental review process. The regulations implement Section 102(2) of NEPA, which contains the “action forcing” provisions, which includes Section 102(2)(C), the Environmental Impact Statement. Further information is available at <http://sero.nmfs.noaa.gov/textversion/nepa.htm>.

### **Executive Order 12866 Regulatory Planning and Review**

The American people deserve a regulatory system that works for them, not against them: a regulatory system that protects and improves their health, safety, environment, and well-being and improves the performance of the economy without imposing unacceptable or unreasonable costs on society; regulatory policies that recognize that the private sector and private markets are the best engine for economic growth; regulatory approaches that respect the role of State, local, and tribal governments; and regulations that are effective, consistent, sensible, and understandable. We do not have such a regulatory system today.

With this Executive order, the Federal Government begins a program to reform and make more efficient the regulatory process. The objectives of this Executive order are to enhance planning and coordination with respect to both new and existing regulations; to reaffirm the primacy of Federal agencies in the regulatory decision-making process; to restore the integrity and legitimacy of regulatory review and oversight; and to make the process more accessible and open to the public. In pursuing these objectives, the regulatory process shall be conducted so as to meet applicable statutory requirements and with due regard to the discretion that has been entrusted to the Federal agencies. Further information about this executive order is available at <http://www.epa.gov/fedrgstr/eo/eo12866.htm>.

### **Regulatory Flexibility Act (RFA)**

The Regulatory Flexibility Act (RFA) first enacted in 1980 was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities. The RFA emphasizes predicting impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action.

On March 29, 1996, President Clinton signed the Small Business Regulatory Enforcement Fairness Act (SBREFA). Among other things, the new law amended the RFA to allow judicial review of an agency's compliance with the RFA. The 1996 amendments also updated the requirements for a final regulatory flexibility analysis, including a description of the steps an agency must take to minimize the significant economic impact on small entities. Finally, the 1996 amendments expanded the authority of the Chief Counsel for Advocacy of the Small Business Administration (SBA) to file amicus briefs in court proceedings involving an agency's violation of the RFA. Further information about this executive order is available in chapter 2.0 of the document at <http://www.fakr.noaa.gov/analyses/rr/regflexanalysis.pdf>.

## Appendix 3 Project Management Approach

### Project Management Approach

The FIS Program operates in a project environment. The project is the basic unit of work within the FIS Program. When executed well, the execution of a portfolio of projects has the largest impact on mission accomplishment. The FIS Program's future depends upon well-executed projects, achieving intended results on time and within budget. The FIS Program will insist on project management excellence. The FIS Program Management Plan will provide basic minimum requirements across all projects as well as a portfolio of tools that can be used to enhance project performance.

This appendix will likely evolve rapidly, initially, as best practices are recognized and tools are developed and leveraged, and as lessons are learned and shared.

The following processes in the following business areas are related to the oversight and control of projects:

- Project Planning.
- Project Monitoring and Control.
- Process and Product Quality Assurance.
- Measurement and Analysis.
- Requirements Management.
- Configuration Management.

### Project Planning

The purpose of the Project Planning process is to ensure that a project meets its stated objectives. This process description describes the steps for the Project Plan that are used to provide a consistent and repeatable approach for defining the project scope, developing a project schedule and budget, developing a project management plan, initializing the project team, and obtaining stakeholder approval of the Project Management Plan.

#### *Objectives*

The Project Planning (PP) process defines the steps and activities that are required to perform project planning for FIS projects. It includes the development and establishment of the work breakdown structure (WBS), cost and schedule that will be used to monitor and measure project progress. It also includes the development of a Project Management Plan that documents the project baseline as well as describes the project team, required resources, and project risks. The final steps in the process involve obtaining stakeholder commitment and approval.

At project initiation, the project manager will determine how the project should conform to the PP process, in terms of the content and level of detail of the WBS and project management plan. This will be based on the level of effort, duration, and total cost of the project, as defined in the table below. The requirements for each step in the PP process and the application of the document templates will be based on the project size.

#### *Process*

Project Management Plans are developed at the initiation of every project. Table 21 shows the sections of a typical Project Management Plan, which defines the overall management of the project.

**Table 21. Project Management Plan Components**

<b>Project Plan Component</b>	<b>Description</b>
1. Purpose	Describe purpose of project.
2. Objectives	Goals of project including project deliverables and client expectations.
3. Scope of Work	Describe project work scope including Work Breakdown Structure (WBS) and a brief narrative description. The WBS should include tasks or steps needed to execute this project.
4. Assumptions and Constraints	Include assumptions and constraints identified during the scoping and estimation steps that might affect project schedule, budget, or implementation.
5. Technical Approach	Describe how project will be developed and implemented (including lifecycle approach, technical environment, hardware, and software requirements)
6. Project Team and Staffing	Describe the project organization, technical skill sets needed, labor categories, project roles and responsibilities, and proposed team members who will fill these roles
7. Project Cost Estimate	Identify staff members and the estimated number of hours each is expected to work on the project. Account for time spent doing management, review, testing, quality and configuration control. Use this level of effort estimate and labor rates to develop an estimated project cost.
8. Project Schedule Estimate	Include the project schedule and a high-level description of the schedule. For larger projects, develop and attach an MS Project schedule that indicates the relative time for each task and the task dependencies (meaning, which tasks are sequential and which overlap).
9. Risk Management Plan	Identify and define the risks associated with the project. Based upon the initial risk assessment during the scope definition phase of this process, identify all risks along with the potential impact or consequence of the risk. For each risk, also identify a potential response to avoid, transfer, mitigate, accept, and plan a contingency
10. Communications Plan	Define how the project manager will communicate with the client, the project team, senior management, and other stakeholders throughout the course of the project
11. Data Management Plan	Define how project data will be managed and tracked. This means data about the budget, expenditures, and schedule, not system databases.
12. Configuration Management (CM) Plan	Define how the CM process will be incorporated into the project, who is responsible for overseeing configuration management for the project, what tools will be used, what documents and components will be managed, schedule for updates.
13. Testing, Verification and Validation Plan	Define the process for performing testing, validation and verification of the project deliverables. This should include the items that need to be tested, the types of testing to be performed, the environments where testing will be performed, who is responsible for performing the testing, how testing results will be communicated and how the necessary corrections will be implemented and re-tested.
14. Quality Assurance Plan	Define how the Quality Assurance Plan process will be incorporated into the project. Define how QA will be managed, tracked and communicated to the client. This includes both QA performed prior to the release of a deliverable and QA during maintenance and support phases.

<b>Project Plan Component</b>	<b>Description</b>
15. Stakeholder Involvement	Describe the various stakeholders who will be involved during the course of the project and the nature of their involvement, including clients, end-users, other contractors, senior management, and others involved in the process
16. Performance Metrics	Identify metrics for the project, including metrics that the PMT mandates as well as any other project-specific metrics.

### **Outputs**

- Project Management Plan.
- Baselines of WBS, Cost and Schedule.
- Completed Risk Identification List.

### **Roles and Responsibilities**

Table 22 shows the project monitoring and control roles and responsibilities.

**Table 22. Project Monitoring and Control Roles and Responsibilities**

<b>Project Manager</b>	<b>Define scope.</b> <b>Prepare WBS and cost and schedule estimates.</b> <b>Create Project Management Plan.</b> <b>Identify and initialize project team.</b> <b>Implement suggestions from project team and stakeholders into project plan.</b>
<b>Team Members</b>	<b>Review WBS, estimates and PMP.</b> <b>Provide feedback on documents.</b> <b>Inform Project Manager of problems that could affect schedule or budget.</b> <b>Commit to project schedule and budget.</b>
<b>Senior Management</b>	<b>Review Project Management Plan.</b> <b>Provide constructive feedback and recommendations on Project Management Plan.</b> <b>Provide approval of Project Management Plan.</b>

### **Project Monitoring and Control**

The purpose of the Project Monitoring and Control (PMC) process is to provide a framework in which projects will be monitored and controlled to ensure effective implementation of a project plan. A consistent and repeatable approach will be established for monitoring each project's actual progress, commitments, risks and accomplishments against the project plan. A clear understanding of a project's progress will ensure that appropriate corrective actions can be taken when the project's performance deviates significantly from the plan. An approach for maintaining stakeholder involvement and performing periodic project reviews with upper management will also be established to promote customer satisfaction and project management excellence.

### **Objectives**

The Project Monitoring and Control process defines the steps and activities that are required to maintain control of FIS projects. It includes the development of procedures for project monitoring and control, the collection of data for tracking project metrics, the monitoring and analysis of project progress, and the periodic reporting of project status to the client and internal management. The final step involves closing

out the project. This step ensures that final metrics are collected and compared against the plan. This is a means to capture the lessons learned that will assist with the management of future projects.

When this process begins, the project manager determines how the project should conform to the PMC process, in terms of the types of data to be collected and reported. This is based on the level of effort, duration, and size of the project. The type of contract is also a factor in determining the monitoring and control process, as fixed price contracts require tighter control and more stringent monitoring.

### Process Description

The Project Monitoring and Control process consists of six activities, as shown in Figure 6. The activities are further detailed in the sections below.

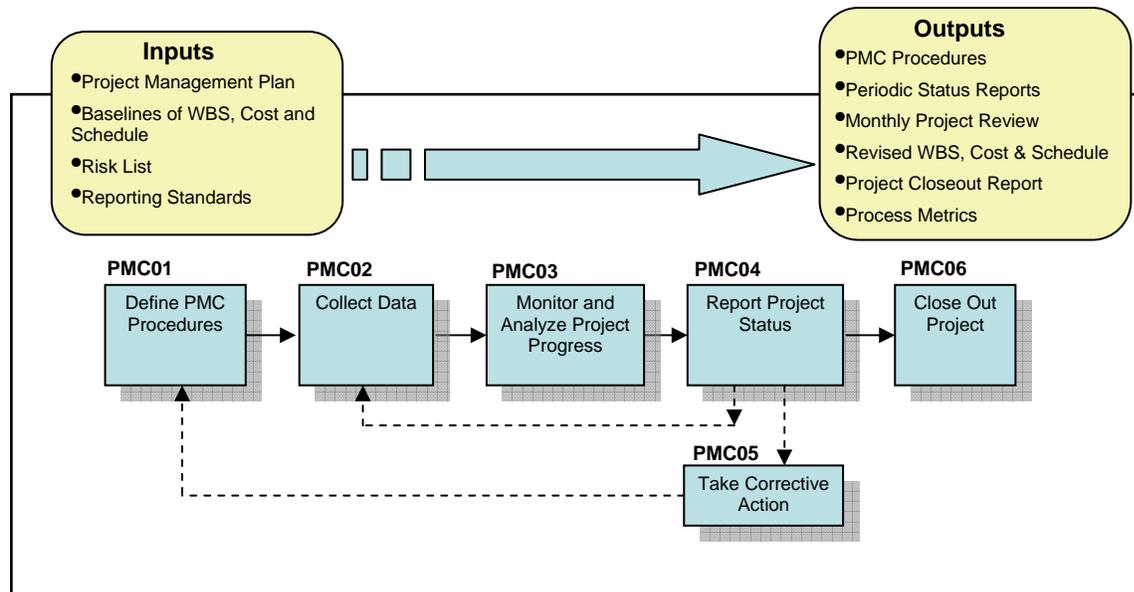


Figure 6. Project Monitoring and Control Process Flow

#### Define PMC Procedures (PMC01)

The first step in the PMC process is to define the procedures that will be used to support the process. This includes identifying what is going to be collected and reported, who is going to do what and when, interfaces with other groups, and what tools will be used to support the process. In defining the PMC procedures, the following items need to be considered as they apply to data collection, monitoring, analysis and reporting.

#### Collect Data (PMC02)

Once the project is underway, data will be collected, using the appropriate data sources and labor resources, as defined in the PMC procedures. The data will be collected according to the approach and frequency that have been determined for the project. As the data is collected, any necessary validation criteria will be applied in order to confirm that the data is complete and correct. The schedule of data collection will also need to be recorded to ensure that it is being collected in a timely manner.

#### Monitor and Analyze Project Progress (PMC03)

As the data for the project is collected, the next step is to begin to monitor project progress, as defined in the PMC procedures. Project monitoring is an on-going process that will include reviewing the data that is collected and comparing it against the baselines. Any anomalies should be identified, as well as any aspects of the project that are outside of the specified threshold for variance from the project estimates.

The data should also be reviewed to identify any trends that need to be reported to management or require corrective action. All observations and results of the monitoring need to be recorded and compiled for use in the next step of this process – the analysis and reporting of project status.

The following aspects of the project should be monitored and compared against the plan:

- Schedule – Can future activities be expedited to recover the schedule? What is the impact of a delay? Is this a critical path item?
- Cost – What is the source of the cost overrun? Was the cost estimate based upon faulty planning assumptions? Are lower priced alternatives available to perform this task? Can a lower priced alternative satisfy requirements?
- Changes to product or scope – Do the existing change control procedures support this level of changes?
- Quality – Does product meet specifications? Can measures be implemented to improve quality?
- Risk – Risk trigger event has occurred and a contingency plan must be executed.

### ***Report Project Status (PMC04)***

Whether or not issues are identified, the project proceeds with its regularly scheduled reporting activities and procedures. This cycle continues with the ongoing collection of data and monitoring and the periodic analysis of project progress. This is represented in the PMC process flow as the loop back to PMC02, Collect Data.

### ***Take Corrective Action (PMC05)***

The Corrective Action activity (PMC05) is optional and entered only when it is determined that corrective action is needed, based on the results of monitoring and analyzing the project data. The Project Management Body of Knowledge defines corrective action as “anything done to bring expected future project performance in line with the project plan.”

### ***Close Out Project (PMC06)***

The Close Out Project activity is necessary to ensure that the project has been successfully completed. This activity is concerned with obtaining formal approval of project completion, bringing all project activities to an orderly end, and archiving project artifacts and other information so that the project can serve as a resource for future efforts. The Close Out Project activity comprises *contract closeout*, which involves activities to satisfy the customer or client of the project, and *administrative closeout*, which involves activities to satisfy the needs of the performing organization.

## **Process and Product Quality Assurance**

The purpose of Process and Product Quality Assurance (PPQA) is to provide staff and management with objective evaluation and insight into the quality of processes and associated work products.

### ***Objectives***

The objectives of the PPQA Process include:

- Provide objective evaluations of performed processes, work products, and services against identified evaluation criteria.
- Identify and document noncompliance issues.
- Provide feedback to project staff and managers on the results of QA activities.
- Ensure that noncompliance issues are addressed.
- Ensure the quality of products and services prior to delivery

## ***Process Description***

The PPQA Process objectively evaluates the quality of a process or product but it does not include the actual testing procedures. The PPQA Process interfaces with the Verification (TBD) and Validation (TBD) Processes. This process confirms that testing and peer reviews were performed during the Verification and Validation Processes and that the results were documented.

The PPQA Process consists of the following seven activities, not all of which are necessarily used in all projects:

### ***Identify Processes and Products Requiring Quality Assurance (PPQA01)***

In the context of this process description, processes and products include all deliverables made to an internal organization or external client. These include:

- Documentation (such as requirements specifications, design specifications, user manuals, technical manuals, special study results, proposals, status reports, monthly project reviews, deliverable cover letters, installation instructions).
- Software packages (such as software code, data structure/data dictionary, interface with external tools or other applications, report code).
- Services (such as help desk support, web hosting); processes, including all of the system development life cycle (SDLC) processes).
- Contract services.

### ***Determine Evaluation Criteria (PPQA02)***

The project manager will review the project's defining documents to determine whether any specific objective evaluation criteria are required for the project. The project manager will also review client governance rules and organizational standards.

### ***Evaluate Documents (PPQA03)***

The three evaluation processes (PPQA03 – 05) all share the common theme of evaluating a contract deliverable whether it be a document, software package, process, or service. These processes are separate QA processes since the steps involved in the actual evaluation differ.

### ***Evaluate Software Packages (PPQA04)***

Software packages consist of code on some type of media and documentation that describes the code. The evaluation of software packages will follow the software package evaluation criteria checklists that will include compliance with FIS Program's internal technical standards. When evaluating deliverable software packages, the evaluator will use:

### ***Evaluate Processes and Services (PPQA05)***

The PPQA05 evaluation procedure is the same for both processes and services since a service is basically a process performed for an internal or external customer. The PPQA05 evaluation differs from PPQA03 and 04 as it involves interviewing the individuals performing the process or service in addition to evaluating the output work products. The interviews provide the information used to determine the level of compliance of the process compared with documents that describe how the process or service should be performed.

### ***Record and Track Defects to Resolution (PPQA06)***

During the quality review process, evaluators will compile their evaluation notes and record all non-compliance issues or defects associated with the process or product. As part of this note-taking process, the evaluators may use the project's issue repository to note the non-compliance issues or defects found.

## Report and Analyze Evaluation Results (PPQA07)

When the evaluation report is final, the evaluator submits the report to the project's configuration manager according to the project's configuration control process. The evaluator will provide their approval of the process or product or provide reasons why they could not on the report. The evaluator also distributes the final report to the author or responsible person and to other persons as directed by the project manager. This report will specify whether the process or product has sufficiently met all of the review criteria and if so, the evaluator will give his or her stamp of approval. In the event that the evaluator is not completely satisfied with the results, the evaluator will specify which items did not meet the criteria and provide an explanation of why they were not met.

### Verification

The PPQA Process is verified incrementally by conducting periodic process compliance audits on ongoing PPQA Process activities and existing artifacts. Process compliance is audited using a standardized PPQA checklist according to this PPQA Process description.

### Roles and Responsibilities

Table 23 defines the roles and responsibilities for the PPQA process.

**Table 23. PPQA Roles and Responsibilities**

Role	Responsibility
Project Manager	<ul style="list-style-type: none"> <li>Assign or assume responsibility for implementing project QA activities.</li> <li>Allocate resources to QA tasks.</li> <li>Develop QA Plan.</li> <li>Make approval decision prior to delivery of products.</li> </ul>
Project QA Lead (may be the Project Manager)	<ul style="list-style-type: none"> <li>Develop evaluation criteria checklists.</li> <li>Ensure QA activities are implemented.</li> <li>Collect and Report QA process measurement data.</li> <li>Analyze QA measurement data.</li> </ul>
QA Evaluator	<ul style="list-style-type: none"> <li>Coordinate assigned QA evaluation activity.</li> <li>Perform QA evaluation activity.</li> <li>Track and resolve evaluation issues.</li> <li>Record and report results of QA evaluation activity.</li> </ul>
Metrics Database Analyst	<ul style="list-style-type: none"> <li>Examine PPQA data for significant trends and anomalies.</li> </ul>

## Measurement and Analysis

The purpose of Measurements and Analysis is to describe and provide guidance for processes supporting measurement and analysis activities.

### Objectives

The Measurements and Analysis (MA) Process description defines the process of developing and sustaining measurement capability to support management information needs. It defines a consistent and repeatable approach for:

- Specifying the objectives of measurement and analysis such that they are aligned with identified information needs and objectives.

- Specifying the measures, data collection and storage mechanisms, analysis techniques, and reporting and feedback mechanisms
- Implementing the collection, storage, analysis, and reporting of the Data.
- Providing objective results that can be used in making informed decisions, and taking appropriate corrective actions

The MA Process may not be required at the same level of detail for all projects; the degree of diligence in implementing these processes will depend upon the size of the project, project duration, project complexity, project interdependencies, and degree to which project has direct impact on mission accomplishment.

### ***Process Description***

The MA process consists of seven activities. The following sections describe these activities.

The first four activities (MA01 – MA04) of the MA Process are involved in developing a MA Plan document. The MA Plan defines the objective of the metric, the benefit of the metric, and how data will be collected, analyzed and reported. The remaining three activities (MA05-MA07) are the execution of the MA Plan.

#### ***Establish Measurement Objective (MA01)***

The Measurement Objective is established by analyzing the inputs to the process as well as performing some external research. This activity initiates the development of the MA Plan by identifying the objectives and the benefits of the measurement:

- Develop and distribute questions to stakeholders to help clarify measurement objectives and document their answers
- Determine best metrics to meet measurement objective
- Define the measurement objectives and document the name and description of each
- Determine the benefit of the measurement and how it meets the needs of the measurement objective
- Map the measurements to objectives to ensure needs are met

#### ***Specify Measures (MA02)***

The primary goal of this activity is to determine the basic data that must be collected in order to calculate the established metric. This activity documents the basic data set in the MA Plan by:

- Defining the datasets - which data are required to analyze and calculate the final metric
- Determining the source and type of data (such as schedule information, and time logs.)
- Determining whether or not the data is already being collected for other calculations
- Determining whether or not the cost of collecting the data justifies the measurement activity.

#### ***Specify Data Collection and Procedures (MA03)***

The goal of this activity is to identify and document the procedures for collecting and storing the datasets defined in MA02. These procedures are documented in the MA Plan by:

- Identifying the source of the data (specific applications or data sources from which the data will be gathered)
- Assigning responsibilities to individuals who will be collecting the data
- Defining the time period that the data will be collected (start/end date, etc.)

- Identifying tools that will be used to collect and store the data
- Defining the data security and access requirements and conditions
- Documenting how the data will be maintained by configuration management

### ***Specify Analysis Procedures (MA04)***

This activity is the final step in developing the MA Plan for each measurement. The purpose of this activity is to document the procedure for analyzing the data and calculating the derived metrics. For each metric, the following will need to be documented:

- Description of the metric
- How to calculate the metric
- Tools that can be used for analysis and instructions on their use
- Sampling procedures (such as analyzing a subset of data if the dataset is large)
- Processes to handle missing data
- Processes to validate data

If it is found that there is insufficient data to calculate the derived metric, owners of the MA process will need to go back to step MA02 to identify and specify new measures. Otherwise, the MA Plan can be considered to be complete and should be distributed to the appropriate team members and checked into configuration management.

### ***Collect and Store Data (MA05)***

The goal of this activity is to collect and store the base data used for deriving the final metric(s). The individuals collecting the data should follow the tools and procedures specified in the MA Plan. Tasks in this activity are to:

- Collect the baseline data by using the tools and procedures documented in the MA Plan
- Check the data into configuration management
- Periodically check the data in CM to ensure it is being collected. This needs to be done on a regular basis as it may take a while for the data to accumulate
- Verify that the correct data is being collected and verify that the data collected is meaningful and appropriate for use in calculations
- Secure the data: ensure that only those with authorization are provided access to the data

### ***Analyze Data (MA06)***

The goal of this activity is to perform the analysis of the data and generate the metrics as identified in the MA Plan. Tasks in this activity are:

- Validate the quality and quantity of data
- Sample data if needed
- Perform the required analysis
- Perform Ad-hoc analysis. The data analyzer may decide that analysis outside the scope of the MA Plan may be useful in obtaining the final measurement.
- Prepare data and results for presentation
- Place the analysis into configuration management

If there is insufficient data to perform the calculations or there is a problem with the quality of the data, then the *Collect and Store Data* task should be repeated

### ***Report Results (MA07)***

- The goal of this activity is to create the final presentation formats to communicate the results of the metric (as specified by the MA Pan). The subtasks of this activity are to:
- Develop the presentation materials and identify the distribution list of recipients
- Perform quality assurance – review the data, results, and presentation to ensure accuracy and completeness
- Place the presentation into Configuration Management
- Distribute the presentation on the defined media

If the measurement objectives were not reached, or that additional measurements are necessary to meet the objective, then the process should be re-started at the beginning.

### **Requirements Management**

This process description describes the activities for the Requirements Management (REQM) process that are used to manage project requirements.

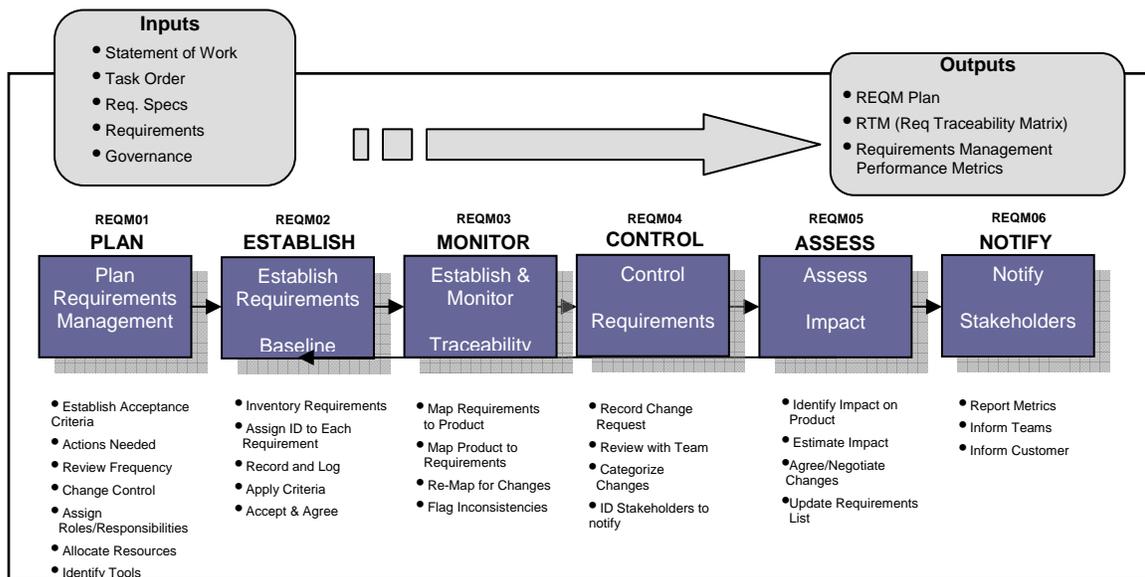
### ***Objectives***

The REQM Process Description defines the activities that are required to:

- Plan for managing requirements,
- Establish agreement on what the requirements are,
- Establish and monitor requirements traceability,
- Control changes to the requirements,
- Assess the impact of changes to requirements, and
- Notify stakeholders as needed to keep them informed.

### ***Process Description***

The REQM Process consists of six activities as shown in Figure 7. The activities are described in more detail in the following sections.



**Figure 7. Requirements Management Process Flow**

### ***Plan Requirements Management Activities (REQM01)***

The first activity in the REQM process is to plan how the requirements for the product/project will be managed and monitored. The following actions will be taken during this activity:

- Establish acceptance criteria,
- Identify actions that need to be taken,
- Identify the review frequency,
- Establish the change control approach (such as a committee or board to review change requests),
- Assign roles/responsibilities,
- Allocate resources,
- Identify tools for tracking and monitoring requirements.

Project success depends upon how well stakeholders agree on what the product's requirements are, both non-technical and technical. Non-technical requirements such as cost, schedule, and resources, as well as technical requirements drive tradeoffs throughout the product and project lifecycles. The resulting deliverable or work product from this process is a Requirements Management Plan, or the inclusion of requirements management planning in the Project Management Plan. The purpose or goal of the Requirements Management Plan is to establish a common understanding between the customer and Project Manager to ensure that the project addresses the customer's requirements.

The project team will develop a set of criteria they will use to determine if the requirements are acceptable as provided. For example, the requirements specification must be sufficiently detailed and specific so that the final deliverables are clearly identified. Examples of acceptance criteria are:

- Clearly and properly stated (unambiguous),
- Complete (can be implemented as written),
- Consistent with other requirements,

- Uniquely identified (does not duplicate another requirement),
- Appropriate to implement (within project scope),
- Verifiable (a test can verify whether it has been satisfied).

Requirements specification is a dynamic process. Because customer requirements for the product are changeable throughout the product's lifecycle, requirements are not often complete until the end of the product implementation. Therefore, procedures need to be in place for making these changes, especially to the requirements specification and traceability matrix. A formal change control process manages changes to the requirements once they are logged and base-lined. This process will include tracking requirements change requests, evaluating the potential impact of changes, and reporting proposed and approved changes to the stakeholders. Requirements might even be managed past the product implementation and into operation and maintenance.

Resources are allocated to the requirements management tasks of the project commensurate to the scope, schedule, and costs.

### ***Establish Requirements Baseline (REQM02)***

The second activity in the REQM process is to establish a requirements baseline. This will form the basis for monitoring and assessing all-subsequent change proposals or requests. The baseline is constructed from first-hand requirements received from the client in the Statement of Work, Requirements Specification document, Task Order Requirements document, and the proposal.

A team member (assigned/assisted by the Project Manager) will take inventory of all requirements as received and document them. To this end, each requirement item is assigned a unique ID and recorded. This allows the requirement to be tracked through its lifecycle. A toolset and set of procedures, as identified in Activity REQM01, will be employed for this recording and subsequent tracking.

Next, the Project Manager (with other designated team members) will evaluate all requirement items with respect to the established criteria in Activity 1 for completeness, consistency and level of detail. At this stage, some requirements may be combined and/or broken down further as appropriate based on the established criteria and to facilitate requirements-to-product and the product-to-requirements mapping. The Project Manager will decide to either accept the requirements as stated or negotiate an agreement with the client or provider as to the modified wording. When agreement has been reached between the Project Manager and the client, the set of requirements becomes the established baseline. The baseline will be established by a written document that all parties will review and agree to.

### ***Establish and Monitor Traceability (REQM03)***

Initially, the Requirements Traceability Matrix (See Attachment 2 for an example) must be completed. The Project Manager (with other designated team members) will map the requirements, either per item or per logical grouping, into distinct products that can be implemented and measured. This activity will also include a reverse mapping of each distinct product to the requirement items. The bi-directional nature of this mapping will further ensure a tighter, verifiable requirements-to-product correlation.

After a change request has been approved, the requirements-to-product mapping must be performed again. This ensures that all requirements are accounted for in a product, and all products are the result of a requirement. If there are any products without requirements or vice versa, these should be flagged for examination to identify gaps. All such discrepancies will be documented and tracked as one of the process metrics. The Requirements Traceability Matrix must be updated to reflect approved changes.

### ***Control Requirements Change (REQM04)***

After the baseline requirements have been established, requests for changes should be reviewed and approved according to the change control process defined in REQ01.

A Change Control Board is one approach to controlling changes to a product. It works by bringing together representatives from each concerned party including development, QA, user documentation,

customer support, marketing, and management, and giving them ultimate authority for accepting or rejecting proposed changes.

In the change control process, approved changes are incorporated into the requirements specification in such a way as to provide an accurate and complete audit trail of the changes. A change proposal form will be used to identify, evaluate, track, and report on all proposed and approved changes (See Attachment 1). Examples of information that should be included on the form are:

- Name of person or organization that requested the change,
- Reason or justification for change request,
- List of requirements affected by the change request,
- Date of change request,
- Impact of change (such as the specifications or code modules would require modification, the estimated cost of change, and the impact on project schedule),
- Date of change request review by Change Control Board or committee,
- Final decision (approval/disapproval),
- Date of approval/disapproval.
- Categories or type of change request.

The first activity in controlling requirements changes is to record receipt of each change request. Once the request is recorded, the project team reviews each change to ensure the changed requirement is understood and follows the overall project design. The team determines in which category each requirement change falls. Table 24 lists possible change request categories.

**Table 24. Possible Change Request Categories**

Category	Definition
Enhancement	A new feature is identified that was not part of the baseline requirements.
Design Defect	The baseline requirements matrix overlooked or mis-specified a required feature/product. A feature/product might have been overlooked and must be added to fully meet the requirements.
Product Defect	A defect is found in the delivered product that must be corrected. Generally, as the result of testing, these are failures of the product to fully satisfy or perform the required function or operation.

***Assess Impact (REQM05)***

The potential impact of any changes to the baseline requirements must be assessed. The impact could affect the scope, schedule, or cost. The implications of a change must be fully understood and documented. It is particularly important during this activity to review potential impacts with both the stakeholders and the project team. It is imperative for the stakeholders to be notified and to understand when a change request will cause the project to exceed its original cost budget, delivery date, or both.

After the impacts have been assessed, a negotiation with the change requestor may be required in order to reach an agreement on the extent to which the change will be implemented. It might become necessary to limit the scope of the changes in order to decrease the impact on project performance.

The stakeholders, change requestor, and the project team, must agree to accept the changes and their associated impacts before proceeding.

### ***Notify Stakeholders (REQM06)***

The Notify Stakeholder activity of the REQM process is used to:

- Report Metrics,
- Inform Teams,
- Inform Clients, and
- Report Changes.

Keeping stakeholders informed is an important aspect of managing requirements. The stakeholders will be notified when the requirements baseline has been established and accepted by the project team. The stakeholders also need to be notified when changes to requirements are requested. After the impact of a change has been assessed, the stakeholders will once again be notified of the potential impact on project cost, schedule, or quality. Finally, during the course of the project it might be desirable to keep stakeholders informed of metrics, such as how many change requests have been processed.

### **Configuration Management**

The purpose of Configuration Management process is to establish and maintain the integrity of work products using configuration identification, configuration control, configuration status accounting, and configuration audits.

#### ***Objectives***

The objective of the CM Process is to maintain the integrity of configuration items (CIs) by using:

- Configuration identification,
- Configuration control,
- Configuration status accounting, and
- Configuration audits.

#### ***Process Description***

The CM Process includes applying technical and administrative discipline, direction, and surveillance to identify and document the functional and physical characteristics of CIs; control changes to those characteristics; record and report change processing and implementation status; and verifies compliance with specified requirements. The CM Process interfaces with the Requirements Management (REQM) and Process and Product Quality Assurance (PPQA) Processes. This process assures that all changes to the product and CIs are managed, validated against the requirements and requests for improvements; and documented.

The CM Process consists of six activities. The activities are further detailed in the following sections.

#### ***Define Configuration Management Approach (CM01)***

The initial activity for Configuration Management is defining the CM approach for the project. This activity has two major steps: deciding what work on the project is subject to CM and documenting the project's CM procedures.

The project manager is responsible for deciding what work on the project is subject to CM. This decision process should consider the following categories:

- Software (such as source code, scripts, or code libraries).
- Hardware.
- Documentation (including analytical reports, manuals, or diagrams).

### ***Manage Configuration Items (CM02)***

The process of managing CIs is the process of creating and modifying during the performance of the project work. During this activity, the CIs are considered development versions that are monitored and managed to ensure the integrity and quality of the final project deliverables.

Managing CIs includes the following steps: checking out CIs from the project's version control system (repository); creating or modifying CIs; checking new or modified CIs back into a version control system; and attaching comments (status) to all checked-in items. The status information for each CI should reference the requirement or change request addressed by the new or modified CI.

During this activity, project team members follow the project's CM approach for naming CIs and applying unique configuration identifiers, checking in/out CIs, and attaching comments to CIs for future status accounting and audits. Typically, the author or owner of the CI is free to make changes to the CI as necessary to complete the project work.

### ***Establish Baseline (CM03)***

As defined by the Institute of Configuration Management, a *baseline* is a *collection of approved design information about a configuration*. A baseline is in essence a snapshot of the CIs at a given point in time. Using a version control system, the baseline is typically identified by applying a tag or label to the correct revision of every artifact comprising the CIs that are to be included in the baseline. For a typical software development project, the baseline will include source code, code libraries, and supporting documentation such as user manuals, operations manuals, and installation instructions.

After the CIs comprising the baseline are identified, the project deliverables are assembled. This may involve building or compiling software; assembling hardware; and/or packaging a document that consists of several individual word processing files or spreadsheets.

If applicable to the project, the version control system is used to apply a lock to the components of the baseline. Depending on the version control system, this lock may be a soft lock or hard lock. The project's CM approach should define whether a lock will be used, whether a soft or hard lock will be used on the project, and who is responsible for locking down the baseline.

### ***Control Changes (CM04)***

An established baseline is a subject to change; all changes are managed through a formal process to ensure that all changes are approved. Changes to the baseline are controlled regardless of whether a change is necessary to fix a problem that degrades system performance or to implement a new functionality.

The process for receiving and approving change requests (CRs) is outside the scope of the CM process. Depending on the nature of the CR, it may be subject to the Verification (VER), Validation (VAL), or Requirements Management (REQM) process.

### ***Perform Audit and Status Accounting (CM05)***

An established baseline can be audited to insure that all changes were authorized. Auditing requires an accounting of the status of all CIs comprising the baseline. Status accounting involves identification of all changes made between the current baseline and the previous baseline and reconciling all changes with the associated CR. The CM audit will verify that the physical aspects (such as software and documentation) and functional aspects (verified by test results) of the baseline correspond to the requirements and approved changes for the baseline.

Keeping stakeholders informed of changes is an important aspect of the CM process. Therefore, this activity includes the consistent and systematic production of reports of CM audits and status accounting that document changes to the CIs between the current and previous baselines.

### ***Prepare Release (CM06)***

The final activity in this process is preparing the release of the work product. Preparation of project deliverables may require preparing specific media (such as CD-ROMs or binders), cover letters, or other packaging. Prior to releasing the product, the project manager or a person designated by the project manager performs a final check to ensure that the product is complete and that quality assurance has been addressed. This activity ends with the handoff or delivery of the product to the designated recipient; this process does not include the deployment of software to its target environment. The project manager has final authority to approve the release. After the release is prepared, any change requests, whether enhancements or defects, will be managed by the Control Changes (CM04) activity before work is performed.

## Appendix 4 Risk Management Plan

The PMT will work on the Risk Management Plan as part of project planning during the first and second quarters of 2006. See section **Error! Reference source not found.** for further discussion of the risk management plan.

The information presented below represents initial work in identifying potential risks and related mitigation measures. Risks and mitigation measures may overlap among tables.

### Project Management Risks and Mitigation Measures

Potential Risks	Mitigation Measures
<p>Overly aggressive or unrealistic program and project commitments.</p> <ul style="list-style-type: none"> <li>• Insufficient time to execute according to plan.</li> <li>• Urgent issues squeeze out the important issues, allowing the crisis of the day to distract from the FIS Program goals.</li> <li>• Weak governance structure leads to regional standards without national standards.</li> <li>• Lack of priorities and insufficient funding lead the FIS Program to initiate projects that run out of money without meeting any FIS objectives.</li> <li>• Due to many inter-dependencies among P1, P3, P4, and P5, all four portfolios stall or turn out incompatible work products.</li> <li>• Visible progress is not made quickly enough to show forward motion. Progress is needed to justify continued funding and support.</li> </ul> <p>Projects not adhering to schedules laid out in project plans shift all dependent projects/tasks further into the future.</p> <ul style="list-style-type: none"> <li>• Not enough time allocated to tasks.</li> <li>• Staffing not well-planned; resources not available when needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Project plans will be developed with a view of the big picture. They will reflect a sound understanding of all the projects and tasks that need to be accomplished in addition to task dependencies and the critical path.</li> <li>• Program management plan and project plans will be properly vetted by senior managers and staff from varied backgrounds. This will ensure that work products are complimentary, that plans use best practices, incorporate lessons learned from previous efforts.</li> <li>• Program performance metrics will be included in Annual Performance Plans of all program participants, especially those directly involved in program management.</li> <li>• Project managers will confirm resource and staff availability before committing to schedules and budgets.</li> </ul>

## Funding Risks and Mitigation Measures

Potential Risks	Mitigation Measures
<p>Funding stream is unreliable.</p> <ul style="list-style-type: none"> <li>• At any time, FIS funding can be terminated or temporarily suspended.</li> <li>• Year to year funding stream can be unpredictable, sporadic.</li> </ul> <p>The FIS Program competes for investment within the U.S. Department of Commerce and NOAA community, and in the NOAA Fisheries Service resource allocation process.</p> <ul style="list-style-type: none"> <li>• The funds may not be available in the quantity needed when they are needed.</li> <li>• Funds may not be clearly available to support large, multi-year projects.</li> </ul>	<ul style="list-style-type: none"> <li>• The FIS Program Director will always be looking for ways to improve the FIS business case and to connect FIS success with NOAA Fisheries Service success.</li> <li>• The FIS Program will effectively leverage other funding sources to keep the program viable and on track, even when external or traditional funding sources diminish.</li> <li>• Projects will be planned so as to generate incremental value for the FIS Program, taking into consideration that funding levels may vary significantly from year to year.</li> <li>• The FIS Program Director will always seek ways to use supplemental funds or windfall funding to bring priority projects to completion. The FIS Program Director will also seek to make funding cuts or shortfalls strategically, versus across the board.</li> </ul>

## Leadership Risks and Mitigation Measures

Potential Risks	Mitigation Measures
<p>The FIS Program suffers from lack of executive sponsorship or waning interest by senior NOAA Fisheries Service executives.</p> <ul style="list-style-type: none"> <li>• The FIS Program loses momentum due to program leadership turnover or agency leadership turnover.</li> <li>• The FIS Program loses momentum because NOAA Fisheries Service senior executive sponsors are constantly drawn to more urgent issues or problems to solve.</li> <li>• Senior executives do not show visible signs of support for the program.</li> <li>• Constantly changing NOAA and partner business priorities creates confusion among senior leaders and PMT.</li> </ul>	<ul style="list-style-type: none"> <li>• Communicate often with senior executives (NOAA, NOAA Fisheries Service, and partners) that have direct and indirect sponsorship roles associated with FIS.</li> <li>• Communicate with both Headquarters and Regional executives demonstrating the true agency-wide nature of the program.</li> <li>• Communicate successes regularly, demonstrating the business value to the agency and its partners and to each organizational unit within the agency and within the partner organizations.</li> <li>• Regularly demonstrate success and movement toward achieving the FIS Program's vision, mission, and goals.</li> </ul>

## Human Resources Risks and Mitigation Measures

Potential Risks	Mitigation Measures
<p>The FIS Program Director, FIS Program Manager, and the PMT are not focused completely on FIS Program goals due to their other leadership, management, technical, and other responsibilities.</p> <ul style="list-style-type: none"> <li>The right people with the right talents are not always available when and where they are needed.</li> <li>Staff representing NOAA Regions may not have the full support of their supervisors to participate in what might seem to them as a headquarters-centric program.</li> <li>Additional staff members are not available from pools of qualified agency and partner staff to help during peak activity on projects.</li> </ul> <p>It may be difficult, over numerous years, to keep PMT members, PSG members and other project staff engaged and motivated to make contributions.</p> <ul style="list-style-type: none"> <li>There are many interesting programs for staff to pursue. Staff members are likely to gravitate to the most exciting, relevant, and challenging program and project environments.</li> </ul> <p>NOAA Fisheries Service staffing levels may fluctuate depending upon budget/funding climate. In years of retrenchment, it may be difficult to justify allocating staff resources to longer-term projects when more operationally oriented programs need to demonstrate shorter-term results.</p> <ul style="list-style-type: none"> <li>Staff turnover and reassignments.</li> <li>Staff retirements and resulting knowledge drain.</li> </ul>	<ul style="list-style-type: none"> <li>Set commitments with senior management and project staff involvement early; document them in program and project files and in individual performance plans.</li> <li>Strong communication on progress at the FIS Program and project levels helps maintain energy levels and identifies potential areas of new opportunity for individual project staff.</li> <li>Maintain a list of potential staff members who can help during peak activity on projects. Could also consider internships, details, or contract staff as supplemental staff.</li> <li>Use knowledge management techniques to capture information and insights permanently, especially information about internal business processes that only a few know. Knowledge management can be a powerful collaboration and learning tool.</li> </ul>

## Scope Risks and Mitigation Measures

Potential Risks	Mitigation Measures
<p>Lack of balanced participation from the business side and technology side.</p> <p>Requirements for new efforts or features arise amidst established requirements without recognition of their impact on cost, schedule, performance (scope creep).</p> <p>Scope changes without knowledge of project management team or Project Manager.</p>	<ul style="list-style-type: none"> <li>All of the scope risk can be reduced or mitigated by ensuring extreme visibility into project goals, requirements, and expected deliverables. Regular communication within project team and project sponsor/client should surface any emerging or existing scope change issues.</li> <li>Project plans are vetted and reviewed regularly; progress is measured regularly.</li> </ul>

## Social, Political, and Economic Risks and Mitigation Measures

Potential Risks	Mitigation Measures
<p>Competing demands from FIS Program Partners. Separate legislative, funding initiatives could compete, impact FIS funds. Industry partners' willingness to cooperate, engage within FIS framework; growing demands for information, protection of confidential data, and reporting burden reduction.</p> <p>New legislation, and enabling policies and regulations, passed/approved that impact specific business processes, information management requirements, or data collection requirements.</p>	<ul style="list-style-type: none"> <li>• Program director, program manager, and members of PMT need to keep open lines of communication with all stakeholders, particularly NOAA regional offices, industry partners, and regional fisheries information systems. Listening and responding to these stakeholders, and sharing information and operational plans regularly, are essential to the overall partnership.</li> <li>• Interact regularly with the NOAA Fisheries Service's Office of Policy and with the NOAA Fisheries Service Legislative Liaison to understand emerging legislative and regulatory initiatives; ensure that these stakeholders receive regular FIS Program progress reports.</li> </ul>

## Organizational Risks and Mitigation Measures

Potential Risks	Mitigation Measures
<p>Changes in organizational structure and reporting levels, especially in executive and senior management positions can create uncertainty and instability.</p> <p>Changing organizational goals at NOAA, NOAA Fisheries Service, or FIS Program levels.</p>	<ul style="list-style-type: none"> <li>• While these situations will be completely out of the control of the program director, program manager, and the PMT, it is important to be aware of these changes and to anticipate them to the extent possible. Regular communication with internal stakeholders will reduce the likelihood of negative impacts of these changes on the FIS Program.</li> <li>• Develop and maintain an executive brief describing the FIS Program, its goals, desired outcomes, high level operational plans, and accomplishments to help new participants learn about the program quickly and to control the FIS message.</li> </ul>

## Technology Risks and Mitigation Measures

Potential Risks	Mitigation Measures
<p>Changes in the NOAA Fisheries Service's enterprise architecture or inability to establish an enterprise-level architecture.</p> <ul style="list-style-type: none"> <li>• Changes in technology leave current solutions as outdated long before anticipated.</li> <li>• Unanticipated cost of investment in the right hardware, software, services to support FIS.</li> <li>• Technologies selected and deployed are not easily integrated.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop an FIS enterprise architecture that reflects both the NOAA Fisheries Service's enterprise architecture and the NOAA enterprise architecture.</li> </ul>

## Appendix 5 Portfolios

### Portfolio 1: FIS One-Stop Shop

#### Desired Result:

Have fishery-dependent data available at regional and national levels in an aggregated (rolled up) form that is easily accessible by the NOAA Fisheries Service management, employees, stakeholders and the public.

#### Objective:

The portfolio's objective is to move from a manual and uncoordinated process of providing regional and national fisheries statistics information and reports to a coordinated and automated process. Currently data requests come in to the NOAA Fisheries Service. Frequently NOAA Fisheries Service takes more time to respond than is desirable because the data are distributed among many individuals, which requires coordination and manual processes to assemble. Many of the requests are regular and predictable. Automation would permit a response to these information requests in minutes instead of months. By selecting 20 percent of the reporting requirements to respond to 80 percent of the known requests, the NOAA Fisheries Service could provide timely informational data products to customers, use time spent on the current manual processes to more productive tasks, and demonstrate a unified agency approach to answering basic fisheries questions at a national level.

#### Tasks:

- 1.1 Identify data type categories to consider.
- 1.2 Define reports and reporting specifications.
- 1.3 Define data sources.
- 1.4 Define system development methods.
- 1.5 Build system to make aggregated data available.

#### Milestones:

To be determined. See Appendix 6 Portfolios and Task-Level Timelines for the start date milestone for each task.

## Portfolio 2: FIS Information Catalog

### Desired Result:

Provide a metadata catalog of critical fishery-dependent data holdings.

### Objective:

The portfolio's objective is to provide a source that any user who needs information on fishery-dependent data can access and easily retrieve the information. The intent is to make this information source as comprehensive as possible. It should include information on fishery-dependent data, such as what data are collected, who collects the data, where the data are stored, and the associated metadata. In addition, it should include information such as the reporting regulations, what the data are used for and why they are collected, budget information. This warehouse would also include guidelines on best practices for data collection and management.

### Tasks:

- 2.1 Develop a metadata tool.
- 2.2 Prepare an inventory of all data collection programs that provide fishery-dependent data, such as InPort.
- 2.3 Complete a detailed documentation of the data collection programs identified in P2 by entering the associated metadata into InPort.
- 2.4 Define the types and scope of information to be included in the information clearinghouse.

### Milestones:

To be determined. See Appendix 6 Portfolios and Task-Level Timelines for the start date milestone for each task.

## Portfolio 3: Information Quality

### Desired Result:

Assure quality of fisheries information needed to support stock assessments and FMP compliance monitoring

### Objective:

The portfolio's objective is to develop FIS Program information quality guidelines, inventory current and past information quality procedures and practices relative to those guidelines, establish minimum requirements for assuring information quality needed for accurate and effective stock assessments and FMP compliance monitoring, and determine improvements needed in existing programs.

### Tasks:

- 3.1 Develop FIS information quality guidelines. These would be minimum guidelines for quality issues that all fisheries information programs should address in documenting how data are collected, entered and audited; how errors are identified and corrections are made; how derived statistics are estimated; and how information is stored, managed, and disseminated to users.
  - 3.1.1 Convene an Information Quality PSG to review quality guidelines already established for existing information programs.
  - 3.1.2 Conduct inventory of existing information quality guidelines. This effort should include an inventory of guidelines at higher levels (U.S. OMB, U.S. Department of Commerce, NOAA, and the NOAA Fisheries Service) as well as those of other government (United States, Canada) agencies involved in information collection and management. It should also include inventory of existing guidelines for regional and national fisheries information programs.
  - 3.1.3 Collaboratively establish FIS information quality guidelines.
- 3.2 Inventory current and past information quality (QA/QC) procedures relative to the FIS information quality guidelines. This would include QA/QC procedures for all phases of information collection and management, including data collection, entry, and auditing; error corrections; imputation; statistical estimation; and information storage, management, transfer, and dissemination.
  - 3.2.1 Convene same PSG to identify a standard method that will be used to gather the information on current and past QA/QC procedures relative to the established FIS information quality guidelines. InPort is likely to be the best tool for gathering this information.
  - 3.2.2 Populate the FIS Information Catalog with the current and past QA/QC procedures relative to the established FIS information quality guidelines.
- 3.3 Establish minimum requirements (standards, policies, and best practices) for assuring information quality.
  - 3.3.1 Use inventory of QA/QC current practices relative to the FIS quality guidelines to determine problem areas and priorities for needed improvements.
  - 3.3.2 Collaboratively establish minimum requirements for QA/QC procedures and practices that will assure level of quality desired for support of stock assessments and FMP compliance monitoring.
  - 3.3.3 Determine improvements needed to meet these minimum requirements.

### Milestones:

To be determined. See Appendix 6 Portfolios and Task-Level Timelines for the start date milestone for each task.

## Portfolio 4: Common Identifiers

### Desired Result:

Provide a unique key or identifier that can be used to link similar data (such as owners, vessels, and dealers) between data sources that are collected by different organizations.

### Objective:

The portfolio's objective is to develop unique keys or identifiers that will allow authorized users to track the activities of the entities through time and across geographic boundaries. In addition, the key will also allow users to track the same entity between different databases. Such keys would be developed for entities in both commercial and recreational fishing activities.

### Tasks:

- 4.1 Identify requirements characteristics and desirable features for a system of unique and unambiguous identifiers of fishing entities (individuals, vessels, dealers, etc.)
- 4.2 Develop and implement a system that creates and record a primary and unique code that identifies individual entities operating in the marine fisheries arena.
- 4.3 Identify existing data collection that have a unique and common identifying characteristics and develop keys that unambiguous link to records.
- 4.4 Develop a key that uniquely identifies each record in a data collection. The key should include a check feature that tells whether a record has been changed.
- 4.5 Develop tool and system the allow users to quickly search and consolidate records based on the information content of the record.

### Milestones:

To be determined. See Appendix 6 Portfolios and Task-Level Timelines for the start date milestone for each task.

## Portfolio 5: Establish and Meet Minimum Information Requirements

### Desired Result:

Assure collection of minimum information needed to fulfill the stewardship responsibilities of NOAA, Fishery Management Councils, Interstate Fisheries Commissions, and States.

### Objective:

The portfolio's objective is to develop a comprehensive set of standards on the types and detail of fishery-dependent data (such as: 1) commercial, recreational, and for-hire catch and effort, along with lists of participating entities such as fishermen, vessels, dealers, processors; 2) biological sampling; 3) bycatch, releases and protected species interactions; 4) economic and social; and 5) metadata) that are required by NOAA, Fishery Management Councils, Interstate Fisheries Commissions, and States to meet their responsibilities for the management of marine resources under their respective jurisdictions. Once the comprehensive set of requirements is specified, the intent is to identify where partners are not able to meet those requirements and develop plans and recommendations on procedures (including funding requirements) to improve the data collection programs to meet the requirements.

### Tasks:

- 5.1 Develop minimum data elements that are needed for fishery-dependent data collection programs.
- 5.2 Develop lists of agencies and personnel who need to be part of these discussions.
- 5.3 Assemble documentation of program standards from existing programs and partnerships to use as a starting point for discussions.
- 5.4 Conduct meetings of partner agency personnel involved in fisheries-dependent statistics and resource management to discuss standards for each area:
  - Atlantic coast
  - Gulf coast
  - Pacific coast from Washington to California
  - Alaska,
  - Hawaii and Western Pacific.
  - Highly migratory species (ICCAT, IATTC, IFC, WPMC),
  - International agreements, such as the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- 5.5 Use existing Federal-State programs to host such meetings where applicable.
- 5.6 Define minimum standards (methodologies, mandatory vs. voluntary reporting, level of resolution, timeliness, etc.) for fisheries-dependent data collection programs
- 5.7 Develop lists of agencies and personnel who need to be part of these discussions.
- 5.8 Assemble documentation of program standards from existing programs and partnerships to use as a starting point for discussions.
- 5.9 Conduct meetings of partner agency personnel involved in fisheries-dependent statistics and resource management to discuss standards for each area:
  - Atlantic coast.
  - Gulf coast.
  - Pacific coast from Washington to California.
  - Alaska.
  - Hawaii and Western Pacific.

- Highly migratory species (such as ICCAT, IATTC, IFC, WPMC).
  - International agreements such as the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).
- 5.10 Use existing Federal-State programs to host such meetings where applicable.
- 5.11 Define/describe the data that are being collected by existing (operational) data collection programs. This task is closely related to Portfolio 2, Task 2 and may not require additional work when that task is completed.
- 5.12 Identify the data gaps between Task 1 and 2 and Task 3.
- 5.13 Develop list of changes or supplements to sampling that are needed to bring current data collection programs into alignment with minimum data elements and data collection standards and identify partner agencies responsible for making these changes.
- 5.14 Develop list of new data collection activities that will be needed to completely implement standards and identify partner agencies responsible for implementing the new programs.
- 5.15 Develop draft budgets needed to implement 4a and b.
- 5.16 Prepare a plan that recommends methods of improving existing data collection programs or the implementation of new programs to fill the gaps identified in Task 4.
- 5.17 Using the products from 5.4 and 5.5, develop priorities and a master schedule for implementing changes and new programs.

**Milestones:**

To be determined. See Appendix 6 Portfolios and Task-Level Timelines for the start date milestone for each task.

## Portfolio 6: Electronic Reporting and Registration Systems

### Desired Result:

Electronic systems for the collection and reporting of fisheries statistics and permit information for all major fisheries.

### Objective:

The portfolio's objective is to produce more timely and accurate information from fewer duplicative sources. A system incorporating electronic capabilities is multi-faceted. Electronic data capture can be enabled through barcodes, card swipes, personal data assistants, desktop client software, and web entry screens. The system processes and databases can allow error checking and handling, data validation, data standardization, and efficient accounting of catch data as well as capture and processing of permit data. Electronic reporting can be through general public web access, personalized accounts with password protection, and data feeds to supported systems. A system designed around the above elements can allow near real-time turnaround of data entering the system, data evaluation, and report output.

### Tasks:

- 6.1 Identify and catalog existing partner electronic data collection systems.
- 6.2 Study existing electronic reporting systems and identify and disseminate common success factors and practices to influence future projects.
- 6.3 Develop standards for FIS electronic reporting systems.
- 6.4 Pilot, develop new, or leverage existing electronic reporting systems.

### Milestones:

- Creation of a searchable virtual electronic reporting library of systems and resources.
- Study of regional electronic reporting initiatives from a national perspective and developed certification criteria.
- Outreach and identification of candidate projects and provide development recommendations to program management.

See Appendix 6 Portfolios and Task-Level Timelines for the start date milestone for each task.

## Portfolio 7: Program Management Support

### Desired Result:

A well-managed program that delivers value to FIS Program partners and customers, and is a model for program management in the NOAA Fisheries Service.

### Objective:

The objective of this portfolio is to ensure that sufficient attention is being paid to overall program management. While focused on solving major, long-standing fisheries data collection and management issues, FIS must employ state-of-the-art program and project management best practices. The FIS Program must be effective and efficient in use of limited resources and, thus, will require a level of management (not fisheries management) discipline not ordinarily associated with efforts of this scale. The FIS Program could serve as a model for program management within the NOAA Fisheries Service. It could leverage lessons learned, tools and techniques with other NOAA Fisheries Service programs.

By establishing a reputation within NOAA and NOAA Fisheries Service leadership for effective project management and governance, the FIS Program also ensures the long-term funding for its portfolios. It can position the NOAA Fisheries Service as leaders in NOAA community in the area of systems architecture, data management, and contributions to NOAA IOOS, GEOSS initiatives.

### Task:

- 7.1 Program Management Support: Contract management, Planning Strategy (WBS), Communication outreach, and Project coordination.
- 7.2 Program Management Support/ Oversight: Management Support, Monitoring and Control, and Earn Value Model.
- 7.3 Budget/Funding Strategy: Annual Operating Plans, Resources Allocation/Project Selection, PPBES/Performance Measures, OMB Exhibit 300.
- 7.4 IT System/ Oversight and Monitoring: Operational and monitoring and development.

### Milestones:

- FY06: Develop the FIS Program Charter and Roadmap. Establish an automation process of the FIS Program Plan for developing the project proposal with a detailed work breakdown schedule (WBS).
- FY07: Implement the basis of the Monitoring and Control Process and EVM model automated process.
- FY08- Integrate the FIS Program Architecture with the Monitoring and Control Process and EVM model automated process.

See Appendix 6 Portfolios and Task-Level Timelines for the start date milestone for each task.

## Portfolio 8: FIS Program Architecture

### Desired Result:

A robust blueprint for change. A roadmap that describes that business and systems (technical) elements of moving from current state to a new FIS Program state.

### Objective:

The portfolio's objective is to build a framework that helps the NOAA Fisheries Service visualize the introduction of change and how this change may affect the FIS Program's components. The development of the FIS Program Architecture will include business, data, application, and technology architectures. It will explain the FIS Program's business processes, the information necessary to operate the business, the technologies necessary to support the business operations, and transitional processes for implementing new technologies and systems that will adapt to the changing business needs.

### Tasks:

- 8.1 Develop Business Architecture.
- 8.2 Develop Data Architecture.
- 8.3 Develop Application Architecture.
- 8.4 Develop Technology Architecture.

### Milestones:

- FY06: Develop Business Architecture.
- FY07: Develop Data Architecture.
- FY08: Develop the Application Architecture.
- FY09: Develop the Technology Architecture.

See Appendix 6 Portfolios and Task-Level Timelines for the start date milestone for each task.

# Appendix 6 Portfolios and Task-Level Timelines

November 2005

Tasks are scheduled to begin in the quarter shown in the Years columns. The year and quarter shown as the start time is estimated and therefore subject to change.



## Glossary

ACCSP	Atlantic Coastal Cooperative Statistics Program
AKFIN	Alaska Fisheries Information Network
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCT	Communications Coordination Team
CI	configuration item
ComFIN	Commercial Fisheries Information Network
CONOPS	concept of operations
CR	change request
DMAC	Data Management and Communication. Performed in conjunction with IOOS.
EcoGIS	an ecological geographic information system. This is a proper name.
FIS	Fisheries Information System
GEOSS	Global Earth Observing System of Systems
GulfFIN	Gulf of Mexico Fisheries Information Network
HQ	NOAA headquarters
IEOS	Integrated Surface Observation System
IOOS	Integrated Ocean Observing System
ISOS	Integrated Surface Observation System
ITQs	Individual Transferable Quotas
IUOS	Integrated Upper Air Observing System
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act, as amended in 1996
NSDI	National Spatial Data Infrastructure
NMFS	National Marine Fisheries Service. Presently called the NOAA Fisheries Service.
NOSA	NOAA Observing System Architecture
PacFIN	Pacific Fisheries Information Network
PMT	Program Management Team
portfolio	a collection of projects that the the FIS Program will perform.
PPBES	Planning, Programming, Budgeting, and Execution System
PSG	professional specialty group
RecFIN	Recreational Fisheries Information Network
RMP	Risk Management Plan
F/ST	Office of Science and Technology
VIS	Vessel Information System
VRS	Vessel Registration System
WestPacFIN	Western Pacific Fisheries Information Network