



NOAA FISHERIES

NOAA Fisheries is an agency within the Commerce Department's National Oceanic and Atmospheric Administration (NOAA). NOAA's mission is to understand and predict changes in the earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social, and environmental needs. The NOAA Fisheries Service provides science and stewardship of the nation's ocean resources and their habitats.

2015 Priorities

FIS works to support NOAA Fisheries' top priorities for 2015:

- Ensure the productivity and sustainability of fisheries and fishing communities through science-based decision-making and compliance with regulations.
- Recover and conserve protected resources through the use of sound natural and social sciences.

FIS Program Contacts

Dave Van Voorhees
FIS Program Director
dave.van.voorhees@noaa.gov

Karl Moline
FIS Program Manager
karl.moline@noaa.gov

www.st.nmfs.noaa.gov/FIS

Letter from the Program Director

Welcome to the Fisheries Information System Program Stakeholder Update. The purpose of this report is to engage our community of stakeholders in the multifaceted work of the FIS program. These data partners, customers, and users include NOAA resource managers, scientists, and enforcement officers, their colleagues and peers; regional and state fisheries managers and scientists; commercial and recreational fishermen; marine advocates; coastal communities; and the many others whose lives and livelihoods are connected to sustainable fisheries.

This update represents a snapshot of highlights from the past year and a discussion of short- and long-term priorities moving forward. Ongoing updates and information are available on the FIS Program website, www.st.nmfs.noaa.gov/fis/

The FIS Program is a central information resource for NOAA Regional Offices and Science Centers, Marine Fisheries Commissions, and states to share best practices and lessons learned in meeting distinct data challenges. These efforts are supported through close relationships with Fisheries Information Networks, or FINs – the cooperative state-federal programs that design and implement marine fisheries data collection programs – and integrate collected data into management systems.

An important initiative for the FIS Program in the coming year is increased collaboration and engagement with the FINs. The FINs are a vital link to the state and regional data programs that enable FIS to serve as a platform for sharing information and expertise across regions, agencies, sectors, and disciplines.

One example of FIS-FIN collaboration in action, outlined in greater detail on Page 5, is the current direction of the Fisheries One Stop Shop (FOSS) Tool. Thanks to a close working relationship with the FINs in each region, the FOSS Tool is evolving into a single portal for searching national-level commercial and recreational landings data – stratified by year, geographic area, and species. Gaps still exist in the data available, but those are methodically being closed.

Getting to this point required overcoming such challenges as incorporating data from numerous

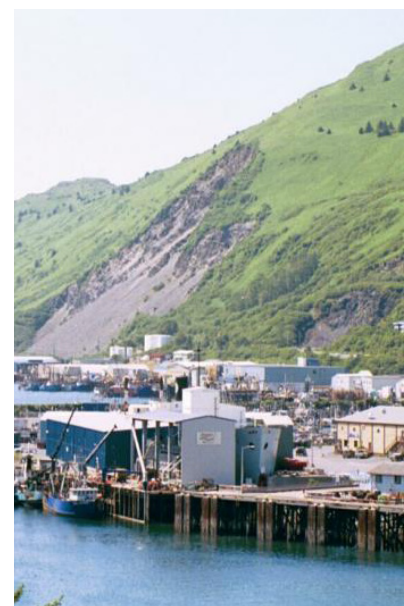
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The FIS Mission

In order to support sound science and effective stewardship of our living marine resources, we work collaboratively through partnerships to provide every customer with easy access to comprehensive, high-quality, timely information on the nation's fisheries.



Program Director's Message (continued)

different platforms and ensuring confidentiality of certain data as it was rolled up from the regional to the national level.

One obvious benefit to the development of this tool is the increased efficiency in searching for national-level landings data. However, far more significant are the opportunities for future data and metadata aggregation, access, and reporting projects that can evolve based on this model. Already well underway are the development of our comprehensive metadata warehouse, InPort, and a suite of

Quality Management tools, strategies, and tactics. This improved accessibility to sound data is crucial in order for NOAA Fisheries to continue to support fisheries, fishing communities, and protected resources through science-based decisions.

Moving forward, we will continue applying this approach to our primary focus areas of Data Access and Integration, **Electronic Reporting and Monitoring**, and Regional Quality Improvement. We will also continue to solicit and fund proposals for projects and initiatives driving enduring solutions to immediate and emerging data needs.

Program Management Team Review and Highlights

At its most recent meetings, the Program Management Team developed structures, strategies, and metrics for advancing the FIS Program's overarching priorities: improving data management, access, and dissemination; reinforcing the culture of Quality Management throughout NOAA Fisheries; and promoting programmatic improvements through effective and active leadership in designing projects, developing a robust and strategic Request For Proposal process, facilitating collaboration, and awarding funds.

Data management, access, and dissemination

As a key part of addressing the agency's data management, access, and dissemination needs, the upcoming update to the metadata repository – InPort – will feature significant enhancements to facilitate both the input of and access to NOAA research metadata.

Overseeing the evolution FOSS Tool has also been a priority of the PMT. Bringing together data from the Regions, Science Centers, FINs, and state partners, the FOSS Tool provides national level landings data in a dynamic, flexible format.

A priority for the coming year is to apply best practices, expertise, resources, and lessons learned to the agency's commitment to increasing public access to research results (PARR). Driven both through an increasing culture of transparency and access throughout NOAA Fisheries, as well as a White House directive covering all taxpayer-funded research, the NOAA Research Council recently released a comprehensive **PARR plan** for the agency.

Quality management

Quality management (QM) is the discipline of evaluating systems, processes, strategies, and priorities. The aim is to identify and build upon successes and overcome inefficiencies through a series of continuous improvement actions tracked against specific metrics. Through FIS, these practices are applied to meeting customer needs for timeliness and accuracy in our data collection, analysis, and reporting programs and activities.

To strengthen the agency's culture of QM, the PMT is working to embed quality management best practices

throughout all current and upcoming FIS projects. The Team is also supporting broader QM efforts through trainings on the use of process management improvement techniques like value stream mapping, and process management tools like the project and issue tracking software JIRA.

Programmatic improvements

The PMT has worked to initiate a series of business processes used throughout FIS to streamline, focus, and improve processes. A major initiative among these efforts has been to standardize the process for setting funding priorities, soliciting requests, and awarding project funds. The goal is to avoid duplication and more effectively align approaches to meeting state, regional, and national needs.

Given the highly regional nature of NOAA Fisheries, this process of identifying areas of mutual need, complementary skills, and opportunities to collaborate and leverage resources is a core value that FIS brings to the agency. Other initiatives that further this role include working with the PSGs to develop a uniform reporting of priorities, project status, and milestones, as well as streamlining priority-setting and decision-making.

The PMT also participated in a strategic communications workshop led by the Communications and Education Team. The goal of the workshop was to create a comprehensive strategy to more effectively engage FIS stakeholders. The intended outcome is two-fold: To expand the use of FIS tools to promote greater data quality and access, and to encourage expanded dialogue around FIS priorities among our partners and customers.

Enhancing collaboration with and among the FINs

Because strong regional information programs are critical to addressing data needs at all levels, the PMT is focusing on strategies and tactics for supplementing the continued development of those programs through cross-regional collaborations.

This builds on shared goals and successful collaborations, and seeking opportunities for continuous improvement. Future activities could include collaborative projects identified by one or more regional programs.

2015 FIS-Funded Projects

For a complete list of all FIS-funded projects, visit the *Current Products and Initiatives* tab at www.st.nmfs.noaa.gov/fis/. All projects support fisheries, fishing communities, and protected resources through the promotion of science and communications.

Project Name	Description	Support for FIS Vision	Lead Office
Reconciliation and creation of an authoritative data source for Atlantic Highly Migratory Species dealer data	Reconciling Atlantic HMS dealer data between state and federal collection reports	Allows for greater transparency and comparability of Atlantic HMS data managed by states and NOAA Fisheries	Atlantic HMS
Pre-implementation of EM/ER in the North Pacific	Developing automatic detection, sizing, and classification of fish from stereo-video imagery of fish passing through chutes and conveyor belts on vessels. Will also integrate EM data collection into Observer Database	Enhances ongoing EM/ER research across the country	Alaska Fisheries Science Center
Image Data Collection	Will provide HD images and size data to support automated fisheries image processing. Will help enhance the accuracy of developing fisheries EM technology	Progresses research in the use of electronic monitoring technology	Alaska Fisheries Science Center
Value Stream Map for AFSC/FMA Observer Gear	A Value Stream Mapping (VSM) workshop to enhance the processes associated with purchasing, tracking and shipping observer gear	Enhancing data quality by ensuring observers have timely reliable access to necessary data collection gear	Alaska Fisheries Science Center
Operationalizing Electronic Monitoring in the West Coast Groundfish Catch Share Program-California Risk Pool Project	Replacing human observers with EM systems on 3 fixed gear trawl vessels	Will help identify a regulatory pathway to more cost-effective means of ensuring accountability in the Pacific groundfish catch-share program	West Coast Region and California
Upgrading to an Electronic Reporting and Monitoring System in the CNMI: a pilot project	Develop and test fisheries data-collection tablet app to be incorporated into CNMI DFW's inshore and offshore creel and commercial purchase programs	Increase local capacity to collect fishery-dependent data and to streamline the transfer of information from collection to reporting and dissemination	Commonwealth of the Northern Mariana Islands
GARFO RTL Audit Protocol Enhancement	Will have a direct impact on the quality level of source data utilized by end users for quota monitoring purposes and other fisheries management information products	Improves the quality of data utilized by the end user community for quota monitoring and other fisheries management purposes	Greater Atlantic Regional Fisheries Office
NWFSC Observer Program Technology Enhanced Collection System (OPTecs)	Acquire suitable hardware and develop a user interface application to be used for direct catch data entry in lieu of paper forms	Will expand and adapt data processes to streamline collection methods and improve the dissemination and quality of the information delivered through development of electronic data collection tools/methods	Northwest Fisheries Science Center
NWFSC/FRAM Data Warehouse Data Flow Diagramming	Using dataflow diagrams to determine how Fishery Resource Analysis and Monitoring (FRAM) datasets can feed into a data warehouse and how that warehouse should be exposed to all users	Enabling robust, timely accurate FRAM data that can be disseminated for internal and external user environments	Northwest Fisheries Science Center
Upgrade the Oregon Commercial Fishery Biological Data System	Will upgrade and modernize the Oregon Department of Fish and Wildlife's data system housing biological data collected from commercial marine fishery landings	Will enhance sharing between internal staff and external stock assessors and other users.	Oregon Department of Fish and Wildlife, West Coast Region
PacFIN Data Acquisition Development	Transition to a simplified modern web-based data warehousing application, which can be applied to numerous datatypes	Simplifying dissemination and access to fisheries data	Pacific Fisheries Information Network, West Coast Region
Value Stream Map for the Western Pacific Purse Seine Data Flow and Incorporating Electronic Reporting Data	A VSM workshop to analyze the strengths and weaknesses of purse seine data collection and management to enable improved transitioning of purse seine data management to PIFSC, and ensure data quality meets needs of national and international partners	Enhancing purse seine data collection processes in order to improve fisheries data quality	Pacific Islands Fisheries Science Center and Pacific Islands Regional Office
Pacific RecFIN Database Migration: Phase 2	Second phase of a project to modernize Rec FIN's recreational statistics database: improving data integration	Project will lead to improved access and dissemination of recreational data	NMFS and The Recreational Fisheries Information Network
Development of a cost-effective electronic monitoring system for observing the take of protected species in southeast coastal gillnet fisheries	Testing video monitoring hardware and software to determine the feasibility of developing a cost-effective and reliable system of monitoring protected species bycatch and other practices aboard small gillnet vessels	Will pilot a system that would augment the collection of bycatch information and lessen the need for onboard observers	Southeast Fisheries Science Center
Data Transfer Application for Longline Monitoring Observer Program Database	Continued development/testing of tablet application for fisheries data entry for the Pelagic Longline Observer program	Progresses research in the use of electronic monitoring technology	Southeast Fisheries Science Center
Integrated Atlantic HMS Information System – Phase 6: Integration, Tuning, and Reporting	Modernizing Atlantic HMS data collection and reporting systems, and developing an integrated reporting system for the HMS Management Division	Supporting NMFS initiative to improve A-HMS fishing trip data and reporting capabilities	Southeast Fisheries Science Center
Pilot Study to Test Electronic Reporting Via Vessel Monitoring Systems in the Gulf of Mexico Headboat Fishery	Using Vessel Monitoring Systems (already used in Gulf commercial fisheries) to deliver headboat logbook information to complete mandated reporting requirements	Supporting more timely headboat data, more detailed information on area-specific catches, and better estimation of fishing effort	Southeast Fisheries Science Center
Improving NOAA-Fisheries Models for Per Capita Seafood Consumption	3 day workshop to analyze different models for calculating seafood consumption to determine how NMFS should calculate per capita seafood consumption in the future	Will improve management and analysis of NMFS seafood consumption data	Southeast Fisheries Science Center
Highly Migratory Species Catch and Release Smartphone App and Webpage	Will develop a smartphone app interface along with a companion webpage where anglers can input the location and time of capture of HMS including sharks, billfish and tunas	Enhancing NW regional ER capacity for commercial fisheries	Southwest Fisheries Science Center
Washington Commercial Fisheries Database Redesign and Electronic Fish Ticket Expansion Phase II	Follow up on the Phase I - looking to resolve any outstanding issues in transitioning fisheries to ER - e.g. issues with data flow, quality control, and accessibility to end users; and improve the interface with the PSMFC	Progresses research in the use of electronic monitoring technology	State of Washington Department of Fish and Wildlife
Testing Recreational Electronic Data Capture: Phase Two	Funds the development and testing of custom data entry forms on two devices: iPad and Touchpad	Progresses research in the use of electronic monitoring technology	State of Washington Department of Fish and Wildlife

Professional Specialty Group (PSG) Updates

The FIS PMT convenes professional specialty groups (PSGs) to address high-priority needs and challenges that span Federal, regional, and state data programs. The current PSGs are working on some of the most pressing issues facing fisheries science in an era of rapidly evolving technology, increased pressures on ocean resources, and a commensurate need for greater collaboration. The PSGs are composed of experts from multiple disciplines representing NOAA Fisheries Headquarters, Regional Offices, Science Centers, FINs, and state partners.



Electronic Reporting (ER) PSG

The Electronic Reporting (ER) PSG reviewed the current state of ER programs across the country and developed a list of critical success factors in implementing these programs in fisheries that do not currently have ER.

Fully understanding what works – and why – is the first step in being able to replicate successful programs. The PSG found that success factors fall into two broad categories: external, which includes regulatory and policy considerations; and internal, which includes technical program and user interface issues.

The group then identified 13 specific trigger questions that managers should consider when evaluating ER solutions for fisheries, and NOAA Fisheries has developed regional implementation plans to direct this effort. The questions help managers evaluate whether or not specific fisheries are good candidates for ER, and how other fisheries overcame obstacles to implementing their programs. This resource could be used by managers to help determine if a particular fishery is a suitable candidate to adopt ER for its reporting needs, or to determine if their ER program is ready for expansion into other fisheries.

The PSG has also created a virtual Center of Expertise to facilitate knowledge sharing around application development. This pilot project currently features presentations by developers offering case studies and lessons learned from addressing complex technical challenges they have faced in their work. The presentations offer a range of information, including software development examples, best practice guides, and source code. As the program grows, it will expand to also act as a virtual library of tools and trainings for anyone seeking to address application development needs. It will also serve sponsors and users, as well as developers.



Access and Dissemination (AD) PSG

In the past year, the Access and Dissemination (AD) PSG has honed its focus and made significant progress toward making the Fisheries One Stop Shop (FOSS) Tool a viable replacement for the existing ST1 landings web query.

This improved FOSS Tool will allow users to access landings data from around the country with one very flexible, web-based tool. As this phase of the FOSS Tool development nears completion, a PSG subgroup is delving into ways to expand the completeness and fine-tune the accuracy of historical data available through the FOSS Tool.

The PSG is also developing a comprehensive national count of all commercial fishing vessels operating in U.S. waters. This pilot project is being launched with the intention of creating an annually updated public report. Gathering vessel information into a central source will require close collaboration with state partners and FINs as the PSG compiles, and identifies gaps in, regional lists of commercial vessels, federally permitted vessels, vessels fishing in federal waters, and state vessels.

Aggregating regional information on landings and vessels are key milestones in enhancing regional collaboration and facilitating more efficient and effective data access.



Quality Management (QM) PSG

The Quality Management (QM) PSG promotes continuous improvement of business practices – leading to high quality, accurate data while maintaining timeliness and cost-effectiveness. Quality management projects include data quality, leadership engagement, strategic planning, and process improvement tool development. QM PSG members serve as QM ambassadors through training and outreach efforts.

The QM PSG is also working to build an agency-wide culture of quality management through a suite of online resources. The recently developed comprehensive online toolkit will provide a central space to share and update the information about quality improvement exercises and tools across NOAA Fisheries and with partners to improve data management. Rolling out this toolkit and expanding its use will be a key priority for the coming year.

Case Study: Working with FINs to Create a National Portal

This project highlights how FIS has partnered with the FINs in each region to provide commercial and recreational landings data through a single portal. In its final stages of development, the FOSS Tool will provide increased efficiency in searching for landings data.

Overview

Because each region of the country manages completely different types of fisheries in terms of species, fishing gear, participation, site access, habitat, and much more, each region's data collection and reporting programs have evolved in distinct ways. While this regional customization is vital to effective management of fisheries, it can also make the process of conducting multi-regional queries or national comparisons of fisheries dependent data challenging.

To address the issue of balancing national access with regional systems after taking into account aggregation issues, confidentiality, and national needs, FIS was tasked with aggregating data from each individual system into a single portal. Following extensive, collaborative work with the FINs to overcome the many challenges inherent in this process, the next phase of the FOSS Tool is nearing completion. It will allow public, searchable access to all commercial and recreational landings data through a single query tool.

Working with FINs to identify and address challenges

Although aggregating data from numerous sources into one location may seem like a routine exercise, the complex information, and the unique attributes of various regional systems created a number of obstacles to overcome to get the FOSS Tool to this point:

- **Policy issues.** Much of the data collected at the regional level is confidential in nature. This is because where, when, and how commercial fishermen catch their fish amounts to trade secrets that, if revealed, could harm their business. Working with the FINs, the AD team had to balance the need to protect proprietary business information while still providing data at a level of detail that would be useful to the end user.
- **Process issues.** Each region is unique in its approach to exactly what data are reported and how often. For instance, some regions capture landings data in terms of live weight, while others do so in terms of processed weight. Regions also differ in the frequency of data collection and reporting. The FOSS team had to work closely with potential data customers and the FINs to ensure that data reported in FOSS was offering a true "apples to apples" comparison between regions.
- **Technical issues.** Coming to consensus on what data to aggregate and how to characterize it were just the first steps. After that, the information from each

The FOSS Tool project opens the door for deeper FIS-FIN working relationships and more extensive collaborations on other initiatives.

regional reporting system must be translated into a set of common codes used by the FOSS system. In this process, the FINs were instrumental in discussing and devising the technical means to sort through all the information to create one clear, integrated data stream.

- **Refining the end use.** Even as the team worked through all of these challenges, the central question remained of exactly how to provide users with the most useful access to data. Answering that was key to determining how regional data (for which there were already regional experts available to help end users) would be aggregated for national purposes, as well as the final product's core functionality. The FINs were critical for navigating this dialogue. That's because each FIN sits at the nexus of state, regional, and federal data needs and uses, enabling them to serve as collaborators, facilitators, and consensus-builders.

Next Steps

The FOSS Tool currently provides very high-level data because of regional differences in the frequency of data transmission, ways in which certain data is captured, and other factors. As we wrap up this phase of the project, we are exploring opportunities to provide more detailed and granular information. Depending on the needs of users and the availability of the information, future versions of the FOSS Tool may contain other data beyond landings.

Perhaps most important, however, is the fact that the model of FIS-FIN collaboration on the FOSS Tool project opens the door for deeper working relationships and more extensive collaborations on other initiatives ranging from electronic technologies, to quality management, to data dissemination. Such relationships facilitate the efficient exchange of crucial data in order to support current and future priorities. And that is ultimately what the FIS Program is all about: creating the enduring processes required to identify and address agency needs and develop strategies that ensure ongoing data improvement.