

PSMFC Fisheries Information Network Newsletter

October 2019 Issue 1



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The FIN newsletter is published periodically by the Pacific States Marine Fisheries Commission.

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A fisheries data project of the Pacific States Marine Fisheries Commission

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Featured Article: What are the West Coast FINs?

Niels Leuthold

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1976 created a system of regional fishery management councils for federally-managed fisheries. The act also recognized the need to support the councils with timely, high-quality, comprehensive data collection, management and distribution. To address this need, the regional fisheries commissions, which had been previously established to help coordinate fishery management efforts among member states, were tasked with assisting the fishery councils with their data needs--hence, the Fishery Information Networks (FINs).

The FINs are collaborations between state and federal agencies that consolidate and standardize regional data and provide a means for communication among partner agencies. There are currently six FINs: [Alaska Fisheries Information Network \(AKFIN\)](#), [Atlantic Coastal Cooperative Statistics Program \(ACCSP\)](#), [Gulf Fisheries Information Network \(GulfFIN\)](#), [Pacific Fisheries Information Network \(PacFIN\)](#), [Pacific Recreational Fisheries Information Network \(RecFIN\)](#) and [Western Pacific Fisheries Information Network \(WPacFIN\)](#). The three West Coast FINs are AKFIN, PacFIN and RecFIN.

While data coordination is a central function for all FINs, the specific roles played by each FIN varies according to regional needs. In 1981, PacFIN was established to provide summarized commercial fisheries data from California, Oregon, Washington and Alaska. It soon became apparent that less aggregated data would be needed to meet the mandates of the MSA, leading to the incorporation of individual fish ticket receipts in PacFIN. Expanding data needs from the North Pacific Fishery Management Council (NPFMC) and the Pacific Fishery Management Council (PFMC), as well as concerns about data confidentiality, prompted the establishment of AKFIN in 1997 to address commercial fisheries data from Alaska. RecFIN was created in 1992 to meet the need for standardized, centralized marine recreational fisheries data on the West Coast. RecFIN coordinates federal and state data collection programs, maintains a standardized regional database and facilitates reporting for recreational fisheries in Washington, Oregon, and California.

As computing resources have improved, the West Coast FINs have shifted from data repositories into reporting systems that integrate and consolidate data from disparate sources into standardized, analyst-friendly formats with value-added fields. For example, the FINs' comprehensive tables combine data on landings, permits, vessels, dealers and other attributes, and eliminate the need to understand hierarchical table relationships or write complicated SQL code. Newer database technologies have enabled the West Coast FINs to create public and confidential reporting systems that better meet users' needs.

Continued on page 3

Cont'd: What are the West Coast FINs?

The West Coast FINs are administered by the Pacific States Marine Fisheries Commission (PSMFC). Operating under a single Commission has allowed the West Coast FINs to share information, programming and hardware costs between the programs. Recently, the redevelopment of all three reporting systems at the same time allowed the West Coast FINs to pool resources and limit the amount of developer time needed on each project. We are also connecting with the other FINs to share techniques, ideas and code where appropriate.

Looking forward, there are a number of challenges and possibilities on the horizon, particularly in these times of rapid environmental change and ongoing developments in big data, analytics, and cloud computing. For example, AKFIN recently worked with Alaska Fisheries Science Center (AFSC) scientist Jordan Watson to incorporate sea surface temperature (SST) into some of its comprehensive datasets; this may be of particular interest to researchers given the recent return of the “blob.” Work on incorporating other satellite-derived environmental data, such as chlorophyll and wind measurements are underway. Vessel Monitoring Systems (VMS) and Automatic Identification Systems (AIS), which provide detailed location data for vessels, may provide additional insights for fisheries researchers and managers when combined with environmental data. A challenge with integrating much of the satellite derived data is that it needs to be combined with landings data at appropriate temporal and spatial scales. Knowledge of both data sets is required to ensure the data is being presented at the appropriate scale, and having a standard source will reduce the chance of incorrect data sets being distributed. Working with state, federal and industry partners we look forward to continued collaboration in mindful stewardship of West Coast fisheries.

Steve Williams, RecFIN Program Manager Retiring

Rob Ames and Jason Edwards

Steve Williams, Senior Program Manager for the Pacific States Marine Fisheries Commission will be retiring at the end of December, after six years with the commission. Steve oversees several projects at PSMFC, but is primarily responsible for managing the Recreational Fisheries Information Network (RecFIN) program. During his tenure, he played a central role in integrating RecFIN with the other PSMFC FINs, and has been crucial in building RecFIN into a successful program. We at the FINs, say a fond farewell to Steve, a friend and colleague, and wish him a long, happy, and healthy retirement!



Metadata Mayhem: Controlling chaos in the metadata environment

Camille Kohler

As the PSMFC Fishery Information Networks (FINs) see continued growth and diversification of their data stores, the demand for better metadata increases. This “data about the data” is essential for developers and analysts to better govern the sources in the database and understand and relate our reporting systems.

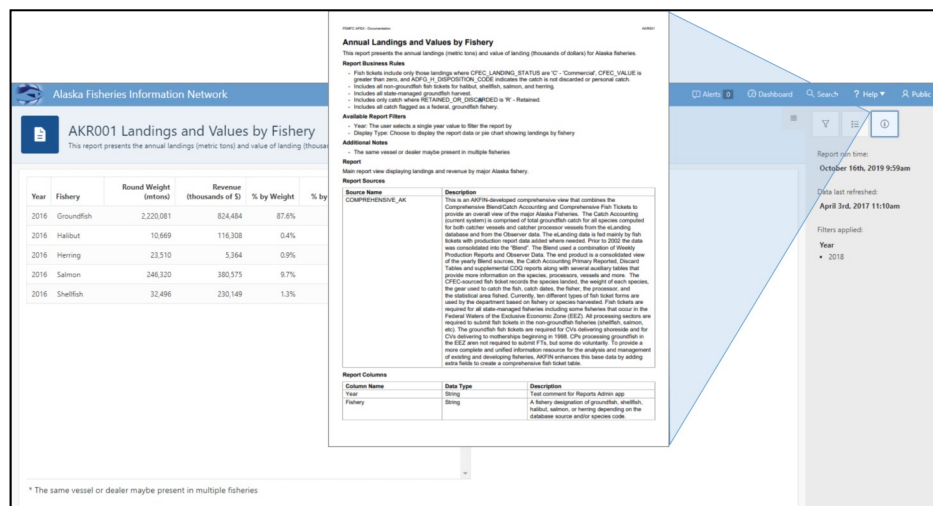
The PSMFC FINs recently enhanced our existing infrastructure allowing us to link our agency-sourced database table and column comments to Oracle Application Express (APEX) reports. This improved tool gives our developers the ability to define report descriptions, business rules, and column calculations automatically, bringing over the most recent comments from our data providers. This new effort integrates three applications in the FIN systems:

1. Reports Management Application – An internal tool used to manage and define reports in the APEX system
2. Database Comments Application – An internal tool that manages incoming agency source metadata and allows the FINs to enhance and augment table and column definitions while maintaining the source values
3. APEX Metadata – System metadata generated by the Oracle Application Express reporting software

FIN Developers can now link report and column-level metadata, add business rules and footnotes, and notate custom calculations through an enhanced graphical user interface. Once defined, a metadata report in .pdf format is automatically generated, providing the most up-to-date agency source comments to our end users. As reports come online, a new information button will be available in the filters panel; this will generate the standardized metadata report.

The goal of this metadata enhancement project is to provide standardized, database-driven documentation to FIN end-users that span the suite of reporting tools provided. The next phase of this solution will include the Oracle Answers reporting dashboards, and then we’ll move onto Oracle Answers subject areas, comprehensive datamarts, and other routine data products.

The initial rollout of these metadata reports will begin this month on the AKFIN APEX reporting system and will subsequently be rolled out to the PacFIN and RecFIN APEX reporting systems by mid-to-late October.



Year	Fishery	Round Weight (tons)	Revenue (thousands of \$)	% by Weight	% by Revenue
2016	Groundfish	2,220,081	824,484	87.6%	
2016	Halibut	10,669	116,308	0.4%	
2016	Herring	23,510	5,364	0.9%	
2016	Salmon	246,320	380,575	9.7%	
2016	Shellfish	32,496	230,149	1.3%	

Column Name	Data Type	Description
Year	String	Year
Fishery	String	A fishery designation of groundfish, shellfish, halibut, salmon, or herring, depending on the database source and/or species code.

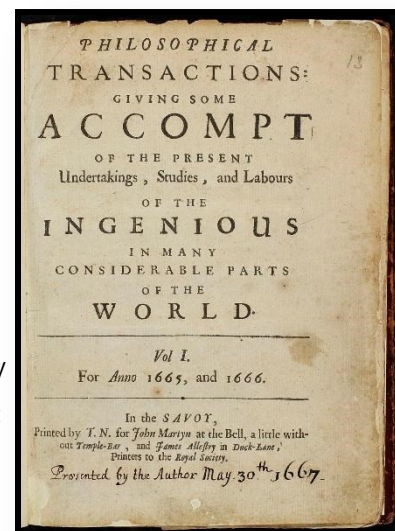
Pacific States E-Journal of Scientific Visualizations

Jean Lee

In the inaugural issue of the [Philosophical Transactions of the Royal Society](#) appears an article titled “Of the New American Whale-Fishing about the Bermudas”. It provides one of the “somewhat more divertising” accounts of the volume:

Here follows a Relation...which is about the new Whale fishing in the West Indies about the Bermudas, as it was delivered by an understanding and hardy Sea-man, who affirmed he had been at the killing work himself.... [The whales'] celerity and force he affirmed to be wonderful, insomuch that one of those Creatures, which he struck himself, towed the boat wherein he was, after him, for the space of six or seven Leagues in $\frac{3}{4}$ of an hours time.

Divertising accounts notwithstanding, Henry Oldenburg had several lofty goals in mind when he started the world’s first scientific journal in 1665: providing recognition to authors for discovery; certifying research results through peer review; disseminating information; and preserving knowledge for the scientific record.



These functions of the scientific journal have remained largely the same over the last 350 years, even if the format itself has undergone significant change. The Internet has facilitated open-access publishing and the inclusion of non-textual, interactive media in scholarly communication. Citation of software code and datasets in publications has become standard practice, reflecting the computationally and data intensive nature of scientific research today. Datasets by themselves are now treated as a “primary unit of information currency” and, in the interest of reproducibility, are commonly published online (e.g., through deposit to public databases) as components of scientific journal articles.


The [Pacific States E-Journal of Scientific Visualizations](#) (PSESV) is a collaborative effort between researchers at the Alaska Fisheries Science Center (AFSC) and AKFIN to support the open-access publication of peer-reviewed, scientific data visualizations. With these visualizations, PSESV aims to improve communication among scientists, managers, fishers, and other stakeholders on fisheries-related topics, in line with PSMFC’s mission. PSESV also gives researchers a venue--and recognition--for showing their work, so to speak; in addition to describing their methods, authors may publish the code for data analysis and visualizations and make non-confidential data available for download through PSESV and other FIN tools. Reuse and repurposing of code or data merely requires citation of the relevant article(s).

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Cont'd: Pacific States E-Journal Scientific Visualizations

PSESV welcomes submissions of original visualizations relevant to any region served by PSMFC. The journal currently supports interactive visualizations developed for R Shiny, but will consider visualizations developed in other languages that are renderable in a standard web browser. Among the articles published to date are visualizations of environmental, economic, and biological data from the North Pacific.

If you are interested in submitting an article to PSESV or would like to learn more about the journal, please contact one of the editors-in-chief, Steve Barbeaux (steve.barbeaux@noaa.gov) or Ben Fissel (ben.fissel@noaa.gov). As Henry Oldenburg once envisioned for the Philosophical Transactions, our hope for PSESV is that *“all ingenious men [sic] will thereby be encouraged to impact their knowledge and discoveries.”*



Pacific States E-Journal of Scientific Visualizations

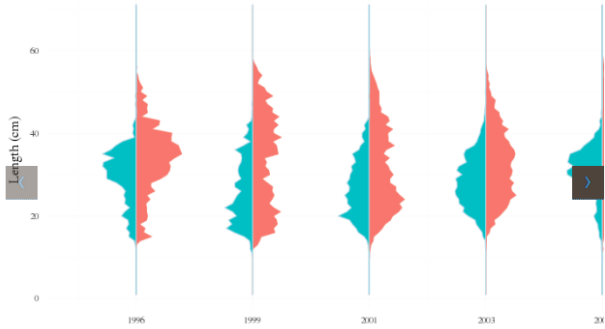
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The Pacific States E-Journal of Scientific Visualizations (PSESV) has been developed to provide an avenue for the publication of electronic scientific visualizations of fisheries related data relevant to the region serviced by the [Pacific States Marine Fisheries Commission](#) (PSMFC) ...

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Recent published articles

Visualizations of groundfish distributions from the Alaska Fisheries Science Center bottom trawl surveys

Steven J. Barbeaux
Article number: 1
Version of record online: 17 JANUARY 2018
DOI: 10.28966/PSESV.2018.001

▼ Abstract



Partner Perspective: NPFMC Electronic Agenda

Maria Davis, NPFMC Communications/IT Specialist

In the spring of 2018, the North Pacific Fishery Management Council was looking for a streamlined process to make meeting materials available online and to provide a user-friendly access for its stakeholders, members, and staff. The Council partnered with PSMFC and Alaska Fisheries Information Network to build and host a new electronic agenda platform. Since its initial test in October 2018, the platform now hosts every Council meeting, including committee and Plan Team meetings, and has been populated with earlier Council meetings going back to 2013.

The electronic agenda was built around the general concept that the Council is committed to a public, transparent process that encourages stakeholder involvement. On the electronic agenda, meeting materials are uploaded and available to everyone as soon as they are released, and the electronic public comment process is user-friendly and immediate. A robust search engine allows users to search all agendas, attachments, and public comments and the platform has room to add new features in the future. The public response has been overwhelmingly positive and other agencies have either adopted the platform already or are in the process of adoption.

The Council could not have engineered this type of change to their meeting process alone. Many thanks to PSMFC and AKFIN and the people that support these types of partnerships.



Good Migrations: Highly Migratory Species Updates

Jenny Suter

Highly Migratory Species Reports - In the past few years, PacFIN has become the data hub for West Coast Highly Migratory Species (HMS) data. PacFIN guided the remodel of both the logbook and observer databases. These databases can now be easily integrated with landings and other data streams in the PSMFC data ecosystem to produce comprehensive data reports.

A few new HMS reports were recently released and are available through the PacFIN APEX reporting system. The HMS In-Season report replaces an R shiny application that was previously hosted on the Council website and shows cumulative catches of HMS by month compared to a five-year average. A suite of four confidential reports on the fishing portfolios of HMS fishers by HMS fishery and non-HMS fisheries were developed for the West Coast Region to support economic analyses of management actions. These reports are now available for review by users with confidential system access. All of the HMS APEX reports will have standardized fishery names and updated metadata in the next few months.

What is the HMS DANGELO Code? - 'DANGELO' codes have been around for a few years now, but do you know what they are or how they work? The intent of the codes is to properly categorize landings data into HMS fisheries for national and international reporting and management. Essentially state species and gear code combinations are translated to HMS fishery codes based on a set of rules. For instance, a group of U.S. albacore troll vessels travels to the South Pacific during the northern winter/southern summer to fish for albacore. While some of these vessels sell their fish to markets in New Zealand or Fiji, most of the vessels haul their catch all the way back to the West Coast to sell between March to June. The reporting system allocates these to the South Pacific Albacore Troll Fishery instead of lumping them into the North Pacific Albacore Troll Fishery, two fisheries that are internationally managed by separate Regional Fisheries Management Organizations (RFMOs).

HMS Workgroups - Since HMS travel far and wide, so must the scientists, data managers, and policy analysts that work in support of state, federal, and Pacific-wide international HMS fisheries management. There are three HMS workgroups that facilitate this: the national [NOAA Fisheries Information System](#) HMS Professional Specialty Group (HMS PSG), the Eastern Pacific sub-component of the HMS PSG (aka EP PSG), and the PacFIN HMS Data Workgroup. The focus of the HMS PSG is to integrate and standardize data for Pacific-wide international reporting and management, which requires staff from four distinct NOAA offices on the West Coast and Pacific Islands, two FINs (PacFIN and West PacFIN), NOAA headquarters, and California Department of Fish and Wildlife (CDFW) to effectively work together. The EP PSG meets biweekly to push forward the integration of West Coast data sets and improve data collection and data management processes, which support the larger HMS PSG projects. The PacFIN HMS Data Workgroup meets biannually to discuss updates, successes, and challenges of any of these projects.



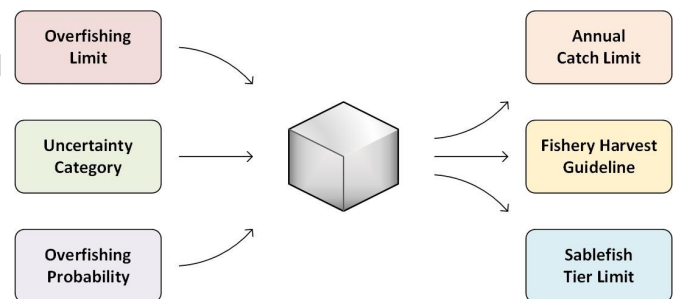
SPEX: Modernizing Development of Management Reference Points

Rick Pannell

Access to real-time data is a very common need across industry, and especially so in fisheries. Oftentimes this need is based on a desire to analyze current data against established catch expectations by species, area and other common attributes. Every season, new technology is added to the tool set fisheries data professionals may leverage to get them closer to meeting this need. In recent years we've seen the release of tools that provide for data collection in the field and rapid integration of that data into centralized databases. All of this is great progress in the data collection and availability part of the greater need, but what about the catch reference points and other similar parameters against which the analysts would like to compare this data? That's where the new SPEX application comes into play.

SPEX, short for Specifications, is a new PacFIN system designed to support the production and storage of critical fisheries management reference points such as Annual Catch Limits (ACL) and Fishery Harvest Guidelines (FHG). The system includes the data and processing previously available only in Excel workbooks, which were created every two years to coincide with management "Bienniums".

The SPEX application includes calculations designed to predict reasonable catch levels based on a set of values provided by users. An example of one such calculation occurs early in the process when an Overfishing Limit (OFL) is used to produce an Annual Catch Limit (ACL) based on user selection of an (Uncertainty) Category,



Overfishing Probability value, and a harvest control rule. With these user inputs, the system generates an Uncertainty percentage and uses it to provide a suggested Annual Catch Limit. Like most system-generated values in SPEX, the ACL may be overwritten by the user if there are needs to do so that occur outside the standard calculation. This ability to overwrite system-generated values provides a critical level of flexibility often needed when establishing stock-by-stock parameters.

With the SPEX implementation, users gain access to a tool set that provides an on-line collaborative working environment complete with all the processing needed to generate Stock-specific management reference points. The public may also take part via "draft" reports made available during the PFMFC/NMFS decision-making process. Improved public access to working drafts should result in better quality data informing final data decisions.

Behind the scenes, SPEX data is stored in a central database where it becomes available to other tools in the PSMFC data ecosystem. When combined with real-time catch data, the SPEX information becomes a powerful component of the in-season management tool set.

The 2021-2022 Specification data is currently being developed using the new SPEX application, but current and past final data sets (2009-2020) have already been integrated into the system. Scorecards and other similar analysis products that make use of the SPEX data are currently available with more planned for the future.

RecFIN metadata added to NOAA Fisheries InPort

Jason Edwards

Metadata, or data that provides information about a set of data, is an important component of any data warehouse. Metadata provides valuable information such as data types, descriptions, creation and modification dates, keywords, and points of contact for a data set. This information can be critical for a user to understand and appropriately use the data to produce valid results from an analysis. Metadata also provides a means by which data can be more easily discovered.

RecFIN has recently added metadata for its Comprehensive Data Tables to the NOAA Fisheries InPort Catalog. InPort (Information Portal) is a product of the NOAA Fisheries Information System Program that provides an online repository of metadata for fisheries data sets. While InPort does not store any of the fisheries data itself, it does provide extensive amounts of information regarding the structure and content of available fisheries data from NOAA and its partner organizations. The InPort site also incorporates a helpful search function allowing users to identify available metadata and locate potential data sources for an area of interest.

The following RecFIN data tables have been added to the InPort Catalog:

- Comprehensive Recreational Catch Estimate
- Comprehensive Biological Detail
- Comprehensive Recreational Sample
- Comprehensive Recreational Ageing

The metadata provided for these RecFIN data sets includes items such as table descriptions, column names and descriptions, data types, and data steward contact information. Each RecFIN table entry also contains a comprehensive keyword list to promote the discovery of RecFIN data elements. Moving forward, the RecFIN InPort library will be updated and expanded as the RecFIN database evolves and as new data elements are incorporated. RecFIN metadata information can also be accessed from the RecFIN website [APEX reporting system](#) under Metadata and Documentation. Additionally, new metadata tools are currently in development that will provide more robust management of RecFIN metadata and improve access to metadata tools for end users (see [Metadata Mayhem](#) in this issue).

To explore RecFIN metadata or other fisheries data sets, visit the [NOAA Fisheries InPort Catalog](#). For more information about RecFIN metadata, please contact Jason Edwards, RecFIN Data Management Specialist.

2019 Fall RecFIN Technical Committee Meeting

Jason Edwards

The RecFIN Technical Committee held its biannual meeting in San Diego, CA on October 8th and 9th. This meeting provides RecFIN the opportunity to meet face to face with its partner agencies to discuss recent and ongoing RecFIN projects and future directions for the program. Representatives from the California Department of Fish and Wildlife (CDFW), Oregon Department of Fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), NOAA Fisheries, Pacific Fisheries Management Council (PFMC), and the Sportfishing Association of California (SAC) were on hand to present information on RecFIN-related projects and receive updates from RecFIN staff on new database developments and upcoming objectives. RecFIN topics discussed during the meeting included:

- Model-based Average Weight Estimation Methodology
- New MRIP Baseline Survey and Data Requirements
- CDFW CRFSS Effort Estimation Comparison
- SAC CPFV Tuna Sampling Project Updates
- ODFW At-Sea Mobile Application Development
- RecFIN Database and Tools Updates
- WDFW Mobile Fish Identification Application Project
- SPEX
- Pacific Halibut Data Reporting
- State Survey Certification
- MRIP Regional Implementation Plan
- Recreational Data Upload Options

The next RecFIN Technical Committee meeting will be held on April 22nd and 23rd in Portland, Oregon.

