

SYMPOSIUM 1799

Advances In Data Management and Dissemination: The View From the Edge of a New Frontier Symposium Abstract Text:

The technologies and policies of data management and publication have rapidly developed resulting in increasingly sophisticated tools and approaches for making data readily available –for scientists, policy makers, resource managers, commercial enterprises, anglers and the public. Yet, not knowing what data is available for scientific research and decision-making has considerably impacted fishery management, regulatory reporting needs, and the nation’s ability to handle environmental disasters. Also, while marine and fisheries professionals have always collected copious amounts of data, we don’t always utilize that data to its fullest extent. Many entities are making profound changes in how they manage and disseminate their fisheries data in response to the changes in technology and the need to be able to readily access and exchange data. Increasingly researchers have the ability to access data collected over broad spatial and temporal scales, managers have increased ability to make data-based decisions, and anglers can view and compare fish survey information on systems where they recreate. Making basic data broadly available is a revolutionary cultural change for many government agencies. This vision is national in scope and coincidentally aligned with a strong movement across the federal government, various state governments, universities and organizations to increase transparency and openness of data and information. Ensuring that the right data gets managed and shared appropriately, regionally, nationally and internationally in a changing world has been identified as a “highest priority” among organizations, regulated parties and stakeholders.

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SOCIAL/POLICY ISSUES/LARGE AREA DATA NETWORKS

When Public Data Becomes Public Data, and Why We Can't Hold It Anymore

[T. Douglas Beard Jr., Ph.D.](#), national Climate Change and Wildlife Science Center, U.S. Geological Survey, Reston, VA

Adaptive management, structured decision-making, or whatever your favorite structure is for incorporating science into policy decisions, are inherently dependent on readily available sources of data. The majority of fisheries data that is collected in the United States is publically financed either through allocation of tax dollars or through excise taxes on sportfishing equipment. However, the majority of these data are still largely unavailable for making decisions on fisheries management, beyond the original purpose for which these data were initially collected. Numerous issues have contributed to this dilemma, including lack of investment in data management, a culture of “data ownership” and “I’m going to publish this any day now”. However the traditional hurdles for information management, lack of standards, lack of infrastructure and accessibility are now gone. Failure to develop, report and make available, data that is collected in support of public fisheries management makes it difficult for the fisheries community to provide the accountability that is necessary to maintain long term public support of our activities. Since the information management hurdles are largely gone, future work should focus on the social issues for making data available.

Abstract id# 3363
Data Sharing - Good Public Policy

John Witzig, PhD, Fishery Data Services Division, NMFS Northeast Regional Office, Gloucester, MA

Information about the Nation’s living marine resources is often difficult to find, difficult to use when it is found and difficult to interpret because of insufficient documentation. Beginning in 2009, NOAA Fisheries

initiated a cultural shift to make information about the Nation's living marine resources broadly available. The Enterprise Data Management initiative's goals are to complete an inventory of the Agency's data assets, make these assets discoverable and understandable to users and provide access to these national assets that the Agency holds in stewardship for the nation. Presentations in this session cover the full range of this effort from a broad policy perspective, discovery of information, collection of and access to data and to the end story - examples of what can be done when data are broadly shared with all stewards of our living marine resources.

Abstract id# 7941

The Realized and Unrealized Fears of Providing Data Online

[Stan Allen](#), Pacific States Marine Fish Commission, Portland, OR

You would think by now that we would all be freely sharing data in a standardized way and making them available to all. Technology has made it "easy" and "fast" to do. There are data portals, data warehouses, on-line data systems, nodes, and whatever the new term is for making data available online. Then why are we still wondering where the data are? Many reasons (fears) are provided when you ask a biologist why they have not made data available, some of which include:

- Someone might use the data against me.
- Someone might misinterpret or misuse my data.
- The data were collected for one purpose and should not be used for another purpose.
- Someone might take credit for data that I collected or publish them before I can.
- Someone might "rebrand" my data and receive financial compensation for them
- Someone might criticize my data, methods, time frame, etc.
- I will not be recognized for all of the hard work I did in collecting the data.
- My data were collected for a certain purpose and nobody else would want them.
- Sharing protocols insist on a standard format, but we do it differently!
- My data are raw data in a spreadsheet; it is too time consuming to provide data in the format needed.
- I want to maintain control over my data

Are these fears real or are we just paranoid? We will try to figure out if they really are out to get us in 15 minutes or less.

Abstract id# 3805

Why Giving the Feds Your Data Isn't Evil

[Andrea C. Ostroff](#), Biological Informatics Program, US Geological Survey, Reston, VA

Biologists typically have many characteristics in common from our scientific curiosity to our interest in function. Perhaps not the first that comes to mind but a definite commonality is the responsibility to collect data and information to answer questions. The difference that might exist among us is the scale at which we use the information or the perspective from which it is interpreted. In a world of constant change, there are no shortage of complex research and management questions that need answers to address the ecological, economic, and social concerns related to our natural resources. Whether the information gathered is used to conduct scientific research, address a management priority, or inform policy decisions, data of some form is generated. Sometimes these questions rely on the ability to detect trends and environmental changes at the regional or national scales, which requires a great deal of data at multiples spatial and temporal scales. Often data collected at local scales or limited time periods are analyzed to answer specific research or management questions and are considered to have fulfilled the immediate need. From a federal perspective, with a nationally-oriented focus, it is apparent that many of these local data efforts rarely meet their full potential. In the absence of data, decisions of all types and at many levels are still made. As the need continues to identify and address landscape level concerns, the need to combine data of all types becomes increasingly important. Federal biological information managers are familiar with the common concerns and fears associated with sharing data, and can provide guidance to both overcome some of the concerns and help elevate and maximize the value of the work of biologists across the nation to meet our collective responsibility to our natural resources.

Abstract id# 8293

Information Discovery & Sharing In the Cloud

[Michael Daconta](#), Accelerated Information Management, Inc, Vienna, VA

In this presentation, Mr. Daconta will examine the emergence of cloud computing on federal, state and local IT organizations, and specifically its impact on information management. The audience will take away an understanding of cloud computing, how transparency and information management can be implemented in the cloud, and the state of cloud interoperability. The cloud is coming and every Information Technology, Records Management and Information Management professional needs to be ready for it.

Abstract id# 4716

Data Exchange Networks for Aquatic Systems

Louis Sweeny, Ross & Associates Environmental Consulting, Seattle, WA

Managing data collected by the various entities involved in restoring and protecting large aquatic ecosystems such as the Chesapeake Bay, the Columbia River, and the Great Lakes is fundamental to adaptive management. Processes and technology have evolved from centralized databases managed by

one agency, to web-based systems with multiple agency input, and now are moving into the development of standard templates which allow agencies to aggregate data for multiple uses from many different sources. Efforts to develop high level data models, XML exchange schema, and “standards based” activity tracking help to leverage already strained resources and focus on effectively sharing data without the need to report the same information to disparate managing agencies. This talk will highlight activities like the Juvenile Migrant Exchange (JMX) in the Columbia River basin and the Exchange Network Water Quality Data Exchange (WQX) as examples of agencies moving towards a standards based approach.

Abstract id# 4690

The National Nonindigenous Aquatic Species Database and Alert System

[Pam Fuller](#), Southeast Ecological Science Center, U.S. Geological Survey, Gainesville, FL

The Nonindigenous Aquatic Species (NAS) database (<http://nas.er.usgs.gov>) functions as a repository and clearinghouse for occurrence information from across the United States. It contains locality information on more than 1,100 species of vertebrates, invertebrates and vascular plants introduced as early as 1850. Taxa include foreign species as well as those native to North America that have been transported outside of their natural range. Locality data are obtained from many sources including literature, state, federal and local monitoring programs, museum accessions, on-line databases, websites, professional communications and on-line reporting forms. The NAS web site provides immediate access to new occurrence records through a real-time interface with the NAS database. Visitors to the web site can use a set of pre-defined queries to obtain lists of species according to state or hydrologic basin of interest. Fact sheets, distribution maps and information on new occurrences are continually posted and updated. Managers need to know what is new to their area, or new to a nearby area, in order to respond quickly. Conversely, managers are encouraged to report their observations of new occurrences to the NAS database so the information can be disseminated to other managers, researchers, and the public. In May 2004, the program developed an Alert System to notify registered users of new introductions as part of a national early detection/rapid response system. Users can register to receive alerts based on geographic or taxonomic criteria.

Data management for monitoring – emphasis andadromous fish

Abstract id# 4661

Regional Data Sharing: Data Warehouses and Early Steps Toward Regional Systems

[Bruce Schmidt](#), StreamNet, Pacific States Marine Fisheries Commission, Portland, OR

The Pacific Northwest has a long history of using database technology to consolidate data across multiple agencies to support a variety of management, monitoring and research activities. Examples of some

regional-scale database projects include the Pacific Fisheries Information Network (PACFIN), which consolidates marine harvest data on the west coast to support marine fishery management; the PIT Tag Information System (PITAGIS), which manages PIT tag data in the Columbia River basin; the Regional Mark Information System (RMIS), which manages coded wire tag data for the west coast; and StreamNet, which consolidates and standardizes interior fisheries data across the Columbia basin and the Pacific Northwest. These projects have functioned for decades and in general utilize a regional scale data warehouse approach based on relational database management technology and Internet based online data query systems for disseminating the data. In recent years, interest in more interactive approaches to regional scale data management has been growing. Drivers of that interest include a desire to access data directly from source agencies, interest in acquiring data in real time, maintaining local control over data, and utilizing the power of newer technologies like GIS. Attempts to build systems in the Columbia Basin to achieve these newer goals have met with only limited success, so far, largely due to limited Web access to data from the originating agencies. Fundamentally, the newer technologies have outstripped the current capabilities of agencies to share data via the Web. New tools now make it possible to expand the ways data can be accessed and displayed, increase linkage between formerly disparate data sets, allow simultaneous acquisition of similar data from multiple sources, and provide nearly instantaneous access to real time data. Implementation of new approaches and technologies will require completion of comprehensive database systems within agencies, wide scale agreement on which data should be shared, posting metadata and data as web services, and adjustment to policies and procedures within agencies. To be most effective, this new development should build from existing capabilities, utilizing what currently exists and is successful, and applying new technologies to expand capabilities to meet growing needs for integrated data on a broad scale. Efforts are now underway to increase database infrastructure within the agencies that create fisheries data and to develop additional data sharing strategies and capabilities. These efforts are taking place in a collaborative environment, as will be described in this symposium.

Abstract id# 4696

Coordinated Assessments for Salmon and Steelhead In the Columbia River Basin

[Tom K. Iverson](#), Columbia Basin Fish and Wildlife Authority, Portland, OR, Jennifer M. Bayer, Pacific Northwest Aquatic Monitoring Partnership, Kathryn Thomas, PhD, Pacific Northwest Aquatic Monitoring Partnership (PNAMP), Portland, OR, Bruce Schmidt, StreamNet, Pacific States Marine Fisheries Commission, Portland, OR and Louis Sweeny, Ross and Associates, Seattle, WA

Through the Columbia River Basin Anadromous Salmonid Monitoring Strategy, the Federal Columbia River Power System (FCRPS) Action Agencies and fishery co-managers have agreed to the necessary monitoring to provide data to answer key management questions related to Viable Salmon Population (VSP) parameters and began discussions for key habitat and hatchery effectiveness assessments. Performing these assessments and reporting answers to these management questions on an ongoing

basis is needed to assure 1) effective evaluation of the FCRPS Biological Opinion, 2) progress toward the recovery of anadromous salmonids listed under the Endangered Species Act, and 3) effective implementation of the anadromous salmonid elements of the Columbia River Basin Fish and Wildlife Program. This ongoing collaborative effort gathered co-managers and other key agencies within the sub-regions of the Columbia River Basin (CRB) to develop assessment and data sharing strategies for meeting regional reporting requirements. The co-managers agreed to three specific fish population indicators and a common Data Exchange Template (DET) which describes the specific data elements to be shared with each indicator. Data Analysis Flow Diagrams were developed that illustrate the steps used to calculate the indicator for each population (or representative populations) of anadromous fish. A Gaps, Needs, and Priorities assessment was used to identify the capacity needs of agencies and Tribes to manage and share their data and develop individual data sharing strategies addressing partner capacity, shared technical infrastructure, common DETs, and management and governance. The goals are to develop individual and regional data sharing strategies that identify the capacities and business practices necessary for integrated data sharing of these three specific VSP indicators, refine and promote the use of DETs among the CRB fisheries co-managers as a business practice for sharing the three indicators for salmon and steelhead, and prepare for extending data sharing to additional indicators in the future.

Abstract id# 4672

Fish Management Data Wars: The Stream-Cred

Henry Franzoni, Columbia River Inter-Tribal Fish Commission, Portland, OR

Anadromous fish monitoring data collected in the Columbia Basin has four priority uses: it is used to make management decisions for the operation of the hydrosystem, it is used to measure recovery of ESA listed stocks, it is used to report on performance metrics mentioned in the BiOp, and it is used to prioritize anadromous salmonid mitigation projects. Quantitative data carries more weight than qualitative data in these contexts, and over the years... anadromous salmonid data in the Columbia Basin has undergone rapid evolution, particularly in quality and in methods used to analyze it. As in any field of scientific endeavor, better and better data has been subjected to more and more refined analysis, assumptions have been continuously questioned. The increased emphasis on quantitative analysis has driven an exponential increase in the volume and precision of monitoring data, while management is driven by the need to analyze more data faster and faster.

Abstract id# 4664

Idaho Fish and Wildlife Information System

[Bart Butterfield](#), Idaho Department of Fish and Game, Boise, ID

The goal of the Idaho Fish and Wildlife Information System (IFWIS) is to develop a common infrastructure for capturing, managing and disseminating data about Idaho's fish, wildlife and plants. In collaboration with partner organizations, IFWIS aims to be a knowledge system that facilitates data sharing among partners and increases public access to information. The Anadromous Fish Hatchery System (AFHS) is built around a distributed client application that enables data entry on laptops at remote locations and uploads data to a central database when Internet access is available. Information about redds and carcasses, including location, abundance and biometrics are collected by the Spawning Ground Survey using a distribute client framework similar to the AFHS. The Stream Survey System (SSS) collects electro-fishing and snorkeling survey data. The SSS integrates a GIS mapping tool that allows end-users to add new survey sites. Although currently not accessible outside Idaho Department of Fish and Game (IDFG), it is anticipated that the SSS will be expanded in the future. The Lakes and Reservoirs Survey System (LRSS) is built on the same framework as the SSS and is not currently accessible outside IDFG. All of these applications and databases are available on a Web site that serves as a "one-stop-shopping-center" for Idaho's fish, wildlife and plant data. A user-authentication system synchronizes both internal IDFG and external partner users into a multi-tiered system of roles that control access to content.

Abstract id# 4668

Tracking Salmon Recovery In Oregon: a Website to Deliver Statewide Data for the Oregon Department of Fish and Wildlife

Julie Firman, Oregon Department of Fish and Wildlife, Corvallis Research Lab, Corvallis, OR

Like many state agencies, the Oregon Department of Fish and Wildlife has struggled to keep pace with rapidly expanding needs for data collection and reporting. The State of the Salmon, a non-governmental program that works across state and national boundaries, recognized that they could support their own need for broad-scale data availability by helping agencies to build tools for data management and dissemination. This public-private partnership has produced a website for reporting on the recovery status of listed salmonids in Oregon. We will introduce and demonstrate the website in this presentation. The site delivers summary information on viability criteria, serves up detailed graphs and assessments of the status of populations and larger geographic regions, and provides the opportunity to download the raw data underlying the viability criteria, as well as many more datasets. This structure promises to save time both for projects that collect data and those within and outside of the agency that report on the data by streamlining data delivery. It also provides a vehicle to bring together diverse projects from different parts of the state under a consistent framework, and to provide tools for data management and dissemination to projects that would not have the resources to create them for themselves.

Abstract id# 4713

The Champ Data System

[Steve Rentmeester](#), Environmental Data Services, Portland, OR and Matt Deniston, Sitka Technology Group, Portland, OR

The Columbia Habitat Monitoring Program (CHaMP) has the vision to build a web-based system that CHaMP practitioners and partners enjoy using because it saves them time (relative to the “old way”), makes it easier to follow the protocol, and results in higher quality data. The CHaMP protocol is designed to monitor the quantity and quality of the stream habitats that support Pacific salmonids. The CHaMP Data Management System is designed to support this protocol. Its goals include documenting the statistical design, efficiently supporting field data collection, lowering the overall cost of data management, ensuring consistent data formatting and quality, and providing public access to field data measurements, derived metrics, maps, charts, and other data visualizations. The CHaMP data system includes a study design and site evaluation tool, data logger for capturing topographic surveys, data entry application for auxiliary data, geo-processing scripts, centralized data storage repository, and website for reviewing and accessing data. Collectively, these tools support data documentation, data capture, quality assurance review, backup and archiving, metric generation, data display, mapping, and distribution.

Abstract id# 4719

Managing Scientific Data for Listed Salmonids and Seafood Safety

Brendan Sylvander, Northwest Fisheries Science Center, NOAA Fisheries, Seattle, WA

The Scientific Data Management (SDM) team at the NOAA Fisheries Northwest Fisheries Science Center (NWFSC) works with researchers and managers to coordinate, manage, analyze and disseminate scientific and management data related to fisheries management and ESA-listed marine species. The Center is responsible for data and research to support the assessment of listed Pacific salmonids as well as west coast marine fisheries. SDM has built a series of databases and web applications to facilitate the execution of these responsibilities.

The Genetic Analysis of Pacific Salmonids (GAPS) system tracks genetic data used to differentiate distinct populations up and down the west coast of America and Canada. Abundance numbers, crucial to population status evaluation, are housed in the Salmonid Population Summary (SPS) system. Efforts to help recover listed salmonids through habitat restoration, outreach, and other methods are tracked and measured in the Pacific Coastal Salmon Recovery Fund (PCSRF) and Pacific Northwest Salmonid Habitat Project (PNSHP) databases. Monitoring data to evaluate the effectiveness of habitat restoration efforts is stored in and accessed from the Status and Trends Effectiveness Monitoring (STEM) database.

The NWFSC has also played a lead role in toxicology analyses to support seafood safety during and after the Deepwater Horizon oil spill in the Gulf of Mexico. SDM has joined sample collection information

(location and date of collection), sensory analyses, and analytical chemistry to publish reports, maps, and web services of the data used to re-open areas closed to fishing during and after the spill.

These SDM systems utilize a set of web enabled ad-hoc query and dynamic reports, interactive mapping, and data entry and update forms for authorized end users (both internal and external). They are built with a common set of tools including Oracle RDBMS, Oracle Application Express (APEX), ESRI ArcGIS Server, AJAX, and javascript libraries.

Abstract id# 4700

Geospatial Data Collection - Standard Policy for Fisheries

[Denise Kelsey](#), Fishery Science, Columbia River Inter-Tribal Fish Commission, Portland, OR

Fisheries researchers and managers are approaching a new frontier where spatial data and interactive mapping applications will be easily accessible and the collection of spatial location data simple and straightforward. Spatial analysis software is also becoming easily accessible through open source avenues. These powerful GIS tools are increasingly being applied to assessment and analysis of fisheries issues. Don't be left behind; the collection of geospatial data should be a standard for any kind of fisheries research and management.

Abstract id# 4711

Kill the Spreadsheet: Project Tracking In Cbfish.Org

[Matt Deniston](#), Sitka Technology Group, Portland, OR

Some days it seems we have more spreadsheets than fish. The more funds that get allocated to research, restoration and conservation, the more the funders and general public expect in terms of reporting results. For many that means doing time in Excel.

For the past seven years we've been working with the Fish & Wildlife program, within the Bonneville Power Administration and overseen by the Northwest Power and Conservation Council, to find ways to improve how they handle data to realize:

- greater consistency (*can the contracting process be streamlined and more predictable?*),
- enhanced program intelligence & reporting (*from 2005-2010, how many riparian acres were planted that benefit steelhead?*), and
- transparency (*where does all that rate-payer money go?*).

Often for us that meant working with folks who maintained disparate spreadsheets and Access databases to find a better way to sort and summarize the information using web and database technologies. Yes, our mission was to axe many of those XLSs; but not before replacing them with shareable, scalable, easier to maintain systems of record.

One such system that Sitka Technology Group started to design and build a couple years ago, and continues to evolve with BPA and its regional partners today, is cbfish.org. At heart, it is a tool that provides transparent access to the obligations, objectives, projects, and accomplishments of one the world's largest mitigation and restoration programs (\$300-400M annually). This presentation provides a brief overview of the drivers for the system, the process we used to design and build it, and what we learned along the way.

Abstract id# 4705

Keeping Track of Science: A Tool to Help You Document and Discuss Monitoring Protocols

[Jacque Schei](#), Pacific Northwest Aquatic Monitoring Partnership, Cook, WA, Cathy Kellon, Ecotrust, Portland, OR and Matt Deniston, Sitka Technology Group, Portland, OR

Fisheries and aquatic habitat monitoring and restoration practitioners, researchers, and resource managers are increasingly aware of the importance of documenting and tracking objectives, methods, and study designs used for monitoring fish populations and other aquatic resources. While uncertainty is an integral part of dealing with biological systems, it is crucial that researchers and monitoring practitioners use methods that minimize uncertainty in order to improve the conservation and sustainability of fisheries and aquatic resources. In addition, there has been rising demand in recent years for organizations to collaborate on monitoring activities and data sharing. Recent Biological Opinions have stated that consistent data collection and analysis methods are essential to enable aggregating and summarizing data across large and diverse geographies and across time. This is in turn critical for understanding the status of various populations and whether restoration and mitigation actions are accomplishing the desired effects.

To advance scientific rigor and realize improved cooperation, it is essential to have clear documentation of and ready access to the field's protocols and methods. **Monitoring Methods** (www.monitoringmethods.org) is an on-line tool that allows practitioners to document protocols and methods as well as share their experiences with and insights about those protocols and methods. This product was a collaborative effort between the Pacific Northwest Aquatic Monitoring Partnership and State of the Salmon. Software was developed by Sitka Technology Group. By providing a place where practitioners can be transparent about their techniques, we can better understand how and why data are collected. This, in turn, can increase our ability to share data, make it possible for managers, funders, and

others to identify and make use of best practices, elevate scientific discourse, and promote the adoption of standards in the monitoring and evaluation of fish populations and aquatic habitats.

Abstract id# 4704

The Salmon Monitoring Advisor: A Hierarchical Web Site to Help Design and Implement Salmon Monitoring Programs

[Jeff Rodgers](#), Oregon Department of Fish and Wildlife, Corvallis, OR

Salmon managers, scientists, and non-governmental organizations face substantial challenges designing cost-effective monitoring programs to assess both status and time trends in abundance, productivity, spatial structure, and diversity of salmon populations. We have developed a web-accessible knowledge base called the "Salmon Monitoring Advisor" to help such people choose designs that (1) reliably estimate changes in salmon indicators, and (2) estimate the relative contribution of climate-driven mechanisms to those observed changes (compared to changes caused by other factors). This web site provides a **systematic, structured framework** to help users develop clear goals and objectives, as well as design and implement salmon monitoring programs that are reliable, informative, and cost-effective. The site is accessible in a hierarchical manner to reflect diverse audiences, including (1) scientists who design monitoring programs and/or analyze the resulting data, (2) technical staff who implement monitoring designs in the field, (3) people involved in **providing funding for monitoring programs, and** (4) managers and decision makers in government agencies or in local or regional salmon conservation organizations. This web site is named "**Salmon Monitoring Advisor**" because it **provides advice and guidelines to help users** work through the essential steps involved in designing monitoring programs to meet stated objectives, and provides pros and cons of different designs, rather than being prescriptive about which design best meets a particular monitoring objective. The web site uses seven sequential steps to guide monitoring design and implementation and provides extensive explanations and real-world examples for each step. It may be accessed by entering "salmonmonitorinadvisor.org" into your web browser.

Data Discovery

Abstract id# 4566

Data Documentation or Organizational Knowledge

Ted Habermann, PhD, NOAA/NESDIS/NGDC, Boulder, CO

Environmental observations are NOAA's core activity. The Agency operates nearly 100 observing systems in and around the United States across the globe. The observations made by these systems are critical to responding to current events and feed weather forecast models that are used throughout the

United States for planning all kinds of future activities. These observations are the life blood of the organization. It is clearly important that they are trusted by users and sustainable over the long term. Building trust, sustaining observational and computational continuity, and preserving knowledge all depend on the existence of accessible and understandable documentation of observations as well as observing and processing systems. The National Marine Fisheries Service, NOAA, and many partners are in the process of adopting International documentation standards and adapting them to our data sets and user needs. I will discuss lessons learned from and future directions for this organizational process.

Abstract id# 3364

Find It, Know It, Use It: How Metadata Is Finally Making Our Day Jobs Easier

Karen Sender, Operations, MGMT, and Information Division, NMFS Pacific Island Fishery Science Center, Honolulu,, HI

Scientists and scientific data managers have long understood the importance of documenting their data to support their research, and major efforts within the geospatial community has enhanced the understanding and importance of having standard and structured metadata to facilitate the sharing of data. Recent efforts within NOAA Fisheries to establish a centralized repository for documentation – metadata – for describing data collections and data collection programs is providing a wealth of value-added benefits to those collecting and managing their data. This presentation will show how NOAA Fisheries metadata repository, InPort, keeps the focus on data management and supporting data managers.

Abstract id# 8301

Real-Time Distributed Business Analytics - Making Data Accessible and Sharable Across Data Discipline: Fisheries One Stop Shop

Tina Chang, Office Of Science and Technology, NOAA Fisheries, Silver Spring, MD and Joe Hudicka, Office of Science and Technology, NOAA Fisheries, Silver Spring, MD

Distributed data management requires complex, if not sophisticated, data integration solutions to effectively support fisheries management decisions, analytics and reporting. What might take an individual several months of effort to integrate disparate data sets manually, can be automated once and for all, for the benefit of NMFS, its partners and the public.

NMFS and its partners have engineered the Fisheries Information System (FIS) Architecture to meet these demands. A singular web portal brings together regional data sets on demand by providing users a common language to make their requests through. These requests are translated into dynamic web service calls to the appropriate registered data sources in real time, through a centralized repository that

defines where to go to get the data being requested. This web portal is called Fisheries One Stop Shop (FOSS).

An Administrative Tool provides the ability to manage regional code standard translations between partners and FOSS for several characteristics such as species, geographic locations and gear, while governing data availability through time-stamped approval of registered data sources. These registered data sources can be qualified by several characteristics, enabling FOSS to consistently produce accurate, cross-regional and national reporting in real time.

Data in Application

Abstract id# 6607

The Atlantic Coastal Cooperative Statistics Program: Data From Yesteryear and Yesterday

[Julie M. Defilippi](#), Data Team, Atlantic Coastal Cooperative Statistics Program, Arlington, VA

The Atlantic Coastal Cooperative Statistics Program (ACCSP) is a cooperative state-federal program. One of the major tasks for the ACCSP is synthesis of data from 23 state and federal partners into a single dataset in order to provide the most complete picture of Atlantic coastal catch-effort data possible. This goal is achieved in two ways. First, the biannual compilation of data from approximately 35 datasets results in a comprehensive dataset available on-line via the ACCSP Data Warehouse. Using Oracle Discoverer Viewer the ACCSP has created various prebuilt, interactive queries for users to obtain data from 1950 to the previous year. Data for each year are available to the public in mid to late April of the following year. Second, since 2004, the ACCSP has provided its state and federal Program partners with the Standard Atlantic Fisheries Information System (SAFIS), a real-time web-based reporting tool for commercial and recreational landings on the Atlantic coast. The APEX applications that fall under the SAFIS umbrella include trip reporting for dealers, commercial fishers and recreational fishers. The data entered into the SAFIS system are fully available to data managers the next day. A dealer or fisher can retrieve current and past submissions at any time. These two methods of data collection and dissemination result in data that are as complete and accurate as possible for public users and managers interested in long-term trends and as timely as necessary for those managing quotas or sectors. The ACCSP has used new technologies to improve the timeliness and availability of data, while still maintaining quality and accuracy.

Abstract id# 8303

Increasing Timeliness of Commercial Self Reported Fisheries

David Gloeckner, PhD, Fisheries Statistics Division, NMFS Southeast Fishery Science Center, Miami, FL

Lack of timeliness in paper reported dealer landings data often leads to quota overages. A solution to it is to report electronically. The Northeast Region has used electronic dealer reporting systems, which reduces the time lag for dealer reports since 2004. Focusing electronic reporting on dealers is logistically simpler and more cost effective than on vessels because dealers are located at fixed locations and have ready access to internet for transmission of landings reports. However, there are technical issues with multiple state electronic reporting programs. We need to start thinking about standardized control rules to standardize data elements and allow for changing state programs to deal with federal requirements. Another issue on increasing timeliness of commercial self reporting is the policy differences on reporting deadlines, variables, and type of reports accepted. These differences can lead to problems during implementation. We need to allow time to get policy and technical issues sorted out, and then it may take at least a year for smooth transition.

Abstract id# 8307

Integrating Data Services for Tracking Individual Fish Quotas

Jeff Cowen, Operations, MGMT & Information Division, NMFS Northwest Fishery Science Center, Seattle, WA

On January 11, 2011, the Northwest Regional Office of NOAA's Fisheries Service launched the West Coast Groundfish Trawl Catch Shares Management Program. This new catch-shares system allocates quota shares of Individual Fishing Quota (IFQ) species to quota share owners. These quota shares can be transferred to vessel accounts, where these quota pounds can be transferred to other vessel accounts.

In order to manage quota share and quota pound account balances and transfers, the Northwest Regional Office (NWR) of NOAA Fisheries worked with the Northwest Fisheries Science Center (NWFSC) and the Scientific Data Management (SDM) team to develop a web based data management system called IFQ. This online system allows quota share and vessel account owners to view current account balances, transfer quota pounds to vessel accounts, and view real-time catch data from landings. This system seamlessly integrates with a web service data feed from the Pacific States Marine Fisheries Commission (PSMFC) landings database, to debit quota pounds from vessel accounts due to landings in real time. This system also connects directly to the Office of Law Enforcement's Declarations database and the NWRs Permits database. The system also allows staff from the Northwest Regional Sustainable Fisheries Division and the Office of Law Enforcement to access the data to evaluate the program and analyze the data.

To control access to this system and to ensure the security of the data, the SDM team developed this application with an Adobe Flash user interface; build on top of a secure Java middle tier that accesses an Oracle database.

This IFQ application is located at <https://www.webapps.nwfsc.noaa.gov/ifq>, where users enter a User ID and password to access their quota share and vessel accounts.

Details of the program can be found at <http://www.nwr.noaa.gov> and click **West Coast Groundfish Trawl Catch Shares Management Program**.

Abstract id# 8674

Is 2.5 Million Data Points Enough? Lessons Learned From the Nature Conservancy's Northwest Atlantic Marine Ecoregional Assessment

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The Nature Conservancy uses science-based assessments to set its conservation priorities and to inform management decisions in service of sustaining coastal and marine ecosystems and the human communities that depend on them. Our most recently completed assessment, the Northwest Atlantic Marine Ecoregional Assessment, synthesized information on biology, oceanography, chemistry, and geology from the northern limit of the Gulf of Maine in Canadian waters to Cape Hatteras, North Carolina and extended seaward to the foot of the continental slope (~8200 feet). The study area includes the shorelines of 11 states and two provinces. Characteristic habitats and species representing the biodiversity and ecological functions of the Northwest Atlantic region were selected from the following categories: coastal and estuarine habitats, nearshore shellfish, shorebirds and seabirds, benthic habitats, diadromous fish, demersal fish, small and large pelagic fish, cetaceans, and sea turtles. Regional scale data and information were collected and integrated for the first time, providing a greater understanding of the interrelated biological diversity of the region and a clearer picture of the current condition of its natural areas and the challenges to their continued persistence. The peer reviewed project results were made accessible to partners and the general public through an online web mapping tool, web mapping service, and downloadable reports and data. The Assessment is now being used by state and federal agencies and ocean resource stakeholders inform decisions regarding specific development projects, and to stimulate and guide decisions on conservation priorities and actions. In this presentation, we will review the techniques used to discover and obtain datasets for this assessment, review the challenges and rewards of spatial data analysis across a very large study area, and how subsequent data collection and analysis has used the foundation of the Assessment to provide new tools now being used to support permitting decisions and coastal and marine spatial planning initiatives.

Abstract id# 8295

Finding the Zones of Least Conflict. Charting the Social, Biological, and Economic Factors In the Gulf of Maine for Marine Spatial Planning

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One of the goals of Marine Spatial Planning is to alleviate conflicts between competing uses. There is a growing demand for allocating ocean areas for the purposes of offshore aquaculture, wind farms, and energy installations, in light of current uses (fishing, shipping, and recreation). Thus enhancements to our ability to understand the spatial and temporal patterns of these existing uses can help identify stakeholders' interests and minimize future conflicts. We employed existing databases comprised of fishing, shipping, and protected species (mammals and sea turtles) to evaluate the current patterns of use of the US exclusive economic zone in the Gulf of Maine. Further, we incorporated spatial patterns resulting from economic models to evaluate the impacts of the potential displacement of shipping companies and fishing communities and to help evaluate trade-offs among uses. It is a widely held myth that the offshore environment in the Gulf of Maine is pristine and largely available for other uses. Most areas in the Gulf of Maine are used for at least one activity, and high use areas tend to be focused around bathymetric features that attract both fishermen and protected species. Shipping patterns follow both great circle routes and mandated shipping lanes—but not bathymetric features. Importantly, the economic evaluation of uses demonstrates different patterns of use relative to assessments based exclusively on activity levels. Space for additional offshore activity are available in a few locations, however further work to assess the biological and ecological appropriateness of these areas needs to be conducted prior to siting decisions.

Abstract id# 4709

Management of Data to Support Adaptive Management Analysis for ESA Listed Salmonids In the Upper Columbia River Basin

[James White](#) and Mike Cochran, Upper Columbia Salmon Recovery Board, Wenatchee, WA

Effective ecosystem management is highly dependent on timely, accurate information. Information is particularly important in the recovery of threatened and endangered species. The Upper Columbia Salmon Recovery Board and partners in the Upper Columbia River Basin have adopted a culture of information stewardship and curation, led by a Data Steward, to provide a hub of reliable information needed to adaptively manage efforts to recover Upper Columbia salmon and steelhead populations listed under the Endangered Species Act. This focus on information stewardship and curation has been an important part of implementing adaptive management practices. Key successes in information management that have helped to support adaptive management include:

- Focus on the human infrastructure needed for data management, at the same time that technical infrastructure is being developed;
- Documentation of monitoring protocols as metadata in observation databases;
- Data stewards and an emphasis on stewardship and curation over data management;
- Agencies responsible for their own data management, guided by a data steward;
- Local compilation of data into central databases for reporting to regional systems;
- Close collaboration with regional efforts.

Abstract id# 4686

Trinity River Restoration Program: Data Use and Sharing for Adaptive Management In a Multi-Agency Program

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The Trinity River Restoration Program (TRRP) is a multi-agency effort to restore ecosystem function to a river impaired by mining and flow diversion. The Program includes Federal, State, Local, and Tribal government agencies working together to restore and monitor the river through adaptive management. Management tools include dam release hydrographs, site rehabilitation through large-scale channel and floodplain manipulations, fine sediment control, and coarse sediment augmentation. Rehabilitation sites are currently constructed every year, driving a need for efficient data use to improve site designs. Numerous monitoring projects and integrative scientific studies could benefit from data exchange between individual projects. Yet agency boundaries, past inter-agency conflicts, and individual personalities can complicate efficient sharing of data and threaten the functionality of adaptive management. TRRP has a long way to go, but is beginning to see light at the end of the tunnel. Drivers of this improvement appear to include: (1) a paradigm shift in thinking of the TRRP as one program rather than a group of agencies connected only on paper, (2) improved communications of what is needed to achieve adaptive management, (3) recognition of the value of another's data, and (4) continual progression in technical options for pooling data - particularly in making it easy to contribute amidst busy staff schedules.
