Northwest Power and Conservation Council

July 29, 2014

MEMORANDUM

TO: Fish and Wildlife Committee members

FROM: Nancy Leonard
Fish, Wildlife, and Ecosystem Monitoring and Evaluation Manager

SUBJECT: Update on Pacific Northwest Aquatic Monitoring Partnership (PNAMP, 2004-002-00) 2015 work plan priorities as requested by the Council 2012 decisions.

Jen Bayer, PNAMP Coordinator, will be providing an update on PNAMP's 2015 work plan priorities. PNAMP is a forum to facilitate collaboration around aquatic monitoring topics of interest, promote best practices for monitoring, and encourage coordination and integration of monitoring activities as appropriate. The forum's activities are conducted by participant working groups and teams as endorsed by the partner-based steering committee (see attachment 1 for members). The coordinating staff serves to enhance and support PNAMP partner's collaboration on topics of importance (see all attachments for more information). Today's update will emphasize PNAMP's Monitoring Resources web resource (www.monitoringresources.org); the Coordinated Assessments project (PNAMP and StreamNet collaborate to lead this work); and describe new efforts we seek NPCC input to develop (habitat data sharing and high level indicators coordination).

BACKGROUND

The Council's July 2012 recommendation for data management projects that led to the October 25, 2012 decision, informed by the Council's Program Evaluation and Reporting Committee (PERC) process, which requested an annual update from PNAMP. The specific language related to the annual PNAMP update is part of Recommendation 3 of the Council decision pertaining to PNAMP included below:

pacific northwest aquatic monitoring partnership

Update for NPCC

Fish and Wildlife Committee

August 5, 2014

Jennifer Bayer, USGS/PNAMP

PNAMP Mission Statement

To provide a forum to enhance the capacity of multiple entities to collaborate to produce an effective and comprehensive network of aquatic monitoring programs in the Pacific Northwest based on sound science designed to inform public policy and resource management decisions.

Today's Topics

- Plan and sustain data sharing infrastructure
  - Monitoring Resources: Application of PNAMP Tools in BPA system
  - Coordinated Assessments
- Align and integrate how we monitor, collect and analyze data
  - Habitat Data Sharing
  - High Level Indicators

Monitoring Resources

Monitoring Resources

Assisting BPA systems and NPCC project review

- ISRP Project Review and BPA review of documentation
  - Protocols, Sample Designs, Methods, Metrics
  - Transparency and accountability
- Pisces Contracting tools for SOW
  - Select MM protocol
  - Select repository where data are available

Link to protocol in Monitoring Methods

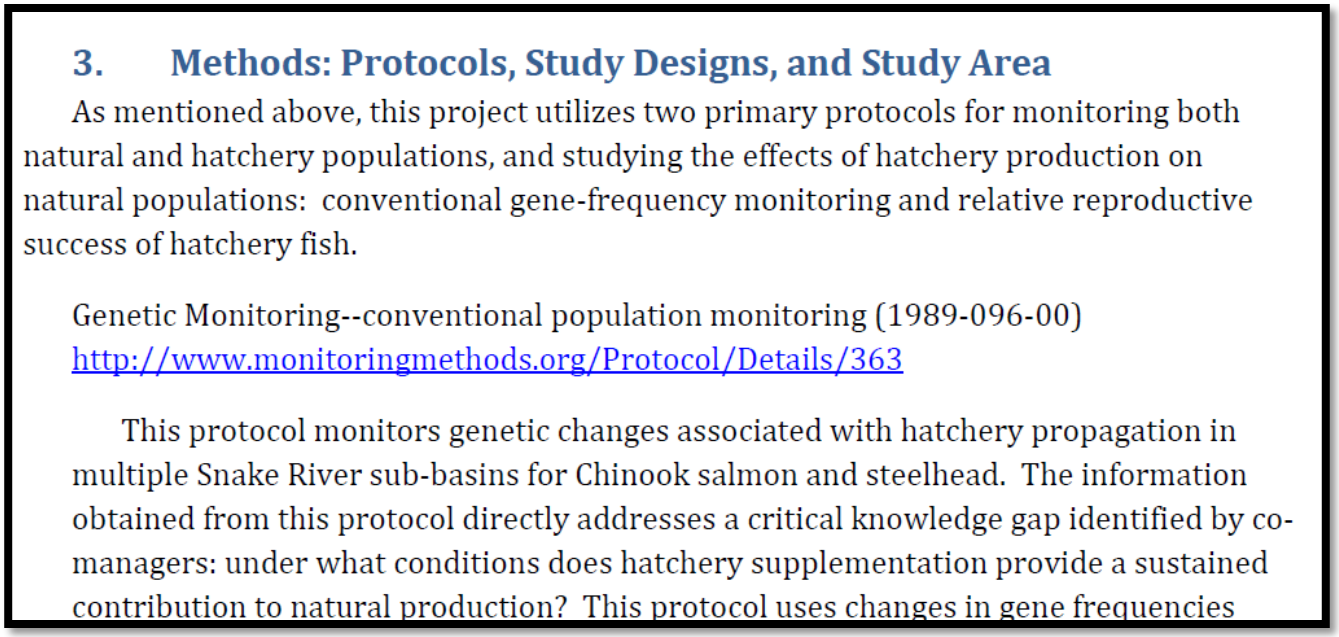
Links to methods

RM&E Protocols and Methods Back To Top

RM&E Protocol	Deliverable	Method Name and Citation
Snake River GSI baseline (2010-026-00) v1.0	Maintain SNP genetic baseline for Snake River steelhead (DELV-01) Maintain SNP genetic baseline for Snake River Chinook salmon (DELV-02) Estimate stock compostion of wild adult steelhead above Lower Granite dam (DELV-03) Estimate stock compostion of wild adult Chinook salmon above Lower Granite dam (DELV-04) Estimate stock composition of wild juvenile steelhead at Lower Granite Dam (DELV-05) Estimate stock composition of wild juvenile Chinook salmon at Lower Granite Dam (DELV-06)	SNP genotyping on Fluidigm platform v1.0 (Ackerman, M., J. McCane, C. Steele, M. Campbell, A. Matala, J. Hess, and S Narum. 2011) Nexttec 96-Well Tray DNA Extraction Kit Protocol v1.0 (Mo Hashemzadeh; Express Biotech International 2010) Genetic Sex Marker for O. mykiss and O. tshawytscha v1.0 (Matthew R. Campbell, Christine C. Kozfkay, Timothy Copeland, William C. Schrader, Michael W. Ackerman, and Shawn R. Narum 2012) Inbreeding effective population size estimated using the software program Colony v1.0 (Jones, O. and Wang, J. 2009) Estimating Genetic Diversity v1.0 (Park, S. D. E. 2001) Predicting the accuracy of genetic stock identification v1.0 (Kalinowski, S. T., K. R. Manlove, and M. L. Taper 2007) Contemporary effective population size estimated using the software program LDNe v1.0 (Waples, R. S. and C. Do. 2008) Determining the informativeness of SNP markers v1.0 (NA Rosenberg, LM Li, R Ward, JK Pritchard 2003) Assessing genetic population structure using Bayesian

Monitoring Resources
Facilitating project annual reporting to BPA

- Automated text produced for project annual report to BPA (methods section in annual report)
- Annually tracks changes that occurs in a project's methods in 'Implementation Notes' of Monitoring Methods



3. Methods: Protocols, Study Designs, and Study Area

As mentioned above, this project utilizes two primary protocols for monitoring both natural and hatchery populations, and studying the effects of hatchery production on natural populations: conventional gene-frequency monitoring and relative reproductive success of hatchery fish.

Genetic Monitoring--conventional population monitoring (1989-096-00)
http://www.monitoringmethods.org/Protocol/Details/363

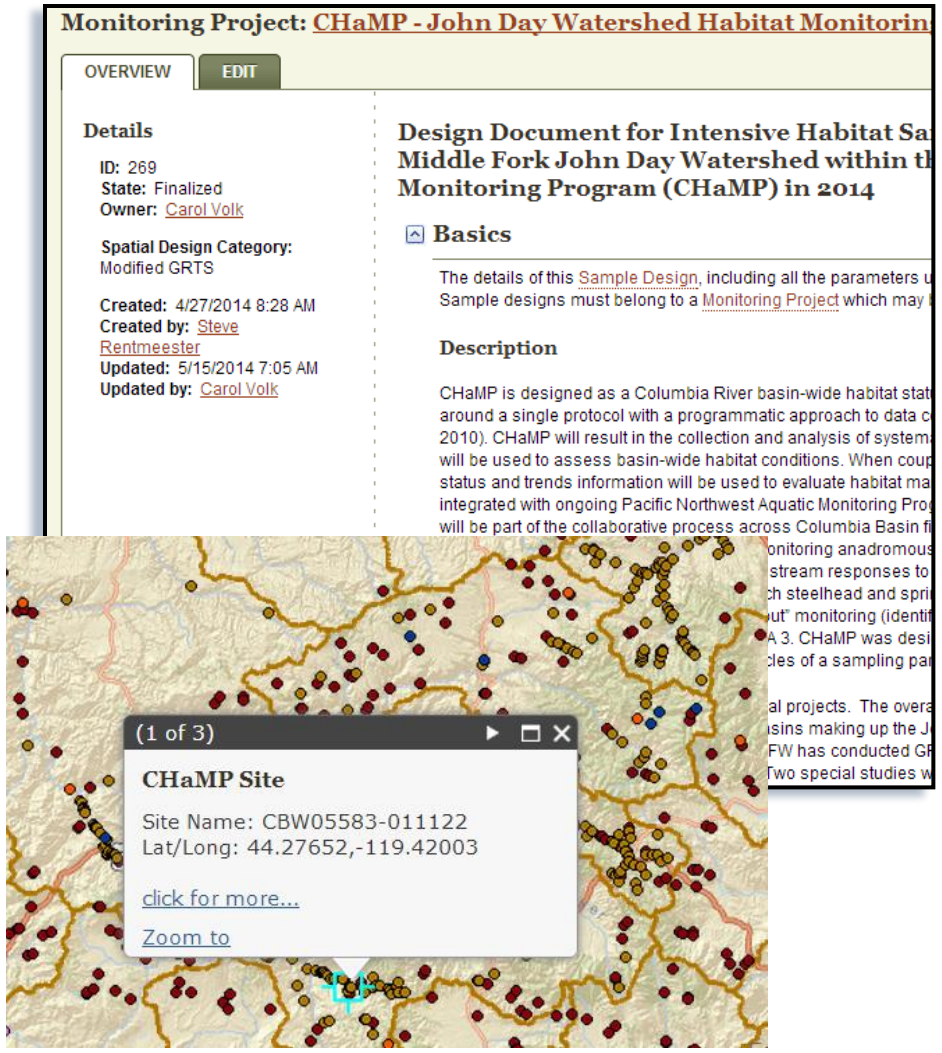
This protocol monitors genetic changes associated with hatchery propagation in multiple Snake River sub-basins for Chinook salmon and steelhead. The information obtained from this protocol directly addresses a critical knowledge gap identified by co-managers: under what conditions does hatchery supplementation provide a sustained contribution to natural production? This protocol uses changes in gene frequencies

Automated text for methods section in annual report

Monitoring Resources

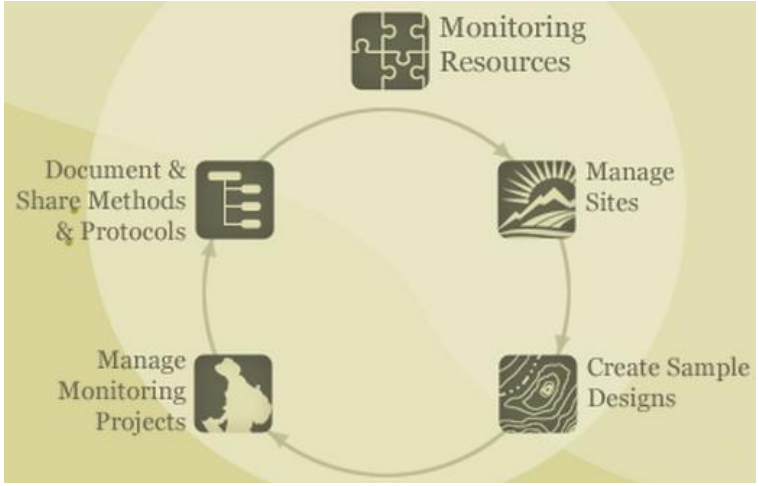
Other tools to improve coordination and efficiencies

- Documenting monitoring data events: the who', 'what', 'when' & 'how'
- Facilitating sharing existing methods and protocols to encourage standardization
- Identify opportunities for efficiencies by collaborating
- Metadata exchange standard to facilitate sharing data: *Monitoring Metadata Exchange (MMX)*



Monitoring Resources
Overall benefits to NPCC, BPA, and the PNW region

- Improved access to data to inform decision making
- Coordination and cost share among partners
- Documentation of methodology needed for data sharing and roll up (HLIs)
- Easily review & summarize work by:
  - Metric or indicator
  - FCRP's BIOP's RPAs
  - Monitoring Type
  - Location
- Accountability for Fish & Wildlife Program
  - More consistent reporting over time
  - Unprecedented level of transparency



Coordinated Assessments (CA) Project

Facilitating data sharing for reporting needs

pnamp

StreamNet
FISH DATA FOR THE NORTHWEST

Coordinated Assessments (CA) Project

Facilitating data sharing for reporting needs

What CA does

- Establishes regional standards for data on key fish indicators
- Facilitates sharing of data across organizational boundaries
- Automates data flow to increase efficiency and transparency

What CA doesn't do

- Change the roles or processes of decision making
- Establish and report goals and objectives for populations
- "Assess" populations for decision-makers

Coordinated Assessments (CA) Project

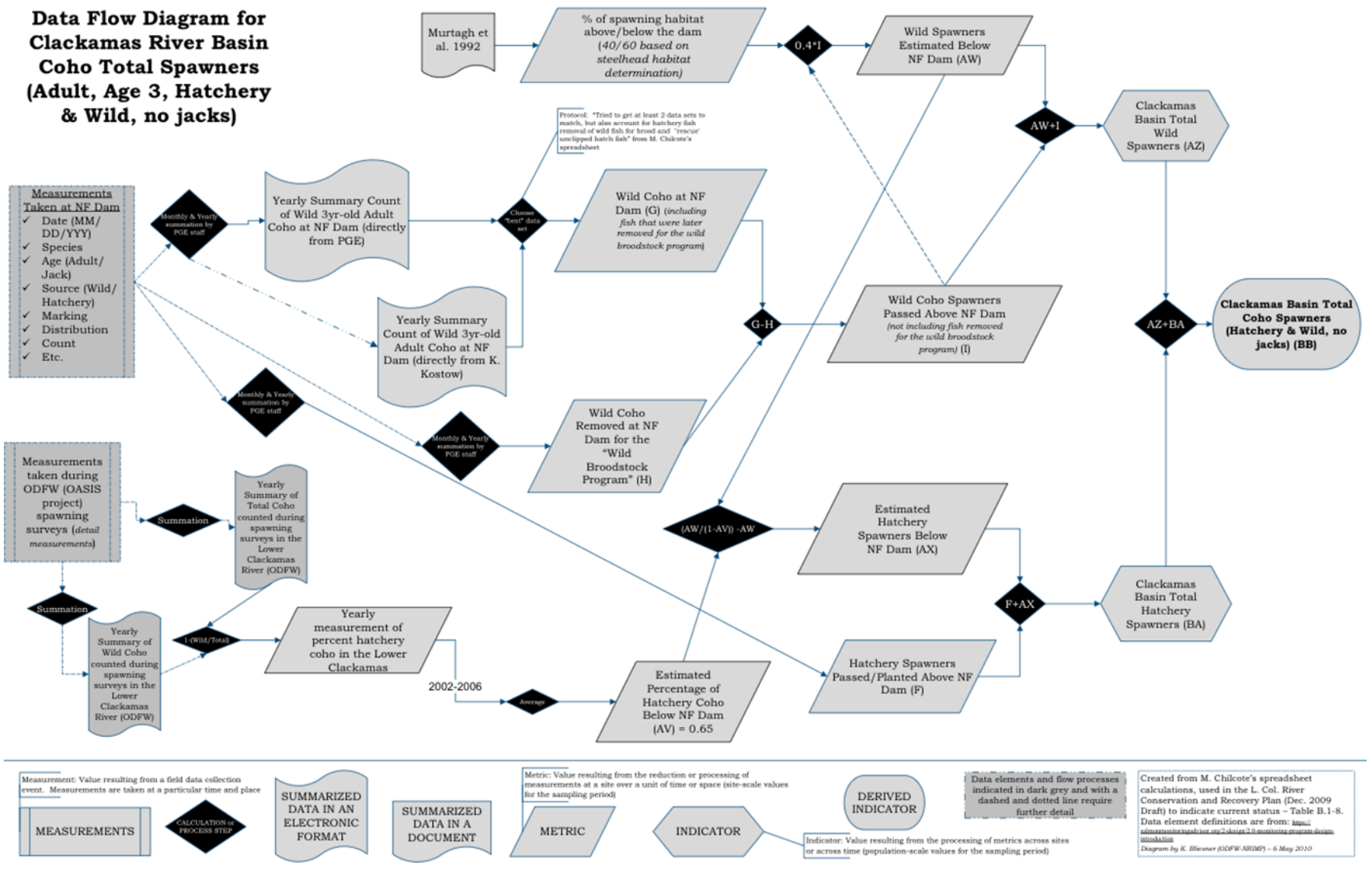
Facilitating data sharing for reporting needs

Why these indicators?

- Indicators chosen for this project are a primary source of information used by NOAA Fisheries for evaluating population level status assessments
- Key customers of these data include the participating States and Tribes, BPA, NPCC, NOAA Fisheries, and WA Governor's Salmon Recovery Office

Coordinated Assessments Project

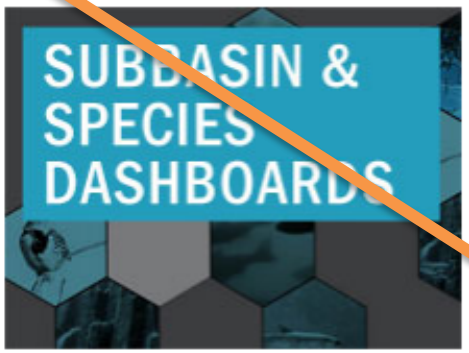
Documentation Support for Agencies and Tribes



Coordinated Assessments Project

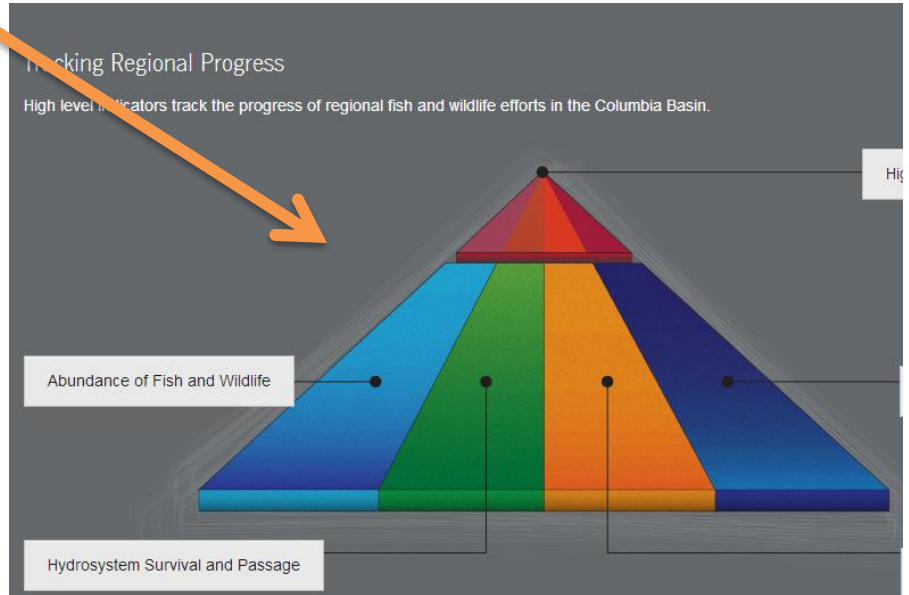
Council Dashboard's Fish Status and Trend Graphics

StreamNet
FISH DATA FOR THE NORTHWEST



Subbasin & Species Dashboards

Quick access to local and regional subbasin resources, and species data



Coordinated Assessments (CA) Project

Facilitating data sharing for reporting needs

CA Accomplishments to Date

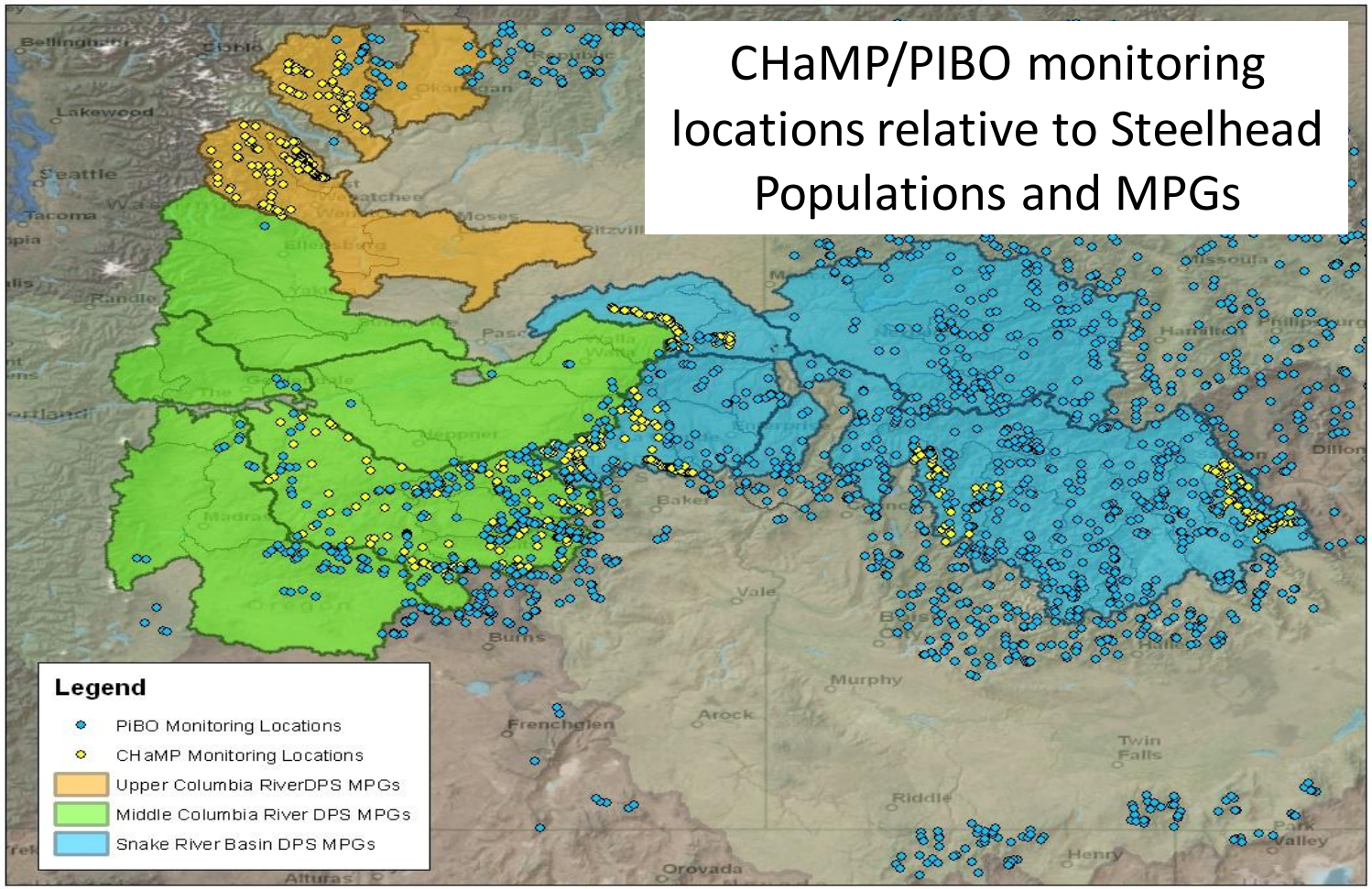
- Development of Data Exchange Standard (DES) for four fish population (VSP) indicators.
  - *Data is flowing from Colville Tribes to StreamNet*
- Agencies and tribes incorporating the DES contents into their common data management business practices.
- Awarded EPA grant to develop data flow for salmon and steelhead data exchange network.
- Currently expanding DES to include juvenile abundance and 5 hatchery indicators.

Coordinated Assessments (CA) Project

Next Steps – Phase VI Work Plan

Start Date	End Date	Activity
April 2014		CA Workshop to review Phase VI Work Plan, approve Draft Partner Trading Agreement, approve draft Flow Configuration Document, and approve draft Hatchery HLI DES
April 2014	September 2014	XCT develop XML Schema/other protocol for automated data sharing between State/Tribal data bases and StreamNet CAX data base, develop juvenile DES
April 2014	September 2014	Project Coordinator/ITMD assess individual tribal needs and develop plan for automated data sharing between developing systems and CAX data base
September 2014		CAPG adopt Final Draft Trading Partner Agreement and Final Flow Configuration Document
October 2014	March 2015	StreamNet register CAX as a Virtual Node on EPA EN client server
October 2014	March 2015	Tribes with developing systems implement automated data sharing as available
Spring 2015		CA Workshop to assess status of CAX EN, develop CA Phase VII Work Plan

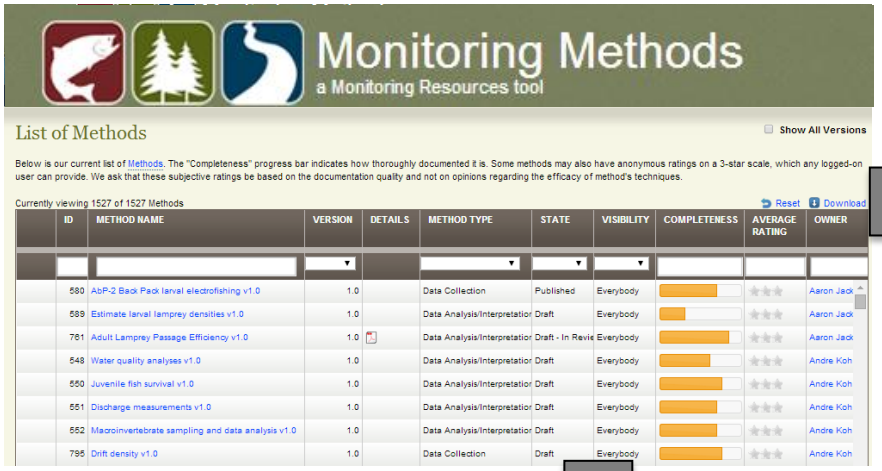
Habitat Metric Data Sharing



Roper, B., Jordan, C, Sweet, J., Archer, E., Ward, M., Volk. C, See, K. and B. Bouwes. (2013). 2012 PIBO/CHaMP comparison study presentation. Proceedings of the Columbia Basin Federal Caucus. January 25, 2013

Habitat Metric Data Sharing

Similar approach to 'CA' being applied to facilitate habitat data sharing



Measurement and Summarized Database

- CHaMPmonitoring
- PIBO
- BPA AEM
- Other

Data Exchange Template (DET)

Data Consumers & Uses

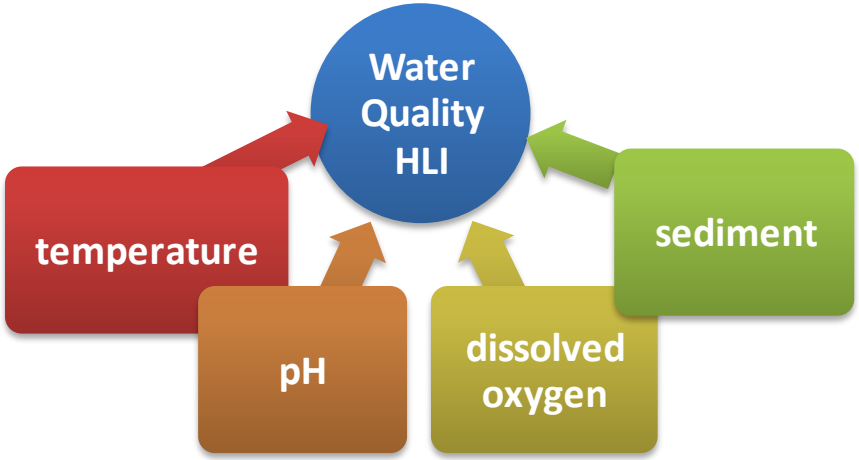
- Executive Report
- Expert Panels
- BPA AEM Report
- PIBO Reports
- NPCC HLIs dashboards
- Others

High Level Indicators (HLI)

Facilitating consistent reporting in the Columbia River Basin and PNW region by coordinating HLIs

Communicating Complex Information in Easily Understood Terms

- Review current partner priorities
- Use Coordinated Assessments (CA) to highlight the process of coordinating the roll-up of data to HLI between multiple organizations
- Develop prioritized list of regional HLIs, determine existing data availability, and discuss coordination of future data collection
- Using prioritized HLIs, conduct case study to demonstrate the processes from beginning to end



PNAMP's Ongoing Tasks

- Coordinated Assessments
- Data Management and Data Sharing Best Practices
- Effectiveness Monitoring Coordination & Assessment
- Intensively Monitored Watersheds Coordination
- Habitat Data Sharing
- Identifying High-level Indicators
- Integrated Status and Trends Monitoring
- Lower Columbia HSTM
- Methods Review
- MonitoringResources.org
- Northwest Standard Taxonomic Effort
- Remote Sensing Forum

pacific northwest aquatic monitoring partnership

Communicate & Coordinate

Sustain Collaboration

Improve Data Access

Learn more at :

www.pnamp.org

www.monitoringresources.org

Pacific Northwest Aquatic Monitoring Partnership (PNAMP) 2004-002-00

Federal, state, tribal, local, and private aquatic monitoring programs in the Pacific Northwest have evolved independently in response to different organizational mandates, jurisdictional needs, issues and questions. Planning and coordination of federal, state and tribal monitoring activities have evolved slowly but steadily over the past ten years. In 2004, the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) emerged from an ad hoc effort to become a formal institution charged with providing a forum for coordination of aquatic monitoring efforts in the region. The geographic area of this coordination includes the Pacific Northwest region from Northern California to Canada where participating entities are implementing monitoring efforts.

The basis of PNAMP is that monitoring will be improved if: all programs use consistent monitoring approaches and protocols; follow a scientific foundation; support monitoring policy and management objectives; and collect and present information in a manner that can be shared. These goals will require considerable effort and commitment to collaboration by many entities and individuals. PNAMP strives to provide the forum where this collaboration can occur and to facilitate the exchange among technical experts and between technical and policy staff that is necessary to accomplish these goals.

PNAMP is largely a coordination body that strives to develop and encourage compatible and standardized data collection, methodologies and access within the Pacific NW including the Columbia River. Most of the current funding comes from BPA to achieve those goals and to help develop tools to facilitate that work. The funding from BPA over the past three years has risen dramatically, primarily to support FCRPS BiOp activities that include coordinated assessments for viable salmonid population parameters (data exchange templates) and monitoringmethods.org website.

Recommendations:

1. Budget reduction within the range of 10 to 15%, which is commensurate with the reduction being sought from project managers throughout the Columbia River Basin.
2. In addition BPA should, through direct contracting, find efficiencies in contracted services.
3. PNAMP to report annual priorities to, and seek policy level guidance from, the Council's Fish and Wildlife Committee on an annual basis.

Attachment 1: Steering Committee

The PNAMP Steering Committee sets priorities and guides the activities of PNAMP. Composed of representatives from each signatory partner, the Steering Committee provides the science-policy interface between the Executive partners and technical workgroups, guides work of technical workgroups, and directs the activities of the Coordinator.

Current members consist of:

John Arterburn, CCT
Bob Cusimano, WA ECY
Al Doelker, BLM
vacant, USACE
Scott Downie, CDFG
Keith Dublanica, WA RCO & GSRO
Jim Geiselman, BPA
Pete Hassemer, IDFG
Gretchen Hayslip, EPA
Bruce Jones, NWIFC
Nancy Leonard, NPCC
Michael Newsom, USBR
Dan Rawding, WDFW
Phil Roger, CRITFC
vacant, NOAA Fisheries
Bruce Schmidt, PSMFC
Greg Sieglitz, OWEB
vacant, USFS
Steve Waste, USGS

August 5, 2014

pacific northwest aquatic monitoring partnership

Please consider participating in these upcoming PNAMP Meetings:

- PNAMP HDS Macroinvertebrate Planning Group Meeting (September)
- PNAMP Habitat Metric Aggregation & Habitat ISTM Meeting (Sept. 3 or 4)
- PNAMP Leadership Team meetings ~September
- Habitat Status & Trends Monitoring Workshop #3 October (TBD)
- Emerging Technologies in Field Data Collection Workshop (November 18)
- PNAMP Steering Committee meeting ~January 2015

Also, PNAMP staff are invited speakers at:

- American Fisheries Society Meeting Symposium: Developing a National Fisheries Data Exchange Standard in Québec City (August 18)
- Organization of Fish and Wildlife Information Managers in Flagstaff, AZ (Sept. 28-Oct. 2)

pacific northwest aquatic monitoring partnership

FULFILLING A NEED

Federal, state, tribal, local, and private aquatic monitoring programs in the Pacific Northwest evolved independently in response to different organizational and jurisdictional mandates and needs. To enhance efficiency and effectiveness of their monitoring efforts, the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) provides a forum that supports collaboration and coordination among organizations and across jurisdictions. PNAMP supports organizations' monitoring objectives and facilitates integration of monitoring results, largely by focusing on best practices for data management and exchange. PNAMP consists of federal, tribal, and state partners; other interested participants; and a coordinating staff. Activities are conducted by participant working groups and teams as endorsed by the partner-based steering committee.

STRENGTHENING COLLABORATIVE CAPACITY

PNAMP partners conduct aquatic monitoring within the watersheds, estuaries, and coastal zones of the Pacific Northwest, from Northern California to Canada.

Topics of interest to partners include:

- Monitoring methods and design
- Management and exchange of data
- Fish and habitat status & trends
- Species abundance and distribution

PNAMP aims to help advance the science of monitoring and evaluation for aquatic species and habitats by providing a forum for collaboration between monitoring practitioners, facilitating development of monitoring methodology, and assisting with monitoring strategy developing.

SUPPORTING COORDINATION

PNAMP helps to:

- Facilitate collaboration around aquatic monitoring topics of interest
- Promote best practices for monitoring design, methodology, and data management & sharing
- Encourage coordination and integration of monitoring activities

PROJECTS

PNAMP brings together people and resources to facilitate projects to address needs identified by the aquatic monitoring community. Specific projects may examine an issue, help develop tools to aid in monitoring, or aid in the development of mutual business practices for better monitoring or information sharing. These project collaborations often involve ad-hoc work groups facilitated by a PNAMP staff lead, sometimes working in conjunction with a project contractor. Project results may include sponsored events, publications, web -based tools, recommendations for best practices, and establishment of regional business practices for data management and information sharing.

SOME CURRENT PROJECTS:

- **Coordinated Assessments**
- **Data Management and Sharing Best Practices**
- **Effectiveness Monitoring Coordination & Assessment**
- **Habitat Data Sharing**
- **Identifying High-level Indicators**
- **Integrated Status and Trends Monitoring**
- **Intensively Monitored Watersheds Coordination**
- **Lower Columbia Habitat Status and Trends Monitoring**
- **Methods Review**
- **MonitoringResources.org**
- **Northwest Standard Taxonomic Effort**
- **Remote Sensing Forum**





ONLINE TOOLS

Adequate access to monitoring information, analyzed data, and reports is a critical need for many partners working to restore our watersheds and salmon populations. PNAMP supports the development of cloud-based tools to help practitioners design and document their projects.

PNAMP's mission is to provide a forum to enhance the capacity of multiple entities to collaborate to produce an effective and comprehensive network of aquatic monitoring programs in the Pacific Northwest based on sound science designed to inform public policy and resource management decisions.

PNAMP Coordination Staff are U.S. Geological Survey employees, funded by PNAMP partner contributions

For more information please contact
Jen Bayer , PNAMP Coordinator
jbayer@usgs.gov

www.MonitoringResources.org
Information and tools to support many facets of aquatic monitoring

Monitoring Methods
Document and share protocols, methods, and metric/indicator details about your project

Monitoring Sample Designer
Create GRTS sample designs using a master sample, document other designs

Monitoring Site Manager
See details of master samples, upload historical sites to include in your designs & manage your sample sites

Monitoring Explorer
Explore research & monitoring sites (from a variety of organizations) on a map, search for specific sites

www.pnamp.org

PNAMP uses its website to facilitate the dissemination of information important to practitioners. Upcoming events, meeting documents, reports, links to recently published journal articles, news highlights, and job announcements are posted on a regular basis.

pacific northwest aquatic monitoring partnership

Monitoring Methods

monitoringmethods.org

The Goals and Vision

- Encourage consistent and well-documented information about natural resource data collection and analysis
- Make information available to the wider community
- Support efforts to identify and promote best practices
- Showcase the similarities of methods for data exchange purposes
- Fill a need for a community forum to discuss and vet methods, metrics, indicators, study designs and communicate new techniques.

Food for Thought

With adequate documentation and with the benefit of knowing what others are doing, we, as a community of researchers and managers, can make the best use of limited resources and ensure we're offering the most accurate portrayal of the health of our streams, watersheds, and their inhabitants.

Photo Credits: USGS and NOAA

Applications

Imagine that you are a watershed coordinator looking for documentation to give volunteers. Or maybe you want to know who is doing similar analyses.

You could:

- Search for methods applicable to a specific set of metrics/ indicators you need to monitor.
- Look for analysis others are doing based on their indicators.
- Document your own protocol on the website, using existing methods
- Print a field manual from your final protocol with step-by-step instructions.

Why should I care?

Researchers have all been in the same boat before. That day when you are scrambling before a report, before a meeting, before a field season and you don't know what Bob did last year because he didn't write it down. Or do you have a dataset that you want to analyze and you don't know how it was collected and therefore don't know what assumptions to make when analyzing?

STOP THE CYCLE

Input your methods and protocols into MonitoringMethods.org and easily find and update them in the future. This will save time so that your focus can be on data collection efforts and you have less of those frenzied moments tearing through file cabinets or computer drives looking for project documentation that isn't there.

Discover who is measuring what and how

KEYWORDS

return, run, prediction, escapement, effective, population size, distribution, estimate, sampling, surveys, tagging, electrofishing, snorkeling, netting, trapping, trawling, PIT, telemetry, acoustic, video, sonar, mark-recapture, angling, toxicants, eggs, alevins, fry, parr, juveniles, yearling, smolts, adults, migrants, spawners, hatchery, wild

SUBCATEGORY FOCI

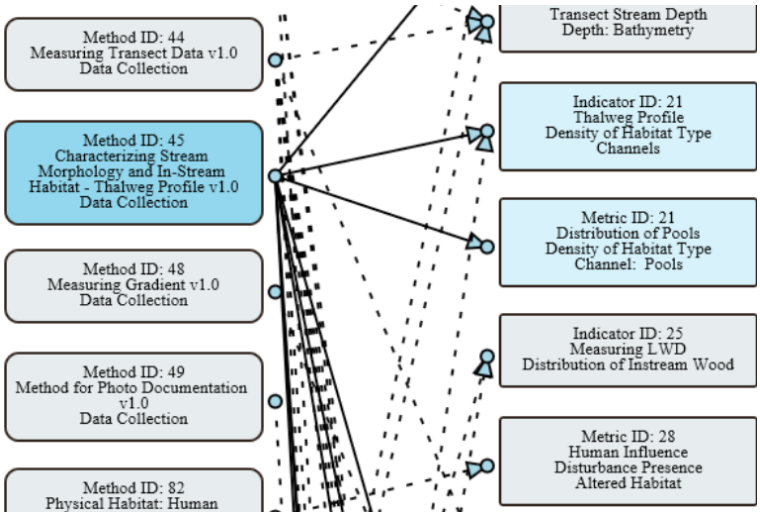
Fish Life Stage
Fish Origin

PROTOCOLS USING THIS METRIC SUBCATEGORY

Currently viewing 661 of 661 Protocols

Reset Download

METRIC/INDICATOR TITLE	FOCUS OPTION(S)	PROTOCOL
Spawner surveys to estimate abundanc	Adult - Spawner, Both	Adult salmonid migration behavior, spawner abu
Salmonid Population Estimates	Juvenile Fish, Unknown	ODFW Grande Ronde Fish Habitat M&E v1.0 (li
Abundance of emigrating steelhead	Juvenile - Migrant, Natural	Estimating abundance of steelhead outmigrants
Fish density: Number / 100m^2	RANGE: Juvenile to Adult, Na	YRWP electrofishing surveys (1996-035-01) v1
Steelhead parr density: Steelhead parr	Juvenile - Fry/Parr, Natural	YRWP Steelhead parr monitoring snorkel surve
trends in catch rate of burbot	Adult Fish, Natural	Lake Roosevelt - burbot stock assessment v1.0



Browse and compare methods

List of Methods

Show All Versions

Below is our current list of Methods. The "Completeness" progress bar indicates how thoroughly documented it is. Some methods may also have anonymous ratings on a 3-star scale, which any logged-on user can provide. We ask that these subjective ratings be based on the documentation quality and not on opinions regarding the efficacy of method's techniques.

Currently viewing 1533 of 1533 Methods

Reset Download

ID	METHOD NAME	VERSION	DETAILS	METHOD TYPE	STATE	VISIBILITY	COMPLETENESS	AVERAGE RATING	OWNER	PROTOCOL COUNT
4192	7-day running water temperature analysis v1.0	1.0		Data Analysis/Interpretation	Published	Everybody			Steven Patten	1
580	AbP-2 Back Pack larval electrofishing v1.0	1.0		Data Collection	Published	Everybody			Aaron Jackson	3
780	Abundance Estimation of Fish Using Multiple Mark and Recapture Data v1.0	1.0		Data Analysis/Interpretation	Published	Everybody			Christine Mallette	6
1127	Access-Access Creel Survey for Lakes and Reservoirs v1.0	1.0		Data Collection	Published	Everybody			Sean Wilson	3
1191	Acoustic Telemetry (1995-027-00) v1.0	1.0		Data Collection	Draft	Everybody			Matthew Howell	2
928	Acquire data from data collecting agencies for StreamNet v1.0	1.0		Data Collection	Draft	Owner and coll			Bruce Schmidt	0
3991	Adipose Fin Clip v1.0	1.0		Data Collection	Published	Everybody			Chris Tatara	1
591	Adjust Survival for Estimated Active Tag Failure in a Release-Recapture Study v1.0	1.0		Data Analysis/Interpretation	Draft - In Revie	Everybody			John Skalski	2
1436	Adult Abundance At Mainstem Dams v1.0	1.0		Data Analysis/Interpretation	Draft	Everybody			Carl Stiefel	2

MonitoringMethods.org is open, transparent and ready to start conversations.