



PACIFIC NORTHWEST AQUATIC MONITORING PARTNERSHIP

## **Fiscal Year 2023 Work Plan**

Updated

February 3, 2023

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# Introduction

The foundation of the Pacific Northwest Aquatic Monitoring Partnership (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 require considerable effort and commitment to collaboration by many entities and individuals. PNAMP strives to provide the forum to develop collaborative solutions, coordination of efforts, and information sharing for the aquatic monitoring community in the Pacific Northwest.

PNAMP advances coordination goals by facilitating projects, workgroups, and workshops that allow participants to collaborate and exchange information about their respective tribe or agency’s monitoring activities. Along with guidance from the PNAMP Steering Committee, the input of monitoring practitioners to PNAMP tasks is vital to complete current tasks, identify needs, and initiate new tasks. PNAMP sees results in the form of inter-personal communication, agreements among individuals, information sharing and more formally, through white papers, task reports, tools, and agreements between entities. Communication and facilitation of collaboration are key elements of PNAMP.

This document provides an overview of work planned for fiscal year 2023 (Oct 1- Sep 30). As you read through the work plan, keep in mind that not all projects require the same amount of effort to complete. Figure 1 is included to convey the approximate distribution of PNAMP Staff effort across projects. Each project’s tasks and timelines can be found in the first section of the work plan where projects are ordered by estimated level of effort, largest to smallest. The second section contains brief project summaries including staff contact information. For more information on past PNAMP activities, please see the PNAMP website ([www.pnamp.org](http://www.pnamp.org)) or contact the PNAMP Coordinator, Jen Bayer ([jbayer@usgs.gov](mailto:jbayer@usgs.gov)) with questions or suggestions.

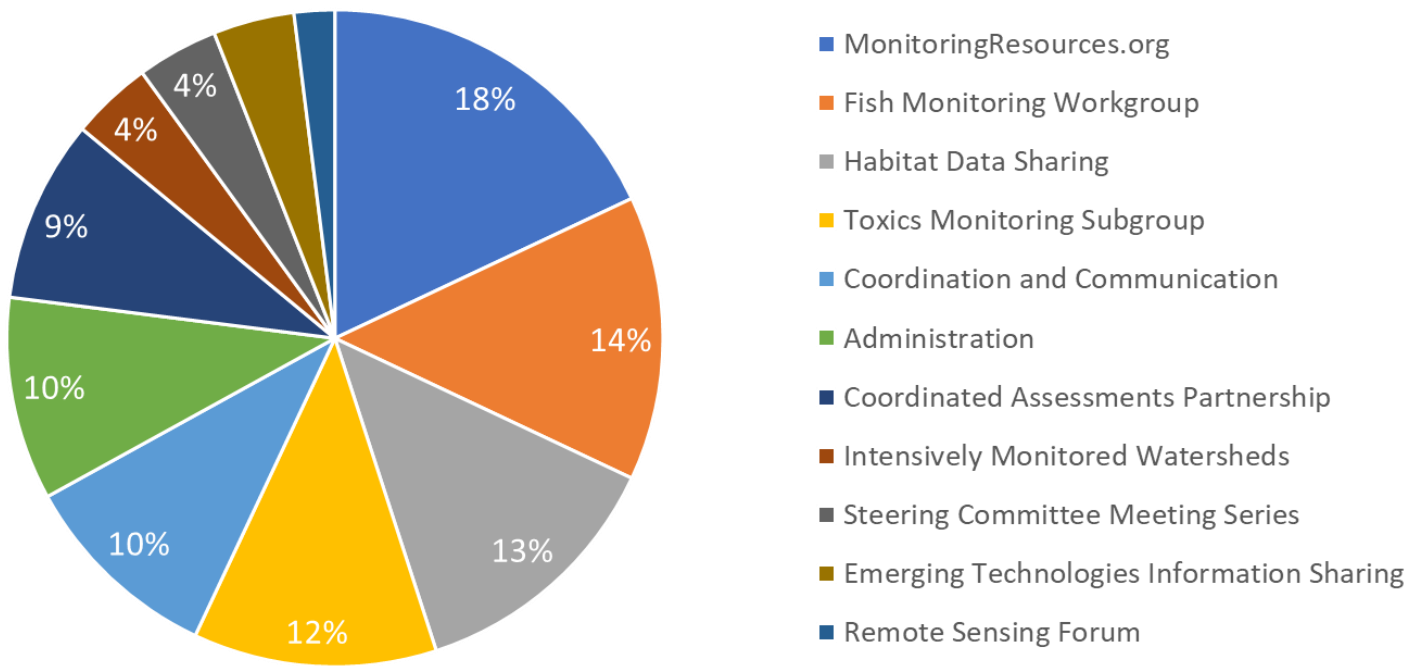


Figure 1. Estimated distribution of PNAMP Staff effort (based on time) for each project.

## Project Tasks and Timelines

Project/Task	Start Date	End Date	Status
<b>MonitoringResources.org</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 User support and training</b>	Oct 1, 2022	Sep 30, 2023	Active
1.1 Assist practitioners in the documentation of design, methods, analysis, metadata, QA/QC information in PNAMP web tools and intended use of information	Oct 1, 2022	Sep 30, 2023	Active
1.2 Improve content, help, FAQ, training videos available on site	Oct 1, 2022	Sep 30, 2023	As Needed
1.3 Share tool highlights and tips to MR users via PNAMP monthly newsletter	Oct 1, 2022	Sep 30, 2023	As Needed
1.4 Conduct outreach/training for regional partners	Oct 1, 2022	Sep 30, 2023	As Needed
<b>Task 2 Review and approve content</b>	Oct 1, 2022	Sep 30, 2023	As Needed
2.1 Review protocols and methods when requests are received, post comments, work with users to finalize content	Oct 1, 2022	Sep 30, 2023	As Needed
2.2 Find subject matter experts to provide method, protocol and design reviews when support is requested	Oct 1, 2022	Sep 30, 2023	As Needed
<b>Task 3 Outreach and communication</b>	Oct 1, 2022	Sep 30, 2023	Active
3.1 Expand institutional partners for MonitoringResources.org, including seeking funding	Oct 1, 2022	Sep 30, 2023	As Needed
3.2 Promote MonitoringResources.org through posters and presentations at regional meetings	Oct 1, 2022	Sep 30, 2023	As Needed
3.3 Develop and give MonitoringResources.org overview presentation to BPA CORs	Oct 1, 2022	Sep 30, 2023	As Needed
<b>Task 4 Support for MonitoringResources.org Development</b>	Oct 1, 2022	Sep 30, 2023	Active
4.1 Follow the charter guidelines to meet with BPA staff to discuss, prioritize, and initiate changes to the MonitoringResources.org tool	Oct 1, 2022	Sep 30, 2023	Active
4.2 Work with MonitoringResources.org users to gather feedback on the usability and functionality of MonitoringResources.org tools	Oct 1, 2022	Sep 30, 2023	Active
4.3 Document user's feedback and translate needs into requirements to be shared with software developers to create solutions in the form of broadsheets and development stories	Oct 1, 2022	Sep 30, 2023	Active
4.4 Facilitate meetings with users and BPA staff to gather feedback on proposed solution (i.e. broadsheets and stories)	Oct 1, 2022	Sep 30, 2023	Active
4.5 Document bugs in Jira when MonitoringResources.org users or staff report issues	Oct 1, 2022	Sep 30, 2023	Active
4.6 As MonitoringResources.org tools are updated, update guidance documentation and videos	Oct 1, 2022	Sep 30, 2023	Active
4.7 Coordinate with Sitka and BPA to complete the development review cycle (review and approve development)	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 5 Conduct annual survey to determine how MonitoringResources.org is used/who is using it</b>	Mar 1, 2023	May 31, 2023	Upcoming
<b>Task 6 Improve exchange of data between StreamNet and MonitoringResources.org</b>	Oct 1, 2022	Feb 28, 2023	Active
6.1 Continue to coordinate with StreamNet to link MonitoringResource.org to StreamNet data layers and data systems	Oct 1, 2022	Dec 30, 2022	Active
6.2 Implement development to facilitate StreamNet and MonitoringResources.org integration	Oct 1, 2022	Mar 30, 2023	Active
6.3 Gather user feedback on the links between StreamNet and MonitoringResource.org data layers and data systems	Mar 1, 2023	Sep 28, 2023	As Needed

<b>Project/Task</b>	<b>Start Date</b>	<b>End Date</b>	<b>Status</b>
<b>Task 7 Support for DELVE/MonitoringResources.org Integration</b>	Oct 1, 2022	Sep 30, 2023	Active
7.1 Support link between DELVE tool and MonitoringResources.org tool, including recommendations on how to streamline the workflow for users entering data into DELVE data system and metadata into MonitoringResources.org	Oct 1, 2022	Sep 30, 2023	Active
7.2 Support DELVE users entering and finalizing protocols	Oct 1, 2022	Sep 30, 2023	Active
7.3 Create training and outreach materials specific to the DELVE users	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 8 Connecting MonitoringResources.org regional tools to build and publish a standard metadata file</b>	Mar 1, 2023	Aug 28, 2023	Upcoming
8.1 Investigate metadata standards and metadata repositories	Mar 1, 2023	Aug 28, 2023	Upcoming
8.2 Scope and outline a plan for building and publishing machine readable metadata using existing regional data systems	Mar 1, 2023	Aug 28, 2023	Upcoming
8.3 Draft a 4 year work plan and budget	Aug 1, 2023	Aug 28, 2023	Upcoming
<b>Fish Monitoring Work Group</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 Support for Core Team Monthly Meetings</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 2 Support for FMWG Quarterly meetings (webinar)</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 3 Implement Tasks from work plan</b>	Oct 1, 2022	Sep 30, 2023	Active
3.1 CAP DES: General Updates & Improvements (PRN)	Oct 1, 2022	Sep 30, 2023	As Needed
3.2 StreamNet Related Data DES	Oct 1, 2022	Sep 30, 2023	As Needed
3.3 CAP DES: Fish Age DES	Aug 1, 2022	Sep 30, 2023	Upcoming
3.4 Carrying Capacity Standards	Oct 1, 2022	Sep 30, 2023	Active
3.5 Juvenile Density (Snorkel & Electrofishing)	Oct 1, 2022	Sep 30, 2023	Active
3.6 Rotary Screw Trap (RST) Operation	Oct 1, 2022	Sep 30, 2023	Active
3.7 PIT Array and Related PIT Tag Analysis	Dec 1, 2022	Sep 30, 2023	Active
3.8 Fish Population Names and GIS Boundaries	Oct 1, 2022	Mar 31, 2023	Active
<b>Habitat Data Sharing</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 Support Habitat Metric Integration project team</b>	Oct 1, 2022	Sep 30, 2023	Active
2.1 Finalize SHMI integrated dataset v1	Oct 1, 2022	Jan 31, 2023	Active
2.2 Finalize SHMI integrated dataset v2 (with covariates)	Oct 1, 2022	Aug 30, 2023	Active
<b>Task 2 Manage tools</b>	Oct 1, 2022	Jan 31, 2023	Active
2.1 Scope with USGS programs and outside partners how to integrate stream monitoring data with USGS tools	Oct 1, 2022	Sep 30, 2023	Active
2.2 Develop a road map for the future of the stream habitat data set	Feb 1, 2023	Jun 30, 2023	Upcoming
<b>Task 3 Documentation</b>	Oct 1, 2022	Feb 1, 2023	Active
3.1 Document programs in ScienceBase, MonitoringResources.org	Oct 1, 2022	Jan 1, 2023	Active
3.2 Document dataset metadata and publish code in GitLab	Oct 1, 2022	Jan 1, 2023	Active
3.3 Finalize paper describing lessons learned and recommendations	Oct 1, 2022	Feb 1, 2023	Complete
3.4 Finalize report describing the data exchange standard and methods	Oct 1, 2022	Dec 1, 2022	Active
3.5 Work with partners to document use cases for an integrated	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 4 Outreach</b>	Oct 1, 2022	Sep 30, 2023	As Needed
4.1 Outreach Stream Habitat Metric Integration project	Oct 1, 2022	Sep 30, 2023	As Needed
4.2 Scope adding additional data to the data set	Jan 1, 2023	Sep 30, 2023	As Needed

<b>Project/Task</b>	<b>Start Date</b>	<b>End Date</b>	<b>Status</b>
<b>Toxics Monitoring Subgroup</b>	<b>Feb 1, 2023</b>	<b>Sep 30, 2023</b>	<b>Upcoming</b>
<b>Task 1 Support for the Toxics Monitoring Subgroup</b>	Feb 1, 2023	Sep 30, 2023	Upcoming
1.1 Co-lead, with EPA staff, three CRBRP Toxics Monitoring Subgroup meetings per year.	Feb 1, 2023	Sep 30, 2023	Upcoming
1.2 Co-lead, with EPA staff, one workshop each year to support needs of the Monitoring Subgroup to include discussion of toxics research priorities and emerging concerns that could inform gap analysis needed for future Request for Applications (RFA) development.	Feb 1, 2023	Sep 30, 2023	Upcoming
<b>Task 2 Science Support Towards the Coordination of a Basin-wide Network of Toxics Monitoring Projects</b>	Feb 1, 2023	Sep 30, 2023	Upcoming
2.1 Create a matrix documenting “who’s doing what, where, and how” for currently funded CRBRP grants that focus on monitoring. Create a report summarizing commonalities across funded projects and identifying data gaps. Review findings with EPA.	Feb 1, 2023	Sep 30, 2023	Upcoming
2.2 Develop options for future EPA RFAs to address gaps and barriers to achieve coordinated and comparable monitoring amongst the grantees. Document preferred alternatives and make future RFA language recommendations.	Feb 1, 2023	Sep 30, 2023	Upcoming
2.3 Organize and schedule training/support for current and potential CRBRP Grantees on key topics common to CRBRA projects. Exact topics and timeline will be determined via input from the Toxics Monitoring Subgroup and EPA staff.	Feb 1, 2023	Sep 30, 2023	Upcoming
2.4 Together with the Toxics Monitoring Subgroup, CRBRP Grantees, and EPA staff, prioritize, select, and undertake activities that support coordination of the basin wide network of toxics monitoring projects. PNAMP staff will organize, schedule, and facilitate selected activities. PNAMP staff will document results and recommendations from activities in short reports/summaries. The number of activities undertaken will depend on complexity of the selected activities and the availability and capacity of participants (CRBRP Grantees, other Toxics Monitoring Subgroup members, and EPA staff).	Feb 1, 2023	Sep 30, 2023	Upcoming
<b>Coordination and Communication</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 PNAMP team meetings</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 2 Monthly e-newsletter</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 3 PNAMP website</b>	Oct 1, 2022	Sep 30, 2023	Active
3.1 Post announcements, events, and meeting documents	Oct 1, 2022	Sep 30, 2023	As Needed
3.2 Update content on web pages	Oct 1, 2022	Sep 30, 2023	As Needed
3.3 Oversee website renovation and bug fixes	Oct 1, 2022	Sep 30, 2023	As Needed
<b>Task 4 Conference participation</b>	Oct 1, 2022	Sep 30, 2023	Active
4.1 Present at 1-2 conferences as a mechanism for supporting tasks	Oct 1, 2022	Sep 30, 2023	As Needed
<b>Task 5 Other non-conference outreach</b>	Oct 1, 2022	Sep 30, 2023	As Needed
5.1 Executive briefings as requested	Oct 1, 2022	Sep 30, 2023	As Needed
5.2 Columbia River Federal Caucus	Oct 1, 2022	Sep 30, 2023	As Needed
5.3 NPCC update for NPCC Fish & Wildlife Committee	Oct 1, 2022	Sep 30, 2023	As Needed
<b>Task 6 Annual Report</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 7 Conduct annual survey of participants</b>	Nov 1, 2022	Mar 31, 2022	Active

<b>Project/Task</b>	<b>Start Date</b>	<b>End Date</b>	<b>Status</b>
<b>Task 8 Misc. tasks and outreach</b>	Oct 1, 2022	Sep 30, 2023	As Needed
8.1 Data Visualization Webinar Support	Oct 1, 2022	Sep 30, 2023	Active
8.2 CRB RM&E Tributary Strategy Outreach	Oct 1, 2022	Sep 30, 2023	As Needed
8.3 Provide support for EPA efforts related to PNAMP Macroinvertebrate PG previous work: finalize and publish the PNAMP Macroinvertebrate Standard Taxonomic Effort (STE); publish the EPA's Maritime NW Biological Condition Gradient Model; support future review in collaboration with the PNW SFS meeting	Oct 1, 2022	Sep 30, 2023	Active
8.4 Support delivery of Cultural Competency and Awareness Training by Sammy Matsaw, Sho-Ban Tribes	Jan 1, 2023	May 1, 2023	Active
<b>Administration</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 Agreements (SOW, status reports, billing backup, modifications)</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 2 Budgeting (planning, tracking, BASIS+ maintenance and reporting)</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 3 Maintain PNAMP membership database, in-kind tracking</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 4 Sub-contracting (prepare materials for agreements and modifications, review and approve invoices)</b>	Oct 1, 2022	Sep 30, 2023	As Needed
<b>Task 5 Develop annual work plans</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 6 Supervise staff</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Coordinated Assessments Partnership</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 Support project management and facilitation (as defined in 2020 5-year work plan)</b>	Oct 1, 2022	Sep 30, 2023	Active
1.1 Support CA Core Team and participate in the StreamNet Steering and Executive Committees	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 2 Data Scope and Integrity Improvements in Support of Regional Assessments and Reporting</b>	Oct 1, 2022	Sep 30, 2023	Active
2.1 Facilitate workshop, to include issue exploration session to improve consistency of information populated into the CAX system and discover and address issues impeding data steward efforts	Nov 1, 2022	May 1, 2023	Active
2.2 Improve metadata quality and improve efficiency of the workload associated with data submittal by working with biologists and data stewards to advance information exchange between MonitoringResources.org and PSMFC/StreamNet systems, such as for metadata fields.	Oct 1, 2022	Sep 30, 2023	Active
2.3 Provide technical expertise and support for Fish HLIs, Fish Monitoring Data, FMWG, DES, HCAX, data integrity, and SN/CAP	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 3 Hatchery Indicators ("HCAX")</b>	Oct 1, 2022	Sep 30, 2023	Active
3.1 HCAX Project Coordination and Facilitation for Core Team Work Sessions	Oct 1, 2022	Sep 30, 2023	Active
3.2 HCAX Work group meetings (telecon)	Oct 1, 2022	Sep 30, 2023	Active
3.3 HCAX Workshop 2	Oct 1, 2022	Nov 10, 2022	Active
3.4 Facilitate development of data flow mechanisms; pilot implementation and conduct testing	Jan 1, 2023	Sep 30, 2023	Active

<b>Project/Task</b>	<b>Start Date</b>	<b>End Date</b>	<b>Status</b>
<b>Task 4 Increasing Value of Existing Data Systems (Harvest)</b>	Oct 1, 2022	Aug 31, 2023	Active
4.1 Support PSMFC and contractors to assess current status of accessible harvest (removal) data that can inform harvest indicators/metrics of value to regional assessments.	Oct 1, 2022	Aug 31, 2023	Active
4.2 Facilitate feasibility assessment of identifying metrics and indicators of shared interest that would inform development of a controlled vocabulary for harvest indicators and other priority fish species indicators/metrics.	Dec 1, 2022	Aug 31, 2023	Active
4.3 Strengthen data documentation by exploring feasibility of metadata automation, improved citation guidance, and outline potential approach and cost for implementation. Leverage existing PNAMP/StreamNet products and data systems to inform this task.	Mar 1, 2023	Aug 31, 2023	Upcoming
<b>Task 5 Conduct annual survey of participants</b>	Apr 1, 2023	Apr 30, 2023	Upcoming
<b>Intensively Monitored Watersheds</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 Update IMW information on PNAMP website to include new factsheets and recommendations from the IMW Management Applications Synthesis</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 2 Plan and host a stakeholder workshop to discuss actions to refine the Pacific Northwest IMW Network to enhance the value of IMWs beyond their original intent, building on recent IMW synthesis efforts looking at lessons learned and management recommendations.</b>	Jan 1, 2023	Sep 30, 2023	Active
<b>Task 3 Conduct annual survey of participants</b>	Apr 1, 2023	Apr 30, 2023	Upcoming
<b>Steering Committee Meeting Series</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 Support for 3 Steering Committee meetings</b>	Oct 1, 2022	Sep 30, 2023	Active
<b>Task 2 Conduct survey of Steering Committee PNAMP impacts to inform 2023 work plan and accomplishments tracking</b>	Mar 1, 2023	May 31, 2023	Upcoming
<b>Task 3 Strategic plan check-in meeting</b>	Mar 1, 2023	May 1, 2023	Upcoming
<b>Emerging Technologies Information Sessions</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Complete</b>
<b>Task 1 Host ETIS hybrid event November 14-16, 2022</b>	Oct 1, 2022	Nov 16, 2022	Complete
1.1 Meet with planning group as needed	Oct 1, 2022	Nov 16, 2022	Complete
1.2 Work with venue to finalize details	Oct 1, 2022	Nov 16, 2022	Complete
1.3 Continue to communicate with moderators, presenters, and attendees	Oct 1, 2022	Nov 16, 2022	Complete
1.4 Promote event and manage registration	Oct 1, 2022	Nov 16, 2022	Complete
1.5 Conduct survey of participants	Nov 16, 2022	Dec 31, 2022	Complete
<b>Remote Sensing Forum</b>	<b>Oct 1, 2022</b>	<b>Sep 30, 2023</b>	<b>Active</b>
<b>Task 1 Remote Sensing Forum Support</b>	Oct 1, 2022	Sep 30, 2023	Active
1.1 Support webinars	Oct 1, 2022	Sep 30, 2023	Active
1.2 Maintain resource pages	Oct 1, 2022	Sep 30, 2023	Active
1.3 Conduct annual survey of participants	Mar 1, 2023	Jul 1, 2023	Upcoming

# Project Summaries

## Administration

**Staff Contact** Amy Puls  
apuls@usgs.gov

**Project Link** NA

**Background** To succeed, it is necessary to complete routine administrative tasks such as: developing and negotiating fiscal support with government and non-government entities, managing budgets and associated contracts with government and non-government entities, progress reporting, record keeping, maintaining membership information, facilitating the development, implementation, and tracking of work plans.

**Objective** Comply with all administrative requirements in a timely fashion.

**Deliverables** 1. Funding agreements and related documents (e.g. statements of work, status reports, billing backup) developed and submitted punctually; 2. Punctual processing of sub-contract invoices; 3. Annual work plan developed and approved by the PNAMP Steering Committee by Sep 30th for the following fiscal year; 4. Annual summary of in-kind participation (reported in the PNAMP Annual Report).

**Success Metrics** 1. Percent of deliverables completed on time; 2. Annual evaluation survey responses.

# Coordinated Assessments Partnership

**Staff Contact** Jen Bayer  
jbayer@usgs.gov

**Project Link** <https://www.pnamp.org/project/coordinated-assessments-for-salmon-and-steelhead>

**Background** The Coordinated Assessments Partnership (CAP) is an effort to develop efficient, consistent, and transparent data-sharing among the co-managers (fish and wildlife agencies and Tribes) and regulatory/funding agencies (BPA & NOAA) of the Columbia River Basin (CRB) for anadromous fish related data. The CAP has created the Coordinated Assessments Data Exchange (CAX), which defines the framework by which the fish and wildlife agencies and tribes compile and provide data for salmon and steelhead populations for access through StreamNet. The overarching goal of the CAP is to improve the timeliness, reliability, flow, and transparency of data necessary for regional assessments and management decisions for improved environmental effectiveness, including support for biological opinions that affect all federal agencies. PNAMP and the Pacific States Marine Fisheries Commission (PSMFC) StreamNet project have collaborated to coordinate the CAP project; with oversight from the StreamNet Executive Committee and input from members representing 4 states, 4 Tribes, an inter-tribal consortium, and multiple federal regulatory agencies, all with an interest in collaboratively sharing fish population data for the Columbia River watershed. Participation by the federal Columbia River action agencies and fisheries co-managers is important; over fifty additional biologists and data managers across the Columbia River Basin representing 26 different tribal, state, federal, academic, and private organizations have participated since CAP's inception in 2010.

**Objective** Increase access and understanding of scientific information needed to inform resource policy and management questions and decisions by federal, state, and tribal entities by sustaining data-sharing among the co-managers (fish and wildlife agencies and tribes) and regulatory/funding agencies (BPA and NOAA) of the Columbia River Basin for anadromous fish related data.

**Deliverables** 1. Facilitate monthly CAP Core Team meetings (CAP Core Team includes representatives from StreamNet staff, PNAMP staff, CRITFC ITMD Project Leader, Tribal Outreach Liaison, State Agency Liaison); 2. Ensure cross-project coordination by representing PNAMP in StreamNet Steering Committee and Executive Committees meetings; 3. CAP newsletter; 4. HCAX Data Exchange Standard for hatchery origin fish indicators; 5. provide expertise to inform metadata, QA/QC, and tasks to improve consistency of information populated into the CAX system.

**Success Metrics** 1. Number of meetings facilitated; 2. Number of meeting attendees; 3) completion of draft HCAX DES.

## Coordination and Communication

**Staff Contact** Jen Bayer  
jbayer@usgs.gov

**Project Link** NA

**Background** Letting others know about the important work that PNAMP is doing is fundamental to our success. Outreach and communication of products facilitates the transfer of information within PNAMP and across relevant organizations, heightens awareness and understanding of PNAMP issues, successes, and problems, and attracts new participants.

**Objective** Facilitate the transfer of information within PNAMP and across relevant organizations to heighten awareness and understanding of PNAMP issues, successes, and problems, and attract new participants through outreach and communication of products.

**Deliverables** 1. Monthly e-newsletter; 2. Maintain PNAMP website; 3. Participate in regional conferences; 4. Conduct other non-conference outreach; 5. Complete annual reporting requirements (PNAMP Annual Report, Summary of Accomplishments); 6. Conduct annual survey of participants.

**Success Metrics** 1. Percent of deliverables completed on time; 2. Participate in at least one regional conference; 3. Annual evaluation survey responses.

## Emerging Technologies Information Sessions

**Staff Contact** Amy Puls  
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**Project Link** <https://www.pnamp.org/project/emerging-technology-information-sessions>

**Background** PNAMP partners are interested in keeping up with the convergence of science and technology in the field of environmental monitoring. To support this need, PNAMP has facilitated workshops, webinars, and conferences where practitioners can learn about new advanced technologies in field data collection, see demonstrations of recent field projects, and discuss opportunities, problems, and solutions.

**Objective** Increase awareness and understanding of technological advances in methods used for aquatic monitoring by federal, state, and tribal entities.

**Deliverables** 1. Co-lead with StreamNet logistics planning and program development for fall 2022 in-person meeting on emerging technologies for aquatic monitoring.

**Success Metrics** 1. Number of people registered for meeting; 2. Evaluation survey responses.

## Fish Monitoring Workgroup

**Staff Contact** Megan Dethloff  
mdethloff@usgs.gov

**Project Link** <https://www.pnamp.org/project/fish-monitoring-work-group>

**Background** PNAMP's Fish Monitoring Work Group supports collaboration, communication and coordination among fish monitoring practitioners in the Pacific Northwest to promote effective monitoring and assessment methods and efficient data sharing. This WG supports the Coordinated Assessments Partnership (CAP) and StreamNet by leading discussions among data providers and decision makers related to sharing and reporting fish monitoring data and engaging data experts early on in the discussions to ensure feasibility of the data sharing requests. Also, this WG will help identify appropriate timely topics for PNAMP workshops and tasks related to fish population and fish habitat monitoring and support Fish & Wildlife Program Project Sponsors to complete required metadata documentation in MonitoringResources.org.

**Objective** Sustain the FM Work Group, Core Team, and Task Teams. Support the CAP and StreamNet by providing a venue for discussion of topics with appropriate subject matter experts (e.g. fisheries biologists, program managers, etc.) to update and improve the CAX DES, including: 1) work with CAP DES Development Team to refine smolt out-migrant metrics/indicators; 2) initiate discussion on additional indicators (such as carrying capacity, juvenile density and distribution) and updates for spawner surveys DES; 3) host FMWG meetings three times per year.

**Deliverables** 1. Organize and facilitate three FMWG meetings and monthly FMWG Core Team Meetings; 2. FMWG meeting recordings posted to PNAMP YouTube channel within one week of meeting; 3. Task Team products shared with SC as they are completed; 4. progress updates for PNAMP SC (3 times/year) and StreamNet SC (biannual) and Exec Committee (annual).

**Success Metrics** 1. maintaining WG Core Teams; 2. Number of meetings held and number of meeting participants; 3. Meeting deadline for CAX DES updates; 4. Annual evaluation survey responses.

## Habitat Data Sharing

**Staff Contact** Jen Bayer  
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**Project Link** <https://www.pnamp.org/project/habitat-metric-data-integration>

**Background** Stream habitat characteristics are measured by many programs across the United States to inform various management questions across jurisdictions. Making these data more accessible will help inform future sampling efforts, supplement existing data, and allow for the reporting of the status and trends of in-stream tributary habitat across jurisdictional boundaries. PNAMP has always supported habitat data sharing projects, and with a variety of partner participants, we have undertaken multiple efforts to assess metric comparability. This project builds on past work and focuses on building a workflow to integrating metric level data from four federal stream habitat monitoring projects implemented in the western United States.

**Objective** Make a subset of stream habitat metrics FAIR (findable, accessible, interoperable, and reusable).

**Deliverables** 1. Data set with habitat metrics from 3 or more programs, robust metadata; 2. Code on GitHub for integrating data sets; 3. Publish report to include methods and data specifications.

**Success Metrics** 1. Published dataset; 2. Percent of methods with MonitoringResources.org documentation; 3. Percent of programs with ScienceBase documentation for data.

## Intensively Monitored Watersheds

**Staff Contact** Amy Puls  
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**Project Link** <https://www.pnamp.org/imw/overview>

**Background** In 2005, PNAMP recommended establishing a regional network of Intensively Monitored Watersheds (IMWs) to evaluate the effectiveness of restoration projects, programs, and policies at the landscape scale. The basic premise is that the complex relationships controlling salmon response to habitat conditions can best be understood by concentrating and integrating rigorous monitoring and research efforts at a few locations. IMWs reduce the complications of monitoring project effectiveness, increase the comprehensiveness of monitoring, and increase efficiencies through shared responsibilities. To date, PNAMP has produced an IMW strategy, followed by a white paper describing the overall suite of action effectiveness approaches and the context for how IMWs fit in, has hosted four workshops to support exchange of information about best practices and lessons learned, and facilitated a processes to synthesize IMW lessons learned and management implications.

**Objective** Increase access and understanding of scientific information needed to inform resource policy and management questions and decisions by federal, state, and tribal entities by supporting a forum for regional IMW coordination.

**Deliverables** 1. Organize and facilitate a workshop to support exchange of information between science and policy; 2. New content added to pnamp.org IMW page and monitoringresources.org (dependent on IMW practitioners providing content).

**Success Metrics** 1. Number of workshop attendees; 2. Amount of new content added to websites; 3. Number of website visits and unique visitors over time; 4. Annual evaluation survey responses.

# MonitoringResources.org

**Staff Contact** Sam Cimino  
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**Project Link** <https://www.monitoringresources.org/>

**Background** Monitoring Resources is a suite of complementary tools designed to guide and assist monitoring practitioners with their monitoring programs, from the early design stage through implementation and generation of descriptive statistics. This site also serves resource managers, funding entities, and policy makers by given them a comprehensive view of monitoring programs and projects that are occurring or have occurred in a given spatial extent. Our goal is to provide a place where monitoring practitioners can easily document information about their projects and programs once and share many times, and where funders and managers can review existing and proposed monitoring projects and better understand gaps and overlaps at a regional scale. These resources are intended to promote better documentation and enable more efficiency in collaboration and data sharing between programs. By providing these tools online, we are facilitating transfer of information and supporting collaboration between projects and programs.

**Objective** Improve MonitoringResources.org tools to increase documentation of monitoring and research activities following FAIR data principles (Findable, Accessable, Interoperable, and Reusable).

**Deliverables** 1. Improve user interface and data documentation process to meet the FAIR data principles based on user feedback and management needs; 2. Provide user support as needed, including training, review of content submitted for completeness and readability; produce videos, help text, and guidance documentation; 3. Up to five outreach presentations at local and national conferences to attract new users.

**Success Metrics** 1. Annual user feedback survey responses; 2. Percent of active BPA project sponsors completing documentation; 3. Number of users; 4. Number of completed protocols and methods.

## Remote Sensing Forum

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**Project Link** <https://www.pnamp.org/project/remote-sensing-forum>

**Background** PNAMP members voiced a need for open discussion and sharing of learned experiences and methodologies as they relate to the rapidly evolving field of remote sensing. The PNAMP Remote Sensing Forum aims to support individuals and entities (e.g., federal, state, tribal, nonprofit, etc.) with equitable opportunities to learn and advance the use of remote sensing technologies and data for the research and management of aquatic ecosystems.

**Objective** Provide equitable opportunities for professional development or advancement of programmatic needs as it relates to remote sensing in the fields of fisheries and water resources in the Pacific Northwest. Collaborate on the creation of regionally specific standardized methods for collecting and analyzing remotely sensed data. Reduce the barrier to entry/adoption of implementing remote sensing practices by providing technical expertise and feedback in an online forum setting.

**Deliverables** 1. Organize and facilitate four Remote Sensing Forum virtual meetings; 2. Meeting recording posted to PNAMP YouTube channel within one week of meeting.

**Success Metrics** 1. Number of meeting attendees; 2. Number of MS Teams online discussion board posts; 3. Annual evaluation survey responses.

## Steering Committee Meeting Series

**Staff Contact** Megan Dethloff  
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**Project Link** NA

**Background** 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.

**Objective** Solicit priorities and guidance from the PNAMP Steering Committee 3-4 times per year to inform work plan tasks, and provide opportunities for Steering Committee representatives to exchange information.

**Deliverables** 1. Organize and facilitate 3-4 Steering Committee meetings; 2. Meeting notes emailed and posted to the website within one month of meeting.

**Success Metrics** 1. Number of meetings; 2. Percent of notes posted to website within one month of meeting; 3. Annual evaluation survey responses.

# Toxics Monitoring Subgroup

**Staff Contact** Jen Bayer  
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**Project Link** NA

**Background** The United States Congress amended the Clean Water Act in 2016 by adding Section 123, which required EPA to establish a Columbia River Basin Restoration Program (CRBRP). It was the first legislation to officially designate the national importance of restoring the Columbia River Basin, one of our nation's largest watersheds. The legislation focuses on the U.S. portion of the Basin, including the states of Oregon, Washington, Idaho, and Montana. Section 123 authorized EPA to establish the Columbia River Basin Restoration Program Working Group that is representative of states, tribal governments, industry, and other entities. Section 123 also directed EPA to develop the Columbia River Basin Restoration Funding Assistance Program, a voluntary, competitive grants program for environmental protection and restoration programs throughout the Basin. The legislation provides a framework for future funding of toxic reduction, monitoring, and outreach actions. EPA is committed to coordinating with tribal, state, federal and other partners, as well as other regional Columbia River Basin restoration work efforts, including the Bonneville Power Administration's Columbia Basin Fish and Wildlife Program, to implement the Columbia River Basin Restoration Act.

**Objective** PNAMP will co-lead the Columbia River Basin Toxics Monitoring Subgroup and provide assistance to EPA Region 10 staff responsible for the implementing the Columbia River Basin Restoration Program. PNAMP staff will work with EPA managers, their contract facilitator, and their technical experts to provide technical support, guidance as requested, and co-leadership of the Toxics Monitoring Subgroup as the Subgroup develops and implements a basin-wide network of toxics monitoring projects, including establishing the groundwork for data management and sharing.

**Deliverables** 1. Organize and facilitate three Toxics Monitoring Subgroup virtual meetings; 2. Organize and facilitate one Toxics Monitoring Subgroup workshop; 3. Matrix documenting "who's doing what, where, and how" for currently funded CRBRP grants that focus on monitoring.

**Success Metrics** 1. Number of meetings; 2. Annual evaluation survey responses.