



Photo: Amy Puls

PNAMP 2025 Annual Report

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pacific northwest aquatic
monitoring partnership

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Photo: Meg Dethloff

Executive Summary – Thanks for your support during an unprecedented year!

As a collaborative community that intentionally comes together to improve monitoring and access to data that results from monitoring ([learn more about PNAMP](#)), strengthening old connections while also building new ones is essential. The year 2025 brought new challenges that were overcome by relying on the strength of these connections.

The collaboration between [PNAMP](#) and [PSMFC StreamNet](#) continued to grow as we leveraged each other's strength to efficiently support partners' needs for monitoring and access to data resulting from monitoring. This unique relationship was the impetus for migrating PNAMP to PSMFC during the summer of 2025, where it found a home under PSMFC Senior Program Manager Nancy Leonard's program portfolio with interim funding to facilitate the transfer until the start of the new 2026 fiscal year in October 2026. During this transition, we continue to bring together experts to share knowledge and provide guidance on how to better support data providers and to improve user interfaces to access data, while opening up fresh opportunities for collaboration with StreamNet and other PSMFC programs.

It is exciting to continue to foster collaboration and coordination across monitoring practitioners, to tackle new topic areas, and engage new partners through our longstanding work groups such as the PNAMP [Fish Monitoring Work Group](#) (FMWG). In case you missed this or any of the other great FMWG meetings' Tech Talks, you can catch up via the [PNAMP YouTube channel](#).

I thank everyone for their contributions that allow PNAMP to continue to grow and address partners' needs. This report represents the work of hundreds of individuals contributing thousands of hours to activities facilitated by PNAMP staff. You can find more details about each project in this report and on each project's webpage at www.PNAMP.org.

Contact information is provided for each topic in this report; please reach out to PNAMP staff individually or email us at pnamp@psmfc.org if you have any questions or would like to join an activity.

Sincerely,
Jen Bayer
PNAMP Coordinator, U.S. Geological Survey

Nancy Leonard
Senior Program Manager for PNAMP, PSMFC



PNAMP Coordination Team Supports Partners' Collaboration

The PNAMP Coordination Team spends much of its time helping partners and participants work together effectively. This includes providing facilitation and technical support to help connect data collectors, data managers and users, project managers, and monitoring professionals. The team also tracks new developments in monitoring and data management so relevant information can be shared with the broader PNAMP community.

As partner needs shift, the Coordination Team adjusts its work to stay aligned with those priorities. To do this, the team works with a wide range of organizations that contribute diverse types of expertise and perspectives. The team continued to adopt updated tools and approaches for coordination and engagement, helping ensure that participation in PNAMP activities is still straightforward and accessible.

PNAMP's online tools support communication and information sharing throughout the fisheries community. [PNAMP.org](https://pnamp.org) serves as the primary source for updates on events, projects, and other activities. [MonitoringResources.org](https://monitoringresources.org) supports consistent documentation practices and helps promote Findable, Accessible, Interoperable, and Reusable (FAIR) data principles across monitoring projects.

The Coordination Team welcomes questions, suggestions, and other feedback related to staff support or PNAMP resources, as input from partners remains essential to guiding our work.

The PNAMP Coordination Team is employed by the Pacific States Marine Fisheries Commission.

- Nancy Leonard – Coordinator, nleonard@psmfc.org
- Jennifer Bayer – Founder/Advisor, jen.bayer@pm.me & ccresources@pm.me
- Sam Cimino – Data Mgmt. Specialist, scimino@psmfc.org
- Megan Dethloff - Data Mgmt. Specialist, mdethloff@psmfc.org
- Mari Williams – Data Mgmt. Specialist, mwilliams@psmfc.org

Coordinated Assessments Partnership (CAP)

CAP demonstrated continued progress throughout 2025. Key highlights include a collaborative workshop focused on enhancing data exchange, particularly for hatchery origin fish and updates to [CAP Data Exchange Standards](#), which govern the sharing of critical fish population data. Specifically, the work included:

- Planning and implementation of the PNAMP and StreamNet Hatchery CAX data access workshop at the 2025 WA/BC Chapter Annual Meeting (March 9-13, 2025)
- Supporting specific issues requiring input from a diversity of experts to advance data display, exchange, and quality in StreamNet/CAP systems
- Providing outreach to potential users of new and existing data in the CAX
- Developing products with partners outside the Columbia River Basin, including Canada and European nations

The ongoing maintenance of StreamNet ensured that stakeholders and managers had access to timely and reliable information. In support of these goals, the PNAMP coordination team and StreamNet staff collaborated to expand the ease of data flow and validation to support access to the Hatchery origin data being added to the CAX.

In 2025, CAP continued to support informed decision-making processes for the management of valuable and culturally significant fisheries resources in the Pacific Northwest.

Learn More: [PNAMP Project Page](#); Appendix A: [2025 Accomplishments](#). Contacts: Mari Williams (mwilliams@psmfc.org) and Nancy Leonard (nleonard@psmfc.org)



Data Management and Mobilization

Before Data Management and Mobilization was a well-accepted practice and concept, it was a core value of the Pacific Northwest Aquatic Monitoring Partnership. PNAMP was early to recognize that accessible, high-quality data are essential to a successful monitoring program and key to a programs' progress in supporting decision making. Confident use of these data requires the application of best management and data sharing practices – whether the data were gathered by direct observation, generated through remote sensing, or derived (as with a calculated metric or indicator). The Data Management and Mobilization project is very influential and has touched many of PNAMP's other projects including ETIS, CAP/HCA, MonitoringResources.org, and the FMWG.

In 2025, PNAMP continued to bring data management and mobilization to a larger audience. PNAMP facilitated a Salmon Data Mobilization (SDM) workshop at the 2025 WA/BC American Fisheries Chapter Meeting in Vancouver, British Columbia. This workshop collaborated to develop a scalable, community-driven method to support the publishing of controlled vocabularies and ontology modules that align with a broader pre-existing salmon domain ontology. The workshop was made possible with the overarching contribution of the [Salmon Research and Monitoring Interest Group](#) (SRM IG) within the Research Data Alliance. The SRB IG aims to promote interoperable data and collection procedures across research, management, and monitoring sectors to strengthen the understanding of factors impacting salmon declines. SRM IG is co-chaired by Graeme Diack (Atlantic Salmon Trust), Tom Bird (Canada DFO), and Lara Erikson (PSMFC) with active participation from global experts.

Learn more: [PNAMP Project Page](#); Appendix A: [2025 Accomplishments](#). Contact: Mari Williams (mwilliams@psmfc.org)



Fish Monitoring Work Group

Throughout 2025, the Fish Monitoring Work Group (FMWG) convened three times—in [January](#), [April](#), and [October](#). Each meeting combined task team progress reports with technical presentations from regional specialists. These "tech talks" covered diverse subjects: using space-for-time models by U.S. Geological Survey, using advanced sonar methods, and an overview of the Salmon Research and Monitoring Interest Group. The FMWG with support from PNAMP staff, Task Team Leads maintained momentum on their ongoing work:

- [Carrying Capacity Standards](#) is developing a manuscript reviewing carrying capacity estimation methods, including habitat expansion, stock-recruit models, quantile regression, individual based models, and food web modeling. The paper will be published in 2026.
- [Rotary Screw Trap \(RST\) Data Collection](#) is in a new phase currently led by Sam Cimino (PSMFC) and renamed Juvenile Fish Trap. The task is developing a Rotary Screw Trap Tool which will be a resource for Columbia River Basin rotary screw trap specific information from multiple regional systems and sources.
- [PIT Tag Data and Analyses](#) held a 5-week [webinar series](#) in April and May designed to help biologists and data managers learn how to use, share, and apply tools and analytical methods, as well as navigate common challenges in working with PIT-tag array data. There were 10 presentations with cumulative attendance totaling over 500 participants.
- [Update Terms and Definitions Used in CAP Data Standards Task](#) concluded in 2025. The update finished reviewing terms and definitions in [StreamNet Data Standards](#) that support CAP data (in Natural and Hatchery origin DESS) to effectively convey the terms' intent. A summary document will be produced in 2026.

Task teams will maintain their progress into 2026 to achieve the proposed products, while future tasks will commence as priorities are determined.

Learn more: [PNAMP Project Page](#); Appendix A: [2025 Accomplishments](#)
Contact: Meg Dethloff (mdethloff@psmfc.org)



Intensively Monitored Watersheds (Effectiveness Monitoring)

After over 20 years of coordinated monitoring in the Pacific Northwest, the region faces a critical juncture in salmon and steelhead recovery. Intensively monitored watershed (IMW) programs have provided valuable insights into fish-habitat relationships, but inconsistent monitoring across spatial and temporal scales has obscured linkages between restoration actions, habitat improvements, and fish population responses, leaving uncertainty about success and failure. As long-term IMW studies wrap up post-treatment monitoring and their funding concludes, the need has emerged to identify alternative monitoring strategies for the future.

In 2025, PNAMP staff and Steering Committee members began exploring the next generation of Effectiveness Monitoring. Discussions have centered on adapting monitoring approaches to changing conditions, leveraging emerging technologies like remote sensing, UAVs, and AI, and focusing on resilience and relevance. Ongoing efforts include synthesizing lessons from IMWs, preparing publications, ensuring transferability of findings, and maintaining information flow for restoration decision-making while economizing resources.

In late 2025, PNAMP began organizing a symposium for the Western Division American Fisheries Society conference occurring in May 2026. The symposium will include presentations and a panel discussion aiming to integrate diverse viewpoints from across the Pacific Northwest to 1) synthesize and transfer lessons from IMWs and regional programs, including human dimensions critical to project success, 2) explore how new monitoring approaches and technologies can improve understanding of which restoration actions work, where, and why, while enhancing cost-effectiveness and 3) identify actionable recommendations leveraging regional and cross-agency collaboration to guide restoration investments.

Learn more: [PNAMP Project Page](#); Appendix A: [2025 Accomplishments](#)

Contact: Nancy Leonard (nleonard@psmfc.org)



MonitoringResources.org Outreach

The goal of the Monitoring Resources team is to provide guidance and timely assistance to those documenting their metadata in [MonitoringResources.org](https://www.monitoringresources.org). As more agencies and organizations realize the benefit of metadata documentation, the Monitoring Resources team must adapt to this growing community and balance novel documentation needs while maintaining FAIR (Findable, Accessible, Interoperable, and Reusable) data principles and fulfilling any contracting requirements. The Monitoring Resources outreach team addressed the needs of project sponsors through:

- Providing a ninety-minute MonitoringResources.org Orientation for Pacific States Marine Fisheries Commission employees to assist with the completion of their own projects and give them the tools to help other project sponsors
- Reaching out to project sponsors from the Pacific Northwest and beyond to provide one-to-one project review guidance
- Identifying and highlighting "gold standard" methods to encourage interoperability between organizations and to save the project sponsor the time and energy of not having to start from scratch
- Updating training modules and guidance documents
- Participating in discussions with other PNAMP projects like the Coordinated Assessments Partnership, the Fish Monitoring Work Group, and the Salmon Data Management and Mobilization group
- Collaborating with PSMFC StreamNet to support PNAMP's ongoing work for refining MonitoringResources.org to facilitate connecting methods, protocols, study plans to data sets in StreamNet systems and other systems

The continued success of MonitoringResources.org relies on the support of our partners who share our vision for better documentation and information sharing.

Learn more: [PNAMP Project Page](#); Appendix A: [2025 Accomplishments](#)

Contact: Sam Cimino (scimino@psmfc.org)





MonitoringResources.org Development

The primary goal of the MonitoringResources.org development team is to simplify, streamline, and improve the documentation process and the discovery capabilities of metadata. The addition of new features and updates to the suite of tools in MonitoringResources.org come from a response to user feedback as well as subject matter experts, policy advisors, review panels, and data consumers.

In 2025, the development team investigated ways to make metadata easier to find and more accessible to reuse. There are over 8,500 data collection events documented in Monitoring Resources, and it has become essential that PNAMP ensures the metadata associated with these events are findable. Metadata discovery became a major focus for development on MonitoringResources.org. The Explorer Map (formerly known as Monitoring Explorer) got a major upgrade with the addition of the "Focal Species" filter and the "Metrics and Indicators" filter. A text based global search was also added to the Explorer Map to make metadata more discoverable and encourage inter-agency collaboration.

In addition to making metadata more findable, the shift from the US Geological Survey to Pacific States Marine Fisheries Commission (PSMFC) provided an opportunity for us to explore new connections to the community and find new approaches to data and metadata interoperability. With PNAMP residing within PSMFC, Monitoring Resources has an even greater relationship with the StreamNet data repository and has made strides over the last year to create more seamless ties between the data in StreamNet and the metadata in Monitoring Resources.

Other key developments to MonitoringResources.org in 2025:

- Enabled the ability to add methods directly from the method library to a user's protocol
- Updated the rich text editor in method and protocol documentation fields
- Created a wizard allowing users to extend the end date on their sample designs up to 10 years
- Added bounding boxes to the Explorer Map

PNAMP believes the success of this toolset relies on the input and participation of users. In 2026, we will continue to gather feedback from users to help prioritize future development.

Learn more: [PNAMP Project Page](#); Appendix A: [2025 Accomplishments](#)
Contact: Sam Cimino (scimino@psmfc.org)

Columbia River Basin Restoration Program Toxics Monitoring Subgroup

Established in 2023 by the Environmental Protection Agency (EPA) and the U.S. Geological Survey (USGS), the Columbia River Basin Restoration Program Toxics Monitoring Subgroup (TMS) provides a forum to exchange toxics monitoring information, discuss challenges, coordinate monitoring activities, and support collaborative projects to benefit the community. The TMS was supported by PNAMP staff Jen Bayer and Amy Puls who provide facilitation support similar to our other communities of practice.

During 2025 the TMS was moved from PNAMP to EPA.

The Columbia River Basin Restoration Working Group includes over 500 participants from states, Tribes, industries, and non-governmental organizations. The group meets semi-annually to share information on toxics reduction projects and coordinate on monitoring across the Columbia River Basin.

Toxics Monitoring Dashboard and Project Tracking Matrix

- [Columbia River Basin Toxics Monitoring Dashboard](#)
- [Toxics Monitoring Project Tracking Matrix](#).

Slide presentations and other materials from past meetings are available on EPA's file sharing site:

- [Meeting summaries and presentations](#)
- [Video: WQX presentation from April 28, 2022 \(YouTube\)](#)

Learn more: [PNAMP Past Project Page](#); [EPA Columbia River Basin Restoration Working Group](#);

EPA Contact: ColumbiaRiverBasinGrant@epa.gov



COLUMBIA RIVER BASIN
RESTORATION PROGRAM



Emerging Technologies Information Sessions

The Emerging Technologies Information Sessions (ETIS) project brings together monitoring professionals, project managers, data collectors, data managers, and data consumers to showcase how they implement the latest technologies and innovative techniques. ETIS also provides a platform to demonstrate developments in best practices and illustrate advancements in data discovery. Over the last sixteen years, PNAMP and StreamNet have collaborated to host bi-annual ETIS in-person meetings and webinar series.

In 2025, PNAMP co-hosted the Emerging Technologies Information Sessions Webinar Series with our partners at StreamNet. The series spanned five weeks and had 16 different presentations with presenters from across North America and even a presentation all the way from Scotland. There were five major topics presented at the 2025 ETIS Webinar Series: Remote Sensing, Genetics, Data QA/QC, Data Modelling, and Artificial Intelligence and Machine Learning. The presentations became available on the [PNAMP YouTube channel](#) following the webinar series. The online series was attended by more than 150 individuals, and the recorded presentations have been viewed more than 750 times on YouTube. This virtual ETIS event provided a wonderful opportunity for individuals from all over the world to attend and present at their convenience.

Near the end of 2025, PNAMP and StreamNet began planning for the next ETIS event. The next event will be held on October 26-28, 2026 at Skamania Lodge in Stevenson, Washington. This upcoming event will provide an opportunity for colleagues to meet in-person and build connections or strengthen existing ones. More information and updates about the 2026 event will be documented regularly on the [ETIS project page on PNAMP.org](#).

Learn more: [PNAMP Project Page](#); Appendix A: [2025 Accomplishments](#)

Contact: Sam Cimino (scimino@psmfc.org)

Photo: Amy Puls





Outreach & Communication

Coordination staff have used the PNAMP website, [PNAMP.org](https://www.pnamp.org), to communicate with the wider monitoring community for the last 20 plus years. However, PNAMP.org has not been stagnant over that time; the website continues to expand and evolve alongside the ever-changing monitoring community.

PNAMP activities are conducted by teams and working groups as endorsed by a partner-based steering committee. These activities are detailed on PNAMP.org as past and present projects. Additionally, PNAMP.org houses thousands of [documents](#) related to PNAMP projects and events to promote participation by providing background information, meeting materials, and notes. The PNAMP team coordinates and hosts many events, but we also provide a platform for our partners and other regional organizations to promote their own activities and accomplishments. A list of [Upcoming Events](#) and a list of recent [Announcements](#) from PNAMP and its partners are prominently displayed on PNAMP.org and updated regularly.

In addition to PNAMP.org, the PNAMP team provides outreach through a [monthly newsletter](#) that reaches over 3000 subscribers. Much like PNAMP.org, the newsletter delivers details on upcoming events and regional announcements, but it also highlights job opportunities and recently published papers from our partners and puts a spotlight on our eclectic monitoring activities. We regularly hear from readers about how the newsletter helps them stay informed on news and activities from around the Pacific Northwest.

The PNAMP team also took part in more active outreach and communication in 2025. The coordination staff gave presentations to interested groups and organizations including specific audiences at the StreamNet Executive and Steering Committee meetings; and, to more general audiences at a regional American Fisheries Society (AFS) conference in Vancouver, BC, Canada. In addition, we sit on panels and decision-making committees concerned with aquatic monitoring throughout the region and continue to build and grow our community.

We understand that not everyone can attend our various meetings and workshops in-person; thus, PNAMP staff have been diligent in posting content on [PNAMP's YouTube channel](#). Our 2025 recordings have been viewed over 1400 times on YouTube. These videos have helped us reach new community members and reengage old ones.

Learn more: [PNAMP Leadership](#); Appendix A: [2025 Accomplishments](#)

Contact: Sam Cimino (scimino@psmfc.org) and Meg Dethloff (mdethloff@psmfc.org)

Steering Committee

The PNAMP Steering Committee (SC) consists of representatives from both signatory and courtesy partners. The SC serves as a critical science-policy interface between the executives of signatory partners and project work teams. Its responsibilities include conveying the work and needs of their respective organizations to PNAMP, as well as relaying PNAMP's progress and challenges back to their organizations.

PNAMP would like to express its gratitude for all the contributions from our partners throughout 2025. We welcomed new collaborators to our team and commemorated the successful conclusion of several chapters. Happy retirement to PNAMP Coordinator Jen Bayer (U.S. Geological Survey), Timmie Mandish (Natural Resources and Conservation Service), and Chris Hirsch & Marcia Snyder (US Forest Service). We thank you for your many years of service. Jen will remain with PNAMP as a consultant for half of 2026 until she sails into the sunset. We welcomed Heather Hendrixson (Northwest Power and Conservation Council); and returning member Mark Ragon (US Forest Service) and look forward to their input and participation in the committee. Erin Benham joined PNAMP for part of the year, during which she provided valuable support to the PNAMP strategic refresh exercise and contributed to planning efforts for the Effectiveness Monitoring Symposium, scheduled to occur at the 2026 Western Division AFS meeting in Portland, Oregon. Mari Williams teamed up with PNAMP in 2025 to support Monitoring Resources and tasks in FMWG.

In 2025, the SC met virtually in May to discuss PNAMP project progress and future work planning. In **October**, PNAMP and StreamNet (SN) held a two-day hybrid joint session in Portland, OR. For the third year in a row, the PNAMP SC teamed up with Pacific States Marine Fisheries Commission's SN Executive Committee to coordinate efforts for our overlapping projects. Working in this collaborative style, both committees can maximize work for more efficient results.

Learn more: [PNAMP Steering Committee](#)

Contact: Meg Dethloff (mdethloff@psmfc.org)



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Acknowledgements

Thank you to our 2025 funding partners: Bonneville Power Administration, U.S. Environmental Protection Agency, U.S. Geological Survey, and Pacific States Marine Fisheries Commission. Your generous support helps advance monitoring and improve data sharing in the region.

We also thank all the task leaders, work group participants, meeting presenters, newsletter contributors, and steering committee representatives; we couldn't do it without you!

PNAMP Steering Committee Representatives

Bonneville Power Administration: Jody Lando, Russell Scranton*, Jonathan McCloud*

California Department of Fish and Wildlife: Vacant

Columbia River Inter-Tribal Fisheries Commission: Denise Kelsey, Sheryn Olson*

Columbia River Inter-Tribal Fisheries Commission – Columbia Basin Fish & Wildlife Library: Tami Wilkerson+

Confederated Tribes of the Colville Reservation: John Arterburn

Idaho Department of Fish and Game: Tim Copeland, John Cassinelli*

Idaho Governor's Office of Species Conservation: Mike Edmondson+

Natural Resources Conservation Service: Timmie Mandish+

NOAA- NW Fisheries Science Center: Chris Jordan, Katie Barnas*

NOAA-West Coast Region: Greg Sieglitz

Northwest Indian Fisheries Commission: Bruce Jones

Northwest Power and Conservation Council: Patty O'Toole*, Heather Hendrixson

Oregon Department of Environmental Quality: Vacant

Oregon Department of Fish and Wildlife: Jamie Anthony+, Ian Tattam+

Oregon Watershed Enhancement Board: Courtney Shaff, Ken Fetcho*

Pacific States Marine Fisheries Commission: Nancy Leonard, Mari Williams+, Lara Erikson*

U.S. Army Corps of Engineers: Vacant

U.S. Bureau of Land Management: Mike Brown

U.S. Bureau of Reclamation: Vacant

U.S. Environmental Protection Agency: Lisa Kusnierz

USDA Forest Service: Christine Hirsch, Marcia Snyder*, Mark Raggon+

U.S. Geological Survey: Steve Waste, Rachel Reagan*

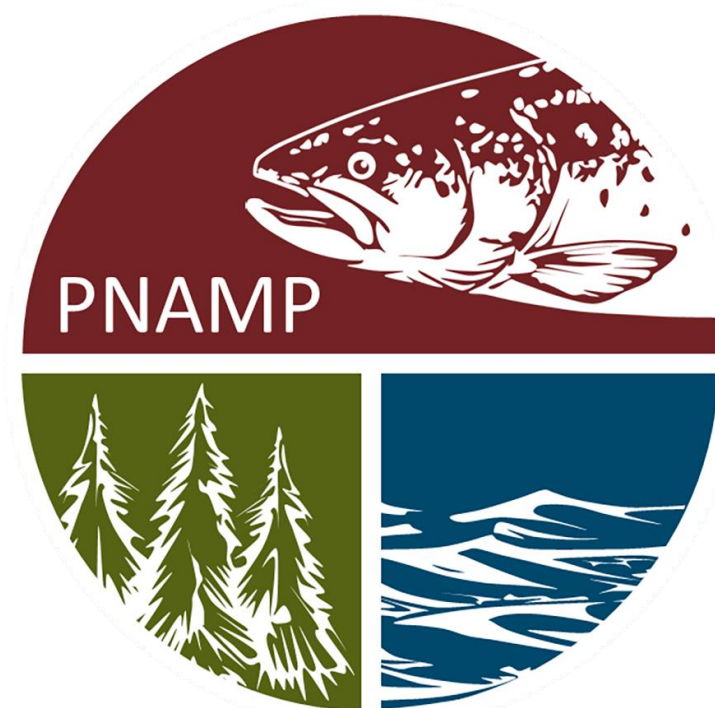
Washington Department of Fish and Wildlife: Phil Sandstrom, Brodie Cox*

Washington State Department of Ecology: Ed Krynak

Washington Governor's Salmon Recovery Office: Greer Maier

Yakama Nation Fisheries Program: Tom Iverson+

* Alternate Representatives , + Courtesy Representatives



Appendix A: PNAMP 2025 Highlights



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Coordinated Assessments Partnership & HCAX Project

- Facilitated two workshops the 2025 WA/BC American Fisheries Chapter Meeting in Vancouver British Columbia :(March 9th 2025). More than 55 people joined our salmon data mobilization workshop and over 30 joined the workshop/training on the HCAX data via Coordinated Assessments system at StreamNet
- Facilitated the CAP Core Team standing meetings, resulting in progress on coordination for data sharing across partners, with emphasis on BPA funded projects
- Participated in and provided support for StreamNet Steering Committee meeting; including tasks support for dashboards and focal species work to enhance data delivery at StreamNet

Coordination and Communication

- Completed and distributed [PNAMP monthly newsletters](#) for January – December 2025, no July issue
- Published the 2024 PNAMP Annual Report
- Provided review and feedback to the Salmon Climate Initiative and the Basin Effects and Coastal Impacts initiative.
- Presented projects at various StreamNet Steering and Executive Committees
- Maintained PNAMP.org website and continued to improve content
 - Regularly updated Upcoming Events
 - Posted PNAMP Newsletters
 - Highlighted regional Announcements
 - Created, edited, retired Project Pages
- Uploaded recorded meetings to the [PNAMP YouTube](#) channel

CRBRP Toxics Monitoring Subgroup (TMS)

- [February 11: 2025 Toxics Monitoring Subgroup Meeting](#)
 - Discussed data management and its importance
 - Presentations from: Edyth Hermosillo (Aquatic Biologist, EPA Region 10 – Seattle) and Chris Neumiller (WA Ecology, EIM Data Manager)
- [June 10, 2025: Columbia River Basin Restoration Working Group Meeting](#)
 - 113 participants from state, tribal, federal, and other organizations
 - This meeting included: Presentations from EPA Funded Grantees, Partner updates, Updates from EPA, and an overview of the draft Columbia River Basin Monitoring Strategy

Data Management and Mobilization

- Held fortnightly meetings with the Salmon Data Mobilization Group
- Hosted the “Fishing for Clarity: Knowledge Modeling to Support Cross-Organizational Collaboration and Data Sharing About Salmon Escapement” Workshop at the WA-BC AFS Annual Meeting
- Formed the [Salmon Research and Monitoring Interest Group](#) within the Research Data Alliance (RDA)
 - There are 49 members of the Salmon Research and Monitoring Interest Group (IG) spanning 3 continents
 - Within the IG there are three working groups (WG) have formed: The Salmon Ontology Development WG, The Biochronology of Otolith and Scale Samples (BOSS) WG, and The Salmon Data Best Practices WG
- Planned for the 2026 symposium “Connecting Observations to Outcomes: Perspectives on Data Flow in Fisheries Science” at the joint Oregon/Western Division American Fisheries Society (AFS) Annual Meeting

Fish Monitoring Work Group

- On January 16, 2025, the full work group met for updates on tasks and a Tech Talk from Russell Perry, a Research Fish Biologist in the Quantitative Ecology Section at the US Geological Survey with the Western Fisheries Research Center. Russell highlighted how to use Time-Integrated Migration and Survival (TIMS) models to overcome the limitation of space-for-time mark-recapture models in his talk titled "Putting Time Back into Space-for-Time Mark-Recapture Models." (recording available upon request from Meg Dethloff)
- Presented at the StreamNet Steering Committee meeting on February 19-20, 2025 and contributed updates on FMWG collaborative tasks PNAMP and StreamNet manage together ([meeting summary](#))
- The FMWG Core Team met monthly to plan and coordinate future work, discuss task progress, and develop agendas for full work group meetings
- On April 18, 2025, the full work group convened for updates on tasks and a Tech Talk from Tyler Hessler a PhD student in the Missouri Cooperative Fish and Wildlife Research Unit in Columbia, MO. He discussed the use of several advanced technologies (acoustic doppler current profilers, ADCPs; unmanned aerial systems, UASs; side scan sonar; 360 cameras) to better standardize and streamline the collection of fish-relevant habitat data in non-wadeable rivers, "Development of a Mid-Sized River Habitat Sampling Protocol" ([meeting recording](#))
- In Spring, the PIT Tag Data and Analysis 2025 Webinar Series presented every Thursday for 5 weeks. Each week there were presentations from regional experts on how to use a variety of PIT tag data and analysis tools, repositories, and data systems. There were 10 total presentations ([program and abstracts](#)) and over 500 participants from a variety of organizations over the five week period. Visit [the webinar series page](#) for presentation details and links to the sessions. ([workshop recordings](#))
- The *Update Terms and Definitions Used in CAP Data Standards* task was completed in 2025.
- The annual FMWG survey was distributed. The feedback was positive with helpful suggestions on improving engagement and presentations that would be of interest to the community
- Presented Fish Monitoring Work Group updates at the October 2-3, 2025 meeting of the StreamNet Steering Committee in La Grande, OR. ([meeting summary](#))
- On October 16, 2025, the full work group met for updates on tasks and a Tech Talk from Lara Erikson, Program Manager for Pacific States Marine Fisheries Commission, and Tom Bird a Research Scientist, Fisheries and Oceans Canada. "Salmon Research and Monitoring Interest Group (SDM) – Introduction to RDA and Working Group Development” highlighted the SDM Interest Group within the Research Data Alliance (RDA) which looks at the challenges of salmon data mobilization. ([meeting recording](#))

Emerging Technologies Information Sessions

- Conducted a successful 5-week webinar series that saw more than 150 attendees and has been viewed more than 750 times on YouTube
 - January 8, 2025 - [Modeling and Analysis Session](#)
 - January 15, 2025 - [Artificial Intelligence and Machine Learning Session](#)
 - January 22, 2025 - [Data QA/QC Session](#)
 - January 29, 2025 - [Genetics Session](#)
 - February 5, 2025 - [Remote Sensing Session](#)
- Put together a collaborative ETIS Planning Committee with members from 6 different organizations (BPA, CRITFC, IDFG, ODFW, OWEB, and PSMFC) to help coordinate, organize, and moderate the 2026 Emerging Technologies Information Sessions event
- Created an ETIS project page on PNAMP.org
- Sent out a survey to past ETIS participants and received feedback from 49 individuals on topics and interest in the 2026 event

Intensively Monitored Watersheds (Effectiveness Monitoring)

- Planned for the 2026 symposium “Transforming Effectiveness Monitoring in the Pacific Northwest” at the joint Oregon/Western Division American Fisheries Society (AFS) Annual Meeting

Steering Committee Meeting Series

- Set a date for the collaborative StreamNet Executive Committee and PNAMP Steering Committee meetings to be held October 22-23, 2025
- Organized and facilitated the May 7, 2025 PNAMP Steering Committee Meeting. The 2.5-hour virtual meeting agenda included: PNAMP project updates, the Work Plan for FY25, and the transition to Pacific States Marine Fisheries Commission
- Highly successful collaborative hybrid StreamNet Executive Committee and PNAMP Steering Committee Joint Sessions were held October 22-23, 2025, in Portland, OR ([event page](#)) ([meeting summary](#))

MonitoringResources.org

- Reviewed, provided feedback, and finalized 50 methods from January 1st – December 31st, 2025
- Reviewed, provided feedback, and finalized 26 protocols from January 1st – December 31st, 2025
- Uploaded 72 Data Collection Events to the [Explorer Map](#) from January 1st – December 31st, 2025
- Provided a 90-minute MonitoringResources.org Orientation for StreamNet staff members
- Met with BPA staff to discuss MonitoringResources.org development progress in FY25 and the start of FY26 and prioritize future development
- Coordinated fortnightly meetings with ESA Sitka and BPA to discuss current and future development
- Coordinated meetings with BPA to ensure development was on schedule and appropriate fixes were being addressed
- Provided one-to-one guidance and assistance to MonitoringResources.org users at USGS, ODFW, WDFW, PSMFC, Nez Perce Tribe, Spokane Tribe, Walla Walla Basin Watershed Council, and IDFG
- Created the training module [How to Validate Data Collection Events](#)

[MonitoringResources.org](#) List of Development Released

- Finalized development work on making metadata in the [Explorer Map](#) more discoverable and interoperable
 - Added a focal species filter to the Explorer Map
 - Added a text based global filter to the Explorer Map
 - Added a metric and indicator filter to the Explorer Map
 - Upgraded the colors in the Data Collection Events grid and the Explorer Map
 - Added the ability to highlight the Data Collection Event row in the Data Collection Event Grid when a pin is selected on the Explorer Map and vice versa
- Finalized the development work cleaning up the user interface (UI) and providing more seamless navigation
 - Added the ability to add a Method to a Protocol from the Method index grid
 - Added the ability to search for a Protocol when adding a Method to a protocol directly from the Method Index
 - Updated the rich text editor
 - Made the citation field required in Methods and Protocols
 - Updated the Protocol menu to encourage users to document Metrics prior to documenting Methods in the Protocol workflow
- Finalized development work on creating a platform that promotes the discoverability of data and metadata
 - Added [focal species](#) to Sample Design editor and Study Plan summary
 - Added a [focal species summary page](#) linked to Sample Designs
 - Created a focal species Admin Page to update requested focal species
 - Provided a focal species support Request pop-up
- Finalized the simplification of documenting long term monitoring events
 - Created a wizard allowing users to extend the end date on their Sample Designs without versioning

Appendix B: Acronym Key

AFS	American Fisheries Society
AFS FITS	American Fisheries Society – Fisheries Information & Technology Section
AI	Artificial Intelligence
AIM	Assessment, Inventory, and Monitoring Strategy
AREMP	Aquatic and Riparian Effectiveness Monitoring Program
BLM	United States Bureau of Land Management
BPA	Bonneville Power Administration
CA DWR	California Department of Water Resources
CAP	Coordinated Assessments Partnership
CASC	Climate Change Adaptation Science Centers
CBF&W	Columbia Basin Fish and Wildlife Library
CDFW	California Department of Fish and Wildlife
CDI	USGS Community for Data Integration
CCT	Confederated Tribes of the Colville Reservation
CRITFC	Columbia River Inter-Tribal Fish Commission
CRBRP	Columbia River Basin Restoration Program
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CTWSRO	Confederated Tribes of the Warm Springs Reservation of Oregon
DES	Data Exchange Standard
DFO	Fisheries and Oceans Canada
DOI	United States Department of the Interior
EMA	Environmental Monitoring and Assessment Journal
EPA	United States Environmental Protection Agency
ESA	Environmental Science Associates (ESA Sitka)
ETIS	Emerging Technologies Information Sessions
FAIR	Findable, Accessible, Interoperable, and Reusable
FDAT	Fish Density Analysis Tool
FINS	Fisheries Inventory Systems
FMWG	Fish Monitoring Work Group
FRESC	Forest and Rangeland Ecosystem Science Center
GIS	Geographic Information System
HCAX	Hatchery Coordinated Assessments Exchange
HLI	High Level Indicator
Idaho OSC	Idaho Governor’s Office of Species Conservation
IDFG	Idaho Department of Fish and Game
IMW	Intensively Monitored Watershed
IPTDS	Instream PIT Tag Detection System



pacific northwest aquatic
monitoring partnership

Acronym Key Continued

ISRP	Independent Scientific Review Panel
IYS	International Year of the Salmon
MAFAC	Marine Fisheries Advisory Committee
NARS	National Aquatic Resources Surveys
NGO	Non-governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NOSA	Natural Origin Spawner Abundance
NPCC	Northwest Power and Conservation Council
NPCC SPI	Northwest Power and Conservation Council's Strategy Performance Indicators
NRCS	Natural Resources Conservation Service
NRSA	National Rivers & Streams Assessment
NWIFC	Northwest Indian Fisheries Commission
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
OWEB	Oregon Watershed Enhancement Board
PIBO MP	PACFISH/INFISH Biological Opinion Monitoring Program
PNAMP	Pacific Northwest Aquatic Monitoring Partnership
PSMFC	Pacific States Marine Fisheries Commission
PTAGIS	PIT Tag Information System
QA/QC	Quality Assurance / Quality Control
QAPPs	Quality Assurance Project Plans
RSF	Remote Sensing Forum
RDA	Research Data Alliance
SC	Steering Committee
SHMI	Stream Habitat Metric Integration
SRM IG	Salmon Research and Monitoring Interest Group
TEK	Traditional Ecological Knowledge
TMS	Toxics Monitoring Subgroup
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
WA ECY	Washington Department of Ecology
WA GSRO	Washington Governor's Salmon Recovery Office
WA SRFB	Washington Governor's Salmon Recovery Funding Board
WDFW	Washington Department of Fish and Wildlife
YN	Confederated Tribes and Bands of the Yakama Nation