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October 4, 2023

### **MEMORANDUM**

**TO: Fish and Wildlife Committee Members**

**FROM: Kris Homel**

**SUBJECT: Pacific Northwest Aquatic Monitoring Partnership: Supporting the Fish & Wildlife Program Since 2004**

#### **BACKGROUND:**

**Presenter:** Jen Bayer, Coordinator for the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) through the U.S. Geological Survey, and Co-Lead on the Coordinated Assessments Project

**Summary:** The Fish and Wildlife Committee will hear a presentation on the resources available to the region through the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), a project of the U.S. Geological Survey. The presentation will include information on how PNAMP resources relate to the Council's Fish and Wildlife Program and how they are accessed and shared, along with a discussion of emerging tools or innovations.

**Relevance:** Regional data and information-management projects are critical to supporting the Program's data management, analysis, access, and communication functions. As part of the Mainstem and Program Support Project Review in 2019, the Council formulated a programmatic issue to address the importance of these projects. The programmatic issue emphasized the need to identify which resources house information derived from Program funded projects and how those resources can be accessed by the public. Over the course of this year, the staff will invite all seven of the data management projects included in the Mainstem and Program Support Review to share similar presentations. The Committee has heard from five projects so far- the Columbia Basin Fish and Wildlife Library, the Inter-tribal Monitoring Data project, Data Access in Real Time,

StreamNet, and the Intermountain Province Subbasin Data Management Project. In October, the committee will hear from the sixth project- PNAMP, which is administered by U.S. Geological Survey under Project #2004-002-00.

**Background:** A large amount of data is collected throughout the basin by many different projects and having access to that information is critical. This is the role filled by data management projects- they support the Program's data management, analysis, access, and communication functions. Each project is a little different and each fits different needs for their organizations.

The seven data management projects were reviewed in the 2019 Mainstem and Program Support Project Review. In this review, the ISRP highlighted, and the Council agreed with, the importance of supporting regional and sub-regional data management, storage, and dissemination of information necessary for Program implementation and assessment (please see [Programmatic Issue #2](#), pages 8 and 9). In particular, intentional planning for, and dedication of funding is necessary for (1) sharing information that informs decisions and (2) keeping pace with new technologies and knowledge through workshops and other learning experiences. This requires balancing investments in data collection with investments for data processing (data management, analysis, data steward expertise/support) and communication of information.

In an effort to address the Council recommendation and to advance the Council's efforts in the assessment of program performance, there is a need to better understand the information and data sharing resources in the basin, which provide the Council and region with critical Program data and information. In the decision document from the 2019 review, the Council recommended that a subcommittee of the Regional Coordination Forum be convened. The tasks of this subcommittee would be to (1) communicate the role of the regional and sub-regional databases/ repositories in providing public access to information derived from Program funded projects, (2) identify the primary regional databases/ repositories that house information supporting the Program, and (3) address efficient flow of information between regional and subregional databases/repositories, and projects collecting and analyzing data.

Toward this end, the Council has organized a series of presentations on data and information management projects for this and upcoming Fish and Wildlife Committee meetings. The Council developed a set of questions to better understand the specific work each data management project is doing, how they relate to each other, and how they relate to the Council's Program. Some of these questions are asked of every project during their presentation, and others are specific to individual projects. The presentation on PNAMP will include answers to questions 1 - 4 and 7.

The required questions are:

1. Describe the data and resources that you provide to the region.
2. How do these data and resources relate to the Council's Fish and Wildlife Program?
3. How are these resources accessed and/ or shared among organizations?

The additional questions are:

4. What kind of collaborations or relationships exist between your data/repositories/organization, and other data management projects/organizations in the basin (not just within the Program)?
5. As the basin and program continue changing and other information needs arise or change, what opportunities do you have to adapt to these different needs?
6. What do we need to be aware of in the future to continue providing data management for the full suite of work implemented under the program?
7. Are there emerging tools or technologies we should be aware of? New data management needs? Innovations to share?

Through these presentations, we hope to highlight the resources that are available from these projects as they relate to the Program both to better understand the accomplishments of the Program, and to inform the region. Following the series of presentations, the Council will develop a summary of the answers each project provided to their specific questions.

More Info: <https://www.pnamp.org/>

# Pacific Northwest Aquatic Monitoring Partnership

**Supporting the Fish & Wildlife Program Since 2004**

**Jen Bayer, PNAMP Coordinator, USGS**  
**October 11, 2023**



pacific northwest aquatic  
monitoring partnership

[www.PNAMP.org](http://www.PNAMP.org)

# PNAMP: When, Why, Who?

- Established in 2004 to enhance collaboration among PNW federal, state, and Tribal monitoring programs
- Partnership of 19 charter member entities
- Voluntary participation since 2004 from over 2000 individuals representing more than 350 organizations – all are welcome to participate





# Steering Committee Members Set the Stage for PNAMP



John Arterburn (Colville Tribes)

Patty O'Toole (NPCC)

Mike Brown (BLM)

Scott Collyard (WA Ecology)

Tim Copeland (IDFG)

Jeff McLaughlin (USBR)

Chris Hirsch (USDA FS)

Bruce Jones (NWIFC)

Denise Kelsey (CRITFC)

Lisa Kusnierz (EPA)

Jody Lando (alt. Russell Scranton, BPA)

Nancy Leonard (PSMFC)

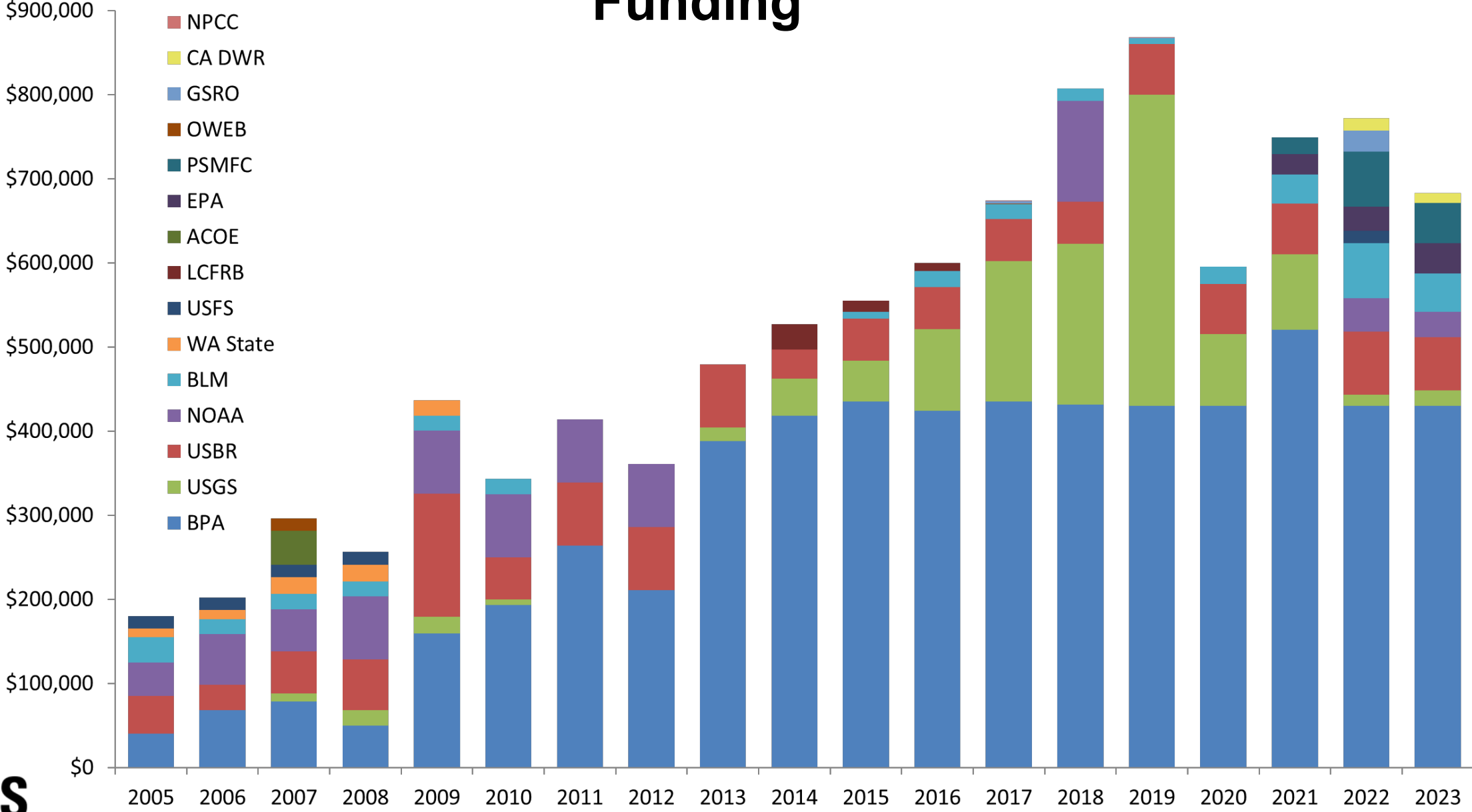
Courtney Shaff (alt. Ken Fetcho, OWEB)

Dan Rawding (alt. Brodie Cox, WDFW)

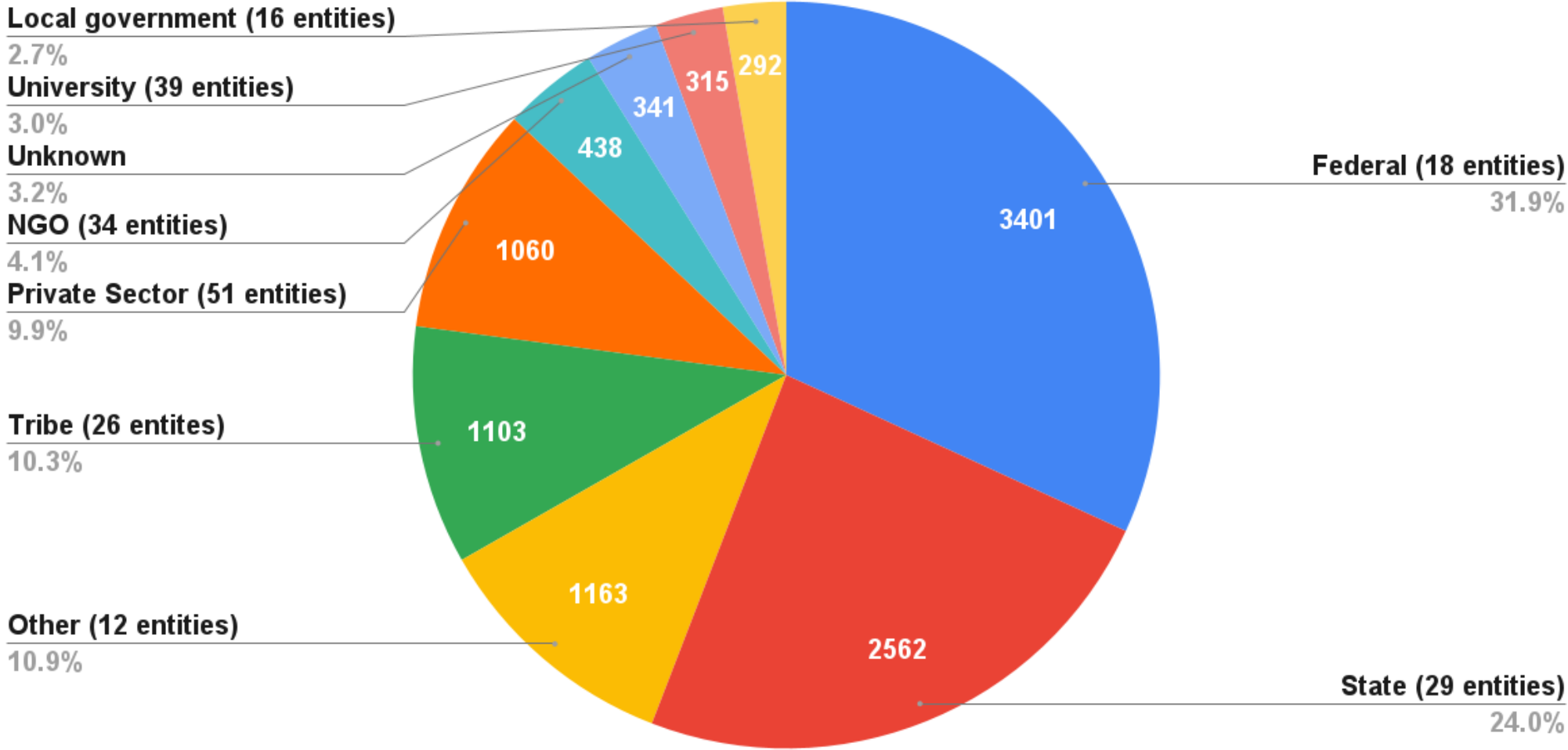
Greg Sieglitz (NOAA)

Steve Waste (USGS)

# Funding



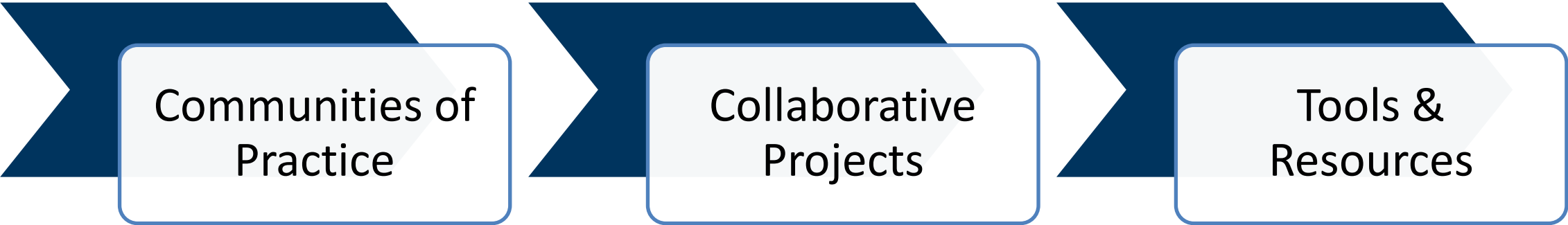
# In-kind Contributions



Hours by Organization Type for 2020-2022



# PNAMP: What, How?



## Communities of Practice

Host meetings, workshops, work groups to share information about monitoring methods, design and results

## Collaborative Projects

Develop strategies for more standardized and coordinated regional monitoring (methods, design, analysis) and improved access to data and information

## Tools & Resources

Develop and support users of online tools to support consistent and detailed documentation for projects & datasets

# PNAMP Communities of Practice & Projects Support the Fish & Wildlife Program

- Strategies for more standardized and coordinated regional monitoring, data management and dissemination of information necessary for informing decisions
- Meetings and workshops about monitoring methods, design and results to aid in adaptive management and help partners to keep pace with new technologies and knowledge
- Foster collaboration and inclusivity to enhance quality, objectivity, utility, and integrity of data

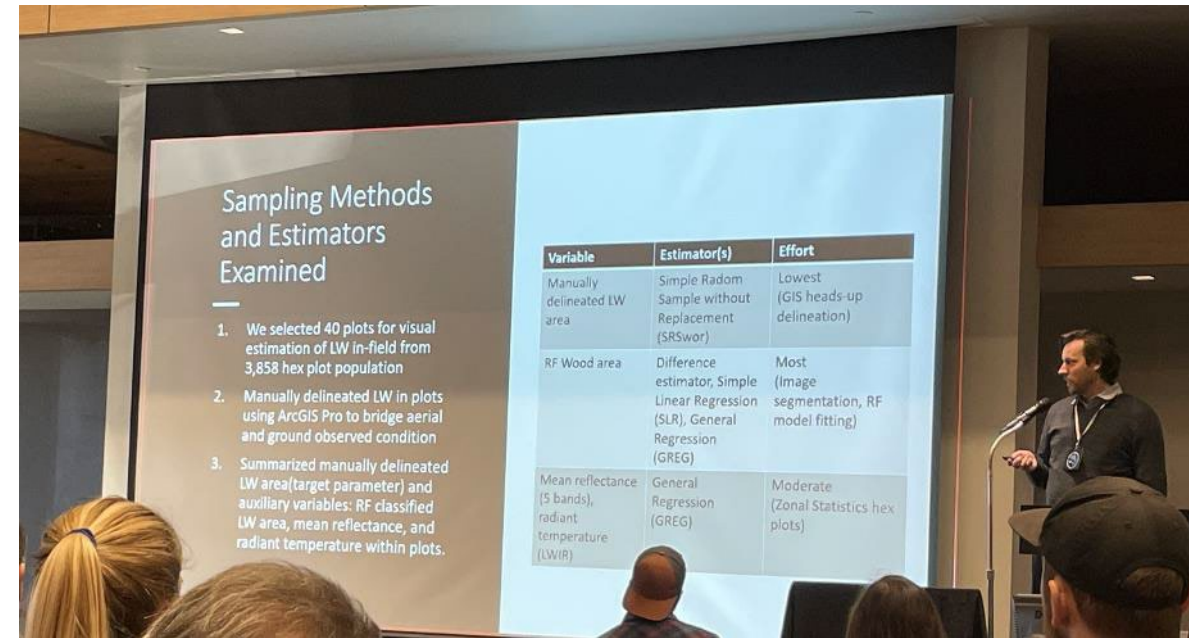
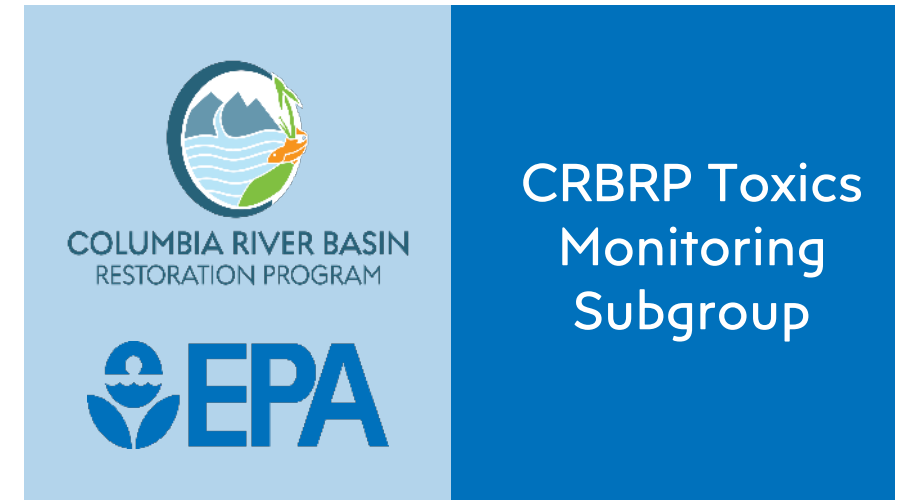
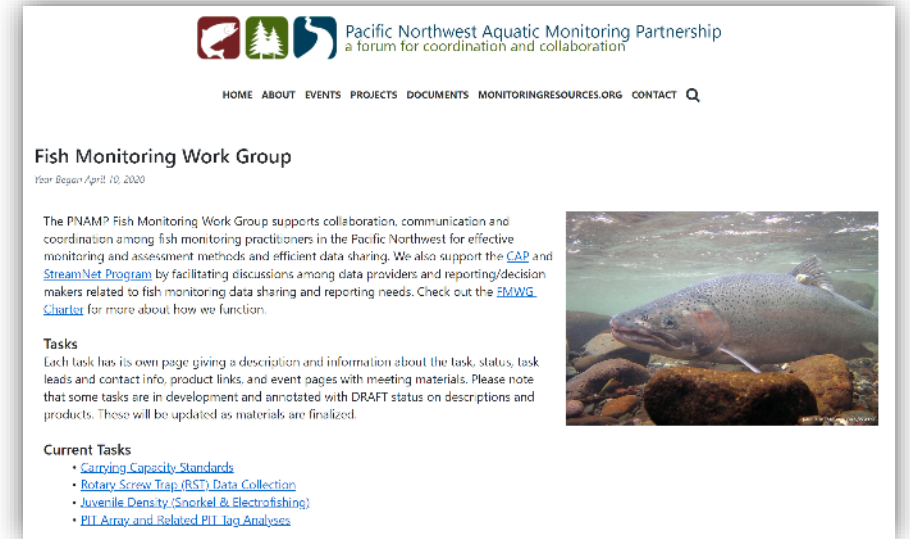


Image: Jen Bayer

# Communities of Practice

- Coordinated Assessments Partnership (CAP)
- Fish Monitoring Work Group
- Remote Sensing Forum
- CRBRP Toxics Monitoring Subgroup
- Intensively Monitored Watersheds Forum
- Emerging Technologies Information Sessions (ETIS)





# Collaborative Projects

- Hatchery fish data exchange (HCAX)
- Stream Habitat Metric Integration (SHMI)
- PIT array and related PIT tag analyses support
- Data mobilization recommendations





# PNAMP Learning Opportunities & Products


## Support the Fish & Wildlife Program



- Create opportunities for experts to share knowledge to highlight new approaches, promote best practices and encourage standardized methods
- Facilitate new methods to flow information between regional and subregional databases/repositories and projects collecting and analyzing data
- Facilitate development of needed data exchange standards and data documentation

# CAP: Working Together Improving Access to Salmon Data



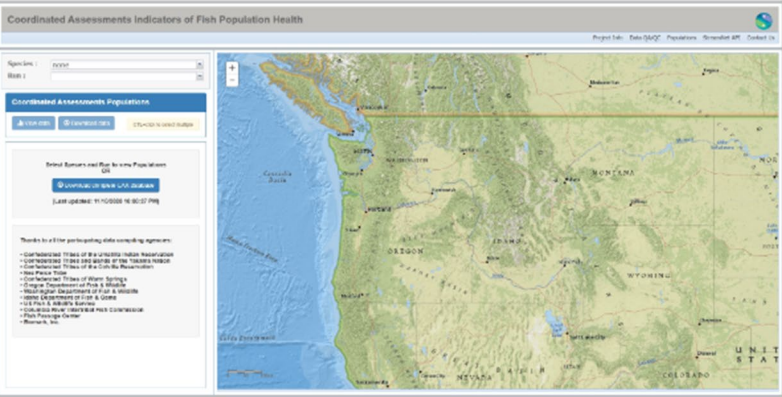
Data

The Coordinated Assessments Partnership (CAP) fish high-level indicators (H) standardized data for fish population HLIs housed in the Coordinated Assess level HLI data are developed by CAP and shared here via the two query system.


For more information on the process guiding data shared through the CAP, visit [this page](#).

To obtain a data set from a specific date, such as a previous version of the data, click the link at the bottom of the page or by the 'Contact Us' under the About section.

### Click Map or Query Image to Explore Data



CAP Fish HLIs Interactive Map


Pacific Northwest Aquatic Monitoring Partnership  
a forum for coordination and collaboration

HOME ABOUT EVENTS PROJECTS DOCUMENTS MONITORINGRESOURCES.ORG CONTACT Q

## Fish Monitoring Work Group

Year Began April 10, 2020

The PNAMP Fish Monitoring Work Group supports collaboration, communication and coordination among fish monitoring practitioners in the Pacific Northwest for effective monitoring and assessment methods and efficient data sharing. We also support the [CAP](#) and [StreamNet Program](#) by facilitating discussions among data providers and reporting/decision makers related to fish monitoring data sharing and reporting needs. Check out the [FMWG Charter](#) for more about how we function.




### Tasks

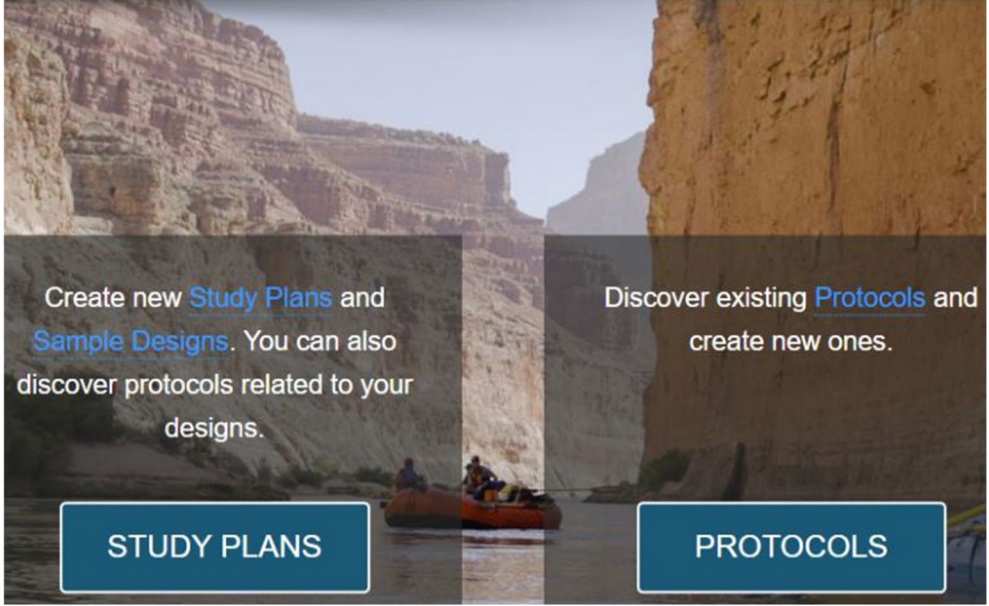
Each task has its own page giving a description and information about the task, and contact info, product links, and event pages with meeting materials. Tasks are in development and annotated with DRAFT status on descriptions until materials are finalized.

#### Current Tasks

- [Carrying Capacity Standards](#)
- [Rotary Screw Trap \(RST\) Operation](#)
- [Juvenile Density \(Snorkel & Electrofishing\)](#)
- [Fish Population Names and GIS Boundaries Task](#)
- [MAFAC and NPCC SPI](#)

Monitoring Resourcessponsored by: pacific northwest aquatic monitoring partnership

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Discover existing [Protocols](#) and create new ones.

[STUDY PLANS](#)

[PROTOCOLS](#)



# Fish Monitoring Work Group Leads Collaboration

## Active Tasks

- Carrying Capacity Standards
- Juvenile Density (Snorkel & Electrofishing)
- Rotary Screw Trap (RST) Operations
- PIT Array and Related PIT Tag Analyses
- Support for CAP Workshop

## Completed Tasks

- Smolt Estimation & Analytics Workshop
- Data Display Improvements to Dashboards
- CAP DES Juvenile Outmigrant/Define Smolt Equivalent
- MAFAC Dashboard
- Fish Management Units Boundaries and Attributes

Image: Jen Bayer



# FMWG Project: Improving Consistency in Information with Base Layers for Fish Management Units Boundaries and Attributes

**FMWG** developed recommendations for methods to define fish management units (e.g., population, core area, migratory corridor), names, and boundaries

**StreamNet** updated the data tools with new GIS layers, resulting in better communication of data, which enables more effective, standardized analyses

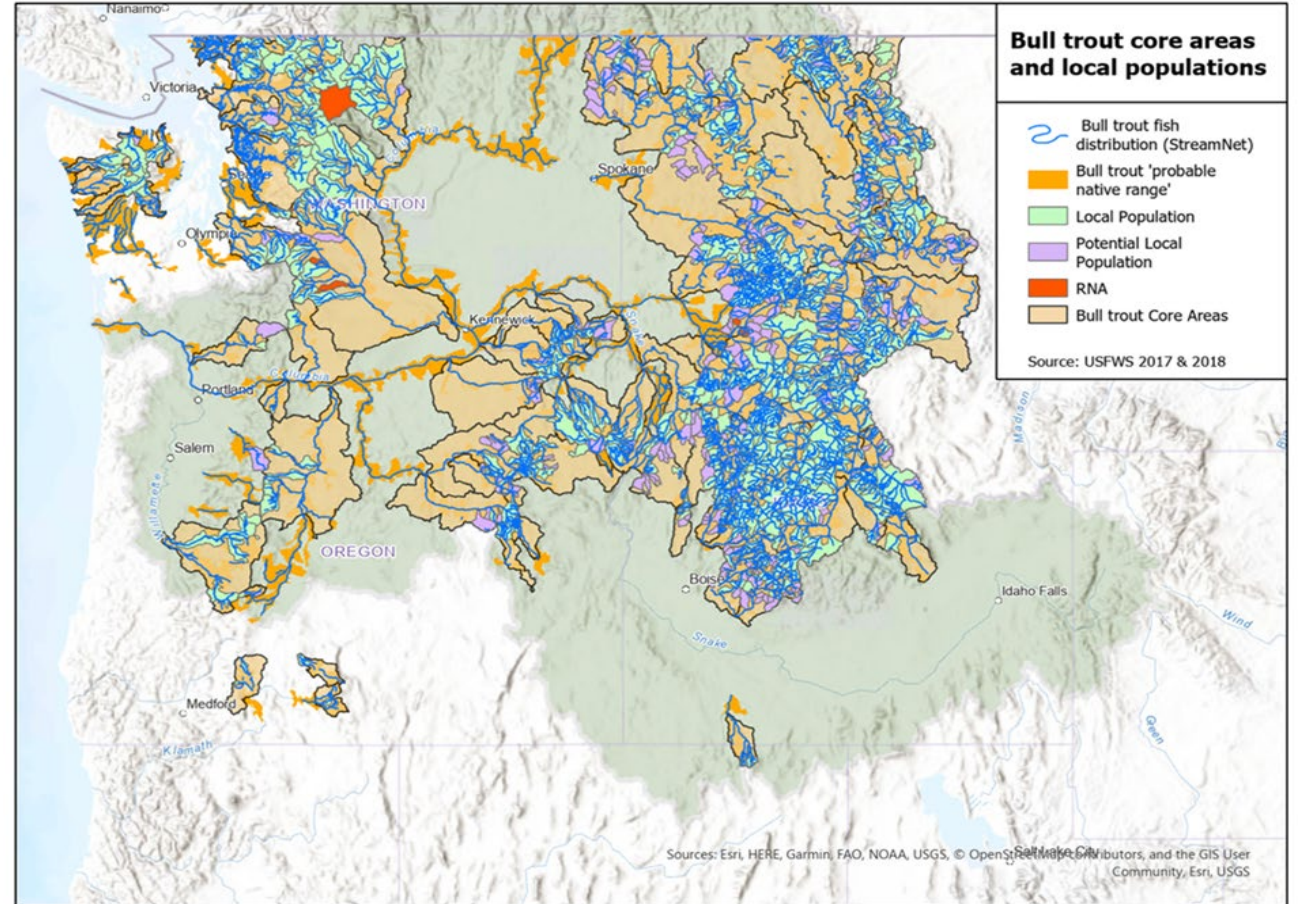


Image from recommendation document: Official Bull trout core areas and local populations (USFWS 2017 & 2018) along with 'probable native range' dataset derived from StreamNet's Generalized Fish Distribution layer.



# PNAMP Tools and Resources

## Support the Fish & Wildlife Program



Image: Jen Bayer

- Facilitate access to data that is needed for reporting on F&W Program goals, objectives and strategy performance indicators
- Improve access to data by helping partners discover and use appropriate data repositories for domain-specific data and metadata
- Online tools for detailed documentation of projects, supporting metadata for ISRP project reviews

# Tools & Resources

- MonitoringResources.org
- StreamNet data access tools

Monitoring Resources  
sponsored by: pacific northwest aquatic monitoring partnership

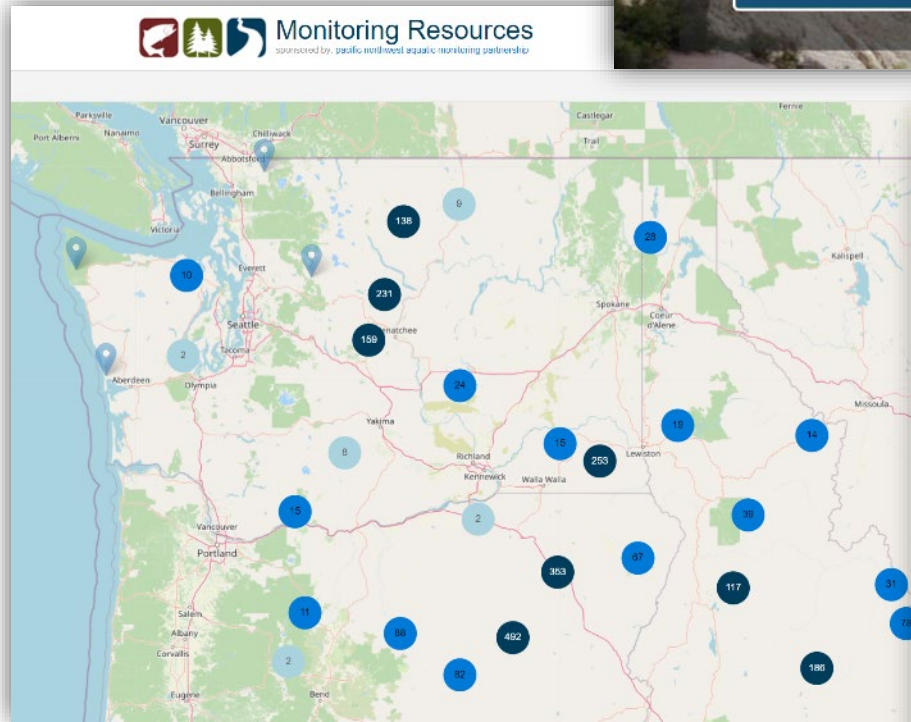
HOME | CREATE & FIND | STUDY PLAN SUMMARY | MONITORING EXPLORER | COMMUNITY | LEARN

Create new [Study Plans](#) and [Sample Designs](#). You can also discover protocols related to your designs.

Discover existing [Protocols](#) and create new ones.

Discover existing [Methods](#) and create new ones.

STUDY PLANS | PROTOCOLS | METHODS



StreamNet  
Fish Data for the Northwest

Data & Maps | CAP | Committees | Resources | About

### CAP Fish HLIs (CAX) Query

Data & Maps > CAP Fish HLIs (CAX) Query

The Coordinated Assessments Partnership (CAP) fish high-level indicators (HLIs) query systems provide access to standardized data for fish population HLIs housed in the Coordinated Assessments Data Exchange (CAX) that informs regional assessments and reports. These population-level HLI data are developed by CAP and shared here via the two query systems below.

For more information on the process guiding data shared through the CAP, view the [CAP section](#) of this website.

To obtain a data set from a specific date, such as a previous version of the database that is referenced elsewhere, please contact us using the "Contact" link at the bottom of the page or by the "Contact Us" under the About section.

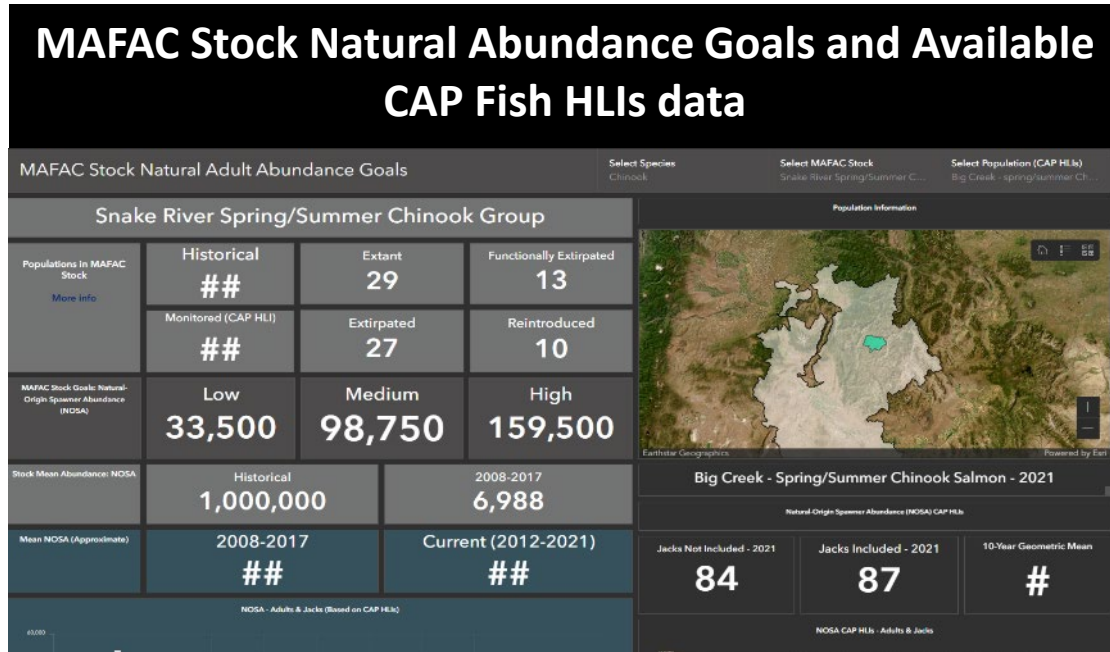
Click Map or Query Image to Explore Data

CAP Fish HLIs Interactive Map | CAP Fish HLIs Tabular Query

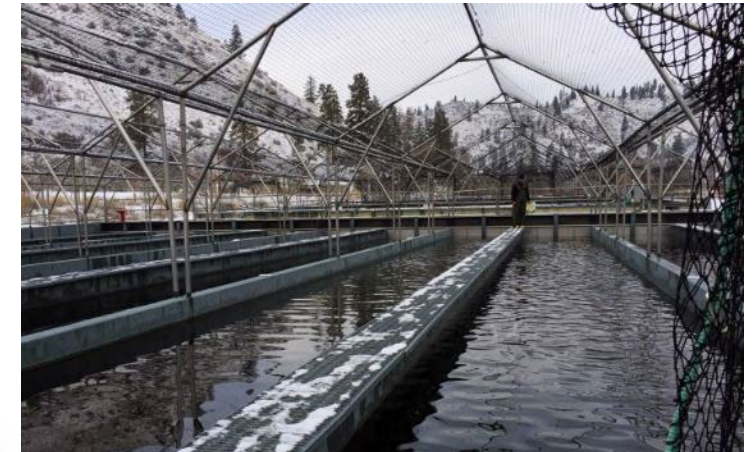


# New Products in 2023 and Beyond

2023



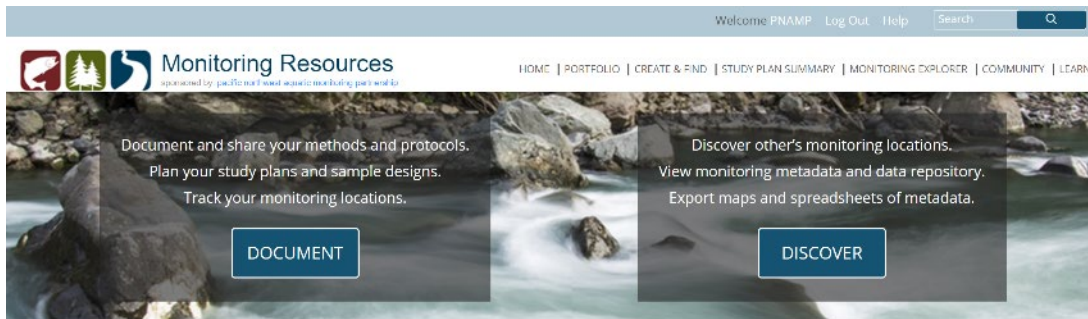
2024



Hatchery CAX



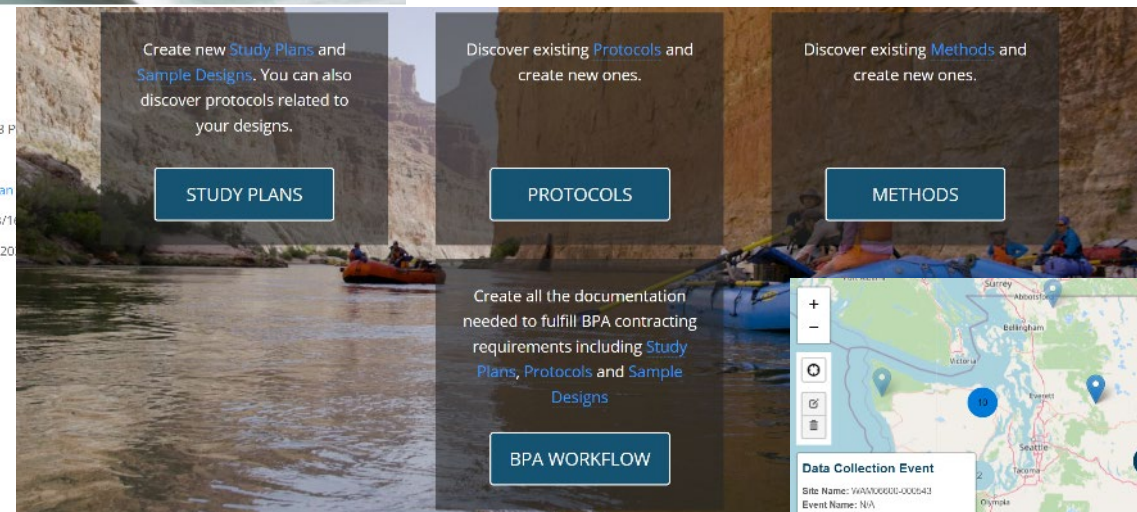
# MonitoringResources.org Supports Fish & Wildlife Program Needs for Data Documentation and Discovery



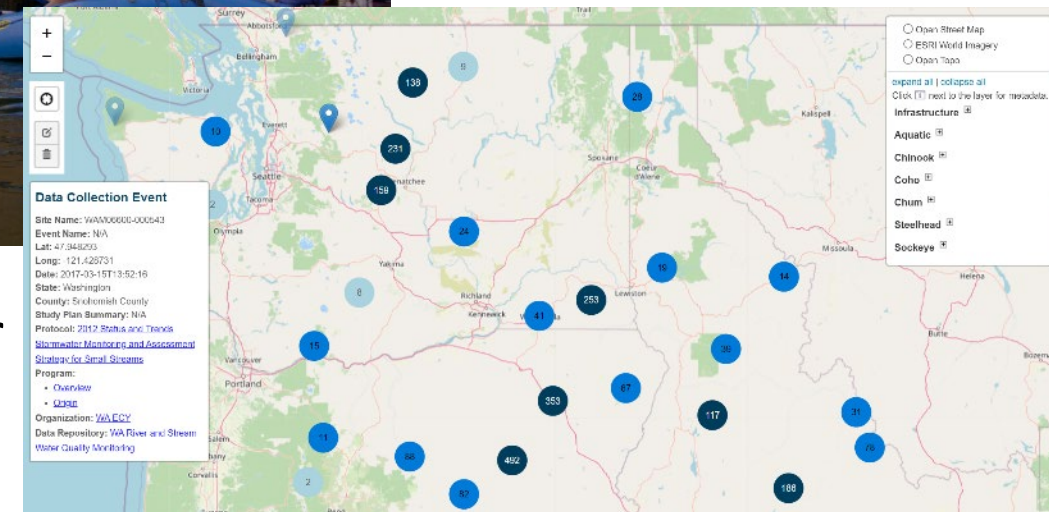
Streamlined metadata documentation for Project Sponsors and other PNAMP partners

## Your Recent Content

- **Sample Design:** 16889 Wadeable Lotic Sampling (6/6/2023 10:07:10 PM)
- **Protocol:** 3727 Assessment, Inventory, And Monitoring Of Wadeable Lotic Systems V1.0 (6/5/2023 4:51:23 PM)
- **Sample Design:** 16883 Yearly Water Quality Samples (4/7/2023 9:57:26 PM)
- **Protocol:** 3542 AREMP 2019 Field Manual - Regional Interagency Monitoring For The Northwest Forest Plan
- **Method:** 7055 Calculating D50 And Percent Fines (<2mm And <6mm) From Stream Pebble Counts V1.0 (3/1/2023 10:07:10 PM)
- **Protocol:** 3335 BLM Assessment, Inventory, And Monitoring (AIM) Of Wadeable Lotic Systems V1.0 (1/31/2023 10:07:10 PM)



Refining user interface to make it easier for the user to discover data and metadata





# Documenting Procedures in MonitoringResources.org



Study Plan

Study Plan Summary

## Study Plan: Rotary Screw Trap Sampling For Wild Chinook Salmon And Steelhead Emigrants In Idaho V2.0

ID: 1766

State: Finalized

Version: 2.0

**Owner:** Eric Stark  
**Owner Email:** eric.stark@idfg.idaho.gov

**No. of Sample Designs:** 5  
**No. of Methods:** 13

**Created by:** Russell Scranton  
**Created:** 11/4/2020  
**Updated by:** Sam Cimino  
**Updated:** 4/21/2021

- ▼ Study Plan Basics
- ▼ Protocol
- ▼ Sample Designs
- ▼ Collection Events
- ▼ Area Of Inference
- ▼ Quality Control & Reporting
- ▼ Personnel & Training
- ▼ Schedule & Budget
- ▼ External System References

Protocol


### Protocol Title

IDFG ROTARY SCREW TRAPPING for wild Chinook Salmon and steelhead emigrants in the Clearwater and Salmon River basins. v2.0


### Citation

Fenken S.F., B. Barnett, F. Foltz, F.J. Stark, M. Davison, J.R. Poole, C. McClure, B.A. Knoth, and M.F. Dobos. 2020. Idaho Anadromous Emigrant Monitoring. 2019 Annual Report. Idaho Department of Fish and Game 20-09-3-9 <https://collaboration.idfg.idaho.gov/FisheriesTechnicalReports/Res20-09Fenken2019Idaho%20Anadromous%20Emigrant%20Monitoring%20Report.pdf>


### Protocol Photos & Protocol Figures




Chinook salmon smolt with tag size efficiency recaptured (-1217 KB)




juvenile steelhead (-625 KB)




netting juveniles from RST trap box (-1455 KB)




Passive Integrated Transponder (PIT) tag (-375 KB)




Rotary Screw Trap (RST) (-1016 KB)



RST cone lifted during high flow & debris (-205 KB)



RST transport for install (-1608 KB)



screw trap fish work-up station (-1180 KB)

### Forms

- [RSTs operated by IDFG \(NWPC 2017 Review\)](#)
- [IDFG process and methods for ageing anadromous salmonids \(manual\)](#)
- [RST Operations Chapter in Salmonid Field Protocols Handbook](#)
- [IDFG 2019 Anadromous Emigrant Monitoring Report](#)
- [confidence intervals for fish out-migration estimates using stratified trap efficiency methods \(Steinhorst et al. 2004\)](#)

### Protocol Methods (13) Expand All Collapse All

- Rotary Screw Trap Deployment and Operation v1.0 [View full Method](#)
- Trap Efficiency Testing v1.0 [View full Method](#)
- Emigration Trapping (using rotary screw traps) v1.0 [View full Method](#)
- Age at emigration v1.0 [View full Method](#)
- Juvenile Emigration Timing v1.0 [View full Method](#)

### Method Title

juvenile Emigration Timing v1.0

### Stepwise Numbered Procedure

juvenile sampling data should be compiled and organized electronically for the greatest utility, for example, in a spreadsheet, database, or statistical software.

1. Calculate the total number of maiden (unique) emigrants by summing the total by species captured for each day the trap was operating.
2. To determine proportion of passage, a cumulative running total for the season can then be derived by summing the previous daily catch to the current day's catch and continue on for the extent of the data.
3. The sum of the cumulative running total should be equal to the total number of fish recorded to have passed for the monitoring period or season.
4. The daily value for the cumulative running total can then be divided by the season total to produce the cumulative proportion for each day.

- Obtaining scales from juvenile steelhead and Chinook salmon v1.0 [View full Method](#)
- Marking Juvenile Salmonids with Dismark Brown "Y" v1.0 [View full Method](#)
- Scale Processing for Age v1.0 [View full Method](#)
- PIT based Juvenile Mortality Estimates v1.0 [View full Method](#)
- Measuring Fish Length: Fork length v2.0 [View full Method](#)
- Recruits per Spawner (RperS) Calculation v1.0 [View full Method](#)
- Rotary Screw Trap Mark-Recapture Salmonid Outmigration Abundance Estimate v1.0 [View full Method](#)
- Marking, Tagging and Sampling Target Species v1.0 [View full Method](#)

### Metrics & Indicators

Title	Type	Category	Subcategory	Subtotal	Focus

# Documenting Collection Events in MonitoringResources.org



**Study Plan Summary**

## Study Plan: Rotary Screw Trap Sampling For Wild Chinook Salmon And Steelhead Emigrants In Idaho V2.0

ID: 1766      State: Finalized      Version: 2.0

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- Schedule & Budget
- External System References

**Study Plan Basics**

**Protocol**

**Sample Designs**

These are all of the Sample Designs that are a part of this Study Plan

Clear Filters    Download

Sample Design ID	Sample Design Name
16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG) v2.0
16623	Estimate adult and juvenile steelhead production (2014 data)* - Idaho Department of Fish and Game (IDFG), cloned for Study Plan 467 v1.0
16624	Estimate adult and juvenile steelhead production (2015 data) - Idaho Department of Fish and Game (IDFG), cloned for Study Plan 467 v1.0
16625	Install and Operate screw traps (Fish Creek, Rapid River & Big Creek) - Idaho Department of Fish and Game (IDFG), cloned for Study Plan 467 v1.0
16626	Operate Screw Traps Idaho Department of Fish and Game (IDFG), cloned for Study Plan 467 v1.0

**Collection Events**

The following map and grid only displays collection events associated with finalized sample designs.

List of Data Collection Events

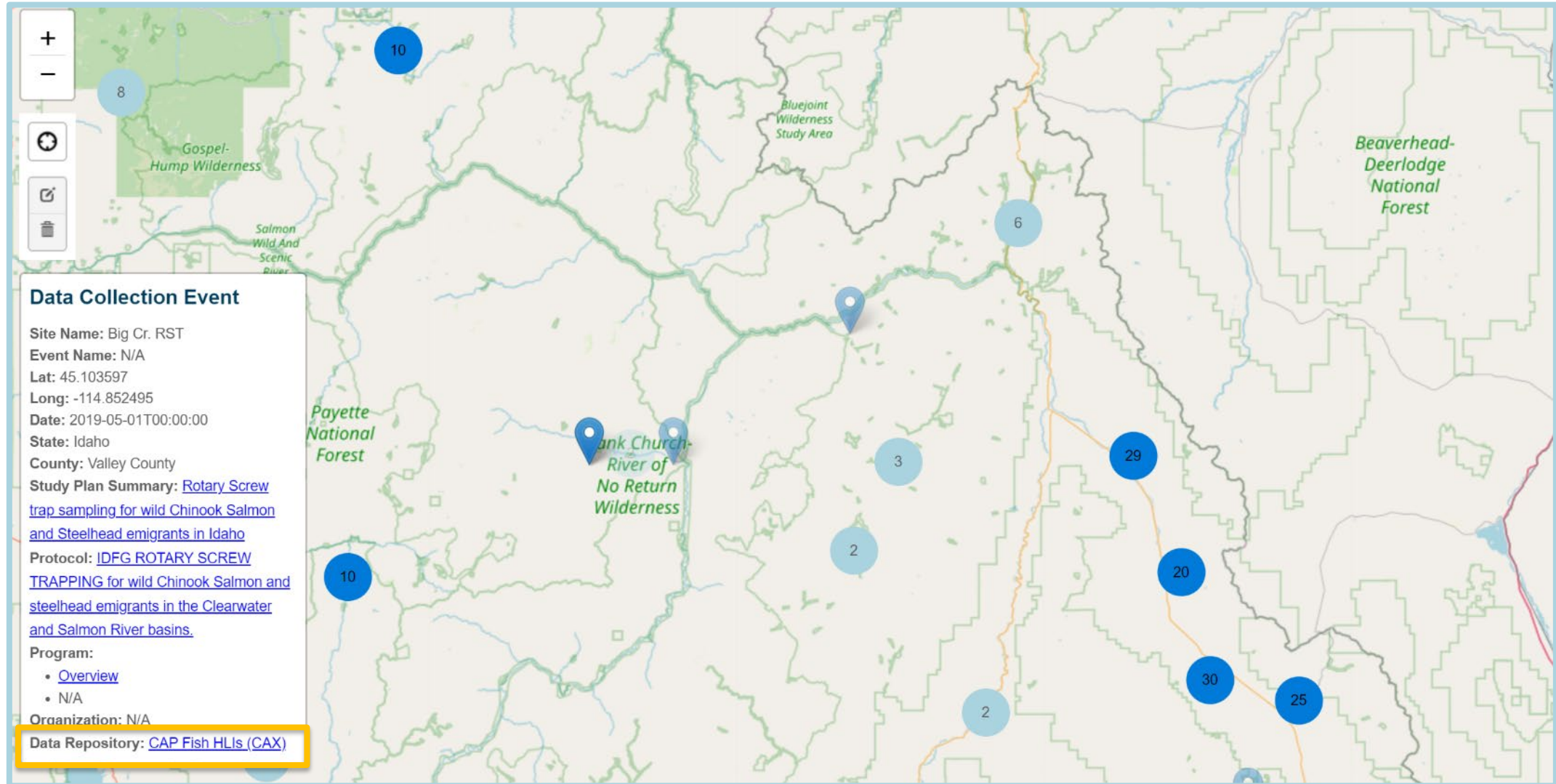
Clear Filters    Download

Viewing 300 of 300 collection events.

Site Name	Sample Design ID	Sample Design	Sample Design Owner	Design Type
Hayden Creek RST	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
Lemhi River RSI (old whir site)	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
Lemhi River RST (lower)	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
Rapid R. RST	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
Marsh Cr. RST (lower)	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
Big Cr. RST	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
Fish Cr. RST	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
SF Salmon R RST (lower, Krassel)	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
Crooked R. RST	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
NF Salmon R. RST	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist
Pahsimeroi R. RST	16398	Operate Screw Traps Idaho Department of Fish and Game (IDFG)	Eric Stark	Opportunist



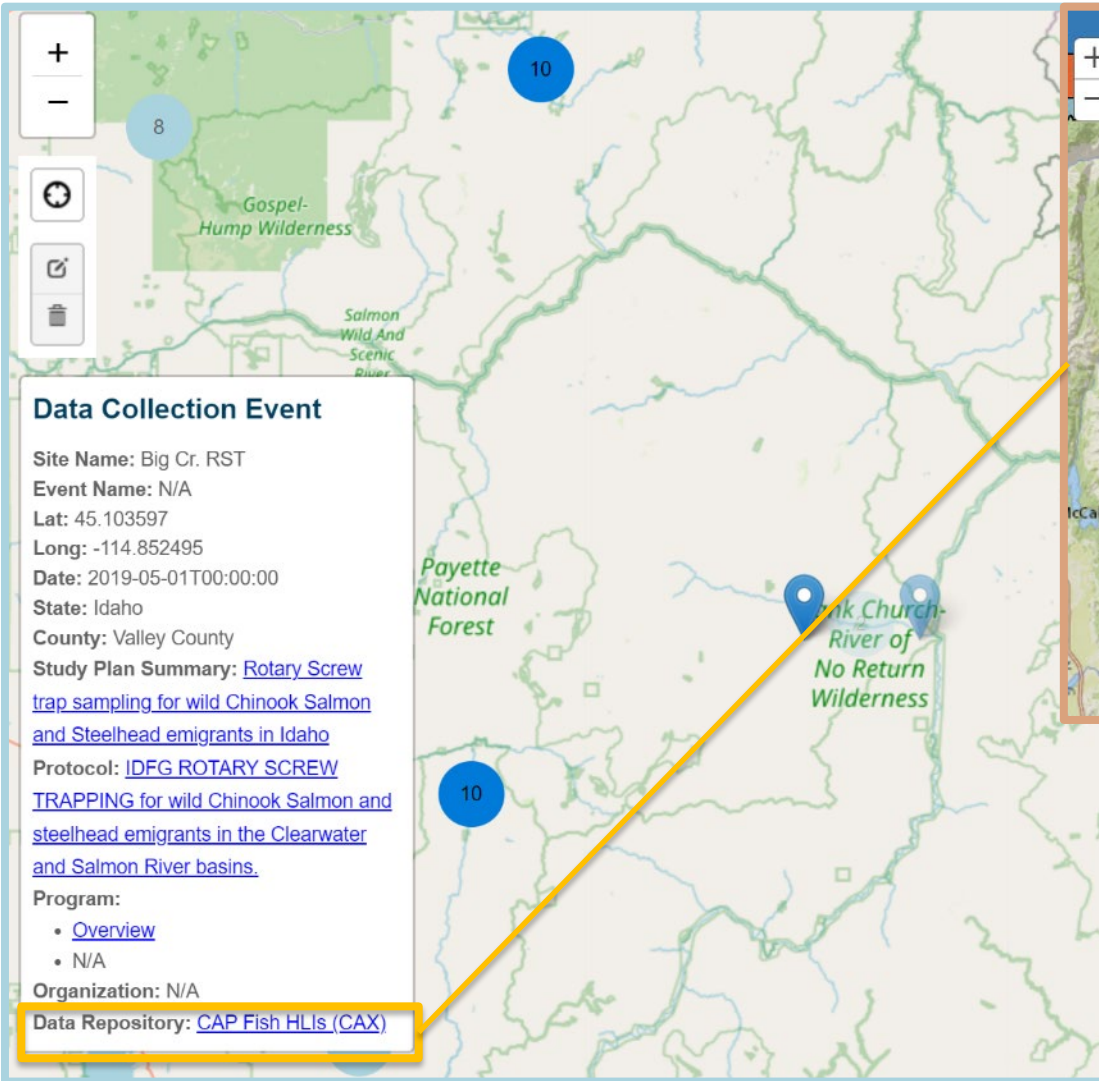
# Data and Metadata Discovery



MonitoringExplorer.org



# Data and Metadata Discovery

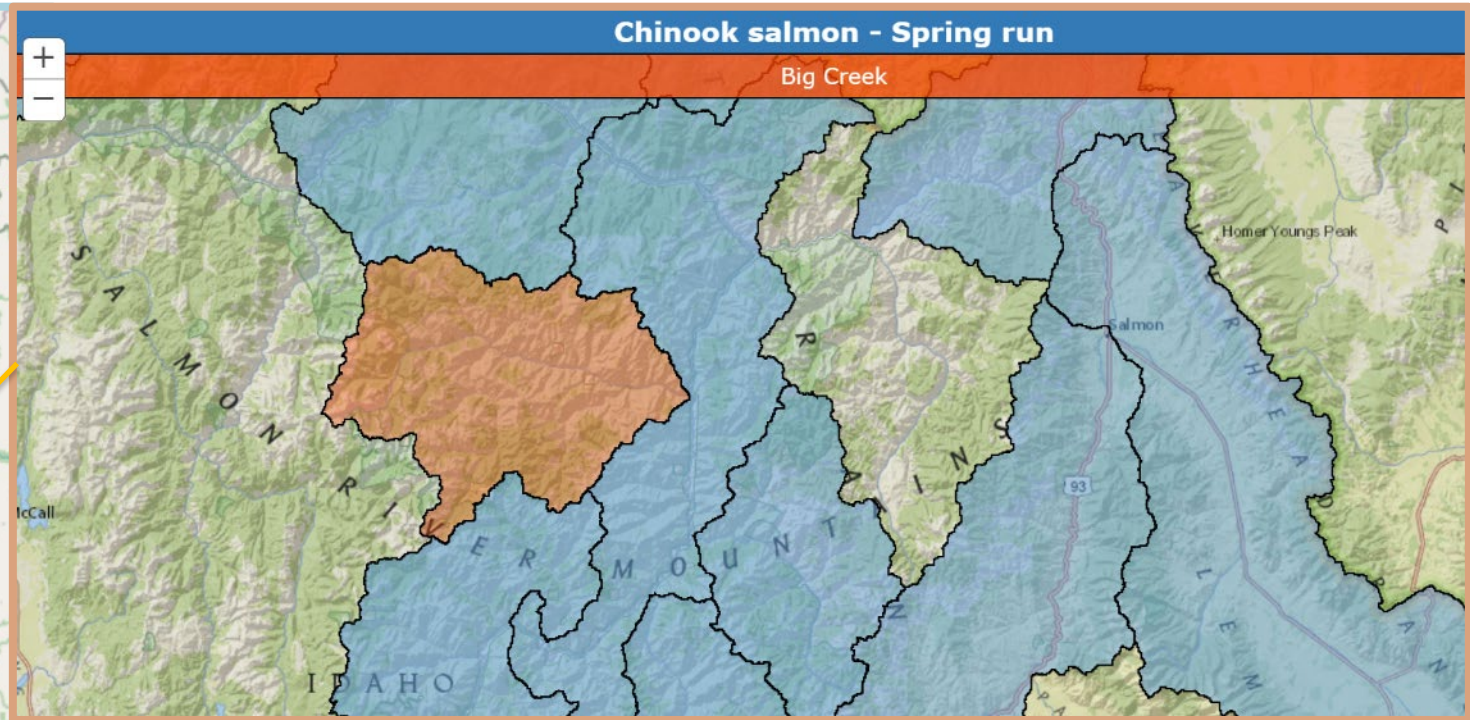


**Data Collection Event**

Site Name: Big Cr. RST  
Event Name: N/A  
Lat: 45.103597  
Long: -114.852495  
Date: 2019-05-01T00:00:00  
State: Idaho  
County: Valley County  
Study Plan Summary: [Rotary Screw trap sampling for wild Chinook Salmon and Steelhead emigrants in Idaho](#)  
Protocol: [IDFG ROTARY SCREW TRAPPING for wild Chinook Salmon and steelhead emigrants in the Clearwater and Salmon River basins.](#)  
Program:

- [Overview](#)
- N/A

Organization: N/A  
Data Repository: [CAP Fish HLIs \(CAX\)](#)



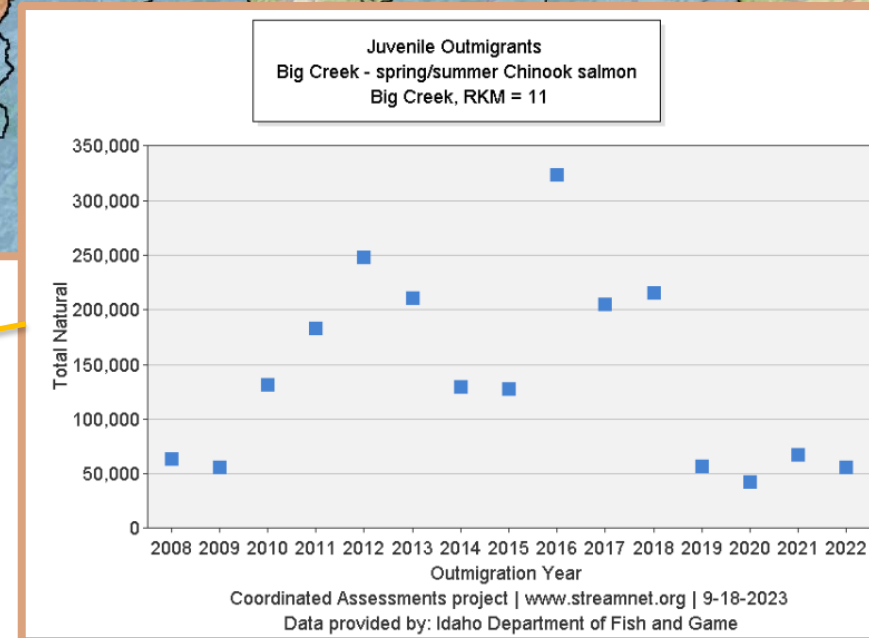
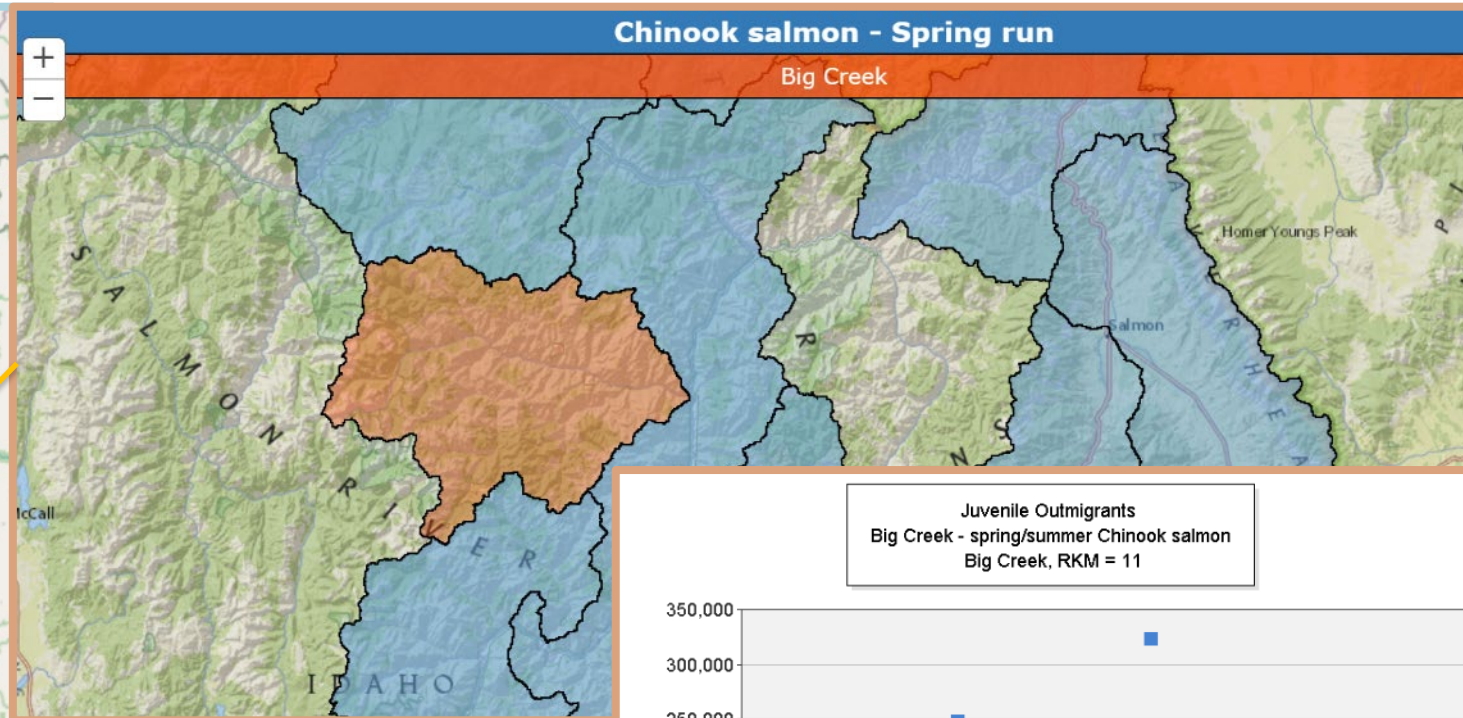
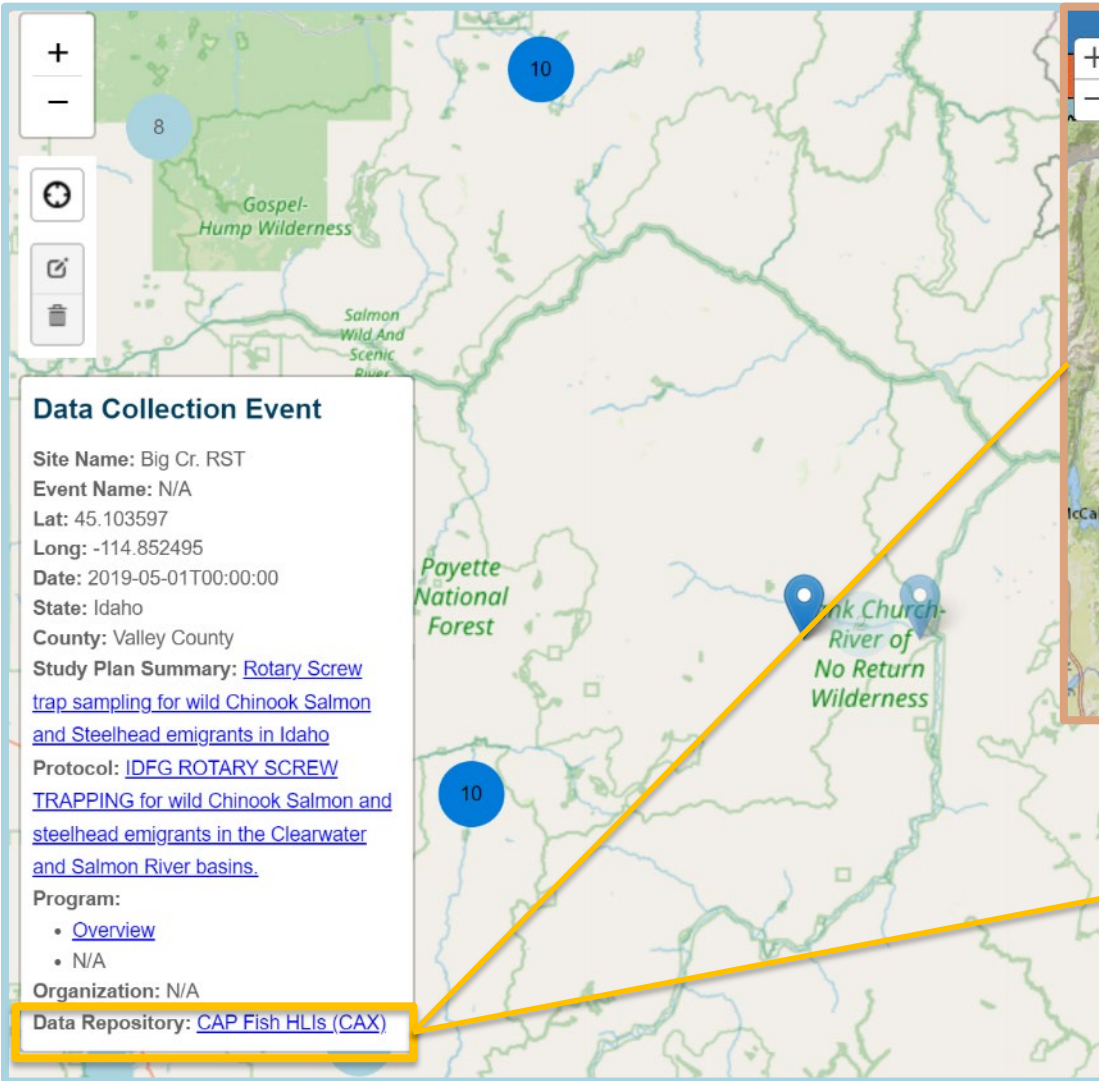
StreamNet – CAP Fish HLIs



MonitoringExplorer.org



# Data and Metadata Discovery

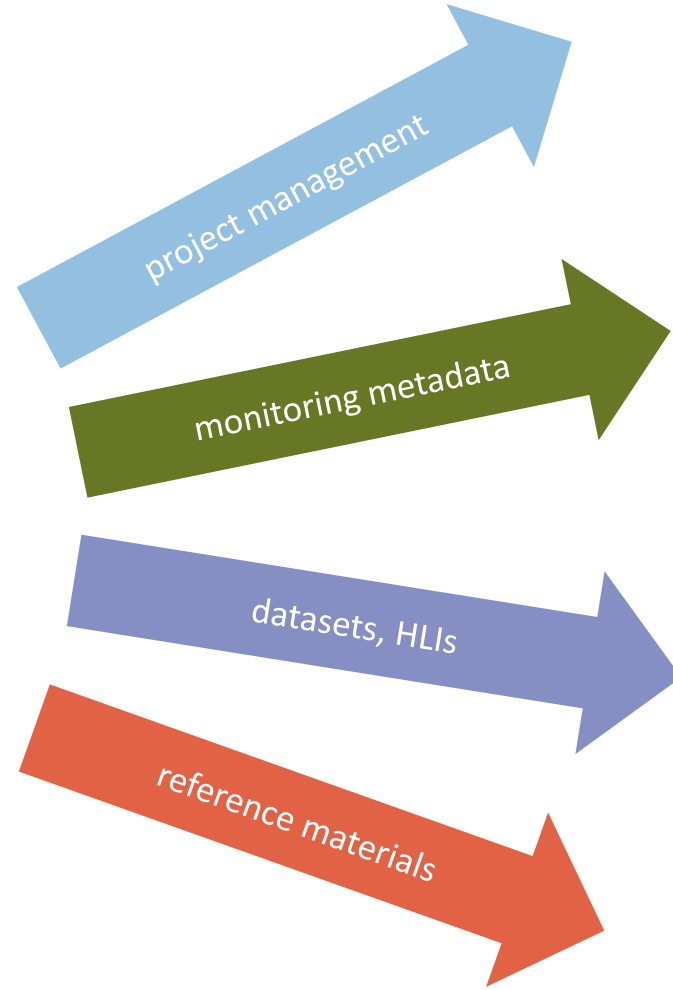
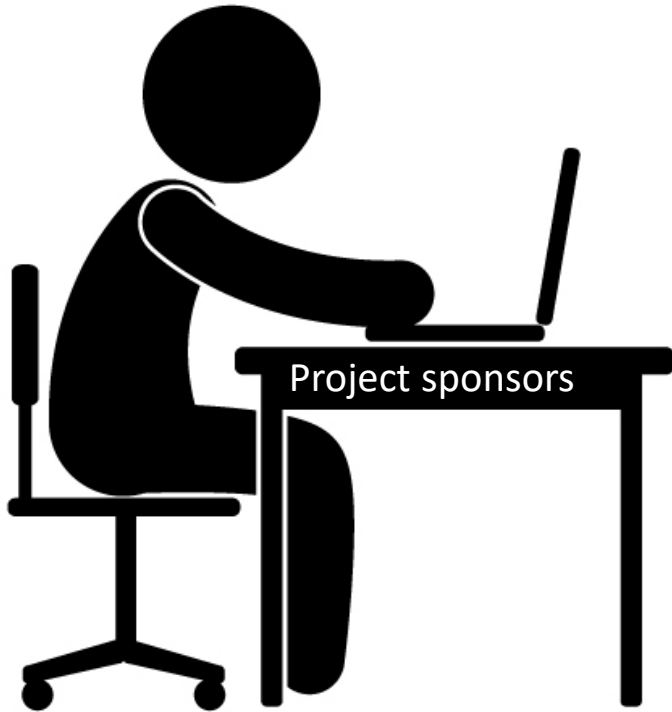


MonitoringExplorer.org

StreamNet – CAP Fish HLIs

# Working Together Across Programs

to secure investments, reduce redundancies, and meet FAIR principles



## Pisces Web at CBFish.org

- proposals
- contracts/SOW
- annual reports



## MonitoringResources.org

- study plans
- sample designs
- protocols
- methods



## StreamNet

- local trends
- CAX
- archived data



## CBF&W Library

- reports
- gray literature
- books
- access to peer journals



information exchange



# Adapting to Changes and Planning for Future Needs

## Support Open Data by Implementing FAIR and Promoting Awareness of CARE

- Build a culture that values data and promotes responsible use
- Sustain foundations for governing, managing, and protecting data
- Provide access to emerging technologies to enable:
  - Machine-to-machine communication and reproducible workflows for efficient flow of information between projects and data repositories
  - Discovery of published datasets and metadata
  - Easier, more reliable reuse of data



# Communications and Outreach

- PNAMP.org website
- Monthly newsletter
- YouTube
- Quarterly status reports
- Annual Reports

The screenshot shows the homepage of the Pacific Northwest Aquatic Monitoring Partnership (PNAMP). At the top, there is a navigation bar with the following links: HOME, ABOUT, EVENTS, PROJECTS, DOCUMENTS, MONITORINGRESOURCES.ORG, and CONTACT. A search icon is also present. The main header features three logos: a fish, a tree, and a river, followed by the text "Pacific Northwest Aquatic Monitoring Partnership" and "a forum for coordination and collaboration". Below the navigation bar is a large banner image of a scenic river valley with mountains in the background. The main content area is divided into three columns: "Upcoming PNAMP Events", "Announcements", and "Newsletter". The "Upcoming PNAMP Events" section lists three events: a CRBRP Toxics Monitoring Subgroup Meeting on Sep 26, 2023; a PNAMP Fish Monitoring Work Group Meeting on Oct 19, 2023; and a 2023 Joint Session of StreamNet Executive Committee and PNAMP Steering Committee on Nov 08, 2023. The "Announcements" section lists three announcements: "Apply Now! FY 2023 Tribal Climate Resilience Annual Awards Program" on Aug 24, 2023; "Check out a New Podcast on Restoring the Klamath River Basin: Largest Dam Removal Project in the World" on Aug 15, 2023; and "NOAA has Two Fish Passage Funding Opportunities Now Open, One Focused on Tribes" on Aug 08, 2023. The "Newsletter" section promotes the September 2023 Newsletter and includes a "Join our mailing list!" section with an email address input field and a "Sign up now" button. At the bottom of the page, there are three large images with text overlays: "Who We Are" (over a fish), "What We Do" (over a forest), and "Tools We Offer" (over a river). A white arrow icon is visible in the bottom right corner of the "Tools We Offer" image.

**Upcoming PNAMP Events**

- Sep 26, 2023  
CRBRP Toxics Monitoring Subgroup Meeting
- Oct 19, 2023  
PNAMP Fish Monitoring Work Group Meeting (October 2023)
- Nov 08, 2023  
2023 Joint Session of StreamNet Executive Committee and PNAMP Steering Committee

[See all PNAMP & partner events](#)

**Announcements**

- Aug 24, 2023  
Apply Now! FY 2023 Tribal Climate Resilience Annual Awards Program
- Aug 15, 2023  
Check out a New Podcast on Restoring the Klamath River Basin: Largest Dam Removal Project in the World
- Aug 08, 2023  
NOAA has Two Fish Passage Funding Opportunities Now Open, One Focused on Tribes

[See all announcements](#)

**Newsletter**

September 2023 Newsletter  
In this issue: Upcoming events, information on the Society for Freshwater Science PNW Chapter Meeting, details on the 2024 PTAGIS PIT Tag Workshop, a highlight on the AREMP 25 Year Report, and a review of the MonitoringResources.org virtual training.

**Join our mailing list!**  
Receive the monthly PNAMP newsletter directly.

[Sign up now](#)

[See all newsletters](#)

**Who We Are**

**What We Do**

**Tools We Offer**



# PNAMP Coordination Team

*Clockwise from top:*

Sam Cimino, Meg Dethloff, Quinnell Flanagan,  
Amy Puls, and Jen Bayer

Learn more:

[www.pnamp.org](http://www.pnamp.org)

[www.MonitoringResources.org](http://www.MonitoringResources.org)

[YouTube Channel](#)

[Newsletter Archive](#)



pacific northwest aquatic  
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# Upcoming Events

Find details at [www.PNAMP.org](http://www.PNAMP.org)

- PNAMP Steering Committee and StreamNet Executive Committee Joint Meeting Nov 8-9, 2023
- Fish Monitoring Work Group: Oct 19, Jan 18, Apr 18
- Remote Sensing Forum: October, January, April, July
- Toxics Monitoring Subgroup Workshop: Dec 5 (hybrid; Portland)
- PIT Array and Related PIT Tag Analyses short session at PTAGIS Workshop: Jan 30–Feb 1 (Stevenson, WA; in person only)
- HCAX Workshop: March or April
- IMW Lessons Learned for Restoration Design at RRNW, Feb 6-10 (Stevenson, WA; in person only)
- Fish Monitoring Symposium at WA/BC/ID AFS Joint Chapters Annual Meeting: Apr 29–May 2 (Spokane, WA)
- IMW Workshop 2024 TBD
- Toxics Monitoring Subgroup: March, June, September



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