StreamNet
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FY25 Annual Progress Report

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1. Executive Summary

StreamNet serves as a regional coordination body to support data management and facilitate cooperation across organizational boundaries. The Pacific States Marine Fisheries Commission (PSMFC) hosts the StreamNet project and its databases, which provide regional fish and fish-related data in a coordinated, standardized, online distributed information network. The need for regionally coordinated, readily accessible data is recognized by the Bonneville Power Administration (BPA), the National Oceanic and Atmospheric Administration Fisheries Program (NOAA), and the Northwest Power and Conservation Council (NPCC). To ensure access to these data, these agencies recommend and provide funding to StreamNet for this purpose. StreamNet supports technical staff within agencies who submit these data to standardized, publicly accessible, regional data repositories that are maintained by StreamNet. StreamNet collaboratively leads and coordinates initiatives to enhance a regional approach to data management among federal, state, and Tribal fish and wildlife agencies.

During 2025, StreamNet continued to lead the Coordinated Assessments Partnership (CAP) with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and collaborated with all partners to advance the diversity and quality of shared data in the Coordinated Assessments Data Exchange (CAX). Shoshone Bannock Tribes (SBT), the Nez Perce Tribe (NPT), and the Yakama Nation (YN) continued to engage and submit data, as resources allowed.

Highlights of 2025

- **The Colville Tribes** implemented all updates in the Hatchery Coordinated Assessments (HCA) Data Exchange Standard (DES) version 20250728 and uploaded Chief Joseph Hatchery HLIs through the CAX API. The Shiny app built in 2024 to facilitate creel survey reporting was extended in 2025 to include direct connections to the Fulcrum[1] platform for data collection and to access Columbia River Data Access in Real Time (DART) data for calculation efficiency.

- **Idaho Department of Fish and Game (IDFG)** focused on developing data sources and data exchange structures for HCA including a new DES for adult returns and spawning (Hatchery Origin Broodstock Abundance or HOBA), juvenile releases, and Smolt to Adult Survival Rates (SARs). A new Spawning Ground Survey mobile application for data collection and the desktop application for management and sharing, and analyses of redd counts and carcass data were developed.

- **Montana Fish Wildlife & Parks (MFWP)** continues to operate and support its established information systems to ensure reliable data collection, storage, and analysis. MFWP is also advancing its hydrography datasets to improve the precision

[1] Field process and data collection platform with AI | Fulcrum

of spatial data visualization and analytical outputs. In addition, an upgraded internal fish distribution editing application was designed, developed, and successfully deployed to better support staff workflows.

- **Oregon Department of Fish and Wildlife (ODFW)** continued to improve upon internal data processing, standardizing workflows, QAQC procedures and data delivery. In 2024, ODFW StreamNet staff developed and released a new ODFW Salmon and Steelhead Recovery Tracker (SSRT) public website (https://nrimp.dfw.state.or.us/RecoveryTracker/). In 2025, staff continued to develop new query functionality tools, enhance reference materials and release new versions of the site throughout the year. The team also launched an interactive map embedded in the application to query ESU, Stratum and population level indicators, metrics, and recovery planning goals for measurable criteria and evaluation thresholds.

- **Washington Department of Fish and Wildlife (WDFW)** continued to build out the Hatchery Management System (HMS), modernizing the legacy FishBooks application and automating Hatchery CAX reporting. WDFW continues to build out mobile data collection platforms for spawning ground, trapping, and other raw field data collection, and to create pathways for this data to move into corporate reporting systems. WDFW continues expansion of Fish Traps and Surveys database, formerly known as Spawning Ground Survey (SGS) database. Fundamental to this effort's success is the development of Flutter, a mobile spawning ground data collection application for iOS. This is ready to deploy and serve as the design basis for sister juveniles and adult trapping applications. WDFW Fish distribution layer has been updated for 2025.

- **StreamNet** published and implemented a new version of the Hatchery Coordinated Assessments Data Exchange Standard, HCA DES version 20250728.

- **StreamNet** had 7,843 records submitted to the Coordinated Assessments Data Exchange (CAX) system for hatchery and natural origin fish data, and 886 records added to the Fish Monitoring Data (FMD) system during 2025.

- **StreamNet** continued development of online queries to better support data consumers, such as the web query for Hatchery Coordinated Assessments (HCA) data in the CAX.

StreamNet provided additional, non-BPA, funding to contribute to advancing tribal data management and sharing capacity for Shoshone Bannock Tribes.

Lessons Learned

- Communicating the **quality of submitted data** provides data consumers with confidence in their use of these data.

- StreamNet improving and maintaining **data access** for audiences with varied technical knowledge and infrastructure increases the value and use of these data for the public and better informs decisions.

- Engaging **special work groups** and PNAMP Fish Monitoring Work Group (FMWG) task teams with the required expertise to inform new data categories while coordinating with PNAMP staff is efficient and effective.

- Proper **documentation** for data integrity is critical to ensure that these valuable data, funded by the public and ratepayers, remain accessible to inform critical uncertainties and decisions into the future.

- **Succession planning and recruitment** of new partners and members that require documenting and publicly communicating information about StreamNet Program and its processes. Succession planning also requires partner agencies and tribes to document new and existing processes used in data management to ensure smooth staff transition.

Recommendations to the Executive Committee:

- Support regional data stewardship
- Connect regional data systems
- Enhance and maintain StreamNet as Exchange of Record for BPA and others
- Support increased discoverability and outreach
- Support a broader group of data categories to support regional information needs
- Support expanding data flow for resident and anadromous fish

2. Introduction

The BPA, NOAA, and NPCC have all identified an ongoing need for regionally coordinated, securely stored, and readily accessible data to inform their reporting and decision-making processes. StreamNet provides regional standardization and access to data throughout the Columbia River Basin (CRB or basin, Figure 2.1) through development, documentation, and maintenance of regional data repositories for fish and habitat data. This work improves data discovery, increases efficiency of data access, and facilitates data reuse – ultimately, adding value to data collection efforts.

2.1 Project Background

StreamNet is a collaborative data sharing project that works with federal, state, and tribal agencies, and other partners such as PNAMP to locate, assemble, and share, in a standardized manner, specific data and indicators from the local scale to inform regional needs. StreamNet also has an important role in archiving data sets and providing access to historical information, especially those that support policy decisions such as the NPCC's

Protected Areas, system and subbasin planning data, wildlife Habitat Evaluation Procedure (HEP), Columbia Habitat Monitoring Program (CHaMP), and US Congress funded Hatchery Reform Group and Hatchery Scientific Reform Group (HSRG) reports and data sets (see more details in Appendix D — Archival and Maintenance of Past Projects).

Figure 2.1: StreamNet focuses its data sharing efforts on data within the Columbia River Basin. However, data from all Pacific States are exchanged to better support partners' information needs such as the NPCC Protected Areas and NOAA's 5-year salmon and steelhead status assessments.

Data submitted to StreamNet are region-wide in coverage. The overarching goal of StreamNet is to make river-related information collected in the Pacific States, with an emphasis on the Columbia River Basin, standardized and accessible, to inform management questions and strategies (Figure 2.1). The data disseminated represent primarily fish-related data, regardless of the funding sources responsible for supporting the work of field collection. Thus, all data of a given type are included, both those paid for under the BPA-funded Fish and Wildlife Program and similar data that are obtained based on other funding. This is important because to conduct assessments or monitor population status and trends, all data relevant to each population must be used, regardless of funding source or agency and tribe collecting the data.

The NPCC's Fish and Wildlife Program and amendments continue to support the StreamNet project. For more details see Appendix C — NPCC FW Program.

Please see Appendix A — Historical Background for more historical project information.

2.2 Coordinated Assessments Partnership

The Coordinated Assessments Partnership (CAP) is a collaborative process co-led by StreamNet and PNAMP to efficiently share and provide access to standardized derived information, at a regional level, in the Coordinated Assessments Data Exchange (CAX). Decisions for managing fishery resources, especially ESA listed salmon and steelhead, rely on access to the best available data of multiple state, federal and Tribal entities. The CAX currently provides public access to abundance and productivity data for natural origin salmon and steelhead across the PNW and houses hatchery origin data with access under development. The Partnership's goal is to develop efficient, consistent, and transparent data sharing among the co-managers (fish and wildlife agencies and Tribes) and regulatory/funding agencies (BPA, NOAA, and US Fish and Wildlife Service (USFWS)) for fish-related data. The CAP involves a broader set of partners than the StreamNet project alone and provides a broader jurisdictional engagement to address partners' Pacific Northwest information needs.

For more information about CAP and the Coordinated Assessments Data Exchange, please see the website at https://www.streamnet.org/cap/.

2.3 Policy Guidance

The StreamNet project is implemented following the guidance provided in the 2021-2026 StreamNet Vision and Strategic Plan[2] and through the collaboratively developed CAP Strategic Plan[3], which are adopted by the StreamNet Executive Committee. The CAP Strategic Plan considers guidance from NPCC Program and Project Recommendations, which in turn stipulates a need for StreamNet to address the reporting needs of NPCC and BPA.

The following topics are excerpts of the current NPCC Program and related NPCC and BPA data priorities that inform the CAP Plan and the work implemented by StreamNet.

[2] NPCC 2012 Program Evaluation and Reporting Committee https://www.nwcouncil.org/fw/program/perc and the November 2012 Council recommendations based on the PERC https://www.nwcouncil.org/sites/default/files/2012_1106_1.pdf

[3] [Coordinated Assessments Strategic Plan 2026]https://www.streamnet.org/cap_strategicplan_20260123/

Data Management Principles and Measures

StreamNet supports the 2014 NPCC Fish and Wildlife Program's guidance for data management[4] by making regional scale information accessible to the public and for decision making.

Priority Data Accessibility

StreamNet staff work with BPA's Environment, Fish and Wildlife Division staff, NOAA Fisheries staff, and NPCC staff on a regular basis to identify their data needs.

To see current data priorities addressed by StreamNet, visit https://www.streamnet.org/home/data-maps/.

High Level Indicators and Metrics Categories

The CAX shares standardized, high-level indicators and metrics to inform regional fish monitoring priorities including NOAA's 5-year Status Reviews and the Columbia River System Operations BiOp[5].

For details of data currently available or under development for the CAX, see the StreamNet HLI Categories & Data webpage https://www.streamnet.org/cap/current-hli/.

Fish Monitoring Data (Trends) Data Set Priorities

The NPCC Fish and Wildlife Program[6] provides guidance on the information needed to track the status of the CRB's fish and wildlife resources, report on the Program's approved high-level indicators, and assess progress towards Program goals, objectives, and indicators. The 2020 addendum to the Northwest Power and Conservation Council Columbia River Basin Fish and Wildlife Program identified a set of Strategy Performance

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[4] [NPCC Fish and Wildlife Program Part Four]https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program/part-four-adaptive-management and [2020 Addendum]https://www.nwcouncil.org/fs/16300/2020-9.pdf

[5] 2020 CRS Biological Opinion https://repository.library.noaa.gov/view/noaa/26460

[6] 2014/2020 Columbia River Basin Fish and Wildlife Program https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program/, specifically, [Part Two, section V]https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program/v-tracking-status-basins-fish-and-wildlife-resources, [2014 Program Appendix E]https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program/appendix-e-council-high-level-indicators, [2014 Program Appendix D]https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program/appendix-d-program-goals-and-objectives and [2020 Addendum]https://www.nwcouncil.org/sites/default/files/2020-9.pdf.

Indicators. NPCC staff lead a regional process that refine the Strategy Performance Indicators and supporting data. This process is clarifying data needs for the NPCC Program Tracker and will serve to specifically identify any fish species and data categories that need to be added to be developed within or in addition to the existing StreamNet data services that feed the Program Tracker.

GIS Data Layers Priorities

StreamNet and PSMFC's GIS data layers are recognized as BPA's system of record for mapping fish facilities (e.g., hatchery, weirs), fish distribution within the basin, trends features, and non-ESA-listed populations or fish management units. NPCC's current 2026 Draft Fish and Wildlife Program identifies StreamNet's GIS data layers as their system of record. PSMFC's centralized GIS also supports the Columbia Basin PIT Tag Information System (PTAGIS) and the Regional Mark Processing Center (RMPC), providing consistency and synergy across regional projects. BPA and NPCC use StreamNet PSMFC GIS data to support their reporting tools, such as NPCC's Program Tracker, BPA PISCES (CBFish.org), and PNAMP's MonitoringResources.org. Additional GIS layers are being developed by the GIS Center, as identified by NPCC and BPA and as informed and reviewed by a PNAMP FMWG task team.

2.4 Budget Considerations

Calendar year 2025 spans two fiscal years (FY), FY25 from January to September 2025 and FY26 from October to December 2025. The BPA StreamNet baseline budget for the contract Release covering FY2024-2025 was $4,653,173 with $2,326,587 allocated to each fiscal year prior to any transfers between years. The FY2025 StreamNet budget supports PSMFC StreamNet staff and contributed to funding a technical subcontract. The FY 2025 budget includes a 4.4% cost of leaving adjustment.

The overall StreamNet budget remains a constraint as the number of FTEs that can be supported is less than what partners would need to perform all tasks fully and without requiring sequencing. As rates and fees increase over time with cost of living and inflation, PSMFC StreamNet and partners struggle to maintain and recruit staff with required expertise. The absence of additional funds provided by BPA to PSMFC StreamNet to annually fund Tribes with data that are relevant to BPA and appropriate for StreamNet data systems weakens the reliability of data flow from these providers. Figure 2.2 shows the difference in the budget's nominal and real value since 2004.

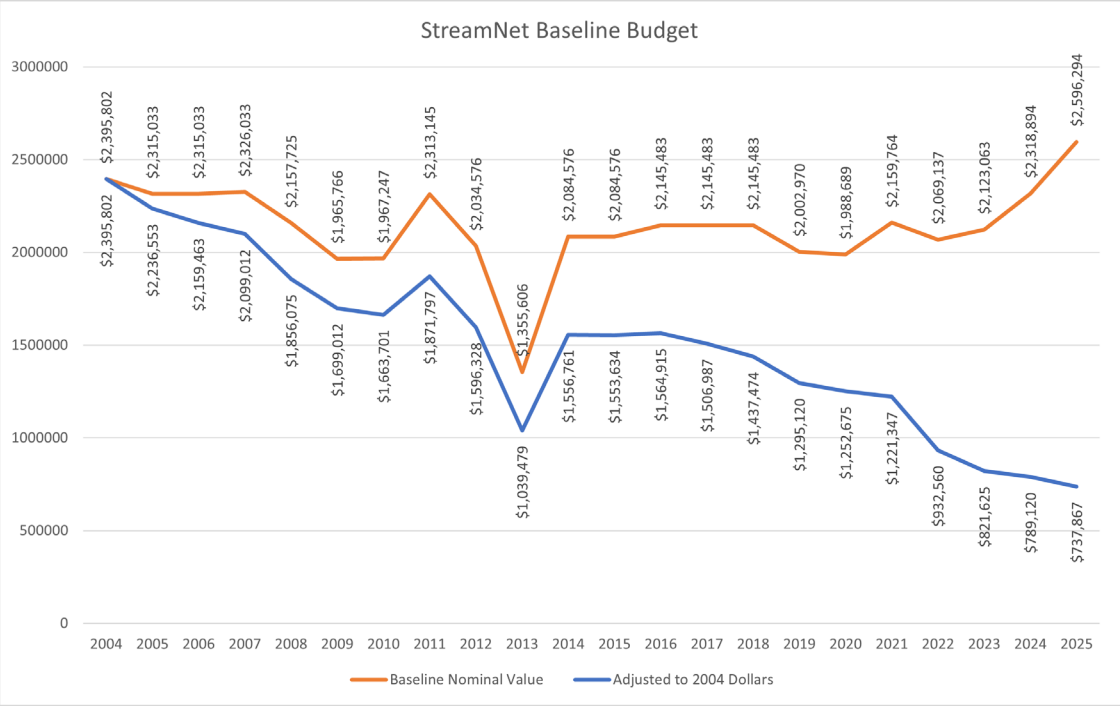

Figure 2.2: StreamNet's budget, in relation to the dollar value in 2004.

For more details, please see Appendix B — Budget.

2.5 Data Sharing Partners - Providers and Consumers

Current partner agencies funded through this project are: Colville Tribes, IDFG, MFWP, ODFW, and WDFW. These partners actively provide data to StreamNet data systems.

Other partner agencies that are not funded directly through StreamNet include: Columbia River Inter-Tribal Fish Commission (CRITFC) and its member Tribes[7], Columbia Basin Fish and Wildlife (CBF&W) Library, USFWS, NOAA, and PNAMP. These partners both consume data from StreamNet data systems and provide data or supporting documentation, facilitation, and collaboration.

For more background on StreamNet funding, please see https://www.streamnet.org/about/funding/.

[7] CRITFC member Tribes consists of Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation.

3. Approach and Methodology

StreamNet supports a regional approach to data management, coordination, and standardization by increasing partner capacity and improving regional access to fish data (Figure 3.1). The majority of fish-related data originate with the region's state, Tribal, and federal fisheries agencies' fish monitoring programs. StreamNet participates in or leads a variety of teams of data management professionals from states, Tribes, and agencies that coordinate regional data sharing. Data flow has been streamlined through the implementation of application programming interfaces (APIs) for various data types.

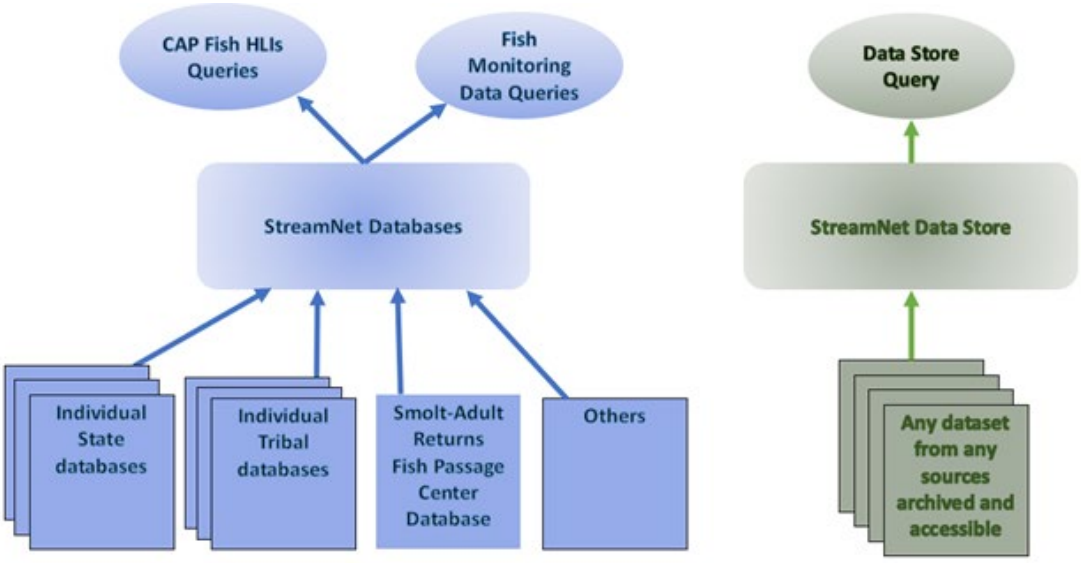

Figure 3.1: Flow of data from StreamNet members' agency/tribal databases, sub-regional databases, and other sources, to the StreamNet and StreamNet online data access queries.

StreamNet supports individual agencies and Tribes to work collaboratively in the exchange of data contributing to regional decision making. StreamNet facilitates submittal of time series data and high-level indicators to its regional databases at PSMFC by supporting technical staff inside these agencies to help increase the capacity of partners with managing, standardizing, and providing related GIS layers. PSMFC and StreamNet funded agency employees and subcontractors locate data, standardize data reporting through the cooperative development of data exchange standards, complete Quality Assurance/Quality Control (QA/QC), and assure the flow of data from state, Tribal, or agency repositories to StreamNet.

Data submitted to StreamNet are available through multiple web-based data query tools (tabular and map based) as well as multiple data download formats. Read-only access through the StreamNet API supports web tools and analysis through reproducible workflows such as R packages or scripting. StreamNet metadata are available online as web services. StreamNet harvests its own web services as part of the new, more efficient

approach to querying our data. Users accessing data through StreamNet are also required to agree to the Data Use Agreement at the request of data submitting agencies.

For more details see the Project Summary https://www.cbfish.org/Project.mvc/Display/1988-108-04 and past and current Contract Summary https://www.cbfish.org/Contract.mvc/Summary/66435.

3.1 Standing Committees for StreamNet and Coordinated Assessments Partnership

There are several committees and teams that contribute to the implementation of StreamNet tasks, including an Executive Committee, a Steering Committee, and supporting workgroup and teams, including considerable interaction with PNAMP's Fish Monitoring Work Group.

The StreamNet Executive Committee provides input on the StreamNet Strategy and the Coordinated Assessments Strategy to inform data priorities.

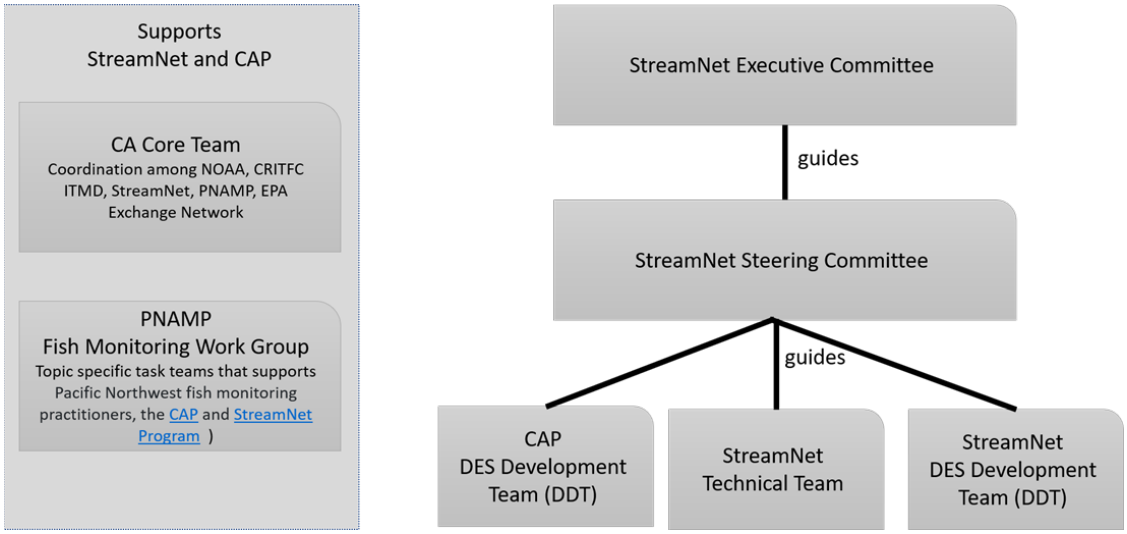

Figure 3.2: Relationship among the StreamNet organized committees and teams, the CA Core Team, and the PNAMP Fish Monitoring Work Group that all contribute to StreamNet and CAP related work.

More information about these committees, workgroups, and teams is available at https://www.streamnet.org/committees/. See Appendix E — Committees and Teams for lists of members for CY2025.

3.2 StreamNet Data Specialists within Agencies

The StreamNet project uses subcontracts to support data specialists within StreamNet member agencies. These staff operate within their agency or Tribe and coordinate with biologists across that organization to identify and collect data of interest to StreamNet.

The data specialists locate and acquire data and metadata, convert these to the DES format adopted by StreamNet, perform QA/QC[8], provide related GIS information, and assist with development and utilization of database systems within agencies to streamline the data flow process. Once these data are properly formatted and validated, these data are then submitted to the StreamNet database at PSMFC, where they are quality checked and managed so they become available to the StreamNet online data query systems. These data are then publicly available for viewing and downloading in standardized format through the project website, http://www.streamnet.org. Data submitted may also include data from other agencies and Tribes, as data collection and analysis are often collaborative between partners and others even before it is submitted to StreamNet.

3.3 StreamNet Data Systems

The StreamNet REST API makes some data query and submission processes automatable. It requires that users request access from PSMFC StreamNet staff to be issued a unique API key to submit records to StreamNet data systems. A read-only API key can be used for data queries. The use of a unique programming key is a case of programming best practice rather than limiting data access.

Data Store - Repository of Data Sets and Information

StreamNet maintains the Data Store, a searchable, secure location for data storage for projects throughout the region and provides access to non-standardized data related to fish and other aquatic resources. These data sets come from many different sources and are provided for downloading in their original formats. StreamNet provides guidance for users to describe their data set and submit it. Those who want to archive a report with summary graphs and tables are directed to the Columbia Basin Fish & Wildlife Library hosted by CRITFC. As the Data Store is meant to house non-standardized data, there is no standard or expected update schedule, and many data sets are submitted as accessible, archival data.

For more information, please see Appendix D — Archival and Maintenance of Past Projects.

Fish Monitoring Data (FMD)

The StreamNet FMD (previously Trends) query system provides access to georeferenced data sets submitted according to the StreamNet DES. The tabular web query allows the user to filter data in different ways to suit their needs. The data can be downloaded, or the query results' URL can be shared. The content of StreamNet's FMD query system includes fish abundance estimates and indexes of redd and spawner counts at the local scales for native and non-native species. Many of these are focal species identified in the 2014 NPCC FW Program, and subsequent amendments, as well as information on hatchery returns,

[8] StreamNet QAQC 2022 https://www.streamnet.org/qaqc_final-7feb2022/

and harvest. Data sets relating to routine monitoring activities such as redd counts and dam counts are generally updated annually.

See the data at https://www.streamnet.org/home/data-maps/fish-data/.

Coordinated Assessments Data Exchange (CAX)

The natural and hatchery origin fish data in CAX is available through tabular and map-based web queries and via the StreamNet REST API. The web queries provide links to supporting data sets in the Fish Monitoring Data system, if available. If data are not available in CAX, location-based summary information about data availability is provided.

All data within CAX conforms to the Natural and Hatchery DESs. Most data providers submit data to the CAX using the StreamNet REST API. CAX data sets are generally updated annually.

Users accessing data through the CAX queries are asked for their name and email and are required to agree to the Data Use Agreement at the request of data submitting agencies. The Data Use Agreement, updated in 2024, reflects the data sharing agreement conditions agreed to by parties providing data to StreamNet for the CAX data system. At the end of 2025, the CAX held 29,587 records.

See the data queries at https://www.streamnet.org/home/data-maps/fish-hlis/.

REST API information is available at https://www.streamnet.org/resources/exchange-tools/rest-api-documentation/.

Data Use and Sharing Agreement is available at https://www.streamnet.org/resources/exchange-tools/data-agreements/.

Maintenance and Access to GIS Layers

PSMFC's GIS Center supports the management and publication of StreamNet's spatial data layers related to fish populations, monitoring sites, fish facilities, and stream survey reaches associated with time series data stored in StreamNet data systems, as well as streams protected from hydroelectric development by NPCC. This centralized GIS provides a comprehensive location referencing system for finding and accessing Columbia River Basin fisheries information compiled by StreamNet, CAP, and other PSMFC programs. It enables discovery and display of the CAP Fish HLIs at the population scale and drives the web-based mapping components of the CAP Fish HLI map-based query system and the maps embedded within the Fish Monitoring Data query system that depict the time series data sampling location.

This centralized GIS enables users to: 1) explore baseline information on fish abundance and distribution, 2) identify the location of surveyed stream reaches and important fish facilities (e.g., dams, hatcheries, weirs, traps, etc.), 3) create custom data and map products, and 4) summarize data by subbasins and areas of interest. PSMFC's GIS Center staff maintain and update StreamNet's core GIS layers as new data becomes available

from partners. These layers are available for download in file geodatabase format and include International Organization for Standardization (ISO) compliant metadata. The PSMFC GIS Center staff participate in the StreamNet Tech Team meetings and provide updates to the Steering Committee and Executive Committee during their meetings.

See StreamNet GIS data available at https://www.streamnet.org/home/data-maps/gis-data-sets/ and the full suite of data available from the PSMFC GIS Center at https://psmfc.maps.arcgis.com/home/index.html.

3.4 Validation Process for Structured Data Submitted to StreamNet

StreamNet provides access to standardized data submitted by Tribal, state, and federal fish and wildlife managers. This is achieved through contributors following agreed-upon policies and mechanisms that define and enforce formal rules for the structure and use of data and metadata including Data Exchange Standards, data sharing agreements, and the StreamNet Quality Assurance and Quality Control Plan available at https://www.streamnet.org/resources/exchange-tools/. For more information about specific validation processes for different data types, see Appendix F — Validation Processes.

3.5 Metadata Documentation and Connecting to Complementary Data Systems

Metadata for data submitted to StreamNet has always been a priority to ensure the appropriate use and reuse of these data. During 2025, StreamNet continued to work on improving the quality of metadata associated with its data records while exploring approaches to reduce the burden on the data provider. StreamNet and partners have leveraged documentation of protocols and methods available from other regional data systems wherever connections are possible. The two primary resources are described here, Monitoring Resources and the Columbia Basin Fish and Wildlife Library.

PNAMP MonitoringResources.org

PNAMP developed MonitoringResources.org to provide detailed information about protocols, methods, sample designs, study plans, and metric documentation to inform the NPCC's project review process, BPA's Research, Monitoring and Evaluation (RM&E) needs, and for project tracking. The current version of MonitoringResources.org promotes transparency and greater understanding of monitoring through a standard process of documentation and information management, which is facilitated through online tools that provide guidance and support for design and documentation of monitoring projects from beginning to end.

Columbia Basin Fish & Wildlife Library

The StreamNet project continues to rely on the Library to provide stable, long-term access to documents such as reports that provide details related to data submitted to the

StreamNet database. The Library uploads documents to its cloud server and generates URLs, allowing users to easily verify the source of the data.

More information about the Library can be found at https://cbfwl.org.

3.6 Data Backup Systems

The StreamNet databases are backed up on the PSMFC organization-wide system, which includes sending backup copies to the Kennewick PSMFC office.

StreamNet staff send a differential backup to the cloud daily.

3.7 StreamNet Relationship with Mainstem and Sub-regional Data Projects

StreamNet collaborates with existing mainstem/sub-regional data management projects to further enhance the flow of information needed to inform decision-making and reporting. These types of projects are tasked with compiling information from a subset of the CRB, in some cases to support collaborative analysis. StreamNet works with three main data management projects to access relevant information needed to inform HLIs: the CRITFC Inter-Tribal Monitoring Data Project, the Fish Passage Center's Comparative Survival Study Database, and the U.S. Fish and Wildlife Service Database. This coordination reduces the workload placed on individual biologists and data specialists by not requiring them to resubmit these data to the StreamNet database. For more information on these data projects, see Appendix D — Archival and Maintenance of Past Projects.

StreamNet staff continue to maintain public access to uniquely structured information for the NPCC FW Program including the CHaMP, Data Store, HEP, the HSRG, Protected Areas, and Subbasin Plans accessible on https://www.streamnet.org/home/data-maps/.

4. Results - Improved Data Sharing and Access

StreamNet continued to acquire fish data from our four partner state fish and wildlife agencies (ODFW, WDFW, IDFG, and MFWP) and our Tribal partner (Colville Tribes). StreamNet continues to work with other data providers, including one federal agency (USFWS for data from the national fish hatcheries), the Shoshone-Bannock Tribes, the Nez Perce Tribe, the tribal consortium CRITFC, and the Fish passage Center (FPC), to facilitate access to population-level indicator data for the CAP Fish HLIs. These data have been collected and analyzed using a variety of funding processes and sources, only some of which are funded through BPA or other federal programs. As a regional data coordinator, StreamNet strives to provide access to all data of a given type from all sources. The BPA statement of work and work element summary that guides the work performed by StreamNet PSMFC and its partners (The Colville Tribes, IDFG, MFWP, ODFW, and WDFW) are available in CBFish.

In 2025, StreamNet data changes included:

• The total number of FMD records increased by 886 to 197,911.

• The number of records in CAX increased by 7,468 to 29,440.

• The HCA DES was updated to version 20250728.

4.1 Columbia River Fish and Wildlife Library - Data Reference Documents

In 2025, the Library received 75 new StreamNet source reference documents. These documents were assigned a URL and appropriate metadata and made accessible through the Library catalog. Additionally, Library staff updated approximately 550 StreamNet references in the reference table by correcting errors, creating citations, and adding URLs.

4.2 PNAMP Monitoring Resources - Study Plan Documentation

The current version of MonitoringResources.org promotes transparency and greater understanding of monitoring through a standard process of documentation and information management, which is facilitated through online tools that provide guidance and support for design and documentation of monitoring projects from beginning to end. See Monitoring Resources - Pacific Northwest Aquatic Monitoring Partnership for more details about the project. The number of sample designs linked to StreamNet data systems in Monitoring Resources are as follows:

- Data Store 767
- Fish Monitoring Data 767
- CAX 127

See Monitoring Resources Data Repository details at https://www.monitoringresources.org/Resources/DataRepository/Index.

4.3 PSMFC StreamNet Web Tools - Accessing Information

Since StreamNet established the REST API in 2014, most data providers have been submitting data through automated, repeatable scripts or applications (Figure 4.1). Data consumers can also use a read-only API key to access data through the API.

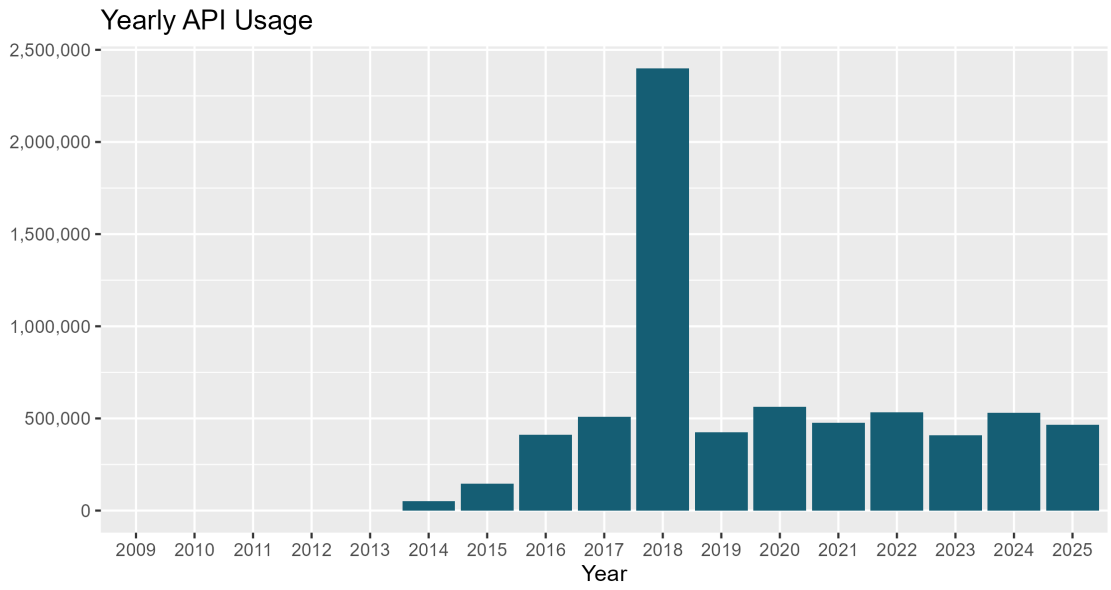

Figure 4.1: StreamNet API usage by year

The StreamNet website receives thousands of user visits each year (Figure 4.2).

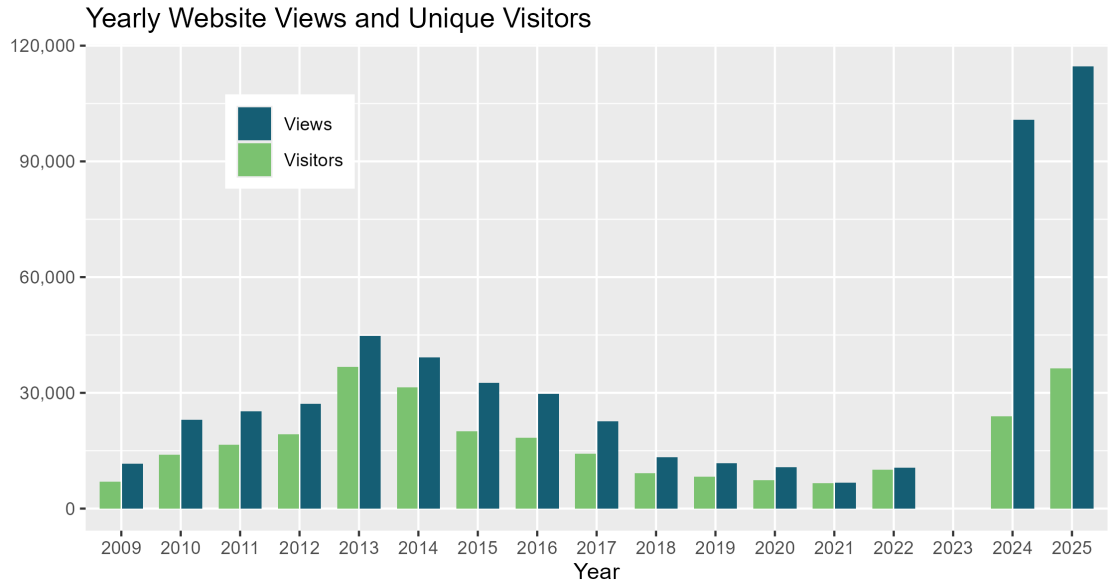

Figure 4.2: StreamNet Website Usage by visits and unique visitors. Data was not available for 2023.

StreamNet map applications receive consistent traffic since unique visitor tracking was started. See Figure 4.3 for yearly usage of the StreamNet Mapper, Protected Streams Mapper, and Fish Facilities Mapper.

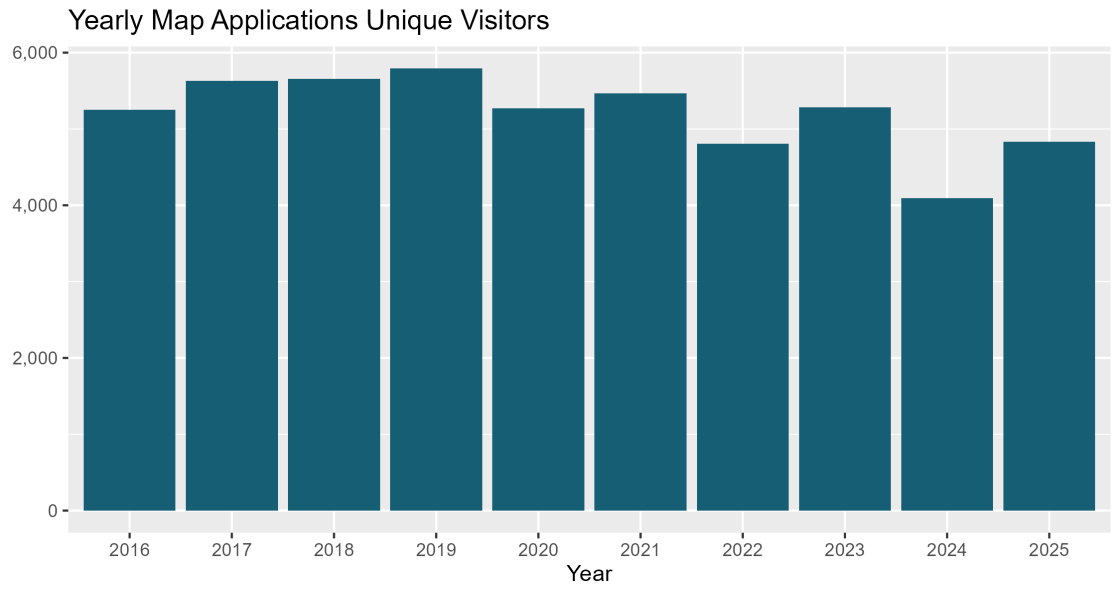

Figure 4.3: StreamNet Map Applications unique visitors, by year.

4.4 Data Store - Repository of Data Sets and Information

During 2025, StreamNet staff continued to provide support by phone and email for data contributors to the Data Store, including BPA and non-BPA funded contributors. Six new data sets were added to the StreamNet Data Store and approved for sharing. The following organizations provided the data sets to the StreamNet Data Store: Confederated Tribes of the Warm Springs Reservation (3), MFWP (1), U.S. Forest Service (1), and U.S. Geological Survey (USGS) (1). There were also six data sets updated in 2025 by MFWP (1), USGS (3), and Yakama Nation (2). StreamNet partners all supported communication and appropriate transfer of data to the secure and accessible repository of the Data Store.

4.5 Fish Monitoring Data (Trends)

StreamNet DES version 2024.1, which contains data submission standards for FMD, was in effect in CY2025. The number of Protected Areas records has been stable since the NPCC last amended the Protected Areas in 1992, at 32,997 records. A summary of the FMD trends data sets updated in CY2025 is provided in Table 4.1.

Table 4.1: Fish Monitoring Data Summary

Review of data submitted during CY2025

Data Category	Year Range	Number of Trends			Number of Records		
		2024	2025	Added	2024	2025	Added
Redd counts	1901–2024	5,078	5,126	**48**	58,187	58,535	**348**
Fish counts	1956–2024	444	444	0	2,764	2,801	**37**
Spawner counts	1944–2025	5,119	5,119	0	41,975	42,278	**303**
Spawning abundance estimates	1901–2025	3,099	3,099	0	20,788	20,848	**60**
Dam/weir counts	1926–2025	529	530	**1**	15,183	15,294	**111**
Fish abundance estimates	1976–2024	130	130	0	1,405	1,406	**1**
Hatchery returns	1906–2025	1,091	1,091	0	10,608	10,634	**26**
Freshwater harvest	1894–2024	2,705	2,705	0	46,115	46,115	0
Totals			**18,244**	**49**		**197,911**	**886**

Bold highlights indicate data added to Fish Monitoring Data in 2025. Records over time make up the Trends and are identified as related by a TrendID code.

While records in FMD are not required to be associated with populations, as defined by the populations table in Coordinated Assessments, many are. These linkages are shown in Table 4.2 and are accessible as associated data from the CAX web query.

Table 4.2: Fish Monitoring Data

Timeseries data sets (Trends) associated with defined populations.

Population Grouping	Data Category	Year Range	Populations	Records
Columbia River Basin	Redd counts	1947–2025	101	25,458
Columbia River Basin	Fish counts	1993–2024	22	2,019
Columbia River Basin	Spawner counts	1948–2025	54	13,848
Columbia River Basin	Spawner abundance estimates	1943–2025	42	4,616
Columbia River Basin	Dam/weir counts	1928–2025	47	4,563
Columbia River Basin	Fish abundance estimates	1993–2024	17	683
Columbia River Basin	Hatchery returns	1942–2025	31	899
Columbia River Basin	Freshwater harvest	1894–2024	34	3,264
Oregon Coast	Spawner counts	1950–2024	49	8,819
Oregon Coast	Dam/weir counts	1946–2024	3	199

Columbia River Basin = All populations within the Columbia Basin, including the Priority populations. Oregon Coast = Coho populations in Oregon coast rivers draining directly into the Pacific Ocean. These are outside the Columbia River Basin and are not compiled using BPA funding.

All StreamNet partners compiled and uploaded data to FMD in 2025.

4.6 GIS Layers Updated Content and Access

PSMFC's GIS Center continues to support an integrated Columbia Basin fish facilities GIS data set. This effort eliminates multiple data sets with varying degrees of accuracy for location information and establishes a common layer which is now shared between programs. The GIS center engages in PNAMP FMWG task groups to advance development of GIS content and access. StreamNet staff work with PSMFC GIS staff to improve the use of, and connections to PSMFC GIS layers in NPCC, PNAMP, and BPA tools.

StreamNet also provides links to barrier data sets that partner agencies publish publicly. These barriers data are not currently being compiled and standardized regionally. The status of this information reflects that this data category has not been identified as a priority for standardized compilation and distribution at the regional level. However, StreamNet partners are often involved in maintaining these datasets to meet internal state mandates and to inform the fish distribution data set.

StreamNet's regional GIS Datasets including fish distribution and population boundary data sets are packaged for download and made available on the project website. In addition, spatial data are published as web map services that can be queried and leveraged by project partners via PSMFC's ESRI REST Services endpoint (https://maps.psmfc.org/server/rest/services/StreamNet). In the coming year, we plan to improve the visibility of this resource and actively coordinate with BPA, NPCC and PNAMP to facilitate use through PSMFC's Enterprise GIS and ArcGIS Online.

The following regional GIS Datasets were updated based on partner data submissions:

- Fish Facilities
- Sampling locations/trends
- Fish Distribution
- Population Boundaries

The GIS center has also been engaged in identifying GIS layers needed to support specific BPA tasks, including:

- Assessing which GIS layers for focal species are needed to support CBFish.org functionalities, which is ongoing in 2026.
- Discussing with PNAMP MonitoringResources.org which PSMFC GIS layers they would want to include and how to make these easily accessible to them.

The Confederated Tribes of the Colville Reservation - GIS

GIS related tasks are not included in the StreamNet scope of work for the Colville Tribes, and thus none are submitted to StreamNet. However, information on the layout of the research (assessment units, reaches, sites) and location of fish facilities is available in an

interactive map on the site https://www.okanoganmonitoring.org. The Colville Tribes also collect habitat data for Ecosystem Diagnosis and Treatment (EDT) modelling using handheld GIS tablets, and the resulting shapefiles are stored in the OBMEP database.

Idaho Department of Fish and Game - GIS

The generalized fish distribution layer was updated with new stream and lake survey data, the Fish Facilities layer was updated by input from IDFG fisheries staff, and the Aquatic Organism Passage aka Fish Barriers was compiled into a new feature class and will be updated annually via direct GIS Exchange with StreamNet. Assisted fisheries staff in developing and testing new online mappers to support status assessments of cutthroat subspecies.

Montana Department of Fish, Wildlife & Parks - GIS

MFWP StreamNet staff manage the agency's fisheries spatial data and post GIS layers to the MFWP Maps & GIS Resources site where they are available for viewing and download. Spatial data sets include fish distribution, fish survey locations, genetic sample locations and hatchery locations. StreamNet staff under the guidance of PSMFC submit some data sets as spatial data sets rather than tabular. During 2025, an upgraded, web based, internal fish distribution editing application was designed, developed, and successfully deployed to better support staff workflows.

In addition to managing StreamNet data sets as GIS layers, MFWP staff outside of StreamNet also make additional fisheries GIS layers and products available to the public and partners such as aquatic invasive species information, fish stocking data, disease information and interactive maps, data dashboards and Story Maps.

Oregon Department of Fish and Wildlife - GIS

Updates to ODFW's fish habitat distribution (FHD) data occurred throughout the calendar year. Areas of emphasis included updates to habitat distribution in the upper Klamath Basin and incremental changes to salmon and steelhead upper extent mapping in the context of Essential Salmonid Habitat identification and data QA/QC efforts in relation to Oregon Department of Forestry managed fish presence data.

ODFW's FHD data were mostly (~80%) migrated to the final (2024) version of the National Hydrography Dataset (NHD). Plans are in place to synchronize the remaining FHD data to the "final" NHD data during the first half of calendar year 2026. The final version of the NHD forms the foundation of the new national standard 3D Hydrography Product (3DHP), so this migration will support the ultimate transition to the 3DHP.

ODFW's short-term strategy for maintaining FHD data is to continue using ArcGIS Desktop with the Hydrography Event Management tools. Web-based Hydro Addressing tools (HydroAdd 3d) are under development by USGS. ODFW plans to transition to those when they become available – possibly in 2026.

Updated fish passage barrier data were published in June 2025 and updated FHD data were published in October of 2025 to the ODFW Data Clearinghouse.

To help support ODFW's Recovery Tracker web map efforts, species population boundary data sets were modified to support search, display and linking to external documents. Attribute fields and values were standardized to support consistent query and display. A unique, species-specific population record identifier was also added to connect the mapped population boundaries and species-specific population metrics.

In 2025, ODFW initiated a review of our hatchery facility spatial data with the goal of improving the currency, accuracy and comprehensiveness of the data set. Input was solicited from agency subject matter experts and incorporated into the data set. An updated ODFW Hatchery Facilities data set was submitted to StreamNet for inclusion into the Fish Facilities Mapper. Additionally, an effort was initiated to determine a broader set of agency and external requirements for these data and improve the data set schema to support these requirements and minimize data set maintenance.

Washington Department of Fish and Wildlife - GIS

WDFW StreamNet GIS staff continued updates of WA NHD hydro databases and continued to support GIS needs to ensure the flow of StreamNet trend, fish distribution and CA data. In 2025, the GIS work continued to focus on fish distribution, population geometry reviews and supercode, linework and dataflow tools, and the addition of Hatchery location ID and verification for HCA data. With this work, StreamNet was synchronized with WDFW's Statewide Washington Integrated Fish Distribution layer and new trends were submitted for new supercode locations to coordinate better with CA data. Work this year also focused on an effort to centralize the StreamNet data compiling via an online feature service. WDFW Fish distribution layer has been updated for 2025.

4.7 CAP Fish High Level Indicators and Metrics

The CAP aims to build automated indicator and metric data sharing capability in all the data source agencies. StreamNet works with the agencies to develop procedures for internal conversion of the data to regional standards defined in the Coordinated Assessments Data Exchange Standards and continues to contribute to the coordination and standardization of monitoring data throughout the basin.

StreamNet staff and members actively supported improving data sharing capabilities in the region through the CAP and the CAX. In 2025, StreamNet supported direct data access for natural-origin data via the CAX online tabular and mapping queries and for all the data in CAX via user-developed automated API downloads. StreamNet staff worked on developing a tabular web query system for the hatchery-origin data that partners started submitting to CAX in 2024. The HCA DES was updated to the current version, HCA 20250728.

The CAP is closely aligned with the PNAMP Fish Monitoring Work Group (FMWG) so we can efficiently access the right expertise when needed to solve challenges related to collecting and managing data. In 2025, the FMWG task group to update CA Terms and Definitions provided recommendations to the CAP DDTs, leading to the update and clarification of the terms and definitions used by the DESs. See https://pnamp.org/projects/fish-monitoring-work-group/fmwg-terms-definitions/ for more details.

The Shoshone-Bannock Tribes continued improving their data management and sharing capacity to flow data directly into the Coordinated Assessments Data Exchange (CAX) system. The Yakama Nation's Status and Trends Annual Report (STAR) data system continues to submit data. We continue to hear about improvements in the data sharing capacity of other CRITFC Tribes, and we hope that this will translate to additional data being submitted to the CAX.

StreamNet partners continued to maintain and publish their data in the CAX, for natural origin and hatchery origin data. New records published to CAX resulted in a total of 29,440 records by the end of calendar year 2025. See the figures below for summaries of partner contributions.

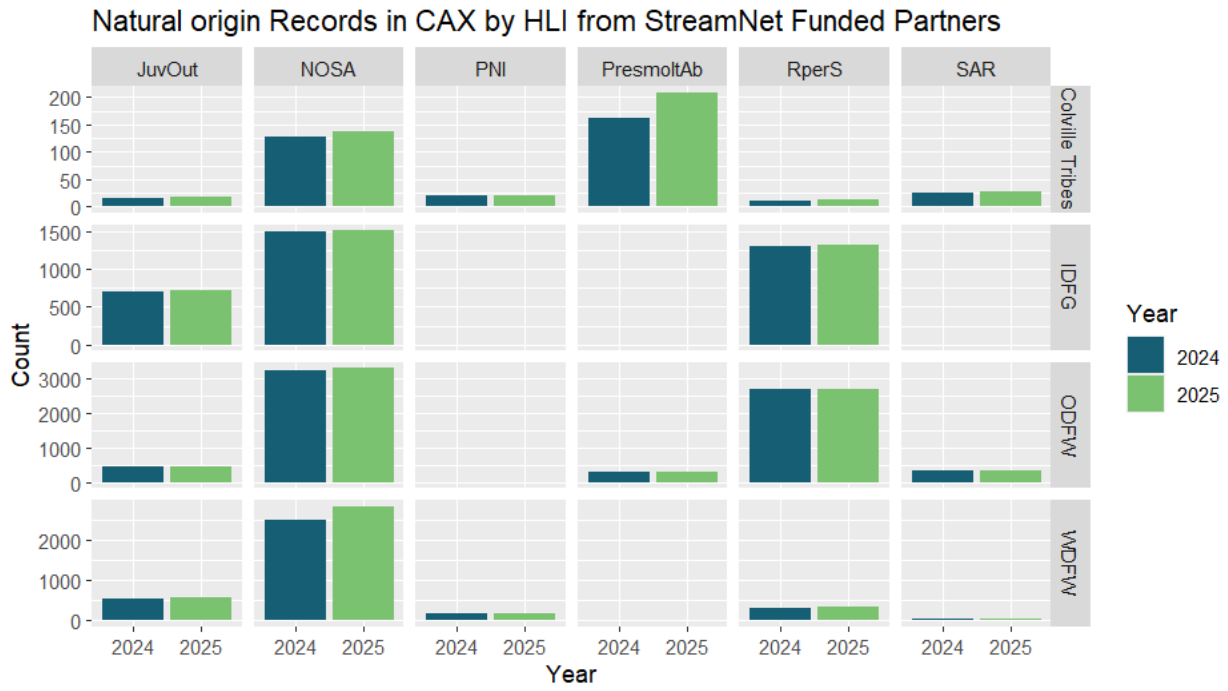

Figure 4.4 Natural origin records in CAX by DES Table from StreamNet funded Partners. Table names: JuvOut = Juvenile Outmigrants, NOSA = Natural Origin Spawner Abundance (includes some escapement estimates), PNI = Proportionate Natural Influence, PSA = Presmolt Abundance, RperS = Recruits per Spawner, SAR = Smolt to Adult Return rate.

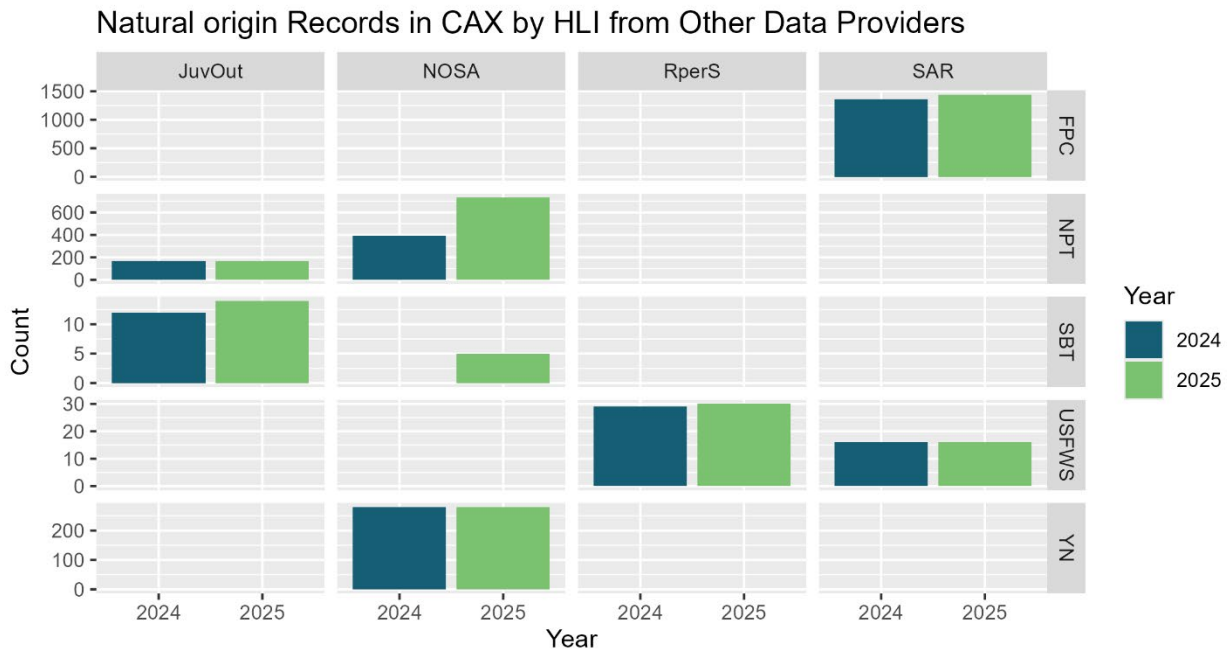

Figure 4.5: Natural origin records in CAX by DES Table from other Data Providers. Table names: JuvOut = Juvenile Outmigrants, NOSA = Natural Origin Spawner Abundance (includes some escapement estimates), PNI = Proportionate Natural Influence, PSA = Presmolt Abundance, RperS = Recruits per Spawner, SAR = Smolt to Adult Return rate. Data providers: FPC = Fish Passage Center (imported by PSMFC staff), NPT = Nez Perce Tribe, SBT = Shoshone-Bannock Tribe, USFWS = U.S. Fish and Wildlife Service, YN = Yakama Nation.

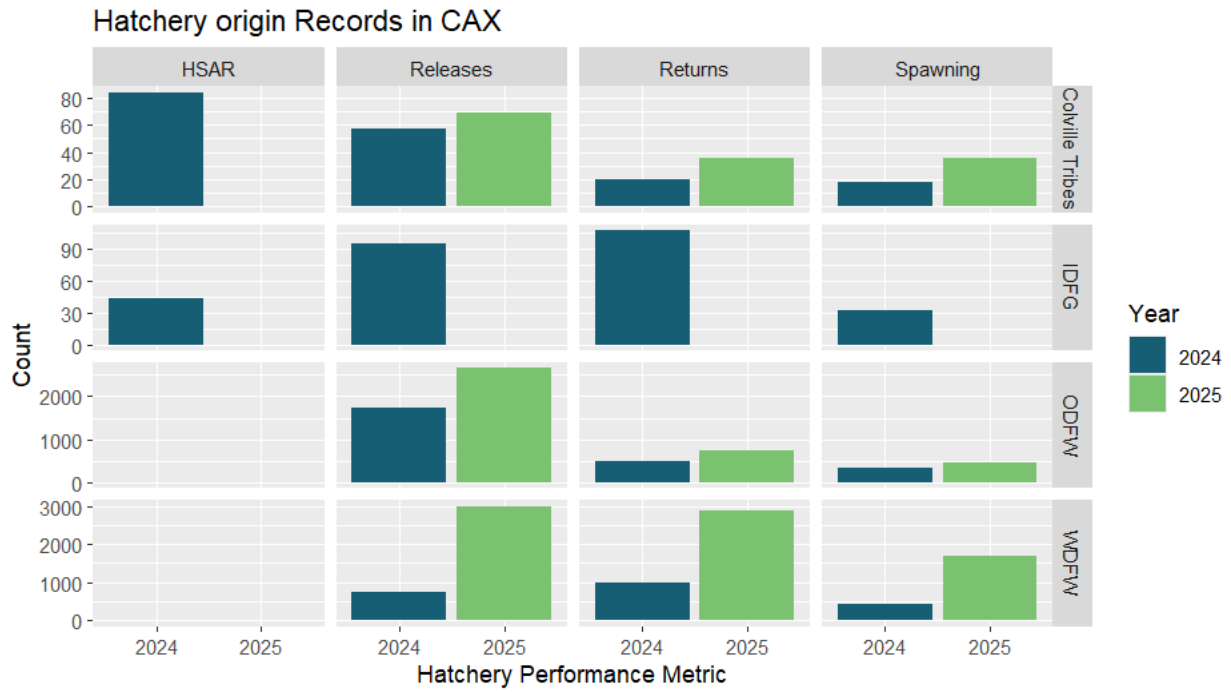

Figure 4.6: Hatchery origin records in CAX by DES Table by Provider. In 2025, IDFG removed hatchery records successfully sent to CAX while revising the HCA DES (version TBD). Table names: HSAR = Hatchery Smolt to Adult Return rate, Hatchery Releases, Hatchery Returns, and Hatchery Spawning.

Number of records of data, by high level indicator and StreamNet partner, as of 12/31/2024 and 12/31/2025. High level indicators of both natural population health and of hatchery program performance are included.

Table 4.3: Natural Coordinated Assessments

High Level Indicator Records by Geographic and Population Groupings

Geographical Grouping	High Level Indicator	Year Range	Populations (single)	Super Populations (multiple)	Count of Records
Columbia River Basin	Natural Origin Spawner Abundance	1938–2025	188	0	7,814
Columbia River Basin	Presmolt Abundance	1993–2024	26	17	403
Columbia River Basin	Juvenile Outmigrants	1978–2024	71	4	1,706
Columbia River Basin	Smolt to Adult Return Rate	1985–2022	99	74	1,723
Columbia River Basin	Recruits per Spawner	1949–2024	86	14	3,476
Columbia River Basin	Proportionate Natural Influence	1985–2024	5	0	211
Oregon Coast	Natural Origin Spawner Abundance	1990–2024	21	9	999
Oregon Coast	Presmolt Abundance	1998–2024	0	5	134
Oregon Coast	Juvenile Outmigrants	1988–2018	7	0	194
Oregon Coast	Smolt to Adult Return Rate	1988–2016	7	0	182
Oregon Coast	Recruits per Spawner	1986–2021	21	0	940
Puget Sound	Juvenile Outmigrants	1999–2024	2	0	37

Columbia River Basin = All population within the Columbia Basin, including the BPA priority populations.

Oregon Coast = Populations in Oregon coast river systems draining directly into the Pacific Ocean. These are outside the Columbia River Basin and are compiled using alternative funding.

The following are tables exploring the ways to represent the hatchery origin fish data now in CAX.

Table 4.4: **Hatchery Programs by Species**

Species	Count of Hatchery Programs
Steelhead	251
Chinook Salmon	188
Coho Salmon	132
Chum Salmon	48
Sockeye Salmon	24
Total	643

Table 4.5: **Hatchery Programs by Contact Agency**

Agency	Count
Washington Department of Fish and Wildlife	597
Oregon Department of Fish and Wildlife	29
Idaho Department of Fish and Game	11
Confederated Tribes of the Colville Reservation	4
Makah Tribe	1
U.S. Fish and Wildlife Service	1
Total	643

Table 4.6: **Programs by Hatchery Program Type**

Hatchery Program Type	Count
Unknown	357
Segregated harvest augmentation	158
Integrated supplementation	89
Integrated supplementation/mitigation	39

Table 4.7: **Programs by Hatchery Program Use**

Hatchery Program Use	Count
Unknown	292
Harvest	265
Conservation	45
Harvest, Conservation	30
Conservation, Harvest	4
Conservation, Harvest, Recovery	3
Conservation, Harvest, Recovery, Reintroduction	1
Harvest, Research	1
Recovery, Reintroduction	1
Reintroduction	1

Table 4.8: **Run × Species**

Run timing	Coho Salmon	Chinook Salmon	Chum Salmon	Sockeye Salmon	Steelhead
Early	25	0	0	0	0
Fall	0	90	1	1	0
Late	46	0	1	0	0
Late Winter	0	0	0	0	2
Late fall	0	2	0	0	0
Late winter	0	0	0	0	37
N/A	60	0	45	23	0
Spring	0	66	0	0	0
Spring/summer	0	1	0	0	0
Summer	1	29	1	0	113
Winter	0	0	0	0	99

Table 4.9: **Species × Program Use**

Species	Conser-vation	Harvest	Reintro-duction	Harvest, Conservation	Recovery, Reintro-duction	Harvest, Research	Harvest, Recovery, Conservation	Harvest, Recovery, Conservation, Reintroduction	Unk
Chinook Salmon	18	78	1	12	0	0	3	1	75
Chum Salmon	16	10	0	2	1	0	0	0	19
Coho Salmon	1	73	0	16	0	0	0	0	42
Sockeye Salmon	2	1	0	0	0	0	0	0	21
Steelhead	8	103	0	4	0	1	0	0	135

Table 4.10: **Species × Program Type**

Species	Integrated supplementation	Integrated supplementation/mitigation	Segregated harvest augmentation	Unknown
Chinook Salmon	46	14	43	85
Chum Salmon	7	5	7	29
Coho Salmon	21	8	37	66
Sockeye Salmon	3	0	0	21
Steelhead	12	12	71	156

Hatchery Program Type or Use “Unknown” indicates that the type or use information has not been provided at this time.

The Confederated Tribes of the Colville Reservation - CAP HLI

The Colville Tribes' HLIs are housed in the OBMEP database, and a C# script syncs these data with the CAX database. In 2025, updates to the HCA DES (vers 20250728) were implemented and all HCAX data from the Chief Joseph Hatchery were successfully uploaded through the CAX API. The Colville Tribes continued to upload natural-origin (NCA) HLIs for the Okanogan River Basin.

Idaho Department of Fish and Game - CAP HLI

The IDFG StreamNet subproject can currently accomplish nearly automated submittal of data consistent with the DES through their IFWIS databases and APIs, which the Idaho StreamNet project helped to initiate and partially supports in collaboration with FINS and FPC/Army Core of Engineers (ACOE) staff.

IDFG StreamNet expanded streamlined data flows for CAX HLI data to include new species, populations, and life stages. They are starting to recreate workflows for sockeye data flows that were broken.

Existing workflows were maintained, and/or updated.

Montana Department of Fish, Wildlife & Parks - CAP HLI

CAP HLIs have not been developed for resident fish species. MFWP staff have continued to stay aware of work being done for the CAX project and will be prepared as work begins to develop metrics and indicators for resident species.

Oregon Department of Fish and Wildlife - CAP HLI

ODFW StreamNet acquired new and maintained existing data sets for population estimates from various contributors in the Columbia Basin. This resulted in the submission of BPA priority high level indicators and hatchery performance metrics for populations and hatchery programs in Coordinated Assessments DES format for the Middle Columbia, Snake River, and Oregon Coast (using alternative funding source) in 2025. New fields, rules and conventions were added, and updates were made to follow new field and record-level validation rules of the DES documents.

In 2024, ODFW StreamNet staff developed and released a new ODFW Salmon and Steelhead Recovery Tracker (SSRT) public website (https://nrimp.dfw.state.or.us/RecoveryTracker/). In 2025, staff continued to develop new query functionality tools, enhance reference materials, and release new versions of the site throughout the year. The team also launched an interactive map embedded in the application to query ESU, Stratum and population level indicators, metrics, and recovery planning goals for measurable criteria and evaluation thresholds. Staff also developed and submitted data for five new hatchery programs around the state that included returns, broodstock spawning and releases and submitted to StreamNet via the API.

In 2025, staff continued enhancements and development of new fields and DES specifications in the internal web applications utilizing the ODFW Fish Monitoring & Data Distribution (FMDD) SQL server database and internal applications that automates the processes for validation and submission to the StreamNet API. The Proportionate Natural Influence (PNI) and TimeSeriesInfo tables were finalized in the production application. The new functionality was added to support the submission of CA PNI data to StreamNet and to group comparable data and methods into one-time series for all CA data. Successful application testing of the API was completed and TimeSeriesInfo data are now routinely submitted to StreamNet using the web application.

Staff completed the ability for users to bulk update and insert records on the majority of applicable DES tables. The new feature has greatly improved the efficiency and timeliness of delivering new and updated records.

Continued improvements to content and functionality of the web applications that support data submissions to StreamNet, for both Coordinated Assessments (natural and hatchery) and FMD data trends, have increased efficiency, reduced potential errors, and replaced previous methods of data transfers to StreamNet. Data stewards with specific familiarity with a population, hatchery program and project enter data directly into the new system.

In 2026, staff anticipate continuing to fine-tune and enhance all Coordinated Assessments tables, design and complete the functionality for users to bulk update and insert new data sets for a few remaining tables in the FMDD.

Washington Department of Fish and Wildlife - CAP HLI

All WDFW StreamNet staff continue to load new or annually updated WDFW CA HLI data through the API for natural origin and hatchery origin data. WDFW continues to build out mobile and field data collection applications to facilitate raw data collection pathways to statewide corporate reporting databases for trapping, spawning ground surveys, and creel. All HLIs were updated for 2025 to the extent this data was found to exist.

CAP Co-Lead Update (PNAMP and StreamNet)

To ensure that the Coordinated Assessments Data Exchange (CAX) system is meeting the needs of our community, regular engagement with the users both providing and consuming data is needed to provide adaptive management of CAP processes and standards.

In 2025, StreamNet staff engaged with several FMWG task groups to receive input and, in some cases, recommendations for specific CAP/StreamNet data related topics. This included:

- Terms and Definitions https://pnamp.org/projects/fish-monitoring-work-group/fmwg-terms-definitions/
- Carrying Capacity https://pnamp.org/projects/fish-monitoring-work-group/fmwg-carrying-capacity/

- Rotary Screw Trap https://pnamp.org/projects/fish-monitoring-work-group/fmwg-rotary-screw-trap-data/

4.8 Metadata Documentation

During 2025, metadata continued to be submitted with data to the StreamNet databases. TimeSeriesIDs were assigned across all DESs and metadata submitted for the TimeSeries Info Table.

All StreamNet partners provided and maintained metadata for any data sets submitted to StreamNet. Partners also submitted reference materials to the Columbia Basin Fish and Wildlife Library. ODFW StreamNet staff updated or created metadata and data analysis flow diagrams for in-house data sets used to calculate and report high-level indicators and hatchery performance metrics. Additionally, staff reviewed and validated FMD and CA records to identify potential improvements to fields describing methods and status for internal database records and information stored at StreamNet.

4.9 Data Backup Systems

In 2025, server infrastructure was stable, and backups were performed on all systems and data by the PSMFC IT staff.

The StreamNet staff continued to create supplementary data backups each month. No changes in data backup systems were made in 2025. Annual testing of database restore function was initiated and tested.

4.10 Supported Reporting and Decision-Making Processes

Regular meetings were held for the Executive and Steering Committees. Agendas were formulated, issues discussed and resolved where possible, and priorities were set. Reporting and posting notes and decisions was facilitated via the StreamNet website. Subcontracts were executed and invoices were tracked. New SOWs and budgets were developed and provided to BPA through CBFish. An inventory list and cost share report were developed and provided to BPA. All StreamNet funded partners engaged in meetings and related products, as well as contributed to the contractual reporting requirements.

StreamNet staff at PSMFC and partner agencies all participate in supporting BPA, NOAAF, the NPCC, and other regional data needs by maintaining and updating data in the StreamNet data systems. StreamNet maintains an API that allows entities to retrieve, in an automated way, data from the CAX and specific sets of detailed Fish Monitoring Data “trend” for use in reporting tools and documents.

Supporting BPA

StreamNet continued to support BPA’s mandate to have data sets collected using rate payer funding be publicly accessible in a web-based data repository by facilitating

submittal of data sets to the StreamNet Data Store, the Fish Monitoring Data system, and the CAX.

The availability of CAP Fish HLIs estimates through the CAX has facilitated BPA's "One Fish Two Fish" tool to pull information from the CAX database as well as other data sources to display these on an interactive web-tool that communicates the status of ESA-listed salmon and steelhead populations (http://www.onefishtwofish.net/sps/SPS3.html).

BPA manages a web-based project contracting tool, CBFish.org, which contains annual reports of BPA funded projects, several of which submit their data to the StreamNet Data Store, CAP Fish HLI, and/or as a time series (trends). To secure access to these supporting project documents that contain information on how data are collected and analyzed, StreamNet PSMFC staff provide the CBF&W Librarian with these documents and the Library provided stable Library URLs for those documents submitted along with a data set. Library URLs for other documents associated with a data set are also being provided.

BPA also uses MonitoringResources.org for documentation of monitoring metadata. The number of sample designs linked to StreamNet data systems in Monitoring Resources are as follows:

- Data Store 767
- Fish Monitoring Data 767
- CAX 127

While not all the projects documented within Monitoring Resources are BPA funded, the number of cross references indicate engagement and investment in these resources.

Supporting NOAA Fisheries

StreamNet staff at PSMFC and partners continued to assist NOAA staff and respond to their requests during this calendar year. NOAA uses the salmon and steelhead data in CAX to inform their status reviews and regulatory management decisions, primarily through the StreamNet API using scripted, reproducible workflows. This has greatly reduced the time and effort required by NOAA Fisheries staff to obtain and process data. The PNAMP FMWG is leveraged by StreamNet staff and NOAAF to address needed improvements to data accessed from StreamNet to better support reporting and decision-making needs.

In CY2025, data in CAX was used by NOAAF NWFSC staff to produce Ford, et al 2025, available at https://doi.org/10.1111/faf.70019.

Supporting the NPCC

StreamNet Staff at PSMFC and partners continued to provide support to NPCC staff and their Program Tracker contractors. NPCC staff continue to use and rely on the Protected Areas mapper and associated database and documentation. StreamNet databases and

maps support NPCC FW Program reporting needs. NPCC also has several online reporting tools that rely on StreamNet's Fish Monitoring Data and the CAX, including their mapping tools and Program Tracker.

NPCC's Program Tracker can be found at Program Tracker: Resources, Tools and Maps.

PNAMP Partnerships

StreamNet staff serve on the PNAMP Fish Monitoring Work Group (FMWG) Core Team, assisting PNAMP in the organization and identification of topics for the FMWG. StreamNet staff engagement and assistance focuses on the tasks that aim to support the Coordinated Assessments Partnership and StreamNet. See the PNAMP FMWG website for more details and access to task group documents. During 2025, the PNAMP Monitoring Resources staff and StreamNet staff met regularly to discuss improving the connections and interoperability between MonitoringResources.org and StreamNet data systems. Monitoring Resources requires identification of data repository used in Sample Designs. There are currently over 100 sample designs identifying CAX as the data repository and over 700 sample designs that use either or both the StreamNet Data Store and Fish Monitoring Data. See more at https://www.monitoringresources.org/Resources/DataRepository/Index.

4.11 Coordination with Partners and Engagement with External Users' Data and Information Requests

StreamNet staff at PSMFC and partners contributed to the coordinated sharing of standardized monitoring data throughout the basin through convening and attending StreamNet committee and team meetings and other management and professional meetings throughout the region. StreamNet staff continued to work with partners in IDFG, Colville Tribes, MFWP, ODFW, CRITFC, and WDFW to promote data standardization within agencies. In addition, StreamNet staff actively participate in task group efforts led by PNAMP's FMWG.

Direct requests for information or help have become less frequent over the years, as the StreamNet website has been more stable, and our online services more robust. Automated validation checks prevent many problematic data records from being added to the database. The QA/QC review process has also improved the data records both new and existing in the CAX.

In CY2025, StreamNet staff supported the 2025 Emerging Technologies Information Sessions, the FMWG's PIT Tag Data & Analysis 2025 webinar series, and the rewrite of CAP's Five-year plan into a Strategic Plan.

The Confederated Tribes of the Colville Reservation - Engagement

The Colville Tribes staff participated in the StreamNet Executive and Steering Committees, StreamNet Technical Team, and DES Development Teams.

The Colville Tribes responded to approximately 25 data requests this year which were either met by directing users to appropriate data sources, or by running specific queries in the OBMEP database to fulfill the request. Requests are for tables, charts, and GIS information.

Idaho Department of Fish and Game - Engagement

IDFG StreamNet staff participated in the Steering Committee and Technical Committee. They supported the development of DES and streamlined data flows. They provided input prioritizing indicators, metrics, and metadata. They also participated in CA DES development and Fish Monitoring Work Group (FMWG) meetings and projects. They helped implement the Emerging Technologies Information Sessions (ETIS) in 2025.

Staff coordinated data management and analyses with Tribal collaborators. Staff also updated and improved data source workbooks and databases in cooperation with research and hatchery staff. IDFG StreamNet staff responded to data requests coming from internal and external partners, and the general public. The number of data requests continues to decrease as the number of Idaho Fish and Wildlife Information System (IFWIS), SN, and CAX users increases, and people find data for themselves.

Montana Department of Fish, Wildlife & Parks - Engagement

In 2025, MFWP staff actively participated in StreamNet Steering Committee and technical meetings, as schedules allowed. Staff coordinated updates to the range-wide assessment of Yellowstone cutthroat trout. Remedying technical debt was identified as a high priority throughout the year, resulting in significant improvements to internal data management systems. As part of this effort, the internal fish distribution editor was completely redeveloped using modern technologies to enhance system stability, improve workflow efficiency, and ensure more accurate entry and editing of fish distribution data. These actions collectively strengthened the integrity, usability, and long-term sustainability of MFWP's fisheries data infrastructure.

Staff responded to all data and map requests received from internal staff, partners, and the public. Many external inquiries were directed to the FishMT web query system or the MFWP Maps & GIS Resources website, which effectively meet most user needs. Internal requests typically involve complex data queries or mapping tasks that cannot be completed independently by program staff. During the 2025 calendar year, MFWP GIS staff processed 23 fisheries-related data and map requests, ensuring each was fully addressed and delivered to the requester's satisfaction.

Oregon Department of Fish and Wildlife - Engagement

During 2025, ODFW staff participated in and contributed to the StreamNet Technical and Steering Committee meetings, CAP Core Team, CAP DES Development Team (DDT), natural and hatchery Coordinated Assessments exchanges and DES workgroup. Staff also provided a leadership role as part of the Core Team for the PNAMP Fish Monitoring Work

Group (FMWG) and participated in other state and regional discussions, workshops and planning efforts related to trend data development and CAX data flow. ODFW also hosted the StreamNet Steering Committee meeting in La Grande in October.

Staff also provided support towards the implementation of an EPA Exchange Network (EN) grant to coordinate hatchery DES data development between internal ODFW hatchery systems and the Lower Snake River Compensation Plan (LSRCP) FINS database.

Oregon StreamNet staff responded to data requests coming from internal and external partners, including StreamNet staff, with GIS, data and technical support requests being the most frequent. Agency staff are also utilizing StreamNet funded staff as a resource for assistance with developing data standards and responding to data requests. West Region StreamNet staff assisted Fish District staff, project leaders and data analysts with special projects, methods documentation, data interpretation and analysis. West and East Region StreamNet staff also coordinated with a PhD candidate regarding a request to analyze ODFW methods for estimating natural origin spawner abundance (NOSA). Staff provided the requestor ODFW internal and Coordinated Assessment resources, guidance interpreting the data sets and documentation specific to the methods and metadata for the analysis. Staff also responded to requests from StreamNet partners.

Washington Department of Fish and Wildlife - Engagement

WDFW StreamNet continued this year to participate in the CA process. WDFW StreamNet also participated in PNAMP Fish Monitoring Work Groups, to be informed of what the different work groups are working on as well as informing the work group with the correct people who have the knowledge and can contribute to what they are trying to accomplish. WDFW StreamNet staff responded to data requests coming from internal and external partners, and the general public, with GIS, data, and tech support requests being the most frequent.

5. Discussion

StreamNet serves as a regional coordination body to support data management and exchange and facilitate cooperation across organizational and administrative boundaries. StreamNet supports coordination through establishing and implementing regional data exchange standards for a specific suite of fish monitoring data (time series trends) and CAP Fish HLIs for natural origin (NCA) and productivity metrics for hatchery origin (HCA) data, with a long-term goal of extending coverage to additional metrics of regional importance.

The success of StreamNet relies on its staff and partner and member organizations' support and capacity to submit information per the requested format to facilitate access to information used for regional needs. The dynamic arena of data management and technology provides challenges and opportunities that StreamNet must tackle to be responsive to data providers' and consumers' needs. These needs include improving

processes and tools to both enhance access to quality data and strengthen proper use and attribution of data, while lessening the burden on data providers.

The diversity of data maintained by StreamNet addresses the different regional needs ranging from providing access to publicly funded data (such as via BPA ratepayers) to providing a common source of manager-approved data sets to inform regional decisions. With the development of CAP's data exchange, it has become the primary method of access for regional reporting and management decisions for NOAAF, BPA, NPCC, and others for the data it holds. There is consistent interest in expanding the data categories within CA to provide the same level and types of access to more data sets.

In recent years, these regional needs have become clearer, and the approach used by StreamNet and CAP has been recognized as highly effective. The StreamNet Executive Committee should leverage this success to continue to improve data access for BPA, NOAA, NPCC, and USFWS assessments and reporting needs, and to assist StreamNet, CAP, and its participants in securing funding to advance this work, whether through short-term grants or contracts or longer commitments (e.g. multi-year agreements or project funding).

As this data exchange expansion occurs, it is important to keep in mind the limited resources available within partner agencies and Tribes, to ensure that adequate time and support are provided to maintain the resources that have been developed, and that all new tasks or data categories added are factored into the long-term maintenance and funding plans. These limited resources are further constrained by funding that does not incorporate or plan for inflation and the associated increases in cost of living.

Below, we highlight some recommendations and lessons learned to further strengthen the StreamNet Program and its value to regional reporting and decision-making processes.

Lessons Learned

Streamlining Internal Data Submission for Direct Staff Data Submittal to CAP and StreamNet

Ensuring the **integrity and efficiency of data flow** requires ongoing maintenance and updates, including adopting advances in data management and reporting technology (open source and proprietary programs and tools) to improve efficiencies across the entire data life cycle. Several of the data providers have adopted a more automated data flow to StreamNet's data systems, via the REST API. This is evolving the roles within an organization as to who ultimately submits the data to regional data systems, including delegating the decision to submit data into the CAX to the staff responsible for that data set.

Communicating QA/QC and Improving Access to Data Consumers

Communicating the **quality of submitted data** provides data consumers with confidence in their use of these data. StreamNet has documented quality assurance and quality control protocols and promotes understanding and adoption of our approaches to common data exchange challenges. PSMFC StreamNet staff maintain a filterable API that facilitates custom data requests from the diversity of users accessing the StreamNet data systems and that is harvested to support StreamNet's query tools. Improving access to data maintained by StreamNet to audiences with different technical knowledge will increase the value and use of these data by the public and for informing decisions. The increased access to data has provided additional scrutiny of the data and through feedback, increased the overall quality of the data.

Efficient Approach to Access Needed Expertise

Leveraging **target work groups** with the required expertise (e.g., data stewards, biologists) to inform the addition of data categories is efficient and effective, including coordinating with PNAMP staff for meeting facilitation expertise. The use of smaller workgroups via the StreamNet-PNAMP collaboration has illustrated the success of this approach as final products and recommendations have rapidly been achieved.

Importance of Documentation for Data Integrity and Succession Planning

Proper documentation for data integrity is critical to ensure that valuable data, funded by the public and ratepayers, remain accessible to inform critical uncertainties and decisions into the future. Projects such as StreamNet serve a key role in ensuring that this documentation and the data needed to inform the assessment process are accessible and stable during planned or unexpected transitions. This applies both for data managed within an organization and for data submitted to regional data systems.

Recommendations

Support Regional Data Stewardship

A critical component of StreamNet is being able to financially support data management staff within StreamNet partners (Colville Tribes, IDFG, ODFW, MFWP, and WDFW). These positions establish and maintain data flow from data collection, compilation, analysis, upload, and continued quality control maintenance. This direct support is instrumental in ensuring that relevant BPA-funded data are submitted on a regular basis to StreamNet data systems in the agreed upon formats. At the same time, integrating data stewards within agencies and Tribes allows for the development of more efficient internal data flow before any external data sharing agreements are required. The full data life cycle is essential to regional management decision and reporting needs, from collection, compilation, transformation, uploading, and validating to StreamNet data exchange standards. This funding should have cost of living adjustments structured into the contract to promote incumbent retention and development.

Recommendations:

- Financially support data stewards throughout the Columbia River Basin, especially for Tribal partners currently without data stewards. Staff positions fulfilling tasks related to data stewards, such as data coordinators, data analysts, data specialists, GIS technicians, software developers, API software programmer/analyst, database administrators, data managers, and project analysts should have time funded to perform work that is required to fulfill contract terms. This funding should complement, and not reduce, existing funding provided through individual projects and or through data management projects including the CRITFC ITMD (2008-507-00) project that partially supports data stewards, and the Intermountain Province / Pend Oreille Subbasin Data Management Project (2011-020-00).

- Support and facilitate the development and maintenance of the data-providing partners' information systems and infrastructure that support data flow with StreamNet.

- The Executive Committee should continue to encourage and invite other data providers, including CRITFC member Tribes, Northwest Indian Fisheries Commission (NWIFC) member Tribes, SBT, and other Tribes or agencies to participate in and/or become members on both the Executive Committee and Steering Committee. Based on past discussions, funding may be required to secure the participation of Tribes in StreamNet and CAP.

- Support StreamNet partner participation in PNAMP Fish Monitoring Work Group (FMWG)/StreamNet joint task groups to ensure proper representation by state and Tribal natural resources experts to work on tasks that contribute to improving or expanding data managed by StreamNet.

- Continue discussions with NOAA about contributing to StreamNet's annual budget to maintain current support for their data needs and explore further enhancement to better address their West Coast Region information needs.

Connect Regional Data Systems

To facilitate understanding and access of data accessible from regional systems, we should continue to evaluate the potential to make systems with overlapping data consumers and data providers more similar, whether that be by using similar terms and definitions, or by providing similar interfaces and APIs.

Leveraging related data systems through connectivity increases dataset value and provides a more efficient structure for funding monitoring and research to meet regulatory and management needs.

Recommendations:

- Support StreamNet and the PSMFC GIS Center to develop geographical connectivity to internal and external data systems for resident and anadromous, hatchery and natural origin fish groupings, fish facilities, as well as water quality and habitat data.

- Encourage partners to develop and improve documentation of their spatial data submitted to StreamNet, including fish distributions, trend features, and fish facilities.

- Support StreamNet in developing connections through queries or other automation between existing fish related data systems within PSMFC, such as PTAGIS and RMIS, and external systems, such as Monitoring Resources and CBFish.

- Support data providers in assessing the potential benefits of connecting records across internal systems to facilitate submitting consistent, quality data to StreamNet and other data systems.

- Develop and evaluate data consumer information to look for connections in data needs across systems and whether it would be beneficial to facilitate data access by aligning overlapping fields and terms (e.g., fish management unit names).

- Facilitate discussions among BPA, NPCC, NOAA, and USFWS to develop, discover, and support efforts by StreamNet and PNAMP to secure additional funding opportunities to support tasks focused on regional data connectivity.

Enhance and Maintain StreamNet as Exchange of Record for BPA and NPCC

StreamNet provides a definitive location for Columbia River Basin information that is collaboratively informed by partners and facilitates consistency across users. The StreamNet database systems (CAX and Fish Monitoring Data) are used as the Exchange of Record by BPA for contracts collecting and compiling fish data. BPA recognizes the PSMFC StreamNet GIS data as the System of Record for fish facilities funded by the Program (e.g., hatchery, weirs, screens) and for fish distribution. NOAA and NPCC have also been using these data systems to inform tools and reports.

Recommendations:

- Support participation, either by providing in-kind or BPA funding, by all data providers and data consumers in discussions to refine or develop new data categories and exchange standards in PNAMP FMWG/StreamNet task groups to address issues that require input from a broader group of experts including biologists, fisheries managers, and CBF&W librarian.

- Support continued application and development of the CAP Fish HLIs (CAX) StreamNet Quality Assurance Quality Control Plan for StreamNet funded partners by providing BPA funding for this task.

- Advance implementation of improved metadata documentation within agencies' and Tribes' data systems, especially for data of regional importance.
- Support continued funding of and continued partner engagement and collaboration with PNAMP's Monitoring Resources to improve data documentation.
- Support continued funding of CRITFC's CBFW Library and continued partner engagement and collaboration with Library staff on archival storage and citation of supporting literature.
- Recommend that NPCC officially recognizes PSMFC StreamNet GIS as the System of Record and the StreamNet database systems (CAX and Fish Monitoring Data) as the System of Data Exchange for the Council's Fish and Wildlife Program.

Support Increased Discoverability and Outreach

StreamNet currently uses webpages, workshops, presentations to professional groups, and data set and data exchange citations to improve discoverability of data within the StreamNet data systems. StreamNet has become the primary data exchange resource for BPA's funded data accessibility requirements and NOAAF's regulatory reporting.

Recommendations:

- Encourage compliance with the Data Use Agreements citation and attribution requirements by citing StreamNet and CAP data exchange as the System of Data Exchange for reporting and publications. Identifying where data used was accessed from improves discoverability, as well as reproducibility and transparency.
- Leverage regional connectivity of external data systems to StreamNet to increase discoverability by providing linkage and connectivity information on multiple platforms and repositories of data systems such as DataOne and GitHub.
- Support StreamNet and CAP co-leads in outreach and discoverability efforts to expand the awareness, understanding, and usage of existing data systems through workshops, presentations, and development of informational materials.
- Support educational opportunities for data consumers to properly comply with the StreamNet and CAP Data Use Agreements through citation and attribution.
- Advance implementation of improved metadata documentation within agencies' and Tribes' data systems, especially for data of regional importance. Leverage PNAMP's Monitoring Resources and CRITFC's CBFW Library.
- Support participation, either by providing in-kind or BPA funding, in PNAMP outreach and subject matter expert programming, including the FMWG. These opportunities foster engagement and collaboration in areas outside of StreamNet,

providing opportunities for StreamNet staff and funded partners to both represent StreamNet and to discover data system connections.

Support a Broader Group of Data Categories to Support Regional Information Needs

The diversity of data maintained by StreamNet addresses the different regional needs ranging from providing access to publicly funded data (such as funded by BPA ratepayers) to providing a common source of manager-approved data sets to inform regional decisions. The availability of an additional amount of financial support for a certain number of years, such as the three years of funding secured for HCAX, has shown to be integral in advancing standardization and sharing of specific priority data categories.

Recommendations:

- Confirm with StreamNet partners the status of new tasks, to ensure these are completed before deciding to add on new tasks. Work with the StreamNet technical committees to ensure that tasks are being completed.
- Support expanding data flow for resident and anadromous fish from agency/Tribal data systems to StreamNet data systems that contribute to informing the NPCC 2020 Addendum (goals, objectives, and indicators); and BPA and USFWS bull trout and sturgeon data needs.
- Support StreamNet in identifying data sets not currently available to support regional management decisions by expanding data flow, public data access, and long-term data management.
- Support implementation of the Coordinated Assessments Partnership Strategic Plan by strongly encouraging BPA, NPCC and USFWS to build on StreamNet/CAP successes for improving access to fish and related habitat and water quality data and data system connections.

Appendix A — Historical Background

The genesis of StreamNet was the call for standardized information to support the NPCC's 1984 Columbia River Basin Fish and Wildlife Program (Program) and 1983 Northwest Conservation and Electric Power Plan (Plan) Hydro Assessment Study (HAS) to document the environmental health and energy potential of the basin's rivers. When StreamNet began in 1983, albeit under a different name, it was intended to be the region's Rivers Information System. The HAS was a cooperative regional effort by the BPA, the NPCC, the four Northwest states, the region's Indian Tribes, and Federal land management agencies. The goal of this effort was to assess the significance of the region's rivers in a standardized fashion with the public's input, and to document those results. The HAS consisted of three distinct, coordinated efforts. For one, BPA, the NPCC, and the U.S. Army Corps of Engineers cooperated to develop the Pacific Northwest Hydropower Data Base and Analysis System (NWHS). For another, the NPCC led the effort to design the region's first anadromous fish data system called the Coordinated Information System (CIS; 1987 Program states needed database content, and 1992 Program section 7.6 describes CIS). For the third, BPA began coordinating the inventory and analysis work on the remaining environmental categories, called the Pacific Northwest Rivers Study (PNWRS). Data generated by these efforts covered all four states (comprehensive) and contained the same data elements for each state (consistent structure and content). The HAS efforts resulted in detailed natural resource data sets for the region and the technical and administrative infrastructure to ensure the maintenance and use of the information housed in the Northwest Environmental Database (NED) and in the Coordinated Information System (CIS). These cooperative data collection efforts span across agency and state lines with information updates transmitted from the states to the regional system biannually. Source data were maintained at the state level to ensure accuracy and ties to other state data collection efforts.

StreamNet originated following the integration of the Coordinated Information System (CIS) and the Northwest Environmental Database (NED). The NED had previously integrated data from the Hydro Assessment Study (HAS), specifically data from the Northwest Hydropower Database and Analysis System (NWHS) and Pacific Northwest Rivers Study (PNWRS). Over time, the original StreamNet project evolved to adopt technology that facilitated data sharing and to respond to information needs from regional decision-making efforts. See more at About StreamNet.

Following the 2012/2013 NPCC programmatic recommendations for Regional Data Management Projects[1] and those specific to the StreamNet project, as well as the NPCC

[1] NPCC 2012/2013 Decision Memorandum: Council recommendations on Resident Fish, Data Management and Regional Coordination Category Reviews – projects and associated programmatic issues
https://www.nwcouncil.org/sites/default/files/CouncilDecision_0.pdf

recommendations generated from the 2012 Program Evaluation & Reporting Committee (PERC) process[2], the StreamNet project:

- Established an Executive Committee with representatives of NPCC, BPA and fish and wildlife managers to direct data management direction and priority (Figure 3),
- Prioritized efforts on making synthesized information, such as population estimates, accessible through StreamNet with emphasis on the high-level indicators (HLIs) identified through the Coordinated Assessments (co-led by Pacific Northwest Aquatic Partnership (PNAMP) and StreamNet),
- Continued to evolve towards a more accessible platform for various users and optimize webservices to facilitate coordinated data-sharing and data depiction, including updating its main website and developing an application programming interface (API) that allows different systems to talk to one another and exchange data,
- Expanded its participants to include additional managers and data collecting entities that are not directly funded through the StreamNet project,
- Focused its BPA funds on providing data needed for BPA and NPCC reporting needs such as NPCC HLI reports and BPA Columbia River System (CRS) Biological Opinion (BiOp) reports for priority populations.

[2] NPCC 2012 Program Evaluation and Reporting Committee https://www.nwcouncil.org/fw/program/perc and the November 2012 Council recommendations based on the PERC https://www.nwcouncil.org/sites/default/files/2012_1106_1.pdf

Appendix B — Budget

Calendar year 2025 spans two fiscal years (FY): FY2025 (January–September 2025) and FY2026 (October–December 2025). The StreamNet BPA contracts are issued in two-year increments. BPA contract 78040 REL 60 totaled $4,653,173 and covered the performance period from October 1, 2023, through September 30, 2025 (FY2024–FY2025). BPA contract 78040 REL 85 totaled $5,010,176 and covers the performance period from October 1, 2025, through September 30, 2027 (FY2026–FY2027).

The FY2025 budget was increased by BPA through a 4.40% cost-of-living adjustment (COLA) applied to the FY2024 budget amount. This adjustment applied to the PSMFC staff portion of the budget as well as to the portions allocated to the Colville Tribes and their ESA subcontractor, Idaho Department of Fish and Game (IDFG), Oregon Department of Fish and Wildlife (ODFW), Montana Fish, Wildlife & Parks (MTFWP), and Washington Department of Fish and Wildlife (WDFW). In addition, BPA permanently increased the Colville Tribes' budget by $20,725 in FY2024, and this increase continued to support work performed by the Colville Tribes during CY2025.

The PSMFC StreamNet portion of the FY2025 budget, which supported most work conducted during CY2025, primarily funded StreamNet staff wages and operating expenses. Additional expenditures included a small subcontract with the Shoshone-Bannock Tribes to advance their data management and data-sharing capacity and a technical subcontract to support StreamNet PSMFC tasks. GIS support from the PSMFC GIS Center was funded through the services supported by the PSMFC's indirect rate.

As the StreamNet Program Manager added several new data management programs and projects to her portfolio, including the Regional Mark Processing Center (RMPC) and Regional Mark Information System (RMIS), the Salmon Data Discovery Tool (SDDT), the Klamath Basin Fisheries Collaborative (KBFC), and the Fish Inventory System (FINS), funding associated with the manager's wages and expenses was reallocated. This reallocation supported additional StreamNet tasks, including those requested by BPA, by supporting additional PSMFC employee time to work on StreamNet and by increasing funding for the technical support subcontract.

The increased BPA funding for StreamNet in FY2025, along with planned COLA adjustments for FY2026 and FY2027, is appreciated. However, the program remains budget constrained, as current funding supports fewer full-time equivalent staff (FTEs) than partners need to complete all tasks fully and concurrently without sequencing. To address this limitation, PSMFC StreamNet staff, StreamNet partners, and the Coordinated Assessments Program (CAP) Core Team continually seek alternative funding sources to maintain existing work and support emerging priority tasks.

During CY2025, $58,611 secured through PSMFC's Interjurisdictional Fisheries Act (IJFA) funds further advanced StreamNet work, including through subcontracts for CAP-related tasks and for enhancing the Shoshone-Bannock Tribes' data management and data exchange capacity. StreamNet partners also pursue and secure complementary funding sources that contribute to StreamNet and CAP objectives, including individual EPA Exchange Network grants and in-kind contributions. During FY2025, IDFG contributed $58,500 in-kind; WDFW contributed $24,958 in-kind and $31,812 in cash; and ODFW contributed $37,627 in-kind and $141,535 in cash.

A continuing constraint on StreamNet operations is the lack of funding to directly subcontract with additional Tribes through the StreamNet Program. The absence of this direct support through StreamNet reduces the reliability and consistency of data exchange from these data providers. Additionally, the limited availability of funds further restricts PSMFC StreamNet's ability to respond to targeted data management and sharing capacity needs of Tribes not currently funded through the StreamNet Program.

Appendix C — NPCC FW Program

The NPCC's August 2019 programmatic and project recommendations continues to support the StreamNet project. Specifically, the NPCC recommended that StreamNet continue its effort to expand its steering committee membership to agencies managing fish data and that StreamNet initiate work on other priority NPCC program indicators including hatchery indicators. To this end StreamNet continues to seek opportunities for expanding the Coordinated Assessments Partnership (CAP or Partnership) High Level Indicators (HLIs) to other categories and fish species. This intent has also resulted in a stronger relationship between StreamNet and the Pacific Northwest Aquatic Monitoring Partnership, by leveraging the existing PNAMP FMWG to serve as the forum to bring together biologists, data stewards, and other interested parties to refine existing StreamNet and CAP tools and to inform new data categories to be exchanged. StreamNet's prioritization of work continues to be informed by the Five-Year Work Plan for the Coordinated Assessments Partnership.

NPCC FW Program Data Management Principles and Measures Implemented

StreamNet supports the 2014 NPCC Fish and Wildlife Program's guidance for data management (Program Part Four and its 2020 Addendum) by making information accessible to the public and for decision-making at a regional scale. The Program guidance implemented by StreamNet includes:

- Manage data in a manner that is searchable and usable by interested parties.
- Properly document metadata associated with data and ensure these are accessible through web links or attached documentation when data are accessed.
- Provide access to categories of data, such as fish abundance, through a single centralized website.
- Produce derived estimates and indicators (e.g., population estimates) from preliminary data collection (e.g., redd counts) and make publicly accessible along with supporting data.
- Work collaboratively to refine indicators that can be used consistently to inform decisions and reporting needs, providing these data in regionally consistent formats to all interested parties in a timely manner, and preserving these data beyond the longevity of a project.
- Facilitate collaboration among agencies, Tribes, and tribal consortia, as well as with other monitoring entities in the Basin, which contribute and consume data to inform decisions. To effectively support the Program indicators and objectives, which

include hatchery, anadromous and resident fish, it is essential to prioritize which information needs to be addressed first, based on the Program's guidance.

- Refine content of the data management system to align with partners' reporting needs, including the NPCC.
- Maintain data and products supporting the NPCC FW Program, both historical and current, in a structured manner that facilitates public access such as information related to Protected Areas information, habitat evaluation procedures, and GIS layers.

Focal Species and other Fish Species included in StreamNet Query System

NPCC Focal Species	SN Query Trend data
Chinook salmon	Yes
Chum salmon	Yes
Coho salmon	Yes
Green sturgeon	Yes
Pacific lamprey	Yes
Sockeye salmon	Yes
Steelhead	Yes
American shad	Yes
Black crappie	Yes
Bluegill	Yes
Brook trout	Yes
Brown trout	Yes
Bull trout	Yes
Burbot	Yes
Channel catfish	Yes
Coastal cutthroat trout	Yes
Cutthroat trout	Yes
Kokanee	Yes
Lahontan cutthroat trout	Yes
Lake trout	Yes
Largemouth bass	Yes
Mountain whitefish	Yes
Northern pike	Yes

NPCC Focal Species	SN Query Trend data
Northern pikeminnow	Yes
Rainbow trout	Yes
Rainbow trout X Cutthroat trout hybrid	Yes
Redband trout	Yes
Sculpins	Yes
Smallmouth bass	Yes
Walleye	Yes
Western brook lamprey	Yes
Westslope cutthroat trout	Yes
White crappie	Yes
White sturgeon	Yes
Yellow perch	Yes
Yellowstone cutthroat trout	Yes
Oregon Chub	No

Appendix D — Archival and Maintenance of Past Projects

StreamNet serves an important role in securing data and related information from active projects who require a publicly accessible data repository (StreamNet Data Store) and from past projects that have informed and implemented NPCC and BPA mitigation strategies. Currently, StreamNet maintains public access to information from the five past efforts described below and maintains the free publicly accessible Data Store repository.

CHaMP –StreamNet maintains, as requested by BPA, access to archived information from the Columbia Habitat Monitoring Program (CHaMP) including documents, photos, and data sets. StreamNet added a CHaMP page[3] to its website for this purpose and included a CHaMP Data File Explorer to facilitate searching the files sent to StreamNet. CHaMP was funded as a pilot project by BPA between 2011 and 2017 to assess if it could help address the requirements of the 2008 Federal Columbia River Power Supply (FCRPS, now CRS) BiOp and RPA 56.3. In 2018, the CHaMP project was phased out following an NPCC recommendation. The extensive volume of documents and data sets from Environmental Services Associates' (ESA, formally Sitka Technology Group) champmonitoring.org website are being archived as these are received from ESA on the StreamNet's CHaMP website.

Data Store – StreamNet maintains the Data Store[4], a searchable, secure repository of data sets related to fish and other aquatic resources. These data sets come from many different sources and are provided for download in their original formats. StreamNet provides guidance for users to describe their data set and submit it. Those who want to archive a report with summary graphs and tables are directed to the Columbia Basin Fish & Wildlife Library[5] hosted by CRITFC. As the Data Store is meant to house non-standardized data, there is no standard or expected update schedule and many data sets are submitted as accessible, archival data.

HEP – StreamNet also maintains the NPCC's Columbia River Basin Fish and Wildlife Program's (Program) Wildlife Habitat Evaluation Procedures (HEP) documents and data[6]. The NPCC FW Program policy guiding wildlife mitigation to compensate for hydrosystem development relies on the HEP data to support the mitigated habitat unit, where this tool was applied. HEP was used to quantify the impacts of development, protection, and restoration on terrestrial and aquatic habitats by assessing changes, both negative and positive, in habitat quality and quantity. The HEP informed the NPCC FW Program's progress in BPA's mitigation for lost habitat units related to the construction and

[3] CHaMP https://www.streamnet.org/home/data-maps/champ/

[4] StreamNet Data Store https://app.streamnet.org/datastore_search_classic.cfm

[5] Columbia Basin Fish & Wildlife Library hosted by CRITFC https://cbfwl.org/

[6] Habitat Evaluation Procedures (HEP) https://www.streamnet.org/home/data-maps/hep/

operations of the hydrosystem dams. StreamNet maintains access to this critical information for the NPCC FW Program and BPA. The NPCC FW Program also relies on settlement agreements between BPA and partners for mitigating for lost habitat and these are tracked by the NPCC.

HSRG – StreamNet staff have begun integrating the content of the Hatchery Reform Project website[7] to ensure that its content, including the Hatchery Scientific Reform Group's (HSRG) documents remain accessible to the public through the refreshed StreamNet website that was released during 2021. The NPCC FW Program policy guidance for its *Fish Propagation including hatchery programs*[8] strategy includes in its rationale the HSRG outcomes, and the Program guidance encourages the application of these HSRG recommendations for FW Program-funded hatcheries, thus maintenance of the HSRG website and documents[9] is needed to inform implementation of this policy guidance.

Protected Areas – StreamNet maintains access to the NPCC Fish and Wildlife Program's documentation of the river reaches designated as areas protected from hydroelectricity development[10]. This protection was assigned by the NPCC FW Program based on the determination from extensive Pacific Northwest river studies conducted during the 1980s that these areas are to be protected to avoid the unacceptable risks of loss to fish and wildlife species of concern, their productive capacity, or their habitat. To this end the NPPC FW Program states that the Federal Energy Regulatory Commission (FERC) cannot license a new hydroelectric development in a Protected Area, and 2) calls on BPA not to acquire the power from such a project should one be licensed by FERC, nor to allow access to the Pacific Northwest-Pacific Southwest Intertie (the "power grid") in a way that would undermine the Protected Areas policy. The last update to the Protected Areas list was promulgated in 1992, and it remains in effect through the current NPPC FW Program.

[7] Hatchery Reform Project https://www.streamnet.org/home/data-maps/hatchery-reform/

[8] NPCC FW Program Strategy for *Fish Propagation including hatchery programs* https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program/b-fish-propagation-including-hatchery-programs

[9] Hatchery scientific review group's products resulting from the hatchery reform project https://www.streamnet.org/home/data-maps/hatchery-reform/

[10] NPCC FW Program Protected Areas documentation, river reach, and online Protected Areas database and interactive map https://www.streamnet.org/home/data-maps/protectedareas/

Subbasin Plans – StreamNet maintains documents and data sets[11] used in the NPCC subbasin planning process. The NPCC (formerly the Northwest Power Planning Council) led the 2001-2004 effort to develop comprehensive subbasin plans throughout the Columbia River Basin. StreamNet provided data to support subbasin planning, and received and distributed compilations of the data used in the plans. After the plans were completed, StreamNet, the Technical Outreach and Assistance to Subbasins Team (TOAST), the CRITFC, and the Northwest Habitat Institute captured new data that were developed for use in the aquatic portion of each subbasin plan. Resources archived by StreamNet include the spreadsheets, maps, GIS layers, subbasin planning modeling input and results, tools, and databases developed for subbasin planning. Included is a large majority of the Ecosystem Diagnosis and Treatment (EDT) and Qualitative Habitat Assessment (QHA) modeling information used in subbasin planning, as well as GIS layers that define the EDT/QHA reach codes.

[11] StreamNet subbasin plans and achieved datasets used during the NPCC2001-2004 subbasin planning effort https://www.streamnet.org/home/data-maps/subbasin-datasets/

Appendix E — Committees and Teams

StreamNet Executive Committee

As part of the effort to improve coordination, in 2014 StreamNet instituted an Executive Committee. This committee is made up of policy staff and project leaders from the StreamNet partner agencies as well as other related organizations involved in managing and using fisheries data, primarily in the Columbia Basin (Table E.1, more details on the StreamNet Executive Committee webpage). The chair is the PSMFC Executive Director who is represented by the StreamNet Program Manager. This group provides high-level guidance and decision-making for StreamNet and the Coordinated Assessments Partnership. This guidance includes review of the high-level goals and products of the Coordinated Assessments Partnership, CAP Fish HLI query (CAX data system), Fish Monitoring Data (trends) data system and its queries, and making decisions on priority species, populations, and indicators on a long-term and an annual basis. The Executive Committee reviews and annually approves the Five-Year Plan for the CAP to ensure that the regional data priorities are being addressed with the data exchanged with StreamNet.

Table E.1: Calendar Year 2025 members of the StreamNet Executive Committee

Current Members	Affiliation
Barry Thom (Chair, represented by Nancy Leonard)	PSMFC
Donella Miller and Sheryn Olson	CRITFC
Patty O'Toole	NPCC
Jody Lando	BPA
Greg Sieglitz	NOAA-Fisheries West Coast Region
Katie Barnas	NOAA-F Northwest Fisheries Science Center
Ian Tattam and Art Martin	ODFW
Phil Sandstrom	WDFW
John Cassinelli	IDFG
David Schmetterling	MFWP
John Arterburn	Colville Tribes
John Netto	USFWS

StreamNet Steering Committee

The Steering Committee helps to implement the decisions of the StreamNet Executive Committee, particularly as it relates to the content of the StreamNet databases and the queries it supports: StreamNet Fish Monitoring Data (trends) and CAP Fish HLI. This committee includes active participation by StreamNet and non-StreamNet members at the

data manager level (Table E.2, more details on the StreamNet Steering Committee webpage). This includes NOAA, BPA, NPCC, state agencies, and some Tribal representatives. The committee is made up of technical project leaders from StreamNet partner agencies and other related organizations involved in managing fisheries data and metadata, with a focus on the Columbia Basin. The chair is the PSMFC StreamNet Program Manager.

Table E.2: Calendar Year 2025 members of the StreamNet Steering Committee

Current Members	Affiliation
Nancy Leonard (Chair), and Mari Williams	PSMFC
Sheryn Olson	CRITFC
Tami Wilkerson	CBF&W Library
Kris Homel	NPCC
Russell Scranton	BPA
Katie Barnas	NOAA-Fisheries NWFSC
Jon Bowers	ODFW
Brodie Cox	WDFW
Angie Schmidt and Evan Brown	IDFG
Dawn Anderson	MFWP
George Batten	ESA representing Colville Tribes
Todd Gilmore	USFWS
Jen Bayer	USGS-PNAMP

StreamNet Technical Team

The Technical Committee is composed primarily of PSMFC and state and Tribal agency staff from StreamNet partners that implement data management actions (Table E.3, more details on the StreamNet Technical Team webpage). The SN TT evolved during 2025 from having a PSMFC chair to having a dedicated PSMFC coordinator. The team designs and implements the technical details necessary to share data from partner data systems to the StreamNet database and on to end users. The team provides a forum to discuss data, programming, GIS topics, and common issues among organizations contributing data to the StreamNet data system, focusing on geographic referencing, Fish Monitoring Data (trends), CAP Fish HLIs, fish distribution data, other data types, and metadata submissions to the StreamNet data system.

Table E.3: Calendar Year 2025 members of the StreamNet Technical Team

Current Members	Affiliation
Sam Cimino - Coordinator	PSMFC
Mike Banach, Greg Wilke, and Mari Williams	PSMFC
Van Hare, and Lily Cohn	PSMFC-GIS Center
Denise Kelsey and Tami Wilkerson	CRITFC
Jon Bowers, Peter Robinson, Jake Chambers, Nadine Craft, and Kasey Bliesner	ODFW
Michelle Groesbeck, Tiffany Warren, and Leslie Sikora	WDFW
Chris Harrington, Evan Brown, Elizabeth Davis, and Bekki Waskovich	IDFG
vacant	MFWP
Todd Gilmore and David Hines	USFWS
John Arterburn and George Batten (ESA consultant)	Colville Tribes
Michelle Steg	Yakama Nation

Currently there are no StreamNet Technical Team members identified for CTUIR, CTWSRO, NPT and SBT.

StreamNet Data Exchange Standard Development Team (SN DDT)

The StreamNet DES Development Team (SN DDT) meets as necessary to maintain data-sharing rules for Fish Monitoring Data and documents the rules in the StreamNet Data Exchange Standard (DES). A DES is a set of formal rules for the meaning and structure of shared data. The SN DDT collaborates with the StreamNet Executive Committee (SN ExCom) and StreamNet Technical Team (SN TT) to determine how these data should be presented and made available via online query systems. The SN DDT consists of biologists, data management, and IT technical staff from the federal, Tribal, state, and regional organizations submitting and consuming data (Table E.4, see SN DDT webpage for details). Most member organizations have more than one individual participating on the SN DDT who contributes to discussions, product development, and decisions. The SN DDT evolved during 2025 from having the PSMFC StreamNet Database Administrator serving as chair to having a dedicated PSMFC coordinator.

Table E.4: Calendar Year 2025 members of the SN DDT

Current Members	Affiliation
Sam Cimino - Coordinator	PSMFC
Mike Banach, Mari Williams, and Greg Wilke	PSMFC
Van Hare, and Lily Cohn	PSMFC-GIS Center
Denise Kelsey, Tami Wilkerson	CRITFC
Jake Chambers, Nadine Craft, and Kasey Bliesner	ODFW
Michelle Groesbeck, Tiffany Warren, and Leslie Sikora	WDFW
Chris Harrington, Evan Brown, Elizabeth Davis, and Bekki Waskovich	IDFG
Vacant	MFWP
Todd Gilmore	USFWS
John Arterburn and George Batten (ESA consultant)	Colville Tribes
Michelle Steg	Yakama Nation

Currently there are no StreamNet Technical Team members identified for CTUIR, CTWSRO, NPT and SBT.

Coordinated Assessments Partnership Data Exchange Standard Development Team (CAP DDT)

The CAP Data Exchange Standard (DES) Development Team (DDT) meets as necessary to maintain existing data tables and develop new indicator tables. This team consists of both data technicians and biologists that are responsible for calculating indicators. The DDT determines DES content and import/export guidelines. Team membership is fluid and depends on the species/indicators/geography of the data (Table E.5, see the CAP DDT webpage for details). The HCAX development project was merged into the general CAP team structure and meeting schedule. The CAP DDT evolved during 2025 from having the PSMFC biologist serving as chair to having a dedicated PSMFC coordinator.

Table E.5: Calendar Year 2025 members of the Coordinated Assessments DDT

Current Members	Natural CAX or Hatchery CAX Expertise	Affiliation
Sam Cimino - Coordinator		PSMFC
Mike Banach and Mari Williams	Natural and Hatchery CAX	PSMFC
Denise Kelsey	Natural and Hatchery CAX	CRITFC
Russell Scranton	Natural and Hatchery CAX	BPA
Matthew Schwartz	Hatchery CAX	BPA
Jake Chambers, Nadine Craft, and Kasey Bliesner	Natural and Hatchery CAX	ODFW
Brodie Cox, Tiffany Warren, Phil Sandstrom, and Michelle Groesbeck	Natural and Hatchery CAX	WDFW
Evan Brown and Rebecca (Bekki) Waskovich	Natural and Hatchery CAX	IDFG
Elizabeth Davis	Hatchery CAX	IDFG
George Batten (ESA consultant for the Colville Tribes)	Natural and Hatchery CAX	Colville Tribes

Coordinated Assessments Partnership (CAP) Core Team

The CAP Core Team meets regularly to coordinate amongst several BPA-funded projects. The Core Team is made up of representatives from BPA, NOAA, PNAMP, StreamNet, a StreamNet partner agency, EPA Exchange Network representative, and the CRITFC Inter-Tribal Monitoring Data project representative. The CAP Team (Table E.6) are important leaders in ensuring that CAP produces results by facilitating discussion across projects, directing requests for work to the appropriate CAP level (as needed), and generally maintaining forward momentum. The team also manages and implements periodic CAP Workshops.

Table E.6: Calendar Year 2025 members of the CAP Core Team

Current Members	Affiliation
Nancy Leonard - chair	PSMFC
Denise Kelsey, Sheryn Olson	CRITFC
Russell Scranton	BPA
Mari Williams	PSMFC
Brodie Cox	WDFW
Jon Bowers	ODFW
Jen Bayer	PNAMP
John Arterburn	Colville Tribes

Appendix F — Validation Processes

GIS – Metadata for the GIS data complies with the Federal Geographic Data Committee (FGDC) International Organization for Standardization (ISO) standard and are packaged in ArcGIS file geodatabase format for use with desktop GIS software.

Data Store – Metadata for data sets in the Data Store are provided by the entity that uploads the data set. The BPA Data Management Strategy directs StreamNet to store links to associated protocols and designs to ensure data downloaded and used by third parties can be understood and properly used. The Data Store process requests the user to provide a BPA Project number if relevant. When a BPA project number is provided, the Data Store provides the user with options from the BPA www.cbfish.org and the PNAMP www.MonitoringResources.org to facilitate connecting the data set to contact information and documented protocols and methods.

StreamNet Database for Fish Monitoring Data – Preferably, metadata for the tabular data should meet the requirements of the FGDC Biological Extension, but the required level of detail from the source agency is often lacking for various reasons. Depending on the data being submitted, different levels of metadata are captured. Currently, for the data submitted to the StreamNet Fish Monitoring Data (trends) database that are not related to CAP Fish HLIs Query, there is frequently a lack of formal metadata from the data source agencies. To compensate for the lack of formal metadata, StreamNet obtains source documents for all data in the database, which are subsequently stored in the CBF&W Library's cloud server. Library created URLs for these source documents are presented with all views of the data and with all data downloads. Many source documents contain methods sections that provide detail about how the data were collected. When viewed online, there are links to the Library's online catalog record for the document, which include a link to the digitized version of the document. Initial work exploring how to leverage documentation of protocols and methods available from other regional data systems (e.g., MonitoringResources.org and CBFish.org) began in 2021 and further discussion has continued.

CAP Fish HLIs – Metadata fields are associated with the data submitted for CAP Fish HLIs estimates and the Fish Monitoring Data trends related to populations with HLIs estimates. Some of this metadata content includes URLs that link protocols and methods that are publicly available such as on the data providers website, CBF&W Library and/or on www.MonitoringResources.org, where information on the specific method used for a particular component of data related to population-scale HLIs are documented. Detailed descriptions of each metadata field can be reviewed in the CA DES. The metadata information associated with data are fully downloaded along with any exported data from the CAP Fish HLIs.

Appendix G — Mainstem and Sub-regional Data Management Projects

StreamNet collaborates with existing mainstem/sub-regional data management projects to further enhance the flow of information needed to inform decision-making and reporting. These types of projects are tasked with compiling information from a subset of the CRB, in some cases to support collaborative analysis. StreamNet works with these data management projects to access relevant information needed to inform HLIs. This coordination reduces the workload placed on individual biologists and data stewards by not requiring them to resubmit these data to the StreamNet database.

CRITFC's ITMD Project

The ITMD Project is the only lower Columbia River Basin data project that serves as a forum for CRITFC member Tribes to coordinate and collaborate as they work toward best practices for data management strategies. ITMD Project members comprise approximately 25 data professionals and scientists who are partially funded by the ITMD Project and are positioned at each Tribe. Similar to coordination work done through the StreamNet project and PNAMP.org, coordination enables the Tribal data professionals to leverage expertise and resources to develop data management strategies; data flow between regional and tribal data repositories; innovative data collection, storage, and access techniques; and centralized database software systems (CDMSs or Yakama Nation's Information Management System/Status and Trends Reporting-IMS/STAR). The Project scope is to serve as a forum for collaboration, coordination, and as a liaison for other regional partnerships, but the Project does not collect, house, or manage data. Collaboration occurs via standing conference calls, educational webinars, and an annual workshop. Project members participate in frequent small group meetings such as CDMS/GitHub technical teams. ITMD and Tribal staff attend many regional coordination meetings for data management and sharing within the Basin, but if Tribal staff are not able to attend, the ITMD Project staff serve as liaison between the Tribal data professionals and regional entities, regarding data management and data product requirements. ITMD Project staff participate in meetings and conferences in the Columbia Basin including Coordinated Assessments Workshops and Working Groups, StreamNet Executive Committee, StreamNet Steering Committee, CAP Core Team, StreamNet Technical Team, CAP DDT, the EPA sponsored Tribal Exchange Network Group, and PNAMP Fish Monitoring Workgroup that are directly involved in improving Coordinated Assessments. Beginning in 2023 and continuing through 2024, ITMD and CRITFC's CMOP staff participated in the West Coast Ocean Alliance with their Tribal Caucus, assisted by a NOAA grant to enable better engagement of Tribes in the WCOA and its West Coast Data Portal (WCODP) and Ocean Indicators Dashboard. In 2024, ITMD project staff served as liaison to assist the WCODP to update their integration with StreamNet's CAX integration. More information about the ITMD Project is available in their presentation at the CRITFC lunch seminar, the ITMD Five-Year Strategic Plan: 2022-2026[xxv] and in their Annual Reports.

Fish Passage Center's Comparative Survival Study Database

The Fish Passage Center (FPC, 1994-033-00) provides technical analysis, data summaries, and graphic representations for the state, federal and Tribal fishery managers' use in developing their recommendations for fish passage management to the federal operators and regulators. One of the FPC's responsibilities includes management, implementation, and assistance in the analysis of the Comparative Survival Study (CSS; Project 1996-202-00) as directed by the Comparative Survival Study Oversight Committee. StreamNet leverages the FPC database to populate the Smolt to Adult Returns (SARs) population high level indicators in the CAX database and provides the URL to the supporting documentation describing the monitoring and analytical methods. In a previous year, StreamNet staff and FPC staff collaborated to ensure that the CSS data are appropriately assigned to the correct CAX populations because this involves deconstructing the annual CSS fish groups and aggregates back to the individual populations.

CRITFC staff worked with StreamNet staff in a prior year to identify populations appropriate to each SAR group provided by FPC so that the CSS SARs for Chinook and steelhead can be submitted to the CAX. To work out an acceptable way to submit these to the StreamNet/CAX system, StreamNet staff has defined 'superpopulations,' which are aggregates of populations. These SARs are now updated annually by StreamNet staff who access the FPC database, convert the FPC data into CAP format, and upload these into the CAX. An update was completed in February 2024.

US. Fish and Wildlife Service Database

The USFWS received funds from the StreamNet Project prior to 2018. In calendar year 2018, BPA and the USFWS reached agreement on funding the USFWS's previous StreamNet activities directly. USFWS are active members of the StreamNet Steering Committee and Executive Committee.

USFWS staff with the Fish and Aquatic Conservation Program (FAC) in Oregon, Washington, and Idaho collect data at 13 National Fish Hatcheries (NFHs). Those data are currently stored in two different databases (Columbia River Information System and Fish Inventory System) that possess different structures. The FAC staff in Oregon and Washington are in the process of evaluating database options that will improve the efficiency of managing those data, which will substantially improve the ability to share NFH data with StreamNet partners in a timelier fashion. The NFHs in Idaho will continue to use the FINS database.

Appendix H — Definitions of Terms and Acronyms

Definitions of Terms and Acronyms {#app-acronyms}

API	Application Programming Interface. A published standard format for communicating with applications.
BiOp	Biological Opinion (e.g., Columbia River System BiOp)
BPA	Bonneville Power Administration
CAP	Coordinated Assessments Partnership. A collaborative process to efficiently share and provide access to standardized derived information, such as fish population high level indicators (HLI) and supporting metrics. The geographic scope of the CAP is the Pacific Northwest with a focus on sharing natural and hatchery origin fish information and fish habitat-related information, such as fish population high level indicators (HLIs) and supporting metrics.
CAP DDT	Coordinated Assessments Partnership Data Exchange Standard Development Team. The CAP DDT consists mainly of the data contributing partners' data management professionals and biologists who calculate the HLIs and metrics. The CAP DDT is a team serving under the StreamNet Steering Committee that in turn serves under the StreamNet Executive Committee. The CAP DDT also coordinates, as needed, with the StreamNet Technical Team and the StreamNet DDT.
CBC	Columbia Basin Collaborative
CBPTF	Columbia Basin Partnership Task Force
CAX	Coordinated Assessments Data Exchange. This is the aggregated database of Coordinated Assessments indicators and metrics submitted by data source agencies and housed at StreamNet.
CIS	Coordinated Information System
Colville Tribes	Confederated Tribes of the Colville Reservation
CHaMP	Columbia Habitat Monitoring Program
CRB or Basin	Columbia River Basin
CRITFC	Columbia River Intertribal Fish Commission
CRS BiOp	Columbia River System Biological Opinion 2019
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CTWSRO	Confederated Tribes of the Warm Springs Reservation of Oregon
DES	Data Exchange Standard. The DESs is the set of formal rules for the structure of data elements for a data category, and documents agreements on the representation, format, definition, structuring, tagging, transmission, manipulation, use, and management of data

	in which data are shared. The document that holds the various DES for the different data categories in a database is referred to as the DES Document.
EN	Exchange Network: Nationwide data repository and exchange that resides within the EPA for EPA related data
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionary significant unit
FCRPS BiOp	Federal Columbia River Power System Biological Opinion (now CRS BiOp)
FERC	Federal Energy Regulatory Commission
FMD	Fish Monitoring Data (trends)
FMWG	Fish Monitoring Work Group
GIS	Geographic Information System
HAS	Hydro Assessment Study
HEP	Habitat Evaluation Procedures. HEP are used to evaluate and document habitat losses and habitat gains. HEP is used to quantify the impacts of development, protection, and restoration on terrestrial and aquatic habitats by assessing changes, both negative and positive, in habitat quality and quantity.
HLI	high level indicator representing the estimated value for a group of fish, such as the natural origin spawner abundance estimate for a specific salmon population.
HSRG	Hatchery Scientific Review Group. HSRG is an independent scientific panel under the Pacific Northwest Hatchery Reform Project that reviewed hatcheries and developed comprehensive reform recommendations to improve the hatcheries' role in meeting harvest and conservation goals for Pacific Northwest salmon and steelhead.
IDFG	Idaho Fish and Game's mission is to protect, preserve, perpetuate, and manage Idaho's wildlife resources. A 1938 voter initiative created the Idaho Fish and Game Commission structure that governs the agency today.
ITMD	Inter-Tribal Monitoring Data. The purpose of CRITFC's ITMD project is to assist CRITFC and its member tribes in the timely and accurate capture, storage, processing, and dissemination of data for management of anadromous fish and their habitats. The CRITFC ITMD, by coordinating and integrating appropriate activities with the CAP, ensures consistent data sharing with the CAX data system for

	Basin salmon and steelhead high level indicators and related trend data.
MAFAC	Marine Fisheries Advisory Committee
MFWP	Montana Fish, Wildlife, and Parks. Fish and Wildlife Program's Mission: Steward the fish, wildlife, parks, and recreational resources for the public, now and into the future.
MR	Monitoring Resources
NED	Northwest Environmental Data Network
NOAA or NOAA-F	National Oceanic and Atmospheric Administration Fisheries, NOAA-F is responsible for the stewardship of the nation's ocean resources and their habitat. NOAA Fisheries provide vital services for the nation: productive and sustainable fisheries, safe sources of seafood, the recovery and conservation of protected resources, and healthy ecosystems—all backed by sound science and an ecosystem-based approach to management.
NOSA	Natural Origin Spawner Abundance. Number of natural origin fish that actually spawn, not necessarily the number of fish returning to a spawning area.
NPCC or Council	Northwest Power and Conservation Council. The 1980 Northwest Power Act authorized Idaho, Montana, Oregon, and Washington to develop a regional power plan and fish and wildlife program to balance the Northwest's environment and energy needs. The heart of the Council's mission is to preserve the benefits of the Columbia River for future generations.
NPT	Nez Perce Tribe
NWHS	Pacific Northwest Hydropower Database and Analysis System
NWIFC	Northwest Indian Fisheries Commission
OBMEP	Okanogan Basin Monitoring and Evaluation Program
ODFW	Oregon Department of Fish & Wildlife. ODFW mission's is to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations.
OWEB	Oregon Watershed Enhancement Board
PNAMP	Pacific Northwest Aquatic Monitoring Partnership. PNAMP is a forum to facilitate collaboration around aquatic monitoring topics of interest, promote best practices for monitoring, and encourage coordination and integration of monitoring activities as appropriate.
PNI	Proportionate natural influence. PNI is an estimate of the relative selection pressure of the natural environment in an integrated natural / hatchery population.
PNW	Pacific Northwest

PNWRS	Pacific Northwest Rivers Study
PSMFC	Pacific States Marine Fisheries Commission. As stated by the governing compact, PSMFC's purpose shall be "to promote the better utilization of fisheries – marine, shell, and anadromous, which are of mutual concern, and to develop a joint program of protection and prevention of physical waste of such fisheries in all of those areas of the Pacific Ocean over which the compacting states jointly or separately now have or may hereafter acquire jurisdiction." Member states include California, Oregon, Washington, Idaho, and Alaska.
PTAGIS	Passive Integrated Transponder (PIT) Tag Information System
QA	Quality Assurance, the process of ensuring that the development effort will result in the desired product. Quality assurance focuses on defect prevention. Typical quality assurance tools are check lists, project audits, and documented standards. QA activities typically occur up-front in a project.
QC	Quality Control, the process of verifying that product deliverables are complete, correct, and meet expected outcomes. Quality control focuses on defect identification. Typical quality control tools include products inspections and testing processes, and peer reviews. QC activities occur at the end of a project.
QA/QC	Quality Assurance/ Quality Control
RperS	Recruit per spawner ratios are specific to the locations and seasons described in each record of data. The number of "recruits" can be defined at any life stage.
REST	Representational State Transfer. For our purpose, this is a simple type of web service that is generally implemented via the common HTTP protocol (browser speak).
RMPC	Regional Mark Processing Center
RMIS	Regional Mark Information System
SARs	Smolt to adult returns. For natural origin fish this is the point estimate of the number of returning natural origin adults, divided by the point estimate of the number of smolts that produced those returning adults. This value is multiplied by 100 to obtain a percentage.
SBT	Shoshone-Bannock Tribes of Fort Hall
SOW	Statement of Work, from BPA contracts to describe Work Elements (WE)
SN ExCom	StreamNet Executive Committee provides policy-level guidance and decision-making for StreamNet and the CAP. The primary role of the

	SN ExCom is to ensure alignment with regional data management and sharing needs, that tasks are focused on achieving strategic goals, and that resources are allocated to regional and agency priorities.
SN SC	StreamNet Steering Committee. The Steering Committee provides support, guidance, and oversight of progress for the StreamNet Program.
Status and Trends	"Status" describes the current condition of whatever is measured; "trends" describe changes over time
StreamNet	Pacific States Marine Fisheries Commission's StreamNet Program that is a cooperative information management and data dissemination project focused on fisheries and aquatic data and data-related services in the Pacific Northwest, with a focus on the Columbia River Basin
Trend	Long-term temporal pattern (i.e., change over time) in what you are monitoring.
TRT	Technical Recovery Teams
USEPA	United States Environmental Protection Agency
USFWS	United States Fish & Wildlife Service. USFWS is the premier government agency dedicated to the conservation, protection, and enhancement of fish, wildlife and plants, and their habitats. USFWS is the only agency in the federal government whose primary responsibility is the conservation and management of these important natural resources for the American public.
USGS	United States Geological Survey
VSP	Viable Salmon Population
WA GSRO	Washington Governor's Salmon Recovery Office
Web Services	is platform-neutral, vendor-independent protocols that enable distributed processing to be performed using XML and Web-based technologies. Sometimes instantiated as remote procedures calls in which the request is an XML document. Or as more simply defined by StreamNet, an "always-on" function available at a specific World Wide Web address.
WDFW	Washington State Department of Fish & Wildlife. WDFW is dedicated to preserving, protecting, and perpetuating the state's fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities.
YN	Confederated Tribes and Bands of the Yakama Nation

Appendix I – Document Links

StreamNet / CAP / Project Information

https://www.streamnet.org/

https://www.streamnet.org/cap/

https://www.streamnet.org/home/data-maps/

https://www.streamnet.org/home/data-maps/fish-data/

https://www.streamnet.org/home/data-maps/fish-hlis/

https://www.streamnet.org/home/data-maps/gis-data-sets/

https://www.streamnet.org/committees/

https://www.streamnet.org/about/background/

https://www.streamnet.org/about/funding/

https://www.streamnet.org/resources/exchange-tools/

https://www.streamnet.org/resources/exchange-tools/rest-api-documentation/

https://www.streamnet.org/resources/exchange-tools/data-agreements/

https://www.streamnet.org/cap/current-hli/

https://www.streamnet.org/cap_strategicplan_20260123/

BPA / CBFish / Contract & Project Systems

https://www.cbfish.org/

https://www.cbfish.org/Project.mvc/Display/1988-108-04

https://www.cbfish.org/Contract.mvc/Summary/66435

http://www.onefishtwofish.net/sps/SPS3.html

PNAMP & Monitoring Resources

https://pnamp.org/

https://pnamp.org/projects/mr/

https://www.monitoringresources.org/

https://www.monitoringresources.org/Resources/DataRepository/Index

https://pnamp.org/project/fish-monitoring-work-group

https://pnamp.org/projects/fish-monitoring-work-group/fmwg-terms-definitions/

https://pnamp.org/projects/fish-monitoring-work-group/fmwg-carrying-capacity/

https://pnamp.org/projects/fish-monitoring-work-group/fmwg-rotary-screw-trap-data/

https://pnamp.org/fmwg-2025-webinar-series/

https://pnamp.org/past-projects/etis/

GIS & Mapping Services

https://psmfc.maps.arcgis.com/home/index.html

https://maps.psmfc.org/server/rest/services/StreamNet

Agency & Partner Websites

https://nrimp.dfw.state.or.us/RecoveryTracker/

https://www.okanoganmonitoring.org

https://gis-mtfwp.hub.arcgis.com/

https://cbfwl.org

NPCC / Policy / Program Guidance

https://www.nwcouncil.org/fish-and-wildlife/program-tracker/

https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program/

https://www.nwcouncil.org/fs/16300/2020-9.pdf

https://repository.library.noaa.gov/view/noaa/26460

Hatchery / CHaMP / Archival Resources

https://www.streamnet.org/home/data-maps/champ/

https://www.streamnet.org/home/data-maps/hep/

https://www.streamnet.org/home/data-maps/hatchery-reform/

https://www.streamnet.org/home/data-maps/protectedareas/

https://www.streamnet.org/home/data-maps/subbasin-datasets/

DOI / Publications

https://doi.org/10.1111/faf.70019