



StreamNet

Nancy Leonard

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Discussion Topics

1. StreamNet
2. Coordinated Assessments (CA) Effort
3. CA 5-year Plan Update
4. Quick Tips and Suggestions
5. Resources and Assistance
6. Your Feedback and Suggestions



Minto Facility, North Santiam, Oregon



1. What is StreamNet

a regional forum for consolidated, standardized, and georeferenced fish and aquatic habitat information management and data sharing in the Columbia River Basin



Columbia Basin Fish & Wildlife Library



Columbia River Inter-Tribal Fish Commission



Idaho Department of Fish and Game



Montana Fish, Wildlife, and Parks



Oregon Department of Fish and Wildlife



The Confederated Tribes of the Colville Reservation
(2013)



US Fish and Wildlife Service



Washington Department of Fish and Wildlife

StreamNet is funded by:



Bonneville Power Administration

In support of:



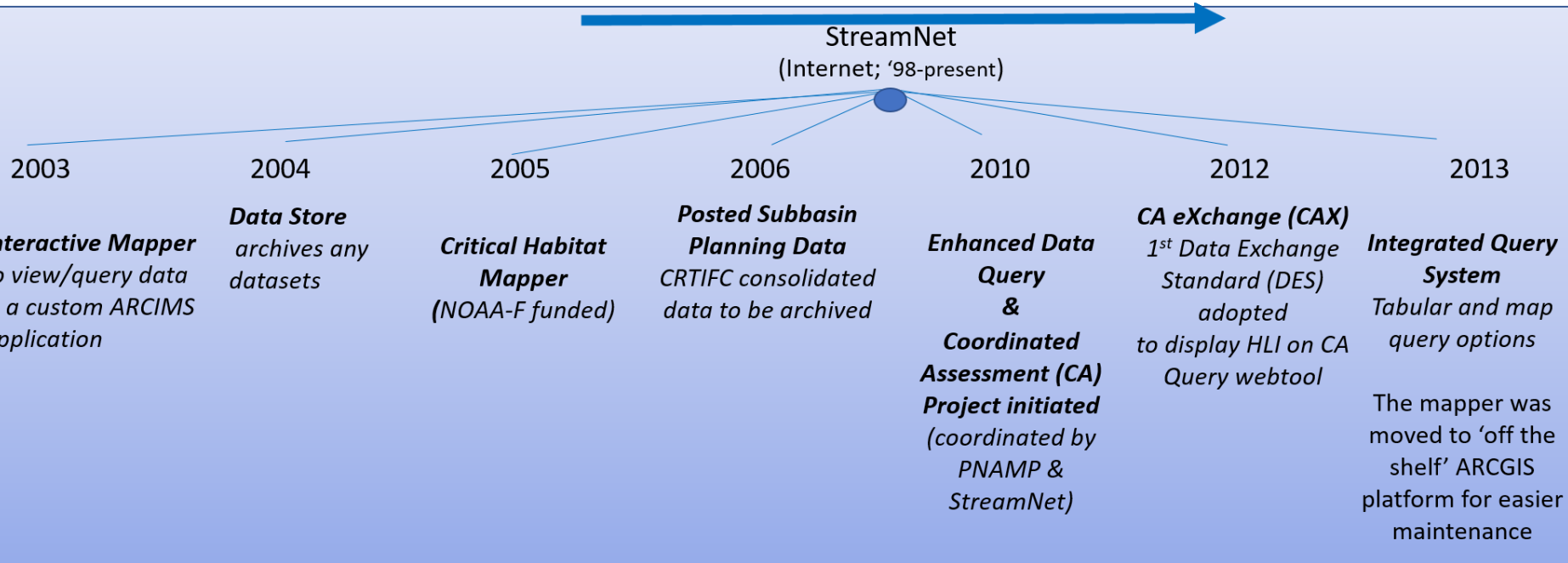
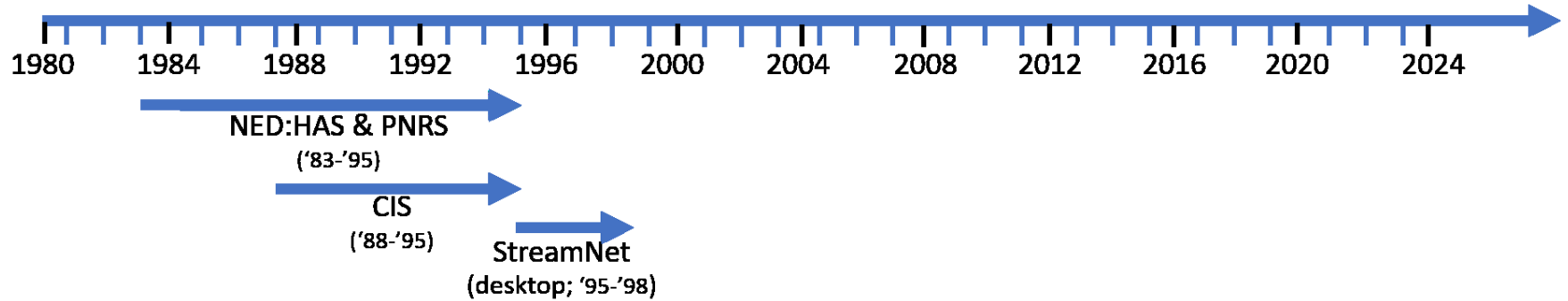
Northwest Power and Conservation Council

A fisheries data project of:



The Pacific States Marine Fisheries Commission

Evolution of StreamNet



- NED = Northwest Environmental Database
- HAS = Hydro Assessment Study (HAS)
- PNRS = Pacific Northwest Rivers Study
- CIS = Coordinated Information System

StreamNet Process



Data are collected with funding from various entities



Partners compile their data. Reformat data to share with StreamNet



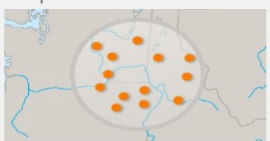
PSMFC StreamNet staff consolidate, etc.



Data Store



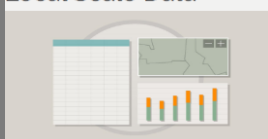
Maps and GIS Data



Coordinated Assessments



Local Scale Data



End users access data from StreamNet's web applications/services or by request.



Data priorities shift to meet regional needs and initiatives.

- StreamNet Executive Committee
- StreamNet Steering Committee



Funding is provided by:

- BPA through the Northwest Power and Conservation Council's F&W Program
- In-kind contributions are also provided by the partner agencies.



Who Works on StreamNet *(includes partial/full FTEs and in-kind)*

PSMFC Staff



PSMFC-StreamNet

- Mike Banach *StreamNet Fishery Biologist and Database Administrator*
- Greg Wilke *StreamNet Programmer*
- Nancy Leonard *StreamNet Program Manager*
- **PSMFC GIS Center**
 - Van Hare *PSMFC GIS Mgr*

Many others who
provide input and
data

Data Stewards

• Idaho Dept. Fish & Game



- Angie Schmidt *IFWIS Manager (SC member)*
- Evan Brown *Senior Data coordinator*
- Chris Harrington *Senior Systems Integration Analyst*
- Randy Walsh *Senior Database Analyst*

• Montana Fish Wildlife & Parks



- Dawn Anderson *Development Management (SC member)*
- Ace Riverman *GIS Analyst/Technician*

Confederated Tribes of the Colville Reservation



- John Arterburn *Principle Biologist*
- George Batten *Sitka Tech Group*

Oregon Dept Fish & Wildlife



- Cedric Cooney *NRIMP program Leader (SC member)*
- Jon Bowers *GIS Coordinator*
- Nadine Craft *Data Steward*
- Peter Robinson *Programmer / Analyst*
- Steve Emerson *StreamNet Data Steward*

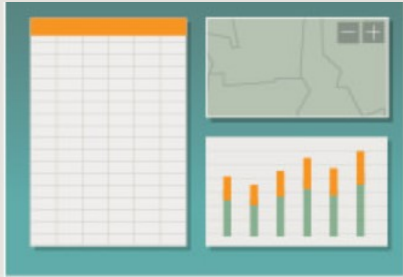


Washington Dept Fish & Wildlife

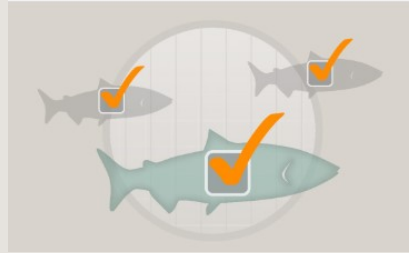
- Brodie Cox *Biological Systems Manager (SC member)*
- Michelle Groesbeck *Data Compiler*
- Leslie Sikora *Location Data Manager*
- Greg Lippert *Data Compiler*

StreamNet Regional Information and Data Sets

LOCAL SCALE
DATA



COORDINATED
ASSESSMENTS



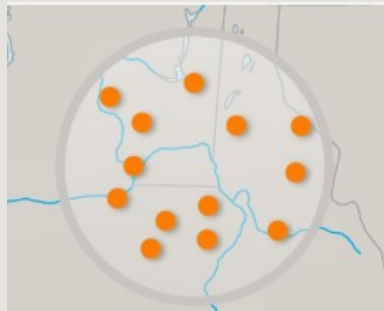
DATA STORE



FISH DISTRIBUTION



FISH
FACILITIES



PROTECTED AREAS



HEP



Viewing and Downloading StreamNet Data

- StreamNet query tool & application programming interface (API)

<https://snq.streamnet.org/>

- GIS layers (ArcGIS REST services)

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

- Data Store

https://app.streamnet.org/datastore_search_classic.cfm

Fish Abundance Estimates and Indexes at Local Scales

Being Refreshed

Fish Counts | Hatchery Returns | ...

Filter: [None]

Download

Data Category	Count Type	Years	Location	Download
<input checked="" type="checkbox"/> Spawner Counts	Peak live & dead fish	1950-2005	Gordon Creek	from RM 0 to F...
<input checked="" type="checkbox"/> Spawner Counts	Peak live & dead fish	1952-2005	...	from RM 0.61 t...
<input checked="" type="checkbox"/> Spawner Counts	Peak live & dead fish	1951-...	...	from RM 0.24 t...
<input checked="" type="checkbox"/> Spawner Counts	Peak live & dead fish	1951-...	...	from RM 0.43 t...

ArcGIS REST Services Directory

[Home](#) > [services](#) > [StreamNet](#)

[JSON](#) | [SOAP](#)

Folder: StreamNet

Current Version: 10.6

View Footprints In: [ArcGIS Online Map Viewer](#)

Services:

- [StreamNet/BPA NPCC Rotary Screw Trap Inventory](#) (MapServer)
- [StreamNet/CoordinatedAssessments](#) (MapServer)
- [StreamNet/Facilities](#) (MapServer)
- [StreamNet/FishDistribution_AllSpeciesCombined](#) (MapServer)
- [StreamNet/FishDistribution_BySpeciesRun](#) (MapServer)
- [StreamNet/Hydrography](#) (MapServer)
- [StreamNet/IDFG_WesternNativeTroutChallengeFishDist](#) (MapServer)
- [StreamNet/ActedAreas](#) (MapServer)

STREAMNET DATA STORE

The StreamNet Data Store is a searchable archive of data sets related to fish and other aquatic resources that are not of the specific data types included in the main StreamNet database. These data sets come from many different sources and are provided for download in their original formats. To add your own data set to the Data Store, use our **Data Publishing Service**.

StreamNet did not participate in creation of most of these data sets, and we are not able to answer questions about those we did not help develop. For questions about the data sets available from this page, please contact the originator of the particular data set.

To search the Data Store, enter key words, project numbers, species, methods, etc. into the search box below and click "Search".

Search the Data Store

All data sets (147)

Click on the "See Detail" link to see data set detail

Title	Date	Data Categories	Location
1) Prototype water temperature database. 2) Water temperature data sources.	2/9/2005	Instantaneous stream water temperature	Oregon, Washington, Idaho. Data mainly from mainstem Columbia and Snake rivers, from near mouths of their tribes, and also from Walllowa-Whitman, Nez Perce, and Payette National Forest water temperature databases.
See Detail			
1998 Independent Hatchery Operations Team (IHO) hatchery	04-16-2013	Hatchery facility operations	Hatcheries within the Columbia River basin in Idaho, Oregon, and Washington

Add Your Data Set

Use our **Data Publishing Service** to add your data set to the Data Store.

[EST](#) [SOAP](#) [Sitemap](#) [Geo Sitemap](#)



CY2019 Status - StreamNet Data Query

(resident and anadromous fish)

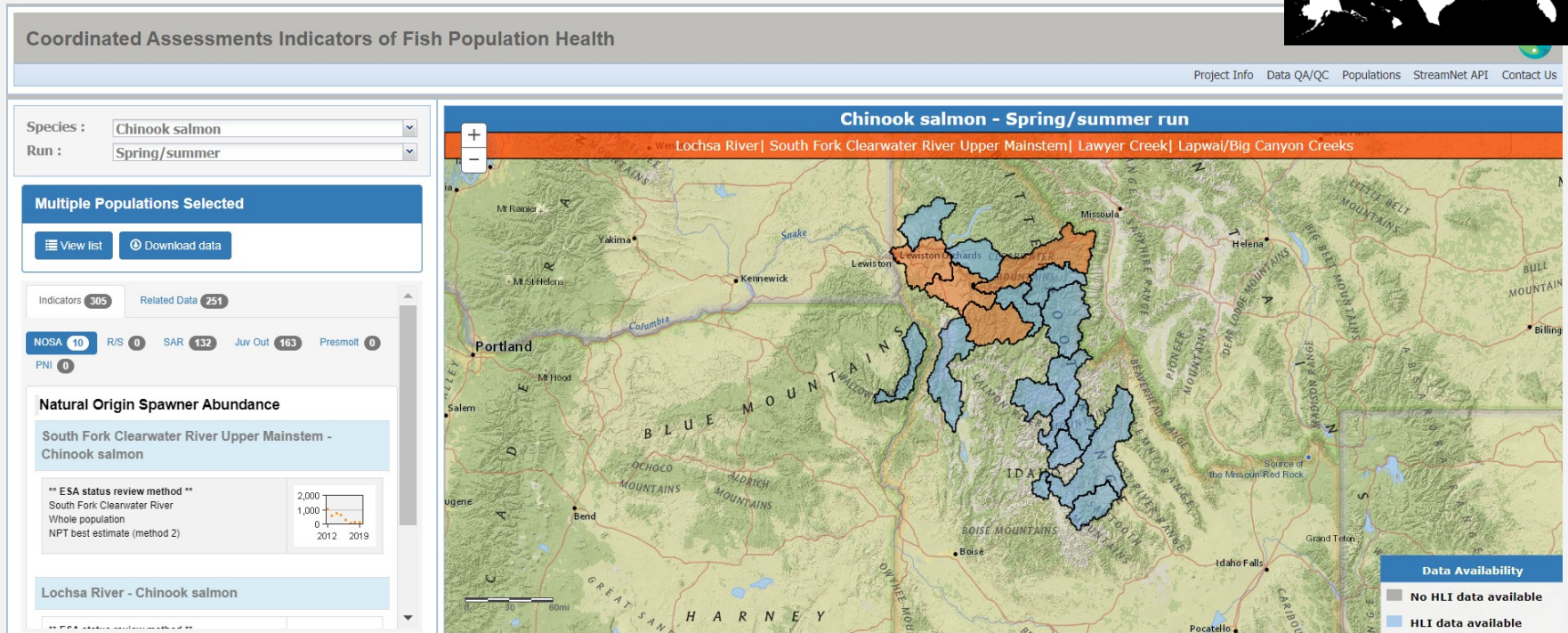
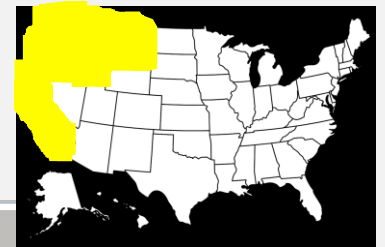
Data Category	Available Data	Years	Records
Redd counts	4,963 Trends	1901 - 2019	53,630
Fish counts	438 Trends	1956 - 2018	2,273
Spawner counts	5,099 Trends	1944 - 2018	37,488
Spawning population estimates	3,181 Trends	1901 - 2018	22,197
Dam / weir counts	505 Trends	1926 - 2019	13,997
Fish abundance estimates	128 Trends	1976 - 2018	530
Hatchery returns	1,084 Trends	1906 - 2019	10,361
Freshwater harvest	2,708 Trends	1894 - 2015	45,662
Protected Areas	32,997 Records	n/a	n/a

Note: for dams, hatcheries and fish distributions, beginning in 2018 these are managed as spatial datasets to address project needs. This shift was based on funding constraints and absence of a coordinated higher resolution base dataset (High-Res NHD) regional hydrography among partners at this time.

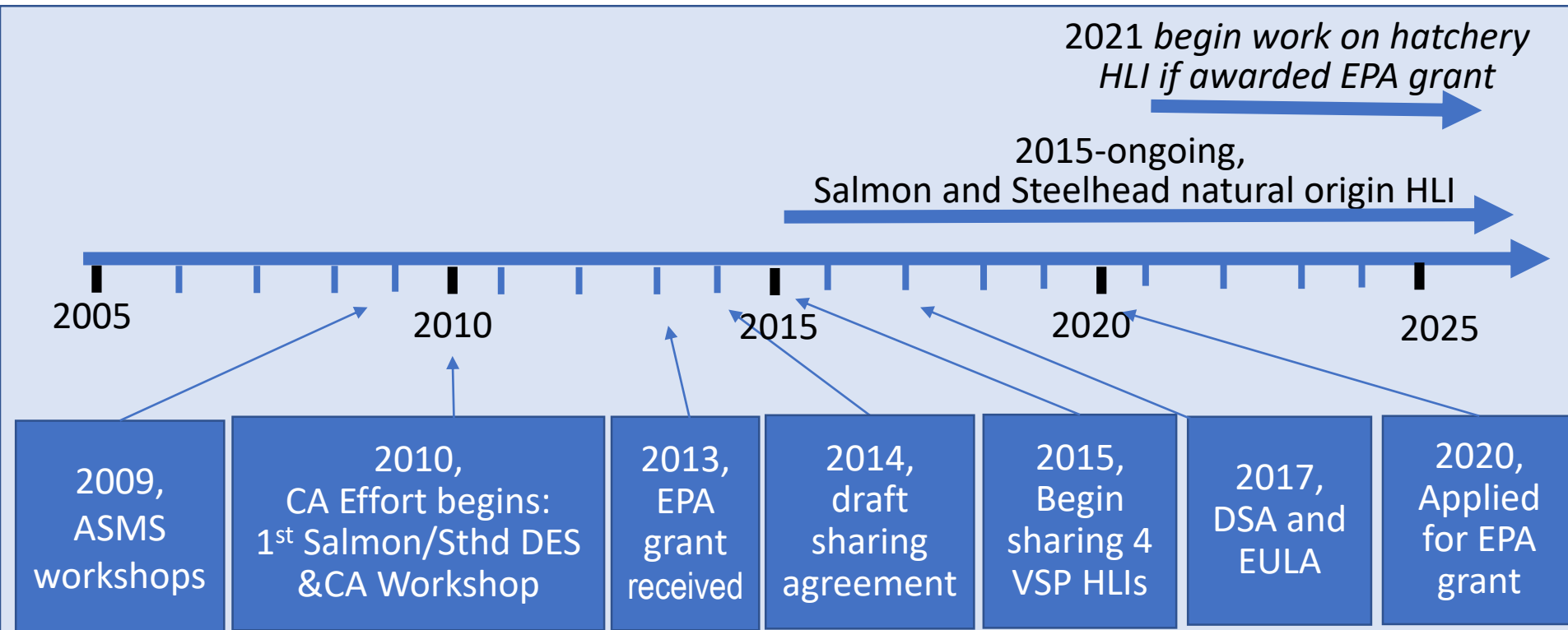


2. What is the Coordinated Assessments Effort

efficiently share and provide access to standardized derived information for reporting and decision-making by Pacific Northwest natural resource managers and ESA regulators



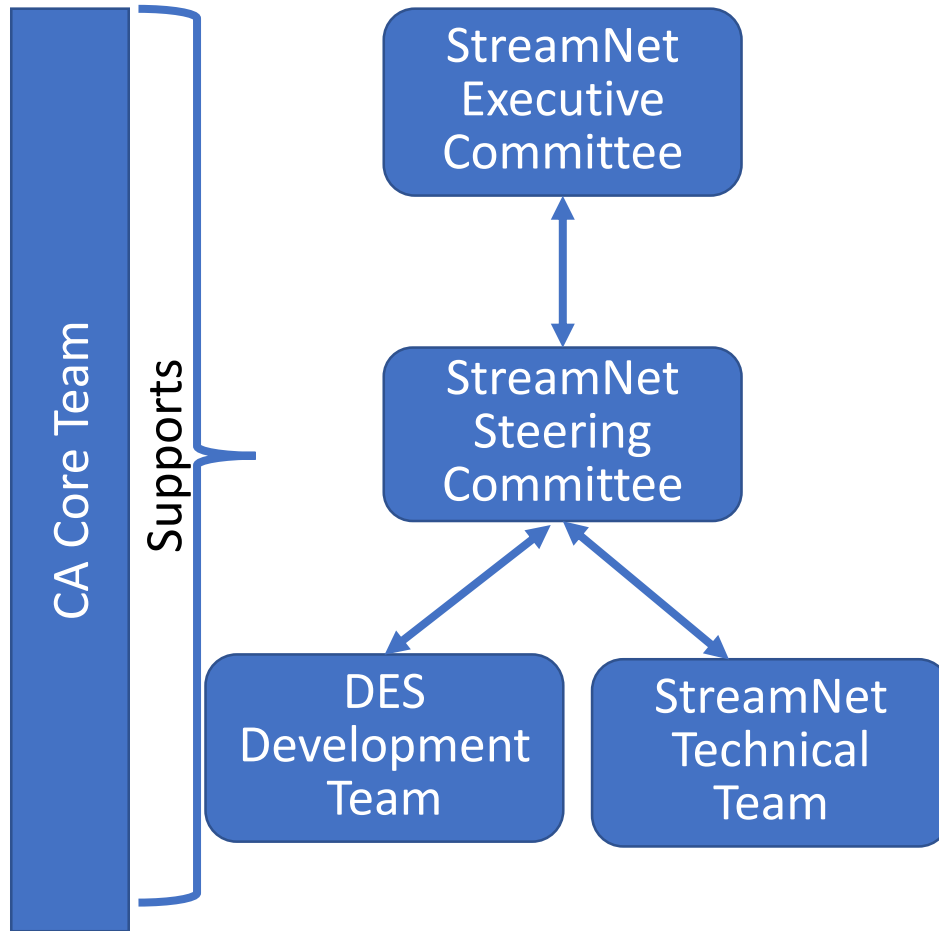
Evolution of the CA Effort *some highlights*



ASMS= Anadromous Salmonid Monitoring Strategy Sub-regional and Regional Workshops
More details: <https://www.pnamp.org/project/coordinated-assessments-for-salmon-and-steelhead>



CA Effort Current Process



CA Core Team

coordination among CA Effort partners;
organizes workshops, etc

StreamNet Executive Committee

policy guidance for StreamNet and CA,
approves annually the CA 5-year Plan
and the StreamNet Work Plan

StreamNet Steering Committee

technical implementation of CA Effort
and StreamNet

Data Exchange Standard (DES) Development Team

DES content, import/export guidelines,
indicator data tables.

StreamNet Technical Team

responsible for programming to flow
data from partner data systems to
StreamNet databases (CAX/StreamNet
queries).



Who works on the CA Effort groups

- **Co-sponsored:** PNAMP and StreamNet
- **Entities:** tribes, states, federal, tribal consortium, interstate entities and regional programs/partnership
- **Participants:** fluid depending on task and group, includes fisheries biologist and data stewards:

BPA Colville Tribes CRITFC Columbia Basin F&W Library Fish Passage Center	IDFG MFWP NPT NOAA-F ODFW PNAMP	PSMFC (StreamNet) staff StreamNet SC representative USFWS WDFW Others as needed
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- **Supported by**
 - funding from BPA and occasional grants from the EPA
 - significant in-kind contributions federal, state, and tribal fish managers.

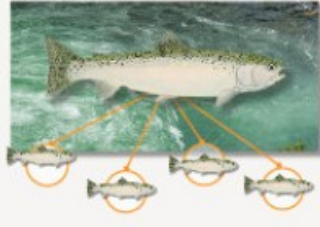


CA Effort's CAX Query System

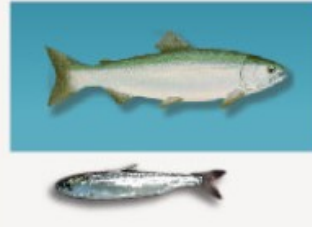
salmon and steelhead (*current*)



NATURAL ORIGIN SPAWNER ABUNDANCE
PNI



RECRUITS PER SPAWNER
Presmolt Abundance



SMOLT TO ADULT RATIO
Juvenile Outmigrants

Area	High Level Indicator Salmon and Steelhead Populations and Superpopulations
Columbia River Basin	Natural Origin Spawner Abundance (NOSA)
	Presmolt Abundance
	Juvenile Outmigrants
	Smolt to Adult Return Rate (SAR)
	Recruits per Spawner (R/S)
	Proportionate Natural Influence (PNI)
Oregon Coast	NOSA
	Juvenile Outmigrants
	SAR
	Recruits per Spawner (R/S)
	PNI
Puget Sound	pending

Accessing CAX Data

- CAX Resources documentation page

<https://www.streamnet.org/coordinated-assessments-xct-development/>

- CA population boundaries map/ArcGIS REST Services

<https://maps.psmfc.org/server/rest/services/StreamNet/CoordinatedAssessments/MapServer>



CA XCT Development

Data

- Coordinated Assessments

CA Data Query

CA Priority Data

CA Populations

CA Data Exchange Standard

CA XCT Development

Data Quality Assurance & Quality Control

Bull Trout

Local Scale Data

Data Store

Maps and GIS Data

Habitat Evaluation Procedures (HEP)

Protected Areas

This page contains specific information needed to implement and participate in the Coordinated Assessments Data Exchange.

It is maintained primarily as a reference source for those individuals who are implementing the automated data exchange systems. More general information about the Coordinated Assessments effort can be found on the [PNAMP web site](#).

Resources

Resource	Version	Description
StreamNet REST API	1	This is the primary programming interface to the CA tables. In order to actively use the API, for testing or production, you will need an API Key. You can get an API key by contacting Greg or Mike at StreamNet.
Data Exchange Standard (DES)	(7/1/17)	The current, active version of the DES as well as previous versions, related documents, and where to ask for draft versions and working copies.
Script for creating CA DB on SQL Server	Current database version, upon request.	If you need a script for building database tables in SQL Server and/or populating tables, send us an email .

Current XML Schema Documents

The XML schemas for data exchange with the EPA Exchange Network.

General schema documents

- Defined types used in main schemas

XML schemas for natural origin fish

- NDSA table
- SAR table
- RperS table

XML schemas for hatchery origin fish

- HatcherySpawning table (not yet developed)
- PNI table (not yet developed)
- EggToRelease table (not yet developed)
- SAR-Hatchery table (not yet developed)
- RperS-Hatchery table (not yet developed)

CAX Flow Configuration Document

Description of the data flow configuration from source agencies and tribes to the CAX and EPA Exchange node.
Version 1.0 (2015)

Data Sharing Agreements

The most current draft of the data sharing agreement template can be found [here](#).

Accessing CAX Data

Coordinated Assessments Data

cax.streamnet.org/?species=Steelhead&run=Summer&popid=76%2C73##

Coordinated Assessments Indicators of Fish Population Health

Project Info Data QA/QC Populations StreamNet API Contact Us

1. Select species & run

Species : **Steelhead**
Run : **Summer**

Multiple Populations Selected

[View list](#) [Download data](#)

3. View or download data

Steelhead - Summer run

Yakima River upper mainstem | Naches River

Yakima River upper mainstem (76)
Steelhead - Summer
MPG: Yakima

HLIs **65** Related Data **0** FCRPS BiOp Priority **2**

2. Select one or more populations from map

Naches River - summer Steelhead

Yakima River
Whole population
CTYIN best estimate (method 1)

4,000
2,000
0
1984 2018

Yakima River Upper Mainstem - summer Steelhead

Data Availability

- No HLI data available
- HLI data available

Type here to search

8:24 AM
4/10/2020





Accessing CAX Data

- Interact programmatically with the CAX API
- Send and retrieve data with any programming language using JSON

Coordinated Assessments Data C x <https://api.streamnet.org/api/v1/> x +

api.streamnet.org/api/v1/ca/0002B923-F495-401B-BFB6-685F17D78FF2.json?XAPIKEY=D3BAA6EF-837... ☆ 175

```
{
  "record_values": {
    "nosaijupperlimit": "", "tsaej": "", "age8propupperlimit": "", "metriclocation": "", "popfitnotes": "", "cbfwapopname": "Deschutes River Eastside Tributaries Summer Steelhead", "age9proplowerlimit": "", "phosejalpha": "", "contactpersonfirst": "Kasey", "compilerrecordid": "30618010304", "id": "0002B923-F495-401B-BFB6-685F17D78FF2", "age3propupperlimit": "", "nosaejlowerlimit": "", "nosjf": "", "phosej": "", "nosjflowerlimit": "", "popfit": "Same", "spawningyear": 2001, "contactpersonlast": "Bliesner", "dataentry": "Jake Chambers", "age10propupperlimit": "", "age4proplowerlimit": "", "publish": "Yes", "nosaej": "", "age3prop": 0.07, "age6propupperlimit": "", "phosejupperlimit": "", "waterbody": "Bakeoven Creek, Buckhollow Creek and Trout Creek", "comments": "Proportion at age determined from average total age of scales collected from wild Deschutes fish in the mainstem, 1970 and 1971 (Olsen et al. 1991).", "age5prop": 0.3, "age3proplowerlimit": "", "age2proplowerlimit": "", "majorpopgroup": "Cascades Eastern Slope Tributaries", "otherdatasources": "", "tsaejalpha": "", "age5propupperlimit": "", "nosaijalpha": "", "age10proplowerlimit": "", "nosaijlowerlimit": "", "nosjfupperlimit": "", "phosij": 0.1368061, "phosejlowerlimit": "", "age7prop": 0.01, "run": "Summer", "refid": "", "hosjf": "", "measurelocation": "Redd count data can be found at www.streamnet.org/data", "tsaijlowerlimit": "", "commonname": "Steelhead", "contactphone": "(541)-962-3958", "age4propupperlimit": "", "phosijupperlimit": "", "popid": 58, "age11pluspropupperlimit": "", "tsaijupperlimit": "", "phosijalpha": "", "tsaij": 10005.0, "datastatus": "Reviewed", "tsaejlowerlimit": "", "age5proplowerlimit": "", "nobroodstockremoved": "", "trtmethod": "Yes", "methodnumber": 1, "age9prop": "", "dataentrynotes": "EOFR", "agepropalpha": "", "recoverydomain": "Interior Columbia", "age7propupperlimit": "", "nosjfalpha": "", "nosaij": 8637.0, "phosijlowerlimit": "", "age8proplowerlimit": "", "metacomment": "ODFW reserves the right to review and revise data as needed. Consult the contact person for metric, and measure data.", "contactagency": "Oregon Department of Fish and Wildlife", "age2propupperlimit": "", "age2prop": "", "nullrecord": "No", "protmethdocumentation": "", "bestvalue": "Yes", "tsaijalpha": "", "protmethurl": "https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=202&XMLname=1100.xml", "indicatorlocation": "http://odfwrecoverytracker.org/explorer/species/Steelhead", "nosaejalpha": "", "nosaejupperlimit": "", "submitagency": "ODFW", "age7proplowerlimit": "", "age4prop": 0.57, "age8prop": "", "protmethname": "Viable Salmonid Population"
  }
}
```



3. CA 5 Year Plan

<https://www.streamnet.org/updated-coordinated-assessments-5-year-plan-adopted/>

- **Data flow and priorities**
 - maintain, update, and automate for existing HLI and priority trend data.
 - maintain contact with NOAA, BPA, NPCC, BPA Sponsors
- **Potential new HLIs**
 - discuss with the StreamNet Executive Committee.
 - populate any new indicators with data and address data gaps
 - tentative/pending HLIs: hatchery, carrying capacity, white sturgeon, bull trout
- **Data Exchange Standards**
 - maintain existing and finalize new DES as appropriate.
- **Work with tribes**
 - coordination with ITMD Project (DES, process, sharing efficiencies)
- **CA 5-year Plan**
 - annually review/revise with StreamNet Executive Committee.
- **CA workshop**
 - Schedule if warranted (PNAMP and StreamNet co-organizers)



2020 CA Plan Update

- **Maintaining flow**
 - DES updates ongoing as needed
- **Clarifying CA process and roles/responsibilities of groups**
 - CA roles and responsibilities document update
 - PNAMP Fish Monitoring Workgroup (FMWG) role with CA/StreamNet
- **New Hatchery Indicator proposal**
 - Submitted FY2020 EN EPA Grant partnership proposal
 - WA GSRO, WDFW, Colville Tribes, PNAMP, PSMFC
- **Carrying Capacity information sharing**
 - Process with PNAMP and BPA to explore concept with FMWG and data experts



CAX Update

Data Provided by CRB Tribes in CAX (as of April 6, 2020)

Note: some tribal data may be included in HLI provided by others

Area	High Level Indicator	Tribe	Pops	Records	Year Range
Columbia River Basin	Natural Origin Spawner Abundance (NOSA)	YN (STAR)	9	279	1982-2008
		CTCR	1	12	2005-2018
		NPT	47	389	1987-2018
	Juvenile Outmigrants	CTCR	1	14	2007-2018
		NPT	9	157	1995-2012

Data Summarized as of April 6, 2020

End of Calendar Year 2019 CAX Content (all)

Area	High Level Indicator	Pops	Superpops	Records	Year Range
Columbia River Basin	Natural Origin Spawner Abundance (NOSA)	158	14	5,595	1938 - 2019
	Presmolt Abundance	8	0	162	1993 - 2018
	Juvenile Outmigrants	62	4	1,325	1978 - 2019
	Smolt to Adult Return Rate (SAR)	97	74	951	1985 - 2017
	Recruits per Spawner (R/S)	66	0	2,847	1949 - 2017
	Proportionate Natural Influence (PNI)	4	0	146	1985 - 2018
Oregon Coast	NOSA	56	35	565	1994 - 2018
	Juvenile Outmigrants	7	0	132	1997 - 2017
	SAR	7	0	124	1997 - 2016
	Recruits per Spawner (R/S)	21	0	694	1994 - 2015
	PNI	0	0		
Puget Sound	pending				

Data Summarized as of December 31, 2019

nNet



4. Quick Tips and Suggestions

- **Unique identifiers**
 - Maintain a static, unique identifier, for records to avoid validation errors and duplicates
- **Biologists and Data Experts**
 - Work with biologists to have them provide data in/close to the CA data structure and requirements
- **New populations**
 - If you have HLIs for additional, non-NOAA, populations share your GIS layer for the population and we can display these
- **What's not working**
 - As a collaborative effort adjustments are possible so let us know what is not working for you, e.g. validation rules
- **Need help submitting**
 - Contact Mike Banach to explore options for CAX submittals
- **Representation**
 - Consider having representation on the DES Development Team and StreamNet Technical Committee



5. Resources and Assistance

- StreamNet staff assistance for
 - data providers with data flow to the CAX and StreamNet Query
 - archiving data sets in the Data Store (secure repository)
- PSMFC GIS Center
 - an Enterprise ArcGIS environment
 - assist partners with downloadable datasets, web map services
 - collaborate partnerships using ArcGIS online environment (AGOL).
- FY2020 StreamNet Executive Committee prioritized supporting tribal sharing capacity building
 - 3 subcontracts supporting hardware, software, data management

StreamNet Website:

<https://www.streamnet.org/services/>

<https://www.streamnet.org/resources/>



6. Share your suggestions for how StreamNet can improve and assist you better

What works well

What can be improved

With what do you need assistance

What is missing (tool, etc)

How to better interact with ITMD



How to contact us:

Mike Banach,

StreamNet Fishery Biologist and Database Administrator

mbanach@psmfc.org

Greg Wilke, *StreamNet Programmer*

gwilke@psmfc.org

Van Hare, *PSMFC GIS Manager*

vhare@psmfc.org

Nancy Leonard, *StreamNet Program Manager*

nleonard@psmfc.org

General contact for all above: project@streamnet.org

503.595.3100

