StreamNet Steering Committee Meeting

September 16-17, 2024

Montana Fish Wildlife and Parks
490 North Meridian Drive,
Kalispell MT 59901

Microsoft Teams meeting: link
Meeting ID: 268 081 365 676
Passcode: 7HAwiE

Or call in (audio only)
+1 207-387-0436,,414787645#

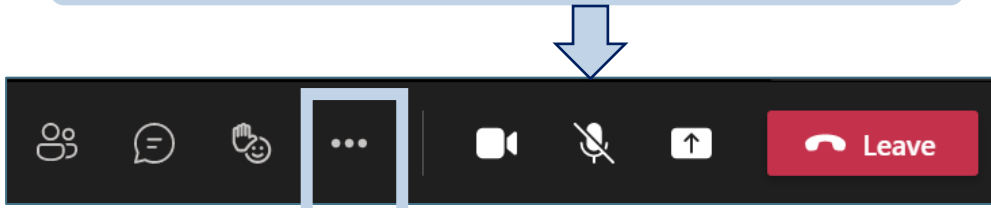
Welcome and Introductions

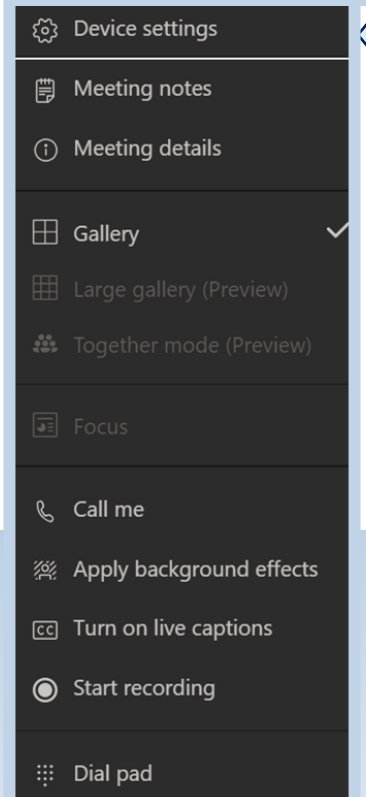
All participants,

please use the chat to introduce yourself (name and affiliation)

Please leave web cameras on to facilitate discussion

Please mute yourself when not speaking.
Use *6 to mute phone audio.
Use the microphone icon on the control bar to mute computer audio.





Check device settings if you are having problems with audio/video

StreamNet
www.streamnet.org

Agenda

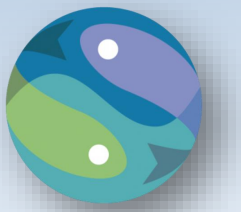
(times are approximate, Mountain TIME ZONE)

DAY 1 – SEPT 16, 2024	
TIME	**AGENDA ITEM**
9:30 MDT	Welcome and introductions
9:45	HCAX Closeout
10:05	Fish Facilities
10:35	**BREAK**
10:40	Data Sharing/Use Agreements
10:55	CA – Fish HLI DES Updates
11:10	CAP HLI DataStatus table
11:25	SN Tech Team and SN DDT updates
12:00	**LUNCH**
1:30	Spotlight
2:20	SN SharePoint
2:50	BPA Annual Report
3:20	**BREAK**
3:30	Rotary Screw Trap DB
3:50	FMWG updates
4:20	Trend Group Query Display
4:40	**ADJOURN 6:00 Dinner** at Hops!

DAY 2 – SEPT 17, 2024	
TIME	AGENDA ITEM
9:00 MDT	Welcome and introductions
9:10	QA/QC tool updates and 2025 plans
9:40	ETIS planning
9:55	SN ExCom prep
10:15	**BREAK**
10:25	Partner Updates
11:50	Next SN SC meeting
12:00	Adjourn

HCAX Closeout!

Nancy Leonard



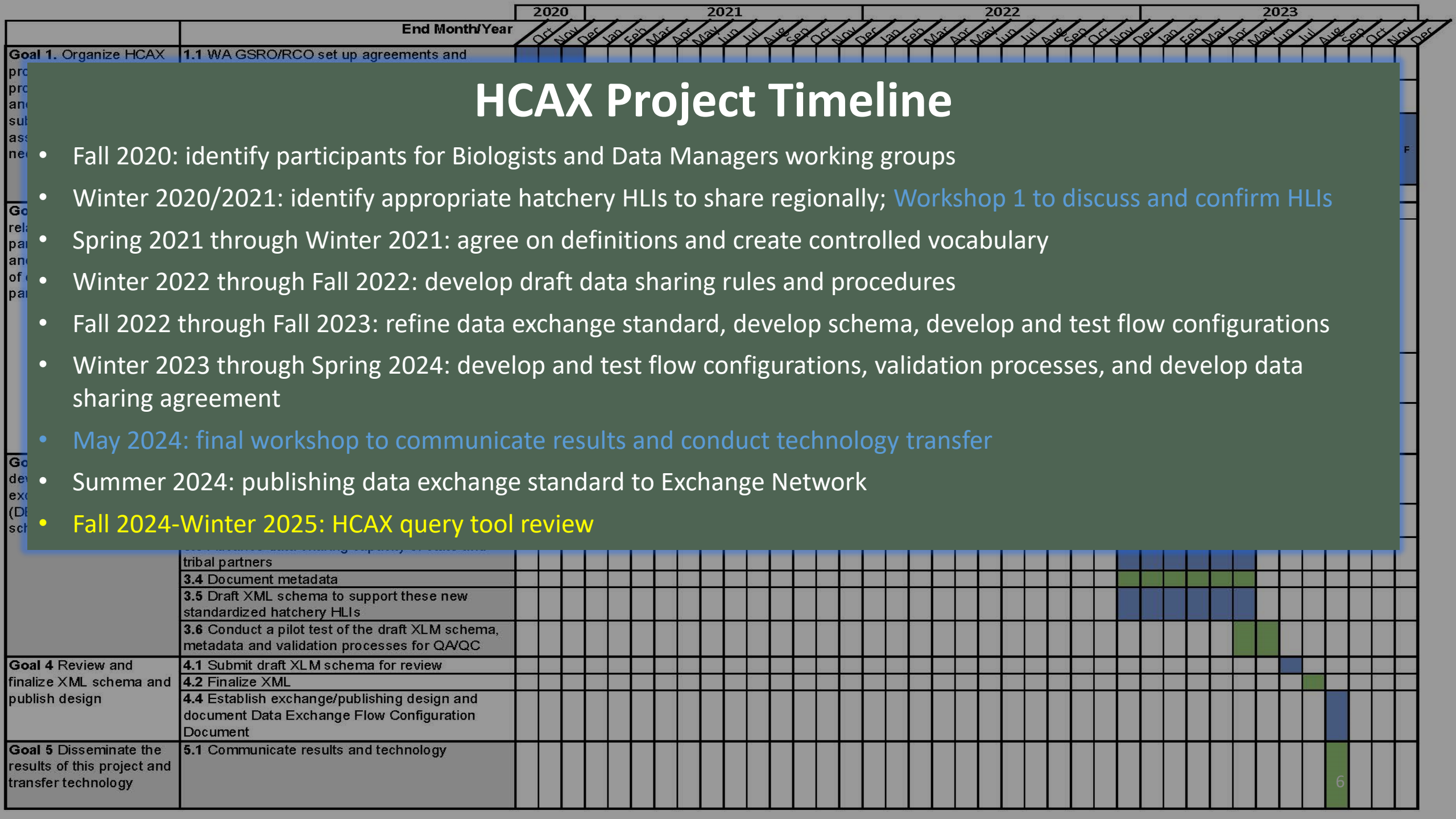
Coordinated Assessments Partnership – HCAX Update September 16, 2024

Photo: Nez Perce Tribe

- HCAX Project Goal: advance sharing of standardized metrics and HLIs for PNW hatchery salmon and steelhead
  - In a well-defined, transparent manner
  - To improve consistency in the information communicated publicly
  - To facilitate access to best available data used in regional decision-making processes
  - To support and contribute to states, tribes, tribal consortia, federal agencies and other partners' reporting needs

HCAX Project Timeline

- Fall 2020: identify participants for Biologists and Data Managers working groups
- Winter 2020/2021: identify appropriate hatchery HLIs to share regionally; Workshop 1 to discuss and confirm HLIs
- Spring 2021 through Winter 2021: agree on definitions and create controlled vocabulary
- Winter 2022 through Fall 2022: develop draft data sharing rules and procedures
- Fall 2022 through Fall 2023: refine data exchange standard, develop schema, develop and test flow configurations
- Winter 2023 through Spring 2024: develop and test flow configurations, validation processes, and develop data sharing agreement
- May 2024: final workshop to communicate results and conduct technology transfer
- Summer 2024: publishing data exchange standard to Exchange Network
- Fall 2024-Winter 2025: HCAX query tool review

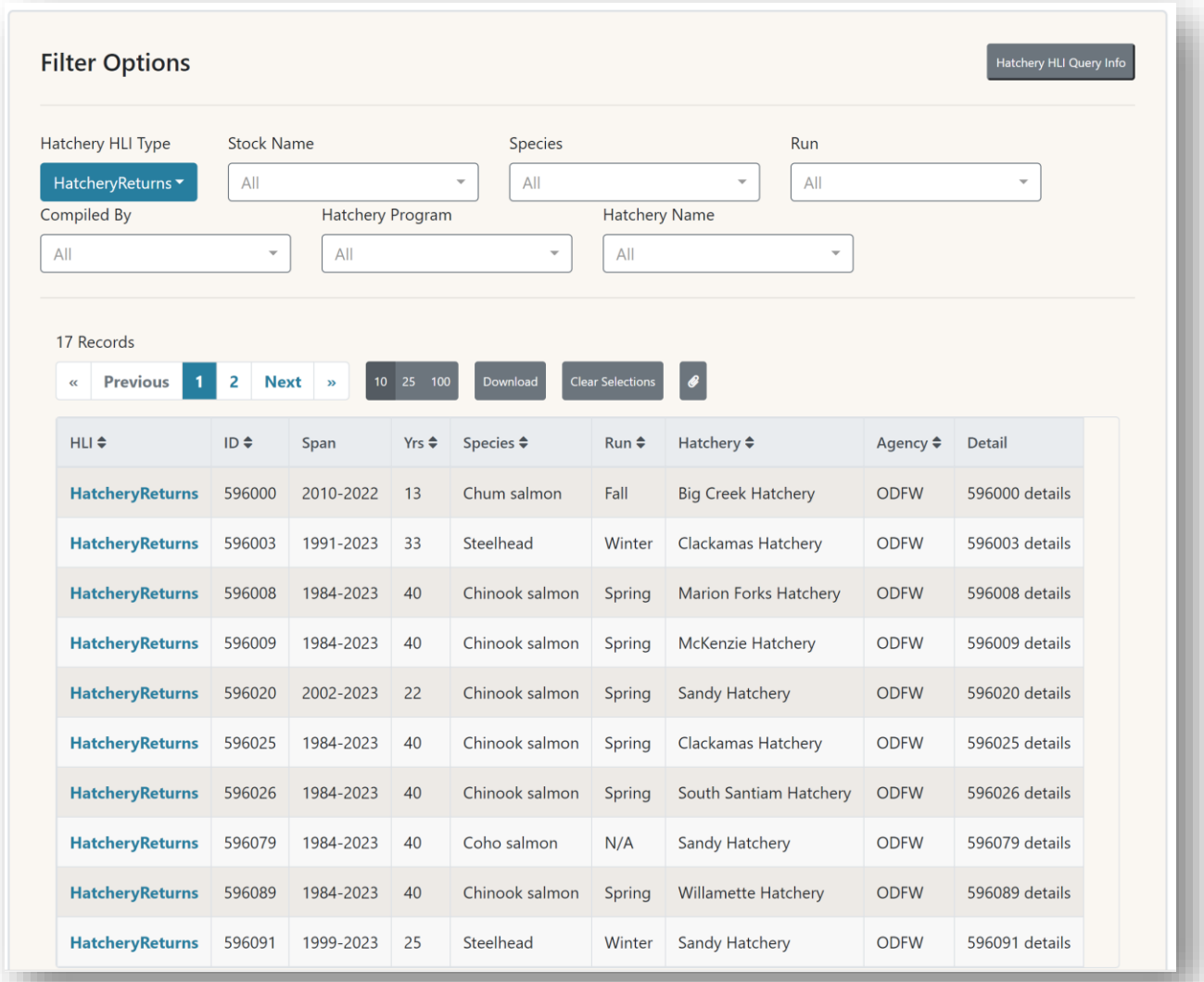


ICYMI: May 21 Workshop Agenda

Time	Topic
10:30	Welcome, Introductions & brief HCAX history
10:45	Overview of HCAX Data Exchange Standard (DES) Development and Implementation Testing
11:05	Review and Discuss Prototype HCAX Query System
11:25	Confirm Data Use Agreement Updates
11:45	Discuss Remaining HCAX DES Tasks
12:00	Discuss Future Tasks Related to HCAX
12:15	Wrap up and Adjourn

Hatchery HLI Query

Filter View



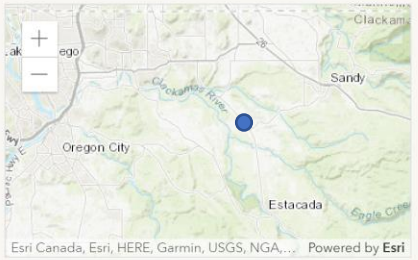
Hatchery HLI Query

Detail View

◀◀ Back to HLI Search | Download | 🔗

Hatchery Returns

Stock Name: Clackamas River - winter Steelhead
Hatchery Facility: Clackamas Hatchery **Run**: Winter
Contact Agency: Oregon Department of Fish and Wildlife (See download for contact info)
TimeSeriesID: 596003
Protocol/Method: Hatchery and Genetic Management Plan (HGMP) - Clackamas River Hatchery Winter Steelhead Program
Method URL: https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=202&XMLname=42024.xml



Return Year	Program	Operator	Total Return	Last Updated
2023	Clackamas River Winter Steelhead Program	Oregon Department of Fish and Wildlife	439	2024/04/04 02:48:29
2023	North Santiam River Spring Chinook Salmon Program	Oregon Department of Fish and Wildlife	3917	2024/04/04 02:48:28
2023	McKenzie River Spring Chinook Salmon Program	Oregon Department of Fish and Wildlife	723	2024/04/04 02:48:28
2023	Sandy River Spring Chinook Salmon Program	Oregon Department of Fish and Wildlife	2047	2024/04/04 02:48:29
2023	Clackamas River Spring Chinook Salmon Program	Oregon Department of Fish and Wildlife	2192	2024/04/04 02:48:29
2023	South Santiam River Spring Chinook Salmon Program	Oregon Department of Fish and Wildlife	5698	2024/04/04 02:48:30
2023	Sandy River Coho Salmon Program	Oregon Department of Fish and	4573	2024/04/04

Updates Since May 2024 Workshop

- **HCAX query system under development (PSMFC staff)**
- **Data use agreement update ready to be confirmed and implemented**
- **Progress on remaining HCAX DES tasks identified at workshop**
  - EPA grant requirements have been fulfilled: XML schemas have been developed and added to the EPA Exchange Network; Data Sharing Agreement will be finalized by the StreamNet Executive Committee; final report was submitted to EPA
  - Data are flowing! Currently testing status, no data retrieval currently available
- **Future tasks related to HCAX identified at workshop**
  - HCAX engagement and upkeep will be managed by CAP (PNAMP and StreamNet)
  - Continue and support data submittal by partners
  - Next CAP indicator (much later)

Indicator	Votes
Age Data	10
Hatchery Return Rate	8
Carrying Capacity	6
Other	5
White Sturgeon	3
Other Harvest	2
Bull Trout	1
PBT	4
Other Fish	0

Fish Facilities GIS – CRB and Beyond!

Van Hare & Lilly Cohn
(PSMFC GIS Center)

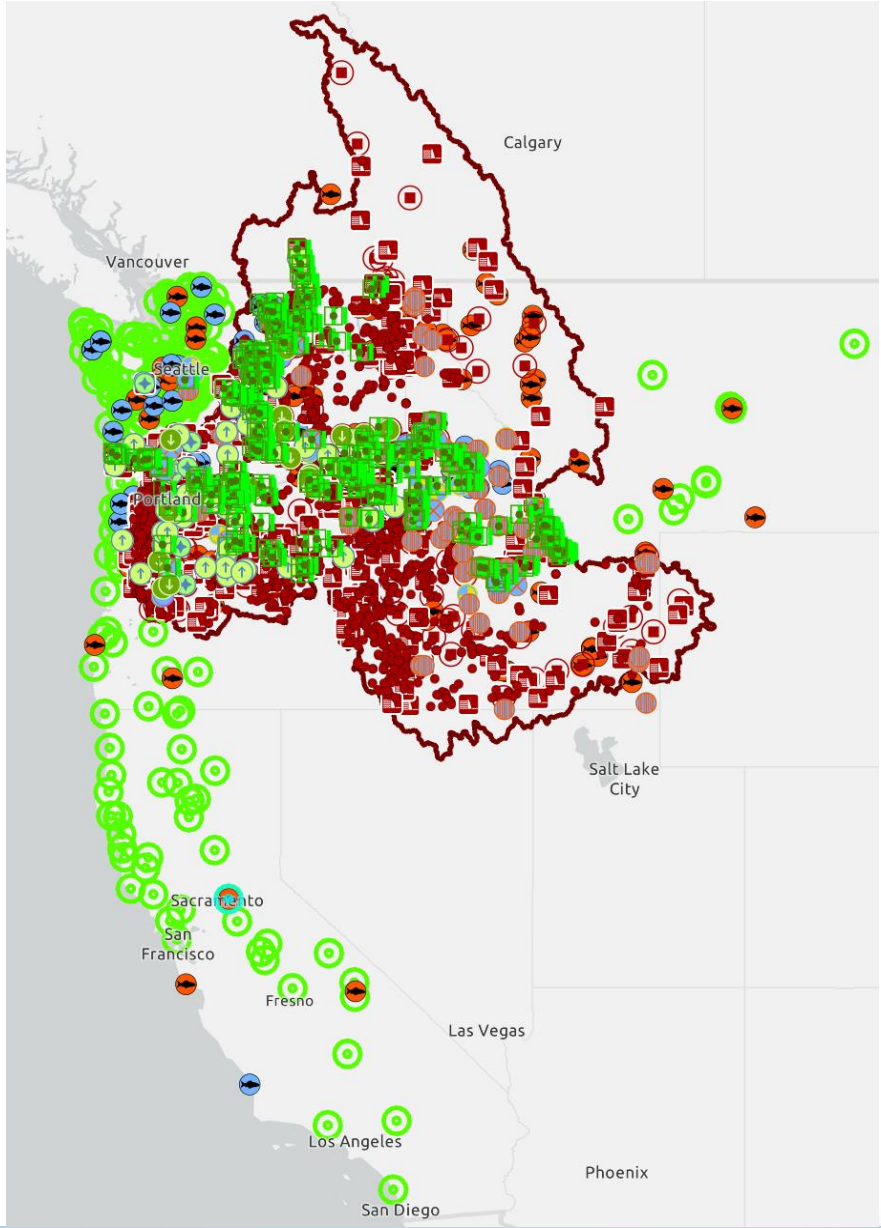
PSMFC 'Fish Facilities' dataset

Designed to promote consistent georeferencing and encourage data integration across projects & partnerships

- 539 hatcheries (460 w/HatchID)
- 2,086 dams (2,003 w/DamID)
- 236 traps (108 w/HatchID & 15 w/DamID)
- 144 fish passage facilities
- 343 PIT tag detection sites

3,348 facilities in total (as of 9/2024)

Hatchery facilities to be revealed...pending QA/QC



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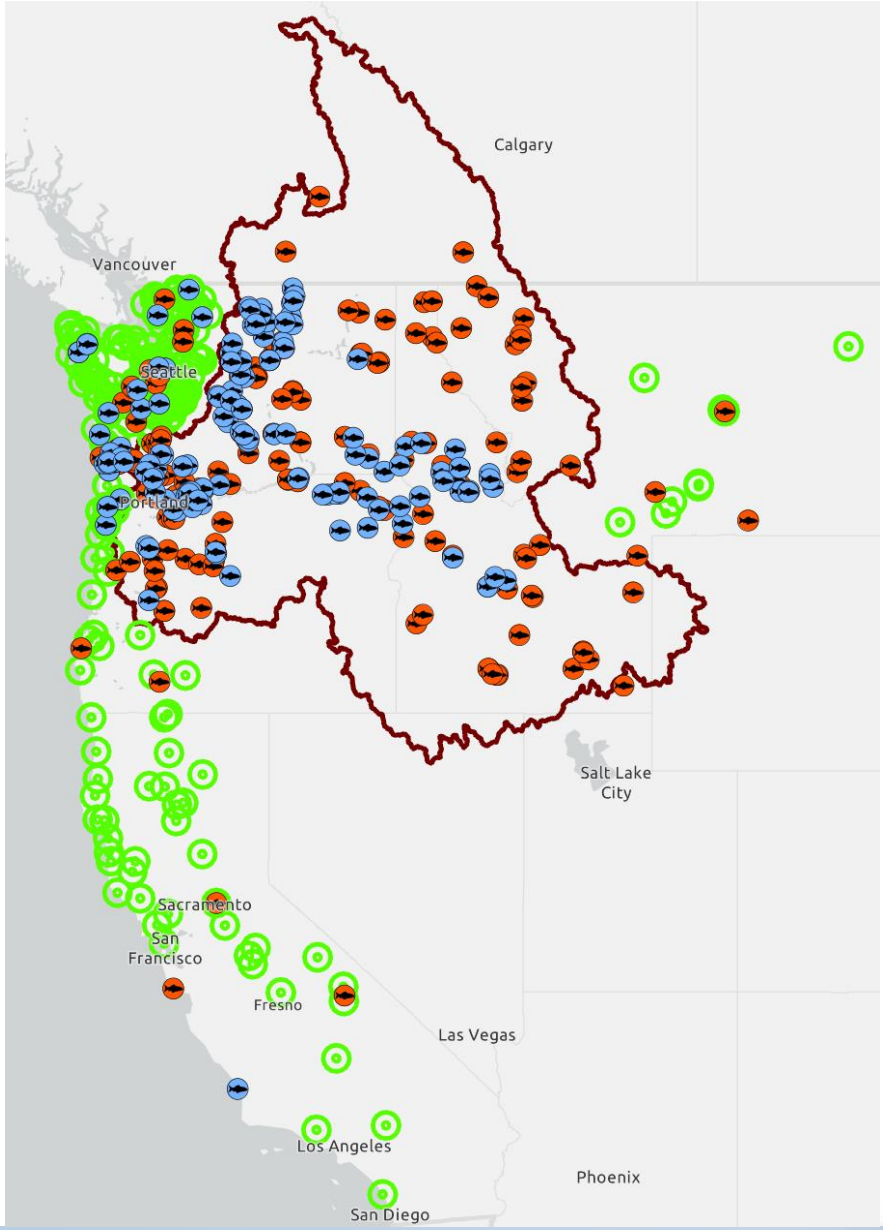


Current focus is on QA/QC of Hatchery Facilities

outside of the Columbia River Basin

QA/QC Process involves:

1) Comparing existing PSMFC dataset with original StreamNet datasets and best available source agency data.
2) Confirming locational accuracy and consistency of attribution where a facility occurs in multiple datasets. Defer to source agency but compare to aerial imagery as well.
3) Compare and reconcile attributes, purposely retaining [HatchID] while using Alternate name and Comment fields to describe edits or questions.
4) Potentially add facilities from source agency with support from partners

173 Hatcheries
159 Acclimation and/or release sites
207 To be 'revealed' pending QA/QC
> 170 potentially to be added (from WDFW alone)

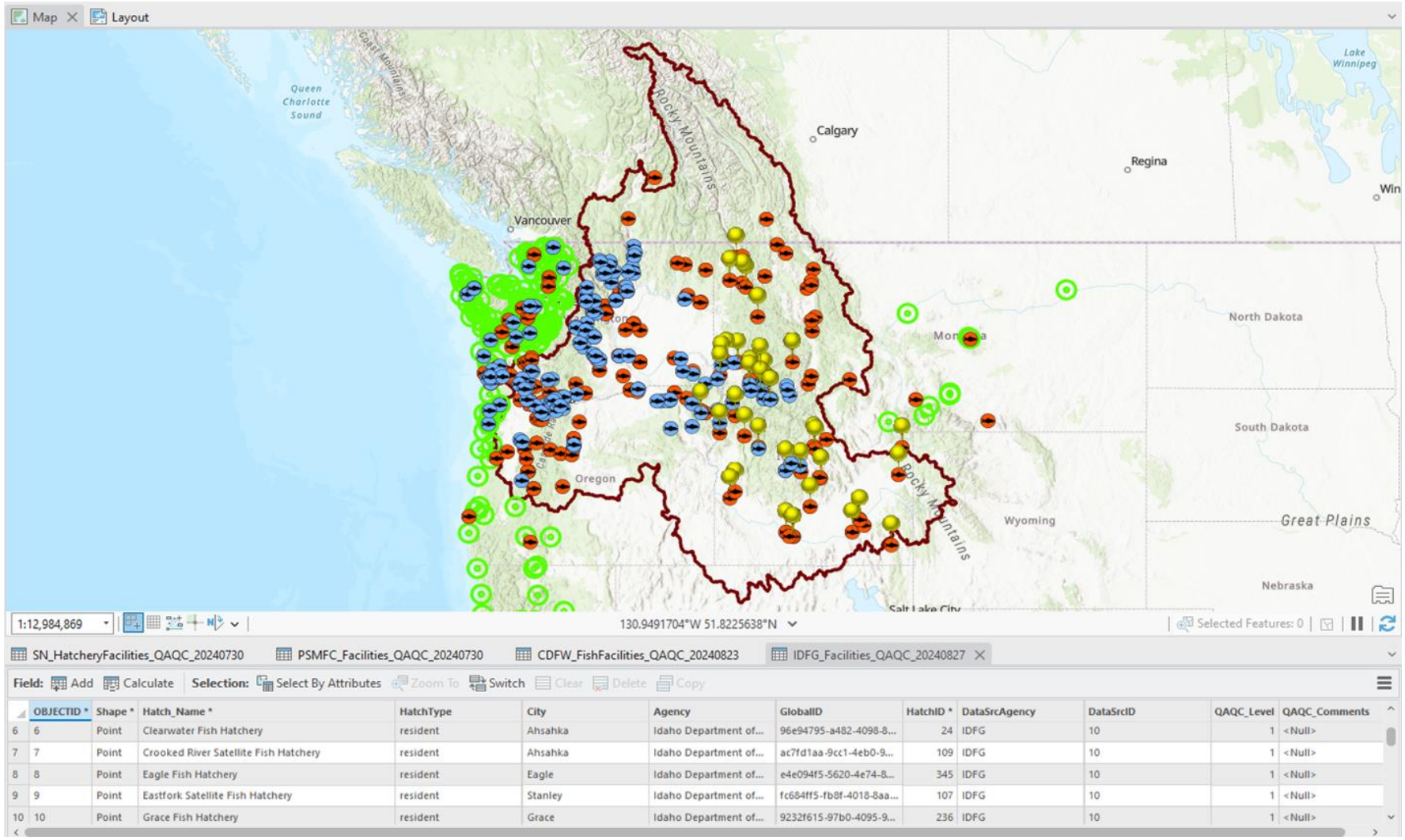
Primary Goal is to **expand geographic scope** of the facilities revealed for use by StreamNet and others

Confirm location and attribute quality:

- Facility Name
- Facility Type
- Facility SubType
- Status
- HatchID
- Source Agency
- SourceID

Source Agencies:

- WDFW
- ODFW
- IDFG
- CDFW
- MFWP



	OBJECTID *	Shape *	Hatch_Name *	HatchType	City	Agency	GlobalID	HatchID *	DataSrcAgency	DataSrcID	QAQC_Level	QAQC_Comments
6	6	Point	Clearwater Fish Hatchery	resident	Ahsahka	Idaho Department of...	96e94795-a482-4098-8...	24	IDFG	10	1	<Null>
7	7	Point	Crooked River Satellite Fish Hatchery	resident	Ahsahka	Idaho Department of...	ac7fd1aa-9cc1-4eb0-9...	109	IDFG	10	1	<Null>
8	8	Point	Eagle Fish Hatchery	resident	Eagle	Idaho Department of...	e4e094f5-5620-4e74-8...	345	IDFG	10	1	<Null>
9	9	Point	Eastfork Satellite Fish Hatchery	resident	Stanley	Idaho Department of...	fc684ff5-fb8f-4018-8aa...	107	IDFG	10	1	<Null>
10	10	Point	Grace Fish Hatchery	resident	Grace	Idaho Department of...	9232f615-97b0-4095-9...	236	IDFG	10	1	<Null>

Examples of the types of 'refinements' that are being made and tracked

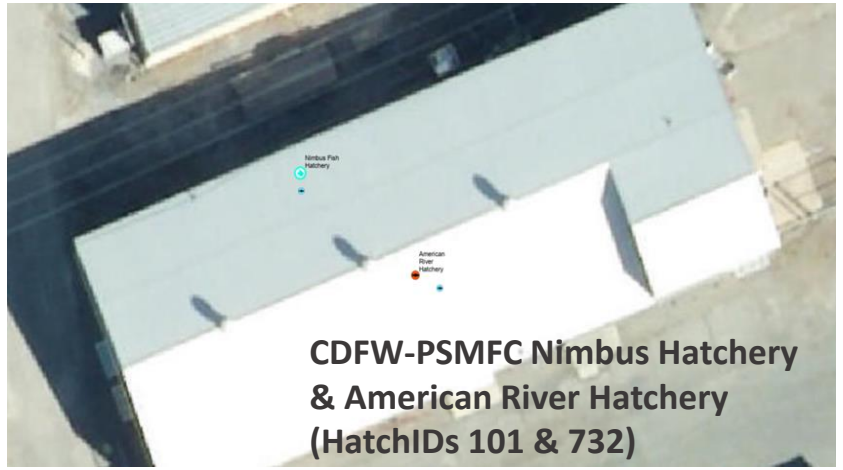
Confirm location and attribute quality:

- Refine PSMFC location by snapping to source or imagery and adding comments to describe and track edits
- Retaining HatchIDs and adding Alternative names
- Attributing Status for closed facilities but NOT deleting from the dataset (they can be filtered out for display purposes)
- Resolving potentially duplicate facility locations or ensuring the duplication is intentional
- Confirming/refining Facility Types and SubTypes

WDFW vs PSMFC Echo Bay Net Pens & Lewis River Net Pens (FacilityID P372 & HatchID 541)

Reconciling/standardizing point locations and HatchIDs for coincident features

IDFG vs PSMFC Springfield Hatchery (HatchID=900)



CDFW-PSMFC Nimbus Hatchery & American River Hatchery (HatchIDs 101 & 732)

Looking for input on some decisions specific to StreamNet's use of the dataset

- Any concerns about PSMFC maintaining a regional dataset that incorporates best available data from partners with proper source attribution?
- Are we missing anything important? We welcome pointers to best available data or value-added attributes the SN Partnership would like to see included.
- Is there support for adding facilities (including net pens) beyond the CRB and, if so - should PSMFC/SN assign new HatchIDs to facilities along with entries in the Hatchery table?
- Will there be an ongoing need for a CRB only Fish Facilities mapping app or can that simply become a regionwide application?
- Any other feedback?

Stretch Break

back at 10:55 (Mountain TIME ZONE)

All images are from MFWP webpages

Data Sharing Data Use Agreements

Feedback provided and incorporated.

Final draft available at the link.

SN SC approval?

ExCom review and approve for full implementation.

Data Policy and Agreements - StreamNet

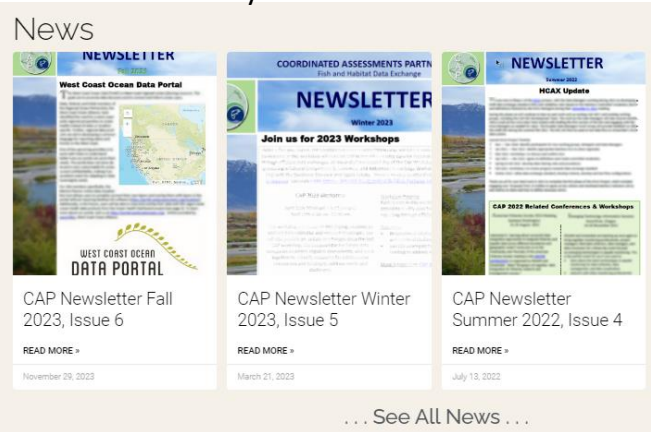
CAP Fish HLI DES Updates

- CAX DES updates
  - 7/22/2024
- HCAX DES updates
  - 6/14/2023
- Future joint meetings

CAX + HCAX Engagement and Upkeep

Leveraging existing Coordinated Assessments Partnership structure and outreach approach co-led by Pacific Northwest Aquatic Monitoring Partnership and StreamNet

Twice a year CAP Newsletter



CAP Workshop every 2-3 years

Coordinated Assessments Partnership
Fish and Habitat Data Exchange

Note: One Joint PNAMP SC & StreamNet ExCom meeting in fall/winter

PNAMP Steering Committee

- Fish Monitoring Work Group
- Monitoring Resources

StreamNet Executive Committee

StreamNet Steering Committee

- Coordinated Assessments Partnership Data Exchange Standards Development Team
- StreamNet Technical Team
- StreamNet Data Exchange Standards Development Team

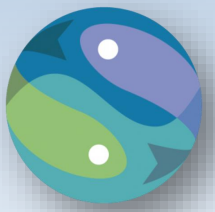
PNAMP and StreamNet CAP webpages

CAP Fish HLI DES

- CAX DES updates

CAP Fish HLI DES

- CAX DES updates
  - New version adopted May 17, 2024
    - Previous version was July 2020
  - Effective date July 22, 2024
  - New DESs now go out with:
    - Word and PDF copies
      - Highlighted changes from the previous version & final
    - Data table templates in Access and Excel formats



CAP Fish HLI DES

- CAX DES updates
  - Major changes:
    1. New "TimeSeriesID" field in the HLI tables
       - Query systems will correctly group data sets
    2. New "PopulationName" field in Populations table
       - Replaces "CBFWApopName" and "CommonPopName"
    3. New field to categorize juvenile outmigrant location
       - Tells where outmigrant numbers were estimated relative to the population's hydrologic extent
    4. Removed some unused fields (CBFWApopName, JMXID)

CAP Fish HLI DES

- CAX DES updates
  - Minor changes:
    1. "Conservation" removed as an option from the hatchery program type in the PNI table. Now matches HCAX options.

    2. Additional guidance for data providers
       - Promotes consistency across partners; improved clarity for compilers
       - Appendix to explain "smolt equivalents".

    3. Simplified and generalized data types, rather than specifying MS Access data types

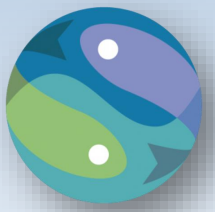
    4. Data type changed to integer for things that are integers – e.g., number of fish

CAP Fish HLI DES

- CAX DES updates – Adoption status / progress
  - All changes done in:
    - Central database
    - Validation rules
    - Views that feed spreadsheets from query systems

CAP Fish HLI DES

- CAX DES updates – Adoption status / progress
  - Mostly complete:
    - Assigning TimeSeriesID to existing data in these tables:
      - NOSA
      - SAR
      - RperS
      - JuvenileOutmigrants
      - PresmoltAbundance
      - PNI



CAP Fish HLI DES

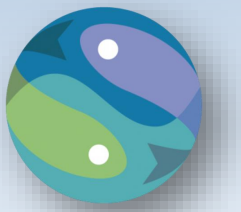
- CAX DES updates – Adoption status / progress
  - Mostly complete:
    - Assigning TimeSeriesID to existing data in these tables:
      - NOSA – 74% as of September 4
      - SAR – 90% as of September 4
      - RperS – 61% as of September 4
      - JuvenileOutmigrants – 75% as of September 4
      - PresmoltAbundance – 44% as of September 4
      - PNI – 90% as of September 4

CAP Fish HLI DES

- CAX DES updates – Adoption status / progress
  - Mostly complete:
    - Assigning TimeSeriesID to data in these tables:
      - NOSA – 2,093 to do as of September 4
      - SAR – 177 to do as of September 4
      - RperS – 1,631 to do as of September 4
      - JuvenileOutmigrants – 443 to do as of September 4
      - PresmoltAbundance – 268 to do as of September 4
      - PNI – 19 to do as of September 4

CAP Fish HLI DES

- CAX DES updates – Adoption status / progress
  - Not yet begun
    - Adjusting query systems to present data by TimeSeriesID
      - Depends on TimeSeriesID being 100% populated in all tables



CAP Fish HLI DES

- CAX DES updates – For the next version
  - Identifying natural key(s) for each table
    - SAR done
  - "Removal" fields still in the works

HCAX DES Updates

Current version adopted / effective June 2023

HCAX DES Updates

- For the next version

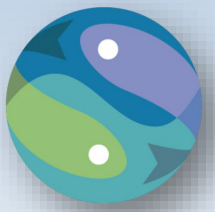
1. We specify TimeSeriesIDs will not change if transferred to a different organization
   - Already adopted

2. Considered how to allow multiple hatchery programs in a single record. No decision yet
   - Option 1: Allow multiple comma-separated ProgramIDs in the ProgramID field.
   - Option 2: Create new ProgramIDs for multiple programs. (ODFW, IDFG use)

3. HatcheryXStock table: Keep yes/no "ESAlisted" field; remove detailed "ESAstatus" field

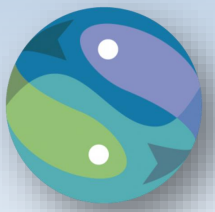
4. "Removal" fields still in the works

5. Plan to create polygons for stocks so they can be mapped. No DES change needed.



CAP Fish HLI DataStatus Table

Jake Chambers



Data Status Proposal

- ODFW context, examples, and Ad hoc Team.
- Issue: Existing in DES tables there are indicators/metrics no longer collected/reported (i.e., time series ends in 2020) and not a clear method to inform stakeholders why that is.
- Question: How should we document the status of existing and future reported data for Natural Populations and Hatchery Programs in the DES tables?
- Proposed Solution: Add a new (brief) DES table to describe the status and reason a time series is no longer shared.

What the Data Status Proposal Is and Is Not

- Modeled the proposal after the TrendStatus field in the Trend Table.
  - The table is not for data currently and continuously collected and shared.
  - It is for Population or Hatchery Program data no longer provided.
- The table is not the same or replacement for “Yearly Data Submission Updates” (IDFG, et al.).
- Include the table in both DES documents as an Appendix (i.e., “Appendix A”).
  - Proposal will not add new fields to existing DES tables.
- The main fields are TimeSeriesID (TSID) and the new proposed field “DataStatus”.

Appendix XX. DataStatus Table

This table stores information concerning the status and reason a time series for a population or hatchery program is no longer reported by StreamNet partners to the Coordinated Assessments Data Exchange Standards (natural or hatchery origin) database tables for view or download at StreamNet (https://www.streamnet.org/). *(*see notes on page 2)*

Field Name	Field Description	Data Type	Codes/Conventions for DataStatus Table		
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record, you may include this value or leave it blank.* If you include this value, then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*		
TimeSeriesID	StreamNet-defined code for the time series represented by this record. Assigned by data compilers or regional data assemblers as appropriate.	**Integer**	TimeSeriesID is used in several tables in both the CA natural and hatchery origin DES documents. A TimeSeriesID cannot be used more than once in this table. For records in this table: The TimeSeriesID must be a value used in one of the DES tables.	See the TimeSeriesID field in the Coordinated Assessments data exchange standard tables for the current list of codes by agency.	
DataStatus	The reason a TimeSeriesID is no longer report or is not currently reported.	**Integer**	Enter the Data Status here. Select from the following: [*Do not include comments in brackets.*]	• Funding for monitoring ceased [*this includes natural population estimates or hatchery programs*] • Agency decision to discontinue data collection [*there can be several reasons, describe in the Comments field*] • ~~Data not currently reported~~ • Agency decision to not report due to data sensitivity • Production of these fish stopped at the hatchery • Hatchery program was eliminated • Facility closed or removed	• Inadequate sampling to produce estimates [*there can be several reasons, describe in the Comments field*] • Data is collected, but does not fit the DES • Run of fish extinct, data collection ceased • Data collection is intermittent •
Comments	Any issues, problems, questions about this record that were not already captured in other places.	***Text*** ∞	If possible, it is useful to briefly provide information about the DataStatus. *A comment is required if DataStatus = Agency decision to discontinue data collection or Inadequate sampling to produce estimates.*		
UpdDate	The date and time that the record was created or updated.	Datetime	This can be the time a record was created, or the last time it was edited. This field tells the end user when the record was last modified at the source organization.		

Discussion/Questions

- SN/PNAMP work with DES Development Team to word-smith and add/remove codes and conventions.
- ODFW anticipates maintaining several records in the table. Partners?
- What if data are available in the future?
  - Add null records to the appropriate DES table and add new data.
  - Delete the record in the “DataStatus” table.
- How do we inform users about data status on the SN website?
  - The TSID should programmatically be sufficient.
  - Include DataStatus on the web map and graphics when TSID is queried.
  - Include the DataStatus table in the download, when TSID is queried.

StreamNet Technical Team & DES Development Team Updates

Mike

Tech Team and SN DES Updates

- Last Steering Committee meeting 2/20-21/24
  - Tech Team meetings since then: 3/14 and 7/25.

- StreamNet DES 2024.1 adopted

Tech Team meeting 3/14

- Web page for expected data update schedules was discussed
  - Completed later
  - Available at https://www.streamnet.org/home/data-maps/data-updates/

- Proposals for tracking data downloads
  - From CAP workshop
  - Spring 2023: Google Analytics changed, so trends broken
  - Greg given assignment to look into adding user category request to query systems
    - General: state, tribe, federal, .edu, etc.

Tech Team meeting 3/14

- Discussed various CA DES topics.
  - Resulted in new May 17, 2024 DES
- Discussed overlap between Tech Team and CA DDT
  - Tech Team members have been stepping in as CA DDT members leave
  - Joint Tech Team / CA DDT meetings suggested
- Discussed trend groups
  - (will be discussed later today)

Tech Team meeting 3/14

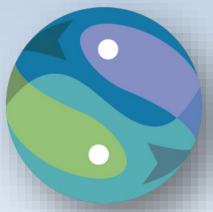
- Screw trap dashboard
  - Discussed obfuscating locations
    - Poaching; vandalism
      - Evan said these are rare; suggested using Large Dot Theorem
    - ODFW is figuring out what they need relative to their legal requirements

- Discussion of PNAMP FMWG plan to clarify definitions in CA DES
  - Mari led conversation
  - Planning to participate: Kasey (ODFW), Evan & Bekki (IDFG), Michelle (WDFW), Mike (PSMFC)

Tech Team meeting 7/25

- Discussed CA/HCA data outside of CRB
  - Relative to PSMFC Facilities Mapper that DES uses for names verification
  - While some QC concerns were voiced, everyone (including BPA) approved including outside CRB
  - Van and Mike will work with states on how to update dams & hatcheries data in the Facilities Mapper

- We discussed a potential new name for "trend groups"
- We discussed possibly flattening the StreamNet DES
  - Both these were voted down



Tech Team meeting 7/25

- ODFW proposed new DataStatus field for CA / HCA tables
  - Equivalent to TrendStatID in Trend table

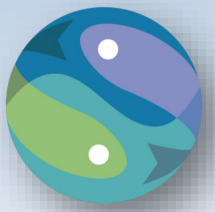
- House in new table for HLI time series general information
  - Equivalent to Trend table

SN DES Updates

- StreamNet DES 2024.1
  - Adopted fall 2023
  - Effective date February 1, 2024
  - Previous version February 1, 2020

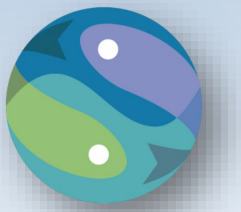
SN DES Updates

- Major changes
  - Added procedures for spatial information of new / changed trends
    - Added "LocationName" field for QC use (Spatial submissions only)
  - Added BPAprojNum field
  - Added MRStudyPlanID field
  - Added "Database" as a type of reference
    - Other options are "Single reference document" and "Multiple reference documents"
  - Better specified many rules for conditionally required fields



SN DES Updates

- Minor changes
  - Simplified and generalized data types, rather than specifying MS Access data types
  - Additional guidance for data providers
    - Promotes consistency across partners; improved clarity for compilers



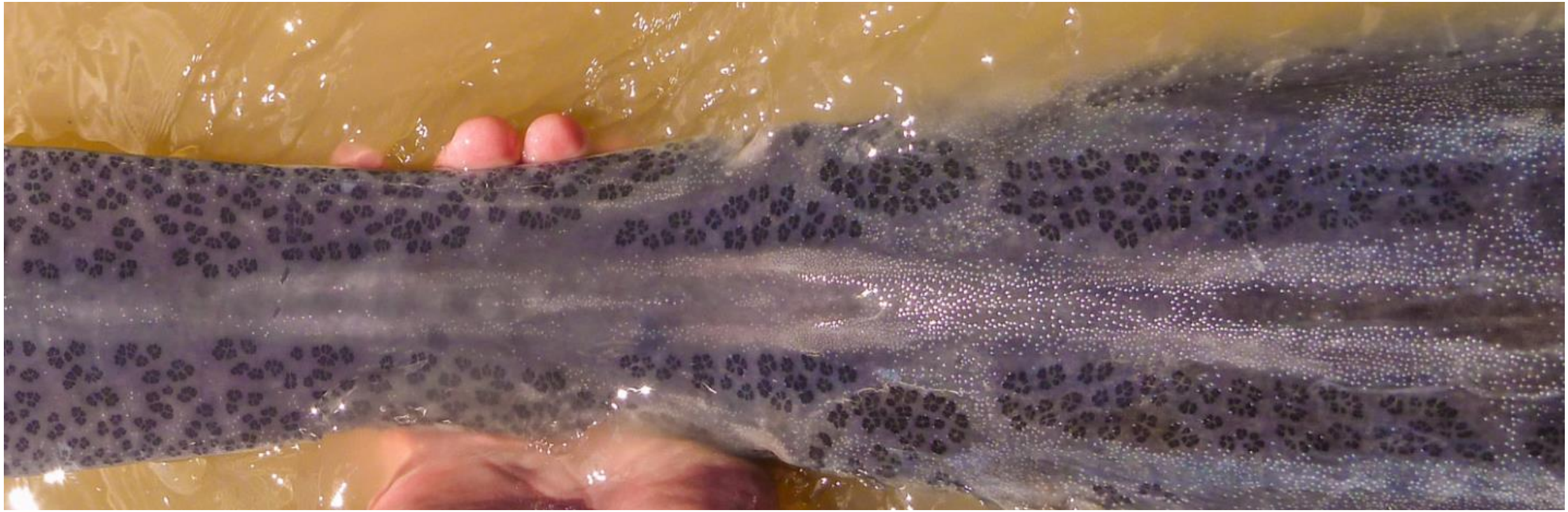
SN DES Updates

- For the next version
  - We specify TrendIDs will not change if transferred to a different organization
    - Already adopted
  - Considering adding PopID to trend groups

LUNCH

back at 1:30 (Mountain time)

Welcome Back



All images are from MFWP webpages

Spotlight MFWP

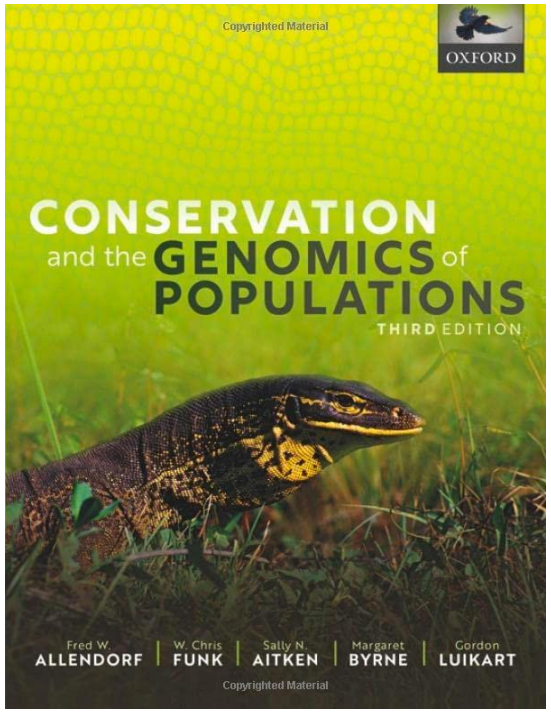
StreamNet genetic projects in Montana

Ryan Kovach, Dawn Anderson, David Schmetterling - FWP

Andrew Whiteley, Sally Painter, Angela Lodmell, Steve Amish, Zak Robinson – UM

Matt Campbell, Tom Delomas, Jesse McCane – IDFG

Genetics data have been critical for fish conservation in Montana since late 1970s



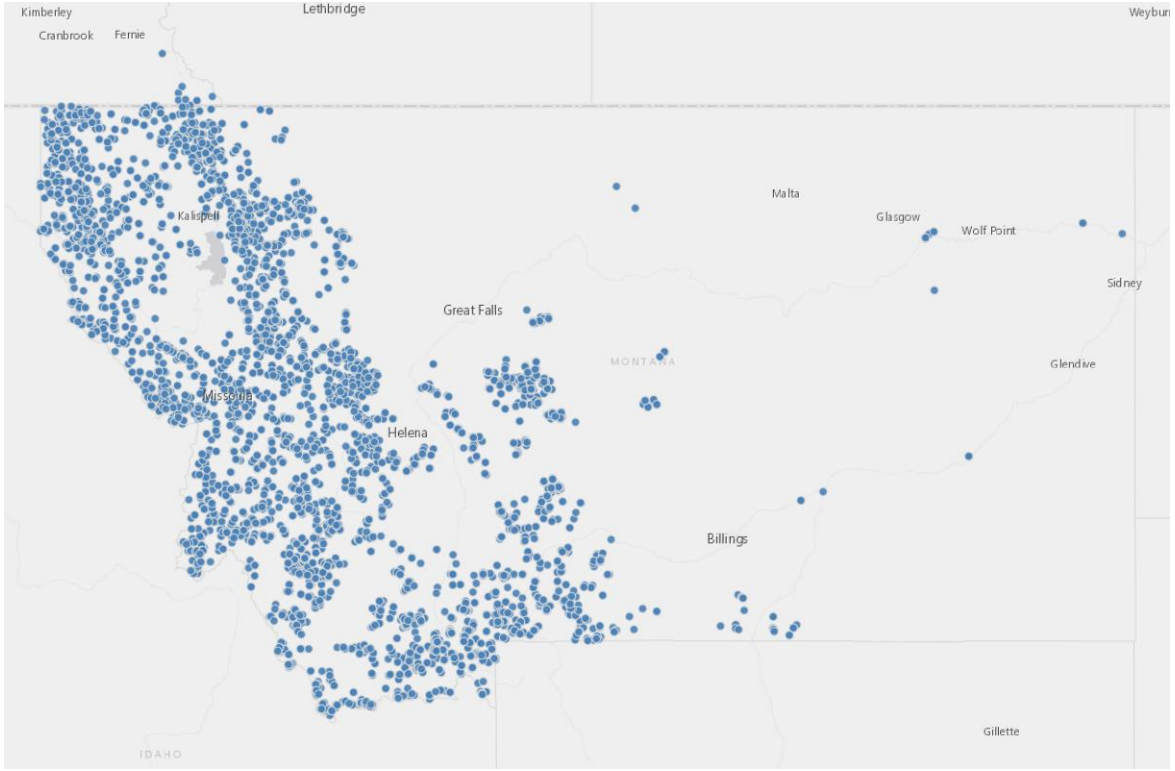
mated in order to predict the expected phenotypic improvement to be realized from certain selection schemes. These estimates are specific to a particular trait in a particular set of experimental conditions.

The second approach is to examine genetic variation at a large number of individual genetic loci that are identified by their enzymatic gene products. Variation at these loci is not reflected in any obvious phenotypic effect, except for banding patterns on electrophoretic gels. This information can be used to estimate the

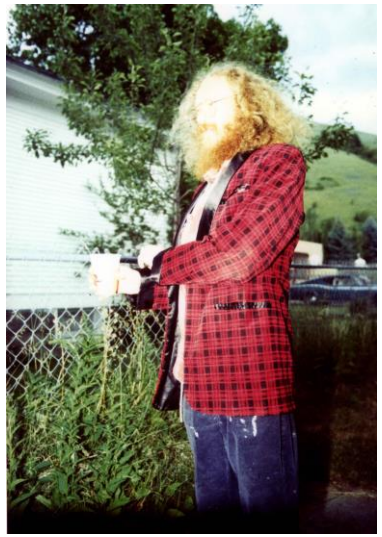
run in June 1965 and 1967. Gametes from proximately 15 males and 15 females were n ed in the field each year and brought to Jocko River State Trout Hatchery to hatch a be raised. Thus, a total of 60 fish are the b of the present brood stock.

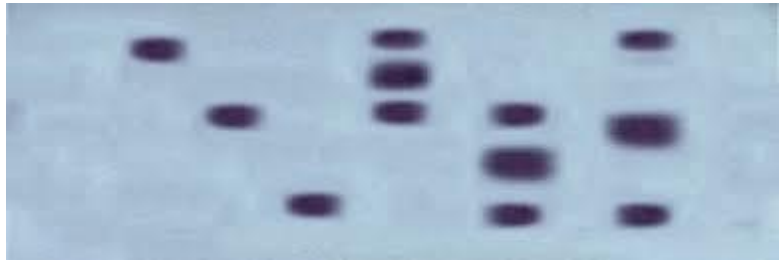
Initial maturation of males and females i and 3 years of age respectively. At the pres time, each individual contributes to the bro stock only at the time of initial maturation. earlier years, however, some individuals r have contributed offspring in more than 1 ve

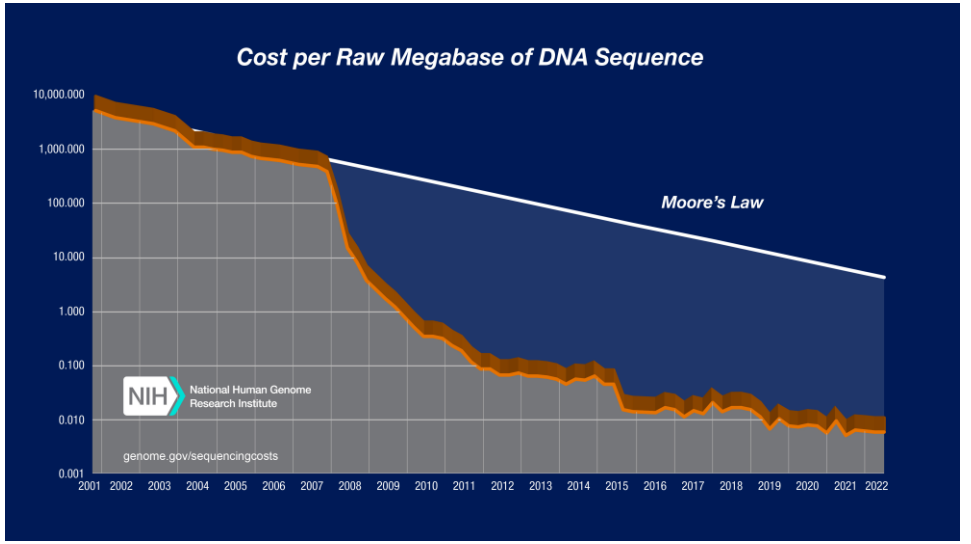
Genetics data have been critical for fish conservation in Montana since late 1970s



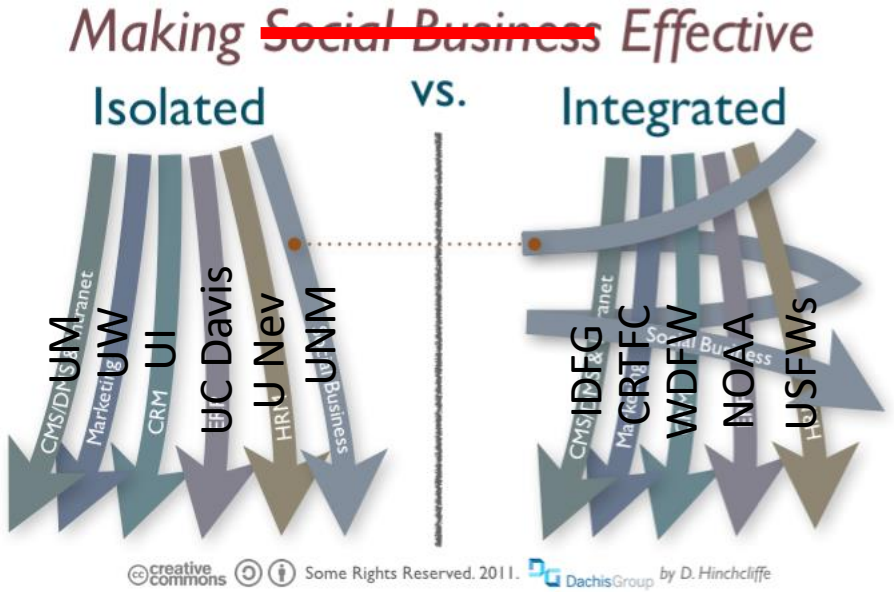
- >120,000 individual samples
- >97,000 WCT from >4,800 population samples







Genetic labs



Here's where StreamNet enters the conversation

-FWP needed, but didn't have, a robust genetic monitoring program for bull trout

-Received ~50K StreamNet funds to develop collaborative genetic panel for bull trout

-best 50K ever spent in conservation….?

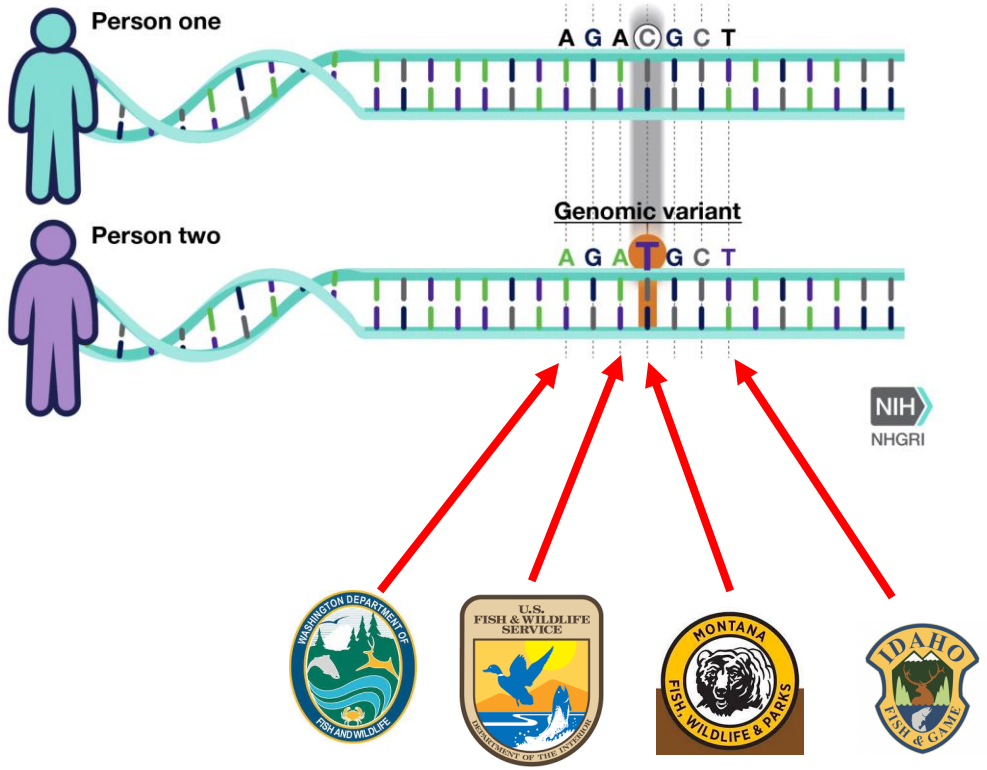
MOLECULAR ECOLOGY RESOURCES
Molecular Ecology Resources (2015) **15**, 855–867 doi: 10.1111/1755-0998.12357

Genotyping-in-Thousands by sequencing (GT-seq): A cost effective SNP genotyping method based on custom amplicon sequencing

NATHAN R. CAMPBELL, STEPHANIE A. HARMON and SHAWN R. NARUM
Columbia River Inter-Tribal Fish Commission, 3059F National Fish Hatchery Road, Hagerman, ID 83332,USA

What is a “genetic panel”?

- Set of variable locations in the genome used to quantify and describe biological patterns of interest
  - Genetic variation, differentiation, species ancestry, etc.



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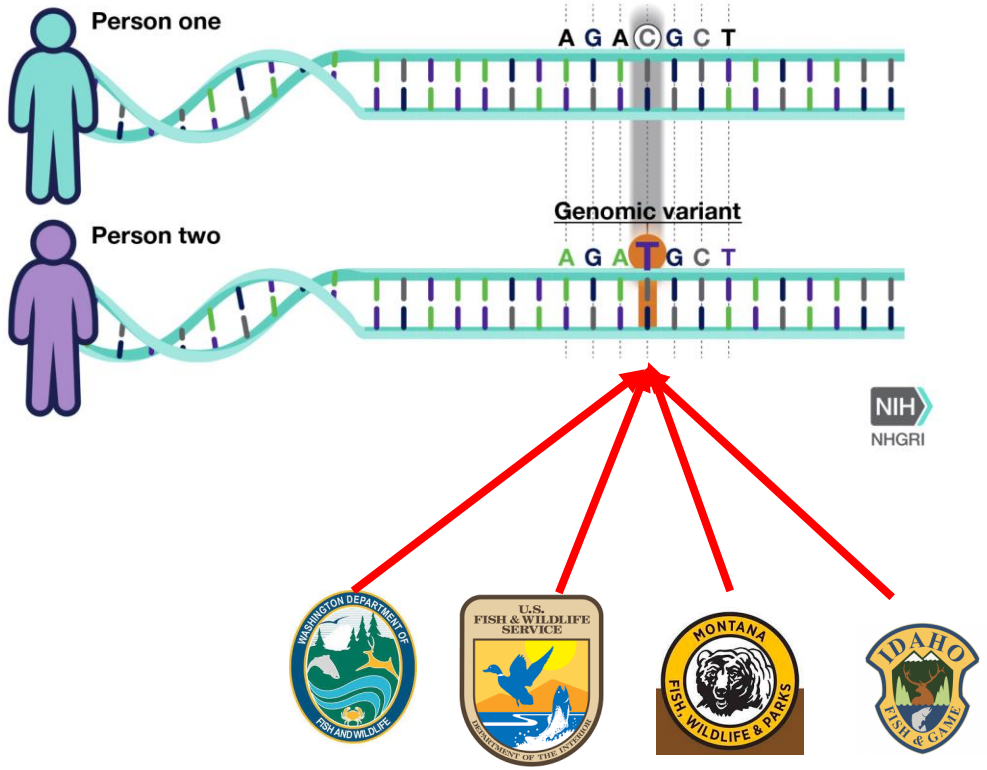


Rapid development of bull trout inter-agency genetic monitoring panel

North American Journal of Fisheries Management 41:1920–1931, 2021

ISSN: 0275-5947 print / 1548-8675 online
DOI: 10.1002/nafm.10708

ARTICLE

Developing a Standardized Single Nucleotide Polymorphism Panel for Rangewide Genetic Monitoring of Bull Trout

Justin Bohling, Jennifer Von Bargen, and Matthew Piteo
U.S. Fish and Wildlife Service, Abernathy Fish Technology Center, Longview, Washington 98632, USA

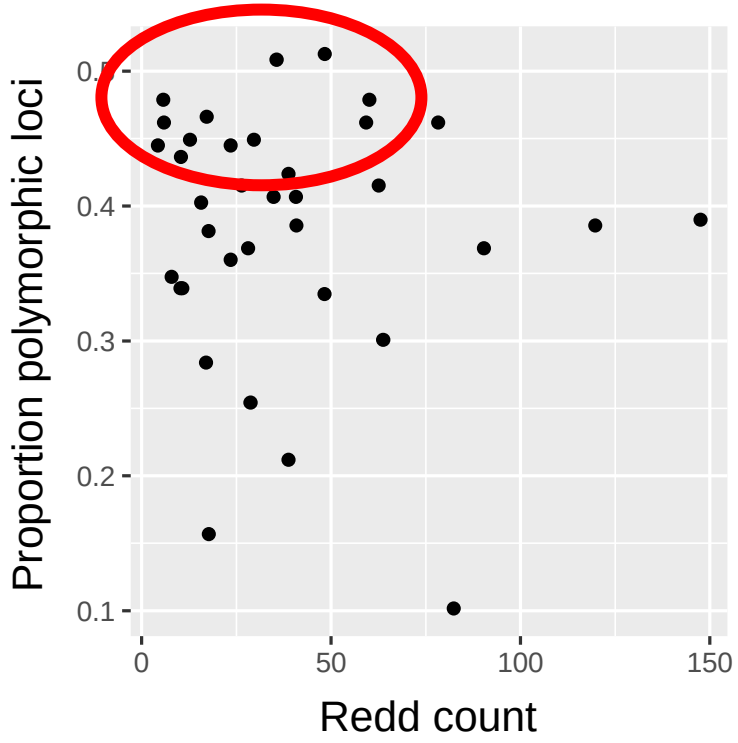
Amelia Louden and Maureen Small
Washington Department of Fish and Wildlife, Molecular Genetics Laboratory, Olympia, Washington 98501, USA

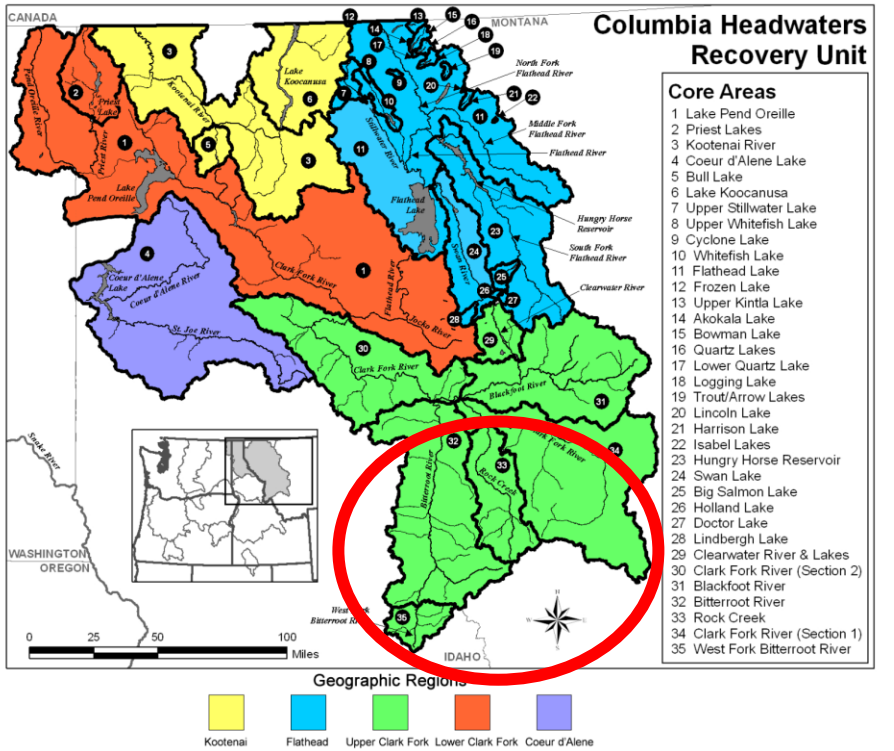
Thomas A. Delomas
Idaho Department of Fish and Game and Pacific States Marine Fisheries Commission, Eagle Fish Genetics Laboratory, Eagle, Idaho 83616, USA

Ryan Kovach*
Montana Fish, Wildlife, and Parks, University of Montana Conservation Genetics Lab, Missoula, Montana 59812, USA

Provides new and improved understanding of bull trout

- How should we prioritize action?

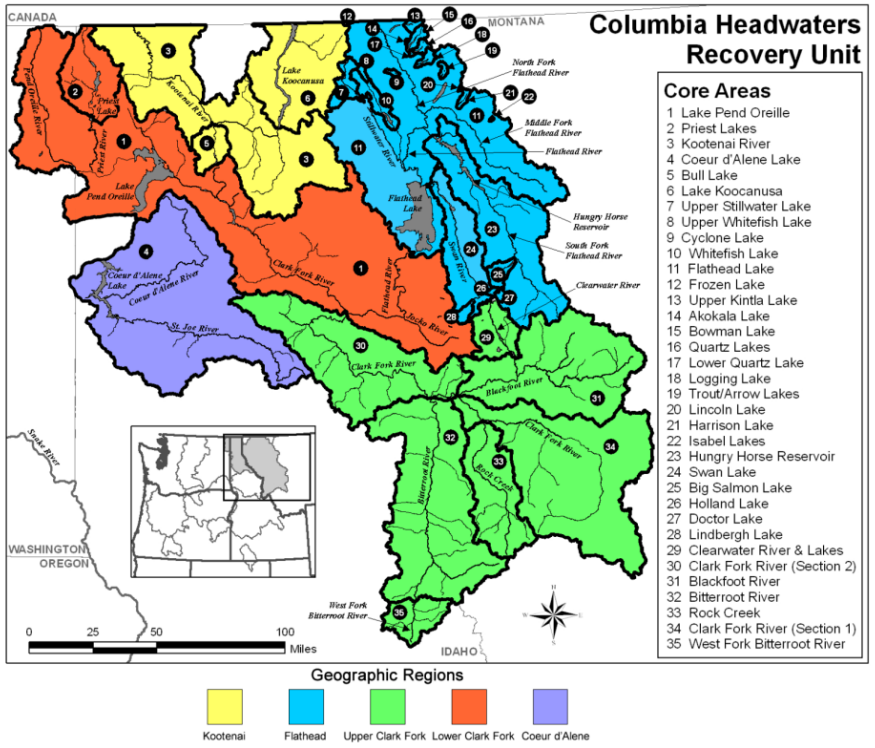


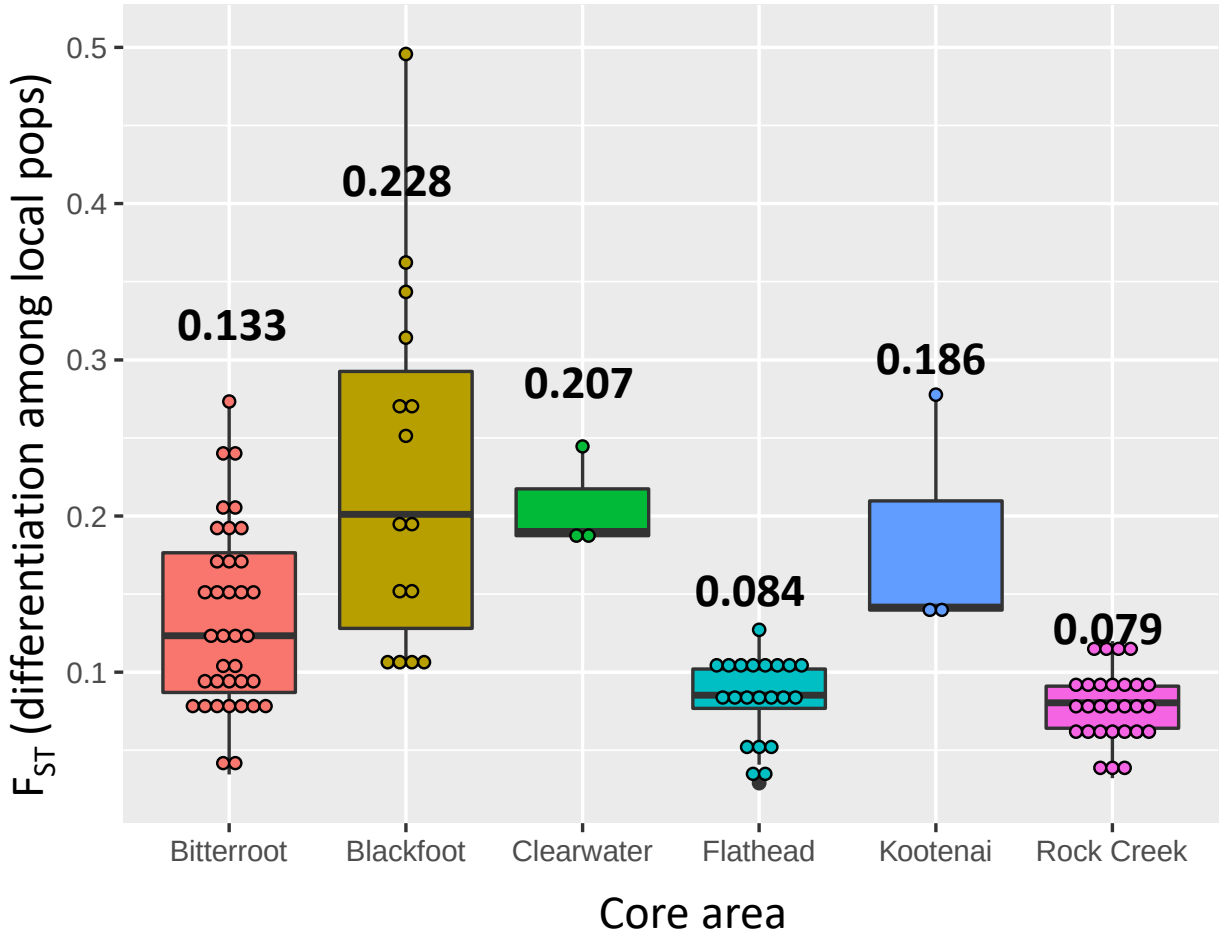


Bull trout populations at highest demographic risk have highest genetic variation

Provides new and improved understanding of bull trout

- Genetic differences among populations varies widely across management units

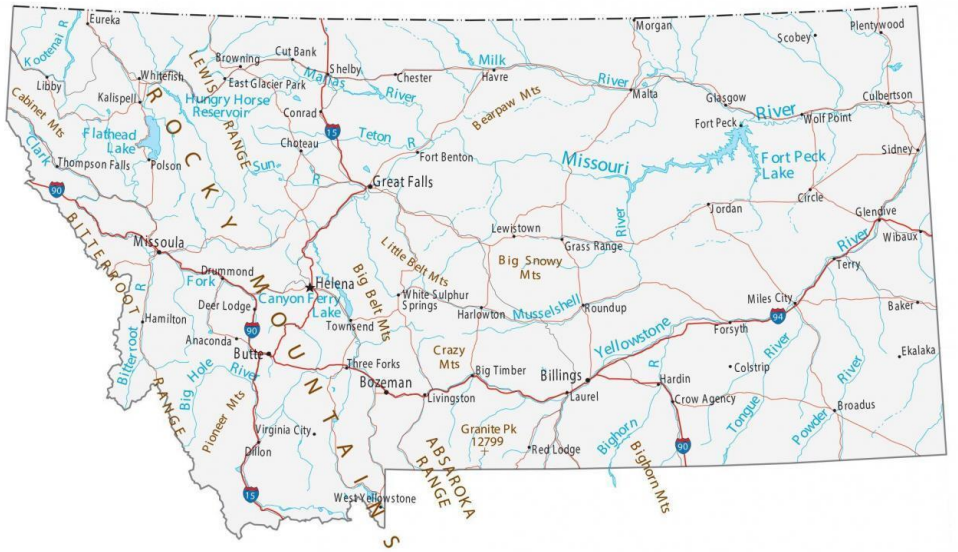




Initial effort catalyzes momentum for extensive genetic baseline throughout Montana

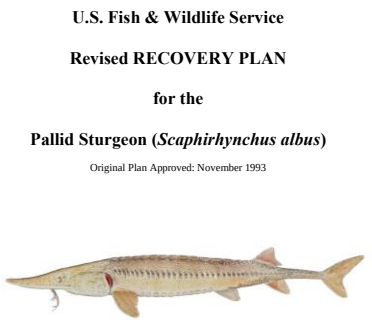
- Initial effort focused on
  - ~40 populations and ~4,000 individuals

- Now have data from ~150 populations, >10,000 individuals



Lays groundwork for updated bull trout recovery strategy

- Bull Trout Interagency Recovery Team
  - Developing new conservation strategy
  - Finally, appropriate genetic data and theory being used for bull trout conservation



U.S. Fish & Wildlife Service

Revised RECOVERY PLAN

for the

Pallid Sturgeon (*Scaphirhynchus albus*)

Original Plan Approved: November 1993

Prepared by:
Pallid Sturgeon Recovery Coordinator
U.S. Fish and Wildlife Service
Montana Fish and Wildlife Conservation Office
Billings, Montana

For

Mountain-Prairie Region
U.S. Fish and Wildlife Service
Denver, CO

January 2014

Westslope Cutthroat Trout Conservation Strategy for the Missouri River Headwaters of Southwest Montana

January 7th, 2022

Prepared by:

Matthew Jaeger, Ryan Kreiner, Lucas Bateman, Lance Breen, Mike Duncan, Tim Gander, Travis Horton, Matt McCormack, Ryan Kovach, Jim Olsen, Colton Pipinich, Travis Lohrenz, Ron Spoon, Ace Riverman
Montana Fish, Wildlife & Parks

Monica Berreman, Michael Gatlin, Patrick Luckenbill, Jennifer Mickelson, Kevin Weinner
US Forest Service, Beaverhead-Deerlodge National Forest

Paul Hutchinson and Jed Berry
Bureau of Land Management, Dillon Field Office

Allison Stringer
US Forest Service, Custer-Gallatin National Forest

Allison Russell
US Forest Service, Helena National Forest

Nathan Thomas and Todd Koel
US National Park Service, Yellowstone National Park

Andrew Whitely, Sally Painter, and Angela Lodmell
University of Montana Genetics Lab

UPPER MISSOURI RIVER

ARCTIC GRAYLING

CONSERVATION STRATEGY

Prepared by

MONTANA ARCTIC GRAYLING WORKGROUP

2022

1

VS

U.S. Fish & Wildlife Service

Columbia Headwaters Recovery Unit Implementation Plan for Bull Trout
(Salvelinus confluentus)

Migratory bull trout, originating from Lake Koocanusa in the Kootenai River drainage, Montana. Photograph by Joel Sartore for National Geographic; photographed with Wade Fredenberg, USFWS, on Ram Creek, British Columbia, September 2011.

Shared genetic panel influencing other bull trout efforts range-wide

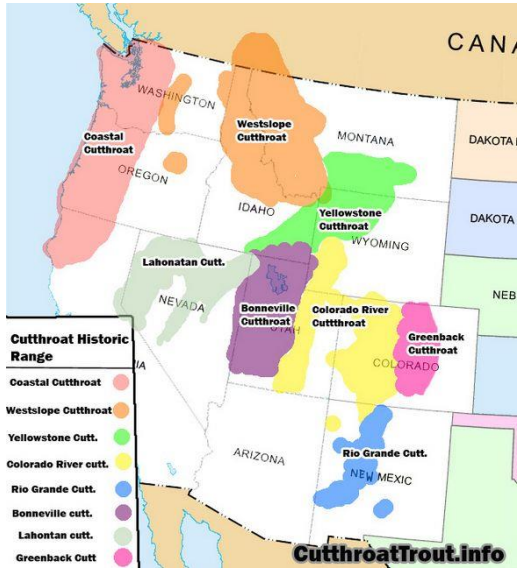
- Idaho publication
  - Hargrove et al. *in submission*

- FWP/UM
  - PhD student working on bull trout genetics
  - Potential post-doc project working on bull trout genetics

- Multiple genetic meetings for bull trout
  - AFS, Coastwide, workgroups, etc.

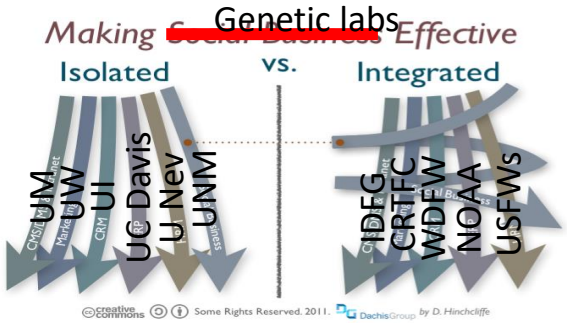
What about cutthroat trout?

- In 2022, received StreamNet support to:
  - Develop improved marker panels for westslope and Yellowstone cutthroat trout
  - Update genetic baselines for both species



Yellowstone cutthroat trout (YCT)

- Initial plan was to develop panel with Idaho and Wyoming, via collaboration with Univ. Wyoming



- Didn't exactly work out as planned
  - But, Idaho and MT now use the same genetic panel for YCT
  - 5 PhD students currently using data directly/indirectly resulting from this effort!!

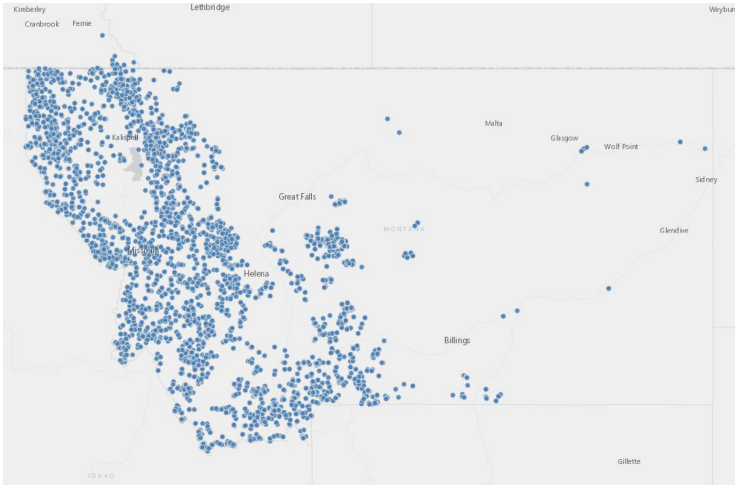
UNIVERSITY OF MONTANA

UNIVERSITY OF WYOMING

MONTANA STATE UNIVERSITY

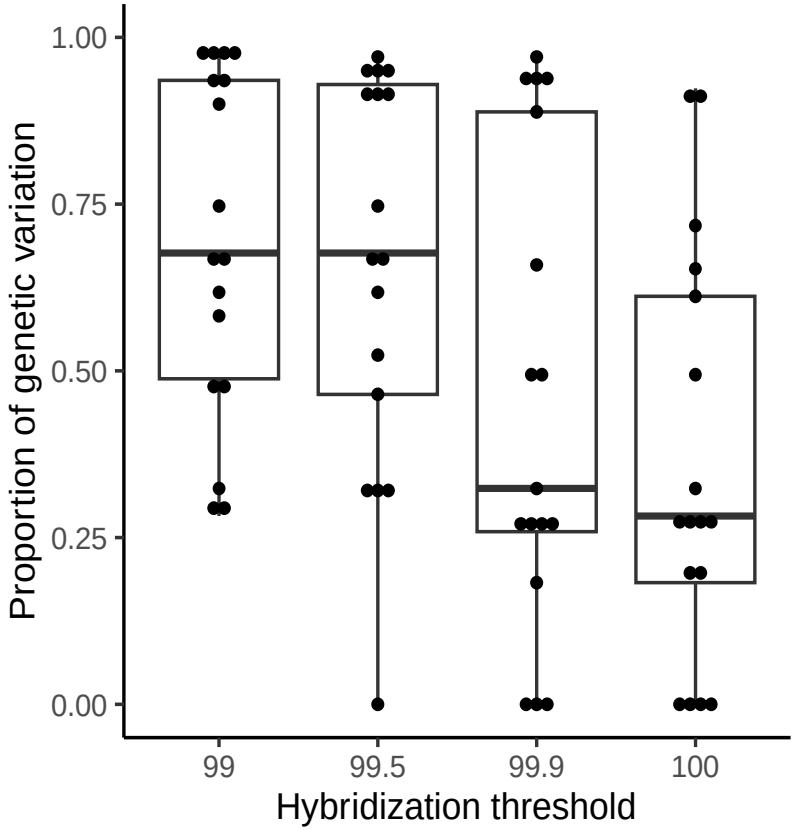
Westslope cutthroat trout (WCT)

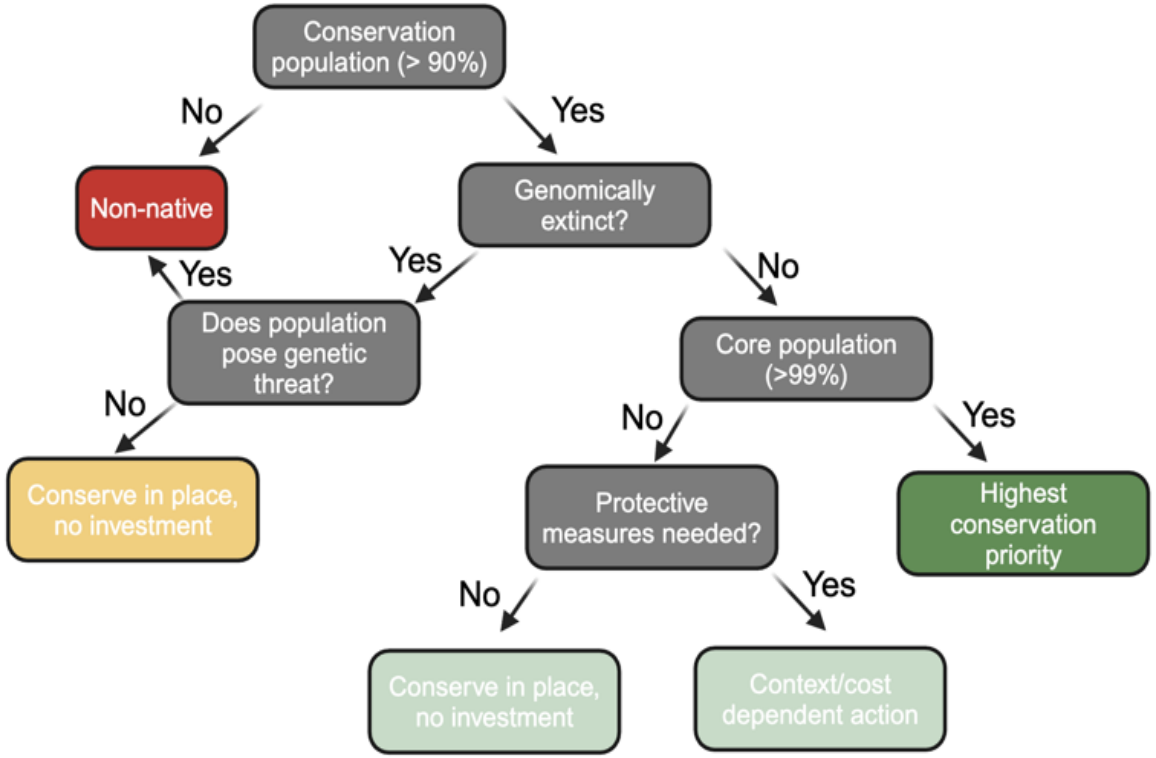
- Developed panel internally to increase capacity and information while decreasing cost
  - Nearly 4x data, fast and robust lab protocol, ½ the cost of previous method



- ➢ >120,000 individual samples
- ➢ >97,000 WCT from >4,800 population samples

Genetic baseline for WCT already influencing decision-making and policy





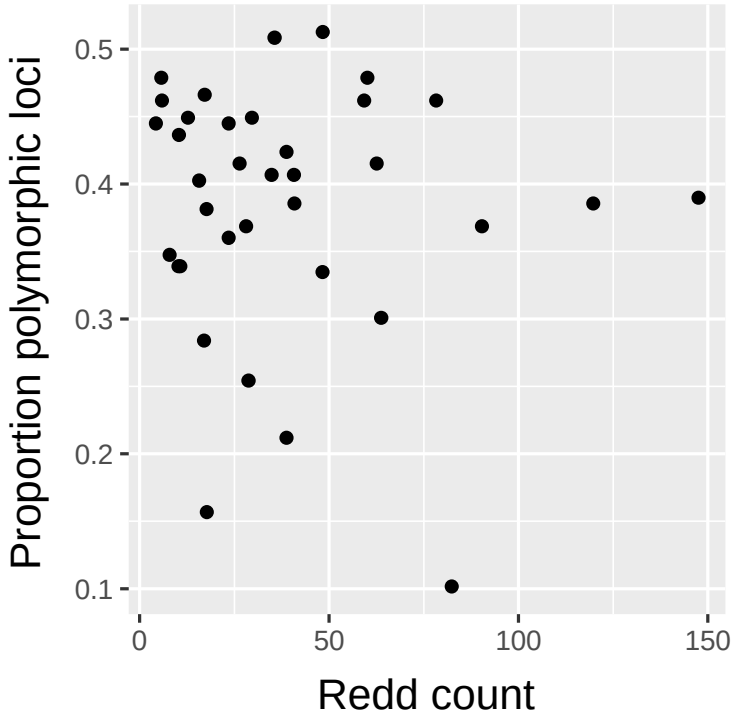
StreamNet funding has transformed our genetic program at FWP

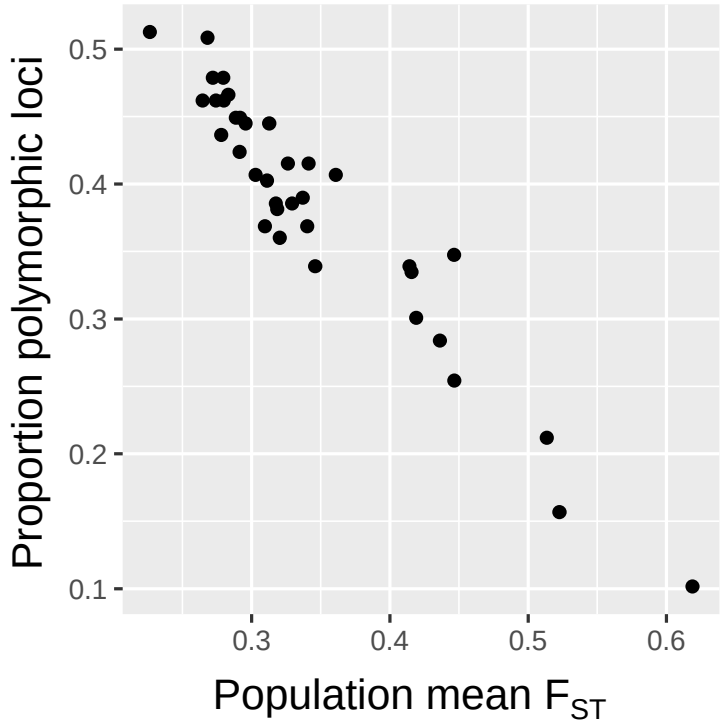
- From $100K
  - Three genetic marker panels that increased data output (2-4X) and reduced cost (2X)
    - Bull trout, WCT, YCT
  - Improved and expanded genetic baselines for bull trout, WCT, and YCT
    - Improved decision-making, understanding of species, and laid groundwork for species recovery plans
  - Laid foundation for improved collaboration among our lab and other genetic labs in the PNW



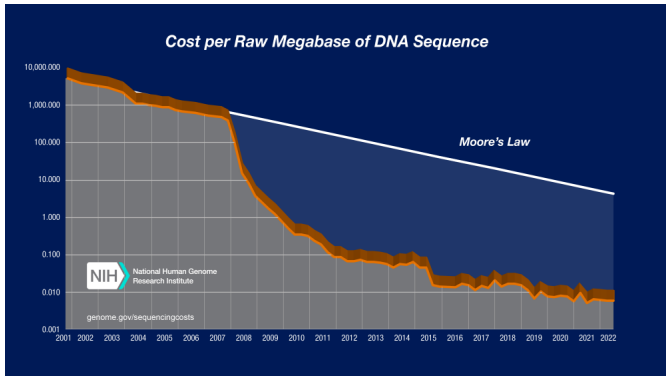

Provides new and improved understanding of bull trout

- Is genetic variation related to local population abundance across populations?





NO



MOLECULAR ECOLOGY RESOURCES
Molecular Ecology Resources (2015) **15**, 855–867 doi: 10.1111/1755-0998.12357

Genotyping-in-Thousands by sequencing (GT-seq): A cost effective SNP genotyping method based on custom amplicon sequencing

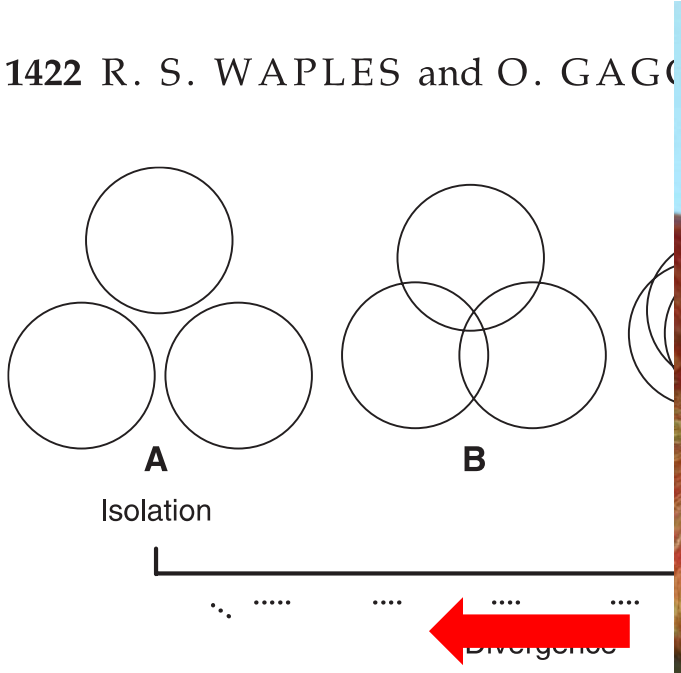
NATHAN R. CAMPBELL, STEPHANIE A. HARMON and SHAWN R. NARUM
Columbia River Inter-Tribal Fish Commission, 3059F National Fish Hatchery Road, Hagerman, ID 83332,USA

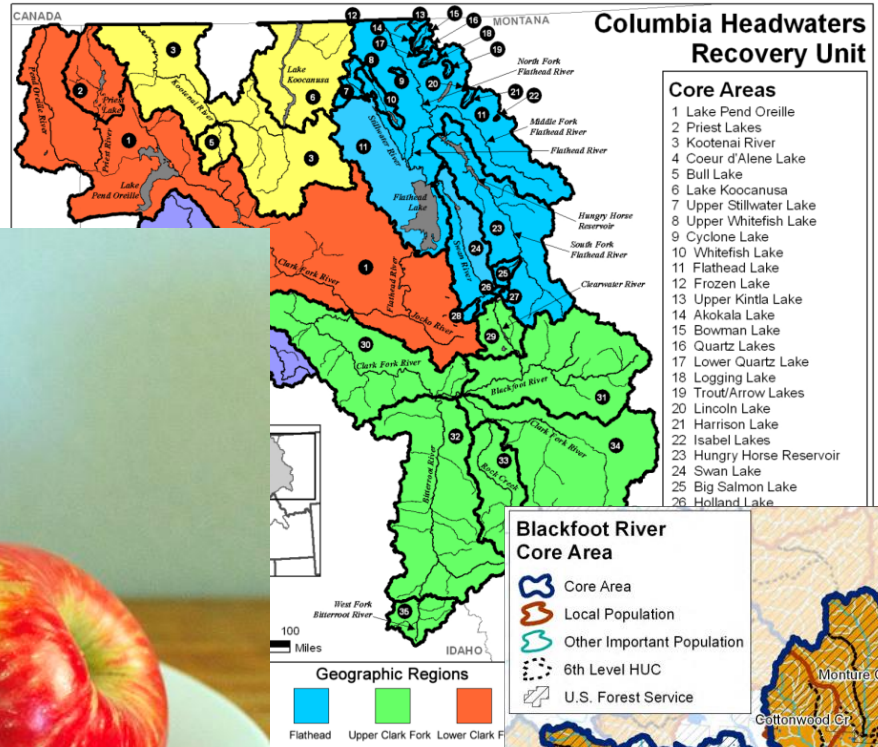
Data/ information

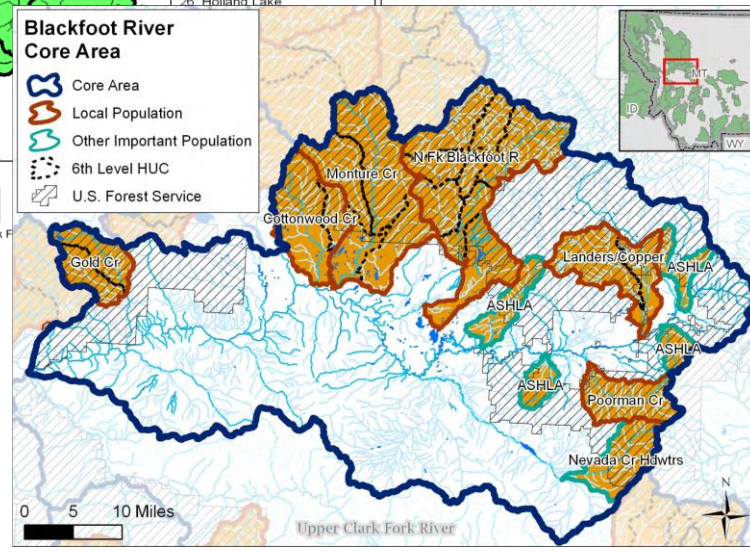
Money

Provides new and improved understanding of bull trout

- Are core/local population designati[illegible] genetic differentiation?

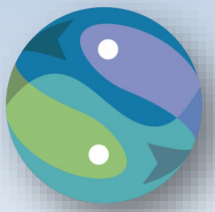




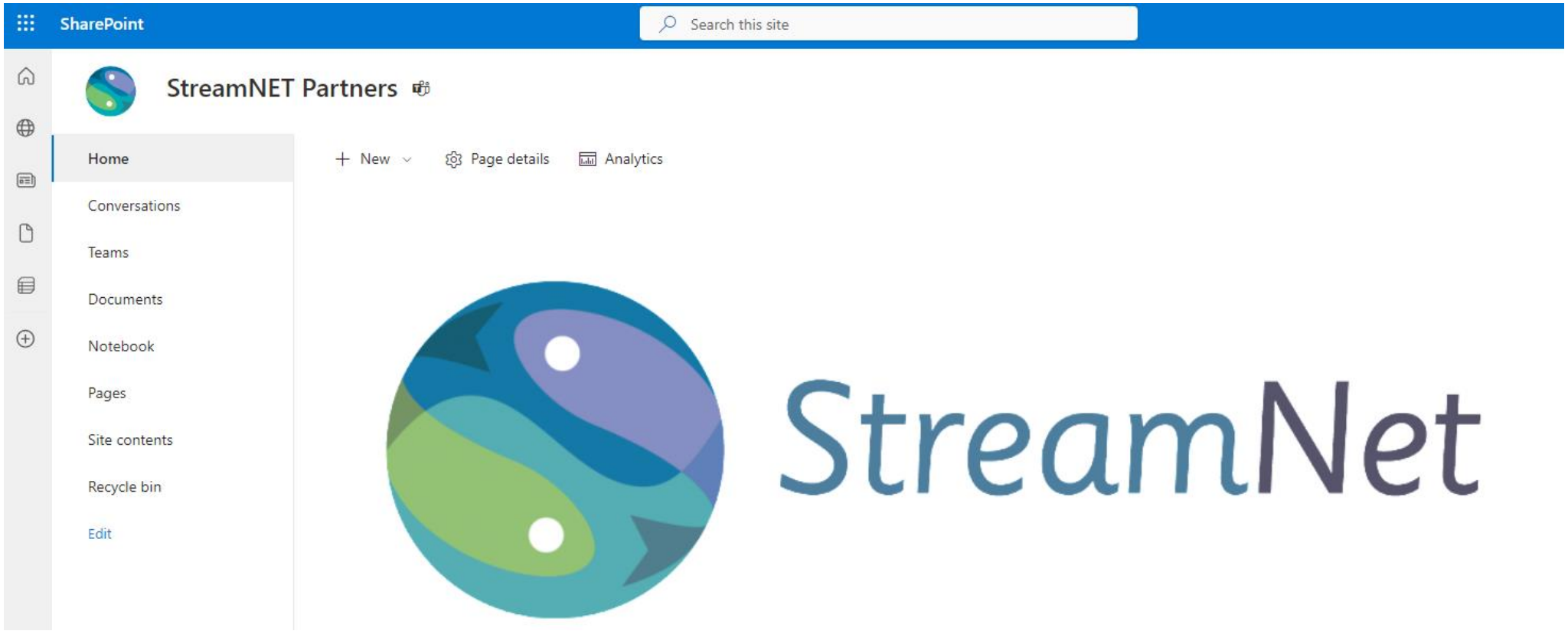


SharePoint

Mari

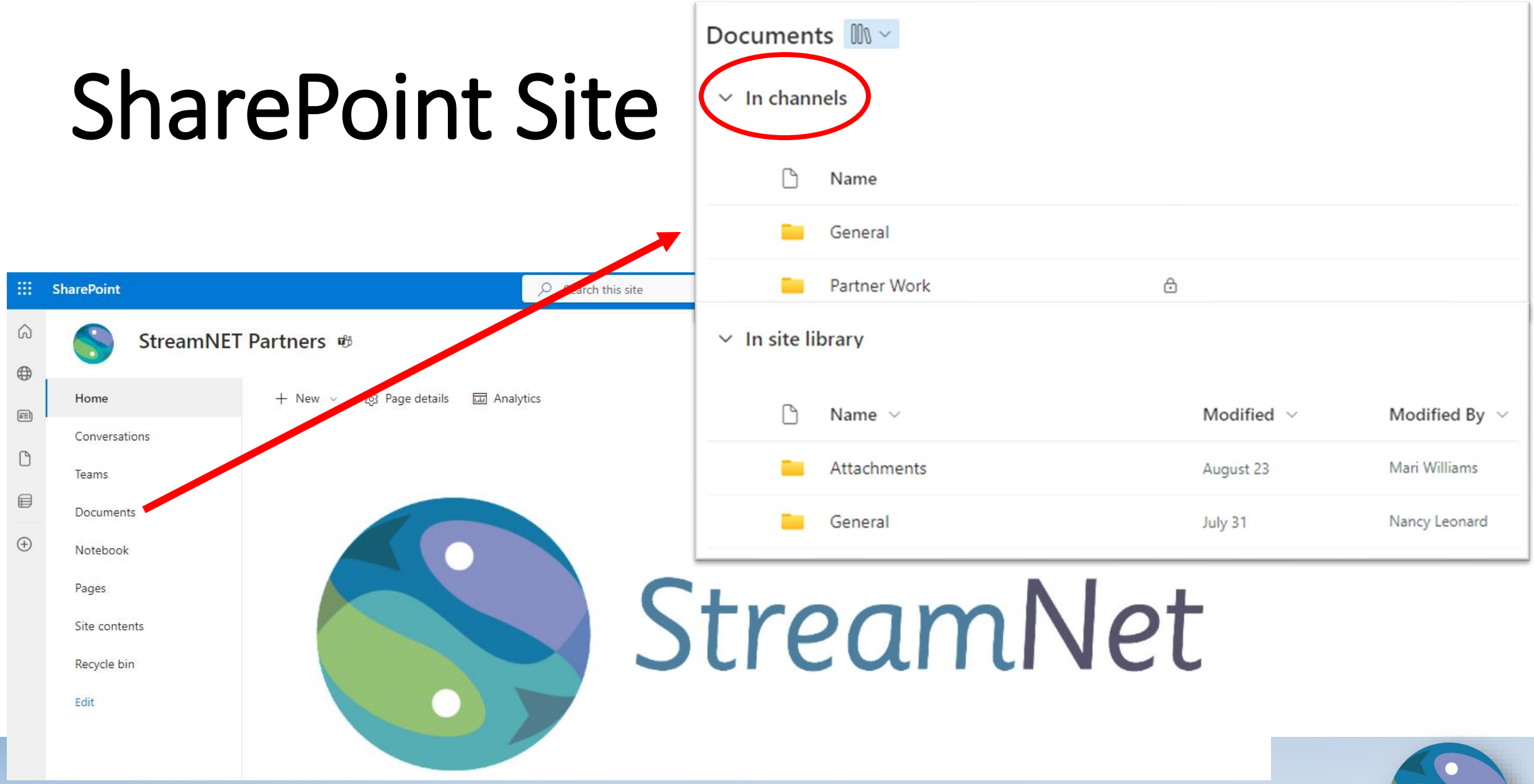


SharePoint Site



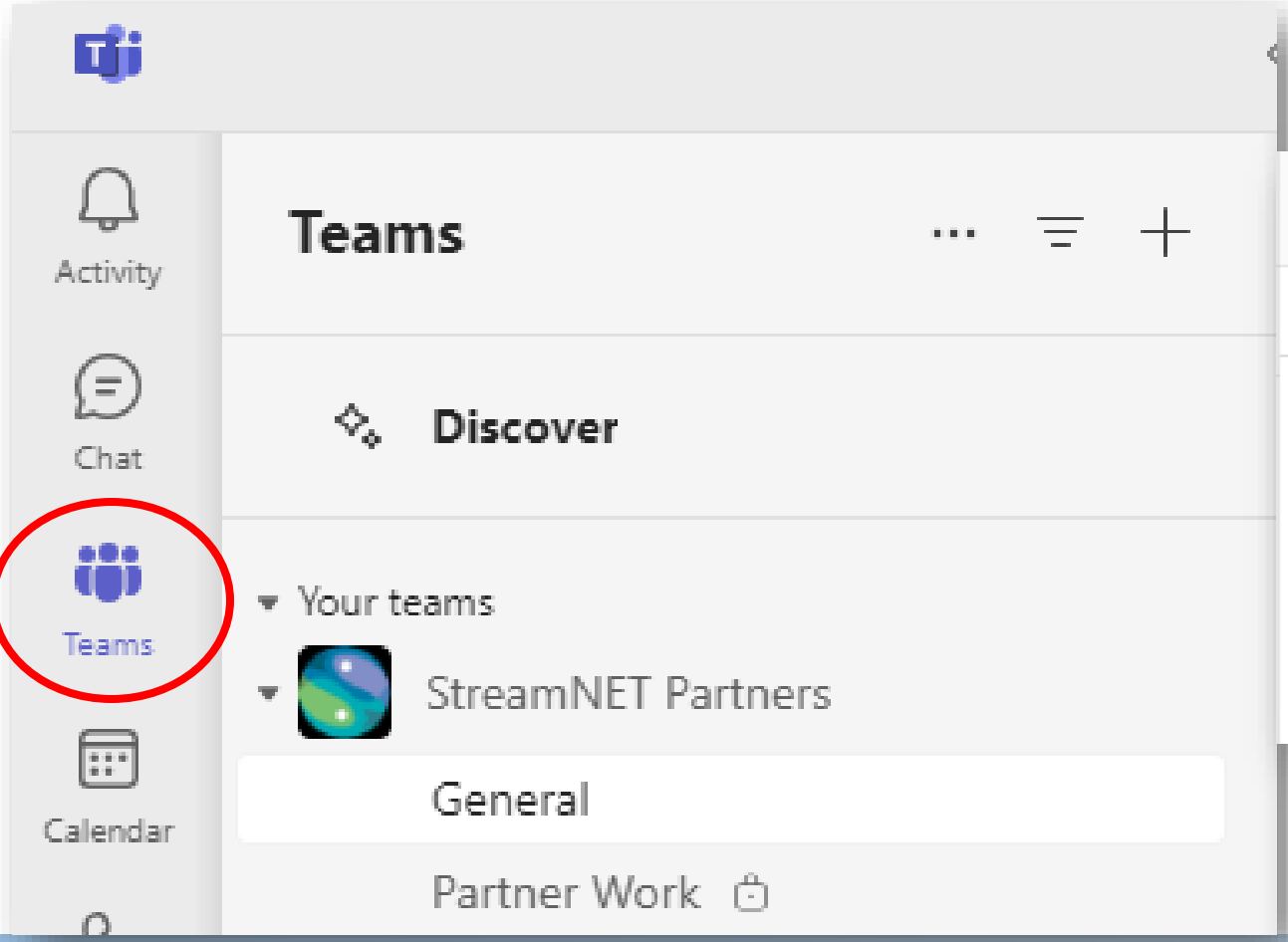
https://psmfcorg.sharepoint.com/sites/StreamNETPartners

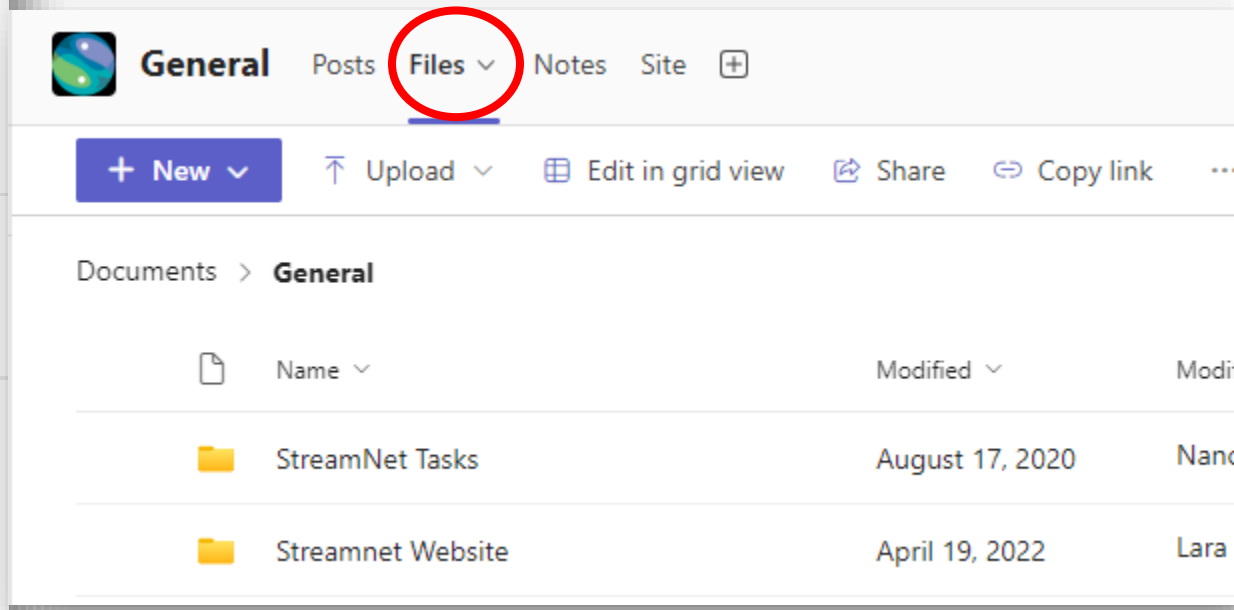
SharePoint Site



https://psmfcorg.sharepoint.com/sites/StreamNETPartners

Teams to SharePoint





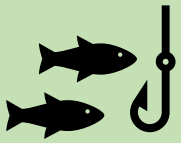
BPA Annual Report

- StreamNET Partners - Partner Work - Home (sharepoint.com)
- Who will be assigned and should have edit access?
- List of who already has access

Stretch Break

back at

All images are from MFWP webpages



RST Dashboard

Megan Griffiths

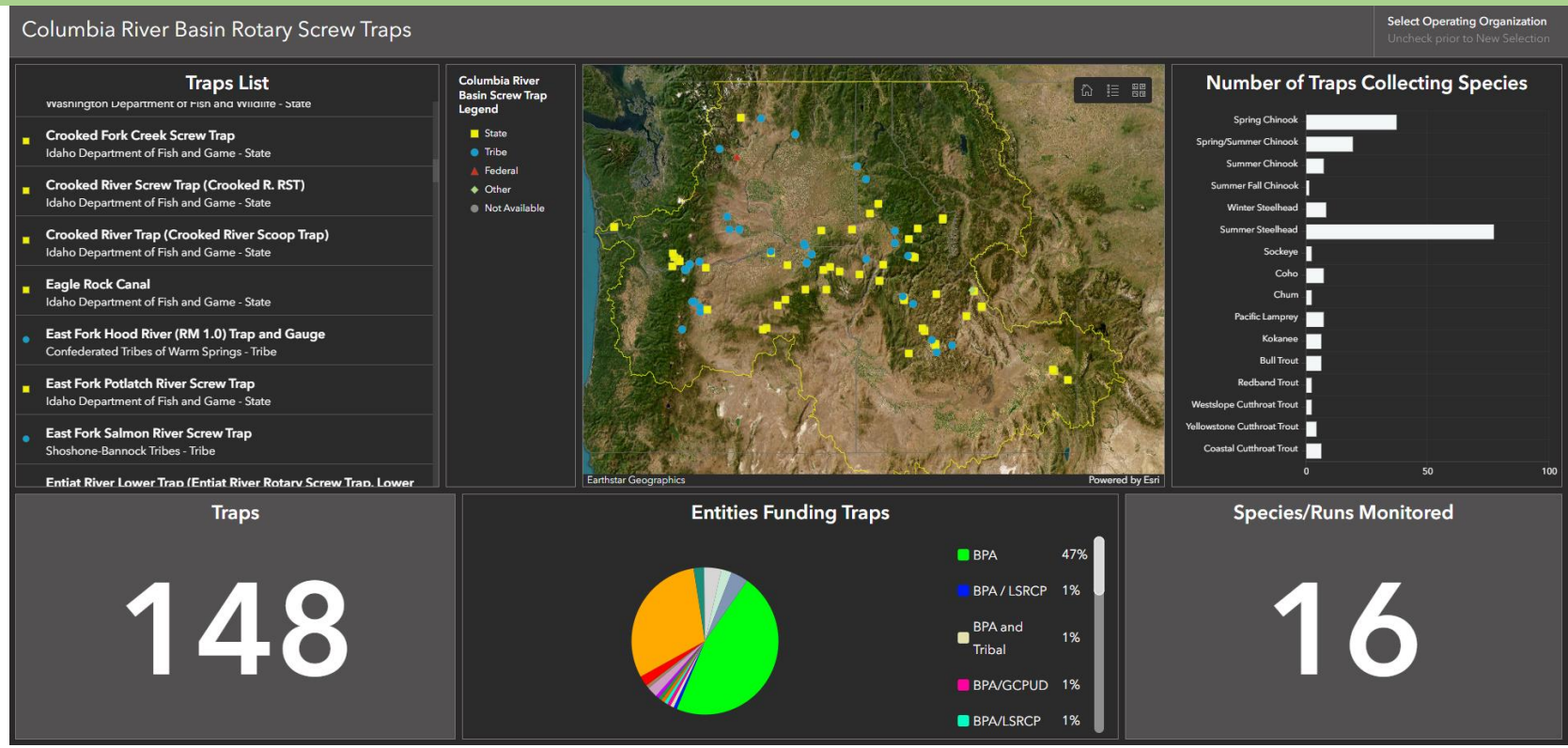
Columbia River Basin Rotary Screw Trap Dashboard

StreamNet's Pilot ArcGIS Dashboard

Purpose: a comprehensive resource for Columbia River Basin rotary screw trap specific information from multiple regional systems and sources

Focus: rotary screw traps contributing to the Columbia Basin Fish and Wildlife Program/BPA

Audience: BPA staff, decision-makers, and the public



Current Milestone: working to develop the dashboard as a tool for connecting facility data, location info, contact info for management entity, etc.

Image from:
https://psmfc.maps.arcgis.com/apps/dashboards/e52230179ac0418790abe852433b5231

Columbia River Basin Rotary Screw Trap Dashboard

StreamNet
Fish Data for the Northwest

Data & Maps | CAP | Committees | Resources | About

Screw Trap Dashboard

Data & Maps > Interactive Dashboards > Screw Trap Dashboard

StreamNet houses data collected from rotary screw traps throughout the Columbia River Basin. To facilitate understanding the purposes of these various scew trap and where additional data and information can be located, the interactive screwtrap usage dashboard was created. The below content provides access to information supporting the screw trap usage dashboard as well as additional information compiled for each of the screw traps displayed on the dashboard.

Select a trap to view all associated information or scroll down the page:

Big Bear Creek Screw Trap

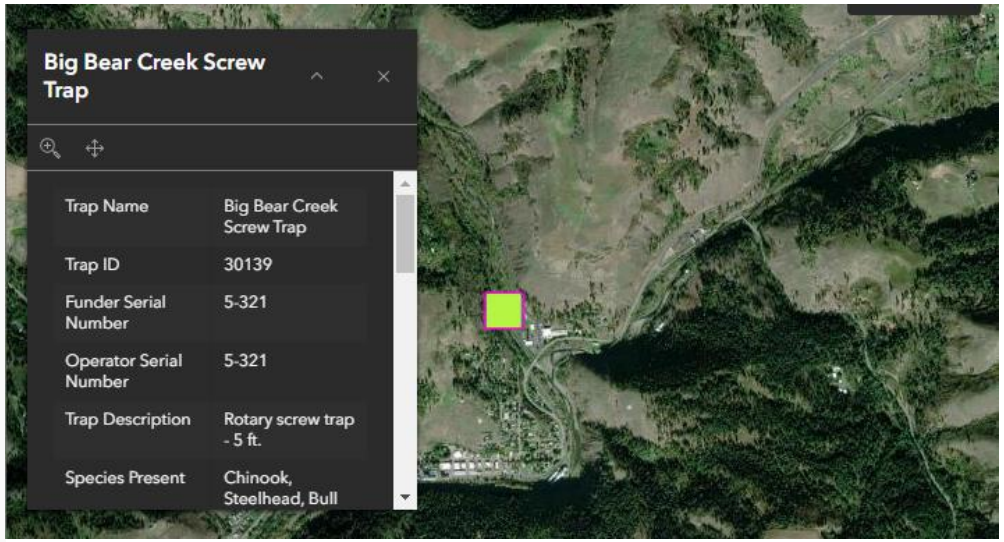
Trap ID: 30139
Trap Description: Rotary screw trap – 5 ft.

Funder Serial Number: 5-321
Operator Serial Number: 5-321

Funding Agency: PCSRF/NOAA IMW
Project Number: Not Available
Project Title: Not Available

Seasonal Operation: February – June
Species Present: Chinook, Steelhead, Bull Trout
Species Monitored: Chinook, Steelhead
ESU/DPS: Snake River Spring/Summer Chinook Salmon, Snake River Basin Steelhead

Population Monitored: Potlatch River (Chinook), Lower Clearwater River



Data & Content Sources:

- StreamNet Fish Facility Mapper
- StreamNet Fish Distribution Mapper
- StreamNet Fish Monitoring Data (trends)
- Columbia Basin PTAGIS
- PNAMP's MonitoringResources.org
- BPA's CBFish.org

Link from attribute information in web map to static view of data

Images from:
https://psmfc.maps.arcgis.com/apps/dashboards/e52230179ac0418790abe852433b5231 & https://www.streamnet.org/home/data-maps/dashboards/screwtrap-db/#25

Columbia River Basin Rotary Screw Trap Dashboard

FMWG Feedback from June 2023

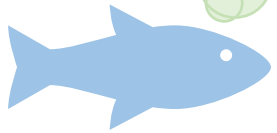
Actions

- Link to data or graphics of the fisheries data
- Landing page to help provide context
- Relabel/clarify “Populations Monitored”
  - Updated to “Species/Runs Monitored”

Ideas

- Include trap purpose: LCM, tagging, etc.
- More advanced filtering: by year, etc.
- Obfuscate sensitive location info
  - Remove lat/long from data view?

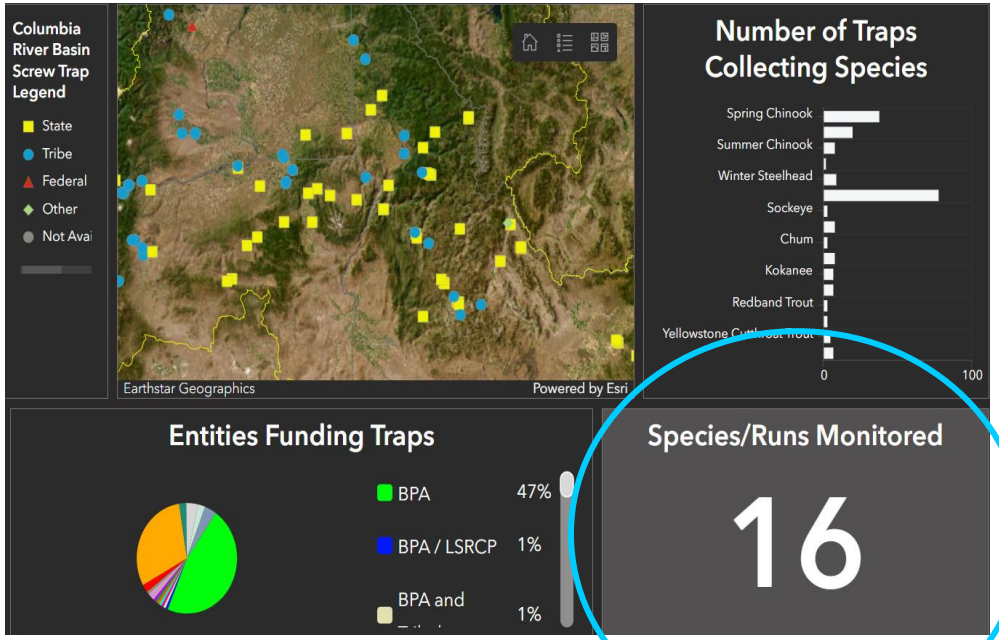
Keep In Mind:
Goal is to improve documentation of facility locations and accessibility of facility related information



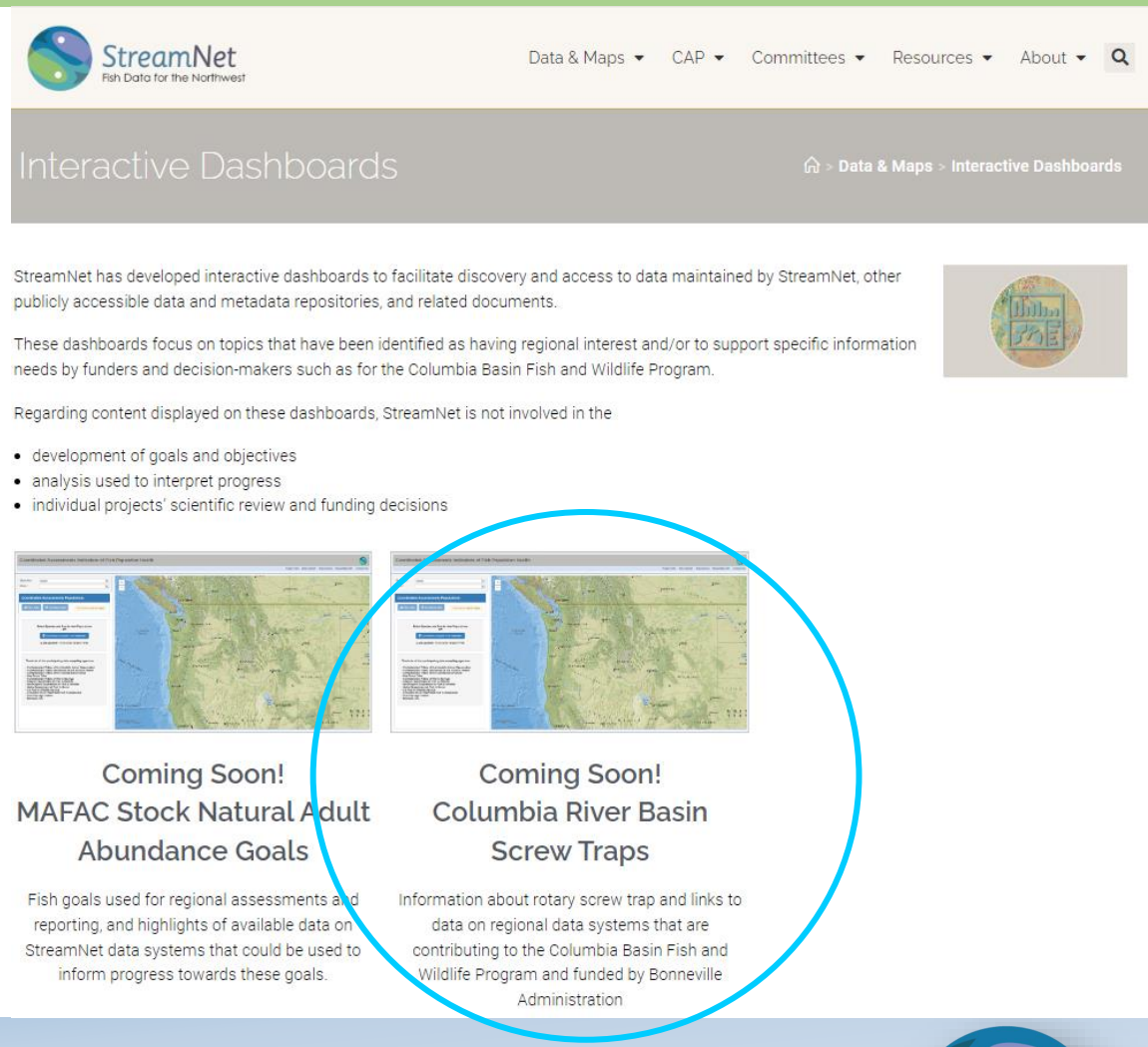
Columbia River Basin Rotary Screw Trap Dashboard

Actions

1. To be hosted on StreamNet site with landing page to help provide context



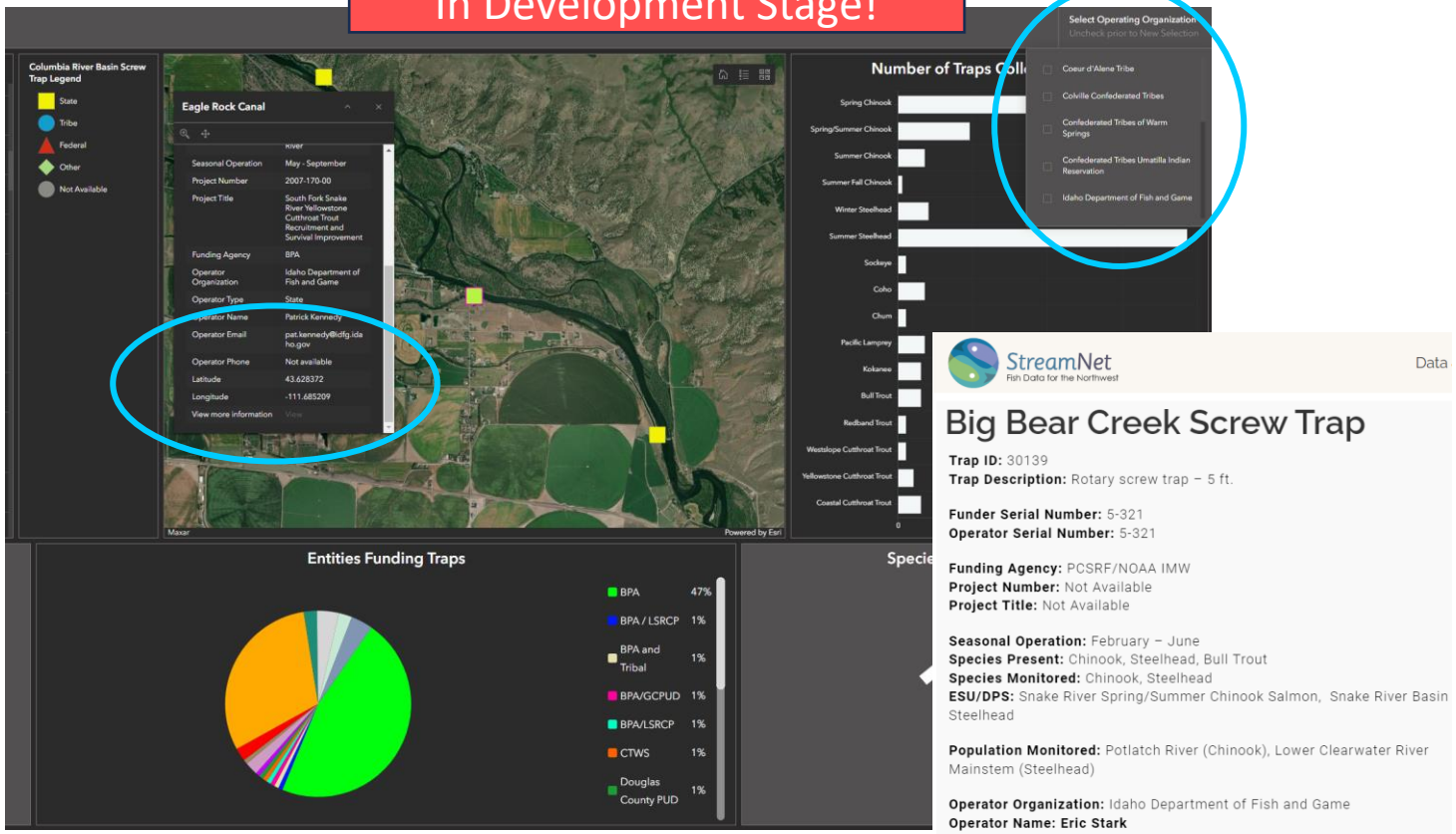
2. Updated "Populations Monitored" to "Species/Runs Monitored"



Images from:
https://psmfc.maps.arcgis.com/apps/dashboards/e52230179ac0418790abe852433b5231 & https://www.streamnet.org/home/data-maps/dashboards/screwtrap-db/#25

Columbia River Basin Rotary Screw Trap Dashboard

In Development Stage!



StreamNet
Fish Data for the Northwest
Data

Big Bear Creek Screw Trap

Trap ID: 30139
Trap Description: Rotary screw trap – 5 ft.

Funder Serial Number: 5-321
Operator Serial Number: 5-321

Funding Agency: PCSRF/NOAA IMW
Project Number: Not Available
Project Title: Not Available

Seasonal Operation: February – June
Species Present: Chinook, Steelhead, Bull Trout
Species Monitored: Chinook, Steelhead
ESU/DPS: Snake River Spring/Summer Chinook Salmon, Snake River Basin Steelhead

Population Monitored: Potlatch River (Chinook), Lower Clearwater River Mainstem (Steelhead)

Operator Organization: Idaho Department of Fish and Game
Operator Name: Eric Stark
Operator Phone: 208-854-8920
Operator Email: eric.stark@idfg.idaho.gov

Ideas & Planned Updates

- More advanced filtering: by year, etc.
- Obfuscate sensitive location info
  - Remove lat/long from data view
- Include trap purpose: LCM, tagging, etc.
- Work with FMWG & PNAMP to have biologists QC CRB data
  - Once dashboard is out of development stage

Future Goal: enable entities to submit content from outside of Columbia River Basin.

Image from:
https://psmfc.maps.arcgis.com/apps/dashboards/e52230179ac0418790abe852433b5231

Columbia River Basin Rotary Screw Trap Dashboard

Timeline/Process

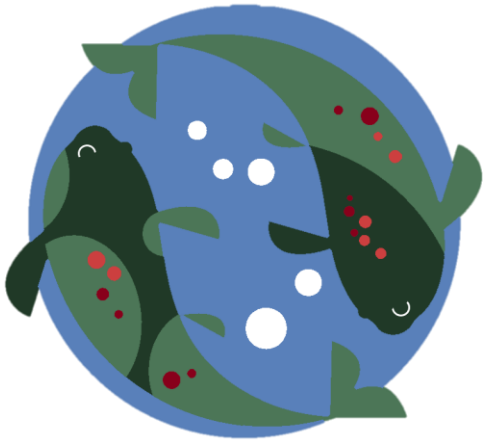
October/Early November 2024: pick back up active development of dashboard with Neil at QW (pending staff resources)

October: Present dashboard to FMWG

Fall/Winter 2025: Goal is to have the content correct and dashboard UI bugs fixed

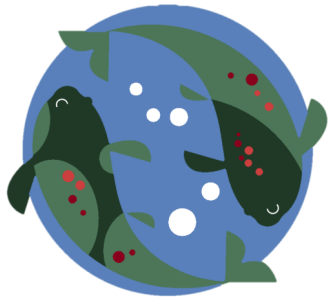
Non-CRB Data

- Who is interested in submitting data from outside of the Columbia River Basin?
- Ideas for implementation?
  - Limited PSMFC staff resources
  - Likely individual entity lift



PNAMP Fish Monitoring Work Group Updates

Meg Dethloff



PNAMP Fish Monitoring Work Group (FMWG)

The FMWG supports fisheries practitioners in the region for effective monitoring, assessment methods, and efficient data sharing.

The FMWG collaborates with StreamNet on tasks to:

- improve the consistency and accuracy in data collection and exchange
- develop recommendations for methods to define fish management units, names, and boundaries that advance regional fish monitoring practices
- provide input from regional biologists on their needs for improving information exchange using StreamNet's tools and dashboards

FMWG CORE TEAM:

Kasey Bliesner (ODFW)
kasey.bliesner@odfw.oregon.gov

Marika Dobos (IDFG)
marika.dobos@idfg.idaho.gov

Nancy Leonard (PSMFC)
nleonard@psmfc.org

Mari Williams(PSMFC)
mwilliams@psmfc.org

Lara Erikson (PSMFC)
lerikson@psmfc.org

Russell Scranton (BPA)
rwscranton@bpa.gov

Meg Dethloff (USGS/PNAMP)
mdethloff@usgs.gov

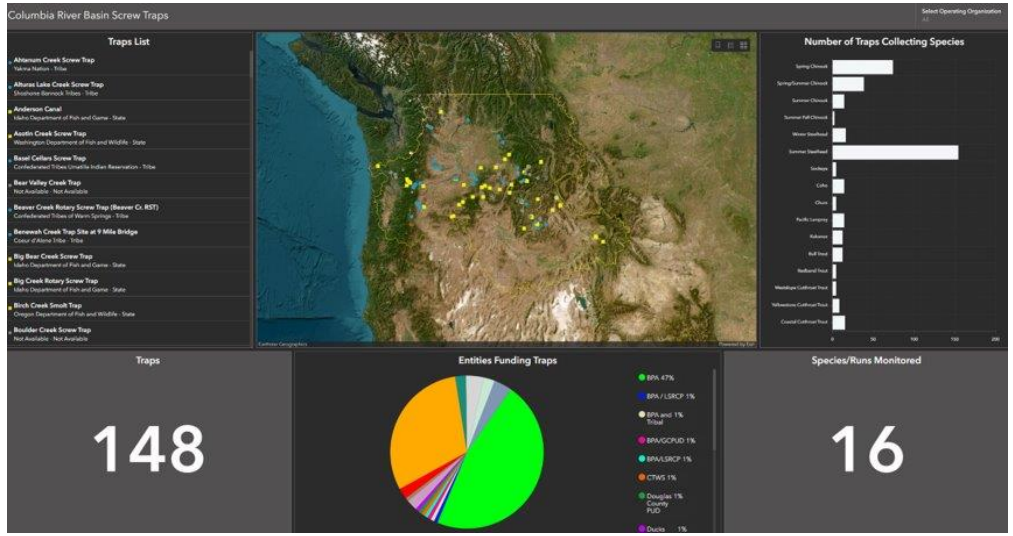
Jen Bayer (USGS/PNAMP)
jbayer@usgs.gov

Rotary Screw Trap (RST) Data Collection

Initial Purpose: This task convened regional biologist to discuss common data fields associated with RST operation. The goal of this task was to find common fields and values or build crosswalks to support related analysis.

Task Evolution

Purpose of the StreamNet ESRI Rotary Screw Trap Dashboard: This component of the task was to assess potential for combining data from multiple regional systems and sources into a dashboard.



Task Leads:

Kasey Bliesner (ODFW)
kasey.bliesner@odfw.oregon.gov

Russell Scranton (BPA)
rwscranton@bpa.gov

Nancy Leonard (PSMFC)
nleonard@psmfc.org

Meg Dethloff (USGS/PNAMP)
mdethloff@usgs.gov

Mari Williams (PSMFC)
mwilliams@psmfc.org

Megan Griffiths (PSMFC)
mgriffiths@psmfc.org

Image: StreamNet

Juvenile Density (Snorkel & Electrofishing)

Purpose: This effort worked to create a data crosswalk between existing fish density data collection efforts and using existing data standards (e.g. from CAP DES) to propose a standard vocabulary, documentation, and a DES for fish distribution/density data. Population names and data provider standards were referenced from CAP DES.

Task Leads:

Kasey Bliesner (ODFW)
kasey.bliesner@odfw.oregon.gov

Russell Scranton (BPA)
rwscranton@bpa.gov

Meg Dethloff (USGS/PNAMP)
mdethloff@usgs.gov

COMPLETED

Summary:

- Leads wrapped up the task in April with a summary, addressing the recommendations for standard field names, and challenges in the development of the recommendations
- Summary document available on the FMWG task page or reach out to Meg Dethloff

Photo: M Dethloff

Carrying Capacity Standards

Purpose: This task aims to recommend standard inputs and outputs to support expansion of carrying capacity models to larger geographic extents and share the results in formats that are consumable for use and comparison of outputs.

Progress:

- Co-authors are editing sections to match tone and brevity
- Discussion section synthesizing paper is underway

Next Steps:

- Figures and tables adapted to each authors' section
- Leads hope to have the paper in review before the end of 2024

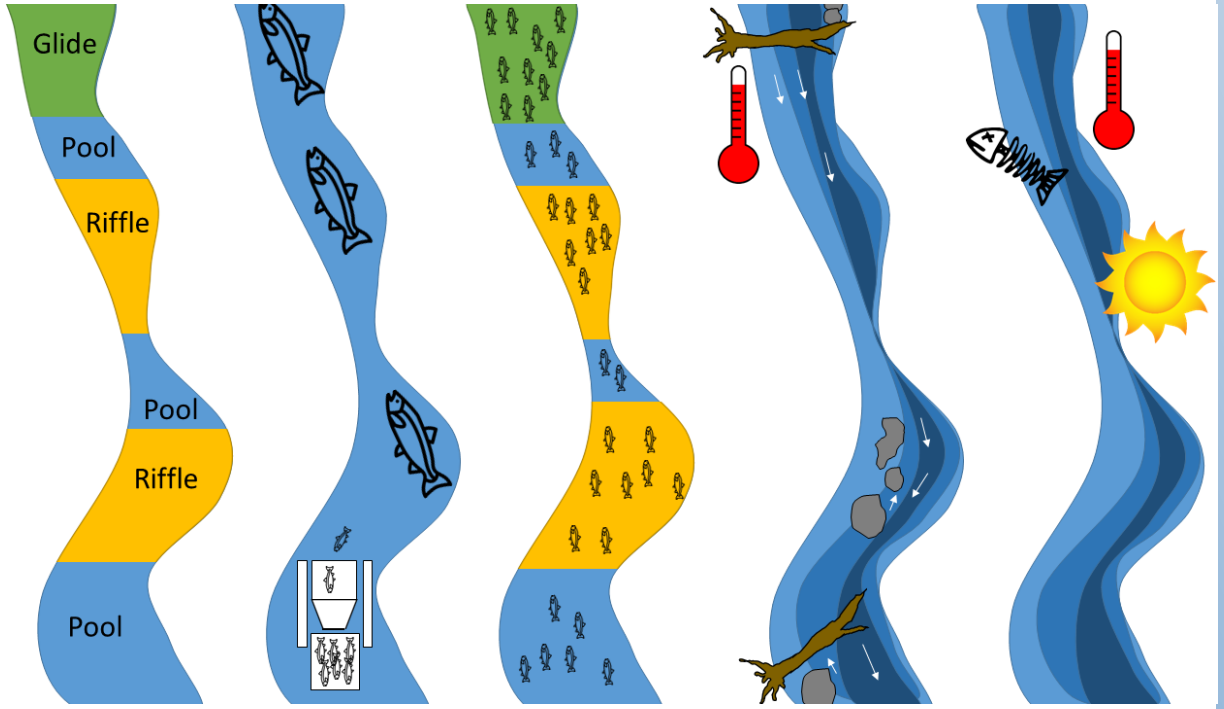


Image: Morgan Bond

Task Leads:

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morgan.bond@noaa.gov

Tim Copeland (IDFG)
tim.copeland@idfg.idaho.gov

Russell Scranton (BPA)
rwscranton@bpa.gov

Jen Bayer (USGS/PNAMP)
jbayer@usgs.gov

Meg Dethloff (USGS/PNAMP)
mdethloff@usgs.gov

PIT Tag Array Data and Related Data Analyses

Purpose: This task is focused on documenting and recommending improvements to data management and analytical methods and tools for PIT tag array data.

Progress:

- Marika Dobos (IDFG) presented at the 2024 PTAGIS Workshop; a live poll was administered to gather feedback from participants
- A survey was distributed to the FMWG and PNAMP listserv to further identify challenges biologists have encountered regarding management and analyses using PIT-tag array data

Next Steps:

- Process survey results and begin development of a webinar series
- FMWG will discuss solutions to support the development or trainings on tools, analytical methods, and pathways to addressing challenges

Photo: M Dethloff

Task Leads:

Marika Dobos (IDFG)
marika.dobos@idfg.idaho.gov

Russell Scranton (BPA)
rwscranton@bpa.gov

Meg Dethloff (USGS/PNAMP)
mdethloff@usgs.gov

PIT Tag Array Data and Related Data Analyses

Webinar series has been proposed for Feb/March 2025

Potential presentations on:
-GitHub
-Pitcleanr
-Other data management software

Possible in-person workshop in the future for analysis tools like R script or Python

11. Based on feedback from participants at the 2024 PTAGIS workshop, these three needs were identified. Rank your priorities:

More Details

12. Rank **WEBINAR** topic interest from greatest (top) to least (bottom).

More Details

14. Rank **IN-PERSON WORKSHOP** topic interest from greatest (top) to least (bottom).

More Details

Task Leads:

Marika Dobos (IDFG)
marika.dobos@idfg.idaho.gov

Russell Scranton (BPA)
rwscranton@bpa.gov

Meg Dethloff (USGS/PNAMP)
mdethloff@usgs.gov

Photo: M Dethloff

Update Terms and Definitions Used in CAP Data Standards

Purpose: This task will primarily focus on review and update of terms and definitions in StreamNet Data Standards that support CAP data (CAX HLI DES and HCAX DES) and StreamNet Fish Monitoring Trends DES to effectively convey the terms' intent and provide consistency between DESs.

StreamNet

pacific northwest aquatic monitoring partnership

Task Leads:

Jen Bayer (USGS/PNAMP)
jbayer@usgs.gov

Mari Williams (PSMFC)
mwilliams@psmfc.org

Mike Banach (PSMFC)
mbanach@psmfc.org

Image: CAP logo

Update Terms & Definitions in CAP Data Standards

Why:

- Very high priority identified at 2023 CAP Workshop
- Will increase confidence in CAP data
- Will enable linking CAP controlled vocabularies to other datasets within PSMFC and externally

Coordinated Assessments Partnership
Fish and Habitat Data Exchange

Update Terms & Definitions in CAP Data Standards

Who:

StreamNet and PNAMP staff; FMWG and SN SC members

How:

- Staff reviewed existing terms and definitions and identified issues consistent with concerns noted during the 2023 CAP workshop
- Issues have been flagged and labeled as to category
- Staff will make appropriate minor fixes
- PNAMP will facilitate subject matter expert (SME) review as needed

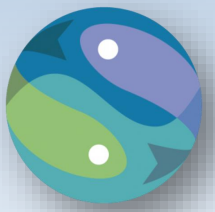
Update Terms & Definitions in CAP Data Standards

Timeline:

- **COMPLETED: extract terms and definitions from CAP and SN DESs, review and flag issues – first round by staff completed.**
- September: update for StreamNet SC, share current draft version, request input as to additional items to be flagged
- October 7: responses due for above task
- October 17: kick off for SMEs at PNAMP FMWG meeting
- Nov-Dec: collect input from SMEs using MS Forms (i.e. not in person meetings)
- Jan: share final draft
- March: include updated Terms & Definitions in workshop and or talks at WA/BC AFS in Vancouver, BC

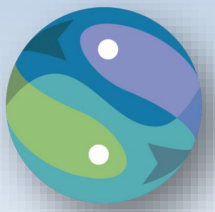
Trend Group Query Display

Mike Banach



Trend Group Query Display

- "Trend groups"
  - Is a way to link related time series
  - Originally called "Supertrends"
  - Initially conceived in 2007 to appropriately display GRTS data
    - Data from Generalized Random Tesselation Stratified (spatially-balanced) survey designs
    - GRTS sampling developed for EPA's Environmental Monitoring & Assessment Program (EMAP)



Trend Group Query Display

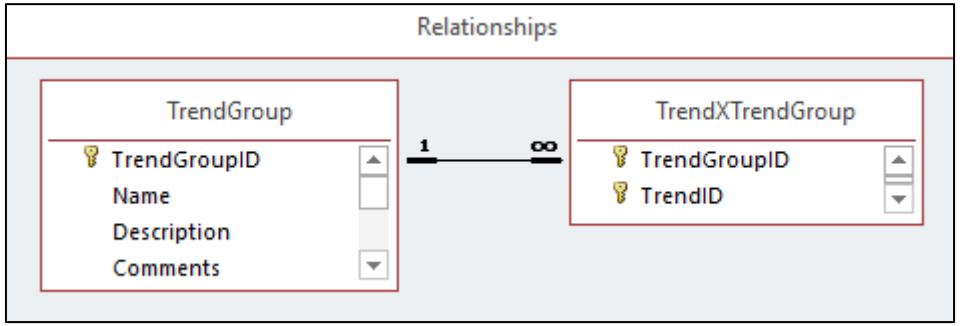
- "Trend groups"
  - Other potential uses identified later
    - Link related aggregated / independent trends
    - Link HLI "time series" to fish monitoring data "trends" they are derived from
    - Link related HCAX data: spawning, releases, returns, and SAR for a stock
    - Link HCAX time series to related CA natural populations HLI time series

Trend Group Query Display

- Tables created in 2007/08 were inactive until IDFG submitted records early 2021

- ODFW data late 2022, and more late 2023

Trend Group Query Display



- Each trend group (parent) has multiple component trends / time series (children)
- A trend / time series may be part of zero, one, or more than one trend group
- TrendID / TimeSeriesID can come from several different tables
  - Trend
  - NOSA
  - SAR_Hatchery
  - etc.

Trend Group Query Display

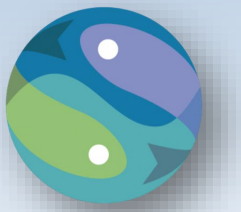
A trend group can include:

- "fish monitoring data" trends
- CA natural populations HLI time series
- HCA hatchery time series
- any combinations of these

Trend Group Query Display

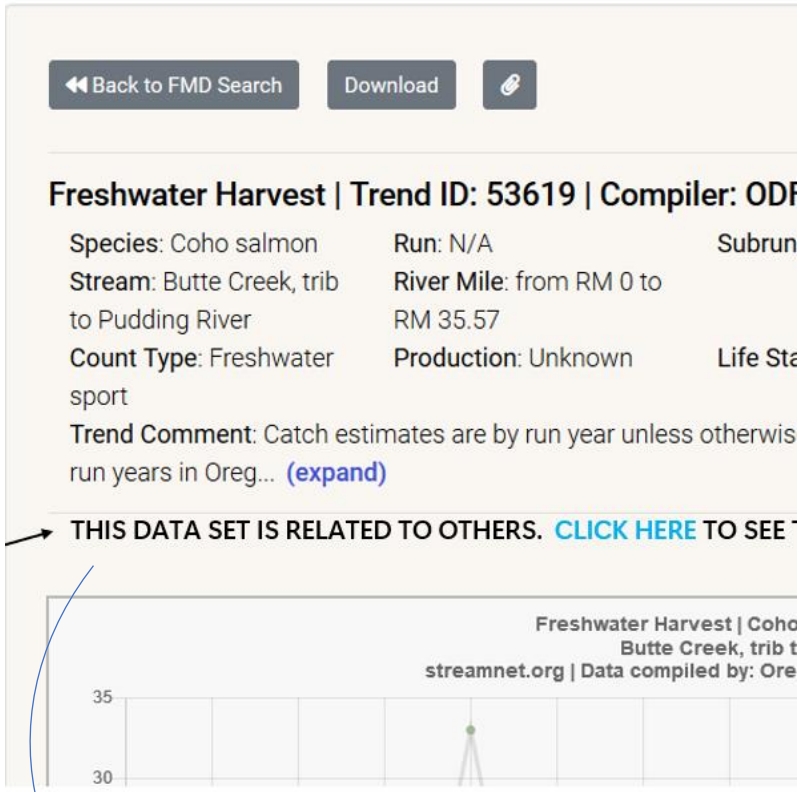
The following slides are a first draft of how trend groups could be implemented in the query systems.

"Trend group" is probably not what we want to use on the query systems. Several alternatives are shown.

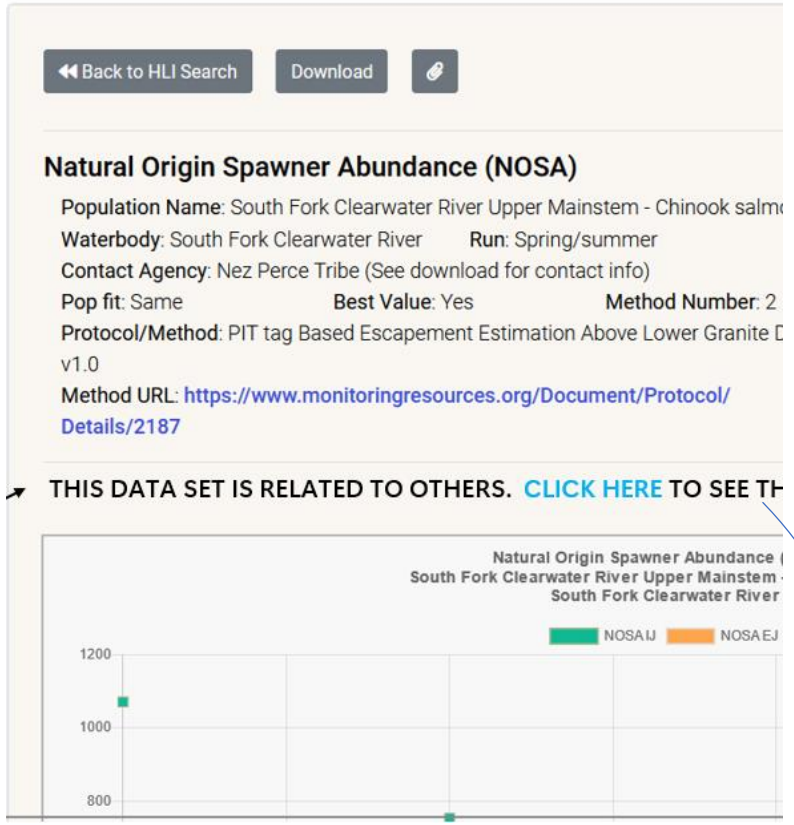


All query systems lead to trend groups

Trend Detail



NOSA Detail



Hatchery Releases Detail

Hatchery Releases

(HCAX query system to be created)

THIS DATA SET IS RELATED TO OTHERS.
CLICK HERE TO SEE THESE ASSOCIATIONS.

Data Set 53619 Is Associated With These Larger Groups

Download

Data Set Group #	Name	Description	Comments
50000	John Day River Lower Mainstem Tributaries Summer Steelhead Redd Counts	A collection of common trends of the same species, run, category, count type, sampling method, and calculation method for the John Day River Lower Mainstem summer steelhead population	No comment.

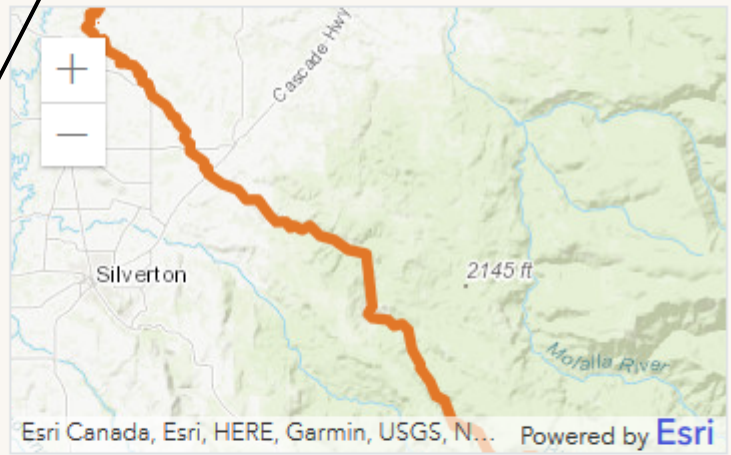
Trend Detail

This shows up only if the trend is in one or more trend groups. Clicking this opens a new window (preferred) or tab to take user to the next slide.

Back to FMD Search | Download

Freshwater Harvest | Trend ID: 53619 | Compiler: ODFW

Species: Coho salmon
Run: N/A
Subrun: N/A
Stream: Butte Creek, trib to Pudding River
River Mile: from RM 0 to RM 35.57
Count Type: Freshwater sport
Production: Unknown
Life Stage: Adult
Trend Comment: Catch estimates are by run year unless otherwise noted. Salmon run years in Oreg... **(expand)**



THIS DATA SET IS RELATED TO OTHERS. CLICK HERE TO SEE THESE ASSOCIATIONS.

Data Set 53619 Is Associated With These Larger Groups

Download

Data Set Group #	Name	Description	Comments
50000	John Day River Lower Mainstem Tributaries Summer Steelhead Redd Counts	A collection of common trends of the same species, run, category, count type, sampling method, and calculation method for the John Day River Lower Mainstem summer steelhead population.	
50001	John Day River Upper Mainstem Summer Steelhead Redd Counts	A collection of common trends of the same species, run, category, count type, sampling method, and calculation method for the John Day River Upper Mainstem summer steelhead population.	My lawyer has advised me not to speak with you.
50002	Middle Fork John Day River Summer Steelhead Redd Counts	A collection of common trends of the same species, run, category, count type, sampling method, and calculation method for the Middle Fork John Day River summer steelhead population.	I'm always wrong. Why do you want me to comment?
50003	North Fork John Day River Summer Steelhead Redd Counts	A collection of common trends of the same species, run, category, count type, sampling method, and calculation method for the North Fork John Day River summer steelhead population.	
50004	South Fork John Day River Summer Steelhead Redd Counts	A collection of common trends of the same species, run, category, count type, sampling method, and calculation method for the South Fork John Day River summer steelhead population.	Oh HECK yeah!

Clicking this takes user to this one trend group. See next slide.

"Download" button somewhere on this page returns all data for all trend groups that trend 53619 is a part of. All data for all trends in those trend groups, not just the data from trend 53619. This can be fish monitoring data, natural population HLIs, hatchery HLIs, or any combination.

Individual Trends That Are Part Of Data Set Group 50004

See next slide for actual columns on this page.

Download button returns all data for selected group 50004.

Click TrendID, go to that trend.

19967 Trends

« Previous 1 2 3 4 5 6 7 8 9 10 Next »

10 25 100 Download Clear Selections

Trend ID	Data Category	Stream	River Mile	Species	Run	Production	Life Stage	Count Type	Years
53619	Freshwater Harvest	Butte Creek	from RM 0 to RM 35.57	Coho salmon	N/A	Unknown	Adult	Freshwater sport	1978-1994
180642	Hatchery Returns	Fork Creek	from RM 0.33 to RM 0.33	Steelhead	Winter	Hatchery	Adults and jacks	Total live fish	1995-2008
90569	Fish Counts	Humbug Creek	from RM 0 to RM 11.34	Steelhead	Winter	Natural	Adults and half-pounders	Index of live fish	1968-1969
100313	Hatchery	Snake	from	Steelhead	Summer	Hatchery	Adults	Total live	2003-2009

Table on previous slide table would have these columns rather than what's shown

Trends:

- TrendID
- Data category / Data type (from Trend.TypeID field)
- Location (stream/trib of, and river miles)
- Species
- Run
- Rearing type
- Population
- Years

CA natural populations:

- TimeSeriesID
- Data category / Data type (e.g., EstimateType in NOSA)
- Location (LocationName from views)
- Species
- Run
- Rearing type
- Population
- Years

HCA hatchery stocks:

- TimeSeriesID
- Data category
- Location (stream/trib of, and river miles)
- Species
- Run
- Rearing type
- Stock
- Brood years

Key:

- Same
- Analogous

As for trends, this shows up only if the time series is in one or more trend groups. Clicking this opens a new window (preferred) or tab to take user to the next slide.

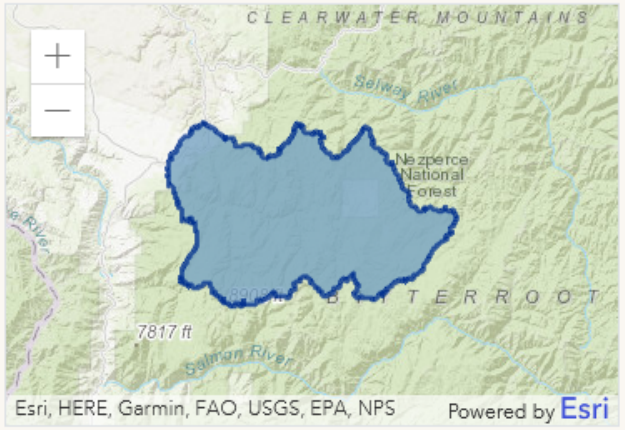
Click it, and you go through the same process as above.

NOSA Detail

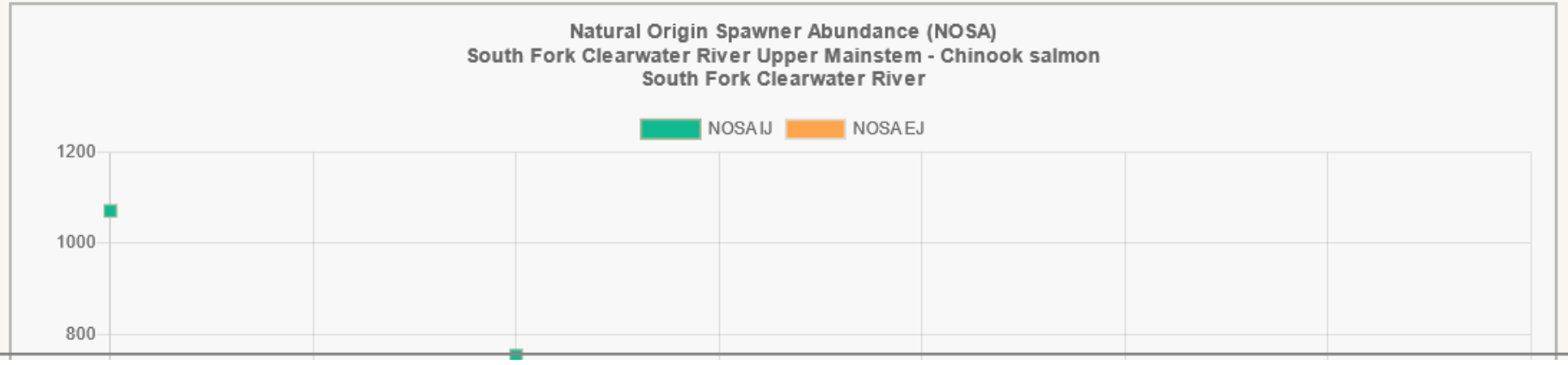
Back to HLI Search | Download

Natural Origin Spawner Abundance (NOSA)

Population Name: South Fork Clearwater River Upper Mainstem - Chinook salmon
Waterbody: South Fork Clearwater River **Run**: Spring/summer
Contact Agency: Nez Perce Tribe (See download for contact info)
Pop fit: Same **Best Value**: Yes **Method Number**: 2
Protocol/Method: PIT tag Based Escapement Estimation Above Lower Granite Dam v1.0
Method URL: https://www.monitoringresources.org/Document/Protocol/Details/2187



THIS DATA SET IS RELATED TO OTHERS. CLICK HERE TO SEE THESE ASSOCIATIONS.



End Day 1
Meet at 6 @ Hops

All images are from MFWP webpages

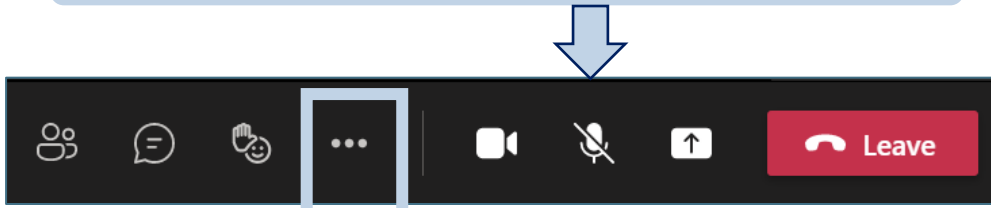
Welcome
Day 2

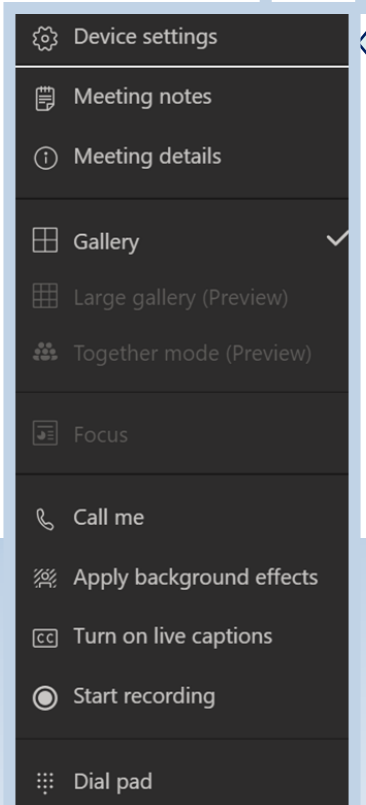
Please leave web cameras on to facilitate discussion

All participants,

please use the chat to introduce yourself (name and affiliation)

Please mute yourself when not speaking.
Use *6 to mute phone audio.
Use the microphone icon on the control bar to mute computer audio.





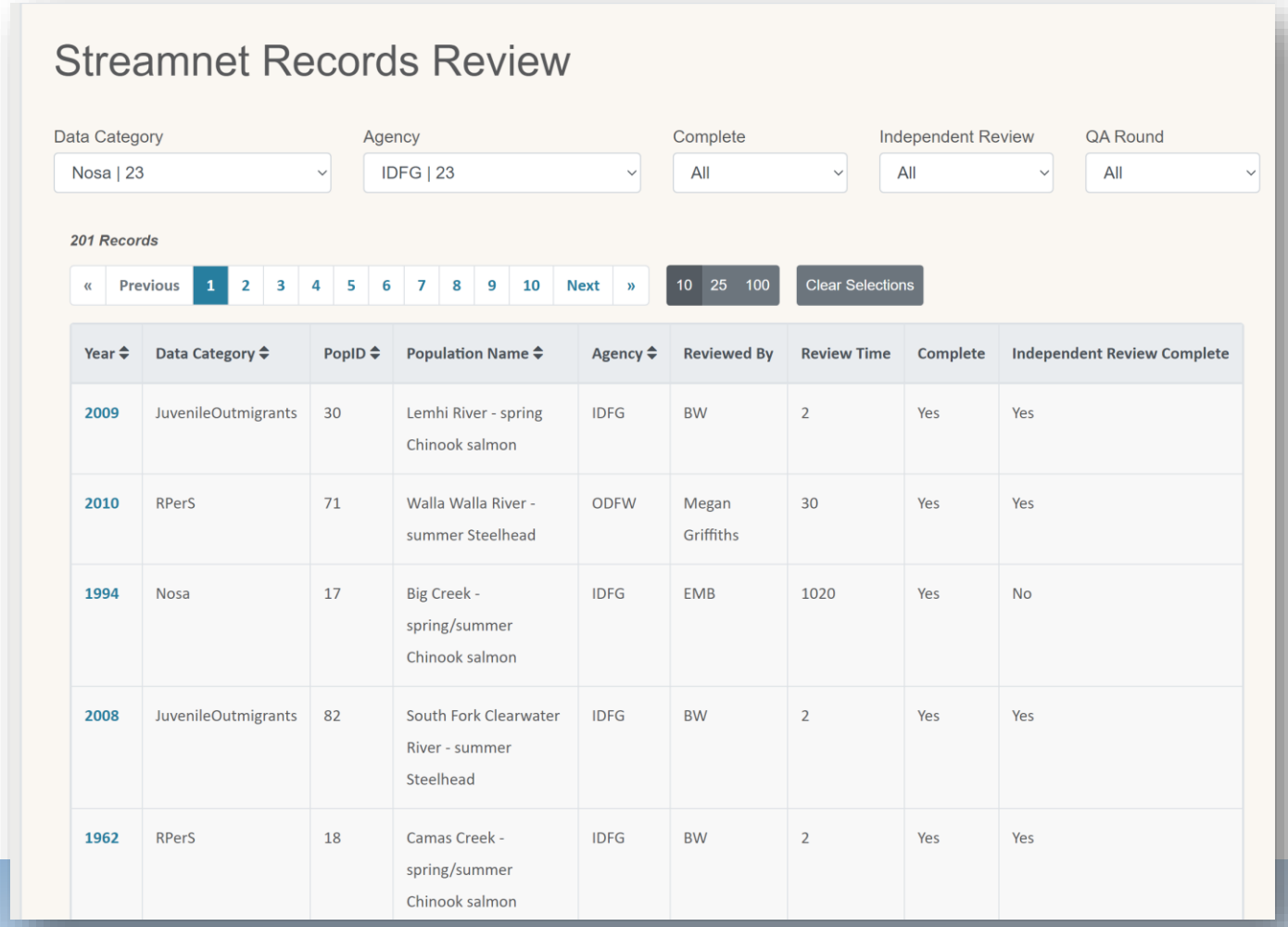
Check device settings if you are having problems with audio/video

StreamNet
www.streamnet.org

QA/QC Tool updates and 2025 plan

Greg Wilke

Coordinated Assessments QA/QC



Streamnet Records Review

Data Category: Nosa | 23 | Agency: IDFG | 23 | Complete: All | Independent Review: All | QA Round: All

201 Records

« Previous 1 2 3 4 5 6 7 8 9 10 Next » | 10 25 100 | Clear Selections

Year	Data Category	PopID	Population Name	Agency	Reviewed By	Review Time	Complete	Independent Review Complete
2009	JuvenileOutmigrants	30	Lemhi River - spring Chinook salmon	IDFG	BW	2	Yes	Yes
2010	RPerS	71	Walla Walla River - summer Steelhead	ODFW	Megan Griffiths	30	Yes	Yes
1994	Nosa	17	Big Creek - spring/summer Chinook salmon	IDFG	EMB	1020	Yes	No
2008	JuvenileOutmigrants	82	South Fork Clearwater River - summer Steelhead	IDFG	BW	2	Yes	Yes
1962	RPerS	18	Camas Creek - spring/summer Chinook salmon	IDFG	BW	2	Yes	Yes

- Scheduled for Spring 2025 – Kick-off at February Steering Committee Meeting
- Larger Record Set – 80 Records/Agency (CCT smaller set), 80 Secondary Review (Montana)
- Wider Spread of Populations & Data Categories Reviewed
- Target Completion – Fall 2025 & Fall Steering Committee Report
- Focus on Primary Problem Areas: URLs, Data Display

ETIS Planning

Meg D

Emerging Technologies Information Sessions (ETIS)

PNAMP and StreamNet are collaborating again to host a webinar series on topics related to emerging technologies for aquatic monitoring and data management. The aim of this project is to showcase how regional practioners are implementing the latest technologies in aquatic monitoring.

When: Starting January 8th, 2025 from 9:00 AM – 11:00 AM (PST) and continuing every Wednesday until February 19th

Where: Virtual! You will be able to attend the live presentations virtually on Microsoft Teams and/or you can catch a recording of the presentation at your convenience on PNAMP's YouTube Channel

Registration: Free! More information on attending the webinar series will be available as we draw closer to the event's start.

Want to present or have a suggestion?
Contact Sam Cimino at scimino@usgs.gov for more information.

Photo: Five drones in the sky at sunset by Marco Verch under Creative Commons 2.0

StreamNet ExCom Prep

Any changes to CAP five-year plan

Items to include on the ExCom Agenda

Draft Topics for SN ExCOM

Joint SN ExCom/PNAMP SC Portion

Day 1 PM

- DS/UA
- HCAX closure
- FMWG Task Group updates

- Other?

Only ExCom Portion

Day 2 AM

- Resources needed for HCAX exchange with data providers
  - internal data mgmt and modernization
- CAP 5 Year plan
  - no changes from 2023

- Member update

- Other?

Stretch Break

back at

All images are from MFWP webpages

Member Updates and Announcements

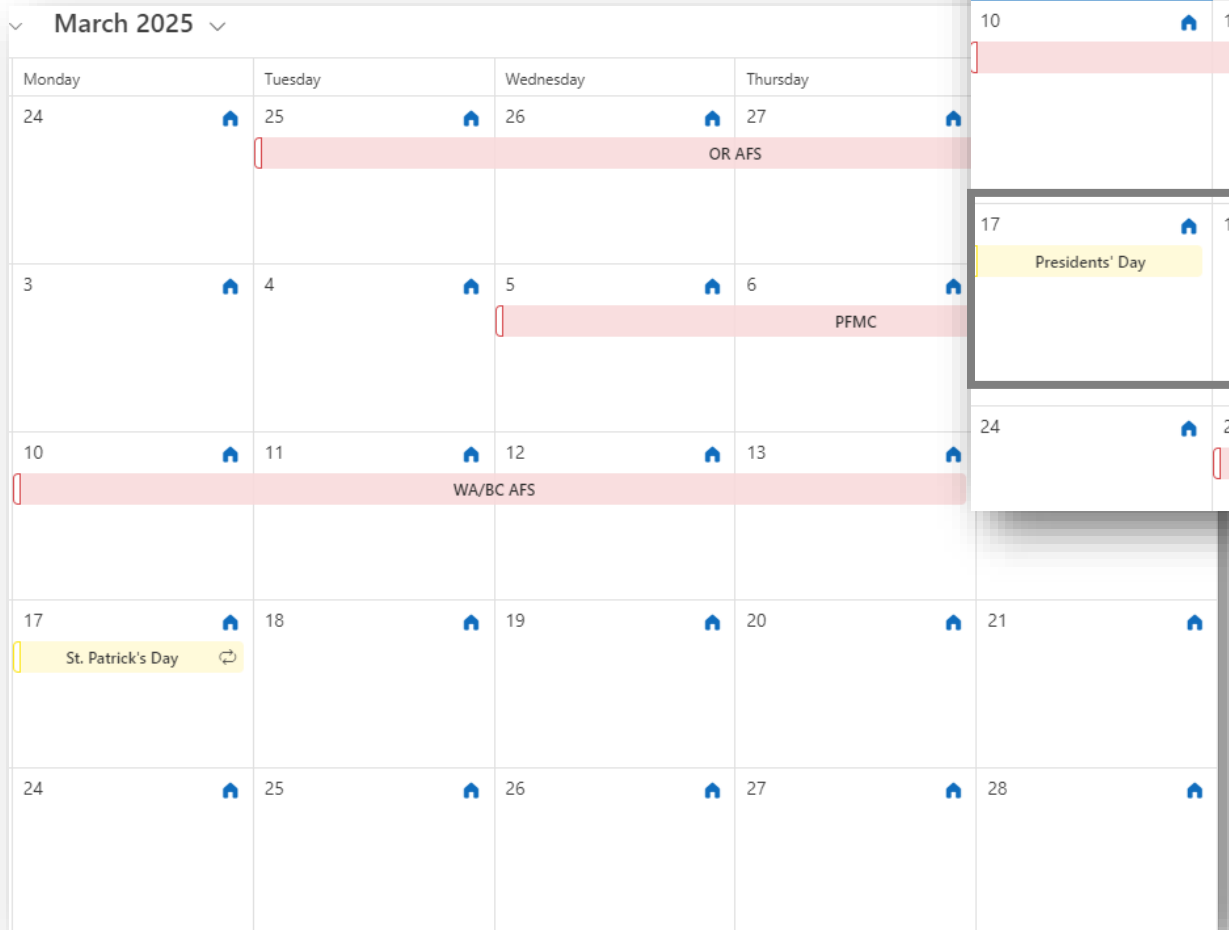
Please email mwilliams@psmfc.org with any information you'd like included in the meeting notes

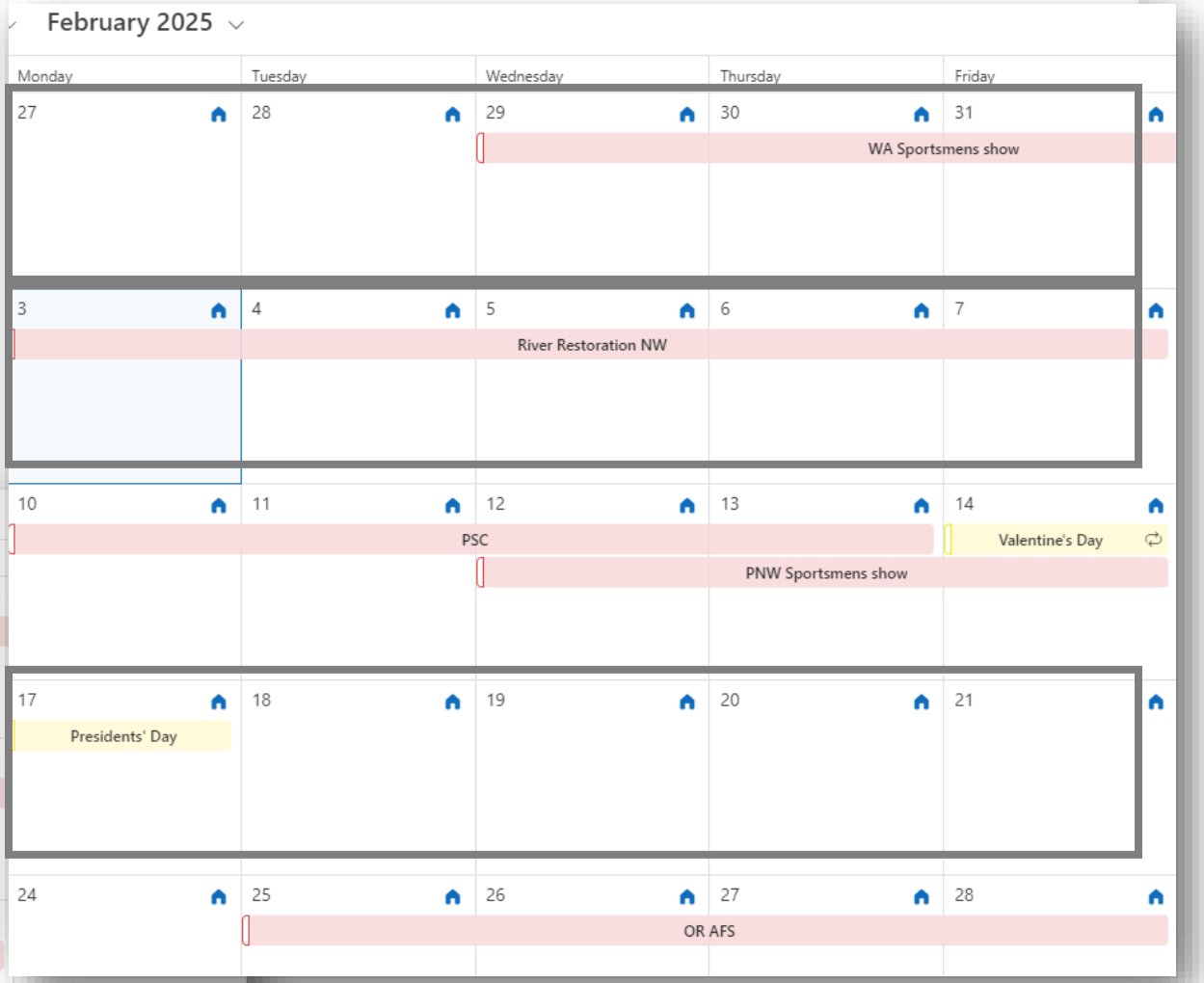
MFWP: Dawn Anderson	Colville Tribes: George Batten
IDFG: Angie Schmidt, Evan Brown	WDFW: Brodie Cox
CRITFC Library: Tami Wilkerson	NOAA: Katie Barnas
CRITFC: Sheryn Olson and Denise Kelsey	NPCC: Kris Homel
USFWS: Todd Gilmore	BPA: Brady Allen, Russell Scranton
Shoshone-Bannock Tribes: Kurt Tardy	PNAMP: Meg Dethloff
ODFW: Jake Chambers	PSMFC: **Nancy**, Lara, Greg, Mike, Mari, Megan, Van

Prep for SN SC Meeting

- Where and when?

- Location for 2025
  - Early 2025 (winter/spring)
    - PSMFC?
  - Late 2025 (fall)
    - ? CCT?





Thanks for joining us!

All images are from MFWP webpages