Klamath Basin Fisheries Collaborative
2023 Annual Meeting

Day 2

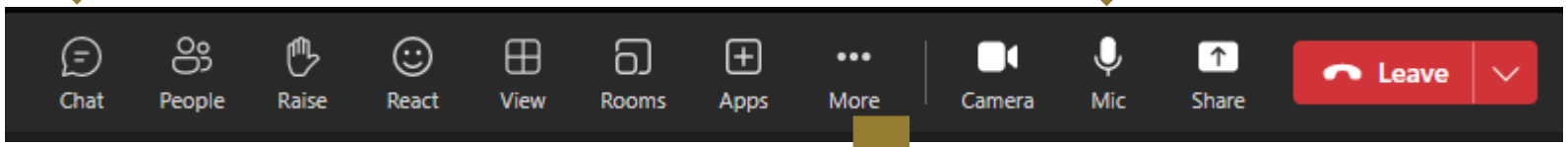


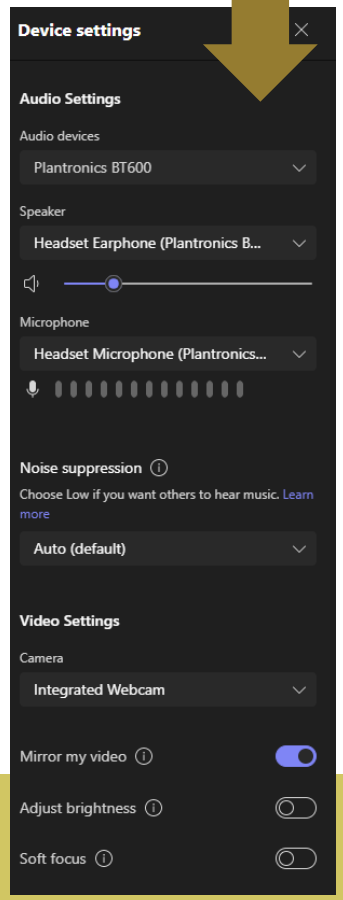
"If you want to go fast, go alone; If you want to go far, go together"

PRESIDENT JOE BIDEN
BUILDING A BETTER AMERICA
BUILD.GOV

Use the meeting chat if you need assistance.
Chats can be seen by all participants.

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





Welcome Back – Day 2

Virtual participants:

Please leave web cameras on to facilitate discussion

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

In-person participants:

Please sign in on sheet

Please state your name/affiliation when speaking

If you are having problems with audio/video, check your device settings.

A Strategy for Monitoring Repopulation and Pre-dam Removal Studies in the Upper Klamath Basin

Mark Hereford

Klamath Fisheries Reintroduction Biologist,

ODFW

A strategy for monitoring the repopulation of anadromous fishes and pre-dam removal studies in the Klamath River Basin

Oregon Department of Fish and Wildlife

Mark Hereford - Klamath Reintroduction Biologist

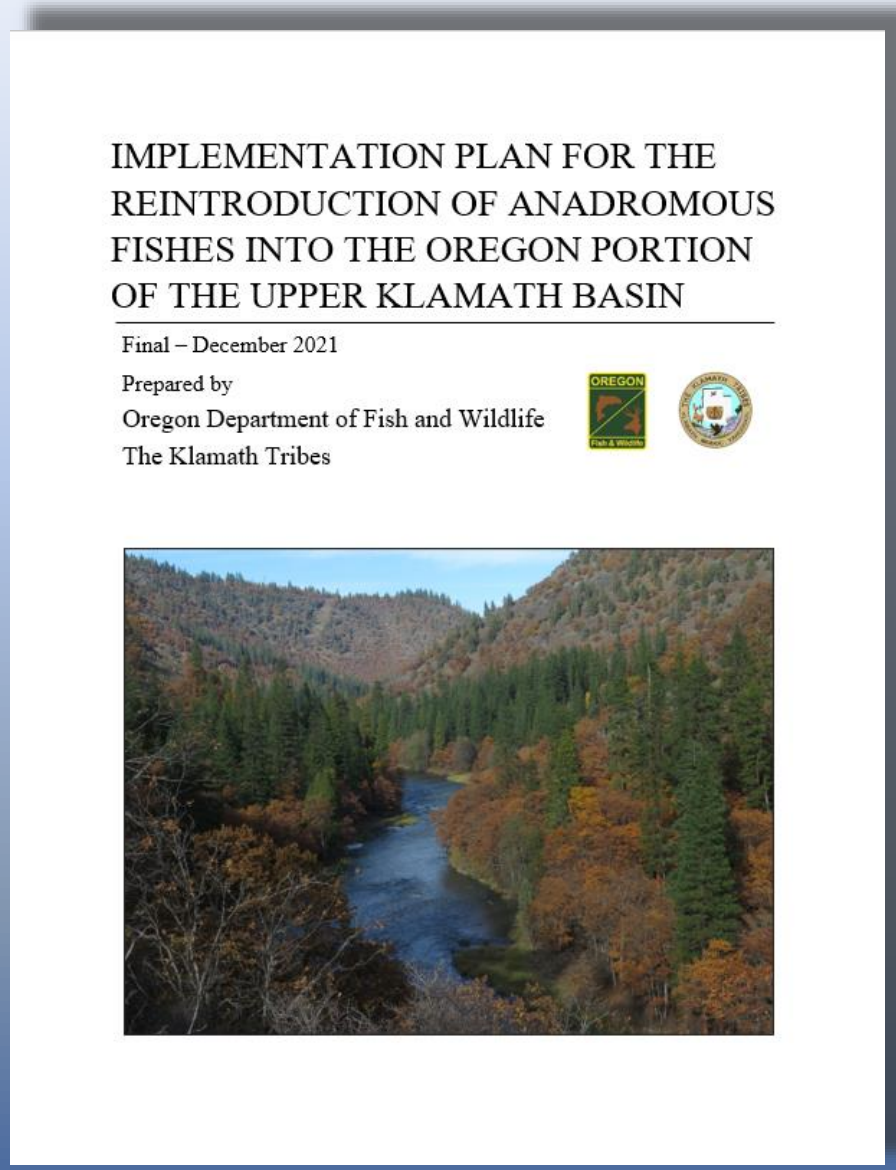
Reintroduction Implementation Plan

- Co-authored with The Klamath Tribes
- Collaboration and feedback from basin fish management groups (Tribal, State, and Federal)
  - Multiple meetings
  - Reviews of the document

Goal: *re-establish self-sustaining, naturally produced populations of historically present anadromous fishes*

Purpose of Reintroduction Implementation Plan

- Guide efforts to monitor the natural repopulation of anadromous fish
- Recommend a strategy for any active efforts to repopulate habitat
- Can be found on ODFW website


IMPLEMENTATION PLAN FOR THE REINTRODUCTION OF ANADROMOUS FISHES INTO THE OREGON PORTION OF THE UPPER KLAMATH BASIN

Final – December 2021

Prepared by

Oregon Department of Fish and Wildlife

The Klamath Tribes

Reintroduction Implementation Plan

Reintroduction Approaches

<u>**Natural Repopulation** – Hands off approach</u>

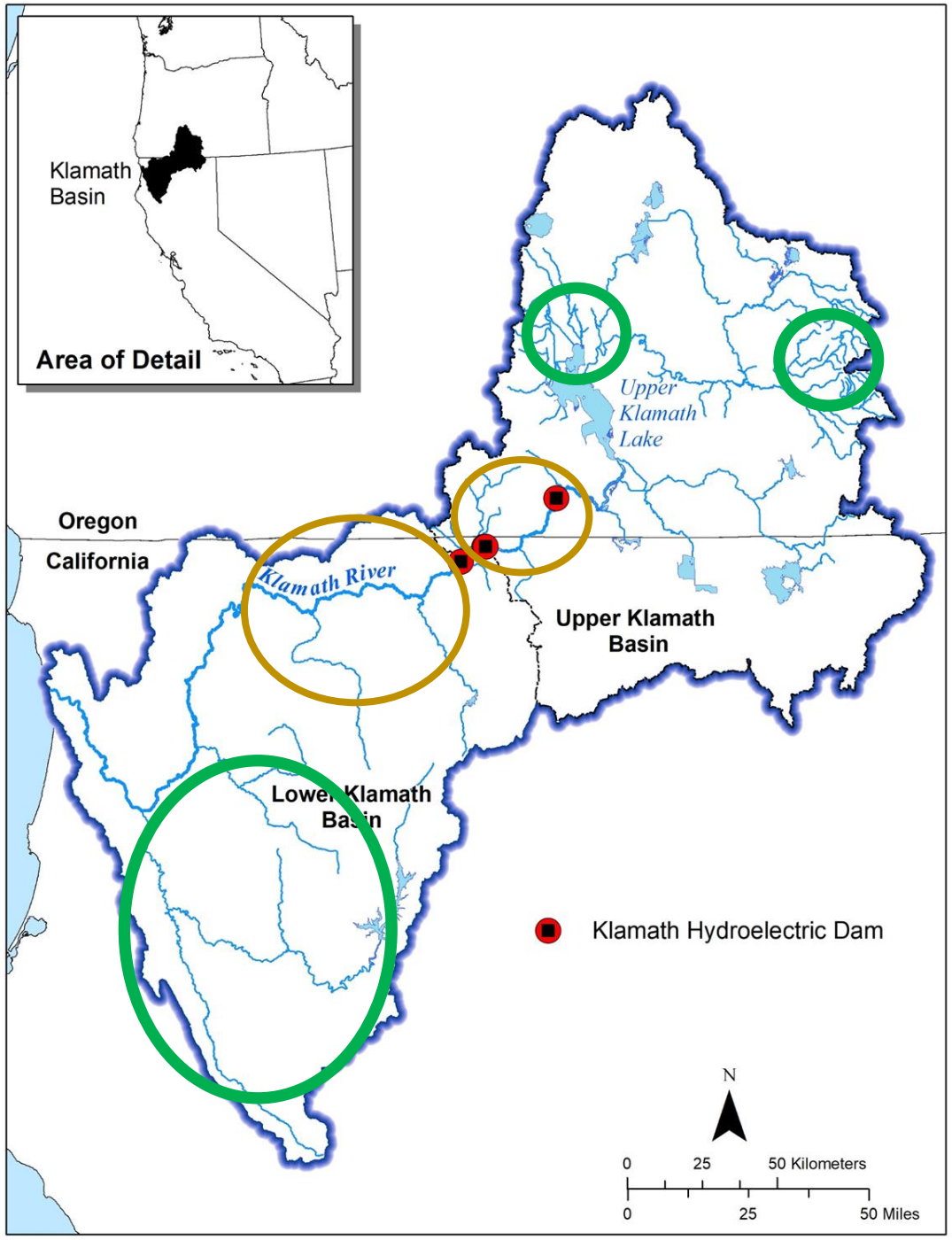
- Fall-run Chinook Salmon
- Coho Salmon
- Steelhead Trout
- Pacific Lamprey

- Currently exist immediately below Iron Gate Dam
- Habitat immediately above dams

*After 3 fish generations an assessment will be made to determine if any active measures are needed

<u>**Active Repopulation** – actively transporting fish</u>

- Spring-run Chinook Salmon

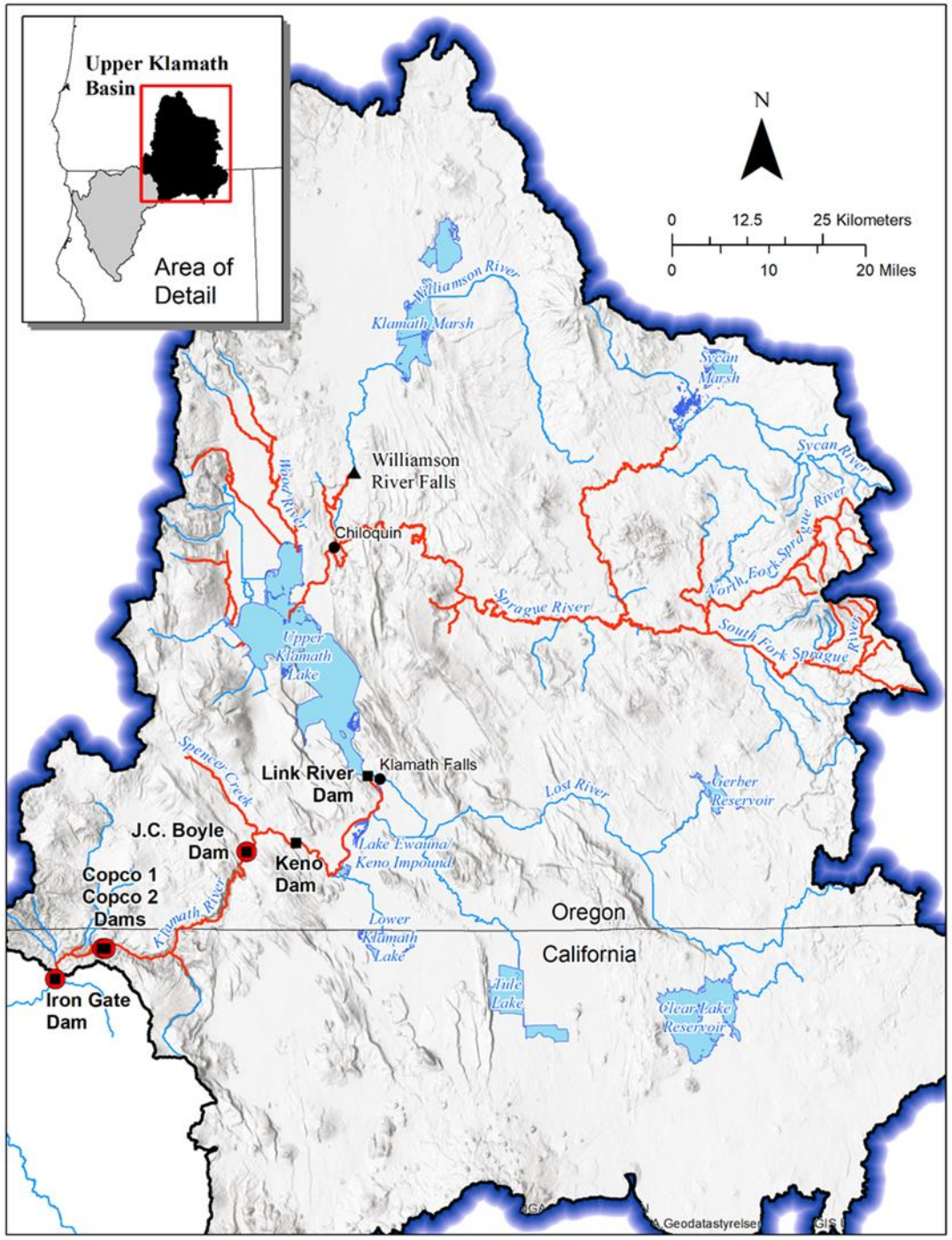


Reintroduction Implementation Plan

Two main parts of Implementation Plan

- **<u>Strategy for monitoring</u> the natural repopulation of Salmon, Steelhead, and Pacific Lamprey**
  - Determine if fish are migrating into Oregon
  - If so, how many, what species, and where?
  - Are juveniles outmigrating from the upper basin?

- **<u>Strategy for actively reintroducing</u> spring-run Chinook Salmon**
  - Initially, begin with <u>fish release studies</u> using juveniles from an in-basin source
    - Results will help guide repopulation efforts



Reintroduction Implementation Plan

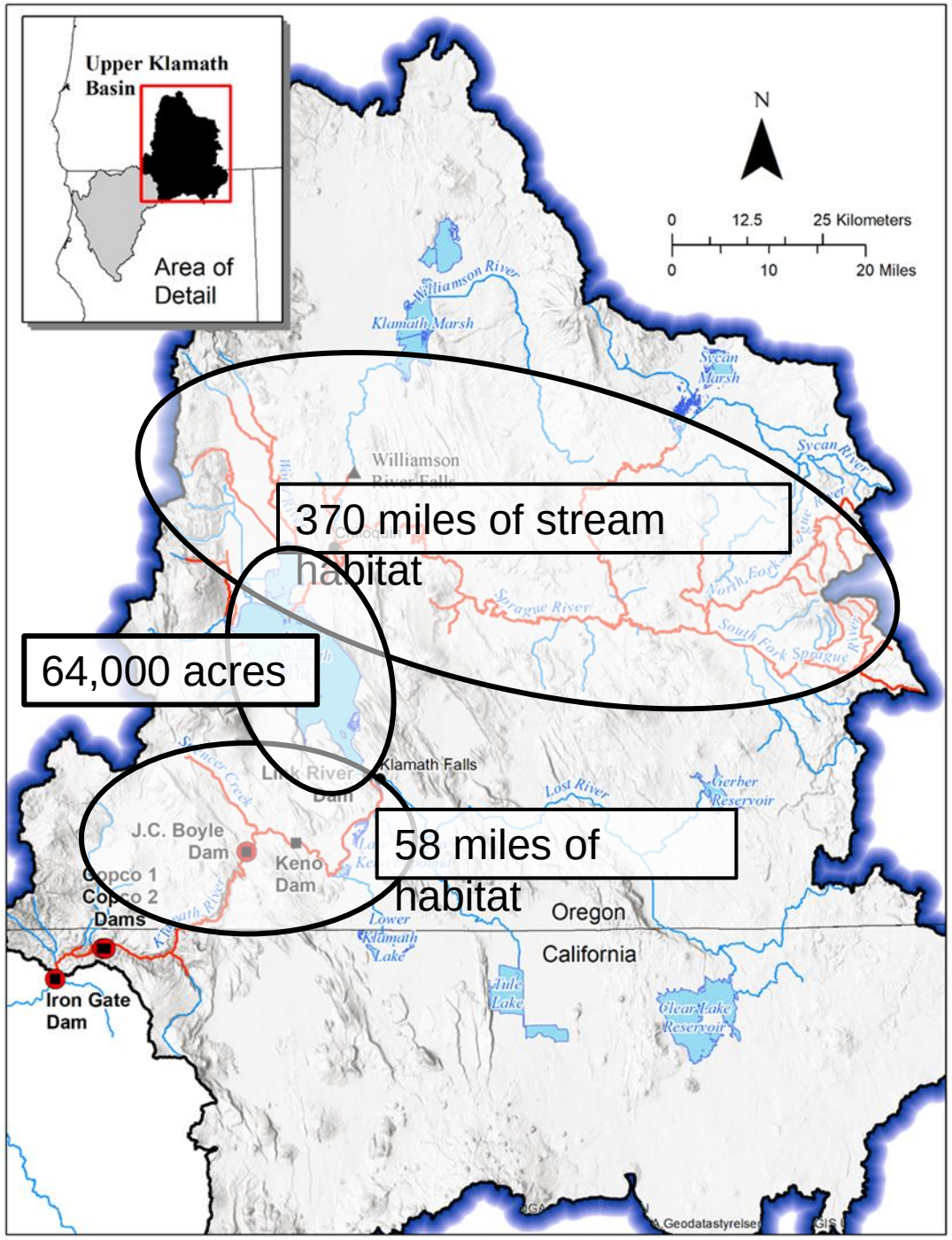
Monitoring Repopulation

- Large amount of habitat to monitor
- Initially focus on habitat immediately above the dam sites
  - Stateline to Upper Klamath Lake

Monitoring within and above Upper Klamath Lake

- When fish are known to be present
- Utilize Link River Dam for monitoring
  - Create a fish passage facility
    - Detect/Count and sample adults moving upstream into Upper Klamath Lake and its tributaries

Link River Dam
(outlet of Upper Klamath Lake)



Reintroduction Implementation Plan

Monitoring Repopulation

Goal: Determine if fish are repopulating habitat above the former dams

- An escapement estimate of fall-run Chinook Salmon
  - Determines commercial, recreation, and tribal fishery allocation
- Staff and equipment to conduct boots-on-the-ground monitoring on the Klamath River and tributaries
  - Spawning/carcass surveys
  - Juvenile downstream traps
  - Life-cycle station on tributaries
    - Spencer Creek (13 stream miles)
  - Mark-recapture (detections)
  - Others (eDNA, SONAR)
- **Modeled after current monitoring below Iron Gate Dam**

Pre-dam Removal Studies

Juvenile spring-run Chinook Salmon release study

Developed a study that mimics a hypothetical outmigration of juvenile spring-run Chinook Salmon from tributaries of Upper Klamath Lake, through the lake, and through Link River Dam and Keno Dam

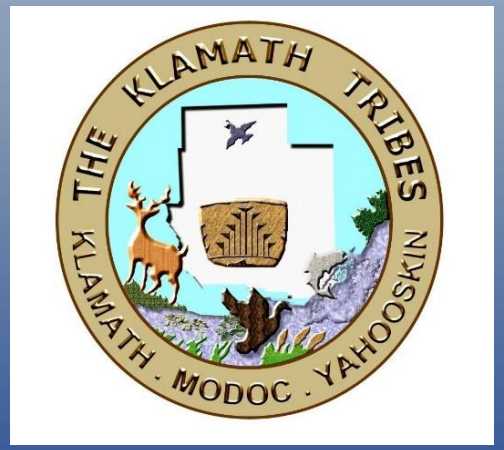
Tagged juvenile Chinook Salmon

Groundwater sourced tributaries

Upper Klamath Lake

Outlet of Upper Klamath Lake/Link River Dam

Upper Klamath Basin Landowners



Spring-run Chinook Salmon Release Study

Using multiple telemetry techniques with a mark-recapture (detection) framework our objectives are:

- Determine migration timing and behavior of out-migrating Chinook Salmon
- Determine reach-specific survival from tributaries of Upper Klamath Lake through outlet of Upper Klamath Lake and from Link River Dam through Keno Dam
- Investigate passage and habitat use from Link River Dam through Keno Dam

Acoustic telemetry

PIT (RFID)

Radio (VHF) telemetry

Groundwater sourced tributaries

Upper Klamath Lake

Outlet of Upper Klamath Lake/Link River Dam

Spring-run Chinook Salmon Release Study

Why?

- The landscape of the Upper Klamath Basin is a lot different than it was 100 years ago
- Identify any potential impediments to juvenile out-migration → Inform restoration efforts
- Inform any future monitoring and active reintroduction efforts
  - Release timing, location, movement through UKL, tagging/detection techniques, hatchery rearing techniques

Upper Klamath Lake

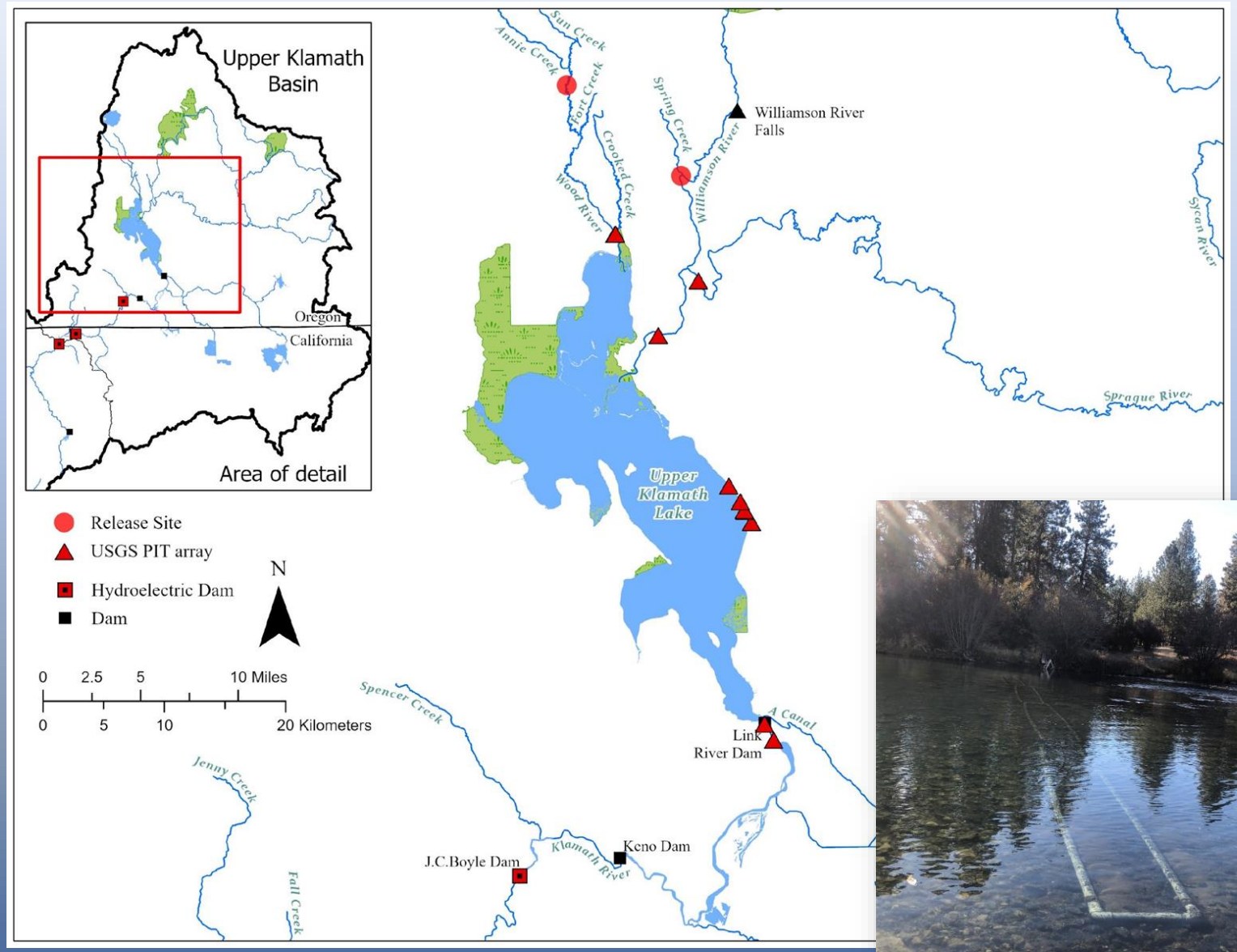
Link River Dam (outlet of UKL)

Keno Dam

Lake Ewuana/Keno Impoundment

USGS PIT antenna arrays

- Adult sucker monitoring
- How well do they detect juvenile Chinook?



PIT (RFID)

Spring-run Chinook Salmon Release Study

- 10,000 fertilized eggs from California Department of Fish and Wildlife
  - Trinity River hatchery
  - Fall of 2020

- Hatched and raised at ODFW Klamath Fish Hatchery on Crooked Creek (tributary of the Wood River)
  - ~150 mm (6 inches) by April 2022

Spring-run Chinook Salmon Release Study

Releases

PIT tagged juvenile Chinook

- All fish released were PIT tagged

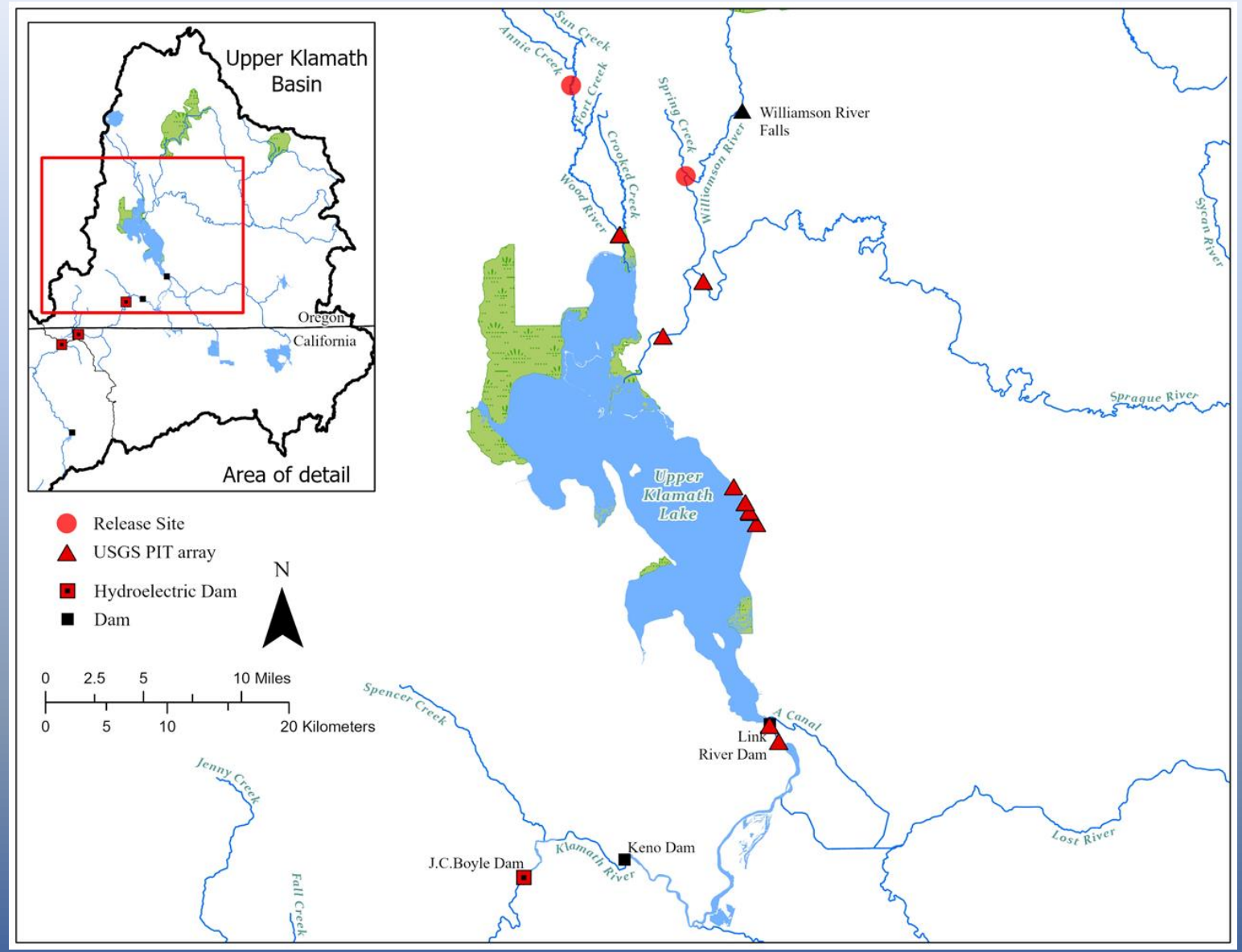
April 4th, 2022

- Released **3,512** in Williamson River at Collier State Park
- Released **3,505** in Wood River at USFS Day Use Area

May 20th, 2022

- Released **231** in Williamson River at Collier State Park
- Released **177** in Wood River at USFS Day Use Area

- Average length = 150 mm (6 inches)

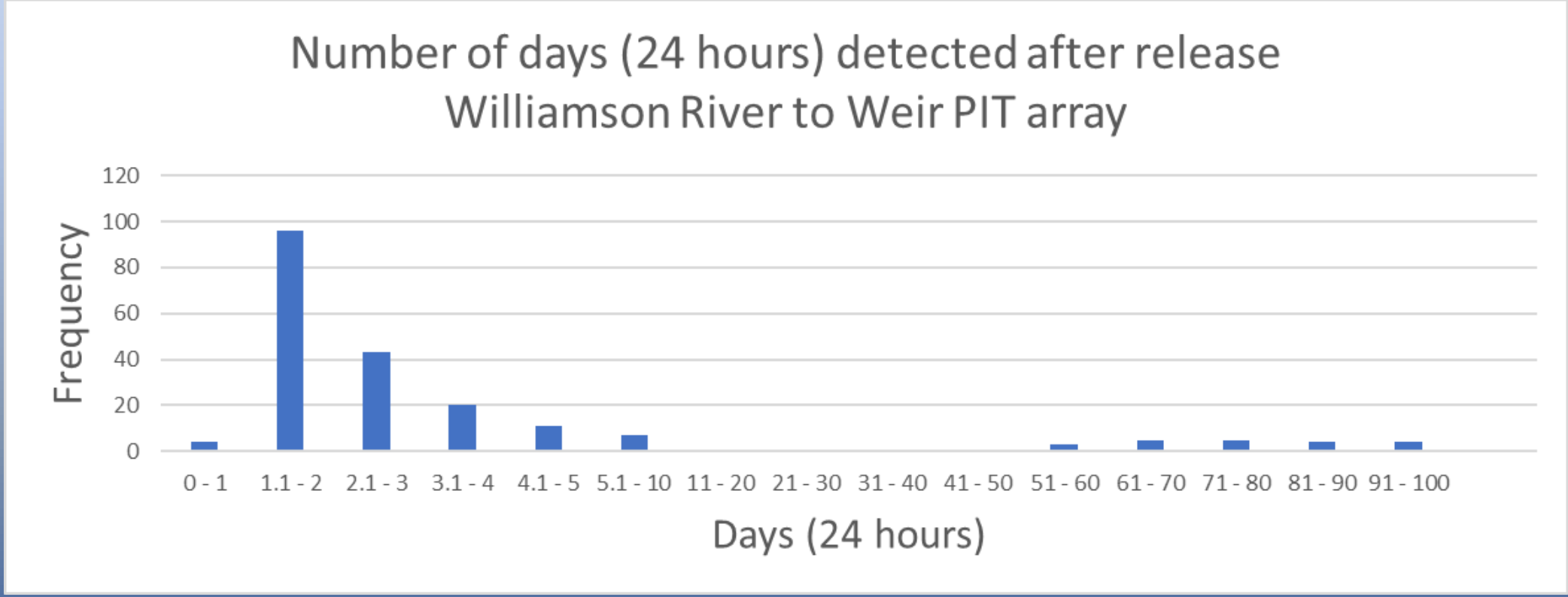


Spring-run Chinook Salmon Release Study

PIT tag detections as of July 2022

Release = Williamson River

Detection Site = Williamson River near mouth to UKL

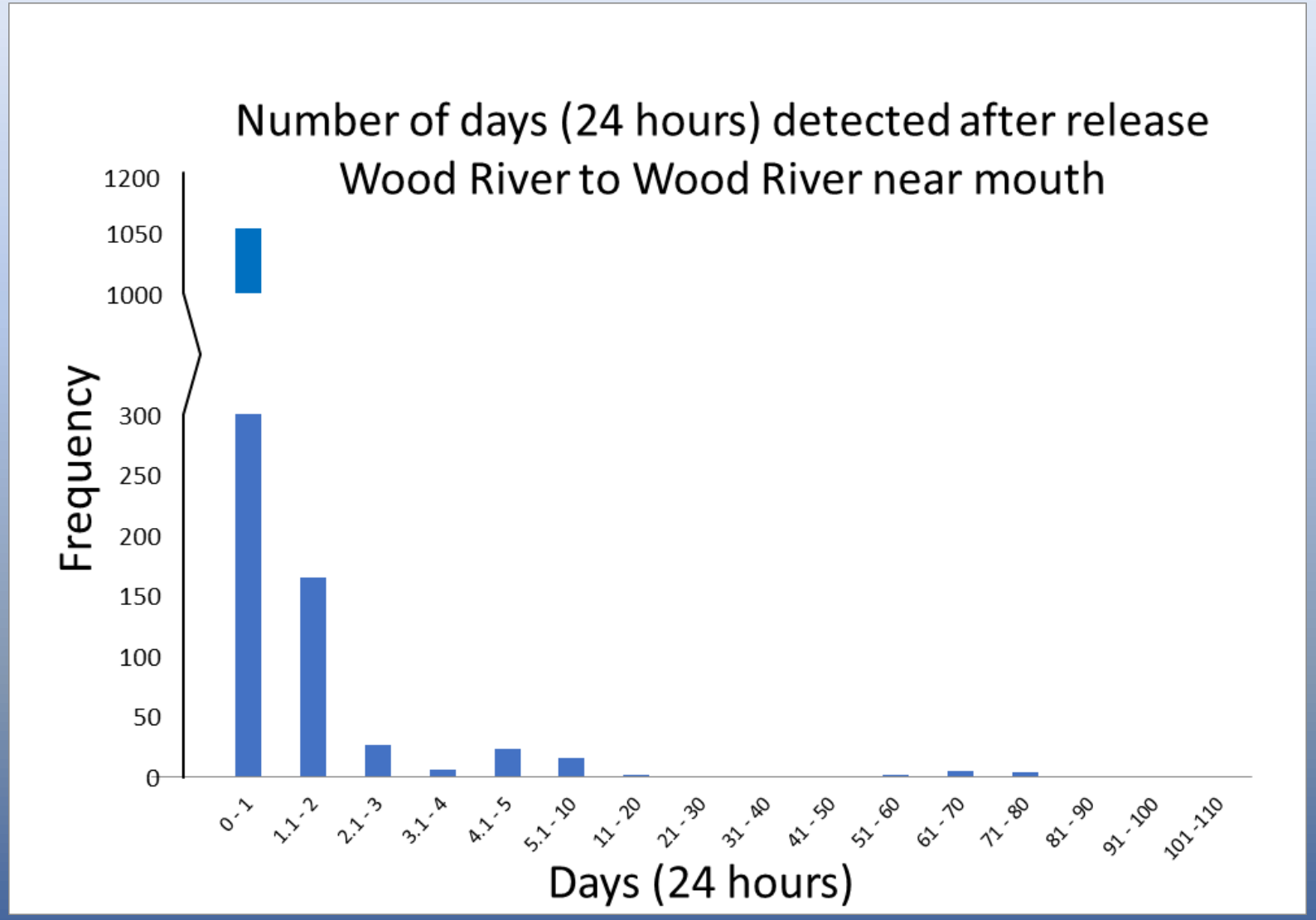


Spring-run Chinook Salmon Release Study

PIT tag detections as of July 2022

Release site = Wood River

Detection site = Wood River near mouth to UKL



Spring-run Chinook Salmon Release Study

Releases

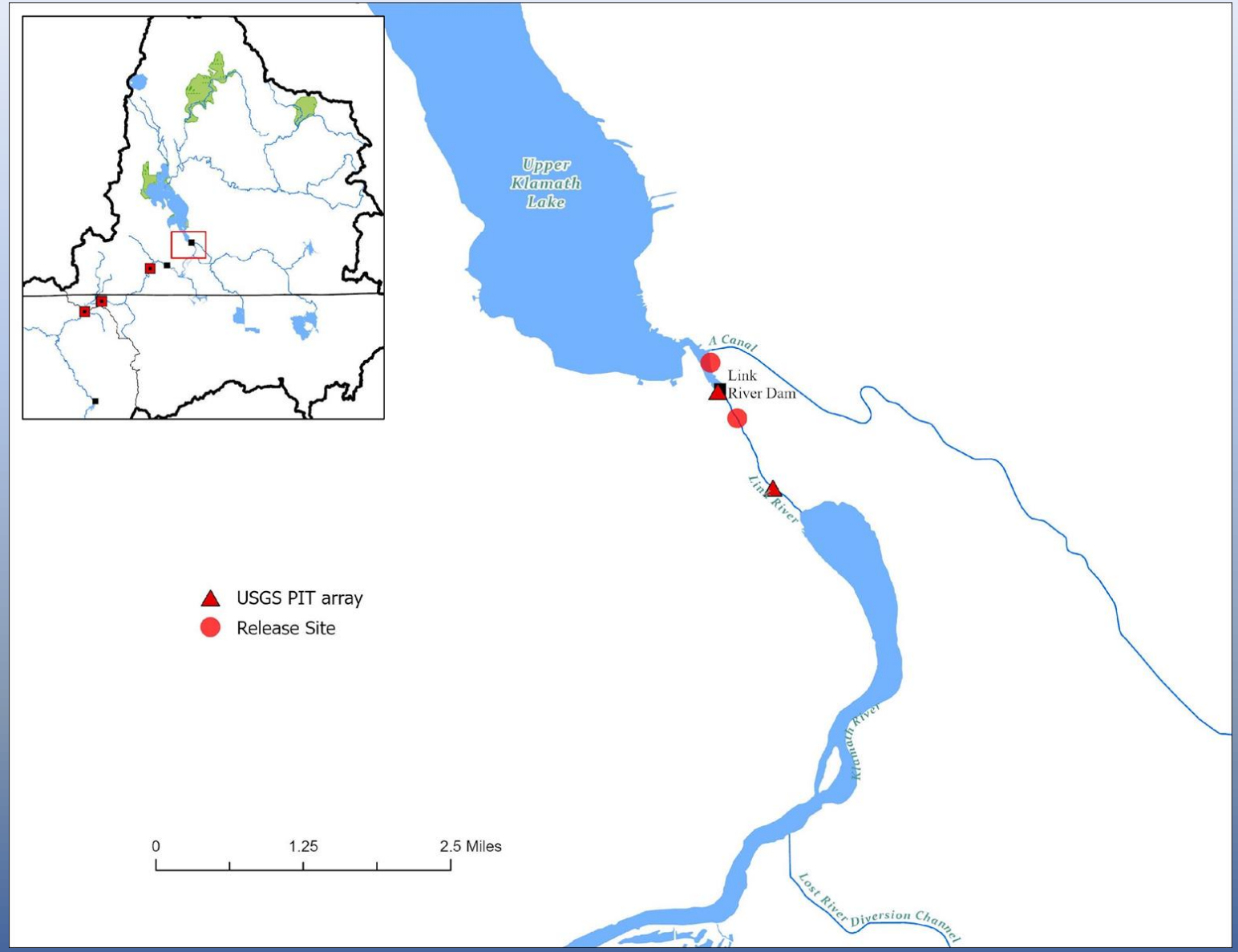
PIT tagged juvenile Chinook

- All fish released were PIT tagged

April 12th, 2022

- Released **256** above Link River Dam
- Released **345** below Link River Dam

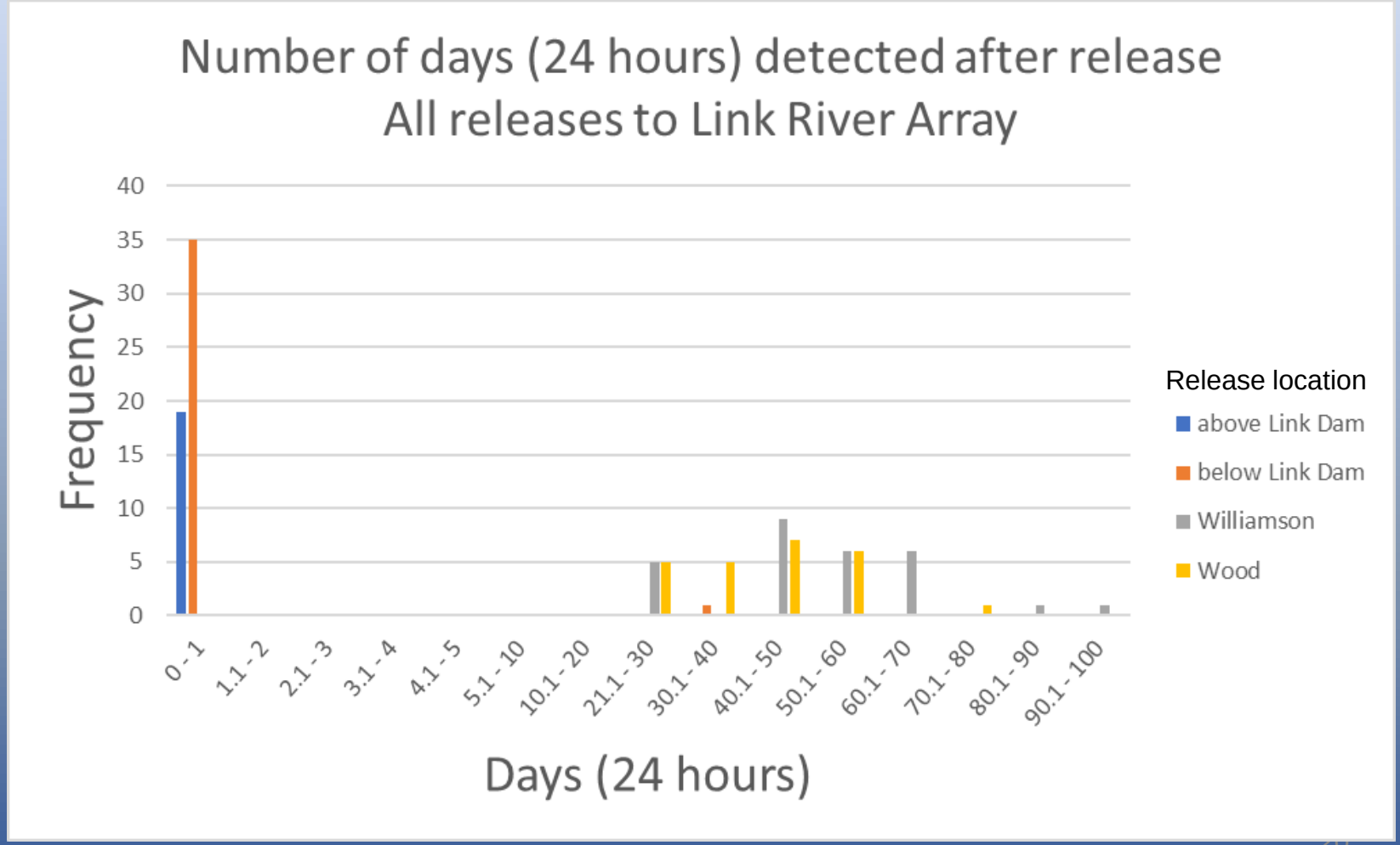
- Average length = 150 mm (6 inches)



Spring-run Chinook Salmon Release Study

PIT tag detections as of July 2022

All detections at Link River PIT Array

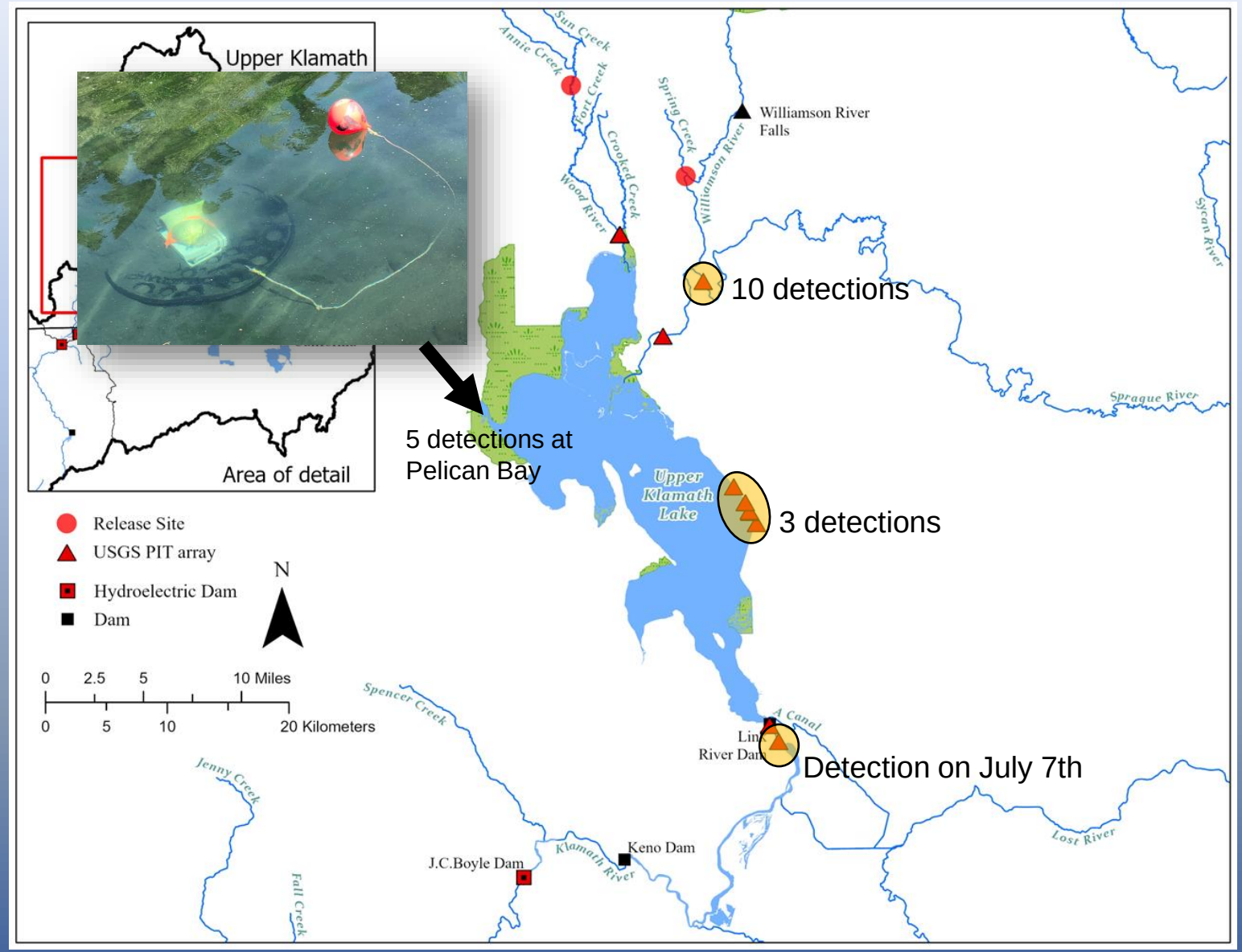


Spring-run Chinook Salmon Release Study

PIT tag detections

Other interesting detections

- 5 individuals detected in Pelican Bay
  - July 7, 31 – Wood River release
  - Oct 23, Sept 7, Nov 20 – Williamson River release
  - Anglers have also caught juvenile Chinook
- 10 detections on Sprague River in spring and fall
- 3 detections on eastside springs
- Detection July 7th at Link River
  - Water temps ~21.5°C



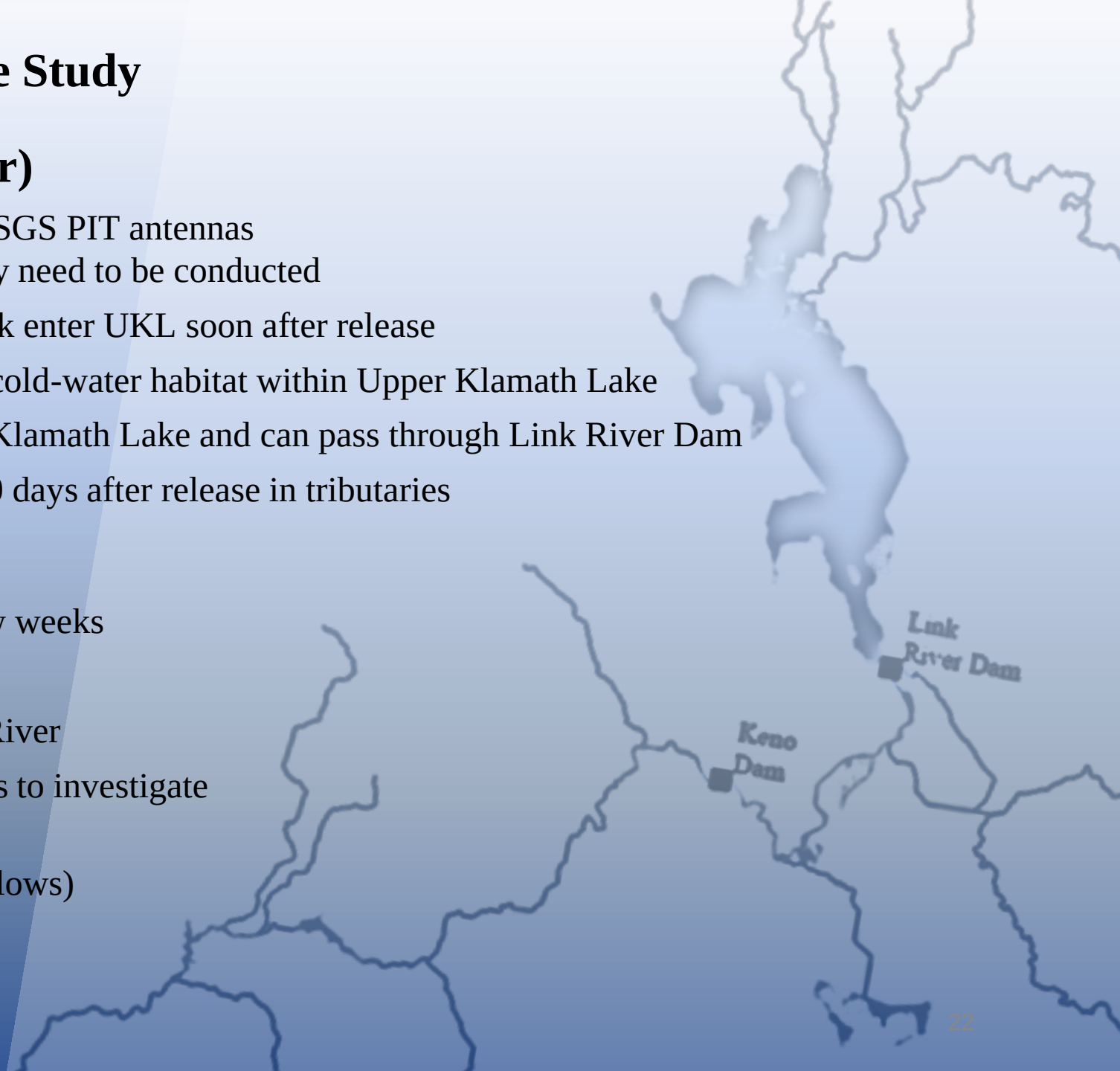
Spring-run Chinook Salmon Release Study

PIT tag detection conclusions (so far)

- Juvenile Chinook can be detected on current USGS PIT antennas
  - But investigations into detection efficiency need to be conducted
- Released 1+-year old hatchery juvenile Chinook enter UKL soon after release
- Juvenile Chinook are finding and utilizing the cold-water habitat within Upper Klamath Lake
- Juvenile Chinook can find the outlet of Upper Klamath Lake and can pass through Link River Dam
  - Majority of detections at Link River 20-70 days after release in tributaries

2023 release Study

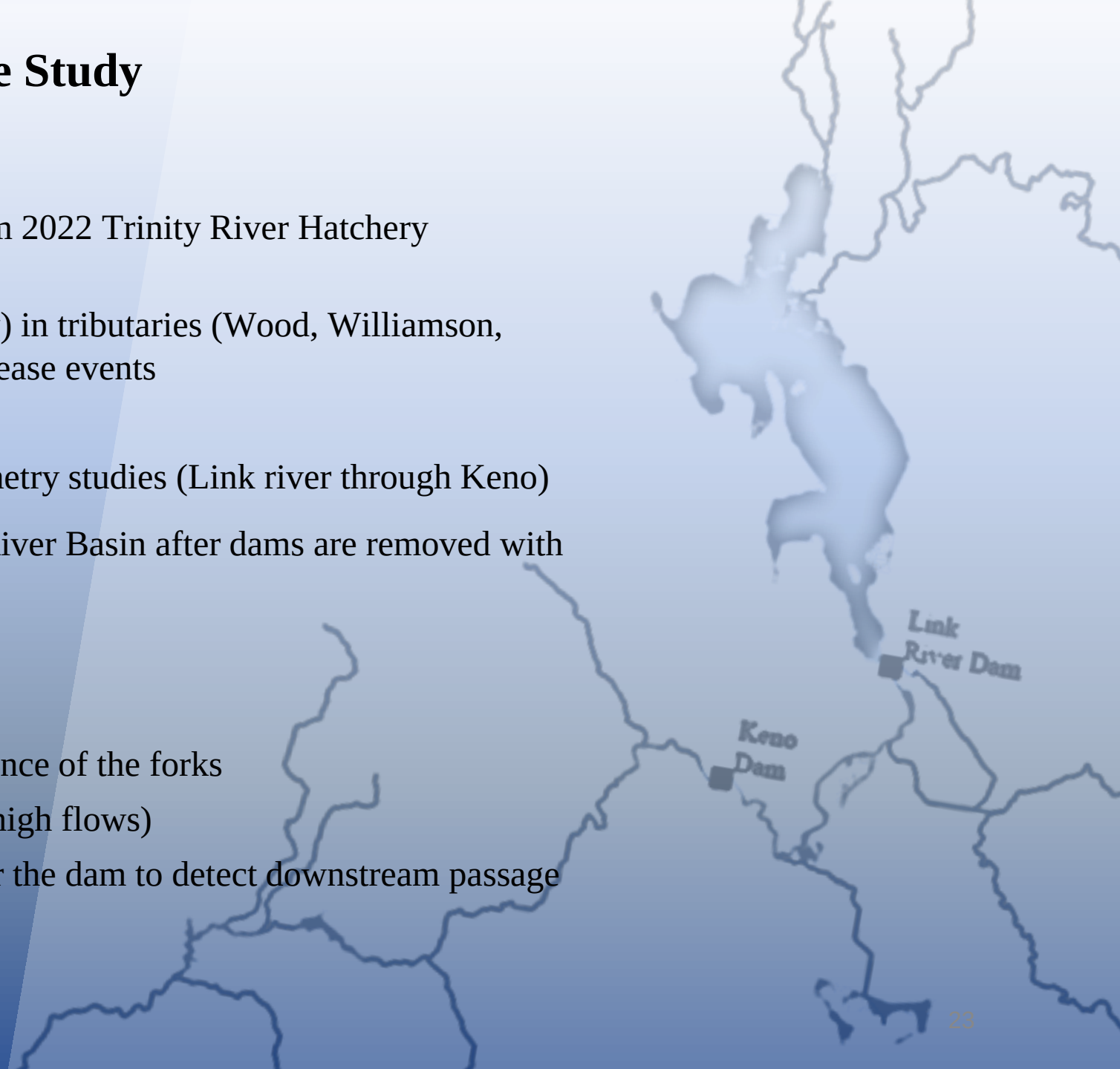
- Released Chinook in smaller batches over a few weeks
  - ~ 500 per site per week from 4/7 – 4/28
- More locations including North Fork Sprague River
- Released immediately above PIT antenna arrays to investigate detection efficiency
  - Link River (multiple releases at different flows)
  - Williamson River
  - Wood River



Spring-run Chinook Salmon Release Study

Next Steps

- Currently rearing 10,000 juvenile Chinook from 2022 Trinity River Hatchery collection
  - Release majority in fall (late October-Nov) in tributaries (Wood, Williamson, Sprague) to compare spring versus fall release events
    - Just PIT tagged
  - Release some in spring 2024 – more telemetry studies (Link river through Keno)
- Extend study area throughout entire Klamath River Basin after dams are removed with potentially more fish released



PIT detection needs

- PIT antenna(s) in Sprague River – near confluence of the forks
- More robust antenna in Link River (subject to high flows)
- PIT antenna(s) in Keno Dam ladder and in/near the dam to detect downstream passage

Pre-dam Removal Studies

Monitoring Klamath River resident *O. mykiss*

- Popular trout fishery – Fish commonly caught around ~20 inches below Keno Dam
- Spencer Creek spawning and rearing habitat
- J.C. Boyle Dam blocks spawning habitat and cold-water habitat
- Potentially changing *O. mykiss* harvest regulations
  - 1 per day @ 12-15 inches

Objectives and goals

- Investigate changes (if any) in adult movement behavior, juvenile outmigration behavior, changes in life history diversity following dam removal
- Help guide anadromous repopulation monitoring in Spencer Creek

Pre-dam Removal Studies

Monitoring Klamath River resident *O. mykiss*

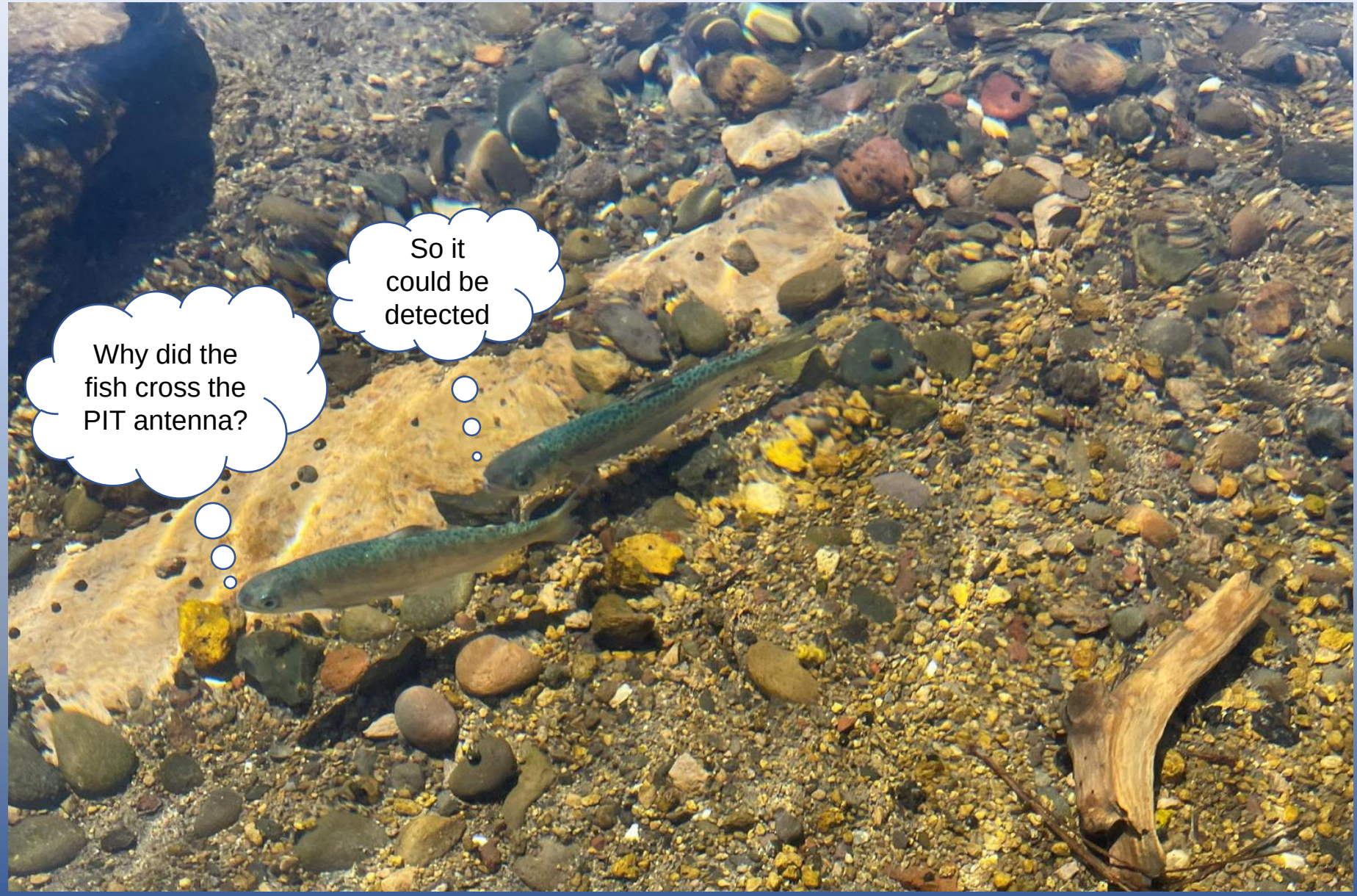
Monitoring Activities

- Install two PIT antennas in Spencer Creek – Summer 2023
- Place 6 submersible antennas throughout study area
- Tag juvenile *O. mykiss* in Spencer Creek
- Tag adult *O. mykiss* in Klamath River
- Equipment funded by ODFW's Fish Restoration and Enhancement Program

RESTORATION & ENHANCEMENT
protecting Oregon's investment
Oregon Department of Fish and Wildlife

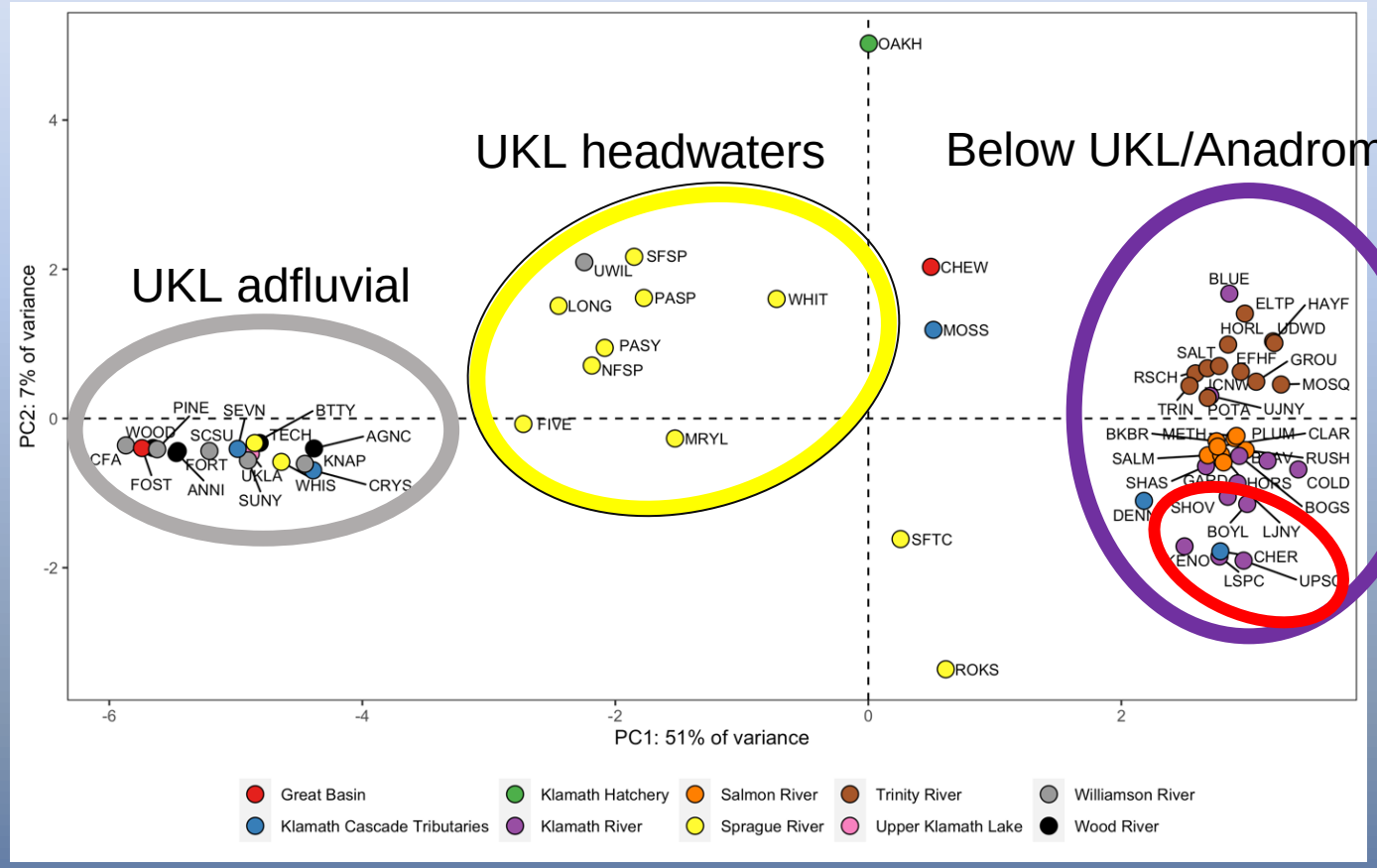
Funding from surcharge on recreational licenses and commercial permits used to increase recreational fishing opportunities and improve commercial salmon fisheries

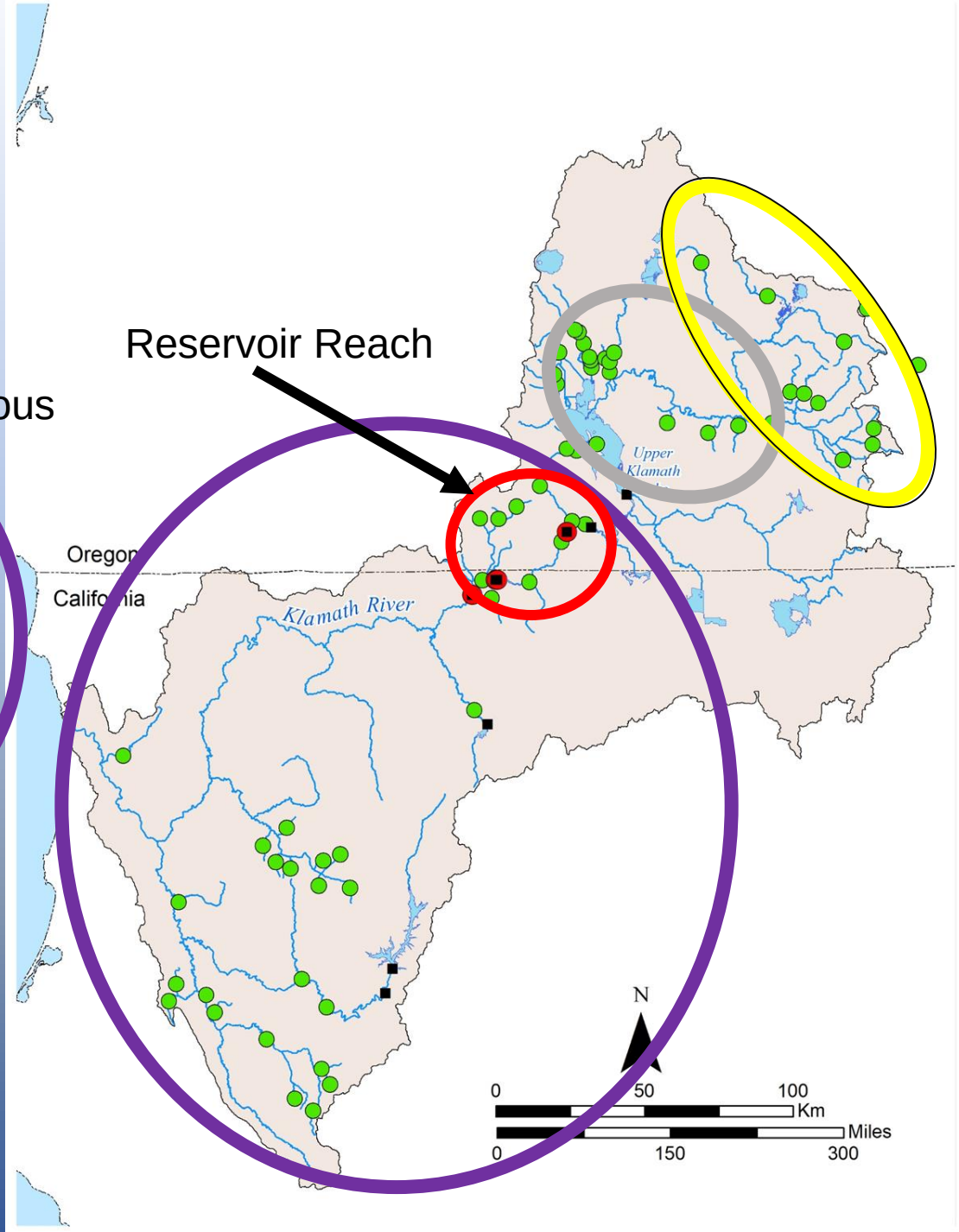
Thank you!


So it could be detected
Why did the fish cross the PIT antenna?

Pre-dam Removal Studies

Basin-wide genetic assessment of *O. mykiss*

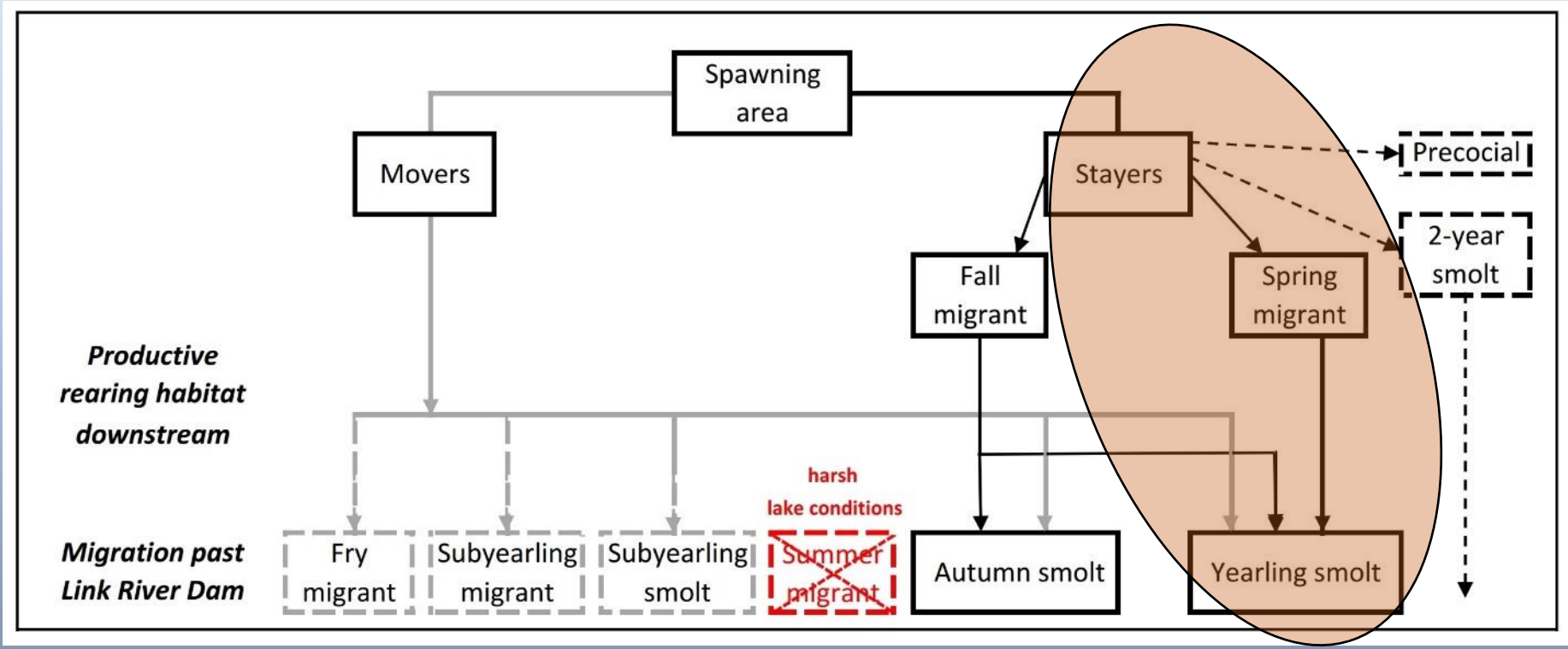




Population-based PCA scatterplot of mean allele frequencies across 301 genetic markers

(Piotrowski et al. in Prep)

Spring-run Chinook Salmon Release Study



Migratory pathways that juvenile spring-run Chinook Salmon may follow from spawning areas in Upper Klamath Lake tributaries downstream to Link River Dam.

- from ODFW and TKT (2021), Adapted from Schroeder et al. (2016)

California Department of Fish and Wildlife Post Dam Removal Monitoring Overview

Crystal Robinson

Klamath Watershed Program Supervisor

CDFW

The Klamath River Anadromous Fishery Reintroduction and Restoration Monitoring Plan

June 15th, 2023

Crystal Robinson

Klamath Watershed Program Supervisor

CA Department of Fish and Wildlife

Klamath River near Shovel Creek

California Department of Fish and Wildlife Trustee Agency Responsibilities

Mission Statement: "*To manage California's diverse fish, wildlife, and plant resources and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public*"

Coho Salmon Adult Male (CDFW photo by Mike Dean)

Reintroduction Monitoring and Goals

Reintroduction Goal

- Reestablish viable, wild, self-sustaining anadromous fish populations in the Upper Klamath River for species conservation and ecological benefits as well as to enhance Tribal, commercial and recreational fisheries.

Monitoring Purpose

- Contribute critical information to fisheries management and conservation including the regulatory framework for Tribal, commercial and recreational fishing regulations, escapement thresholds and allocation adjudication, research and restoration, ESA and CESA evaluations, and enforcement.

Monitoring Goal

- To measure and track the reintroduction of anadromous fish species and progress toward viable self-sustaining populations following removal of the four hydroelectric dams.

Monitoring of Anadromous Fish Populations

Volitional Reintroduction

- Chinook Salmon
- Coho Salmon
- Steelhead Trout
- Pacific Lamprey

Geographic Scope

- IGD to Stateline
- Mainstem and Major tributaries – Scotch, Camp, Jenny, Fall and Shovel

Monitoring of Anadromous Fish Populations (cont.)

Monitoring Efforts

- Carcass and Redd Surveys
- Sampling Weirs
- Outmigrant Trapping
- Sonar stations
- PIT Tag Detection Arrays
- Snorkel Surveys

Monitoring of Anadromous Fish Populations (cont.)

Monitoring will Inform

- **Reintroduction Success**
- **Evaluation of CESA and ESA listed populations**
- **Harvest Management**
- **Restoration**

Monitoring Conceptual Framework

Phase 1: Reintroduction

Phase 2: Establishment

Phase 3: Abundance and Productivity

Phase 4: Spatial Structure and Diversity

Phase 1: Reintroduction

Performance Objective:

An increase over time in the extent of mainstem and tributary reaches a given species is reasonably expected to volitionally access given habitat and environmental conditions in the monitoring reach

Performance Metric:

Chinook salmon, coho salmon, steelhead and Pacific lamprey have volitionally moved through or are utilizing habitats within the mainstem Klamath and/or tributaries of the monitoring reach

Phase 2: Establishment

Performance Objective:

An increase over time in the distance of mainstem and tributary reaches a given species is reasonably expected to become established given habitat and environmental conditions in the monitoring reach

Performance Metric:

- **Chinook salmon, coho salmon, steelhead and Pacific lamprey are generally trending toward or have become established in available habitats (species and lifestage specific) in the mainstem Klamath and/or tributaries within the monitoring reach**
- **Based on F2 generations: years 4, 5 and 6**

Phase 3: Abundance and Productivity

Performance Objectives:

- Determine annual adult abundance , age structure, distribution, hatchery component and pre-spawn mortality of Chinook and coho salmon
- Determine annual Chinook salmon smolt production, spatial and temporal abundance and timing of movement patterns
- Determine annual coho salmon smolt production, spatial and temporal abundance, timing of movement patterns and age structure
- Determine annual relative abundance and distribution of adult steelhead in the monitoring reach
- Determine annual relative abundance and distribution of Pacific lamprey, observations of adults and juveniles.

Phase 3: Abundance and Productivity (cont.)

Performance Metric: Chinook Salmon and Steelhead	**Chinook salmon and steelhead are generally trending toward and eventually reaching sufficient distribution, productivity and abundance to initiate and maintain a regulatory phase for harvest**
Performance Metric: Coho Salmon	**Coho salmon are generally increasing over time in distribution, diversity, productivity, and abundance, trending toward reaching carrying capacities within the monitoring reach, and contributing to ESU recovery**

Phase 4: Spatial Structure and Diversity

Examine and track spatial structure of anadromous fish:

- **Adult occupancy patterns**

  (e.g. holding areas, spawning)

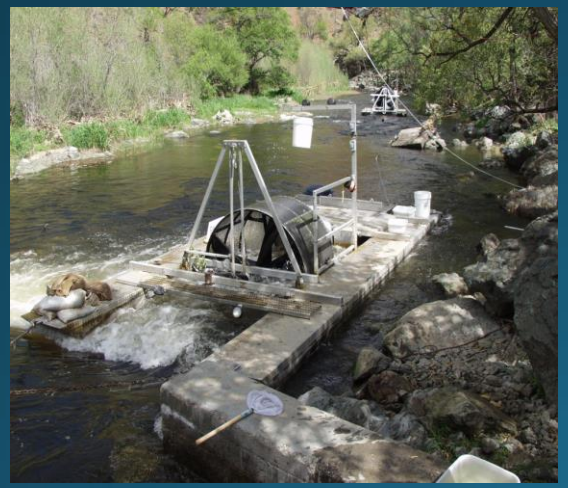
- **Juvenile occupancy patterns**

  (e.g. over-summer and winter rearing)

- **Locations of juvenile smolt production**

Monitor life-history diversity:

- Timing – migration, spawning, emigration
- Age distribution and origin of spawners
- Redistribution of juveniles
- Size of outmigrant juveniles from mainstem and tributaries



Other Measures to examine:
Population genetic structure

Science and Collaboration in a Changing Landscape

Monitoring Ecological Factors Influencing Anadromous Fish Reintroduction and Re-Population

Scientific Research Opportunities

Coordinated Science and Decision-Making

Draft Anadromous Fishery Reintroduction and Monitoring Plan for the CNRA and CDFW

COMMENTS DUE:
AUGUST 14th, 2023

Questions?

Contacts:
Crystal.Robinson@wildlife.ca.gov
Kurt.Bainbridge@wildlife.ca.gov

THANK YOU!

Klamath River near Long Prairie Creek

Where are the Upper Klamath Basin PIT Tag Arrays and How do we use the Detections to Inform Sucker Management

Jacob Krause,

Western Fisheries Research Center-Klamath Falls Field Station

USGS

Where are the Upper Klamath Basin PIT tag arrays and how we do we use the detections to inform sucker management?

Jacob Krause, Rachael Paul-Wilson, Brian Hayes

U.S. Department of the Interior
U.S. Geological Survey

science for a changing world

PIT #4038570900

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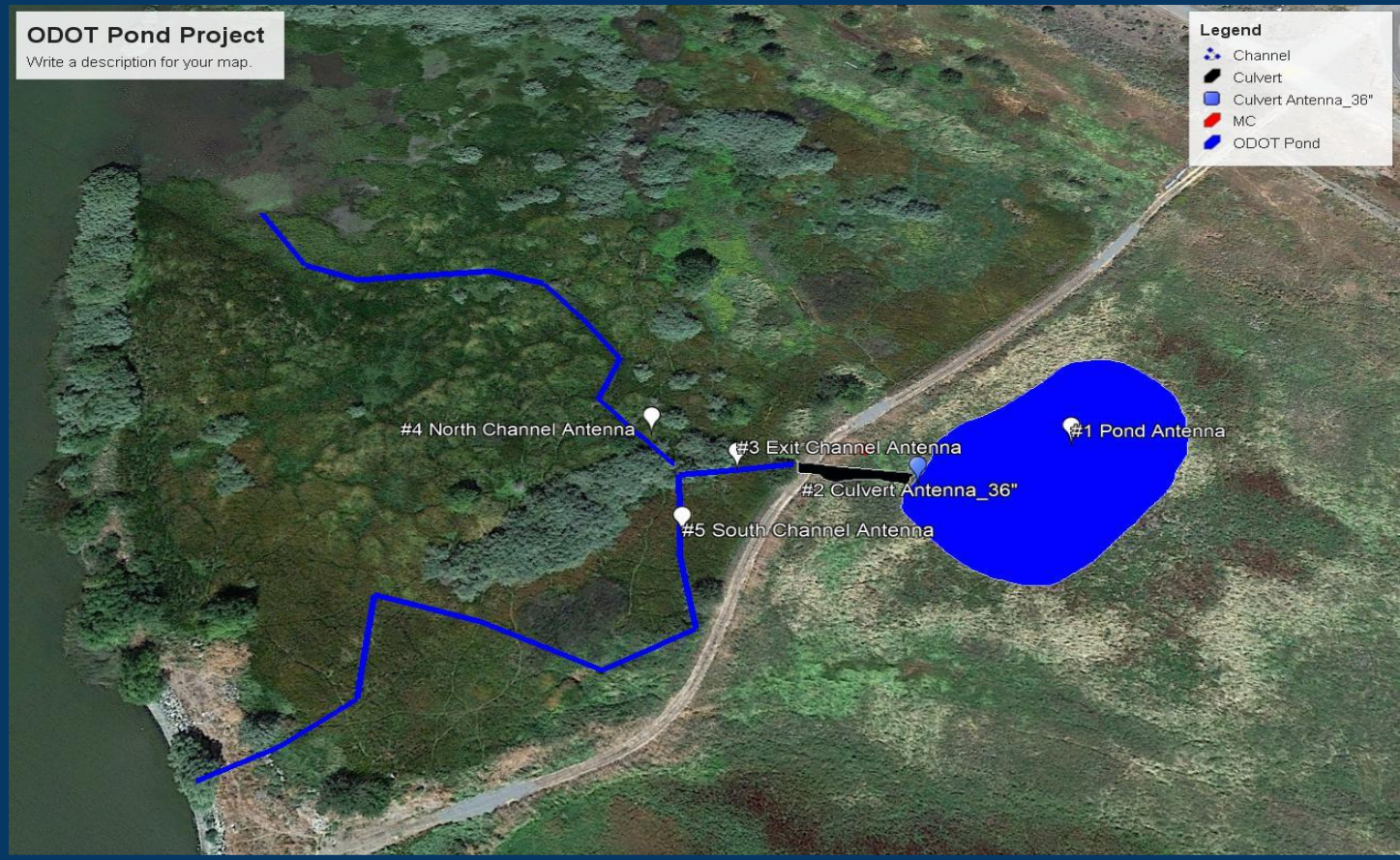
Talk outline

- PIT array locations
- Management questions
  - Spawning
  - Demographics
  - Habitat use
  - Avian predation



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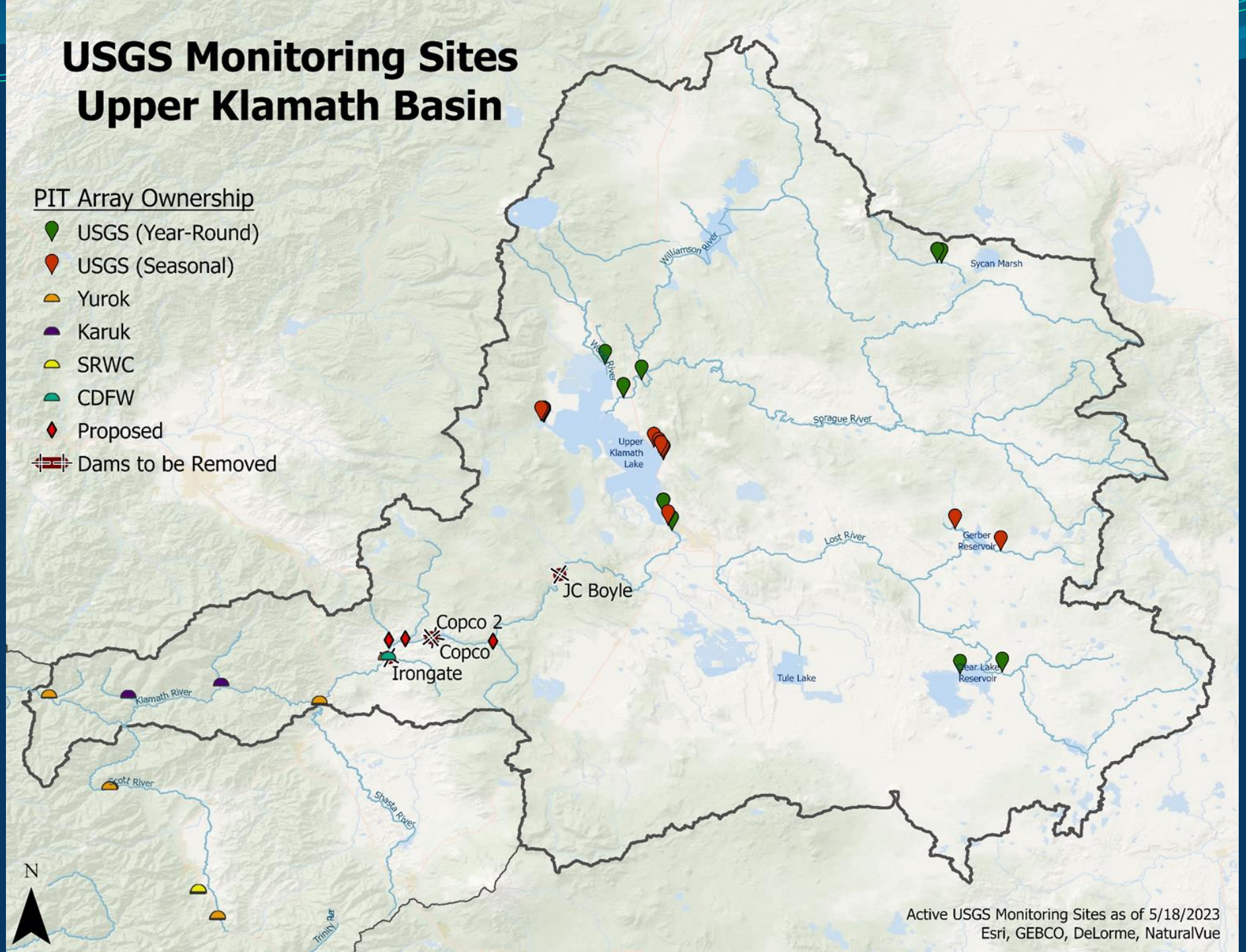

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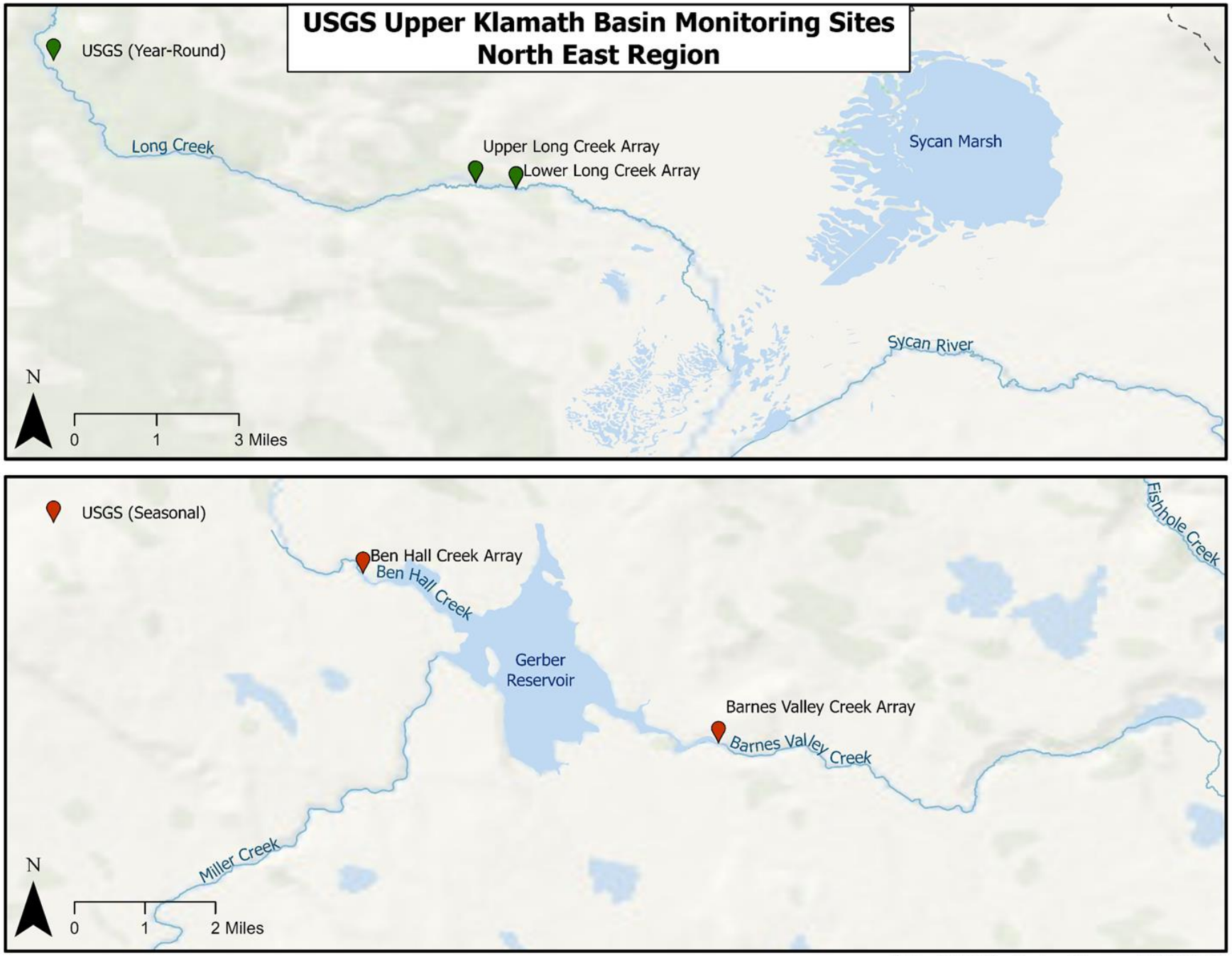

Active USGS Monitoring Sites as of 5/18/2023
CHS, Esri, DeLorme, NaturalVue, CHS, Esri,

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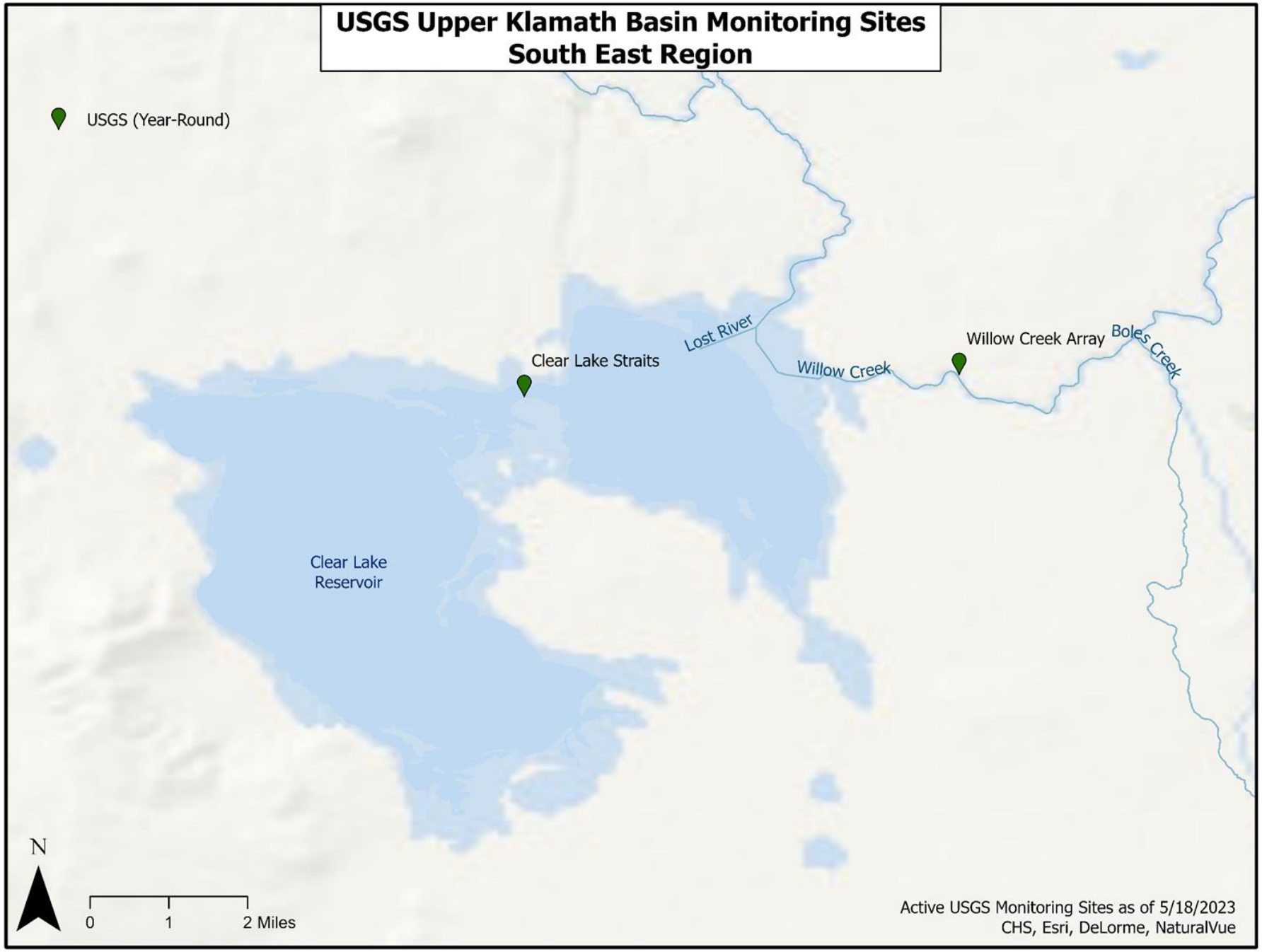

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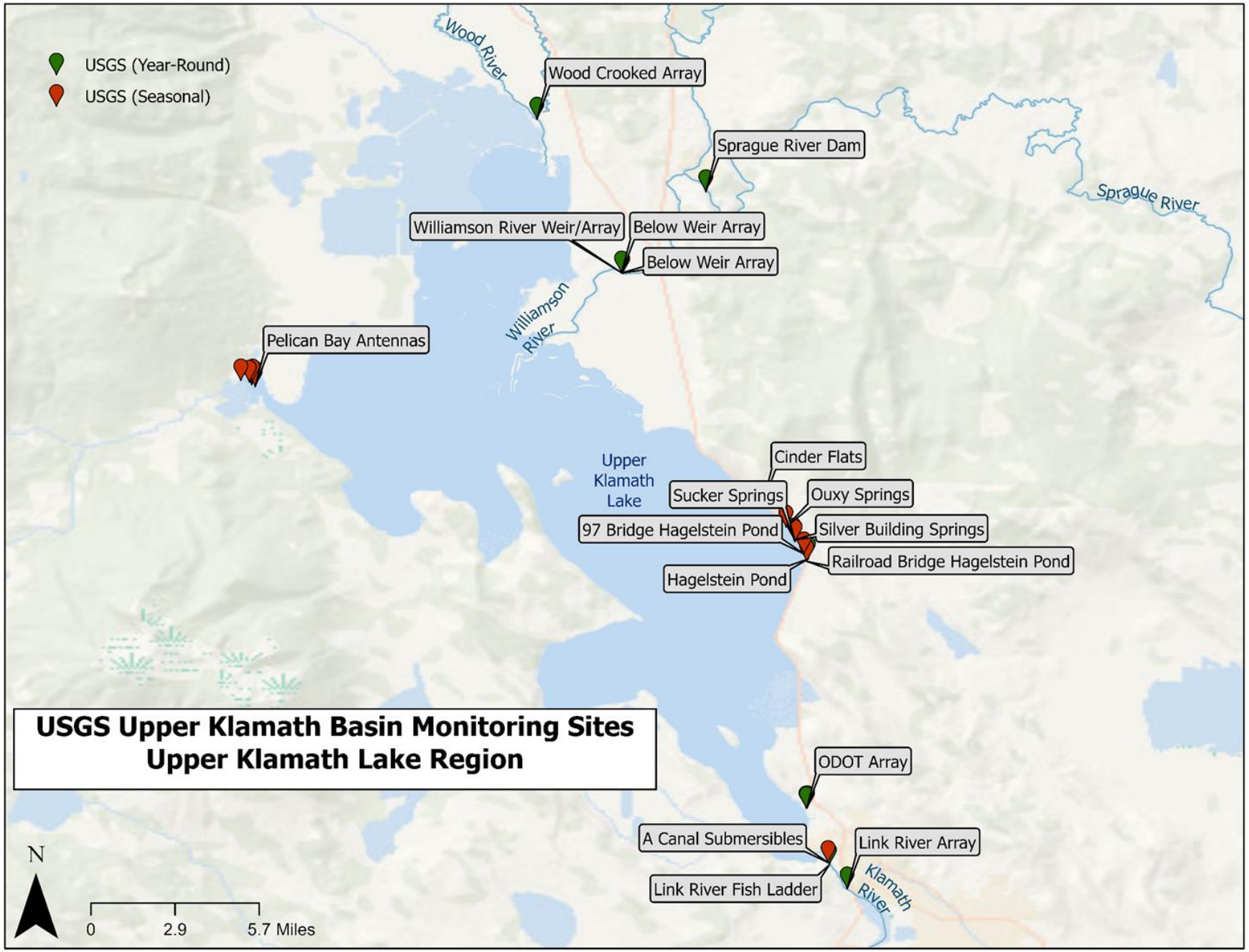

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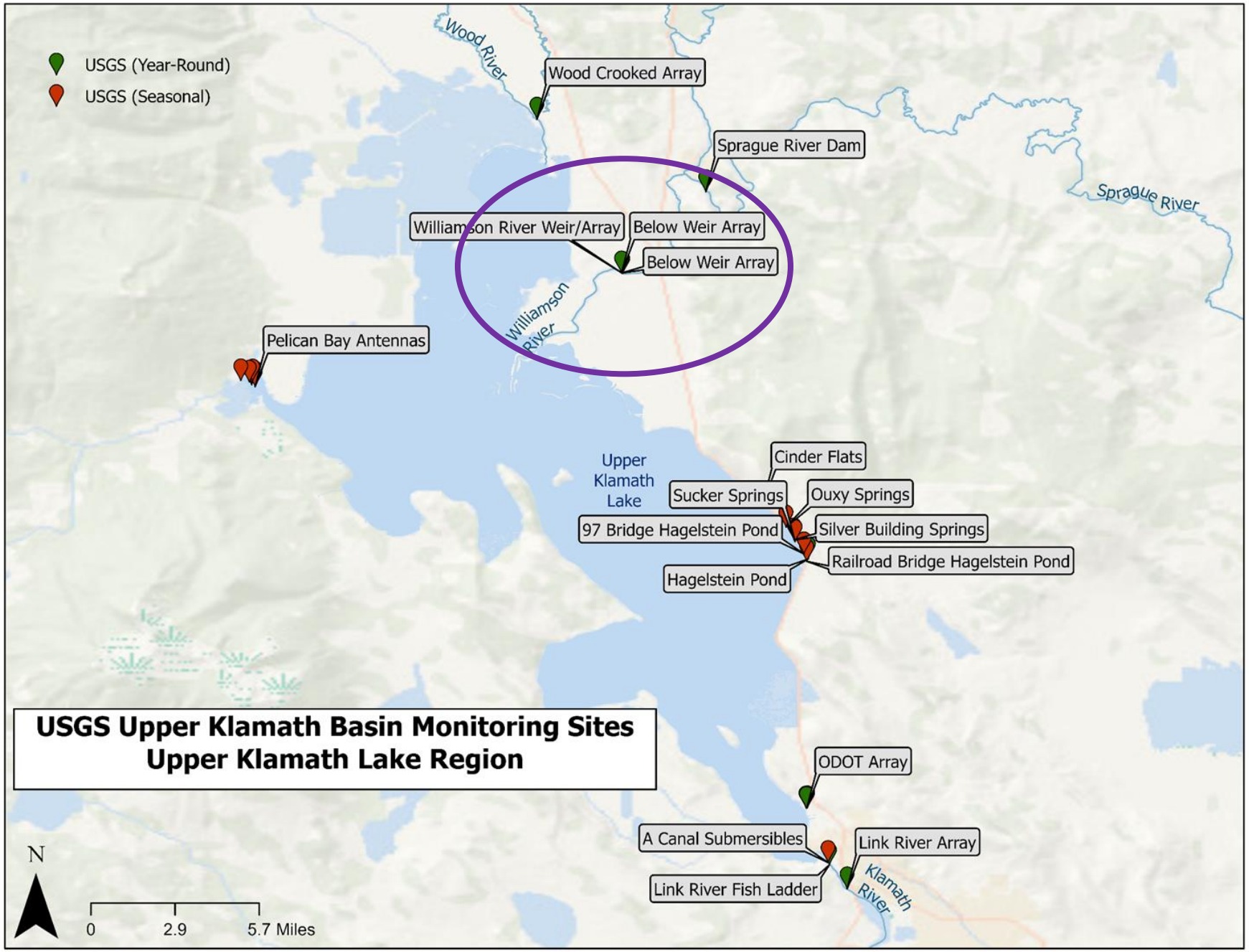
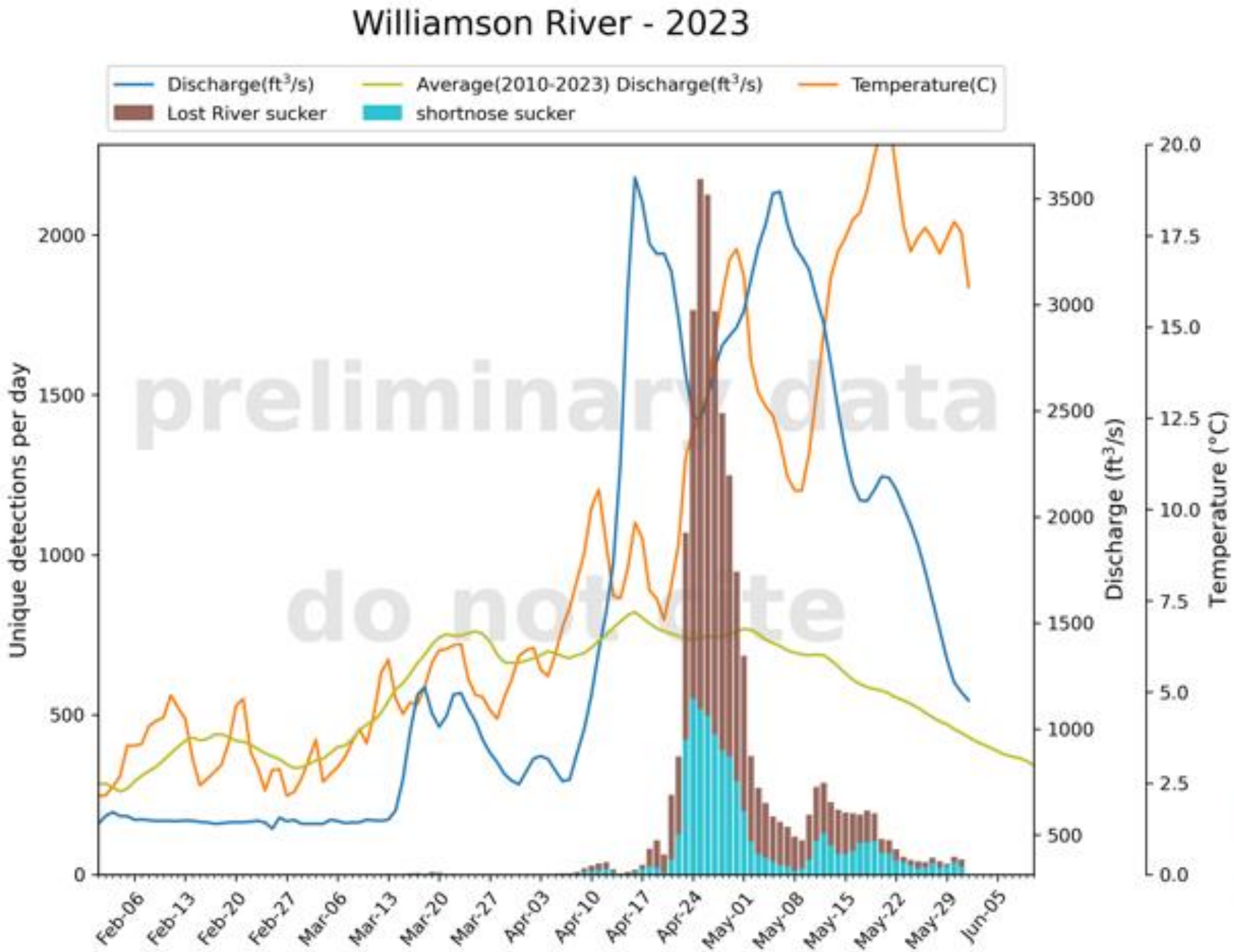


Active USGS Monitoring Sites as of 5/18/2023
CHS, Esri, DeLorme, NaturalVue



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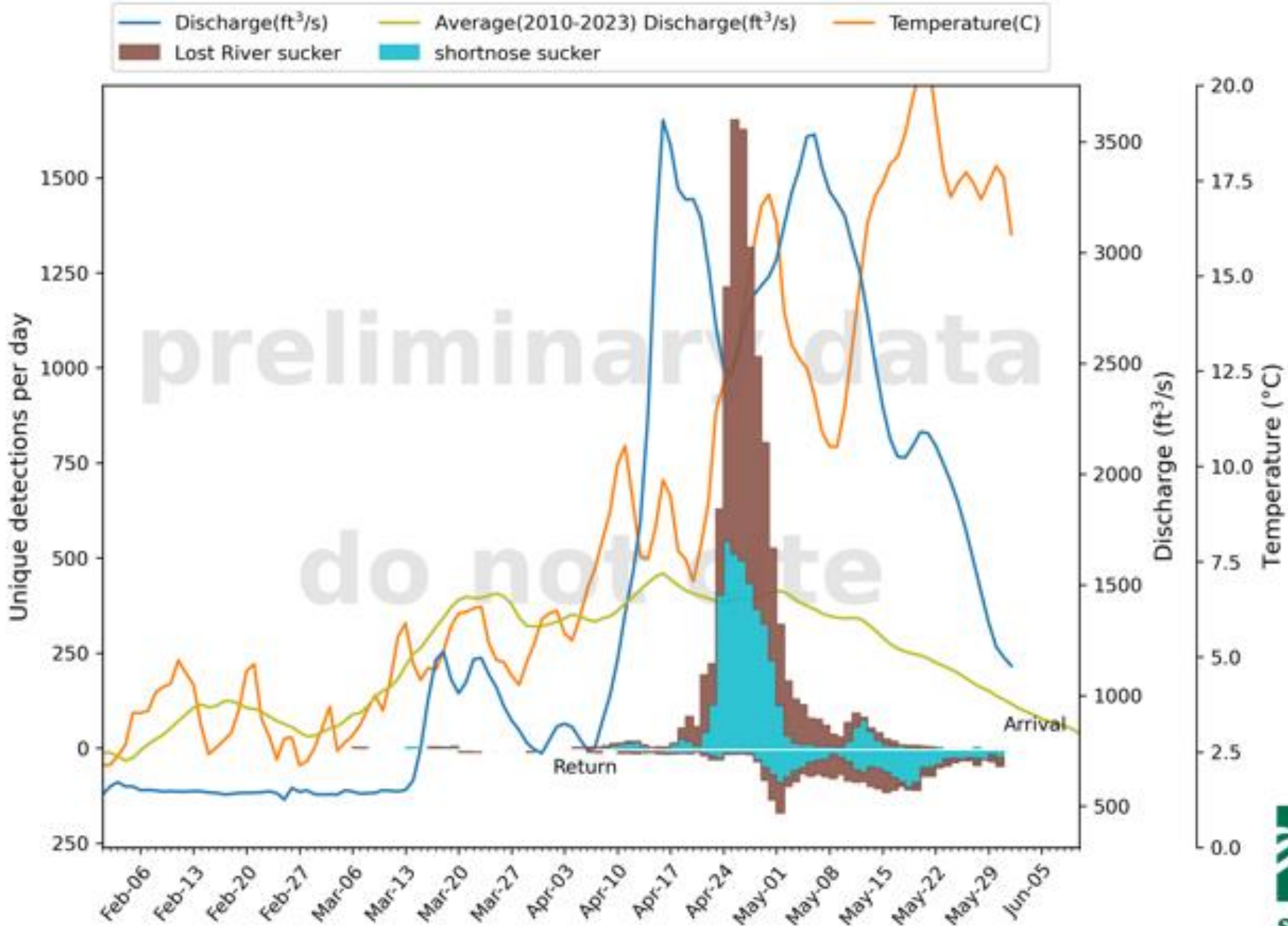
Williamson River - 2023



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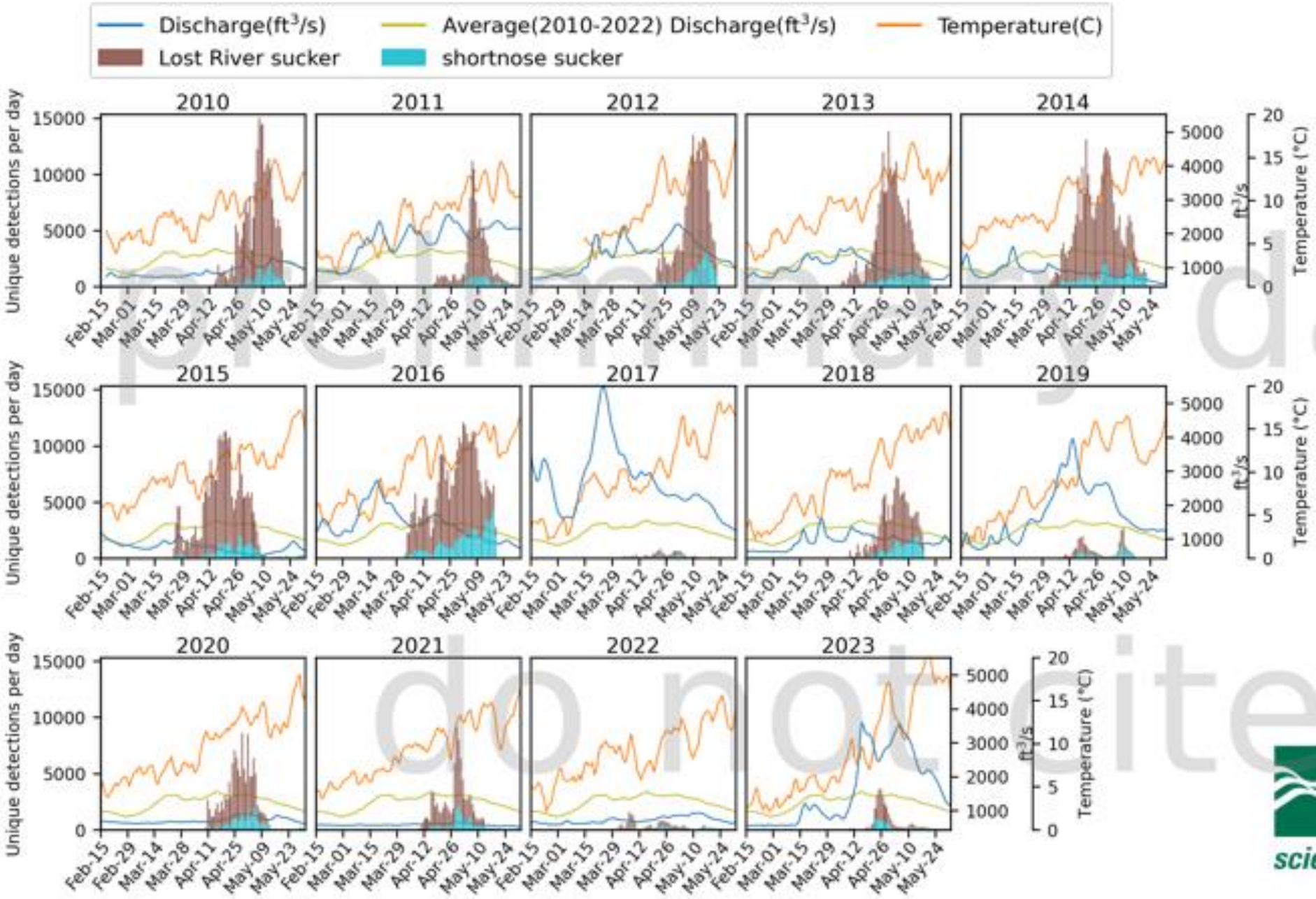
Williamson River



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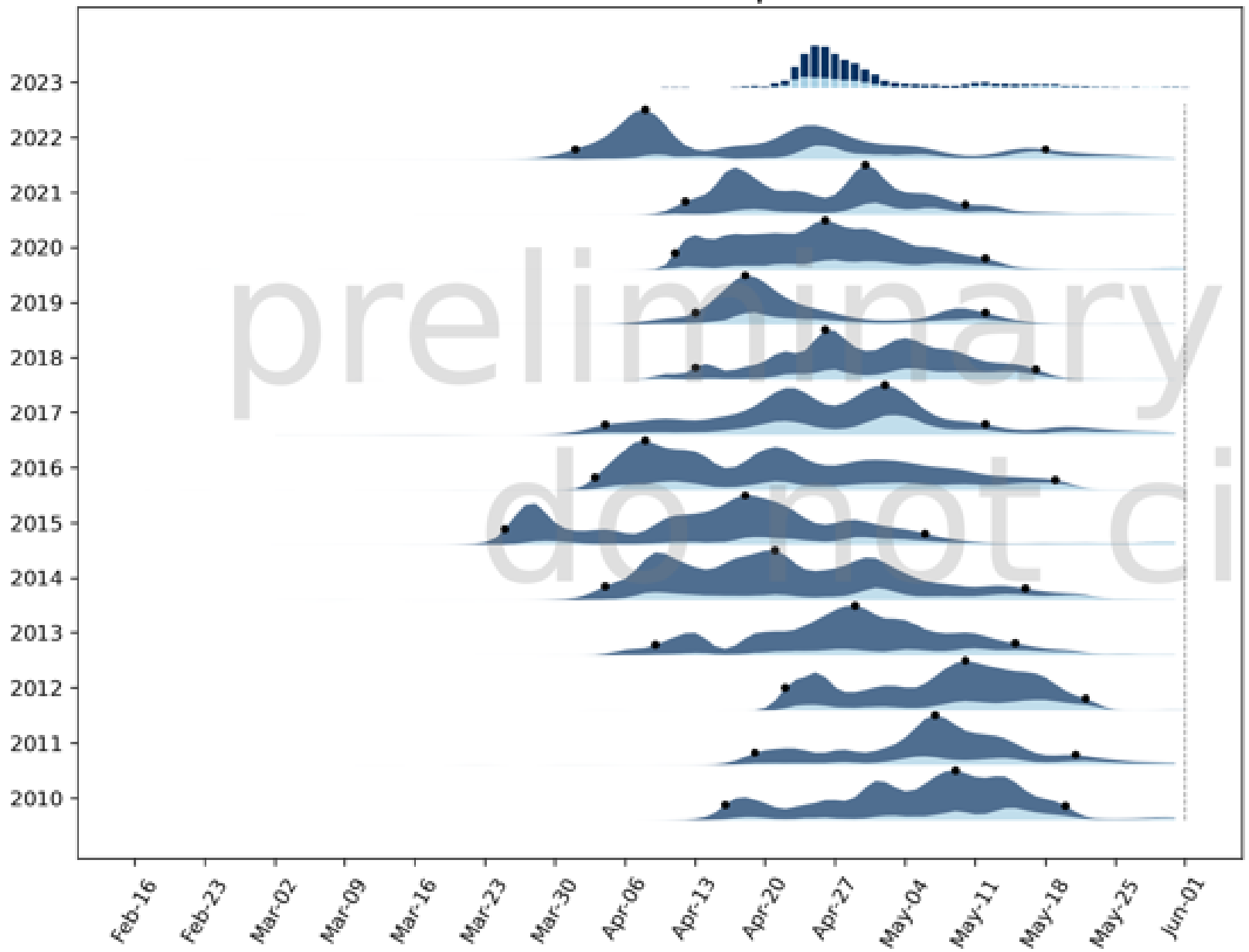
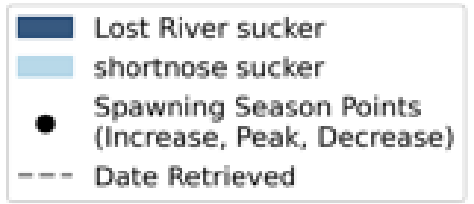
Williamson River Spawners





Year	Lost River sucker	shortnose sucker	*Increase Temp	*Peak Temp	*Decrease Temp
2023	9718	3633	16.1˚	- Most Recent	
2022	10680	3486	9.2˚	11.1˚	13.8˚
2021	12490	3512	9.6˚	13.1˚	11.9˚
2020	14192	3984	11.4˚	12.1˚	14.3˚
2019	11556	3921	9.2˚	11.4˚	16.5˚
2018	13539	4582	8.0˚	14.0˚	13.9˚
2017	7779	3495	10.3˚	13.5˚	13.5˚
2016	27658	7665	11.3˚	12.6˚	15.4˚
2015	25105	6603	9.1˚	11.8˚	11.7˚
2014	23400	6415	7.6˚	11.3˚	15.1˚
2013	22131	6141	8.8˚	13.1˚	15.1˚
2012	19206	6190	12.6˚	15.0˚	14.6˚
2011	16186	5391	9.7˚	12.2˚	14.1˚
2010	15391	6400	10.2˚	11.4˚	12.0˚

*Initial increase, peak and final decrease of spawning run.

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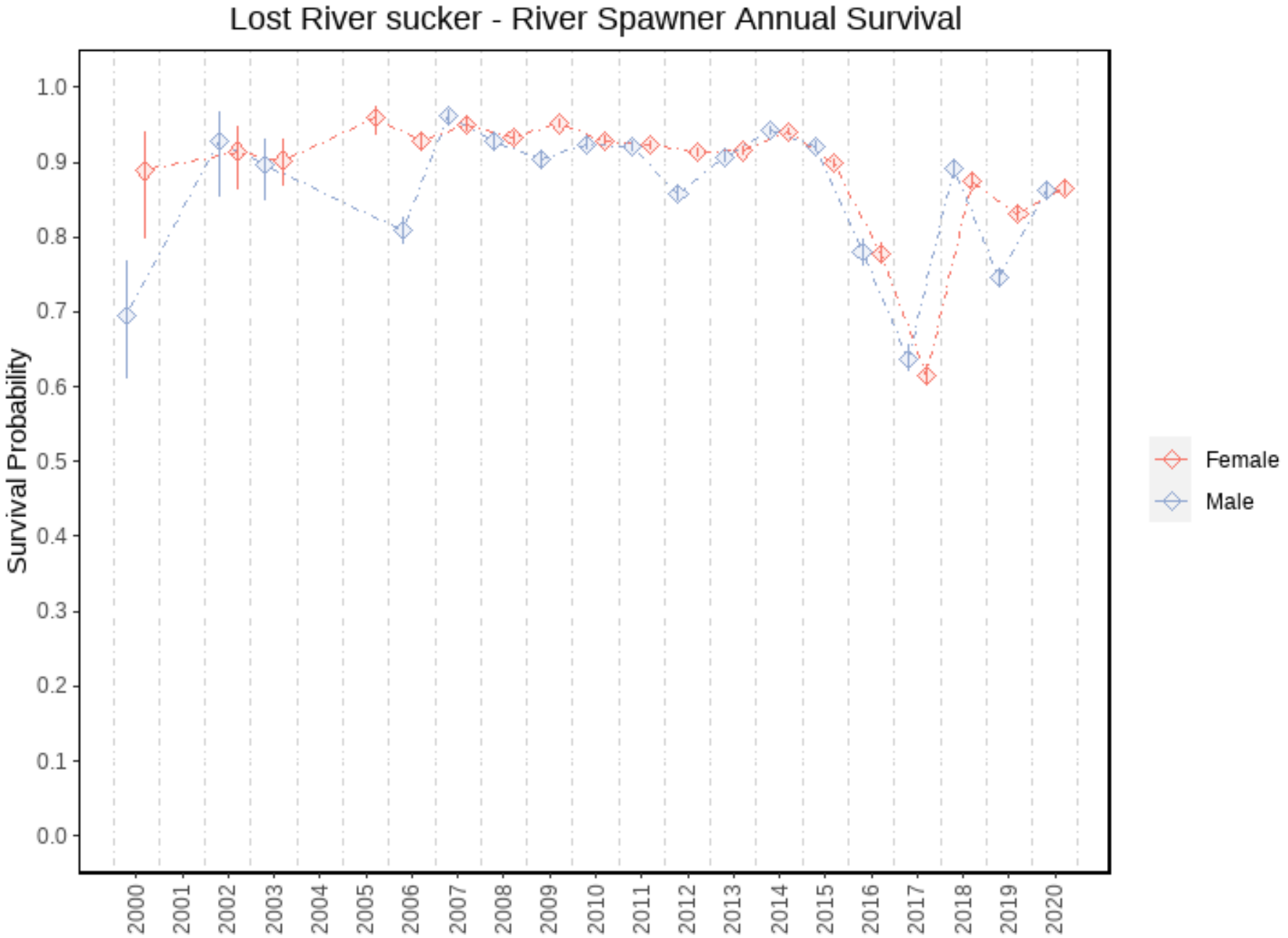

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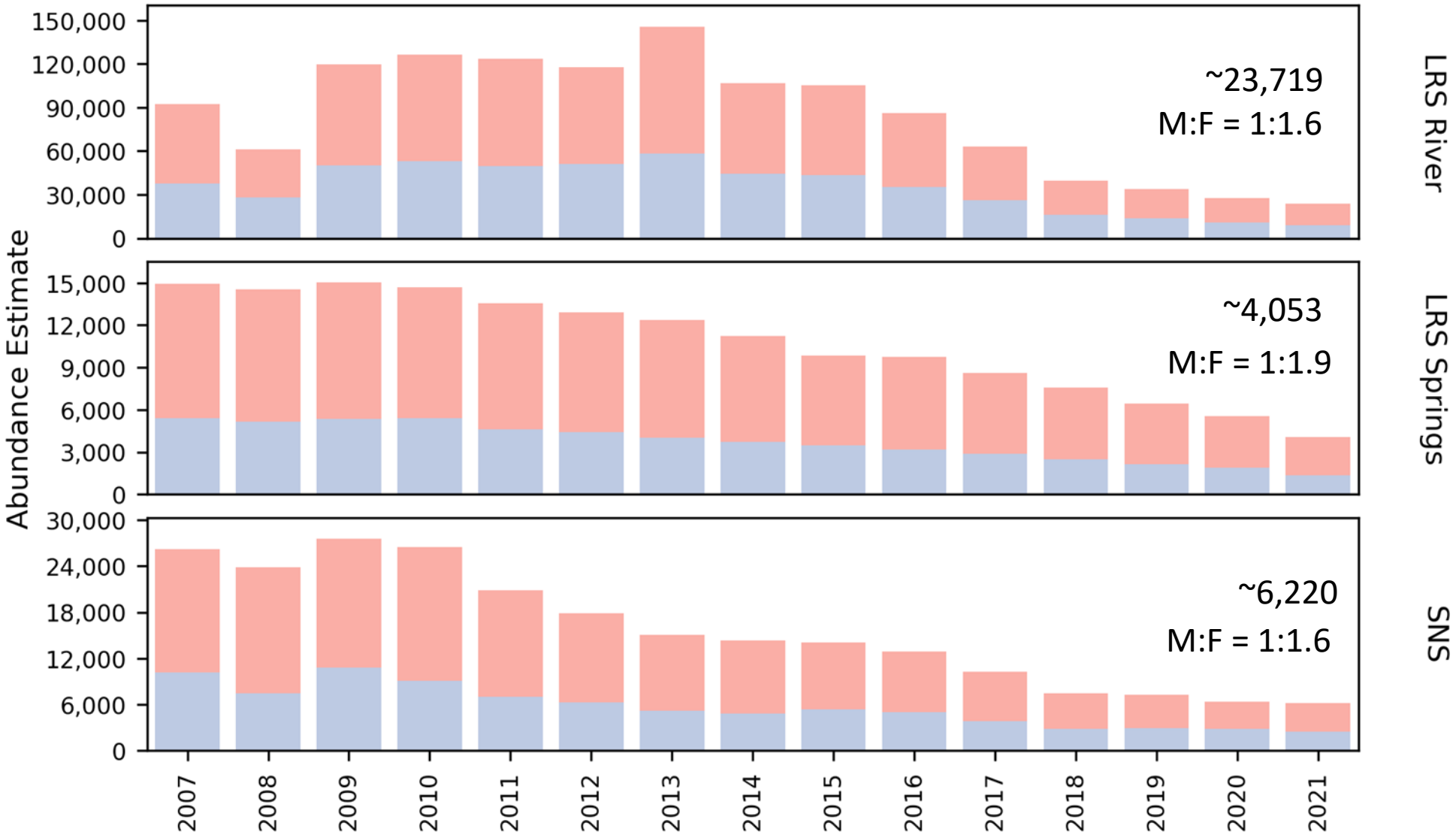

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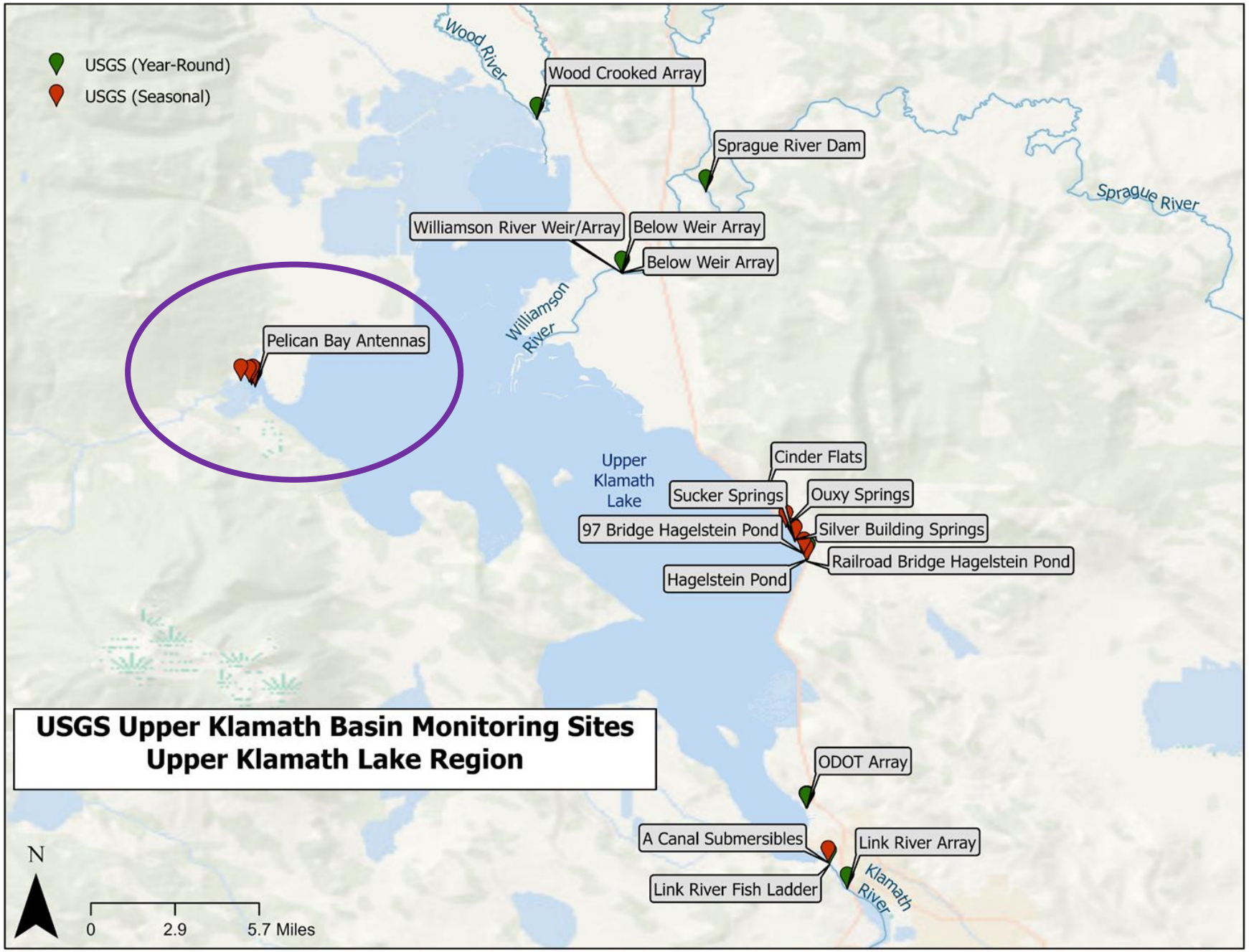

Active USGS Monitoring Sites as of 5/18/2023
CHS, Esri, DeLorme, NaturalVue

- 3’ Submersible
- Look at feasibility of subs in Pelican Bay
- Pelican Bay –Roughly 300 Acres

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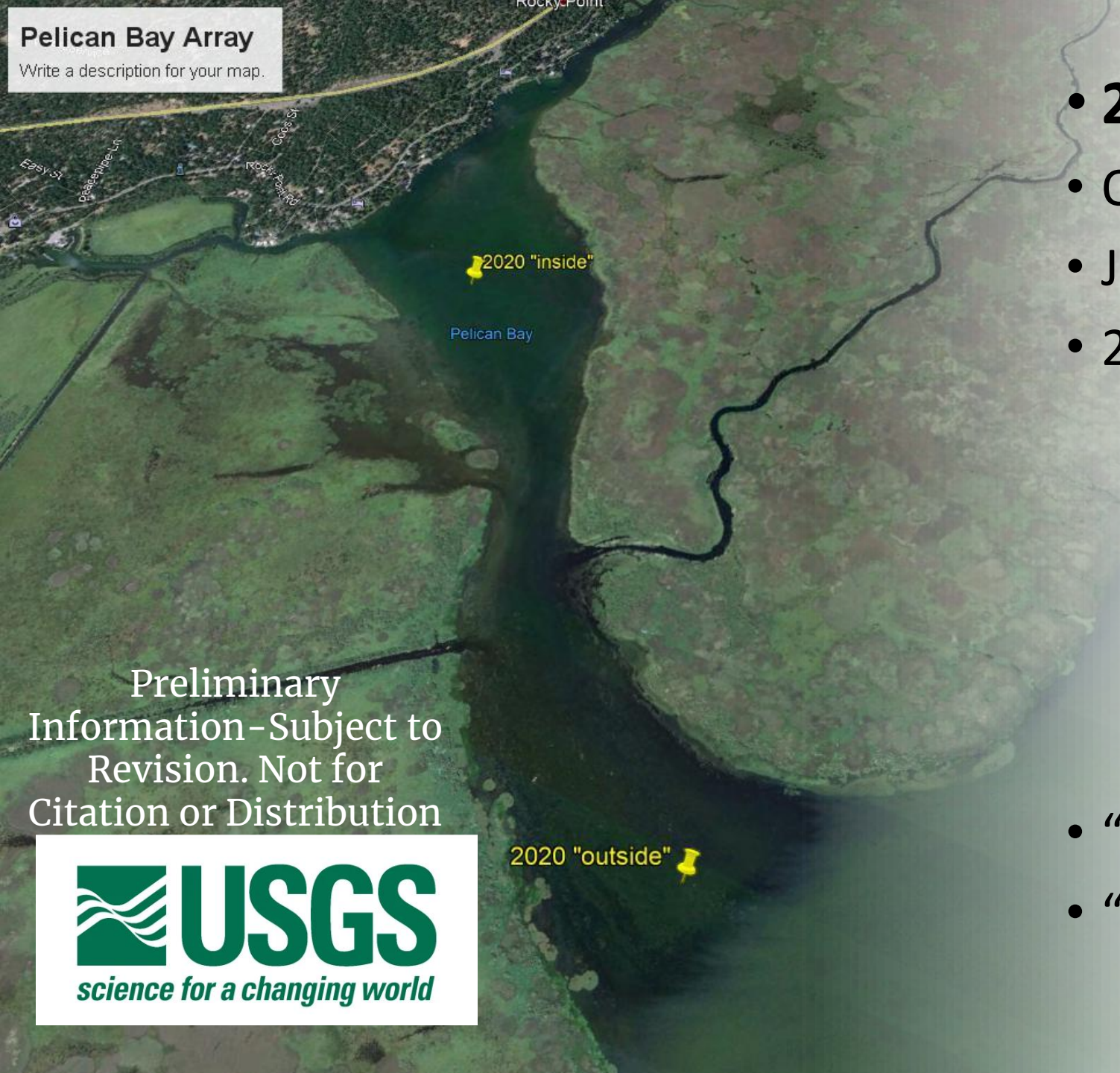

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- **2020**
- One 3’ Antenna
- July 16th through September 4th
- 262 overall detections
  - 199 individuals
    - 144 SNS (36 m, 108 f)
    - 50 LRS (9 m, 41 f)
    - 2 KLS (2 f)
    - 2 Unid Suckers (1 m, 1 u)
    - 1 RBT

- “inside” antenna = 246 detections
- “outside” antenna = 16 detections

- 5’ Submersible
- Borrowed Equipment (6) from ODFW for 2021 and 2022

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- **2022**
- June 3rd through November 22nd
- Six 5’ Antennas
  - 13267 overall detections
    - **4319** individual tags
      - 1705 SNS (510 M, 1187 F)
      - 2469 LRS (535 M, 1930 F)
        - 70% river spawners
        - 30% lake spawners
      - 68 KLS (16 M, 52 F)
      - 16 RBT
      - 6 Chinook
      - 20 Not Identified tags
      - 35 Unid Suckers

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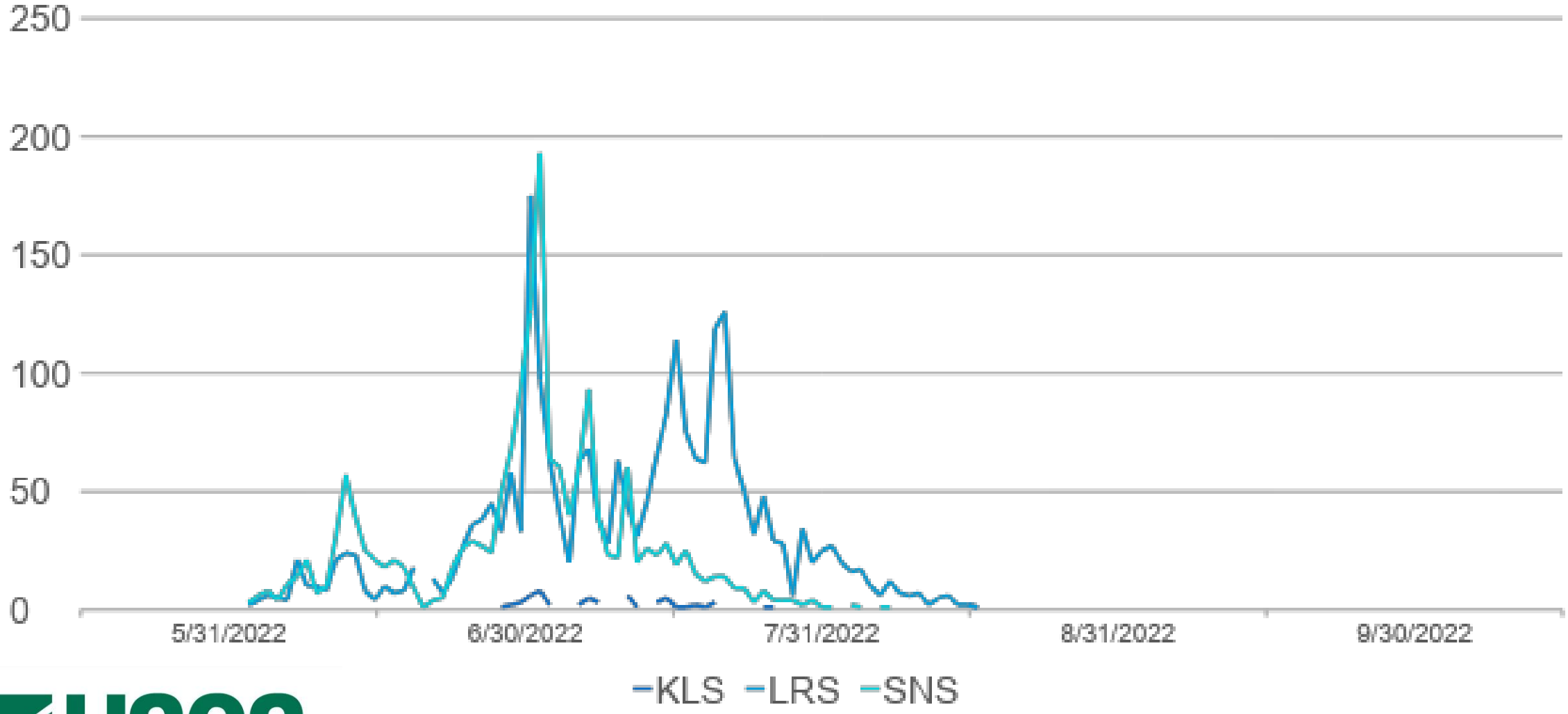
2022 First Detection of an Individual



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Avian predation

North American Journal of Fisheries Management 42:1561–1574, 2022

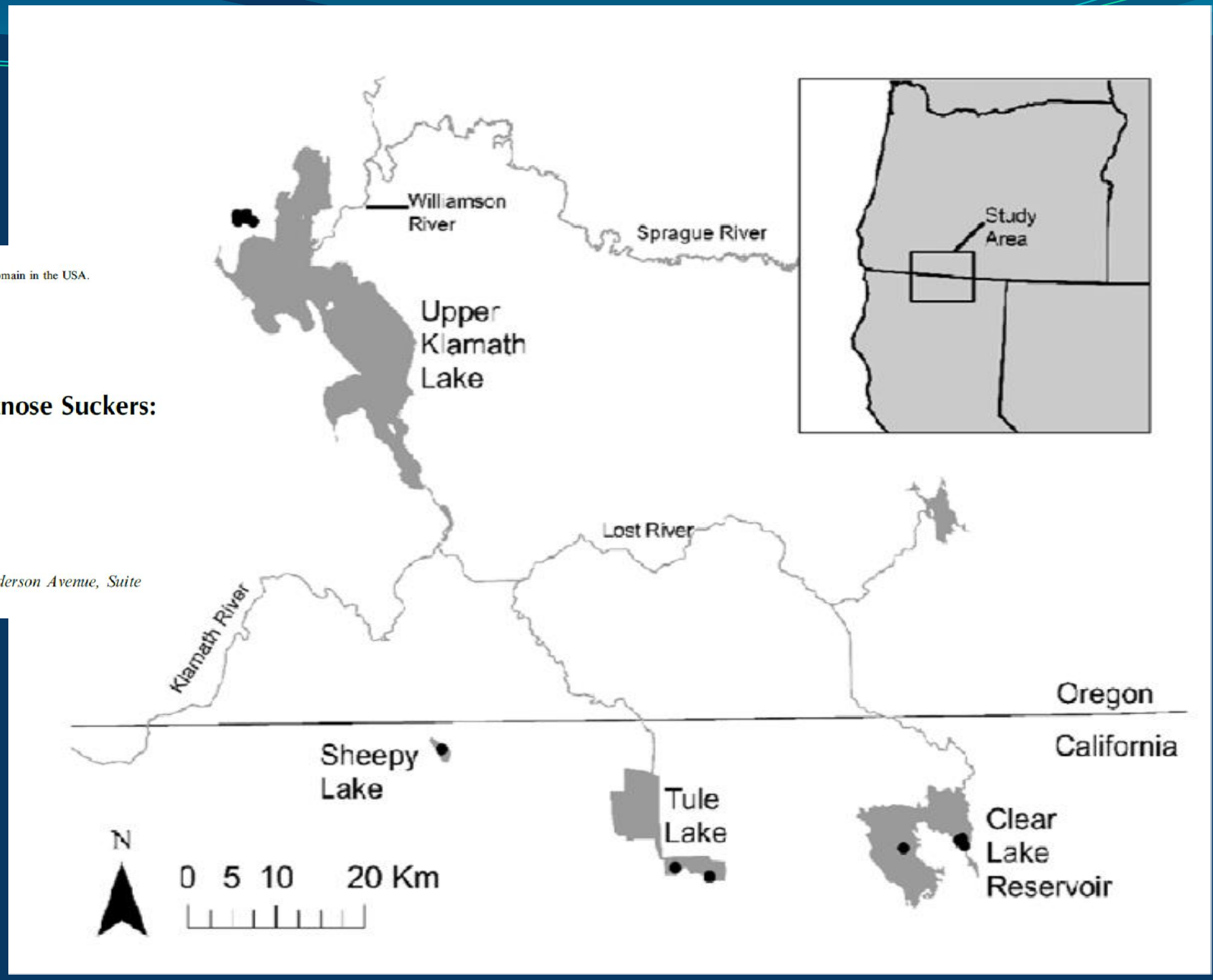
ISSN: 0275-5947 print / 1548-8675 online
DOI: 10.1002/nafm.10838

ARTICLE

Avian Predation on Juvenile and Adult Lost River and Shortnose Suckers: An Updated Multi-Predator Species Evaluation

Allen F. Evans,* **Quinn Payton, Nathan Banet, and Bradley M. Cramer**
Real Time Research, Inc., 1000 Southwest Emkay Drive, Bend, Oregon 97702, USA

Caylen Kelsey[1] and David A. Hewitt[2]
U.S. Geological Survey, Western Fisheries Research Center, Klamath Falls Field Station, 2795 Anderson Avenue, Suite 106, Klamath Falls, Oregon 97603, USA



REAL TIME RESEARCH

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Avian predation model

REAL TIME RESEARCH

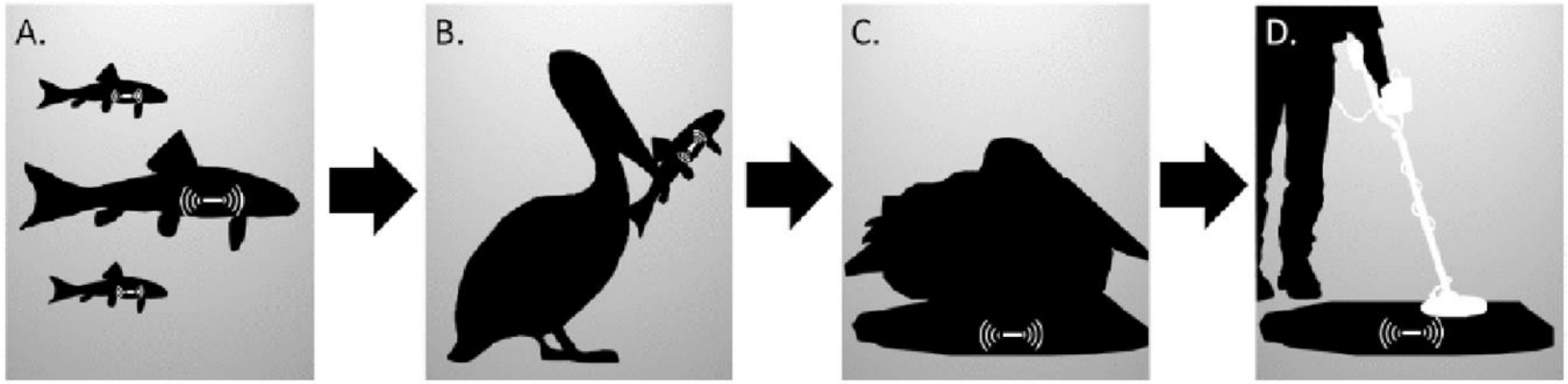

Figure 2. Conceptual model of the tag recovery process in capture-mark-recovery studies of avian predation on fish populations. A. PIT-tagged population of suckers; B. Predation probability – the probability that a tagged sucker is consumed by a breeding bird; C. Deposition probability – the probability that the tag is deposited on the bird's nesting colony; D. Detection probability – the probability that the tag is detected by researchers following the breeding season. Modified figure from Hostetter et al. (2015).

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Avian predation estimates

REAL TIME RESEARCH

TABLE 3. Estimates of predation rates (%; with 95% credible intervals in parentheses) on PIT-tagged Lost River Suckers (LRS), Shortnose Suckers (SNS), Shortnose/Klamath Largescale suckers (SNS–KLS), and juvenile suckers (wild and Sucker Assisted Rearing Program [SARP]) by piscivorous colonial waterbirds nesting at colonies in Upper Klamath Lake, Clear Lake Reservoir, Tule Lake, and Sheepy Lake combined (i.e., cumulative predation effects). Predation estimates are adjusted to account for PIT tag detection and deposition probabilities that were unique to each predator species, colony, and year (see Methods). A dash (–) denotes that the sample size of available tagged fish was less than 100 or that PIT tag recovery did not occur at that site in that year. The SARP releases commenced in Upper Klamath Lake in 2018. Estimates update the minimum estimates of predation reported by Evans et al. (2016) during 2009–2014.

	Upper Klamath Lake suckers				Clear Lake Reservoir suckers		
Year	Adult LRS	Adult SNS	Wild juveniles	SARP juveniles	Adult LRS	Adult SNS–KLS	Wild juveniles
2009	0.5 (0.3–0.9)	1.5 (1.0–2.6)	10.1 (4.8–19.3)	–	7.2 (2.8–16.4)	4.6 (2.6–8.4)	–
2010	–	–	–	–	0.7 (<0.1–3.8)	0.6 (<0.1–1.8)	–
2011	–	–	–	–	0.8 (0.1–3.2)	4.0 (2.6–7.0)	–
2012	1.1 (0.7–1.7)	3.7 (2.6–5.7)	10.0 (4.8–19.0)	–	4.7 (1.8–10.8)	3.8 (1.8–7.6)	–
2013	–	–	–	–	6.7 (3.7–12.8)	6.2 (4.0–10.2)	–
2014	0.2 (0.1–0.4)	0.9 (0.5–1.8)	–	–	2.1 (0.8–4.9)	1.8 (1.0–3.7)	–
2015	0.2 (0.1–0.3)	0.8 (0.4–1.4)	–	–	2.5 (<0.1–5.5)	1.4 (0.7–2.7)	–
2016	–	–	–	–	1.2 (<0.1–3.0)	4.0 (2.8–6.5)	–
2017	1.0 (0.7–1.8)	3.6 (2.4–5.7)	–	–	0.4 (0.1–1.5)	1.9 (1.2–3.5)	4.3 (0.9–13.2)
2018	1.0 (0.7–1.7)	2.5 (1.6–4.0)	–	4.3 (2.9–6.7)	2.2 (0.9–5.0)	1.4 (0.7–2.7)	–
2019	0.2 (0.1–0.4)	0.6 (0.3–1.2)	–	5.6 (4.0–8.2)	0.5 (0.1–1.7)	1.7 (1.0–3.1)	5.6 (1.5–14.7)
2020	0.1 (<0.1–0.2)	0.4 (0.2–0.9)	–	8.5 (6.3–12.7)	1.2 (0.4–3.2)	2.0 (1.0–4.2)	10.5 (3.8–24.5)

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ScienceBase-Catalog Communities Help Log

ScienceBase Catalog → USGS Data Release Products → PIT Tags Encountered by Kl...

PIT Tags Encountered by Klamath Falls Field Station Equipment in the Upper Klamath Basin

View

Dates

Publication Date : 2022-10-21
Start Date : 1993-09-30
End Date : 2022-09-06

Citation

Harris, A.C., Krause, J.R., and Hayes, B.S., 2022, PIT Tags Encountered by Klamath Falls Field Station Equipment in the Upper Klamath Basin: U.S. Geological Survey data release, https://doi.org/10.5066/P9O2C4SK.

Summary

Data were collected as part of a long-term capture-recapture program to assess the status and dynamics of populations of two long-lived, federally endangered catostomids in Upper Klamath Lake, Oregon and Clear Lake Reservoir, California. Lost River suckers (LRS; *Deltistes luxatus*) and shortnose suckers (SNS; *Chasmistes brevirostris*) have been captured and tagged with passive integrated transponder (PIT) tags during their spawning migrations in each year since 1995.PIT tagged species were encountered in netting efforts, remote transceivers, and active scanning on bird colonies across the Upper Klamath River Basin (predominately Upper Klamath Lake and Clear Lake Reservoir). The data includes detections for endangered suckers, but also salmonids and other PIT tagged aquatic species that were encountered.

Map »

Communities

- USGS Data Release Products

Tags

Categories : Data

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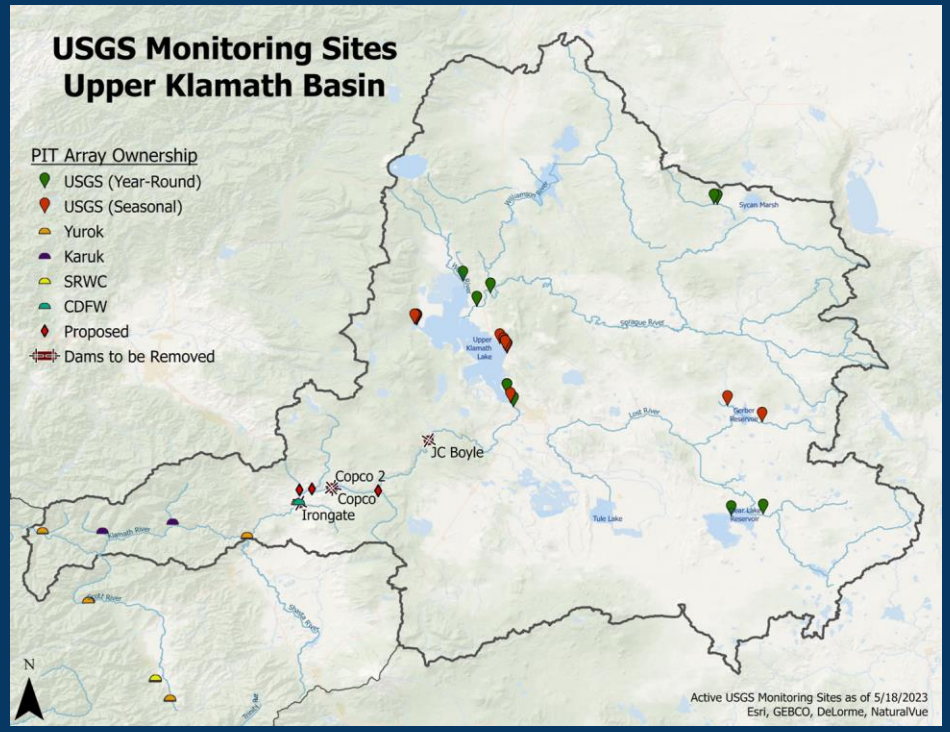
Conclusions

- Strategic placement of readers
- Tag fish
- Long-term trends
- Multiple species
- Integrate multiple data-sources
- Collaborate



Email Jacob Krause at jrkrause@usgs.gov

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Break

Back in 15 minutes

Update on the Development of the New Standardized KBFC Data System – from Partners' Data submittal to Web-Based Data Query Access

Rachael Paul-Wilson, Biological Science Technician, Klamath Falls Field Station USGS

Greg Wilke, Application Software Specialist, Pacific States Marine Fisheries Commission

Annual Meeting Klamath Basin Fisheries Collaborative
June 2023

KLAMATH BASIN FISHERIES COLLABORATIVE PIT TAGGING DATABASE UPDATE

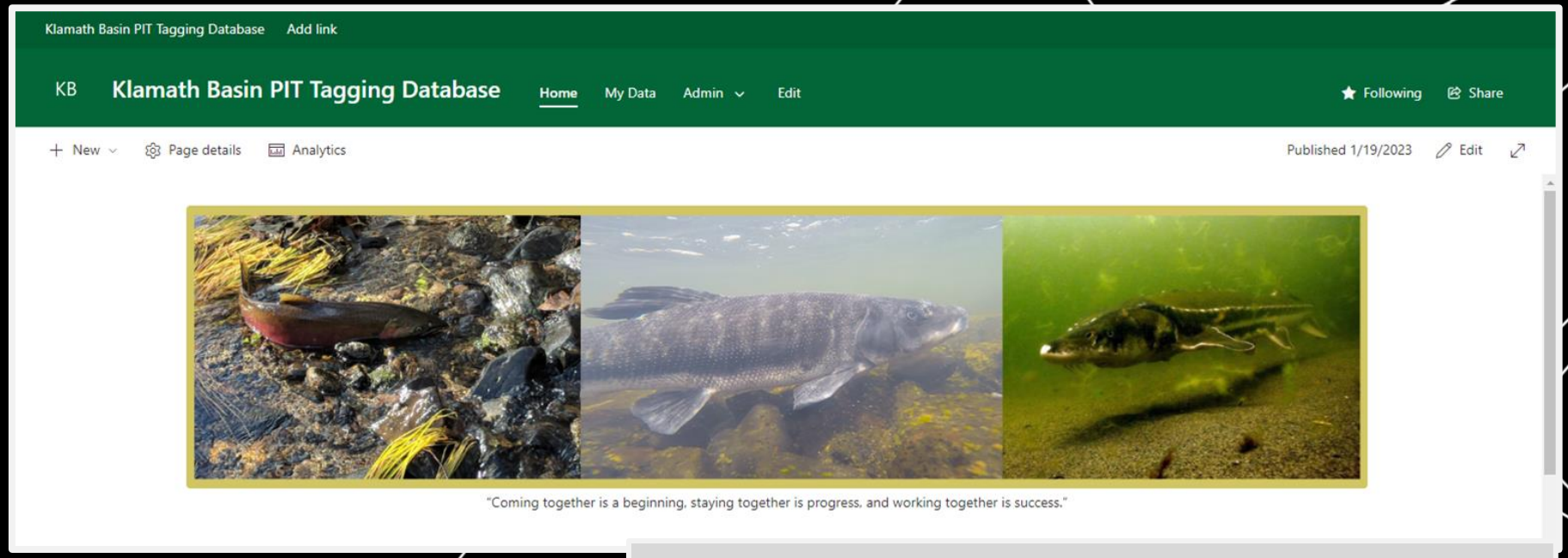
Greg Wilke | Pacific States Marine Fisheries Commission

Rachael Paul-Wilson | USGS

PRELIMINARY DATA COLLECTION

Scott River Watershed:

- Tagging Data
- Site Data
- Remote Equipment Deployments and Removals
- Remote Detection Files



Karuk:

- Tagging Data

Yurok:

- Monitoring and Remote Equipment Site Data

[Klamath Basin PIT Tagging Database - Home (sharepoint.com)]

500 + remote detection files
43,000 + mark/recapture records

CURRENT PROCESS

DATA COLLECTION	DATA REVIEW	DATA CONNECTIONS	DATA STANDARDS	QUEUE
Reaching out and collecting data from collaborators	Reviewing each piece of data to determine outages and inconsistencies with the data	Evaluating each piece of data to determine similarities and differences between partners	Using collected data to help determine data standards and needs between partners	Validated data awaits uploading into the database as development continues

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CATEGORIZING DATA TYPES

REMOTE DETECTION	MARK AND RECAPTURE	SITE DATA	OUTAGE DATA	METADATA
Remote monitoring equipment downloads that contain tag contacts/ contact date and time/ remote equipment status reports. etc.	Data that contains sampling/tagging information such as PIT tags, tagging dates, species, lengths, weights, afflictions, sampling locations, etc.	Data that contains site information such as site name, site descriptions, coordinates, deployment and removal dates.	Any outage data due to monitoring equipment issues and various additional causes.	Metadata such as sampling metrics, gear/trap information, tag types/ purchase lists, organization specific acronyms and definitions.

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CURRENT GOALS

DECEMBER 2023

A

DATA COLLECTION

*Continue collecting and validating data from collaborators

B

DEVELOPMENT

*Database Beta Test with the existing collected data (September 2023)

C

DATA STANDARDS

*Preliminary version of data standards in effect

D

IMPORT DATA

*Import validated data from the queue into the KBFC database

E

QUERY

*Imported data can be queried based on partners needs

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THREE PRIMARY “DATABASE” COMPONENTS

Database

All KBFC data from collaborators is stored for access and archiving.

API

All interaction with the database happen through the Application Programming Interface. All rules and permissions enforced here.

User Application

A web-based data management application used for both database administration as well as collaborator data access.

DATABASE MIGRATION

- Original USGS KBFC database moved to PSMFC MS SQL Server
- Database restructuring is ongoing as we establish a data exchange standard and build the API & user interface application
- Will eventually store all record level data tables as well as all submitted original data files

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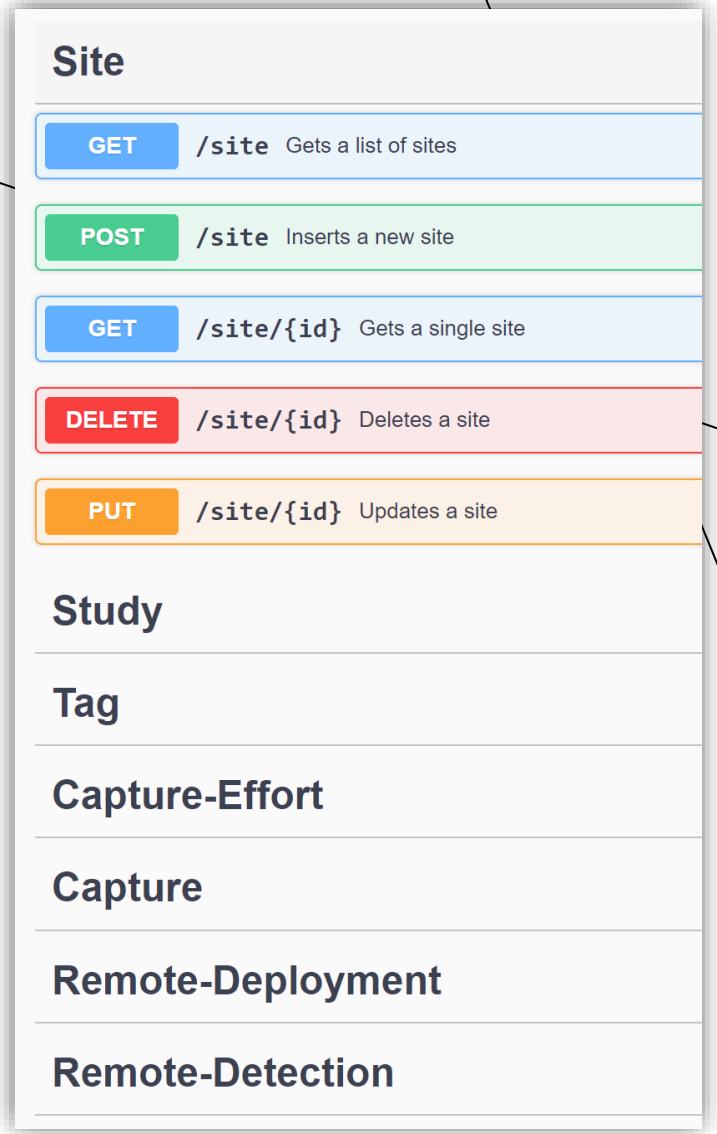

APPLICATION PROGRAMMING INTERFACE

- RESTful API is used for all interactions with the database
- All rules and permissions are enforced at this level
- Provides complete documentation for programmatic interaction with KBFC database by collaborators
- User application connects through the API

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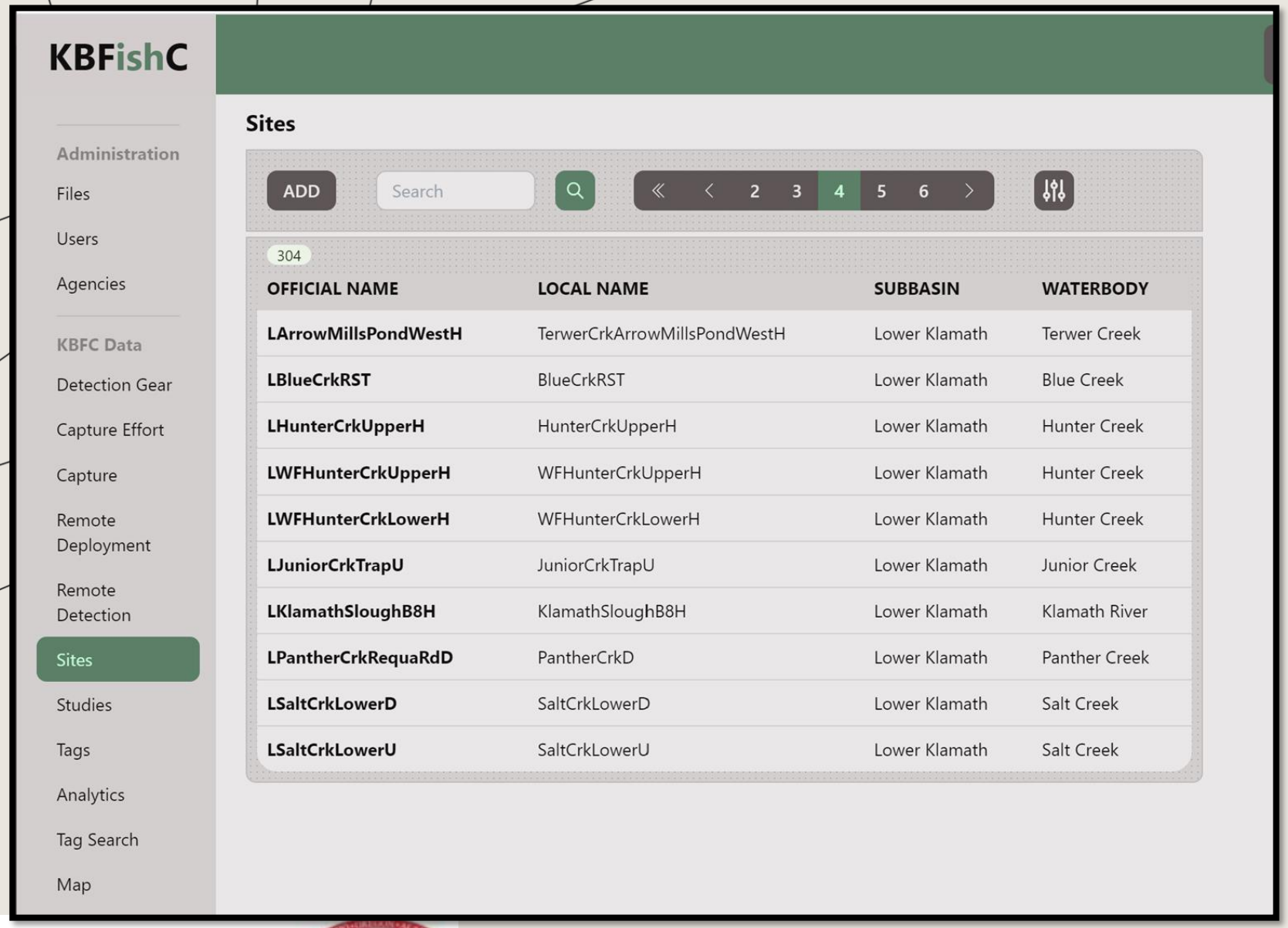

USER APPLICATION

- Web-based application available 24/7
- Automated data-file integration
- Reports, tag search, maps
- System administration
- Initial version by Sept 1, 2023

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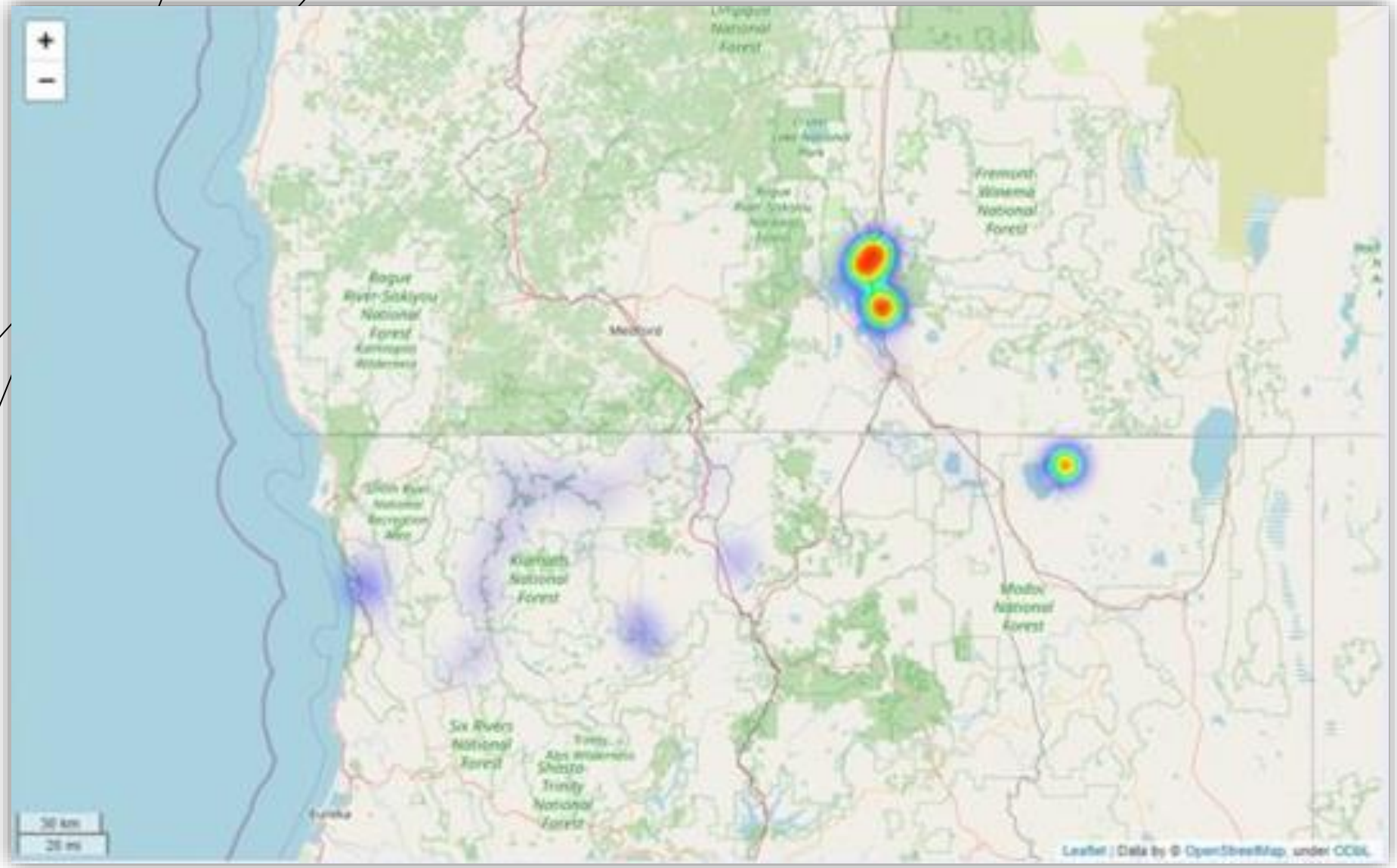

OUTAGE DATA

Determine remote monitoring equipment outages based on file reports

MAPS AND GRAPHICS

Incorporate maps and graphics based on tag detections, sampling efforts, etc...

DATA EXPANSION

Expanding data types to accommodate collaborators needs (Telemetry, water quality, hatchery, etc..)

FUTURE GOALS

QUESTIONS?

Greg Wilke | gwilke@psmfc.org

Rachael Paul-Wilson | rpaul-wilson@usgs.gov

Developing a Data Exchange Standard to Inform Accurate Data Sharing

Erin Benham, Data Management Specialist

Nancy Leonard, Program Manager

Pacific States Marine Fisheries Commission

Developing a Data Exchange Standard to Inform Accurate Data Sharing

Erin Benham and Nancy J Leonard

Pacific States Marine Fisheries Commission

June 2023

Annual Meeting Klamath Basin Fisheries Collaborative

THE PACIFIC STATES MARINE FISHERIES COMMISSION

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Portland, OR 97202

Funded by:

Components of a Successful, Value Added, Collaborative Data System

- Have a shared interest
- Identify metrics and indicators
- Controlled vocabulary
- Data Exchange Standards
- Data Sharing Agreement
- Quality Assurance and Control
- Sustain Data Provider/User Community

Recognize and respect all participants

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Controlled Vocabulary and Data Exchange Standards
Critical Components for Effective Collaborative Systems

- Specifies terms, definitions, and formats
- Consistent data submittal
- Reduces confusion
- Contributes to interoperability

Example of a DES with Controlled Vocabulary (excerpt)

Coordinated Assessments Data Exchange Standard

Field Name	Field Description	Data Type	Rules Codes Conventions
Run	Run of fish.	Text 20	Enter the name of the run here, even if run name is included in the name of the population. Entries in this field are not recognized as taxonomic divisions. Select from the following: [*Do not include comments in brackets.*] • Spring • Summer • Fall • Late fall • Winter • Spring/summer • Both summer & winter • Early • Late • Both early & late • N/A [*For species without runs.*]
CommonPopName	Population name used by local biologists.	Text 255	Often this is simply the name of the population(s) as written on the original time series spreadsheets.
ContactAgency	Agency, tribe, or other entity, or person responsible for these data that is the best contact for questions that may arise about this data record.	Text 255	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Fish Passage Center • Idaho Department of Fish and Game • Nez Perce Tribe • Northwest Indian Fisheries Commission • Oregon Department of Fish and Wildlife • Quantitative Consultants, Inc. • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
NOSAIJ	The point estimate for NOSA or natural origin escapement, including jacks. See the EstimateType field for definitions of NOSA and escapement. Includes "adults" and jacks, all of natural origin. "Natural origin" means the fish's parents spawned in the wild.	*Single*	Provide whole numbers only, not decimal values. This field is required if the NOSAEJ field is null and NullRecord = "No". For populations for which "jacks" are not recognized, enter the NOSA estimate in this field. The only species for which jacks are recognized are Chinook salmon, coho salmon, chum salmon (rarely), and winter steelhead (rarely). The statistical approach used to generate the estimate should be thoroughly explained in the methods referenced in the MethodDocumentation field.
DataStatus	Status of the data in the current record.	Text 255	Acceptable values: [*Do not include comments in brackets.*] • Draft [*Values in this record are preliminary and have not been thoroughly reviewed.*] • Final [*Values in this record have been thoroughly reviewed and are considered "final".*]
ContactPersonFirst	First name of person who is the best contact for questions that may arise about this data record.	Text 30	
ContactPersonLast	Last name of person who is the best contact for questions that may arise about this data record.	Text 30	
ContactPhone	Phone number of person who is the best contact for questions that may arise about this data record.	Text 30	Preferred format is "123-456-7890". If an extension is included, preferred format is "123-456-7890 ext. 34".
ContactEmail	Email address of person who is the best contact for questions that may arise about this data record.	Text 50	
GeneralApproach	The general class of method(s) used to make the abundance estimate.	Text 255	Acceptable values: • Snorkeling; Mark/recapture estimate; Removal estimate; Presmolt tagging with downmigrant trap recapture; Down-migrant trapping; Not applicable (Contact Mike at 503-595-3152 if you need to add to this list.)
Abundance	The point estimate for natural origin presmolt abundance.	*Single*	Required if NullRecord = "No". Estimated number of natural origin presmolts for the particular year (date?) indicated. "Natural origin" means the fish's parents spawned in the wild. Provide whole numbers only, not decimal values.
SurveyYear	The four-digit year represented.	Integer	
StartMonth	The month presmolt sampling started.	Text 9	Enter full name of month, correctly spelled.
EndMonth	The month presmolt sampling ended.	Text 9	Enter full name of month, correctly spelled.

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Controlled Vocabulary & Data Exchange

Reuse existing standards, and plan for future data integrations and needs

- Encourage term alignment with existing data systems
  - Adapt and perfect what exists instead of reinventing
  - Support data interoperability

- Plan for flexibility for successful data sharing
  - Allow required, recommended, optional fields
  - New and refinement of fields

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Internal and External Benefits of a Controlled Vocabulary and Data Standards

- Data are preserved and accessible to inform other work within organization and external
- Facilitates individual data systems exchanging with collaborative data system
- Inform legal assessments and reporting more efficiently
- Data are correctly understood by others

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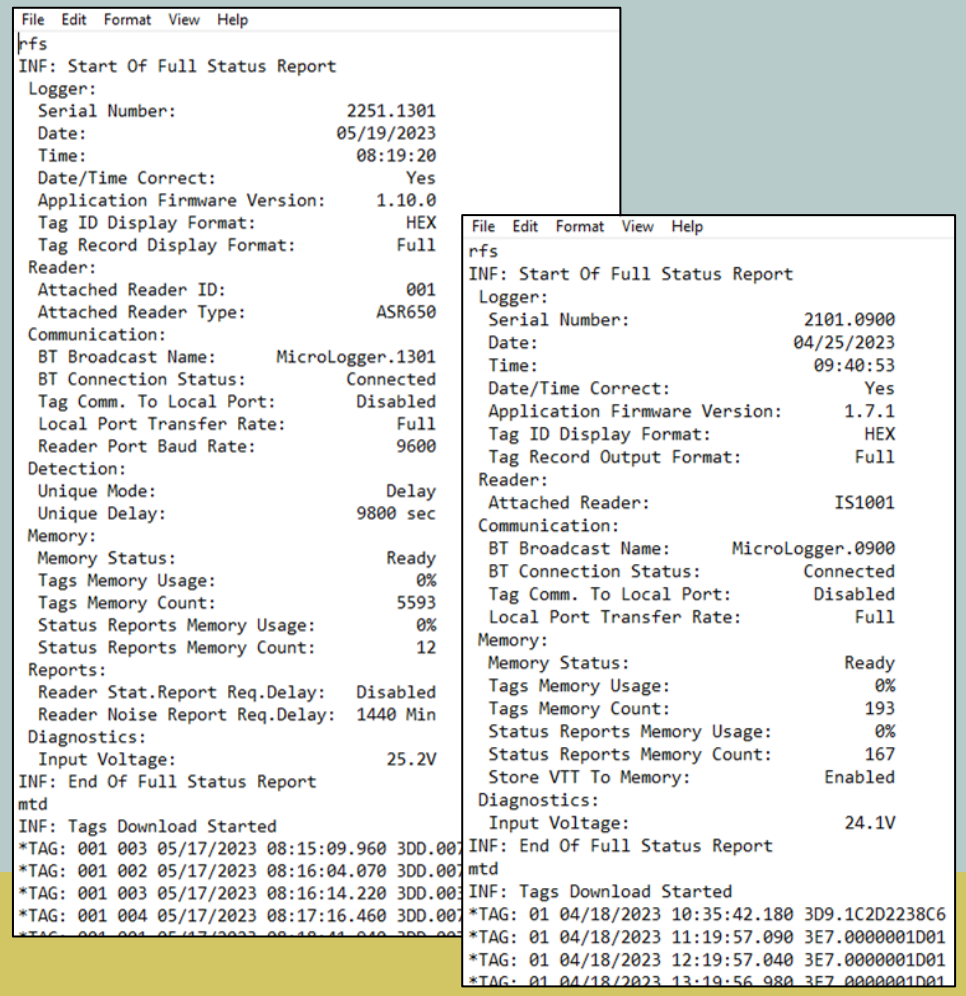
Why We Need a Klamath Basin Fisheries Collaborative (KBFC) Controlled Vocabulary and Data Exchange Standard

Current process is time-consuming and relies on a third party to determine if fields are the same data or not.

Organization A Data File	**Date**	**Location**	**PIT Code**	**Spp**	**Recap**	**Gear**	**Weight**
	mm/dd/yyyy	SandB	##########	2	TRUE	MT	XX
	mm/dd/yyyy	SandB	##########	2	FALSE	MT	XX
	=	=	=	=	=	=	=
Organization B Data File	**Sample_Date**	**Trap_ID**	**pit code**	**Species**	**recap**	**Gear**	**WT**
	yy-mm-dd	Lewis Riffle	##########	Cohsal	Y	Seine	XX
	yy-mm-dd	Lewis Riffle	##########	Raitro		Fyke	XX



File Edit Format View Help

```
rfs
INF: Start Of Full Status Report
 Logger:
  Serial Number:                2251.1301
  Date:                       05/19/2023
  Time:                         08:19:20
  Date/Time Correct:                 Yes
  Application Firmware Version:   1.10.0
  Tag ID Display Format:             HEX
  Tag Record Display Format:        Full
 Reader:
  Attached Reader ID:                001
  Attached Reader Type:           ASR650
 Communication:
  BT Broadcast Name:      MicroLogger.1301
  BT Connection Status:          Connected
  Tag Comm. To Local Port:       Disabled
  Local Port Transfer Rate:          Full
  Reader Port Baud Rate:             9600
 Detection:
  Unique Mode:                      Delay
  Unique Delay:                  9800 sec
 Memory:
  Memory Status:                    Ready
  Tags Memory Usage:                   0%
  Tags Memory Count:                 5593
  Status Reports Memory Usage:         0%
  Status Reports Memory Count:         12
 Reports:
  Reader Stat.Report Req.Delay:  Disabled
  Reader Noise Report Req.Delay: 1440 Min
 Diagnostics:
  Input Voltage:                    25.2V
INF: End Of Full Status Report
mtd
INF: Tags Download Started
*TAG: 001 003 05/17/2023 08:15:09.960 3DD.007
*TAG: 001 002 05/17/2023 08:16:04.070 3DD.007
*TAG: 001 003 05/17/2023 08:16:14.220 3DD.003
*TAG: 001 004 05/17/2023 08:17:16.460 3DD.007
```

File Edit Format View Help

```
rfs
INF: Start Of Full Status Report
 Logger:
  Serial Number:                2101.0900
  Date:                       04/25/2023
  Time:                         09:40:53
  Date/Time Correct:                 Yes
  Application Firmware Version:     1.7.1
  Tag ID Display Format:             HEX
  Tag Record Output Format:         Full
 Reader:
  Attached Reader:                IS1001
 Communication:
  BT Broadcast Name:      MicroLogger.0900
  BT Connection Status:          Connected
  Tag Comm. To Local Port:       Disabled
  Local Port Transfer Rate:          Full
 Memory:
  Memory Status:                    Ready
  Tags Memory Usage:                   0%
  Tags Memory Count:                 193
  Status Reports Memory Usage:         0%
  Status Reports Memory Count:       167
  Store VTT To Memory:           Enabled
 Diagnostics:
  Input Voltage:                    24.1V
INF: End Of Full Status Report
mtd
INF: Tags Download Started
*TAG: 01 04/18/2023 10:35:42.180 3D9.1C2D2238C6
*TAG: 01 04/18/2023 11:19:57.090 3E7.0000001D01
*TAG: 01 04/18/2023 12:19:57.040 3E7.0000001D01
```

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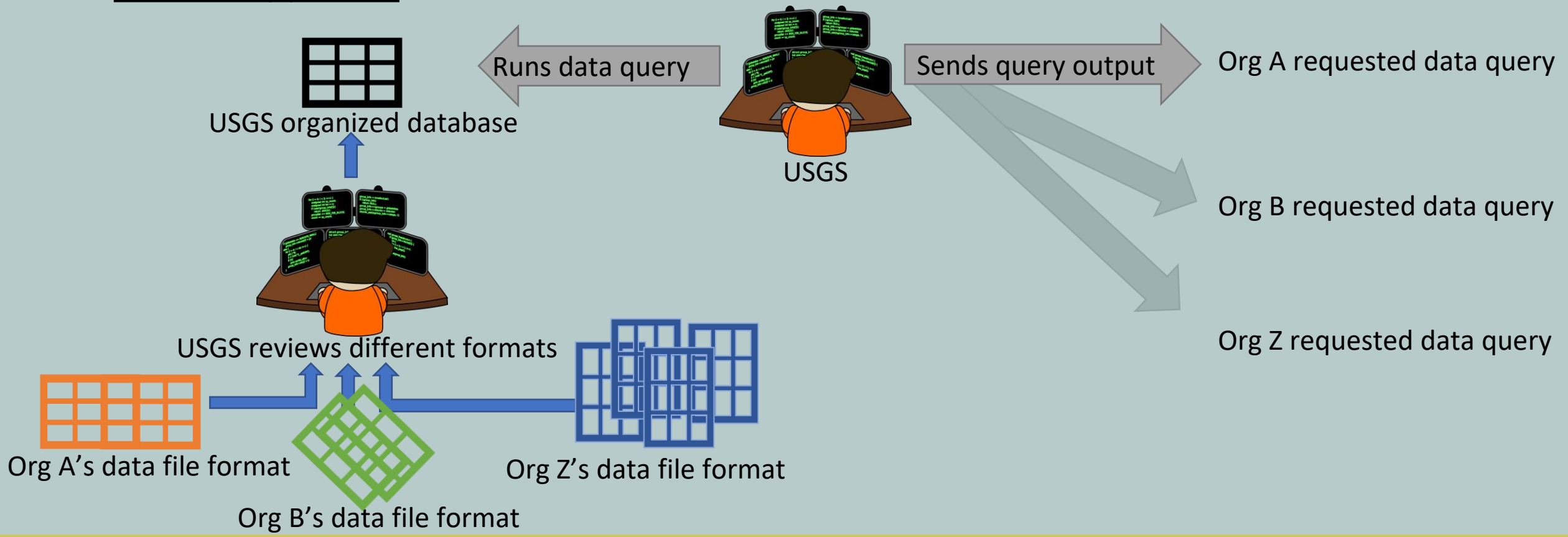
Sharing of PIT- Tag Data Among KBFC Members
Moving from current approach of submitting unstandardized data

Current approach



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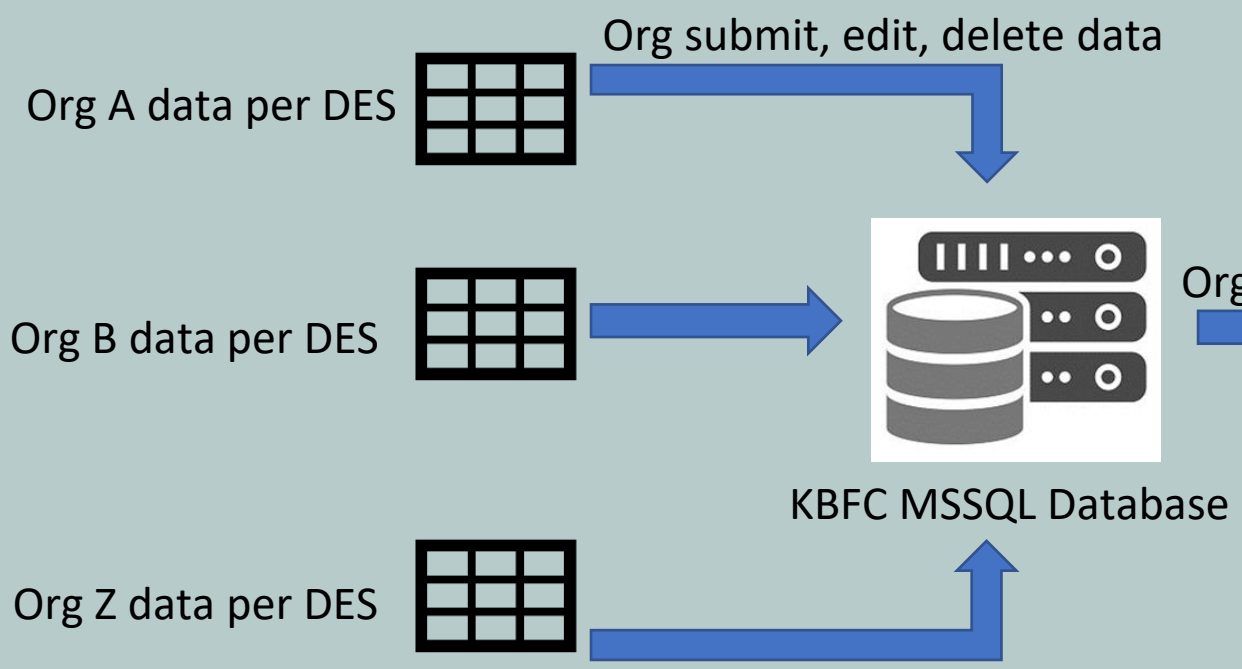
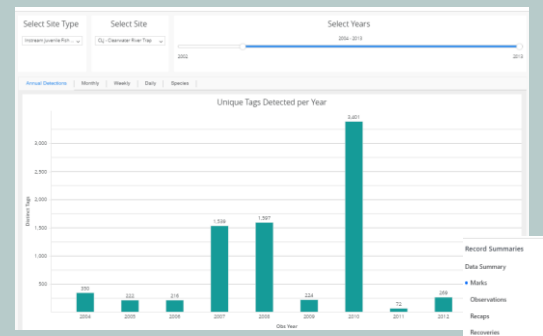
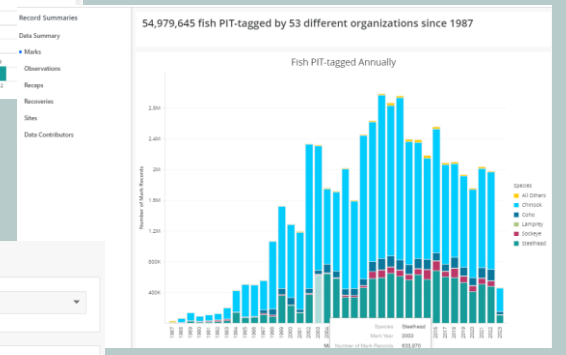
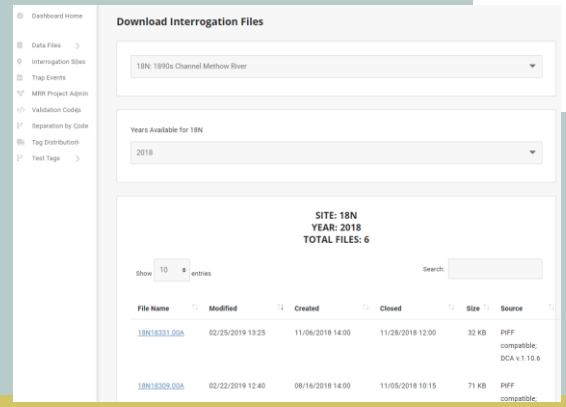
Sharing of PIT- Tag Data Among KBFC Members
Moving to a Member Agreed upon Data Exchange Standard (DES) Approach

KBFC new collaborative data system approach









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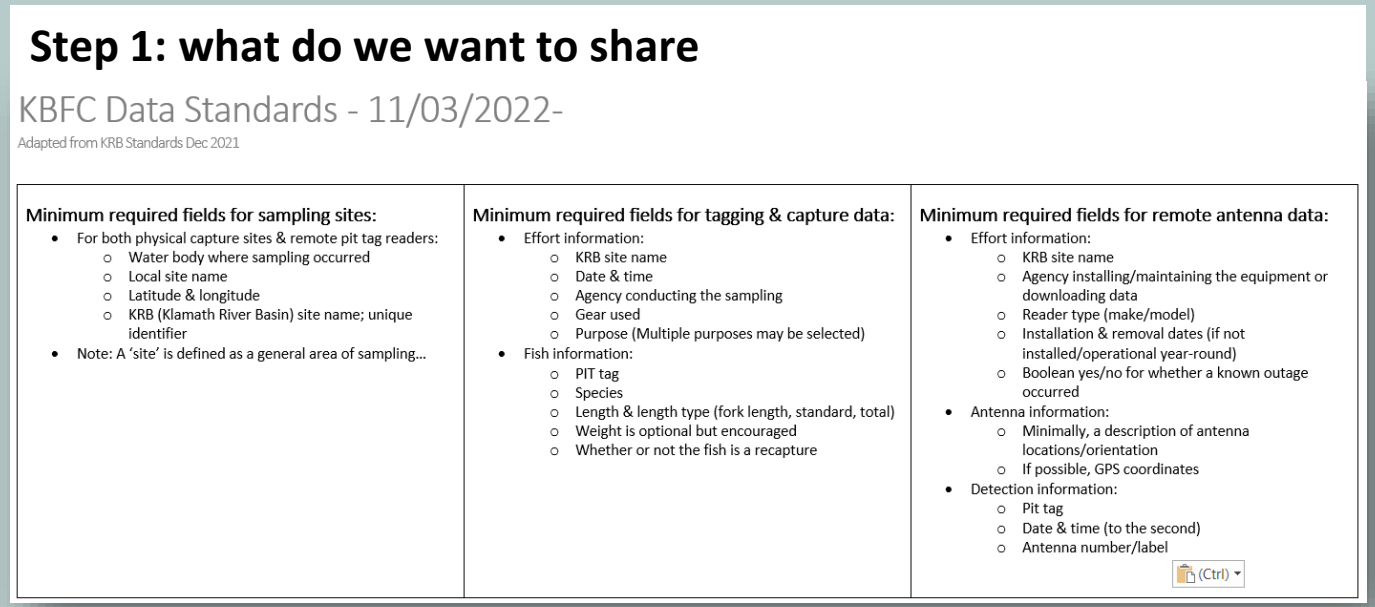
How do we Develop a Successful KBFC Data Exchange Standard

- Step 1: What do we want to share?
- Step 2: What words/terms do we use?
- Step 3: What do these terms mean?
- Step 4: What data fit these terms?
- Step 5: What rules apply?
  - Required? Optional?
  - Text, number, standardized list?
  - Connected to another term/field?



Step 1: what do we want to share

KBFC Data Standards - 11/03/2022-

Adapted from KRB Standards Dec 2021

Minimum required fields for sampling sites:

- For both physical capture sites & remote pit tag readers:
  - Water body where sampling occurred
  - Local site name
  - Latitude & longitude
  - KRB (Klamath River Basin) site name; unique identifier
- Note: A 'site' is defined as a general area of sampling...

Minimum required fields for tagging & capture data:

- Effort information:
  - KRB site name
  - Date & time
  - Agency conducting the sampling
  - Gear used
  - Purpose (Multiple purposes may be selected)
- Fish information:
  - PIT tag
  - Species
  - Length & length type (fork length, standard, total)
  - Weight is optional but encouraged
  - Whether or not the fish is a recapture

Minimum required fields for remote antenna data:

- Effort information:
  - KRB site name
  - Agency installing/maintaining the equipment or downloading data
  - Reader type (make/model)
  - Installation & removal dates (if not installed/operational year-round)
  - Boolean yes/no for whether a known outage occurred
- Antenna information:
  - Minimally, a description of antenna locations/orientation
  - If possible, GPS coordinates
- Detection information:
  - Pit tag
  - Date & time (to the second)
  - Antenna number/label

(Ctrl)

Build an exchange process that allows data providers to submit, edit, and delete their data records (control their data)

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How do we Develop a Successful KBFC Data Exchange Standard

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Initiated:
Development of a Draft Collaborative Controlled Vocabulary

Build an exchange process that allows data providers to submit, edit, and delete their data records (control their data)

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How do we Develop a Successful KBFC Data Exchange Standard

Step 1: What do we want to share?

Step 2: What words/terms do we use?

Step 3: What do these terms mean?

Step 4: What data fit these terms?

Step 5: What rules apply?

- Required? Optional?
- Text, number, standardized list?
- Connected to another term/field?

Coming Next:

Collaborative Data Exchange Standard that builds on existing regional PIT-tag data standards and informed by KBFC members

Build an exchange process that allows data providers to submit, edit, and delete their data records (control their data)

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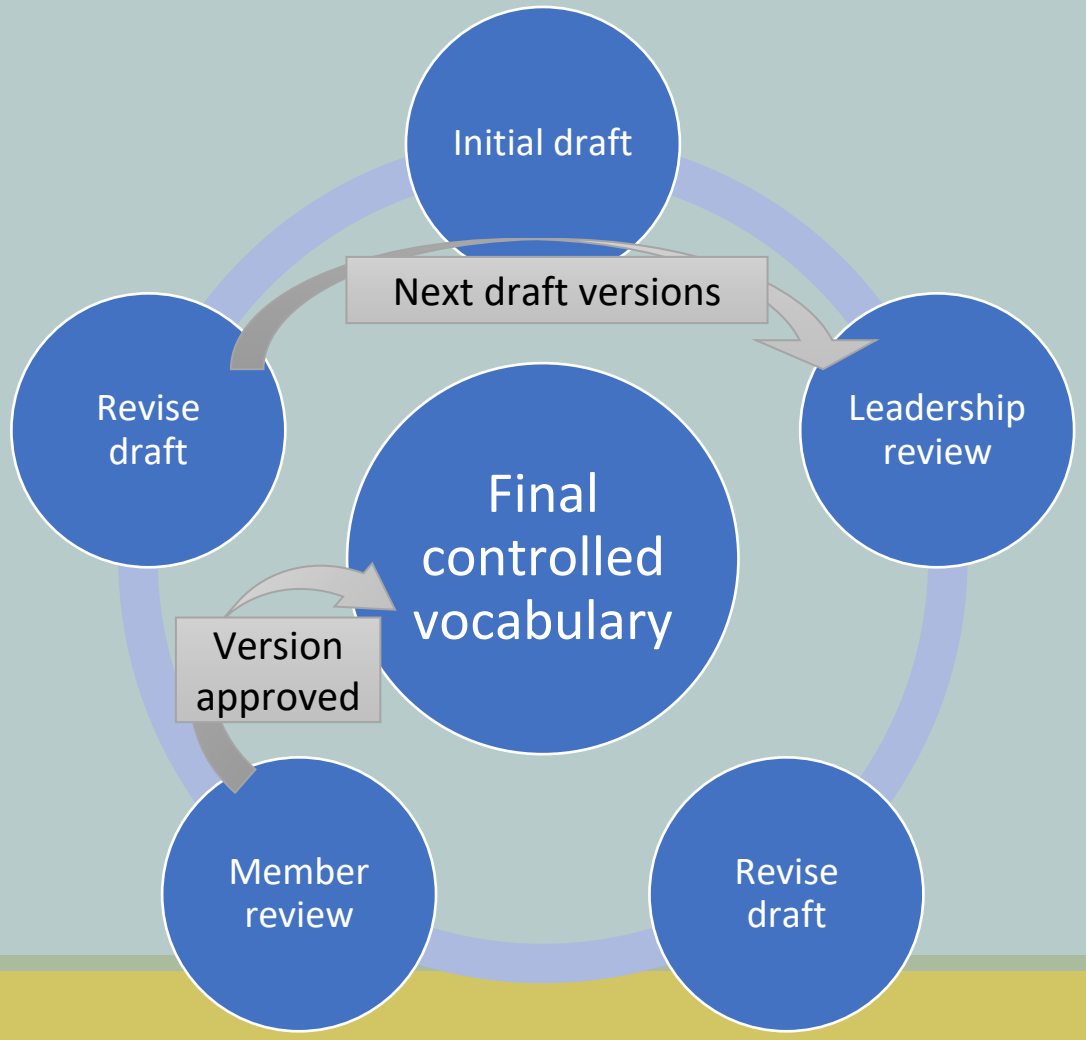
Workflow and Process for Development of a KBFC Member Agreed Controlled Vocabulary

- PSMFC and USGS review fields in data sets submitted to USGS
- *PSMFC initiated Draft Controlled Vocabulary*
- KBFC leadership and members review and inform drafts for revision
- KBFC coordinator will assist to capture input
- KBFC approve controlled vocabulary to inform first version of 'living' data exchange standards document



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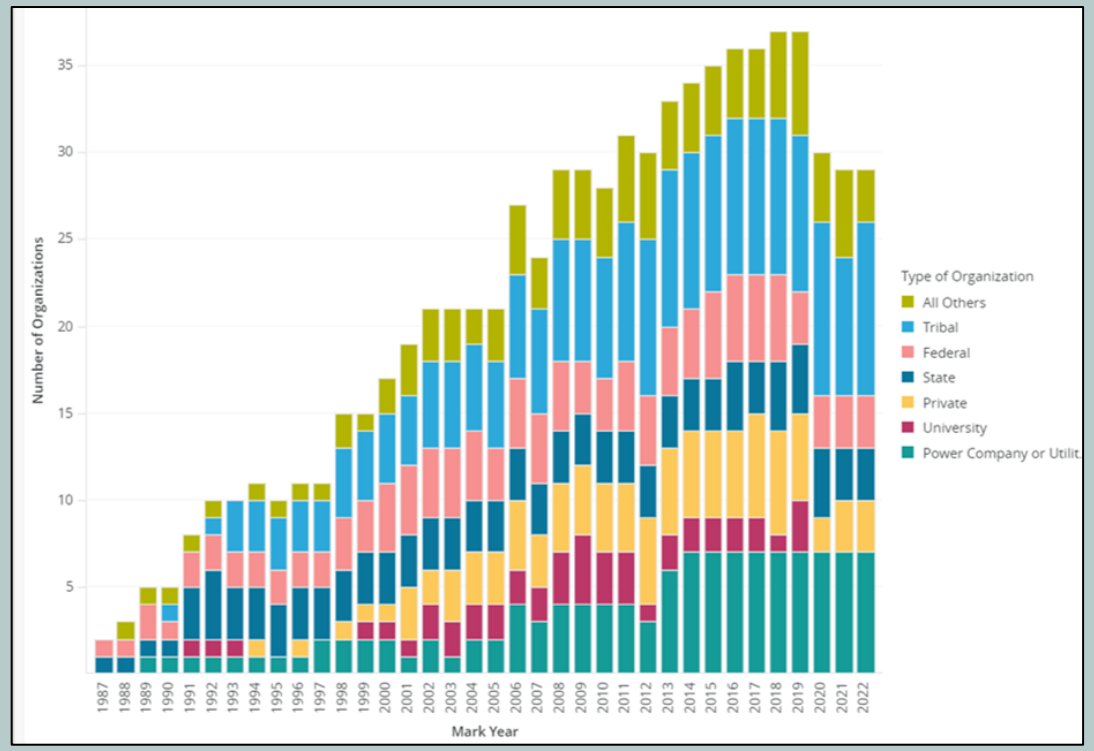
PSMFC Initiated Draft Controlled Vocabulary

- Focus on Columbia Basin PIT Tag Information System (PTAGIS) terms and definitions
  - Similar PIT-tag data events of interest to KBFC
  - Specification maintained since 1991 for data collected in Columbia River Basin
  - Anadromous salmonids, rainbow trout, cutthroat trout, bull trout, sturgeon, and lamprey
  - 40+ fisheries management agencies and research organizations
- Cross-walk to regional data terms, definitions, and standardized pick-lists



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PSMFC Initiated Draft Controlled Vocabulary

Initial draft KBFC data topics identified for exchange:

- Database user information
- Project specifics
- PIT tag detection sites
- PIT tag detection events
- Mark, recapture, and recovery efforts
- Mark, recapture, and recovery events

PSMFC Initiated Draft Controlled Vocabulary

Example of PTAGIS Terms Overlapping with KBFC Data Topics

- Five types of data collection events:
  - Mark
  - Recapture
  - Observation
  - Passive Recapture
  - Recovery

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PSMFC Initiated Draft Controlled Vocabulary

- Data Specifications
  - Descriptive field definitions
  - Value domains
  - File specifications

PSMFC Initiated Draft Controlled Vocabulary

- Data Specifications
  - Descriptive field definitions
  - Value domains
  - File specifications

Table Grouping	PTAGIS Field to consider adding to KBFD	KBFD Field Name	Proposed Definition	Domain
Detection		detection_datetime	Date and time PIT tag was detected to the nearest second.	PST datetime; YYYY/MM/DD hh:mm:ss
Detection		PITTag	Unique 10 or 14-character code of the embedded PIT tag.	Hexadecimal
Detection		FileName	Name of file that was submitted to database for uploading. Each distinct set of data must be in a file with a unique name.	Example: RT_CI_SN_D.txt; RT = Reader type, 1-4 character acronym, CI = Crew first and last name initials, 2-6 characters, SN = Site name, standardized list, D = Date, MM-DD-YYYY
Detection	SiteCode		Unique three-character site code representing a registered detection site where the Tag was detected.	3 Characters
Detection	AntennaID		Unique identifier for antenna that detected tag.	2 Characters
Detection	SiteConfiguration		Number identifying the configuration of the site when it was at this site location. Integer.	Integer
Detection	TransceiverID		Unique identifier of the transceiver or other equipment that recorded the data. Two character hexadecimal code.	2 Characters

PSMFC Initiated Draft Controlled Vocabulary

- Serves as an initial proposed list of terms and definitions
- Refined by KBFC members and leadership
- Anticipate sharing of initial draft for
  - ‘Soft review’ from KBFC leadership team as draft version is developed
  - First review by KBFC members by end of summer
- Final terms and definitions must be supported by KBFC members to ensure these meet KBFC data needs

Questions?

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Capitalizing on the Best of Both Worlds: Leveraging Acoustic Tags to Estimate Detection and Survival of PIT Tagged Fish

Russell Perry, Summer Burdick, Collin Smith, and John Plumb

USGS
science for a changing world

Capitalizing on the best of both worlds: leveraging acoustic tags to estimate detection and survival of PIT tagged fish

Russell Perry, Summer Burdick, Collin Smith, and John Plumb

USGS, Western Fisheries Research Center

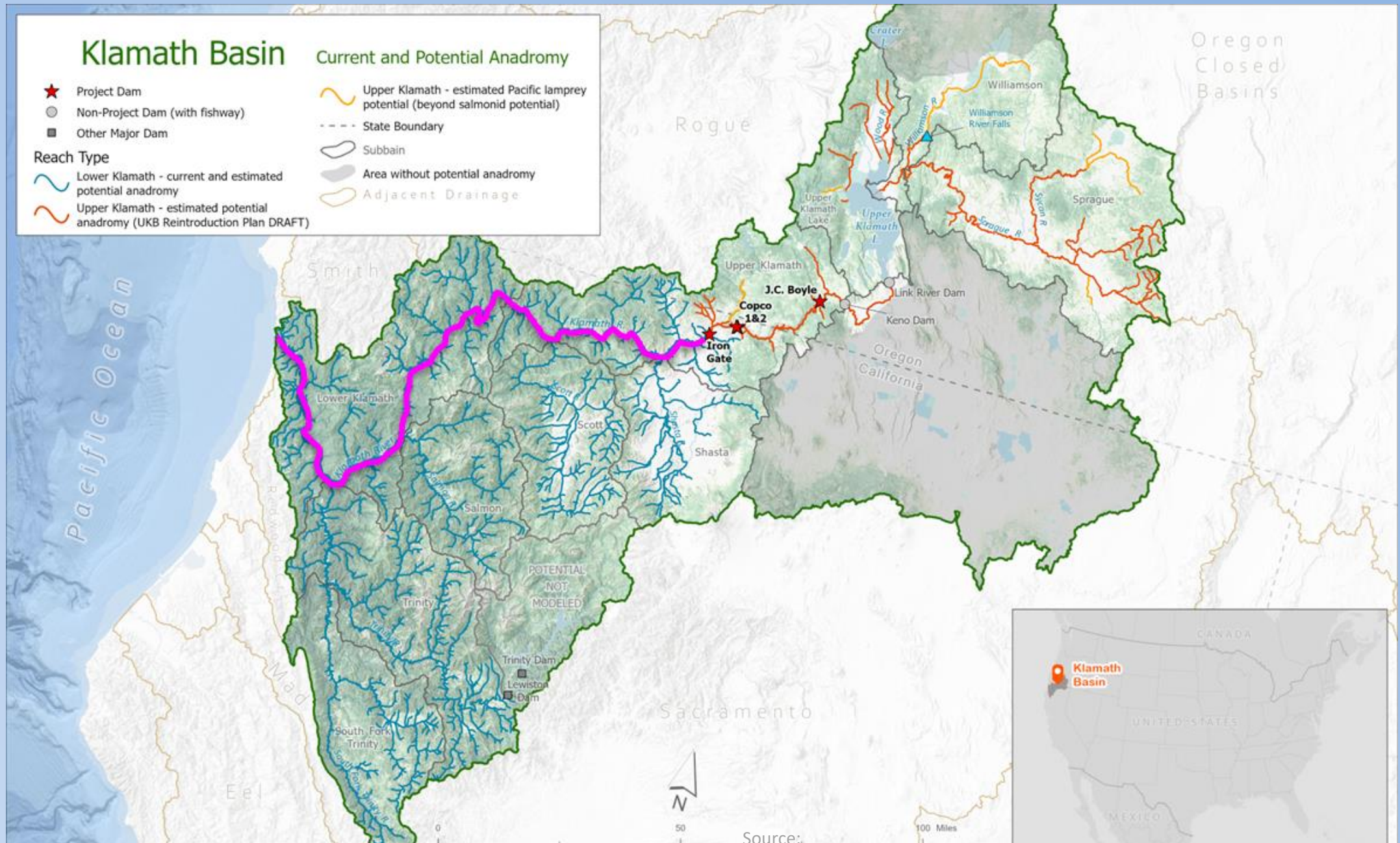
Email: rperry@usgs.gov

U.S. Department of the Interior
U.S. Geological Survey

Klamath Basin Fisheries Collaborative

2023 Spring Meeting

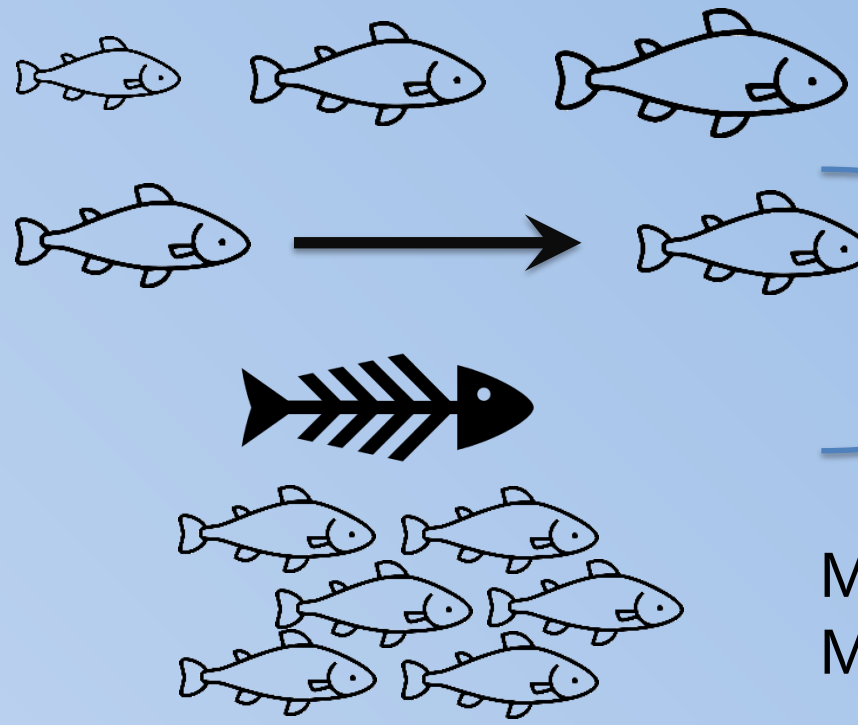
PIT Technology is Challenging in Large Rivers



Background and Overview

Need demographic info on juvenile salmon in the mainstem Klamath River

- Growth:
- Movement:
- Survival:
- Abundance:



Acoustic Tags

Mainstem Juvenile Monitoring Traps

Is there a role for PIT tags? Growth? Survival?

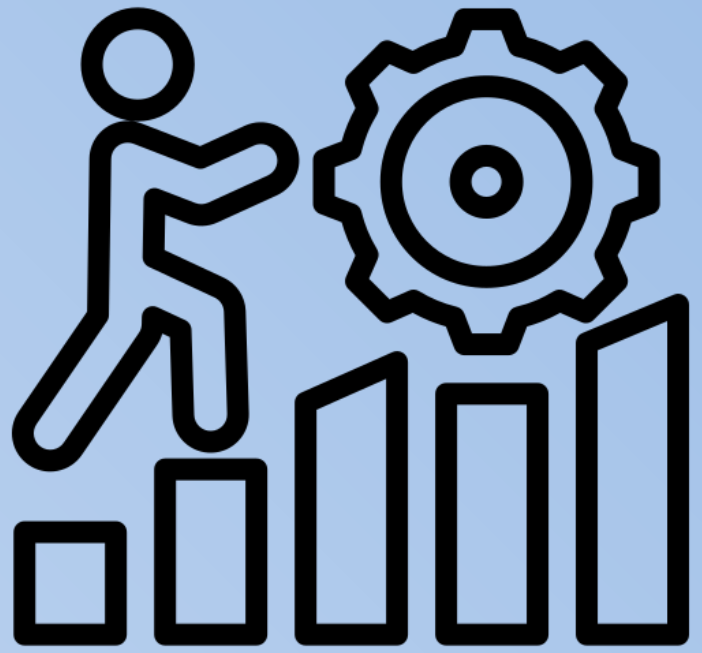
USGS

Can We Estimate Survival of PIT tagged Fish in the Main Stem Klamath River?

- Integrated models that make use of different data
- Leverage existing studies and monitoring efforts
  - Acoustic telemetry and juvenile fish trapping
- Paired-release study design (PIT tags and acoustic tags)
- Example application from Sacramento-San Joaquin Delta

USGS

The Challenges

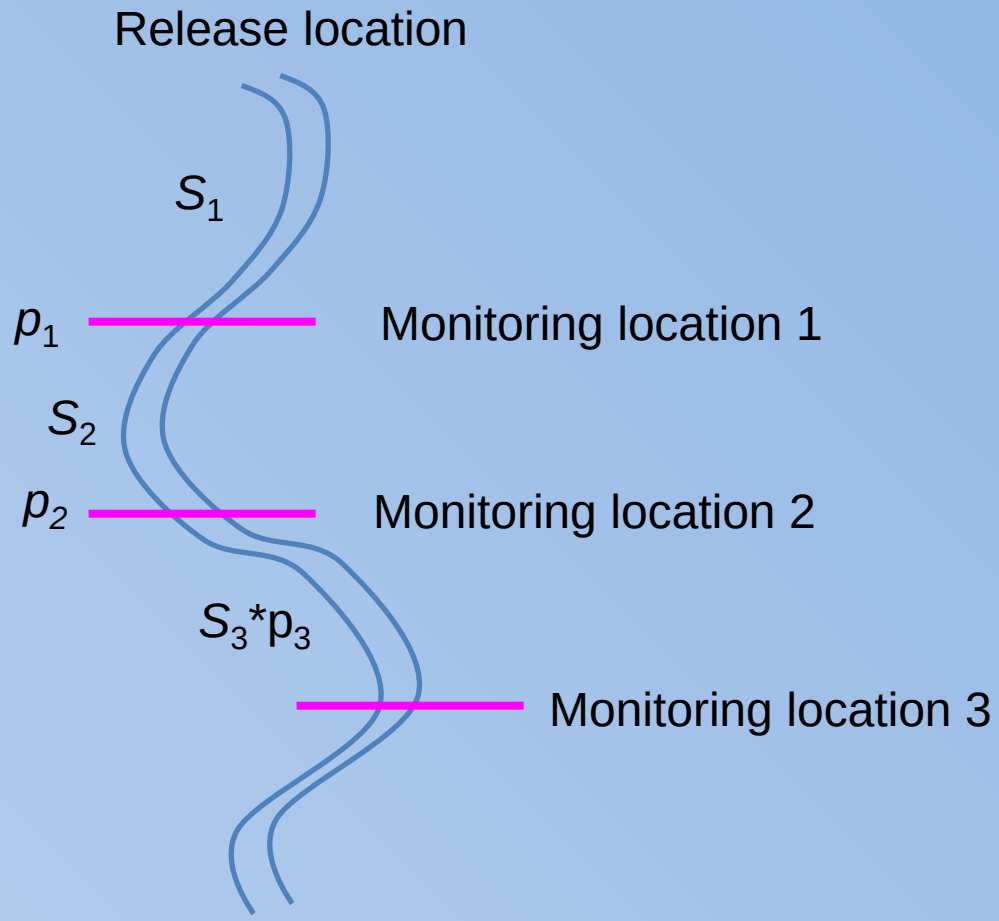


Conventional Study Design for Estimating Survival

<u>Cormack-Jolly-Seber (CJS) model</u>

1. Tag and release fish
2. Record detected (1) or not (0) at monitoring locations
3. Parameters
    - Detection probability
    - Survival probability

Note: Need multiple monitoring locations to estimate survival and detection.



USGS

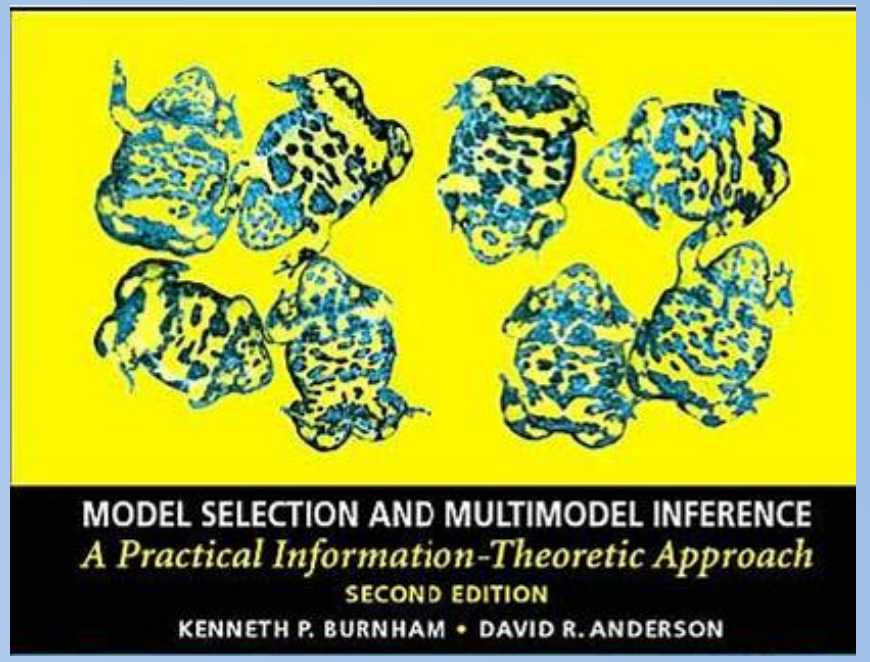
Limitations with CJS Study Design

Ken Burnham:
"If p < 0.1, you're better off going home, having a beer, and pulling the covers over your head…"

Bird Study (1999) **46** (suppl.), S120–139

Program MARK: survival estimation from populations of marked animals

GARY C. WHITE*[1] *and* KENNETH P. BURNHAM[2] [1]*Department of*

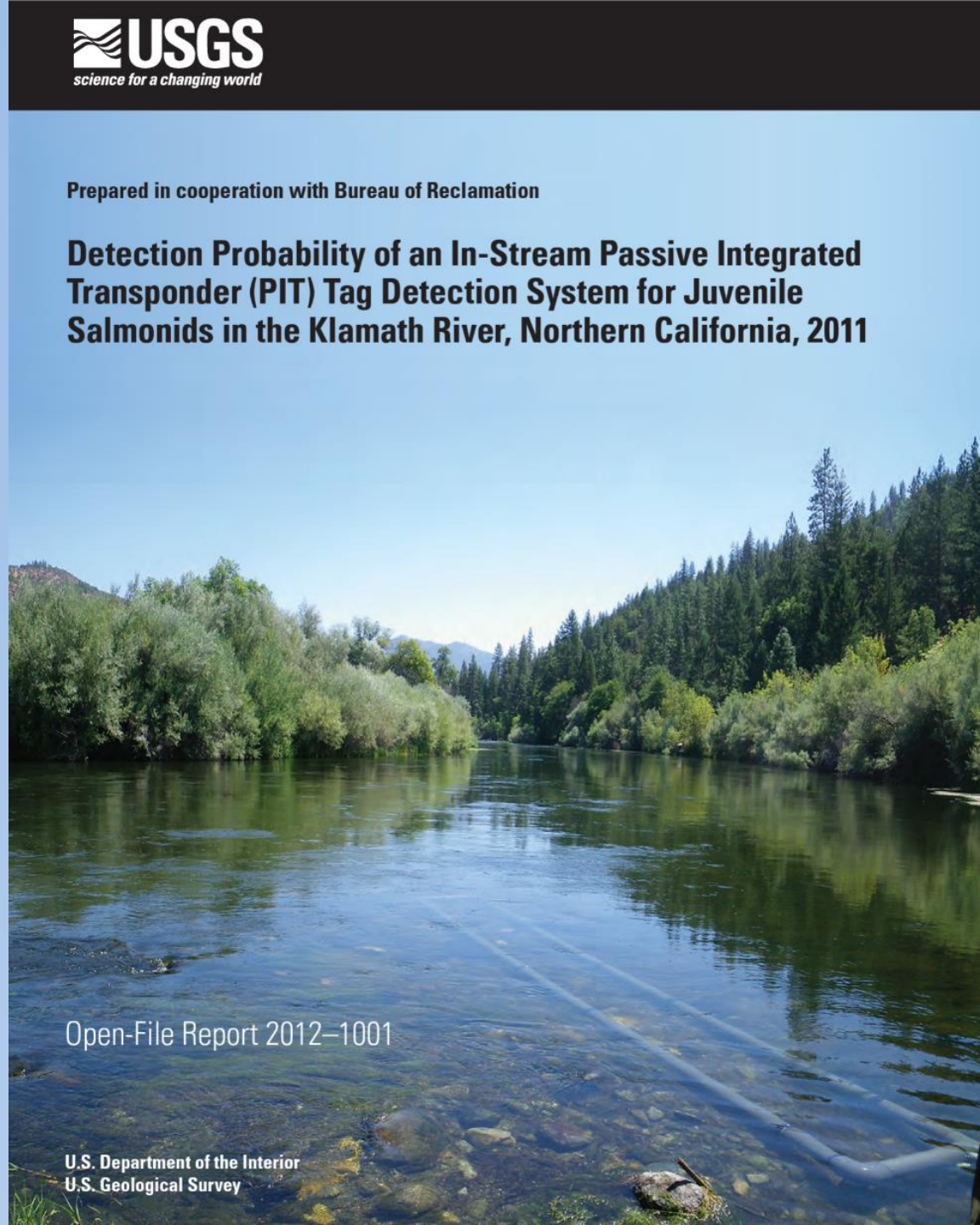


USGS

PIT Tag Antennas have Low Detection Probabilities in Big Rivers

"The estimated detection probability of the PIT tag detection system was 0.043… "

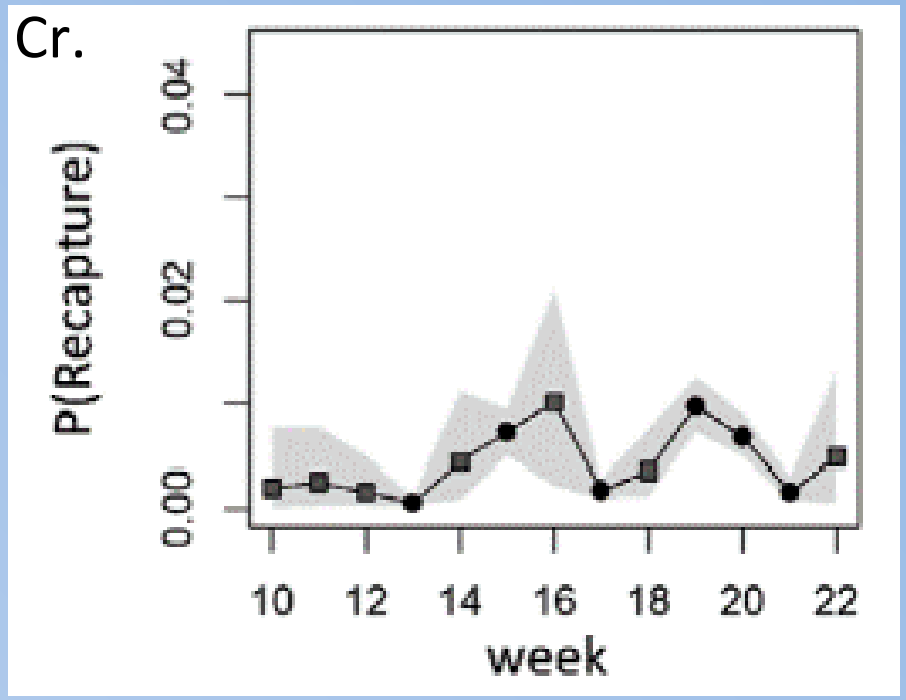
USGS



Traps also have Low Detection Probabilities in Big Rivers

Rotary Screw Trap on the Trinity River. Credit: USFWS

Klamath River Trap at Kinsman Cr.



Payton and Som (2021)

USGS

So *p* is low
Can we overcome this challenge?

USGS

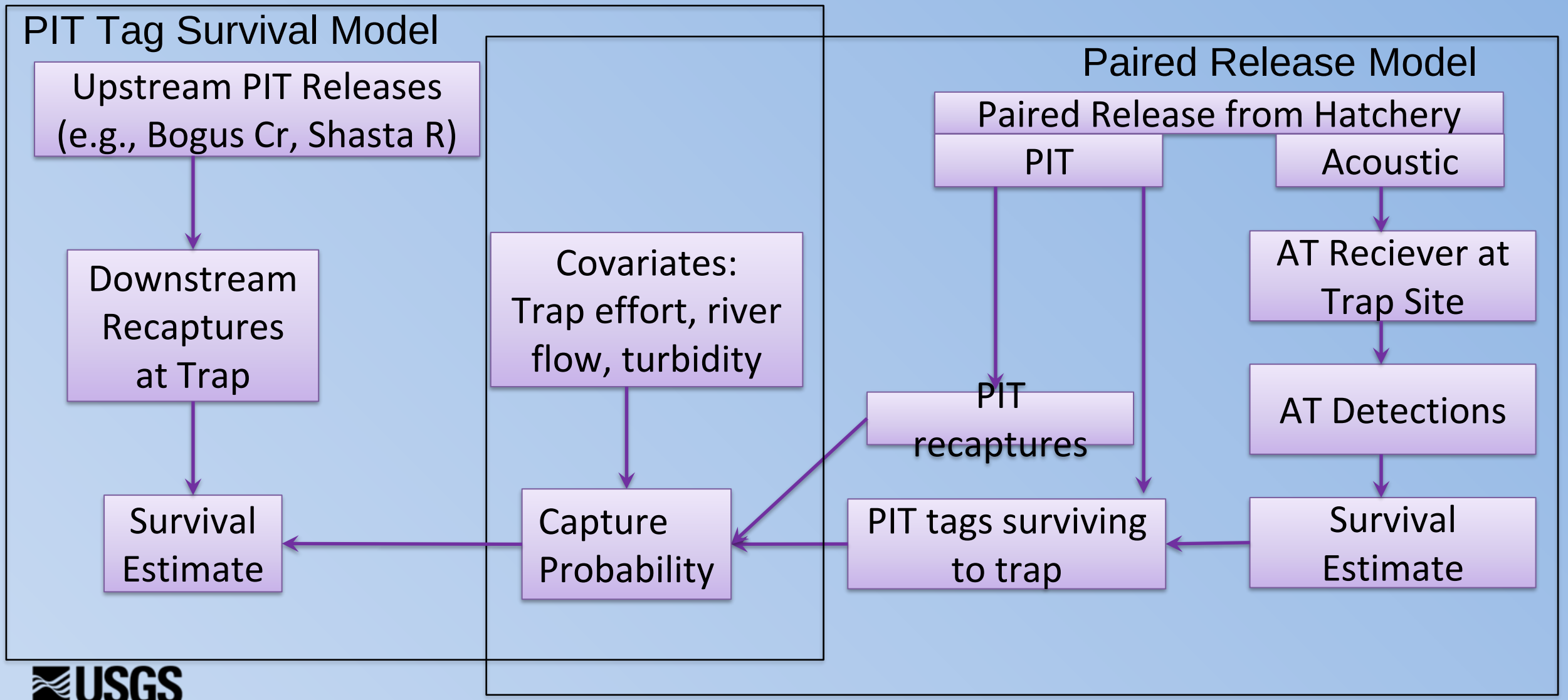
What about using Acoustic Tags *and* PIT tags?

Characteristic	Acoustic tags	PIT tags
Cost	High (Low *N*)	Low (High *N*)
Detection	Very High	Very Low
Fish size	Large (e.g., smolts)	Small (e.g., parr)
Tag life	Weeks - months	Inifinite

USGS

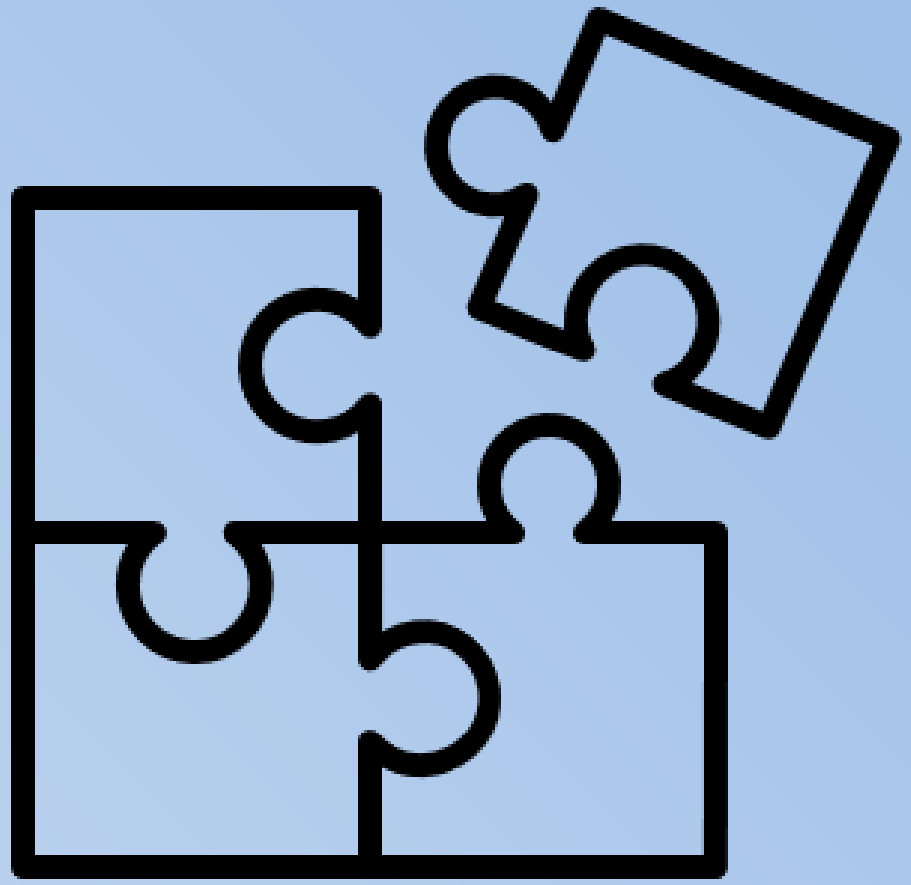
AT-PIT Paired-Release Study Design

Goal: Develop a separate model for capture probability



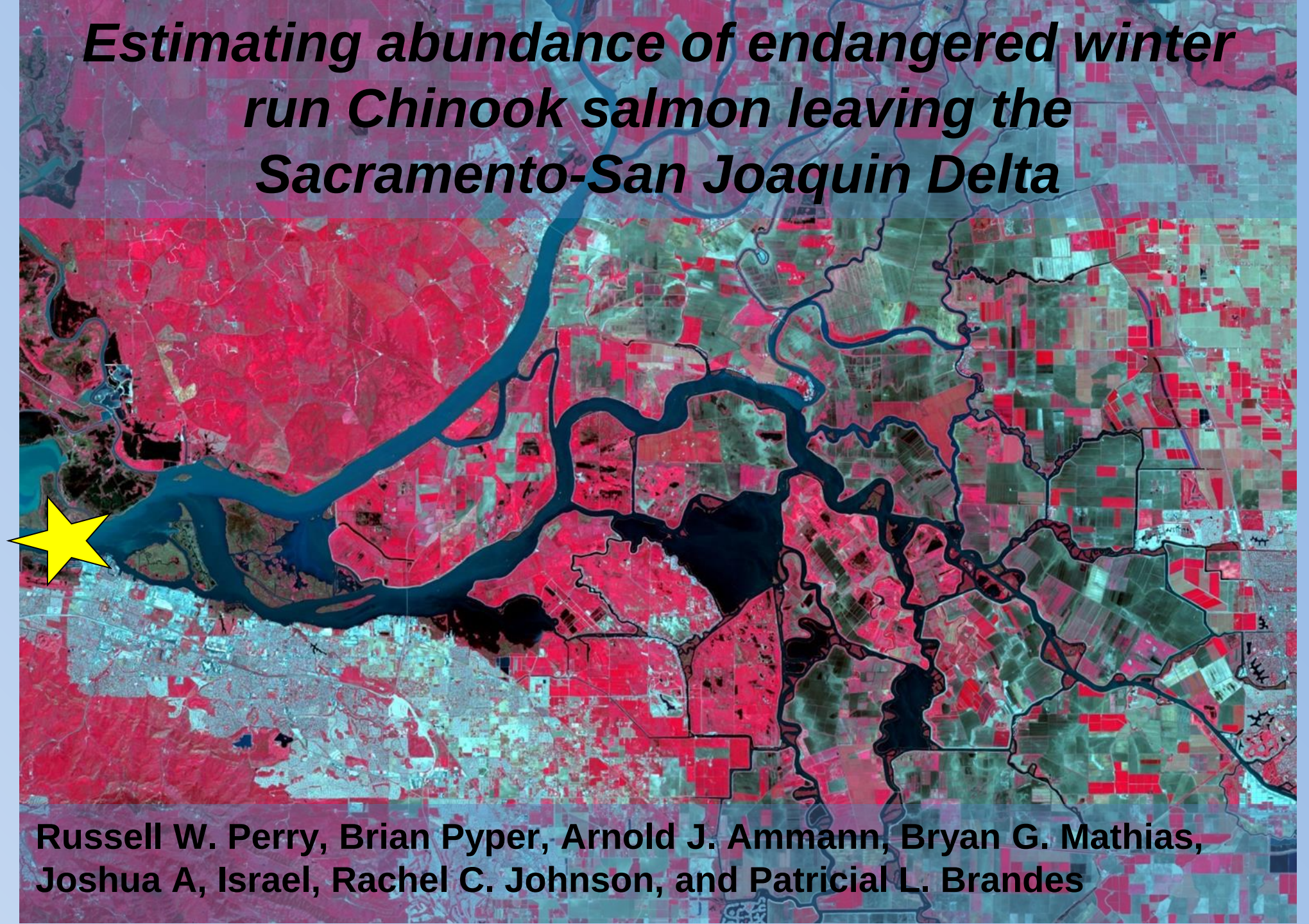
USGS

Does this work in practice?



USGS

Estimating abundance of endangered winter run Chinook salmon leaving the Sacramento-San Joaquin Delta



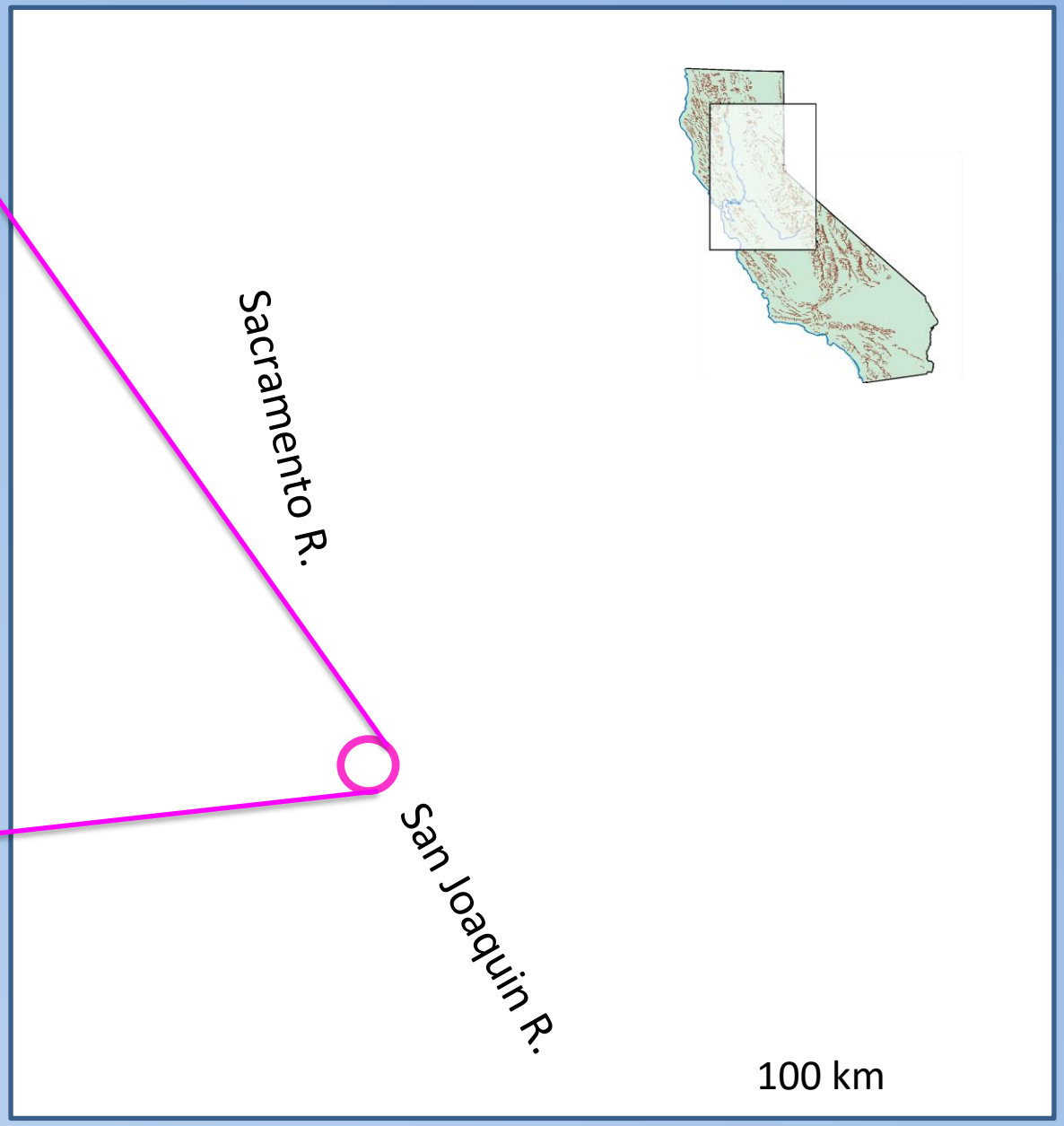
Russell W. Perry, Brian Pyper, Arnold J. Ammann, Bryan G. Mathias, Joshua A, Israel, Rachel C. Johnson, and Patricial L. Brandes

USGS

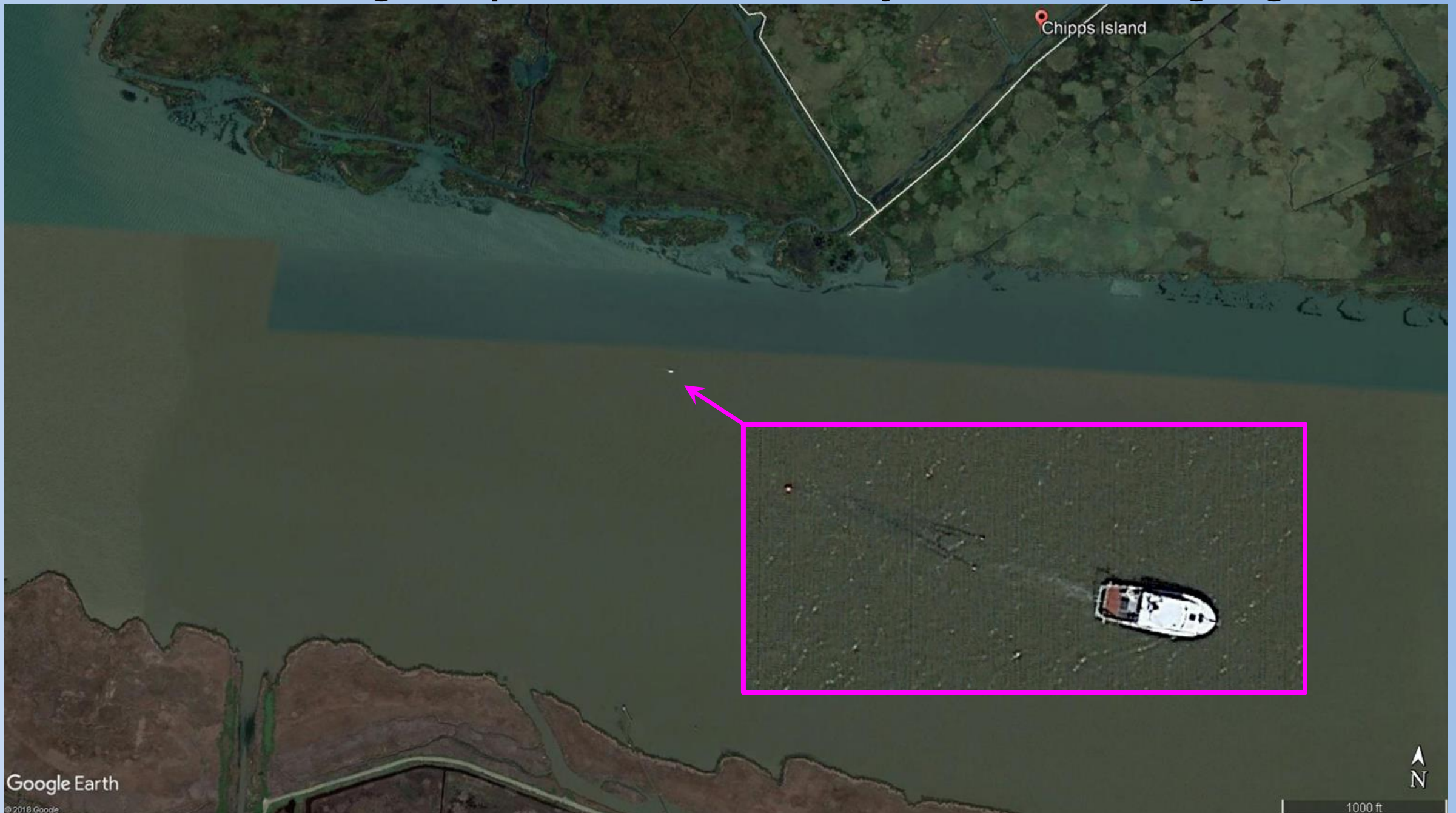
The Central Valley Watershed

The Chipps Island Trawl

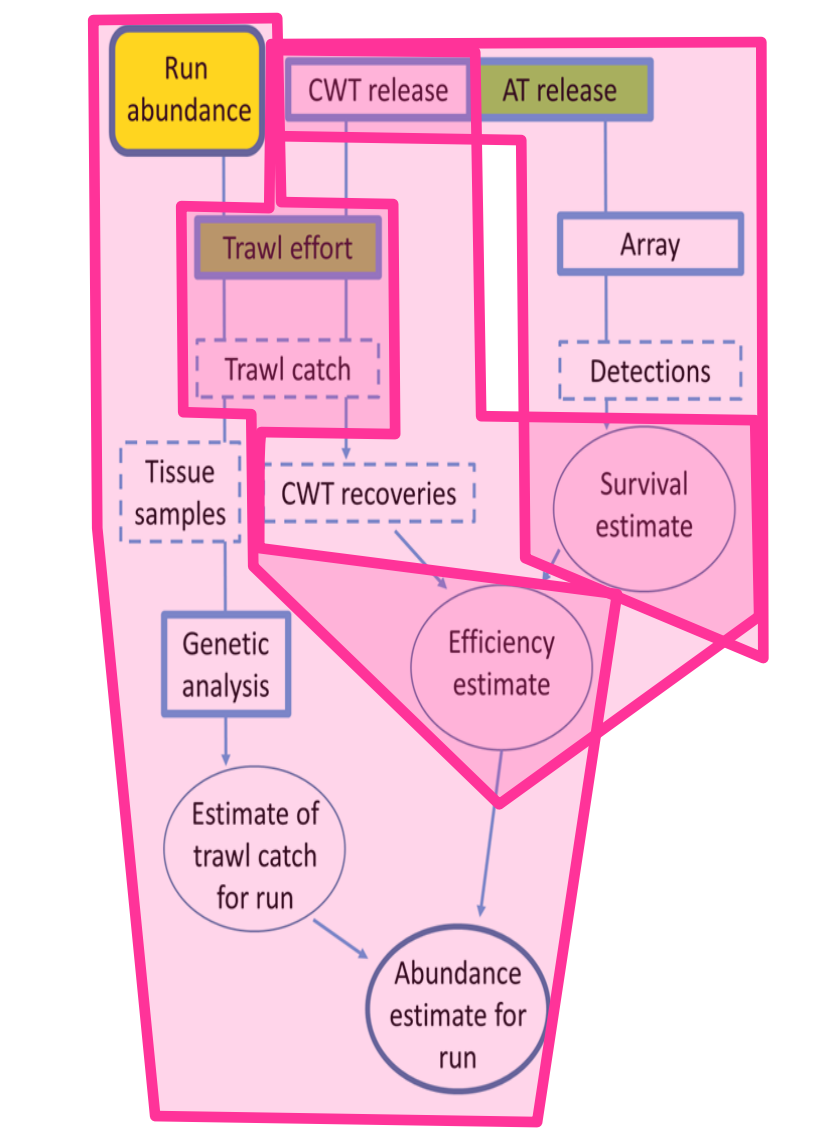
- Operated since 1970s
- Catch index only
- No estimates of capture probability



Estimating Capture Probability is Challenging!!



Paired-Release Trawl Efficiency Study 2016 – 2021



3 Parts:

1) Acoustic Tags (AT)

+

2) Coded Wire Tag (CWT) Catch & Trawl efficiency

+

3) Trawl catch & Genetic ID

=

Estimate of run-specific abundance

USGS

Trawl and Genetic Data

Trawl Data

- Ten 20-minute tows per day
- 3 – 7 days per week
  - 5 days/week since 2019
- Samples 5% – 14% of the time

Genetic Sampling

- Unmarked fish classified by length-at-date (LAD)
- To genetic tissue archive:
  - All LAD late-fall and winter run
  - Up to 10 spring run LAD
  - Up to 25 fall run LAD
- Genetics labs request tissue samples

USGS

Paired Release Summary

- 26 Paired Release Groups
- 8,490 AT fish released
- 11.4 million CWT fish released

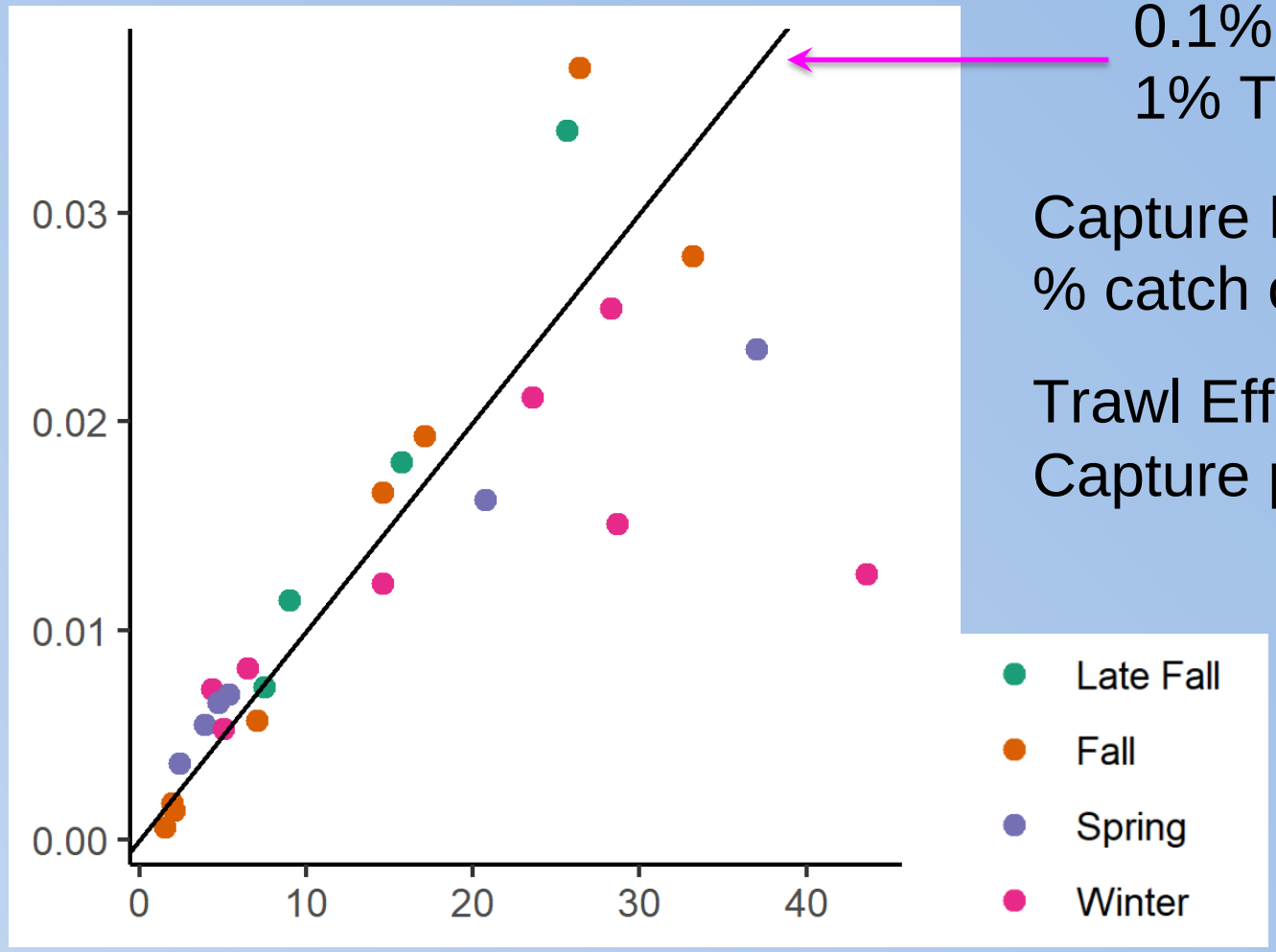
- 1,350 AT fish detected at Chipps
  - 15.9%
- 1,652 CWT fish captured at Chipps
  - 0.014%

Releases per Year

Year	Late Fall	Fall	Spring	Winter
2016		3		1
2017		4		1
2018	2	1		2
2019	1		2	1
2020	1		2	2
2021			2	1

USGS

CWT Captures versus Survival



Percent of CWTs Recaptured

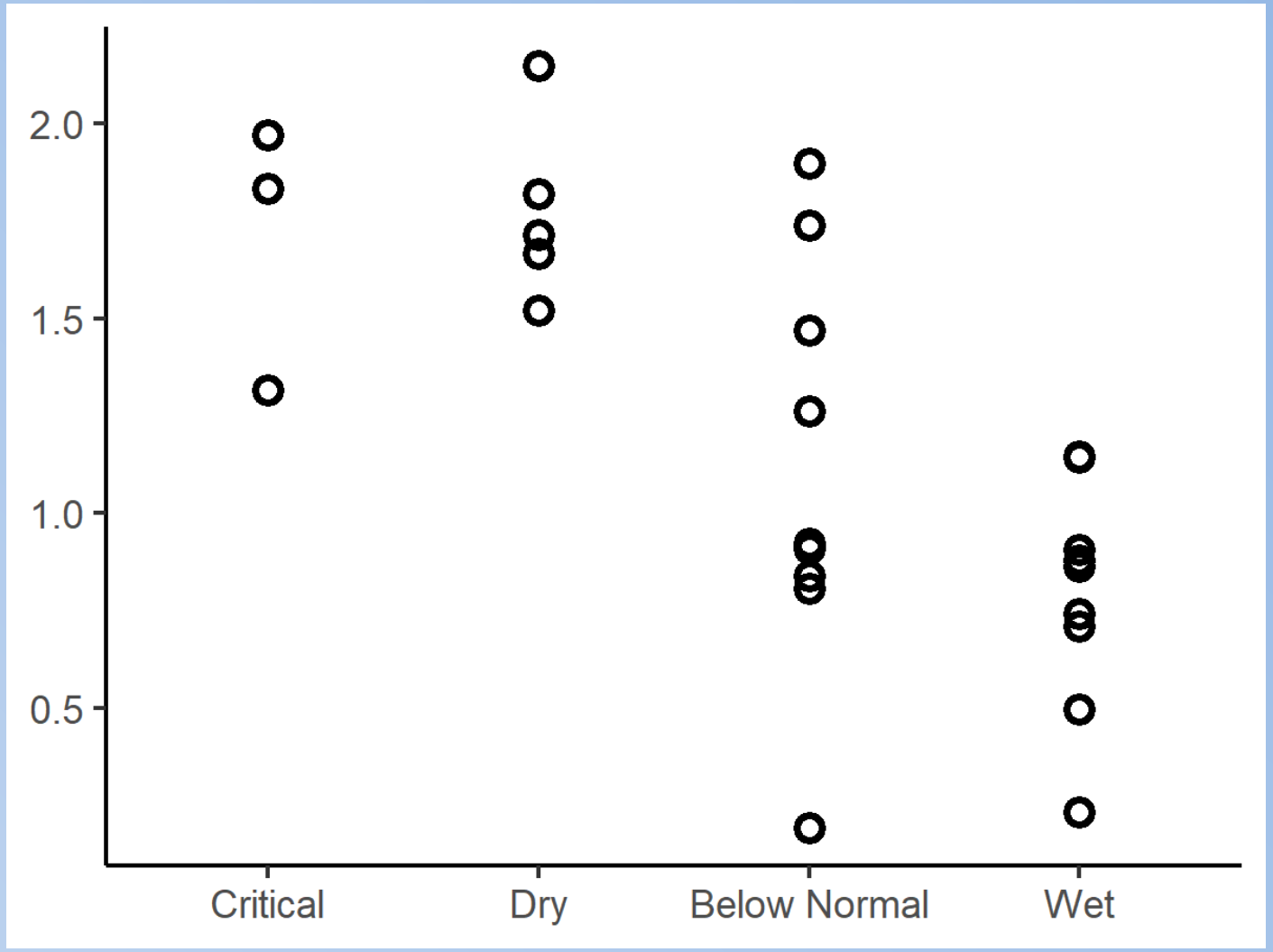
Percent Survival

0.1% Capture Probability
1% Trawl Efficiency

Capture Probability =
% catch of all fish passing trawl site

Trawl Efficiency =
Capture probability during trawling

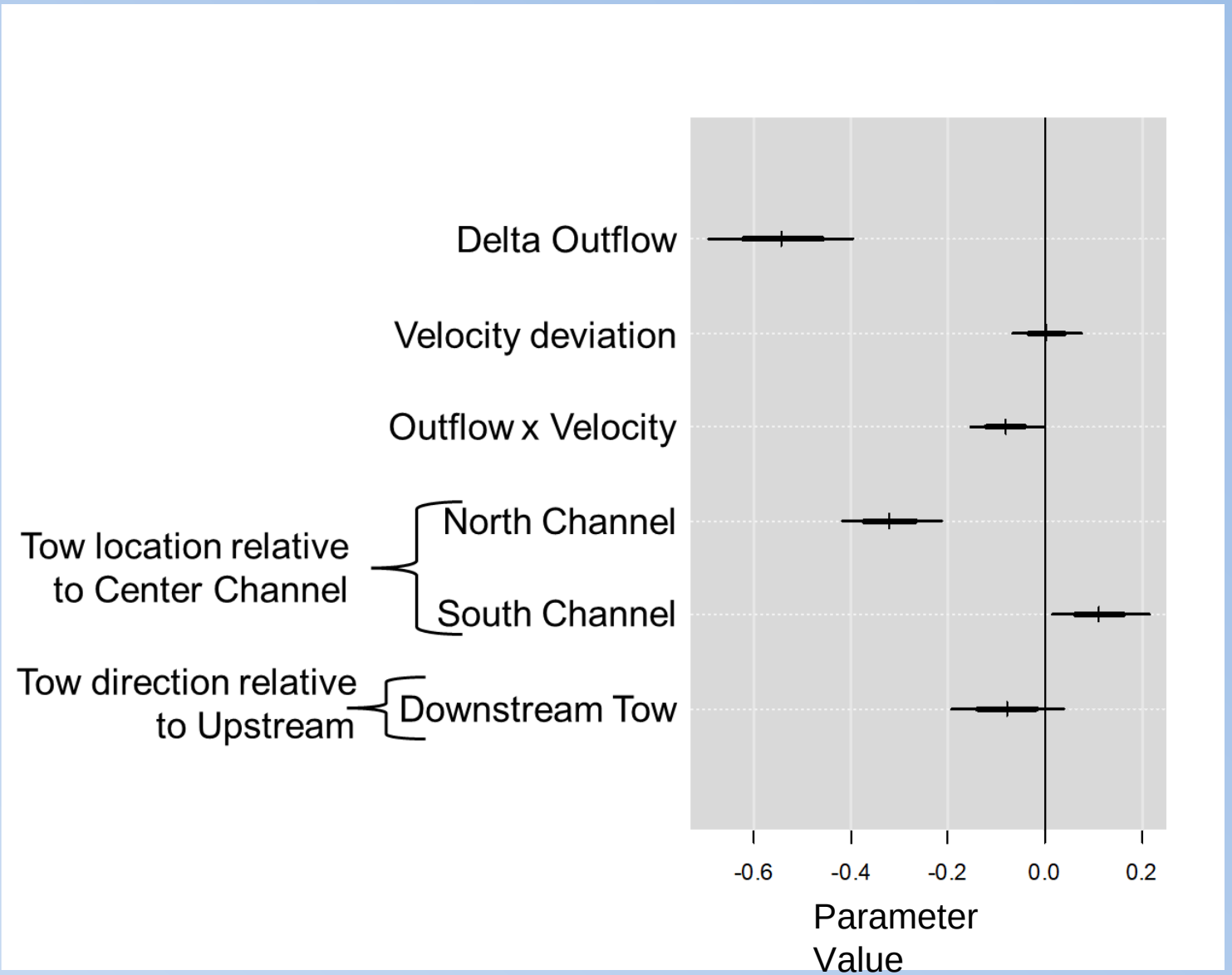
Trawl Efficiency by Water Year Type

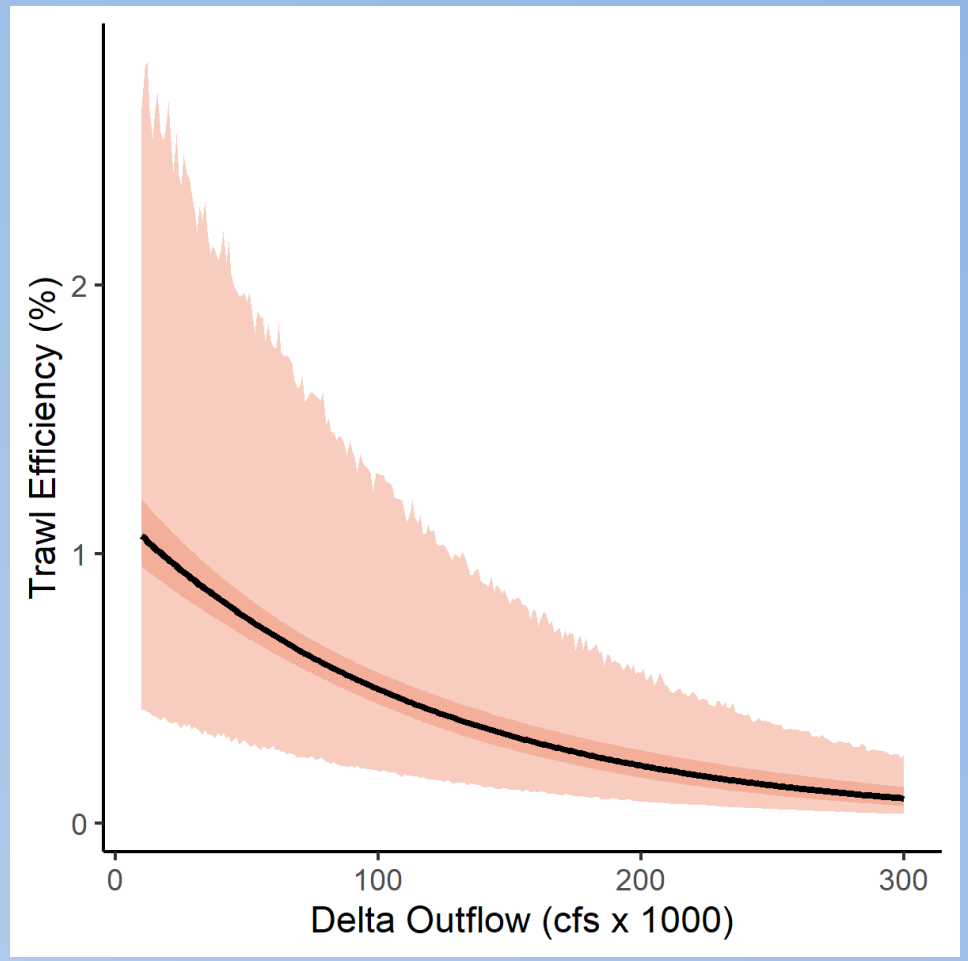


USGS

Preliminary Data, Do Not

Factors Affecting Trawl Efficiency



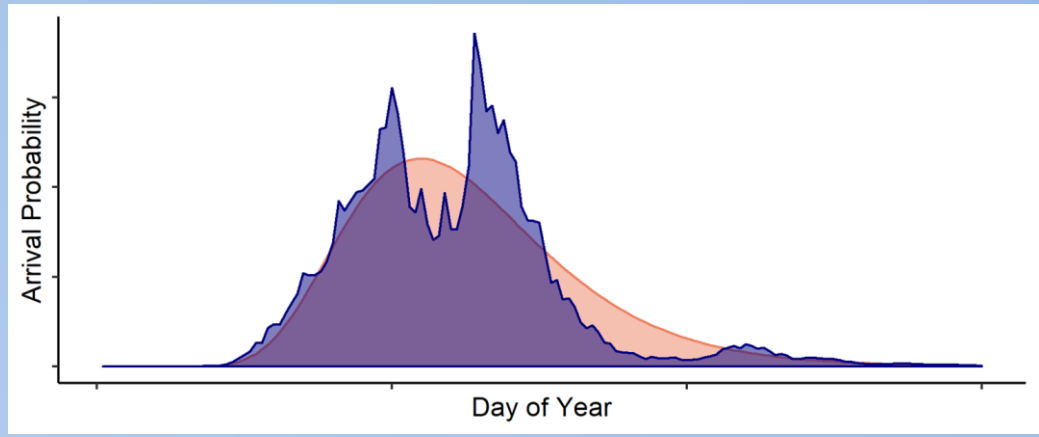


Estimating Abundance from Trawl Catch

Trawl_catch[d] ~ Poisson(**Ntot * arr_prob[d]** * **p[d] * f[d]**)

Data:
Trawl_catch[d] = Daily catch for group of interest
- Groups: Genetic ID, Length-at-Date, CWT, hatchery-origin

Biological parameters:
Ntot = Total abundance of group
arr_prob[d] = Daily arrival probability

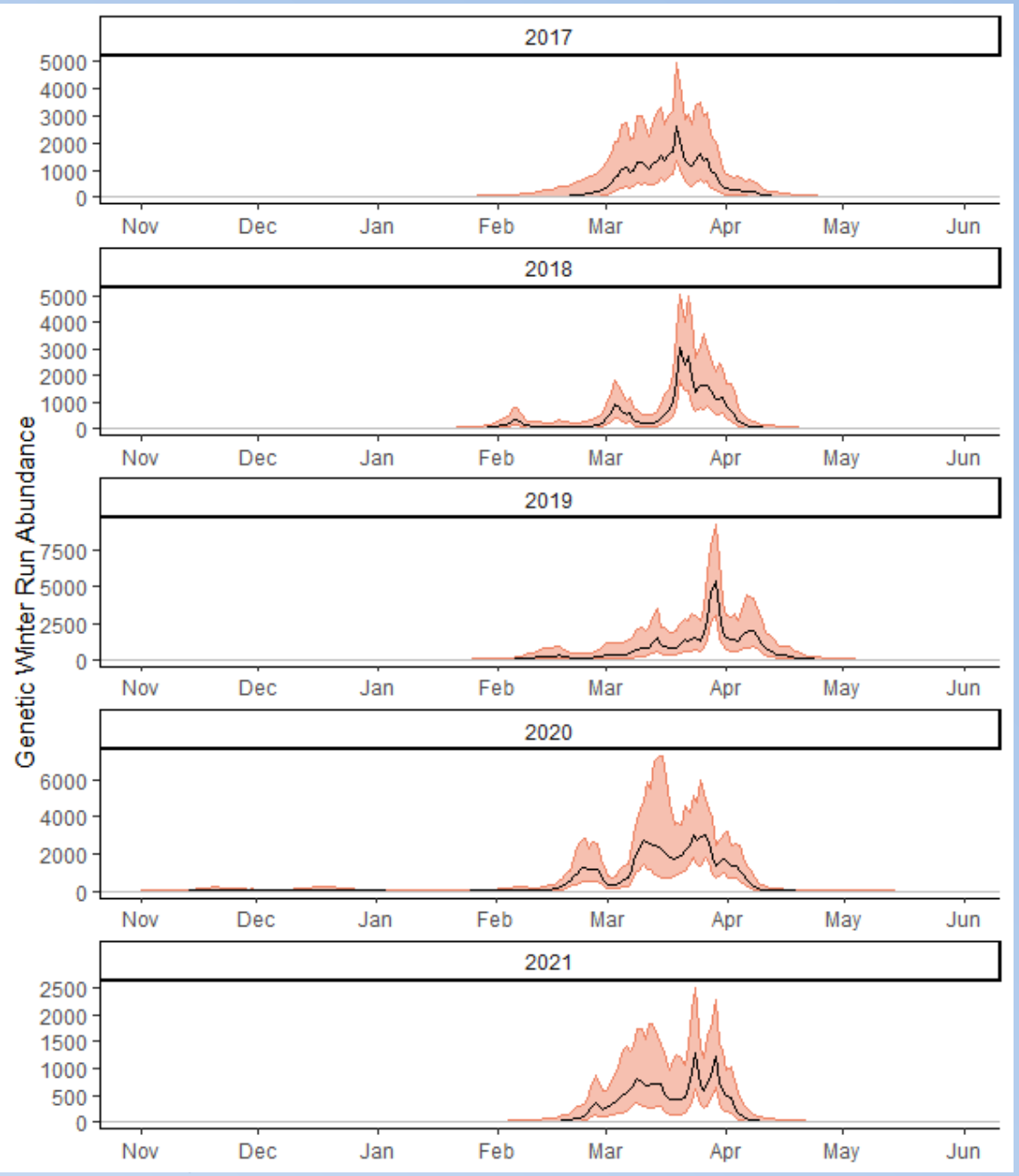


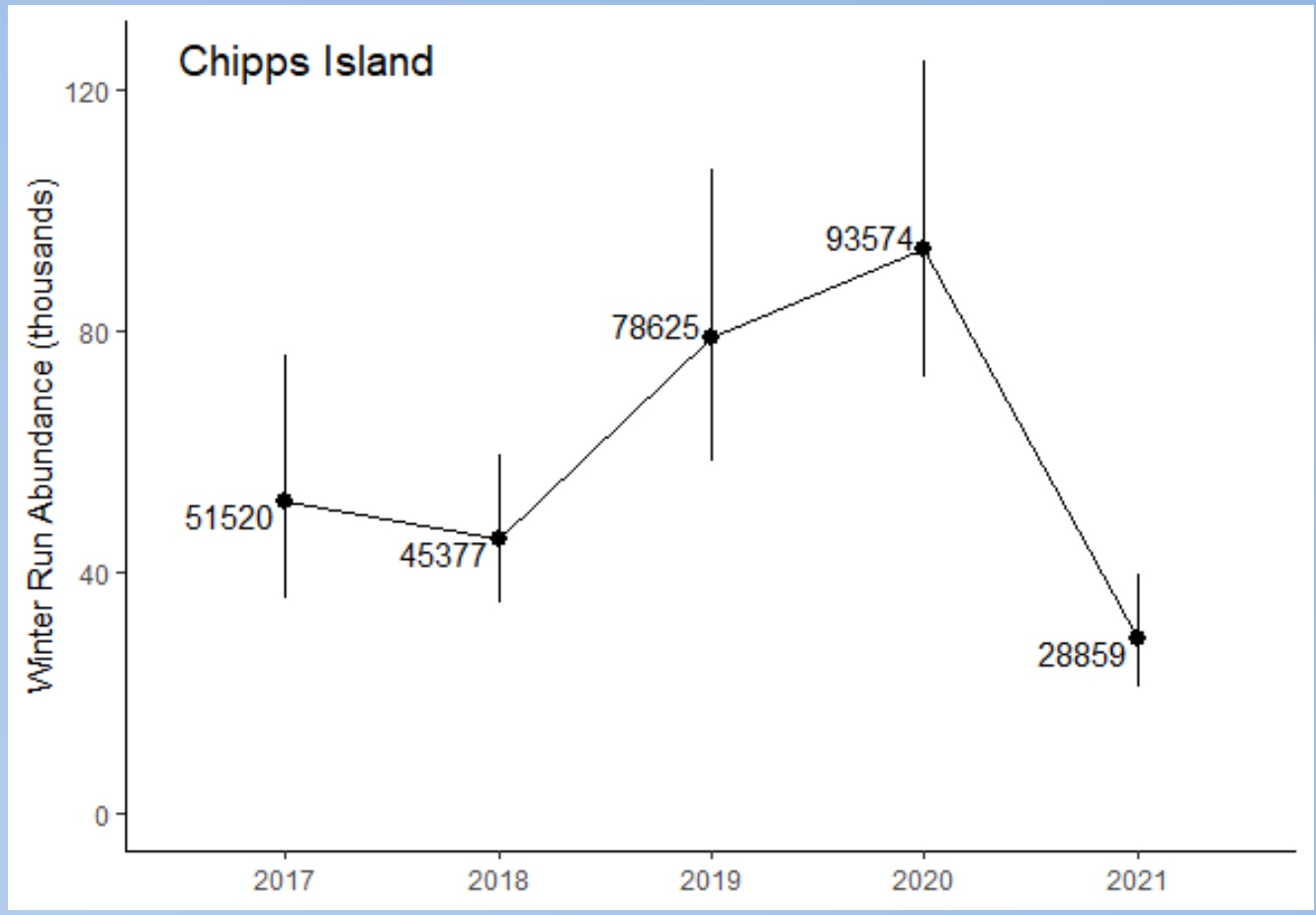
Sampling parameters:
p[d] = Daily capture probability
= f(trawl efficiency, number of tows, tow duration)
f[d] = Sampling fraction

USGS

* Fitted in JAGS simultaneously with paired-release data and efficiency model

Juvenile Winter Run Abundance Estimates





Out-of-Sample Validation

Are Abundance Estimates Biased?

1. Leave out one paired release group

1. Use acoustic tags to estimate CWT abundance
   - Abundance = Survival x Number of CWTs Released

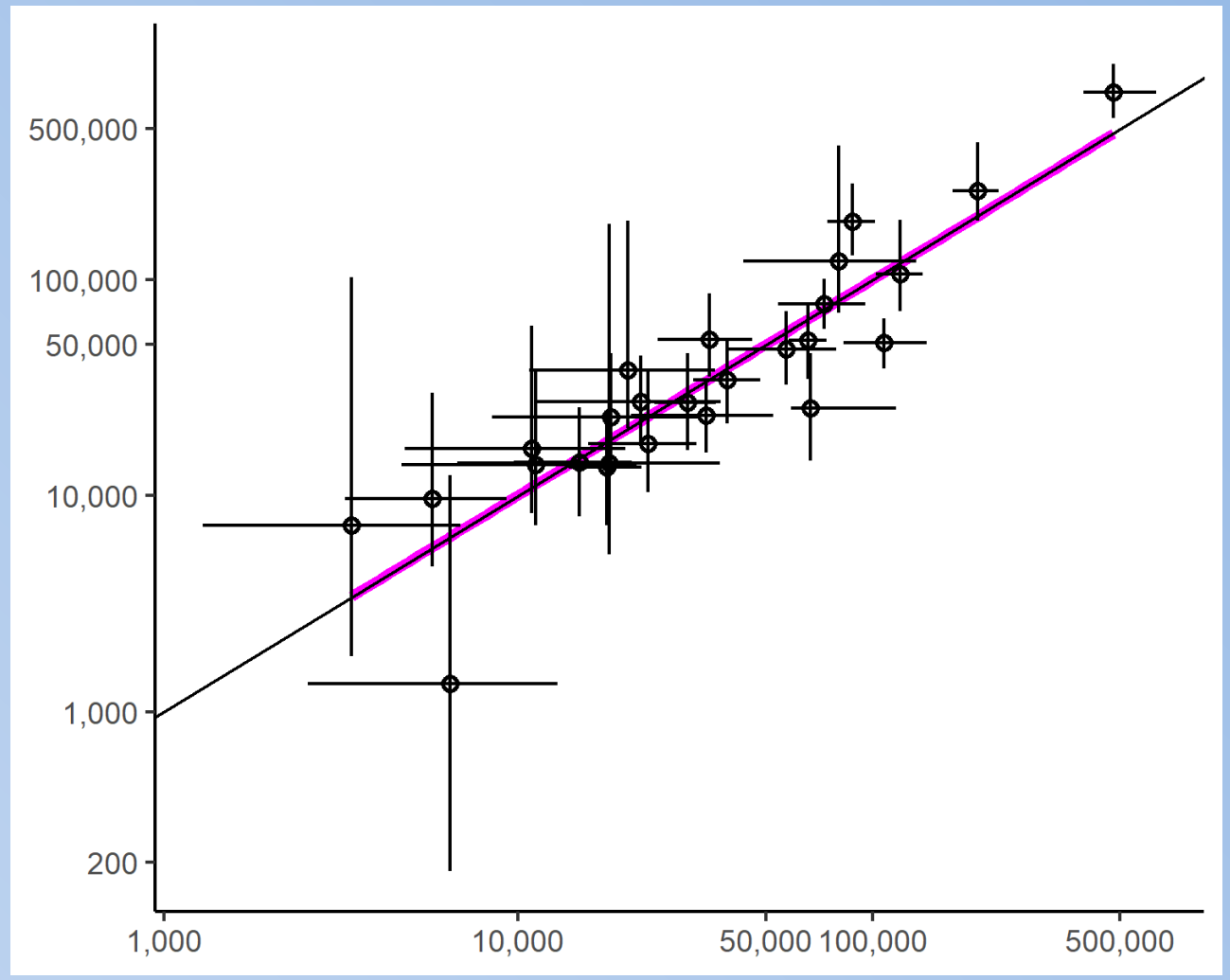
2. Fit efficiency model to remaining groups
   - Use trawl CWT catch to estimate abundance for left-out group

1. Repeat for all release groups

1. Compare independent estimates of abundance

USGS

Out-of-Sample Validation



USGS

Preliminary Data, Do Not

Summary

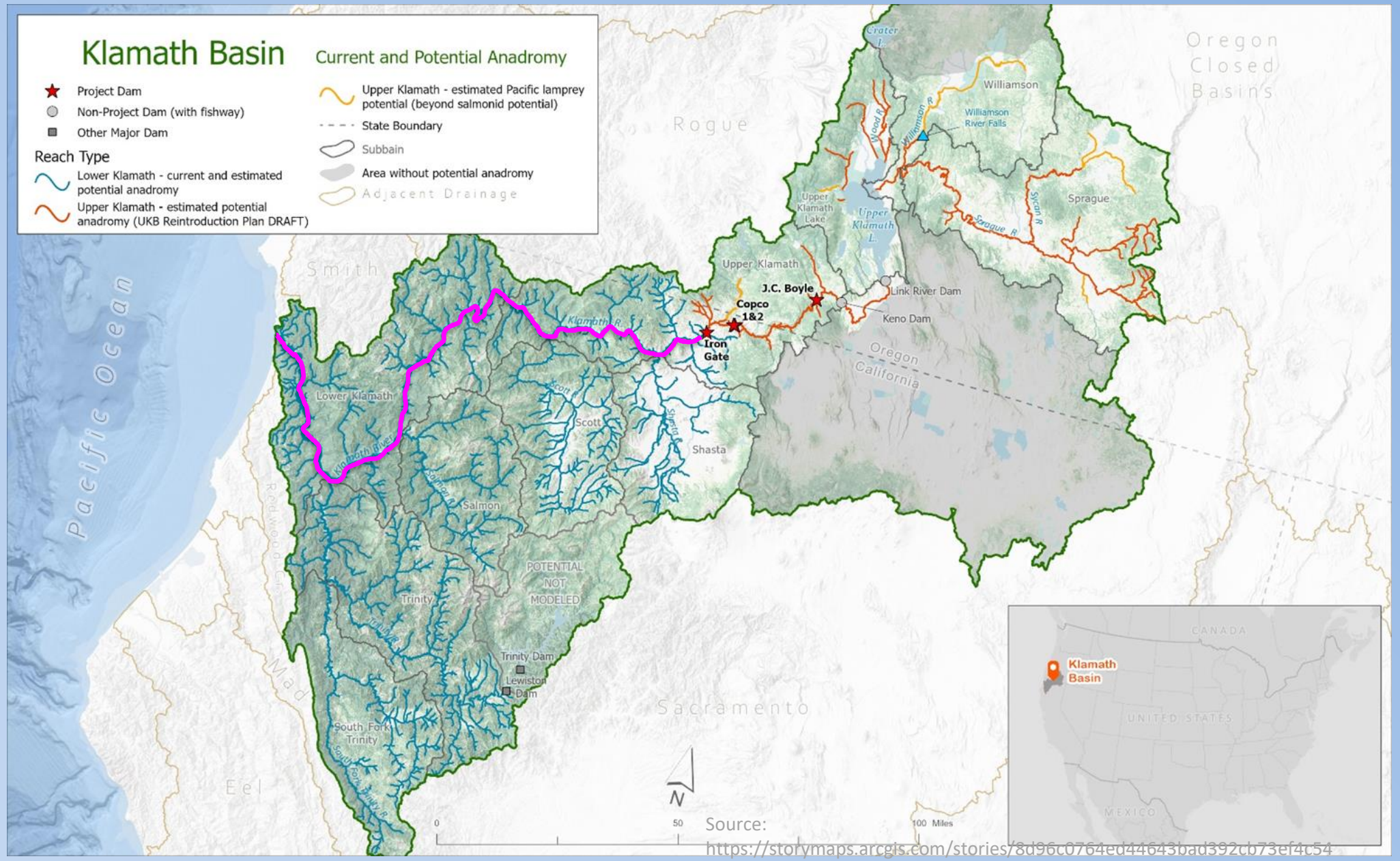
- Trawl Efficiency Model
  - Paired-release study design effective
    - Despite 0.1% capture probability
  - Accounts for factors affecting efficiency

- Trawl Abundance Model
  - Estimates abundance without bias

- Numerous applications
  - Estimate abundance retrospectively
  - Hatchery versus natural
  - Survival of CWT fish

USGS

Back to the Klamath



Source: https://storymaps.arcgis.com/stories/8d96c0764ed44643bad392cb73ef4c54

Let's Talk Sample Size

- Need sufficient recaptures
  - >10 PIT recaptures, but more is better
  - 1% capture probability = 1,000 surviving to trap
  - If 50% survival, then release 2,000 PIT tags

- For paired releases
  - Suggest 2,000 - 5,000 PIT tags with each AT release

- Requires significant field tagging effort
  - Upstream traps are best source for study fish

USGS

Requires Multi-Year Effort

(but not indefinite)

- Multiple releases over wide range of conditions
  - Quantify factors affecting capture probability
- Leverage ongoing telemetry studies
- Pilot paired releases proposed for 2024
- Opportunity to measure growth

USGS

Questions?

Photo credit: USFWS, Steve Martarano

USGS

Acknowledgements

USGS Pacific Region
CVPIA
CAMT
CDFW
IEP
Delta Stewardship Council
Field staff

USGS

Lunch

Find your interest group and talk

Back at 1pm

Report from Interest Group Discussions:
Facilitated group discussion on monitoring needs across the Basin

Discussion Leaders

PIT Tag Monitoring Below the Dams: Lightening Road Presentations and Discussion

Alex Corum, Karuk Tribe

Jimmy Faukner, Yurok Tribe

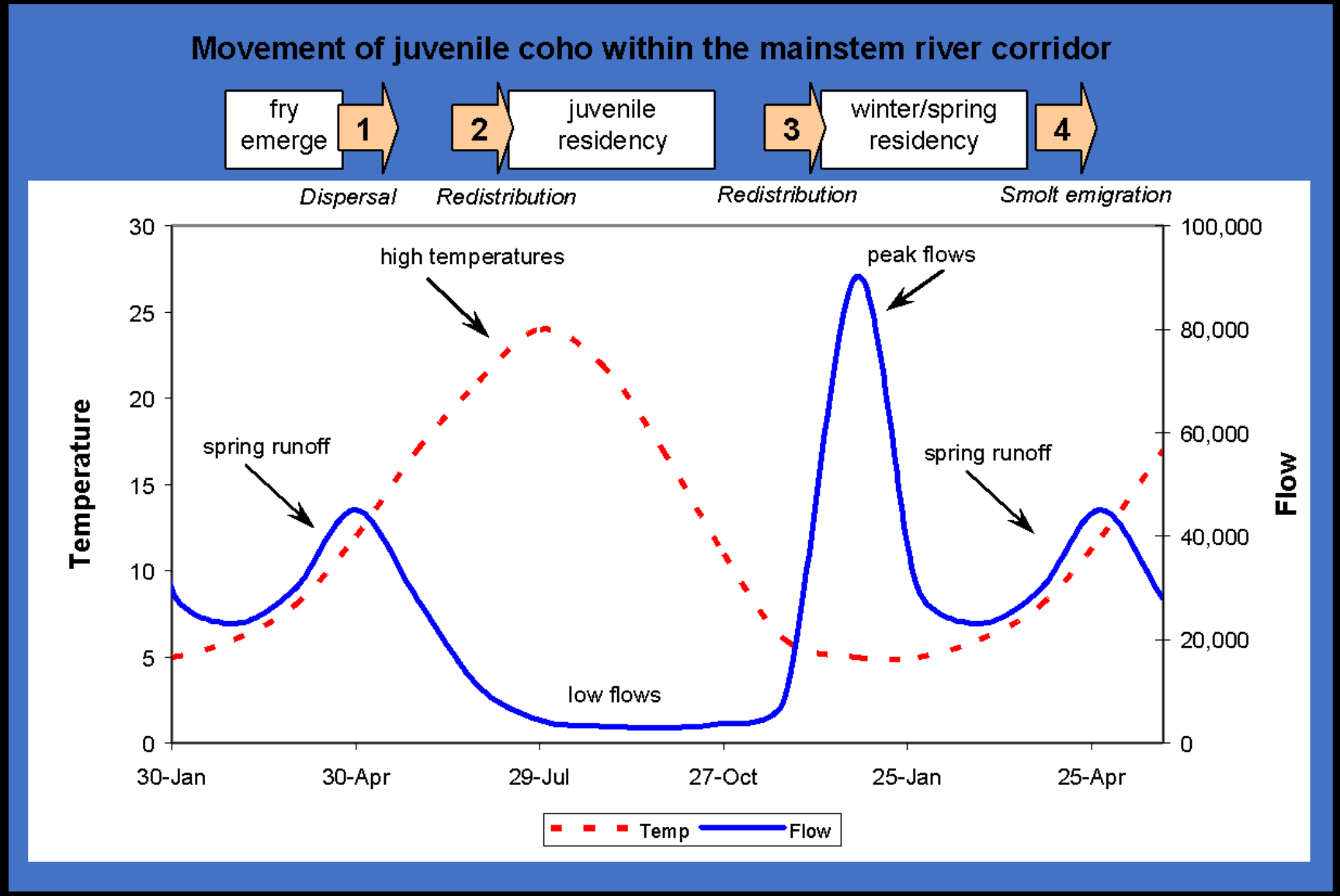
Harrison Morrow, Scott River Watershed Council

Hans Voight, Resighini Rancheria

A Larger And Smaller PIT tag Dataset That Inform Us About Juvenile Klamath River Coho Salmon Life History Behavior

Jimmy Faukner
Yurok Tribe Fisheries Department
Lower Klamath Program
Klamath, CA

Generalized Movement Patterns



Soto, T., D. Hillemeier, S. Silloway, A. Corum, A. Antonetti, M. Kleeman, and L. Lestelle. 2016. The Role of the Klamath River Mainstem Corridor in the Life History and Performance of Juvenile Coho Salmon (*Oncorhynchus kisutch*), Period Covered: May 2007−August 2011. Report submitted to the U.S. Bureau of Reclamation, Klamath Falls, OR.

"The large majority of upstream moving immigrants in fall and winter each year occurred prior to about January 15 each year, which is consistent with the patterns of attrition reported earlier in this report for the Sandybar floodplain channel. The pattern of fish leaving sites like Sandybar channel matches the pattern when immigrants arrived to sites like Waukell Creek."

Juvenile Coho Salmon leaving their natal tributary are much more likely to enter a non-natal tributary before January 31st than after January 31st

	Tagging		Winter emigration			Spring emigration			Derived parameters		
Stream	Year	N_f	N_w	p_w	Φ_w	N_s	p_s	Φ_s	S	S_m	ψ_w
Waukell	2008	525	--	--	--	173	0.99 (0.01)	0.33 (0.02)	0.33 (0.02)	0.82 (0.01)	--
	2009	86	--	--	--	38	0.96 (0.03)	0.46 (0.06)	0.46 (0.06)	0.86 (0.02)	--
	2010	522	--	--	--	271	0.93 (0.03)	0.56 (0.03)	0.56 (0.03)	0.91 (0.01)	--
	2011	390	--	--	--	98	0.88 (0.03)	0.29 (0.03)	0.29 (0.03)	0.79 (0.01)	--
McGarvey	2010	286	76	0.92 (0.03)	0.29 (0.03)	56	0.99 (0.01)	0.20 (0.02)	0.49 (0.03)	0.87 (0.01)	0.44 (0.04)
	2011	123	17	0.90 (0.06)	0.16 (0.04)	35	0.81 (0.09)	0.36 (0.07)	0.52 (0.07)	0.89 (0.02)	0.24 (0.05)
	2012	381	32	0.99 (0.01)	0.09 (0.01)	55	0.99 (0.01)	0.15 (0.02)	0.23 (0.02)	0.78 (0.01)	0.19 (0.03)
	2013	321	32	0.96 (0.03)	0.11 (0.02)	79	0.83 (0.05)	0.30 (0.03)	0.41 (0.04)	0.85 (0.01)	0.19 (0.03)
Seiad	2009	560	--	--	--	170	0.99 (0.01)	0.30 (0.02)	--	--	--
	2010	696	81	0.89 (0.03)	0.13 (0.01)	234	0.77 (0.04)	0.44 (0.03)	0.57 (0.04)	0.91 (0.01)	0.20 (0.02)
	2011	482	62	0.99 (0.01)	0.13 (0.02)	100	0.87 (0.03)	0.24 (0.02)	0.37 (0.03)	0.79 (0.01)	0.24 (0.03)
	2012	727	39	0.30 (0.12)	0.22 (0.12)	136	0.89 (0.03)	0.21 (0.02)	0.43 (0.12)	0.87 (0.03)	0.31 (0.12)

Manhard, C.V., N.A. Som, R.W. Perry, J.R. Faukner, and T.L. Soto. 2018. Estimating freshwater productivity, overwinter survival, and migration patterns of Klamath River Coho Salmon. U.S. Fish and Wildlife Service. Arcata Fish and Wildlife Office, Arcata Fisheries Technical Report Number TR 2018-33, Arcata, California.

Mid Klamath Detections In Lower Klamath Tributaries

Year	July 1st to January 31st (age-0+)			February 1st to June 30th (age-1+)		
	Tagged	Detections	Detection %	Tagged	Detections	Detection %
2009-2010	1694	59	3.48	148	0	0.00
2010-2011	4103	173	4.22	1001	5	0.50
2011-2012	4776	126	2.64	1391	0	0.00
2012-2013	3758	246	6.55	581	1	0.17
2013-2014	2680	20	0.75	653	2	0.31
2014-2015	2803	110	3.92	574	1	0.17
2015-2016	2346	49	2.09	582	0	0.00
2016-2017	2291	247	10.78	344	0	0.00
2017-2018	—	—	—	—	—	—
2018-2019	1093	30	2.74	1283	0	0.00
2019-2020	1870	33	1.76	1183	3	0.25
2020-2021	1425	10	0.70	1208	0	0.00
2021-2022	1374	1	0.07	526	0	0.00

McGarvey Creek Detections In Other Lower Klamath Tributaries

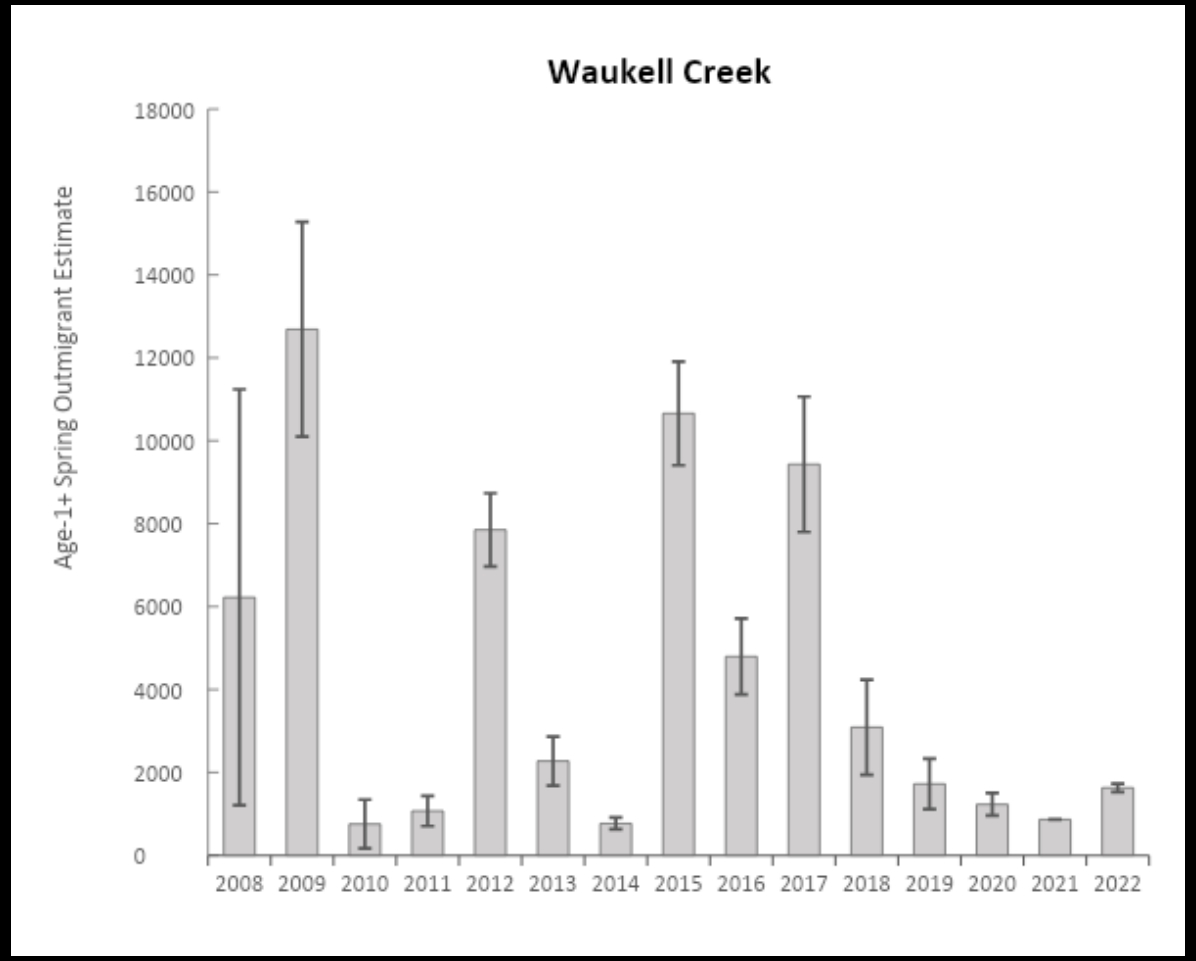
Year	September 1st to January 31st (age-0+)			February 1st to June 30th (age-1+)		
	Exit	Detections	Detection %	Exit	Detections	Detection %
2012–2013	129	32	24.81	87	2	2.30
2013–2014	43	6	13.95	114	1	0.88
2014–2015	137	49	35.77	49	2	4.08
2015–2016	11	3	27.27	22	1	4.55
2016–2017	76	24	31.58	29	1	3.45
2017-2018	33	19	57.58	114	7	6.14
2018-2019	25	12	48.00	136	1	0.74
2019-2020	28	15	53.57	135	1	0.74
2020-2021	6	2	33.33	148	2	1.35
2021-2022	114	77	67.54	102	3	2.94

Implications

Confirms the January 31st cutoff data that has been established. Juvenile Coho are more likely to enter a non-natal tributary before this date than after. Important for calculating survival.

January 31st is a valid assumption for the Klamath River but an earlier date than other researchers commonly use (March 1st or March 15th). Is this pattern true for other river systems?

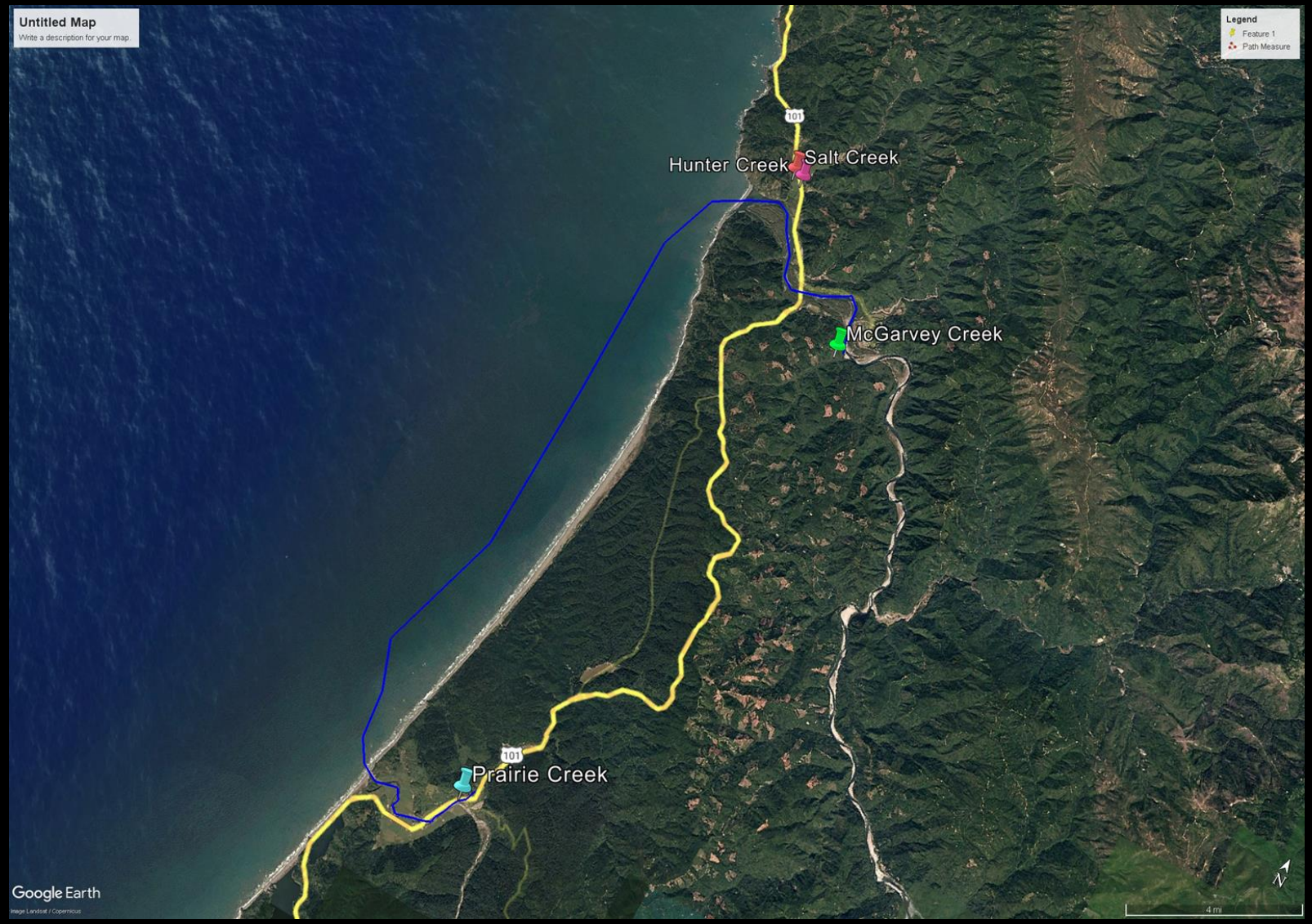
Helps confirm what population we are measuring in non-natal tributaries. Juvenile Coho that enter the creeks in the late fall and early winter that rear in the system until April-June.



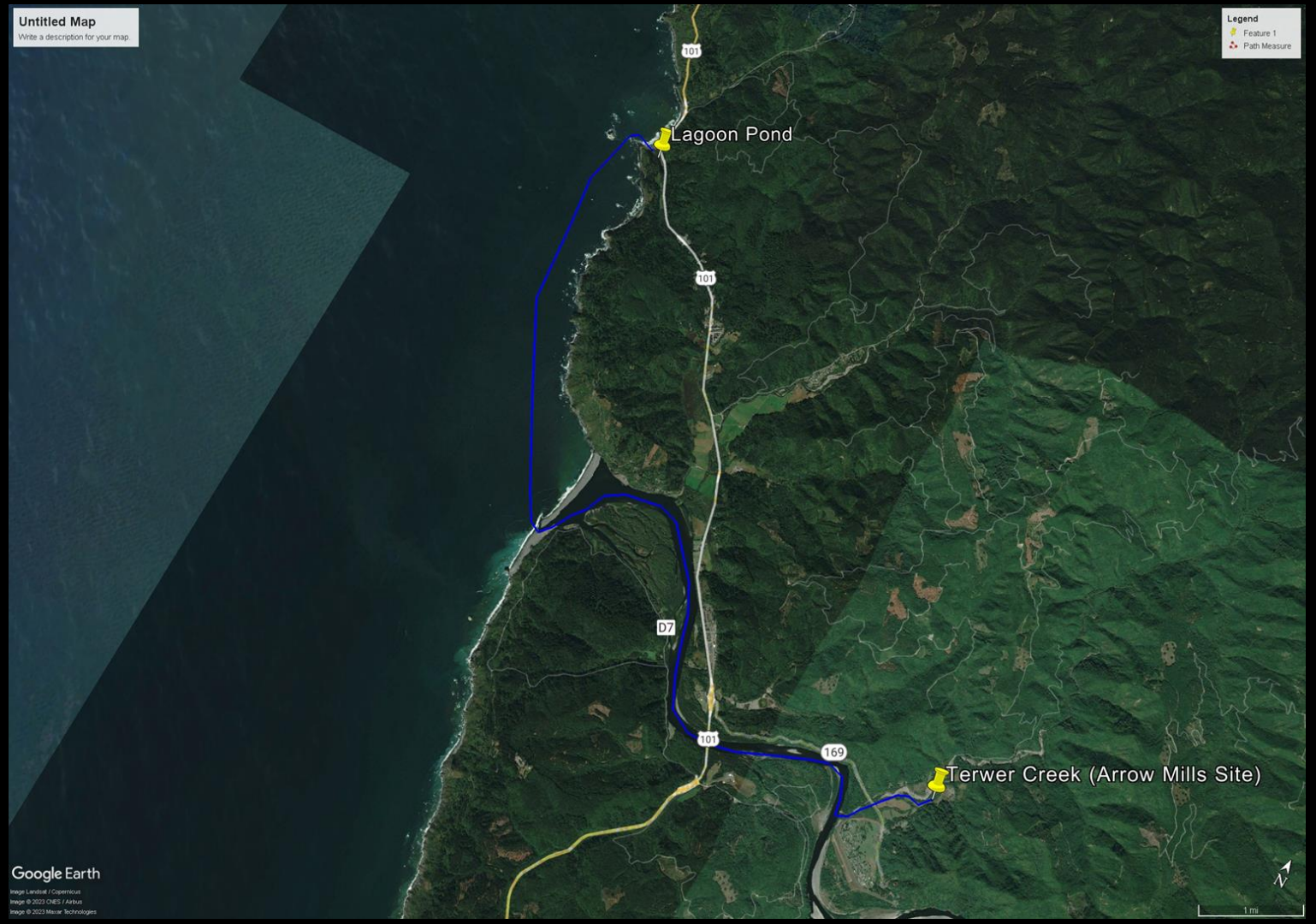
Non-natal Use Outside Of The Klamath River Basin

	Initial Tagging		Recapture		
PIT Tag #	Location	Date	Location	Date	Type
985121025924963	McGarvey Creek	9/5/2012	Prairie Creek	4/29/2013	Physical
985121025905793	Hunter Creek	10/15/2012	Prairie Creek	4/28/2013	Physical
989001028582746	Salt Creek	1/24/2023	Prairie Creek	2/15/2023	Detection
989001028583638	Terwer Creek	1/31/2023	Lagoon Creek	3/29/2023	Detection
989001028583654	Terwer Creek	1/31/2023	Lagoon Creek	5/3/2023	Detection
989001028583308	Terwer Creek	1/5/2023	Lagoon Creek	5/24/2023	Detection

Prairie Creek



Lagoon Creek



Conclusions

"Accidental" findings can be important too

Although probably not a common life history behavior it doesn't appear to be a chance event either

- Behavior observed in two different years a decade apart
- Fish left from four different tributaries
- Fish entered two different tributaries either north or south of the Klamath River

Entering the ocean at age-1^{+} and then returning to freshwater non-natal habitat until age-2^{+} is a relatively common life history behavior for juvenile Coho Salmon in southeast Alaska

What is the scope of the Scott River Watershed Council's PIT tag monitoring?

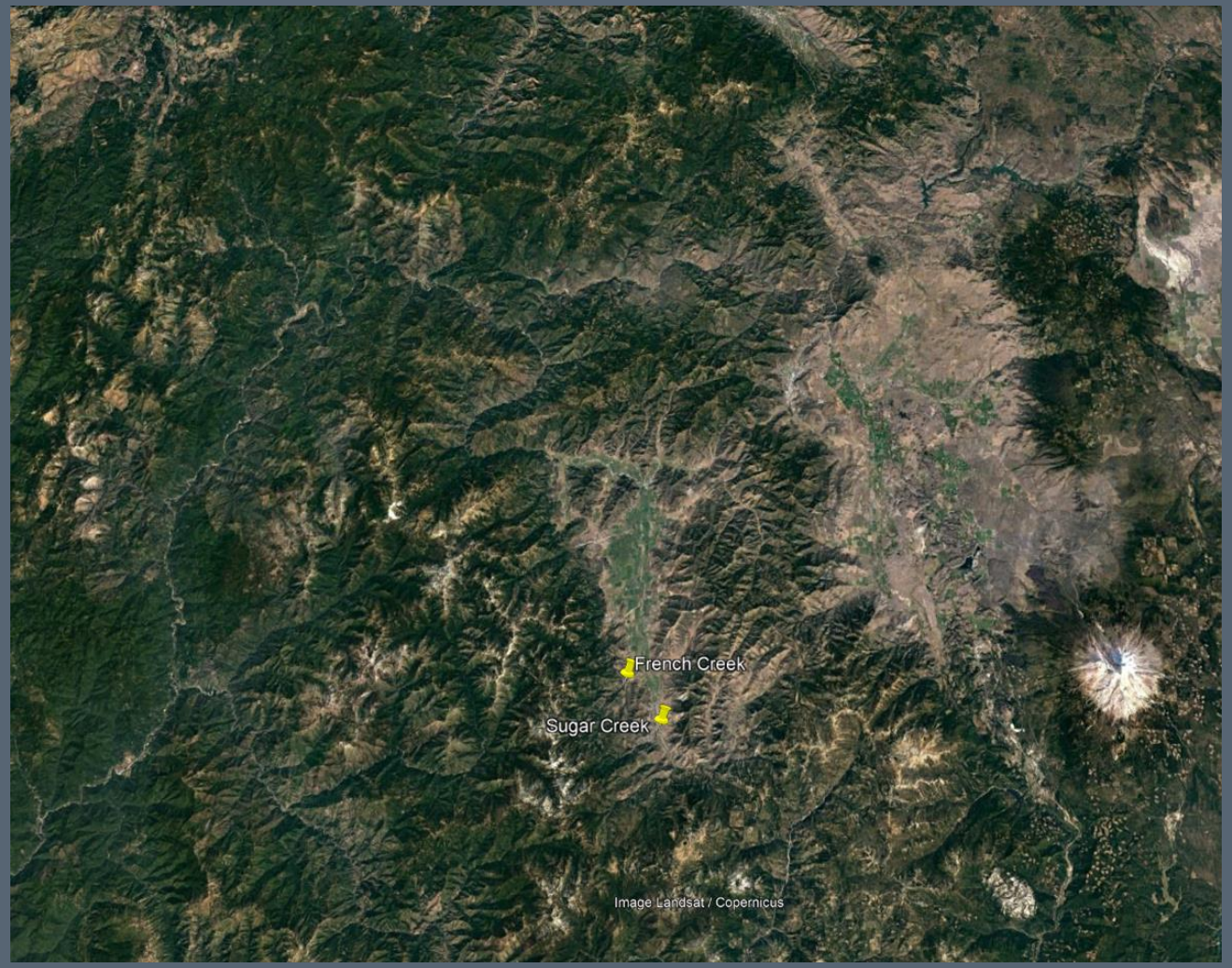
SRWC PIT Network

SRWC PIT Network

- Lower Sugar Creek: stationary arrays and in-hand fish tagging efforts

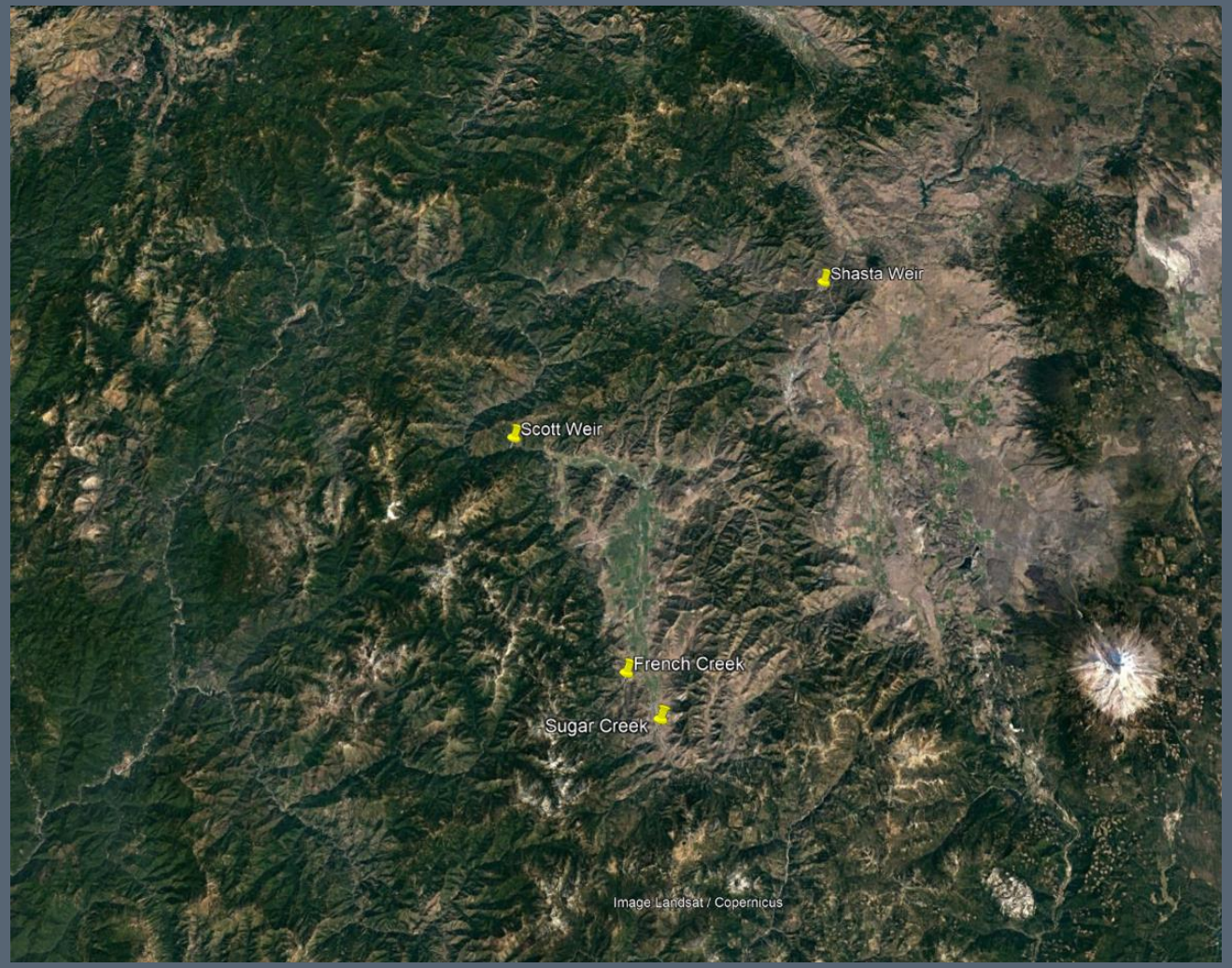
SRWC PIT Network

- Lower Sugar Creek: stationary arrays and in-hand fish tagging efforts
- Mid French Creek: stationary arrays and in-hand fish tagging efforts



SRWC PIT Network

- Lower Sugar Creek: stationary arrays and in-hand fish tagging efforts
- Mid French Creek: stationary arrays and in-hand fish tagging efforts
- Scott and Shasta Weirs: stationary arrays operated in partnership with CDFW



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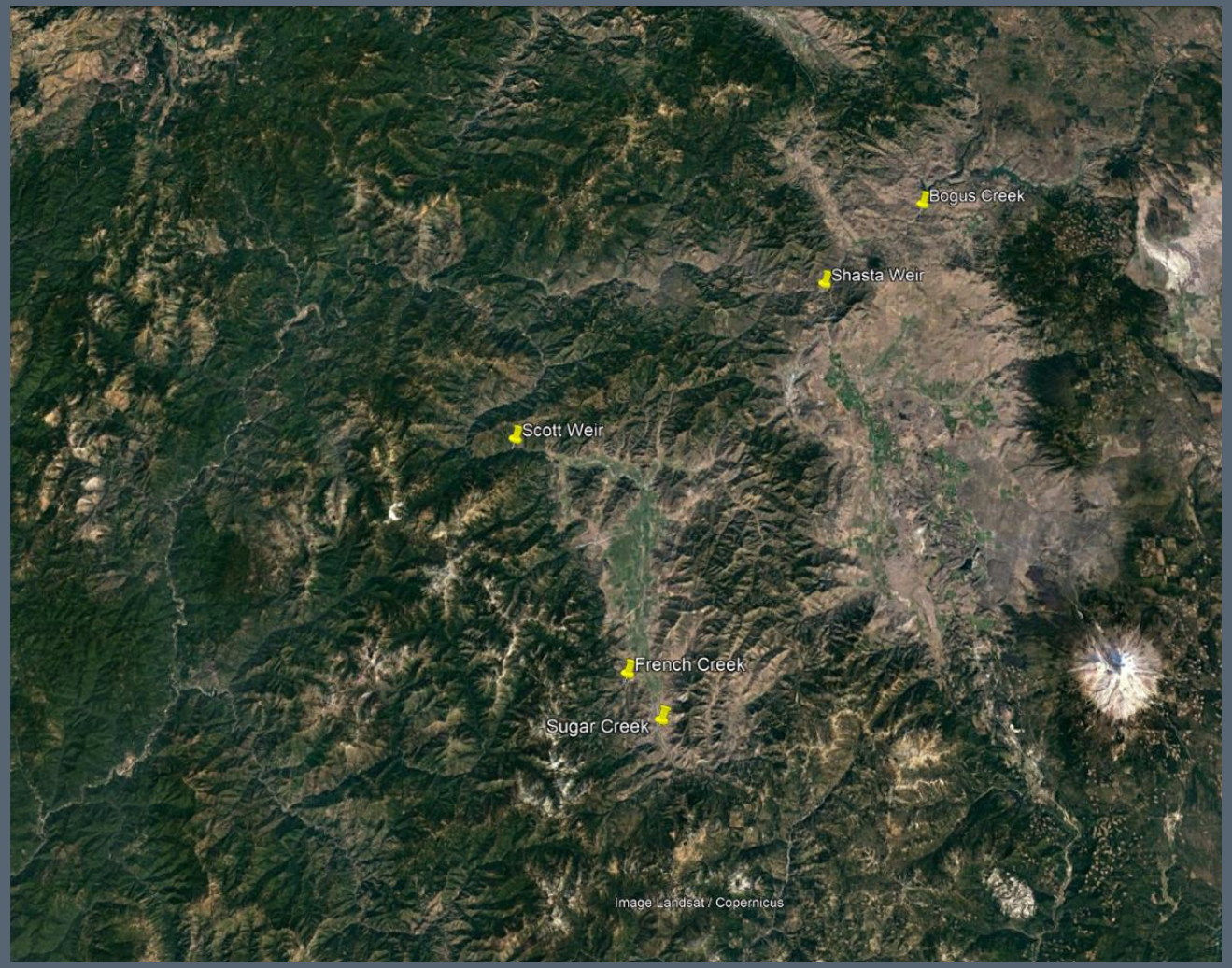
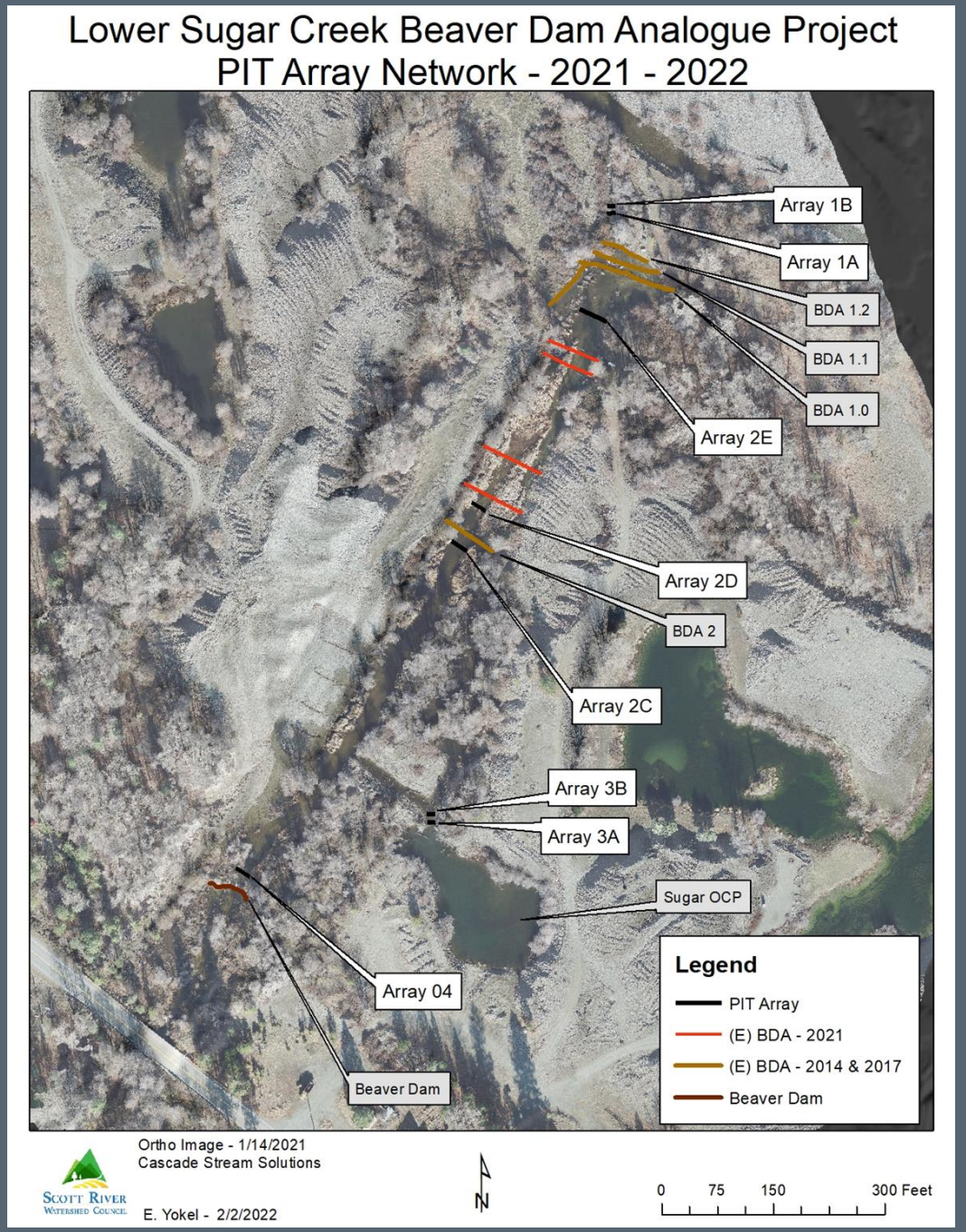
- Lower Sugar Creek: stationary arrays and in-hand fish tagging efforts
- Mid French Creek: stationary arrays and in-hand fish tagging efforts
- Scott and Shasta Weirs: stationary arrays operated in partnership with CDFW
- Bogus Creek: stationary arrays, CDFW tagging



SRWC PIT Network

- Lower Sugar Creek: stationary arrays and in-hand fish tagging efforts
- Mid French Creek: stationary arrays and in-hand fish tagging efforts
- Scott and Shasta Weirs: stationary arrays operated in partnership with CDFW
- Bogus Creek: stationary arrays, CDFW tagging
- Combination of arrays in specific habitat units and arrays at downstream end of study universe

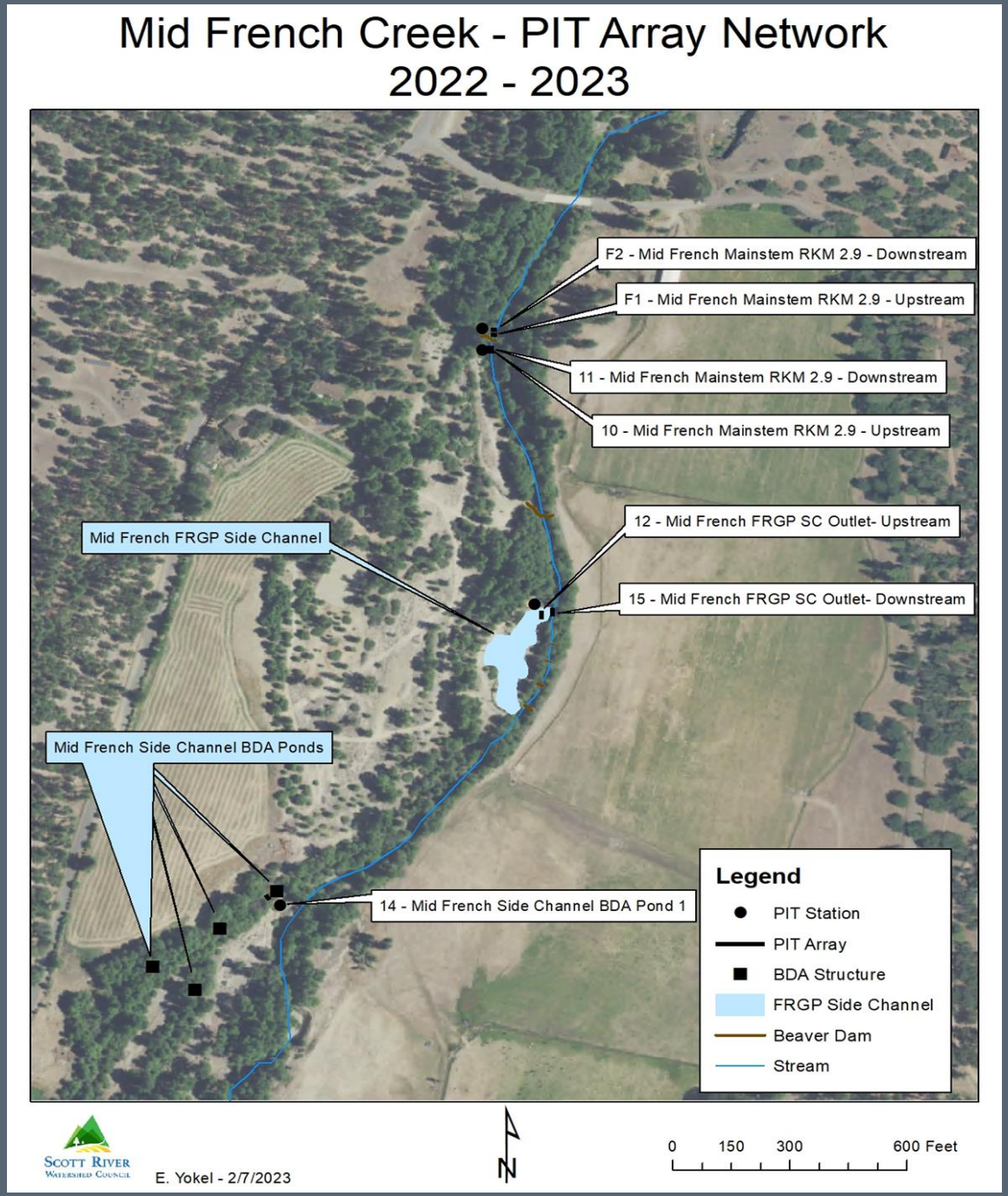


How can PIT tags help us learn about the aquatic species in the Scott Watershed?

Two-Summer Coho

- Traditional life history: 18 months in freshwater and 18 months in marine
- Tagging and recapturing shows that some are staying in freshwater for longer periods

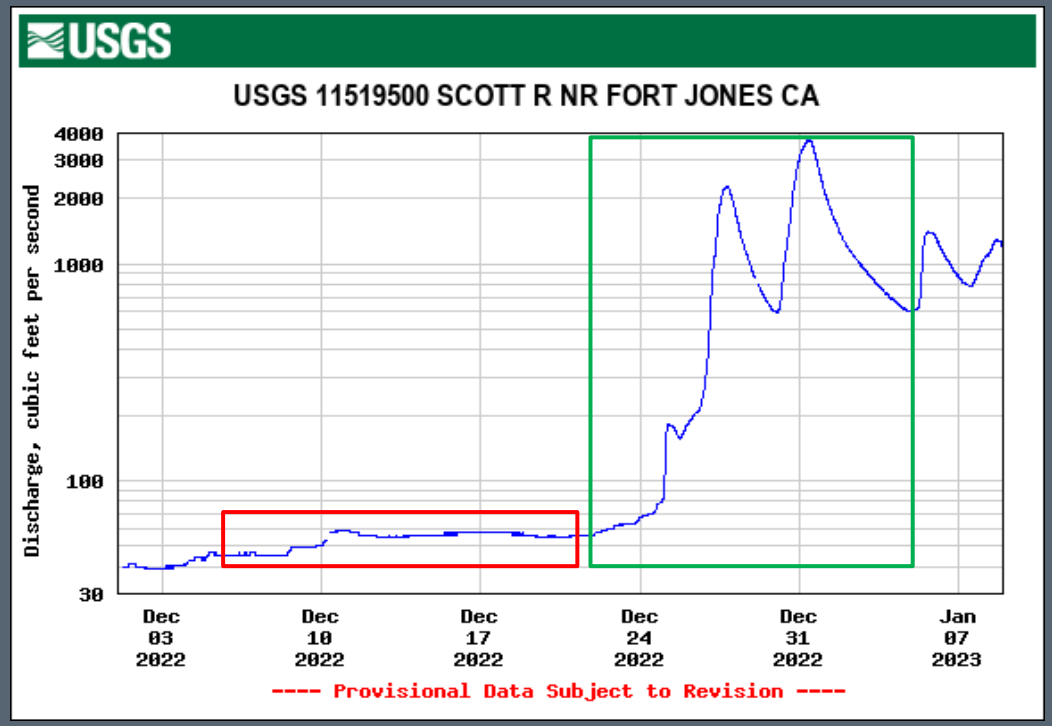
Tag No	Date	Species	Stream	FL (mm)	Weight (g)	Recapture Date	FL (mm)	Weight (g)
989001041193863	1/21/2022	Cohsal	French Creek	71	3.6	8/10/2022	97	10.5
989001041194084	3/15/2022	Cohsal	French Creek	70	3.4	8/2/2022	96	10
989001041194110	3/15/2022	Cohsal	French Creek	70	3.2	8/10/2022	87	7.7



Fall Juvenile Redistribution

French Creek downstream array:

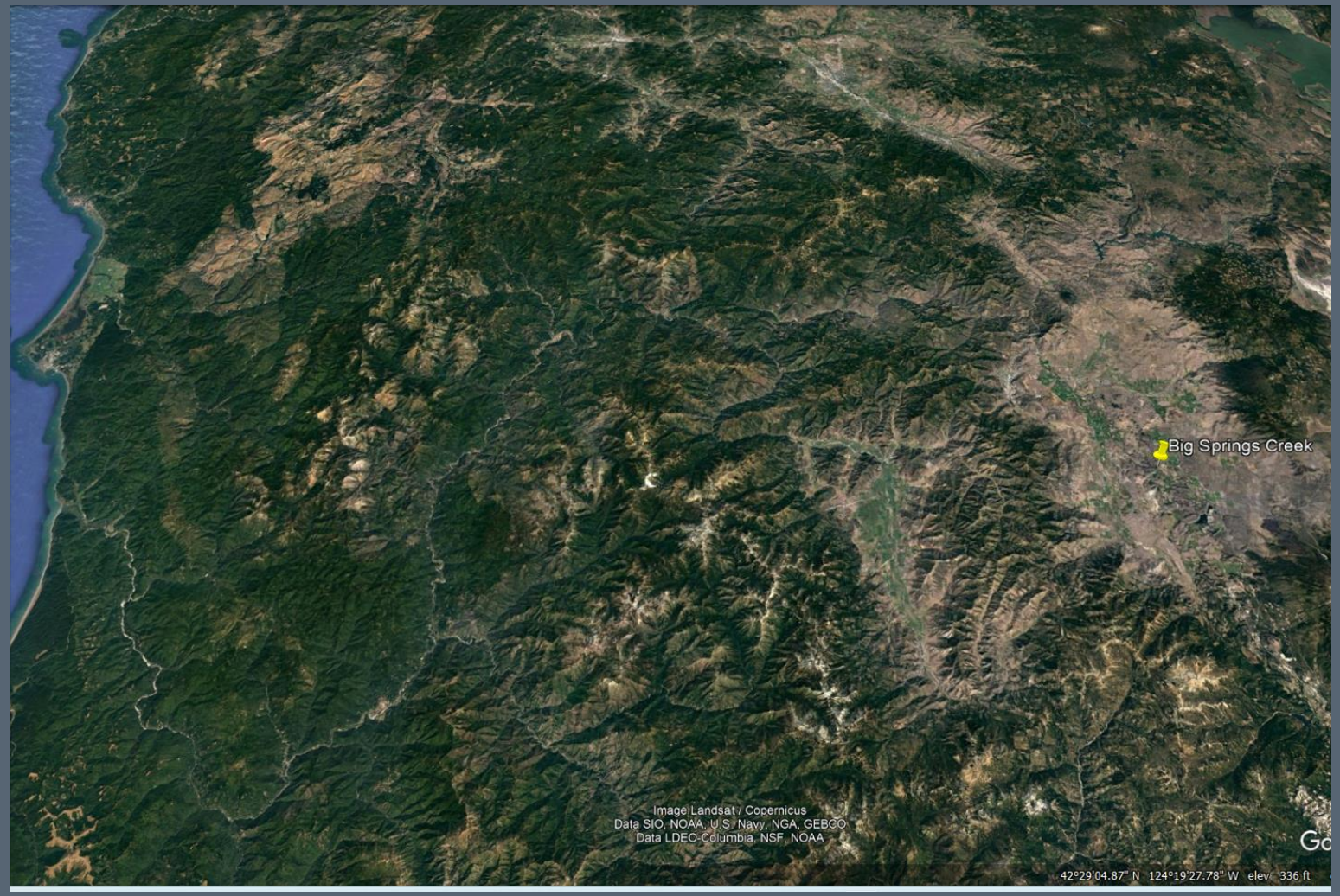
- 12/6-12/21 (red): 1 unique detection
- 12/21-1/4 (green): 58 unique detections



How can the SRWC PIT network be integrated with other basin partners?

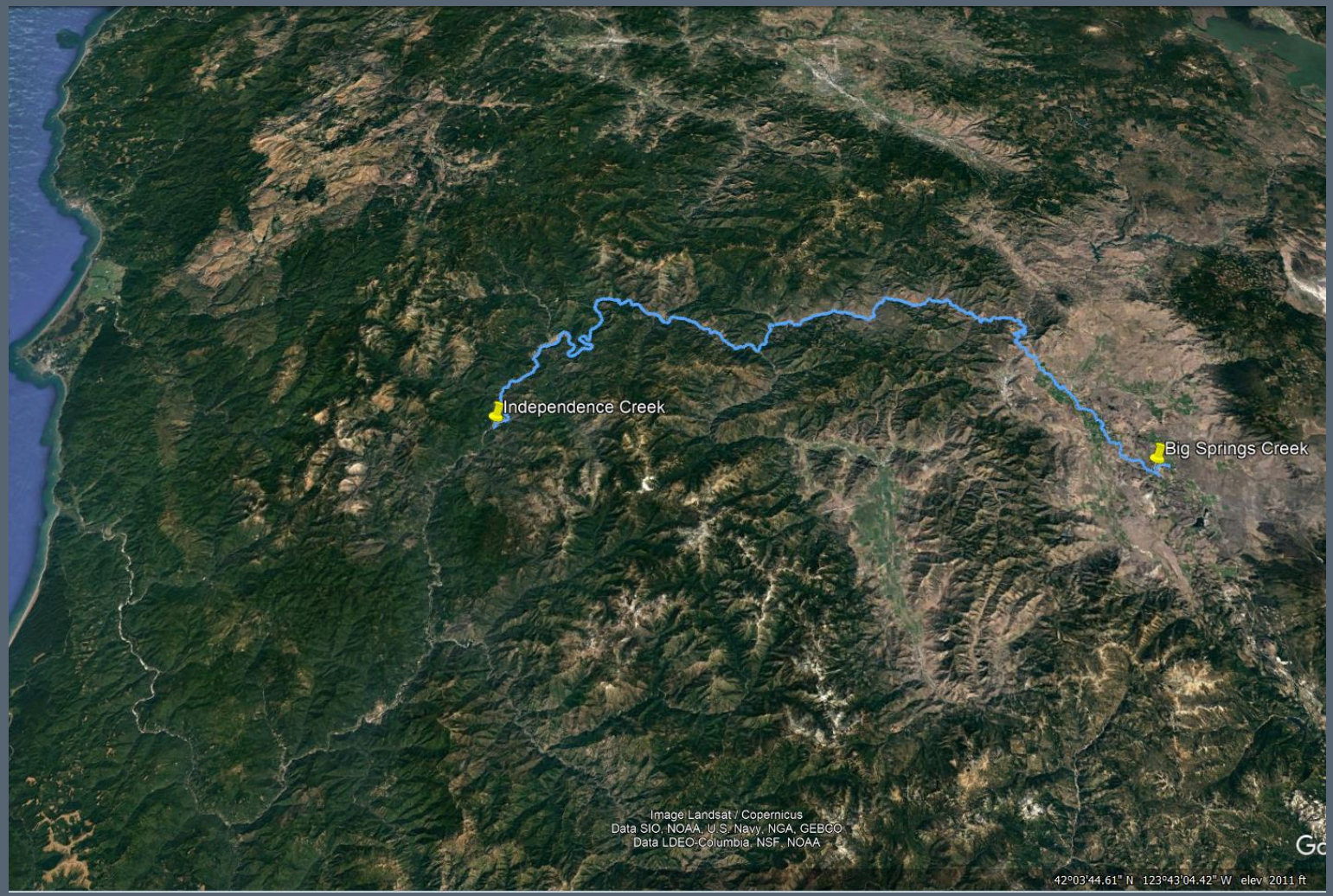
Tag No. 989001028154351

- Emerged in Shasta River (likely Big Springs Creek) in late-winter 2020



Tag No. 989001028154351

- Emerged in Shasta River (likely Big Springs Creek) in late-winter 2020
- Migrated to cold water refugia on the mainstem Klamath River near the mouth of Independence Creek (~108 miles) in spring 2020



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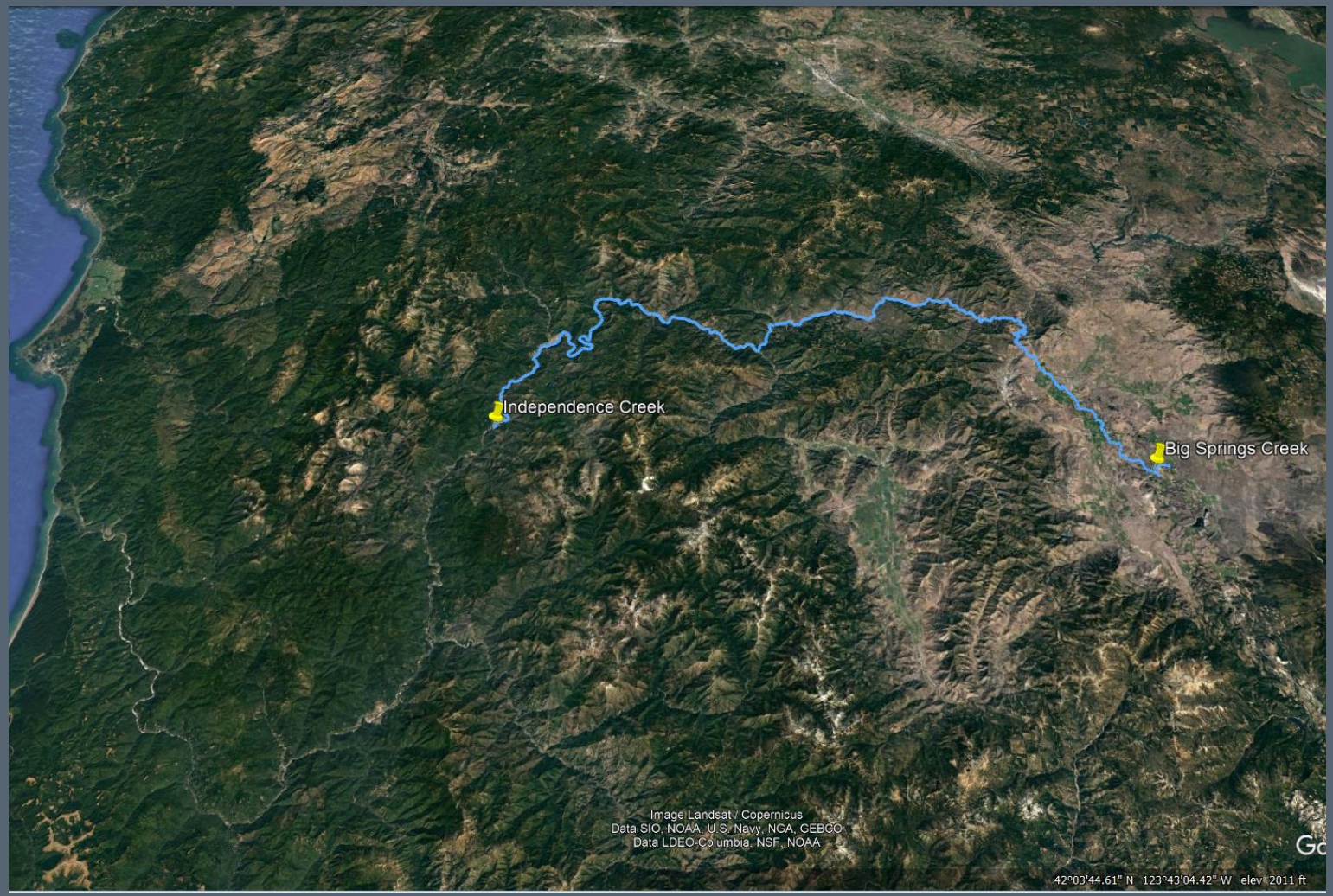
- On September 22, 2020 this fish was weighed, measured and PIT tagged by the Karuk Tribe Fisheries Program. 83 mm and 6.3 grams



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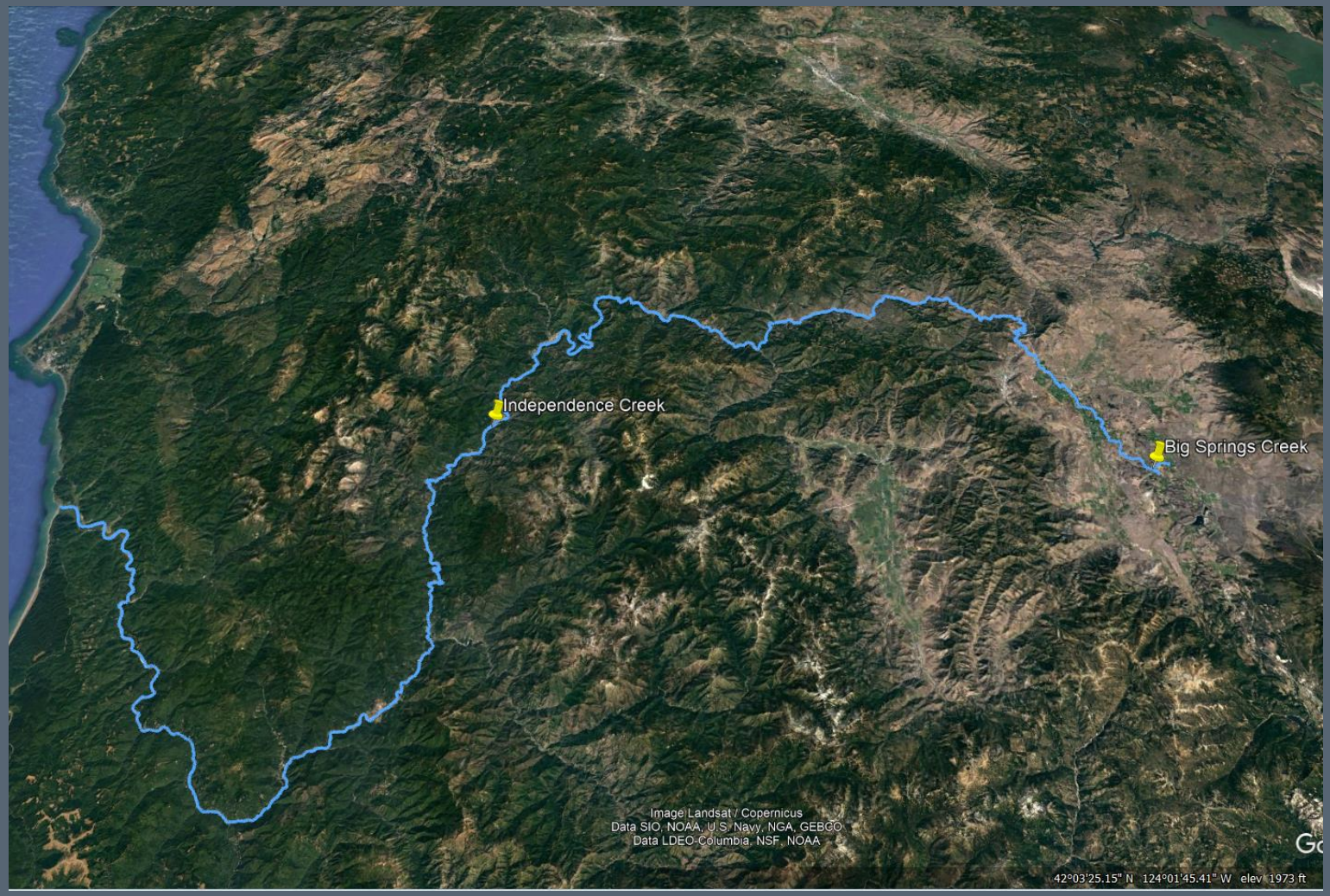

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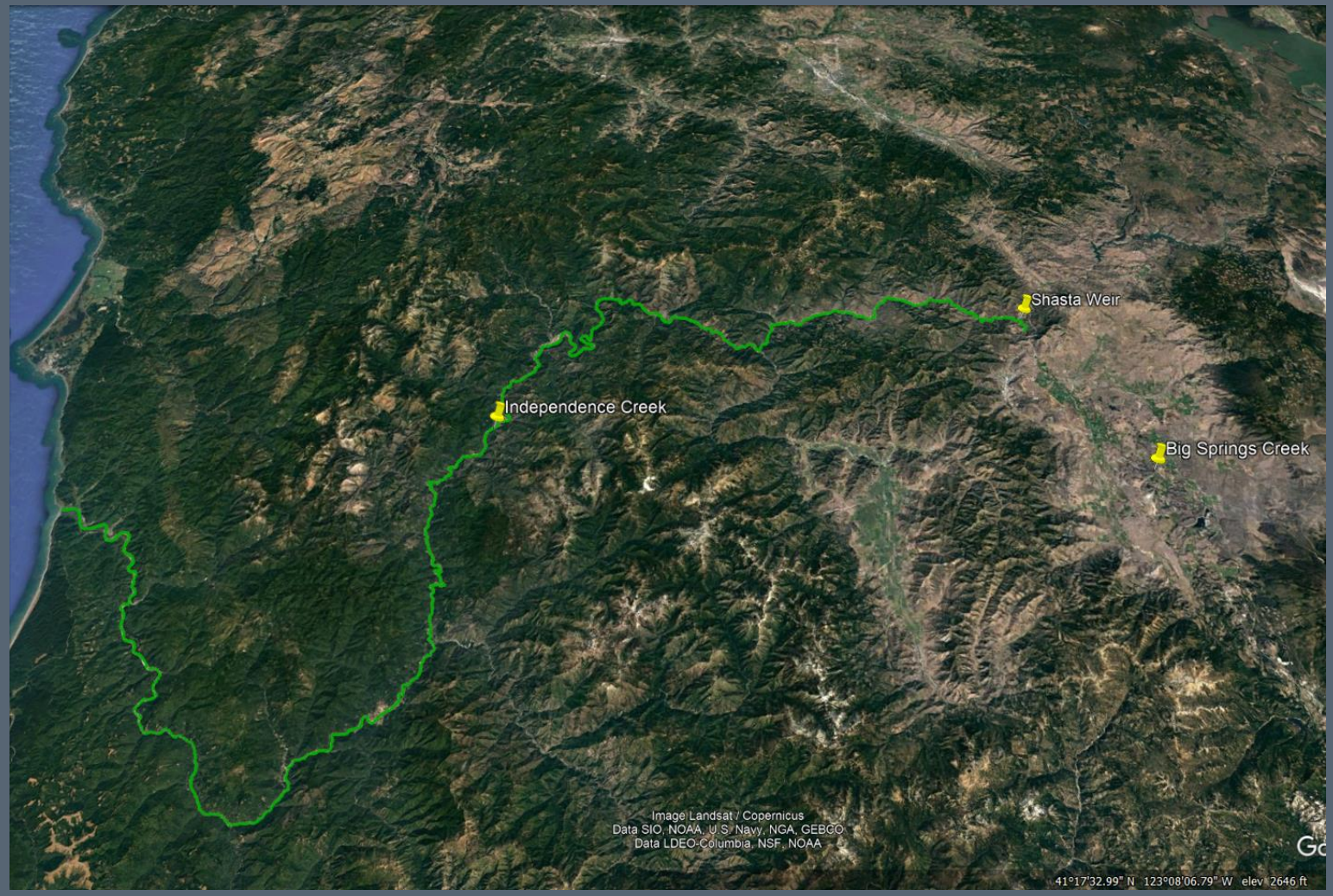
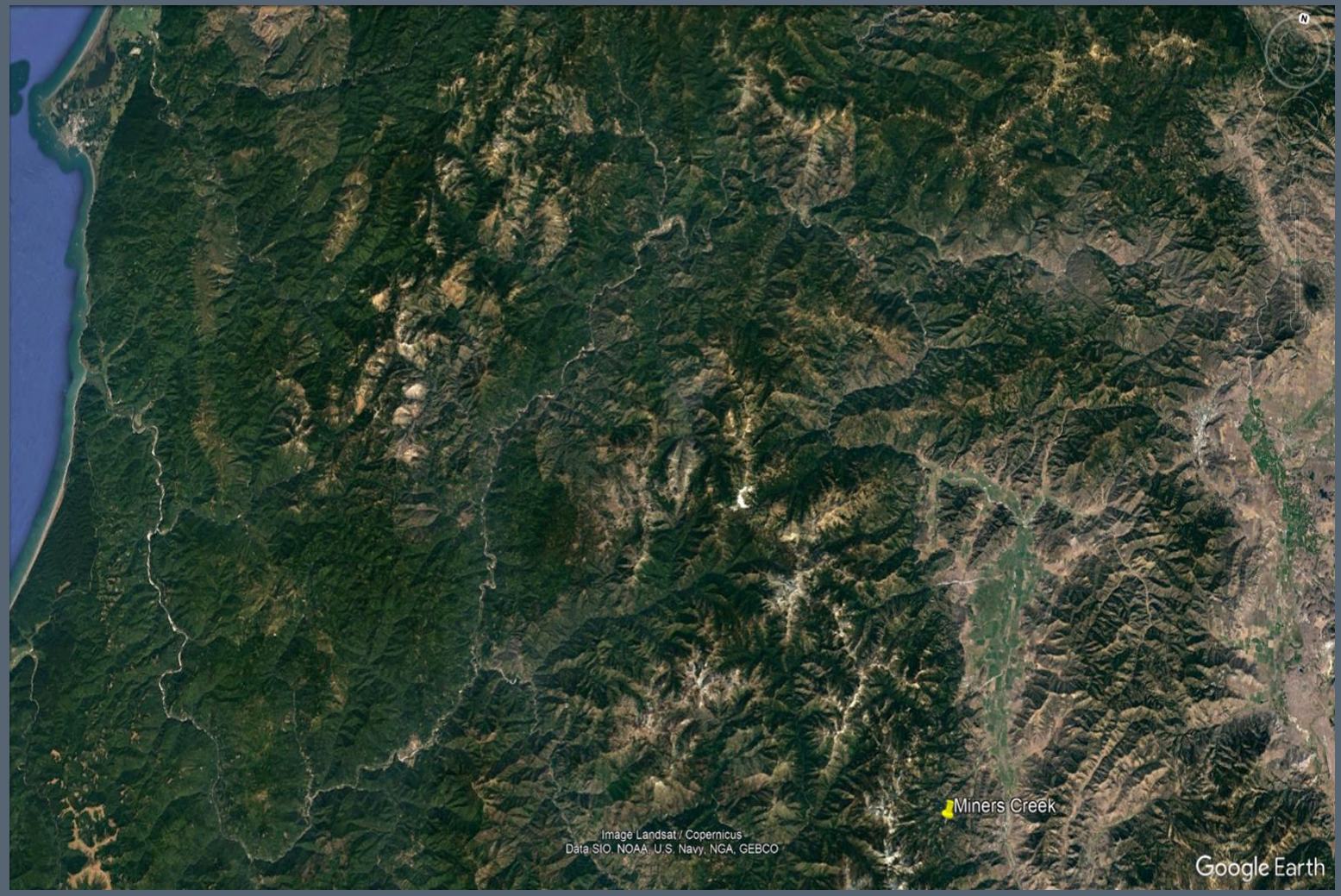
- On September 22, 2020 this fish was weighed, measured and PIT tagged by the Karuk Tribe Fisheries Program. 83 mm and 6.3 grams
- Likely left Independence Creek and headed to the estuary/ocean (~95 miles) in spring 2021
- Re-entered the Klamath River in fall 2022 and arrived at the Shasta River (~175 miles) weir on December 12, 2022




How does PIT monitoring inform the effectiveness of restoration work?

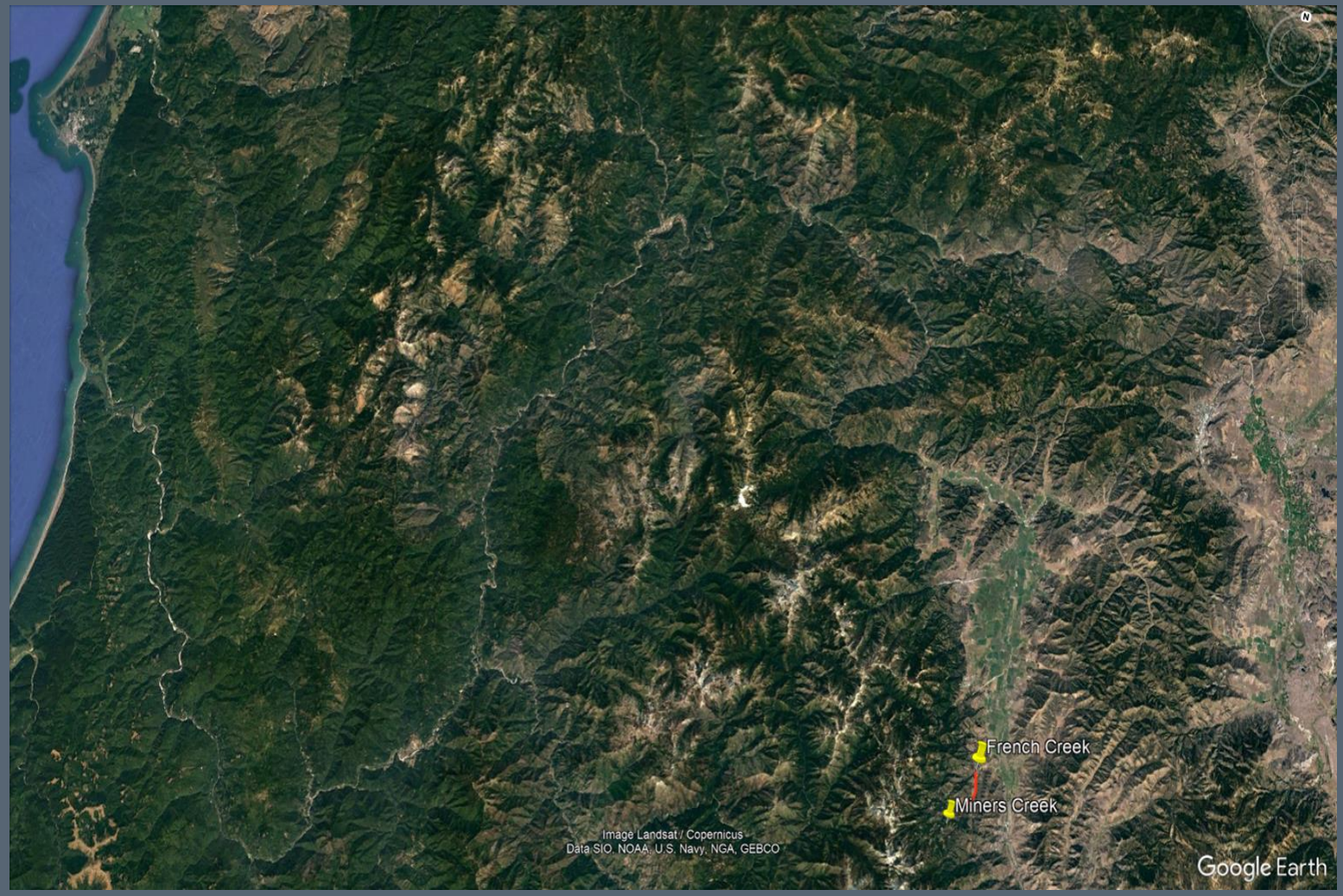
Tag No. 98900103996587

- Tagged in Miners Creek BDA habitat in February 2021



Tag No. 98900103996587

- Tagged in Miners Creek BDA habitat in February 2021
- Detected moving downstream on French Creek arrays on April 4th, 2021



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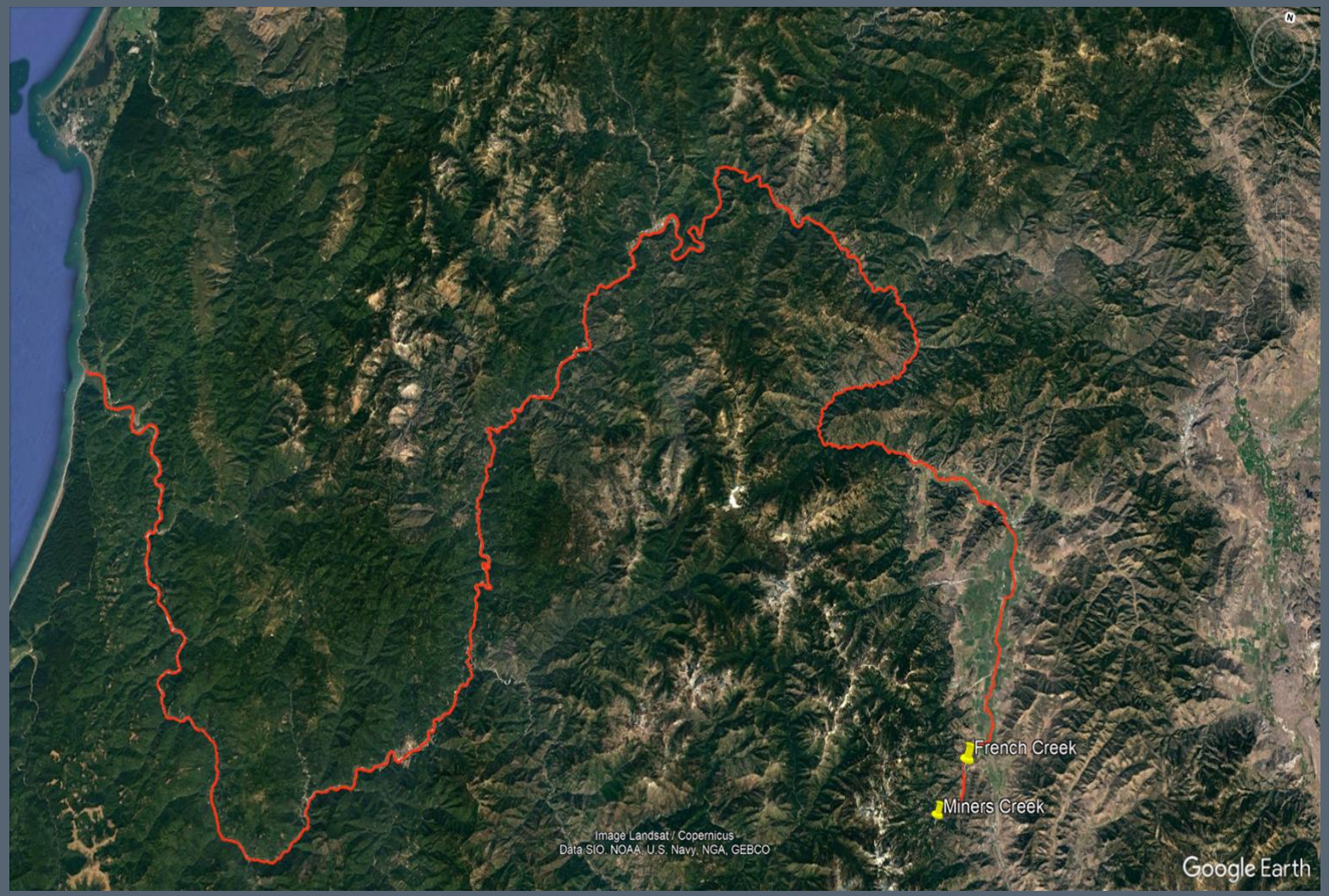

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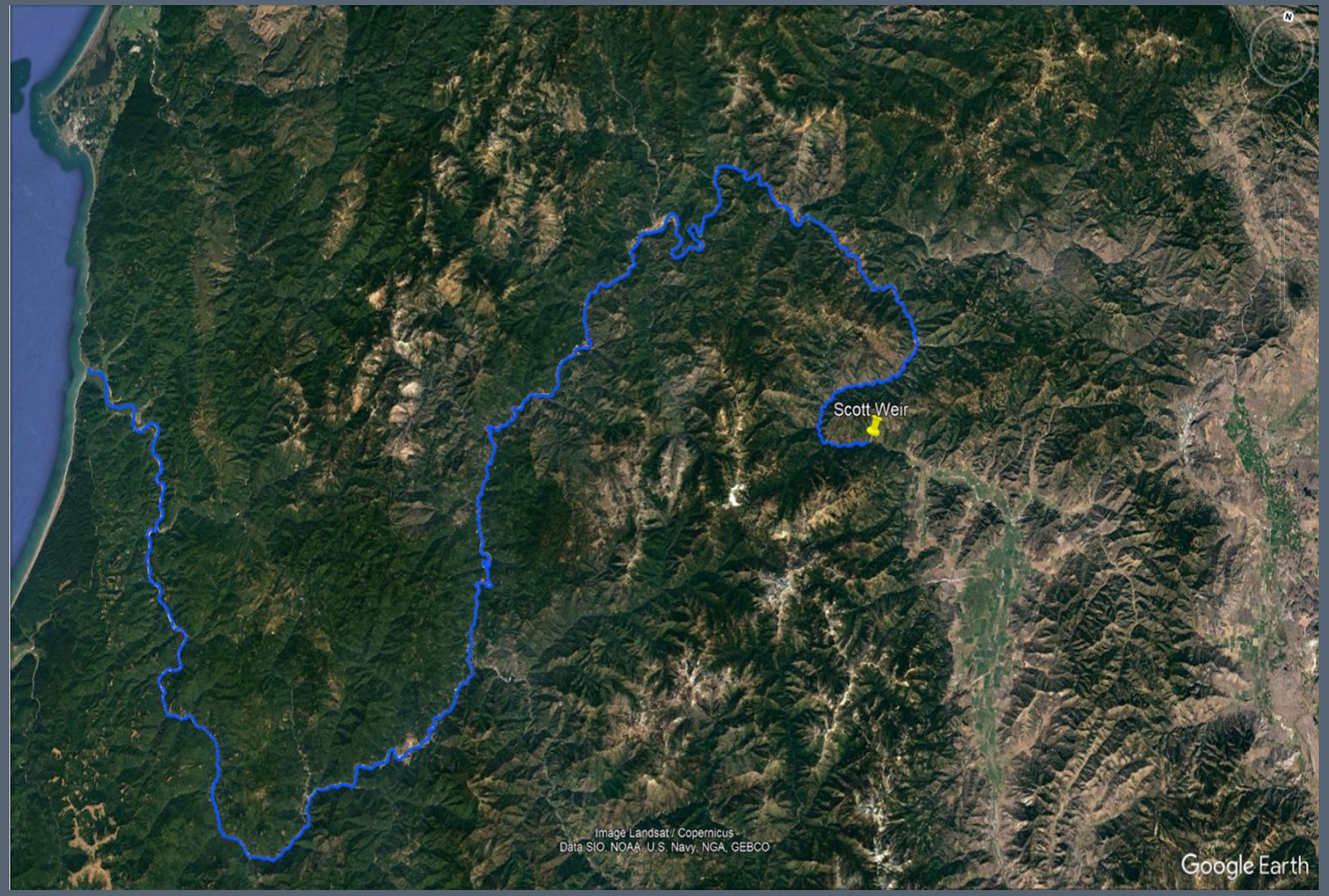
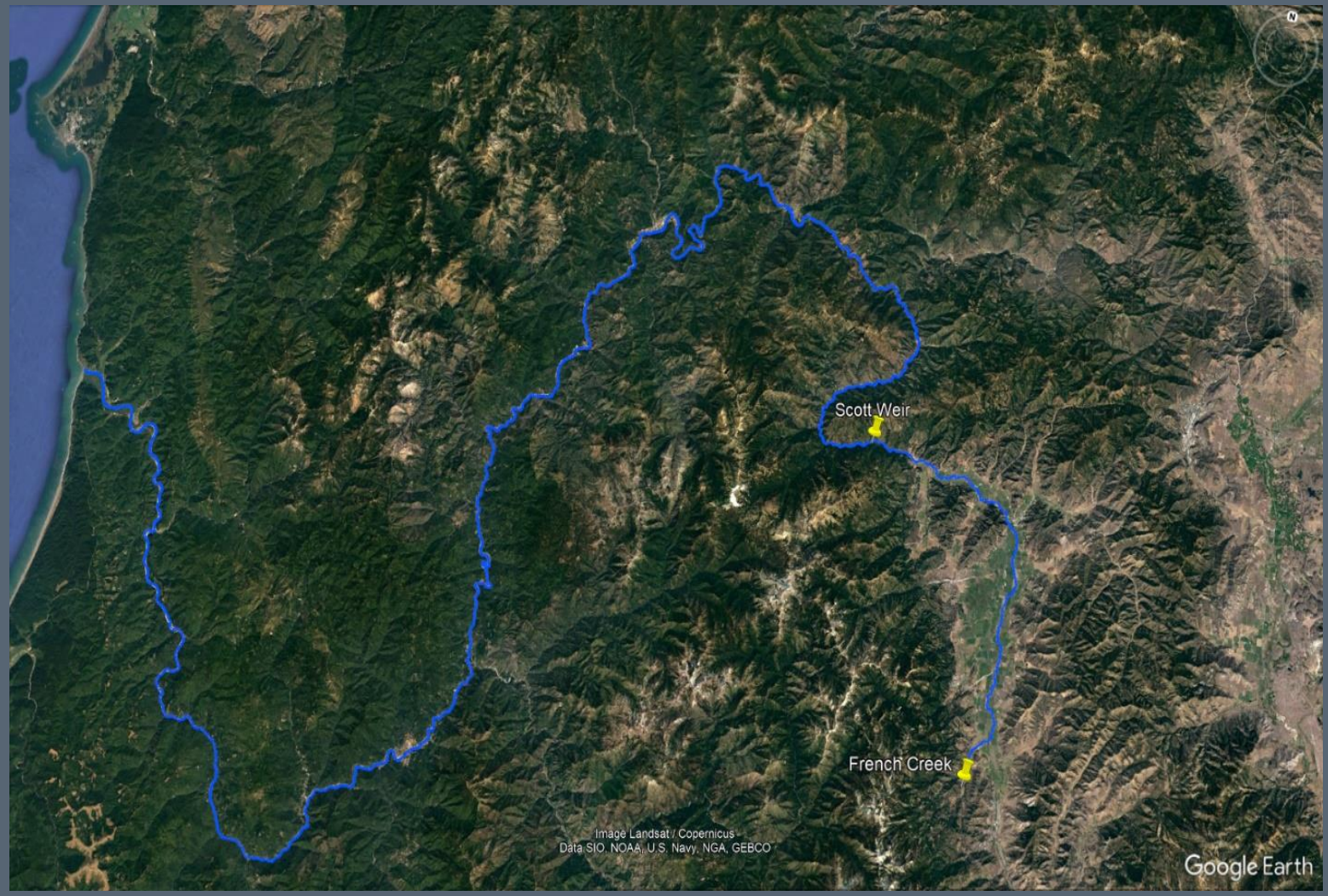
- Detected moving downstream on French Creek arrays on April 4th, 2021
- Detected on at the Scott River weir on December 14th, 2022



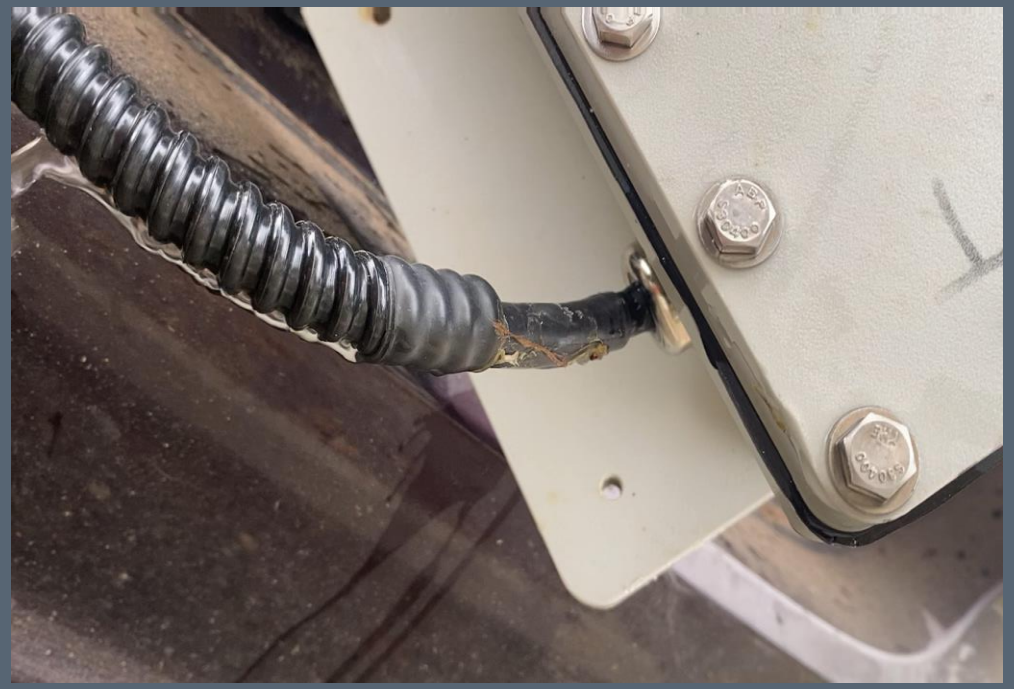
Tag No. 98900103996587

- Tagged in Miners Creek BDA habitat in February 2021
- Detected moving downstream on French Creek arrays on April 4th, 2021
- Detected on at the Scott River weir on December 14th, 2022
- Detected entering French Creek on December 25th, 2022



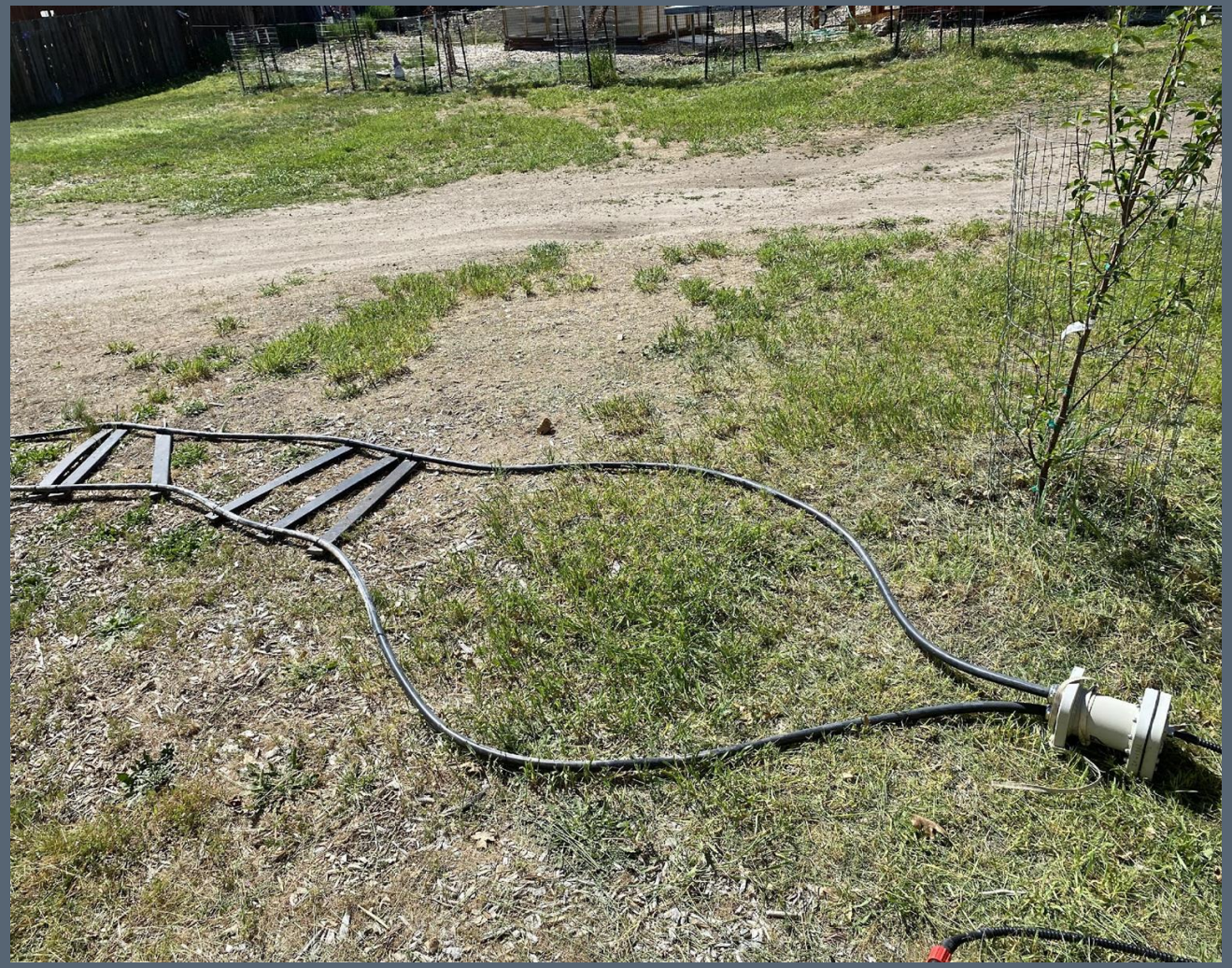
Lessons Learned

- Expect equipment damage.



Lessons Learned

- Expect equipment damage.
- Manipulating the shape of an antenna can have a positive impact on detection range and efficiency.



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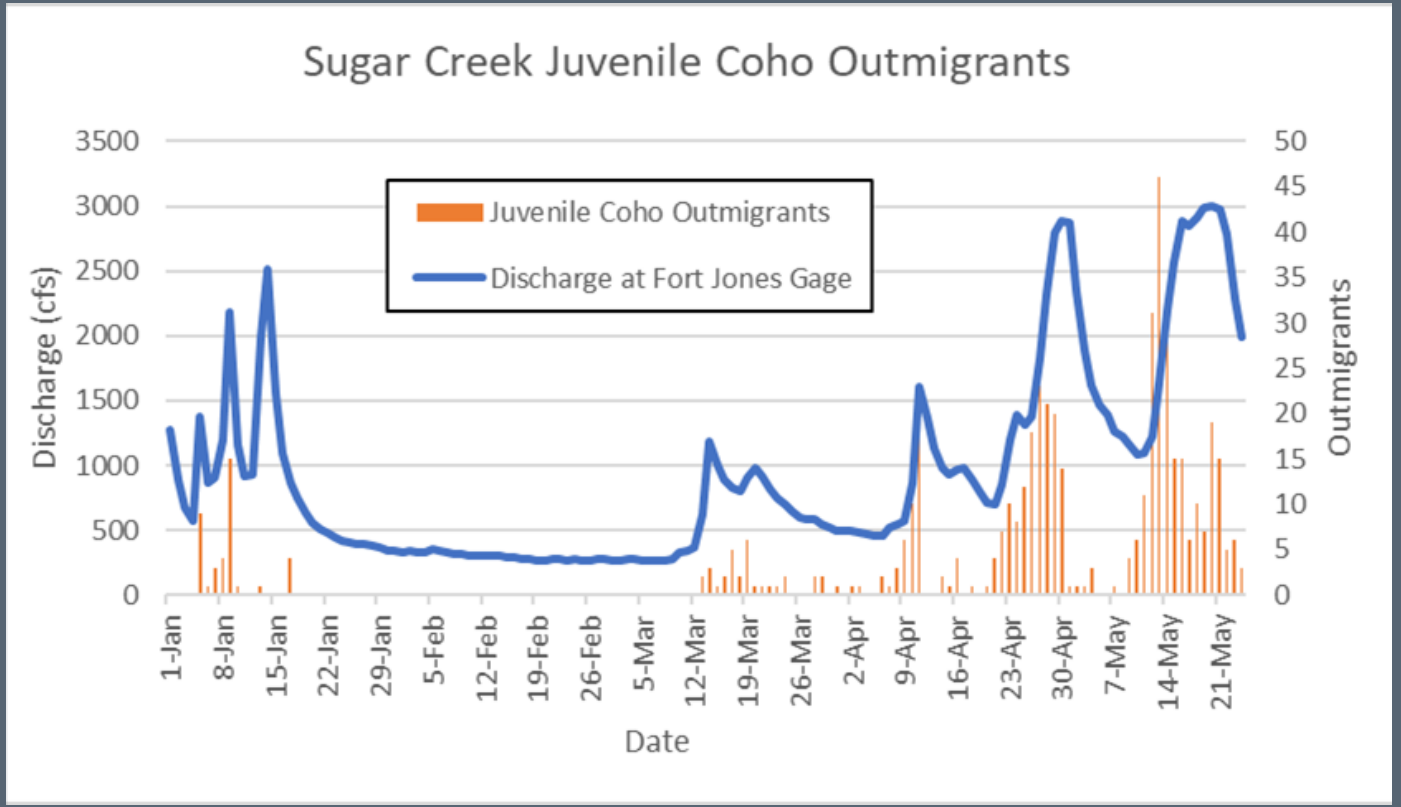

Lessons Learned

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- Manipulating the shape of an antenna can have a positive impact on detection range and efficiency.
- Habitat units in which antennas are placed may change.
- The period of salmonid outmigration is often the period in which detections are most difficult to come by.
- Each site comes with its own challenges.


```
Active Alarms:
 Noise High
 Input Voltage Low
 Antenna Current Exceeded 10.0 A
```

Questions / Discussion

PIT Tag Monitoring Below the Dams: Lightening Road Presentations and Discussion

Alex Corum, Karuk Tribe

Jimmy Faukner, Yurok Tribe

Harrison Morrow, Scott River Watershed Council

Hans Voight, Resighini Rancheria

Break

Back in 20 minutes

From Datasheets to Dashboards

Rebecca Croy

Project Leader/Biologist

Shoshone Bannock Tribes

From Datasheets to Dashboards

Rebecca Croy
Shoshone- Bannock Tribes

14 June 2023


SHOSHONE-BANNOCK
TRIBES
CHINOOK SALMON COUNTS
8/3/13
ADULTS 517
JACKS 373
890

Bear Valley Creek Rotary Screw Trap 2021

Crew: ________ Date: ________ Time: ________ File Name: BCS-2021-________

Sheet #: ________ Stage: ________ Turbidity: L / M / H Weather: ________ $H_2$0 Temp: ________

Time **NOT** Fished: ________ Reason: ________

Chinook

Bismark Brown Today: Y / N # ________ Bismark Brown Recaps: ________

New CH: ________ # CH Recaps: ________ # Percocial CH: ________ Total # CH PIT tagged: ________

CH Rel. Above for TE (TU): ________ Rel. Time: ________ # CH Rel. Below (TD): ________

CH Inj: ________ # CH Mort: ________ # CH escaped: ________ Cause: ________

Other Recaps (NOAA): Comments:

Steelhead

Bismark Brown Today: Y / N # ________ Bismark Brown Recaps: ________

New ST: ________ # ST Recaps: ________ Total # ST PIT tagged: ________

ST Rel. Above for TE (TU): ________ Rel. Time: ________ # ST Rel. Below (TD): ________

ST Inj: ________ # ST Mort: ________ # ST escaped: ________ Cause: ________

Comments:

Species	Length	Weight	Recap	PIT Tag Number	Comment / Vial #
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
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				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	

Chinook=CH Chinook Fry=CF Percocial Male=PC Steelhead=ST Bull Trout=BU Rainbow=RB Cutthroat=CT
Whitefish=WF Sculpin=SC Brooktrout= BR Pikeminnow=PM Sucker=SU Dace=DA

Bear Valley Creek Rotary Screw Trap 2021

Species	Length	Weight	Recap	PIT Tag Number	Comment / Vial #
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				3DD-003D	
				-	
				-	

Species	Length	Species	Length	Species	Length	Species	Length	Species	Length
1___PM___		1___SC___		1___CT___		1___BR___		1___DA___	
2___PM___		2___SC___		2___CT___		2___BR___		2___DA___	
3___PM___		3___SC___		3___CT___		3___BR___		3___DA___	
4___PM___		4___SC___		4___CT___		4___BR___		4___DA___	
5___PM___		5___SC___		5___CT___		5___BR___		5___DA___	
1___SU___		1___WF___		1___BU___		1___ST___		1___CF___	
2___SU___		2___WF___		2___BU___		2___ST___		2___CF___	
3___SU___		3___WF___		3___BU___		3___ST___		3___CF___	
4___SU___		4___WF___		4___BU___		4___ST___		4___CF___	
5___SU___		5___WF___		5___BU___		5___ST___		5___CF___	

CH = ________ CH Fry (≤ 65 mm) = ________ CH MORTS = ________

ST = ________ ST Fry (≤ 65 mm) = ________ ST MORTS = ________

BU = ________ BU MORTS = ________

CT = ________ CT MORTS = ________

RB = ________ RB MORTS = ________

WF = ________ WF MORTS = ________

BR= ________ BR MORTS = ________

PM = ________ PM MORTS = ________

SC = ________ SC MORTS = ________

SU = ________ SU MORTS = ________

DA = ________ DA MORTS = ________

Chinook=CH Chinook Fry=CF Percocial Male=PC Steelhead=ST Bull Trout=BU Rainbow=RB Cutthroat=CT
Whitefish=WF Sculpin=SC Brooktrout= BR Pikeminnow=PM Sucker=SU Dace=DA

EF/BV Screw Trap Data Entry

Trap Data

Location Name *

Tagger *
Last name First Initial

Date *
Monday, June 12, 2023

Military Time *
:

Staff Gage (#.##m) *
.

Mark Temp (C) *
(record bucket temp if stream temp >14)

Release Temp (C)

Fishing *
Yes
No

Staining
Yes
No

General Comments/Additional Staff

Fish Log

Remaining Fish Released Downstream

Fish Count Summary

Total Fish Count
0

Chinook	Chinook (A)	Steelhead	Steelhead (A)
0	0	0	0

Brook Trout	Bull Trout	Cutthroat	Dace
0	0	0	0

Pikeminnow	Rainbow	Sculpin	Sucker
0	0	0	0

Whitefish
0

EF/BV Screw Trap Data Entry

Staff Gage (#.##m) *

Mark Temp (C) *
(record bucket temp if stream temp >14)

Release Temp (C)

Fishing *
- (•) Yes
- ( ) No

Staining
- ( ) Yes
- (•) No

General Comments/Additional Staff

Fish Log

Species *
- ( ) CH
- ( ) CH (A)
- ( ) ST
- ( ) ST (A)
- ( ) BR
- ( ) BU
- ( ) CT
- ( ) DA
- ( ) PM
- ( ) RB
- ( ) SC
- ( ) SU
- ( ) WF

PIT Tag (click in this field, then scan the tag)

PIT Tag (Clipped)
(appears automatically)

Length (mm) *

Weight (g)

Event Type *
- (•) Mark
- ( ) Recap
- ( ) Stain
- ( ) Bismark recap
- ( ) NOAA recap
- ( ) Tally
- ( ) Culled

Condition *
- (•) Released alive
- ( ) Dead upon arrival
- ( ) Dead upon release

Release *
- ( ) Upstream
- ( ) Downstream

Genetic ID (XXX)

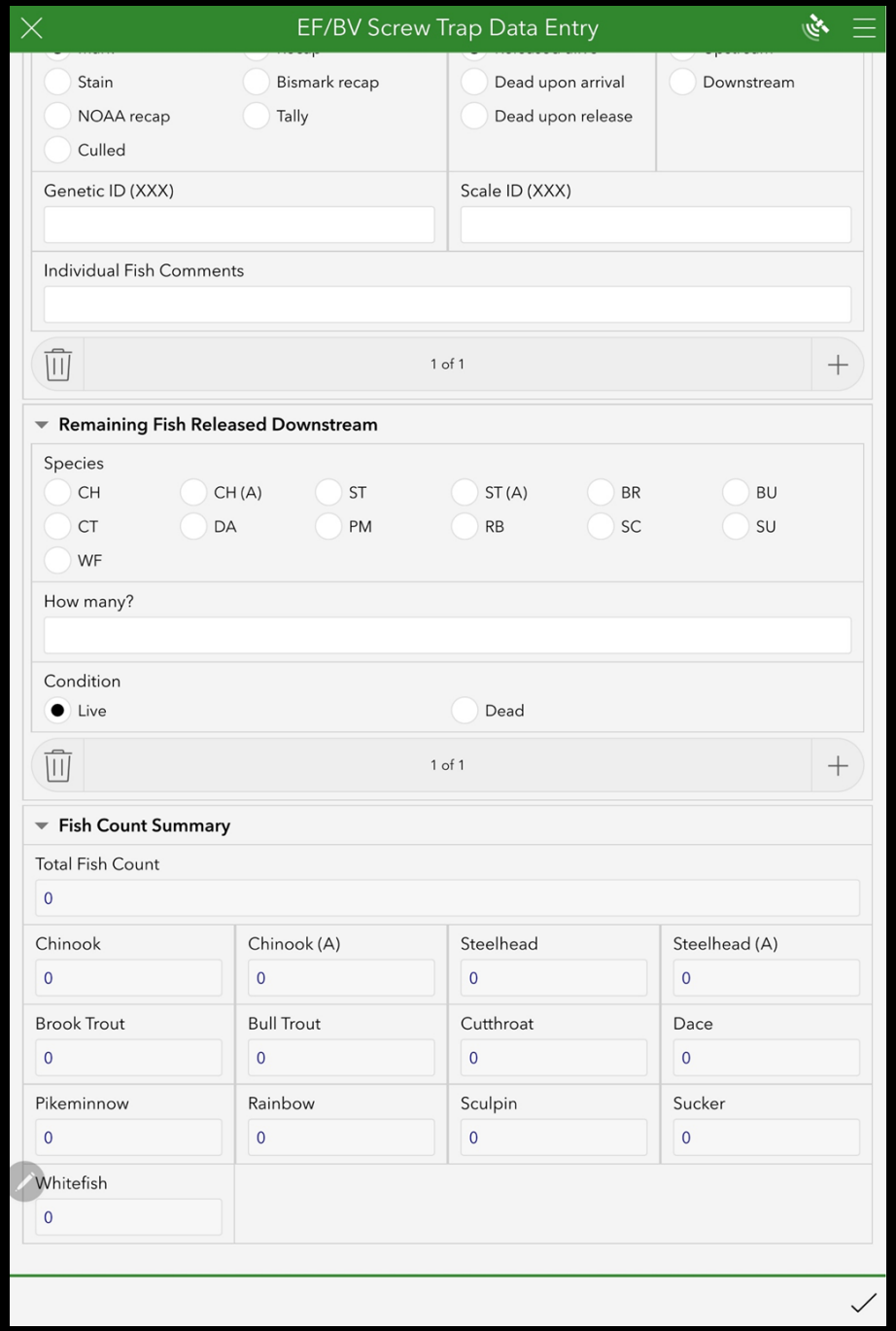
Scale ID (XXX)

Individual Fish Comments

1 of 1

Remaining Fish Released Downstream

Fish Count Summary


EF/BV Screw Trap Data Entry
Stain
Bismark recap
NOAA recap
Tally
Culled
Dead upon arrival
Dead upon release
Downstream
Genetic ID (XXX)
Scale ID (XXX)
Individual Fish Comments
1 of 1
Remaining Fish Released Downstream
Species
CH
CH (A)
ST
ST (A)
BR
BU
CT
DA
PM
RB
SC
SU
WF
How many?
Condition
Live
Dead
1 of 1
Fish Count Summary
Total Fish Count
0
Chinook
0
Chinook (A)
0
Steelhead
0
Steelhead (A)
0
Brook Trout
0
Bull Trout
0
Cutthroat
0
Dace
0
Pikeminnow
0
Rainbow
0
Sculpin
0
Sucker
0
Whitefish
0

ArcGIS Survey123

ArcGIS Survey123 is a simple and intuitive form-centric data gathering solution. Create, share and analyze surveys in just three easy steps.

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Surveys I own | Count: 7

RST_Form
by ktardy

Videography Weir
by ktardy

Sockeye Juvenile Trapping V3
by ktardy

TEST Videography Weir 1
by ktardy

Records: 106

Sockeye Juvenile Trapping V2
by ktardy

Bull Trout Survey
by ktardy

Records: 0

Sockeye Juvenile Trapping
by ktardy

Owner: ktardy, created: Aug 4, 2021, updated: Dec 14, 2021

The survey is private. Share this survey in Collaborate.

342
Total records

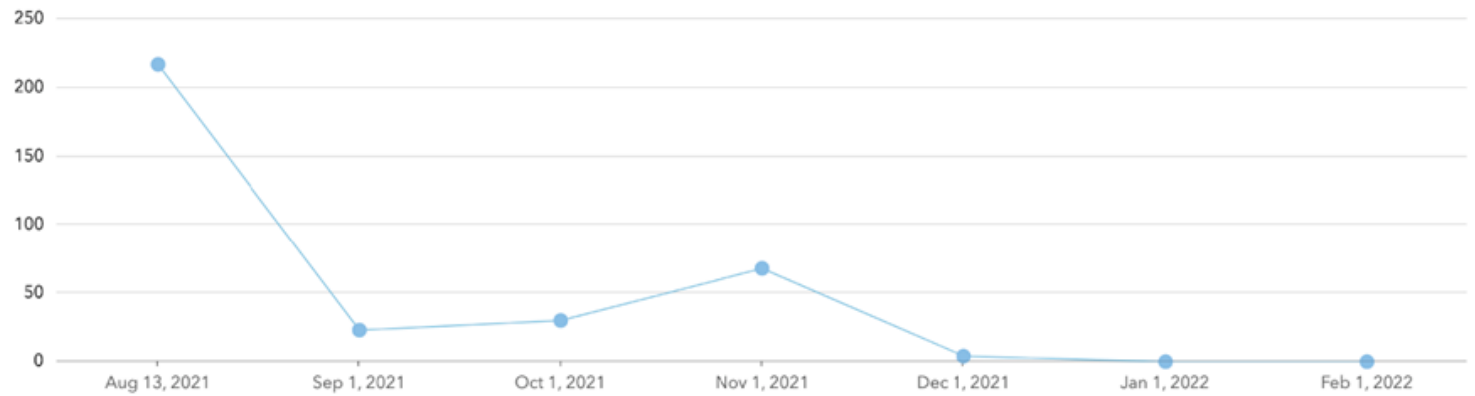
1
Total participants

Aug 13
2021
First submitted On

Dec 13
2021
Last submitted On

Surveys count: 342 (total: 342)

8/13/21 - 3/2/22



Top participants

User	Surveys submitted
ktardy	342

Delete this survey

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RST_Form | Overview | Design | Collaborate | Analyze | Data | Settings

8/13/21 - 3/2/22 | Filter | Report | Export | Open in Map Viewer | Form view | 342/342

RST_Form | Fish Log | Remaining Fish Released ...

ObjectID	Species	PIT Tag (click in this field, then scan the tag)	Length (mm)	Weight (g)	Event Type	Condition	Release	Genetic ID (XXX)	Scale ID (XXX)	Individual Fish Comments	CreationDate
384	CH	3DD.0077B4E02A	98	8	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
385	CH	3DD.0077B45328	98	8.5	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
386	CH	3DD.0077B42A60	102	8.5	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
387	CH	3DD.0077B4361B	112	13.5	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
388	ST	3DD.0077B4A9E4	198	70	Mark	Released alive	Upstream		21-75021		Aug 13, 2021, 1:34 PM
389	ST	3DD.0077B47B71	160	44.5	Mark	Released alive	Upstream		21-75195		Aug 13, 2021, 1:34 PM
390	ST	3DD.0077B41B61	190	60	Mark	Released alive	Upstream		21-75196		Aug 13, 2021, 1:34 PM
391	ST	3DD.0077B3FBFC	205	80	Mark	Released alive	Upstream		21-75197		Aug 13, 2021, 1:34 PM
379	CH	3DD.0077B435F6	105	14	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
380	CH	3DD.0077B46E52	90	7	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
381	CH	3DD.0077B4F01D	102	8.5	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
382	CH	3DD.0077B4474C	107	11	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
383	ST	3DD.0077B47B32	170	47.5	Mark	Released alive	Upstream		21-75194		Aug 13, 2021, 1:34 PM
294	CH	3DD.0077B4375C	150	15	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM
295	CH	3DD.0077B4048C	80	7.5	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM
4235	CH	3DD.0077B460BD	92	11	Mark	Released alive	Upstream				Mar 1, 2022, 1:04 PM
4236	CH	3DD.0077B41D0F	96	12	Mark	Released alive	Upstream				Mar 1, 2022, 1:04 PM
4237	RB		300		Tally	Released alive	Downstream				Mar 1, 2022, 1:04 PM
284	CH	3DD.0077B42982	91	9	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM
308	CH	3DD.0077B40C28	100	12	Mark	Released alive	Upstream				Aug 13, 2021, 1:34 PM
301	ST	3DD.0077B46CA6	145	31	Mark	Released alive	Upstream		21-75199		Aug 13, 2021, 1:33 PM
302	CH	3DD.0077B44317	110	15.5	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM
303	CH	3DD.0077B41B25	95	10.5	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM
304	CH	3DD.0077B4FB56	109	15	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM
305	CH	3DD.0077B47008	105	13	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM
306	CH	3DD.0077B4C37B	100	10.5	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM
279	CH	3DD.0077B45292	90	8	Mark	Released alive	Upstream				Aug 13, 2021, 1:33 PM

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RST_Form | Overview | Design | Collaborate | Analyze | Data | Settings

8/13/21 - 3/2/22 | Filter | Report | Export | Open in Map Viewer | Form view | 342/342

RST_Form | Fish Log | Remaining Fish Released ...

Location Name	Initials	Date	Military Time	Staff Gage (#.##m)	Water Temp (C)	Bucket Temp (C)	Fishing	If no, Time Not Fished (hrs)	Staining
East Fork Salmon River	KF	May 7, 2021	07:00	0.79	8		Yes		No
East Fork Salmon River	KF	May 6, 2021	09:15	0.8	9		Yes		No
East Fork Salmon River	SB	Apr 20, 2021	09:00	0.2	3		Yes		No
East Fork Salmon River	SB	Apr 25, 2021	08:30	0.5	6		Yes		No
East Fork Salmon River	SB	Apr 23, 2021	09:30	0.5	5		Yes		No
East Fork Salmon River	JT	Apr 14, 2021	08:39	0.21	2		Yes		No
East Fork Salmon River	SB	Apr 5, 2021	16:00	0.28	7		Yes		No
Bear Valley Creek	RD	Jun 28, 2021	19:10	0.72	22	13	Yes		Yes
Bear Valley Creek	RD	Jun 29, 2021	07:30	0.72	16	16	Yes		Yes
Bear Valley Creek	RC	Jun 30, 2021	12:00	0.67	19	12	Yes		No
Bear Valley Creek	SC	Jun 27, 2021	07:30	0.76	13		Yes		Yes
Bear Valley Creek	RC	Sep 17, 2021	09:15	0.19	7		Yes		No
Bear Valley Creek	RC	Sep 16, 2021	16:00	0.18	14	9	Yes		No
Bear Valley Creek	SC	Sep 15, 2021	09:00	0.4	8		Yes		No
Bear Valley Creek	SC	Sep 14, 2021	20:00	0.4	14		Yes		No
Bear Valley Creek	SC	Sep 13, 2021	08:30	0.4	8		Yes		No
Bear Valley Creek	SC	Sep 12, 2021	15:00	0.4	14		Yes		No
Bear Valley Creek	SC	Sep 10, 2021	13:30	0.4	14		Yes		No
Bear Valley Creek	RC	Sep 9, 2021	13:45	0.18	15	12	Yes		No
Bear Valley Creek	RC	Sep 8, 2021	11:00	0.18	10		Yes		No
Bear Valley Creek	RC	Sep 7, 2021	13:30	0.18	12		Yes		No
Bear Valley Creek	SC	Sep 6, 2021	08:00	0.4	8		Yes		No

1 of 342 selected

Editing

PIT Tag (click in this field, then scan the tag)

3DD.0077B4E02A

PIT Tag (Clipped)

(appears automatically)

3DD.0077B4E02A

Length (mm)*

98

Weight (g)

8

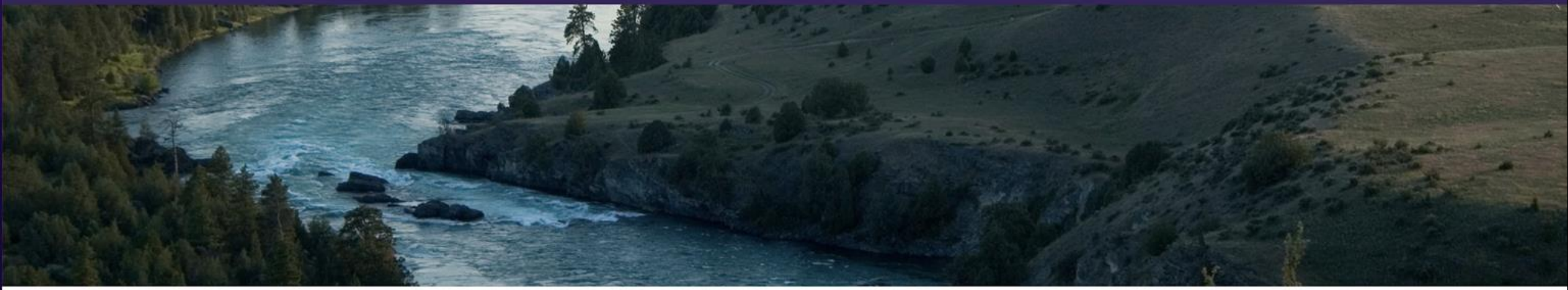
Event Type*

- (●) Mark
- ( ) Recap
- ( ) Stain
- ( ) Bismark recap
- ( ) NOAA recap
- ( ) Tally
- ( ) Culled

Condition*

- (●) Released alive
- ( ) Dead upon arrival
- ( ) Dead upon release

Submit



Fish and Wildlife

The mission of the Shoshone-Bannock Tribes Fish & Wildlife Department is to protect, restore, and enhance fish and wildlife related resources in accordance with the Tribes' unique interests and vested rights in such resources and their habitats, including the inherent, aboriginal and treaty protected rights of Tribal members to fair process and the priority rights to harvest pursuant to the Fort Bridger Treaty of July 3, 1868.

Shoshone-Bannock Tribes Fisheries

Email address

ktardy@sbtribes.com

Password

••••••••••

LOGIN

Dashboard

Fish Counts

Program2108 - Chinook Traps

- NOAA Permit
- PTAGIS Fish Records
- Total Mortality by Species
- Total Live Species
- Trap Efficiency
- Seasonal Total Trap Efficiency
- CAX/Trend

Program2108 - Sockeye Traps

- Bay Watch
- Bull Trout
- Mortality by Species
- PTAGIS Fish Records
- Total Live Species
- Trap Efficiency

Videography Weir

- FINS Report
- Passage vs Date
- Passage vs Time

Regional Sharing

Review and "PUSH" datasets to CAX and Streamnet

- CAX

Operational Dashboards

- Bear Valley Creek Chinook Monitoring
- Sockeye Juvenile Outmigration Monitoring

Shoban Fisheries Reports

★ Favorites Browse

Home › RST_Kurt › PTAGIS_Fish_Records

Location: East Fork Salmon River Species Select: CH,CHA,ST,STA,BR,BU,CT,DA,PN Event Select: culled,mark,stain,noaarecap,tally,r

Start Date: 1/1/2021 End Date: 3/2/2022

1 of 2 ? 100% Find | Next

Event Date	Fish ID	SRR Code	Length	Weight	Conditional Comments	Event Type	Genetic ID	Scale ID	PIT Tag	Tagger	Comments	Release Location	Condition	Release Date
3/16/2021 09:29	1	11W	117	14	AI	Mark	1		3DD.0077B45F73	JT, KF		up	releasedalive	3/16/2021 09:51
3/16/2021 09:29	2	11W	35	0.5	AI	Tally				JT, KF		dn	releasedalive	3/16/2021 09:51
3/17/2021 09:15	3	11W	107	12	AI	Mark	2		3DD.0077B48484	JT, KF		up	releasedalive	3/17/2021 09:37
3/18/2021 09:13	4	11W	84	6	AI	Mark	3		3DD.0077B47AC8	JT		up	releasedalive	3/18/2021 09:35
3/18/2021 09:13	5	11W	104	11.5	AI	Mark	4		3DD.0077B404B2	JT		up	releasedalive	3/18/2021 09:35
3/19/2021 08:56	6	11W	103	11	AI	Mark	5		3DD.0077B438BC	JT		up	releasedalive	3/19/2021 09:18
3/19/2021 08:56	7	11W	85	6.5	AI	Mark	6		3DD.0077B45FE5	JT		up	releasedalive	3/19/2021 09:18
3/20/2021 08:57	8	11W	98	10.5	AI	Mark	7		3DD.0077B3FBA7	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	9	11W	97	10	AI	Mark	8		3DD.0077B5A504	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	10	11W	104	12	AI	Mark	9		3DD.0077B4D26F	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	11	11W	73	4	AI	Mark	10		3DD.0077B3FA9	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	12	11W	92	8.5	AI	Mark	11		3DD.0077B45236	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	13	11W	89	8	AI	Mark	12		3DD.0077B4FB50	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	14	11W	84	6.5	AI	Mark			3DD.0077B4B702	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	15	11W	92	9	AI	Mark			3DD.0077B4042E	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	16	11W	91	8.5	AI	Mark			3DD.0077B4295A	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	17	11W	87	7	AI	Mark			3DD.0077B45F18	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	18	11W	86	6.5	AI	Mark			3DD.0077B45273	JT		up	releasedalive	3/20/2021 09:19
3/21/2021 07:57	19	11W	95	9	AI	Mark	13		3DD.0077B40F4A	JT		up	releasedalive	3/21/2021 08:19
3/24/2021 09:10	20	11W	87	5	AI	Mark	14		3DD.0077B47B20	KF		up	releasedalive	3/24/2021 09:32
3/24/2021 09:10	21	11W	112	11	AI	Mark			3DD.0077B41AC2	KF		up	releasedalive	3/24/2021 09:32
3/28/2021 09:40	22	11W	92	9	AI	Mark	16		3DD.0077B44450	SB		up	releasedalive	3/28/2021 10:02
3/29/2021 09:30	23	11W	82	5	AI	Mark	17		3DD.0077B4C4F8	SB	Staff gauge unknown. Subtracted 3/30's height from 3/28 and divided the difference in half and added that amount to 3/28 for 3/29's height as an estimate.	up	releasedalive	3/29/2021 09:52
3/30/2021 08:52	24	11W	94	9.5	AI	Mark	18		3DD.0077B40465	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	25	11W	86	8	AI	Mark	19		3DD.0077B5131B	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	26	11W	87	8	AI	Mark			3DD.0077B46031	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	27	11W	84	6.5	AI	Mark			3DD.0077B4D207	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	28	11W	85	9.5	AI	Mark			3DD.0077B482FB	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	29	11W	93	9	AI	Mark			3DD.0077B4D184	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	30	11W	93	9.5	AI	Mark			3DD.0077B436E0	JT		up	releasedalive	3/30/2021 09:14
3/31/2021 08:57	31	11W	96	9	AI	Mark	20		3DD.00775B1464	JT		up	releasedalive	3/31/2021 09:19
3/31/2021 08:57	32	11W	95	9	AI	Mark	21		3DD.0077B4557C	JT		up	releasedalive	3/31/2021 09:19
3/31/2021 08:57	33	11W	96	9.5	AI	Mark			3DD.0077B41F4A	JT		up	releasedalive	3/31/2021 09:19

Shoban Fisheries Reports

Kurt Tardy

★ Favorites | Browse | Comments

Home › RST_Kurt › PTAGIS_Fish_Records

Location: East Fork Salmon River | Species Select: CH,CHA,ST,STA,BR,BU,CT,DA,PN | Event Select: culled,mark,stain,noaarecap,tally,r | View Report

Start Date: 1/1/2021 | End Date:

- (Select All)
- CH
- CHA
- ST
- STA
- BR
- BU
- CT

1 of 2 ? | Find | Next

Event Date	Fish ID	SRR Code	Length	Weight	Conditiona Comment			Scale ID	PIT Tag	Tagger	Comments	Release Location	Condition	Release Date
3/16/2021 09:29	1	11W	117	14	AI				3DD.0077B45F73	JT, KF		up	releasedalive	3/16/2021 09:51
3/16/2021 09:29	2	11W	35	0.5	AI	Tally				JT, KF		dn	releasedalive	3/16/2021 09:51
3/17/2021 09:15	3	11W	107	12	AI	Mark	2		3DD.0077B48484	JT, KF		up	releasedalive	3/17/2021 09:37
3/18/2021 09:13	4	11W	84	6	AI	Mark	3		3DD.0077B47AC8	JT		up	releasedalive	3/18/2021 09:35
3/18/2021 09:13	5	11W	104	11.5	AI	Mark	4		3DD.0077B404B2	JT		up	releasedalive	3/18/2021 09:35
3/19/2021 08:56	6	11W	103	11	AI	Mark	5		3DD.0077B438BC	JT		up	releasedalive	3/19/2021 09:18
3/19/2021 08:56	7	11W	85	6.5	AI	Mark	6		3DD.0077B45FE5	JT		up	releasedalive	3/19/2021 09:18
3/20/2021 08:57	8	11W	98	10.5	AI	Mark	7		3DD.0077B3FBA7	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	9	11W	97	10	AI	Mark	8		3DD.0077B5A504	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	10	11W	104	12	AI	Mark	9		3DD.0077B4D26F	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	11	11W	73	4	AI	Mark	10		3DD.0077B3FA9	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	12	11W	92	8.5	AI	Mark	11		3DD.0077B45236	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	13	11W	89	8	AI	Mark	12		3DD.0077B4FB50	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	14	11W	84	6.5	AI	Mark			3DD.0077B4B702	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	15	11W	92	9	AI	Mark			3DD.0077B4042E	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	16	11W	91	8.5	AI	Mark			3DD.0077B4295A	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	17	11W	87	7	AI	Mark			3DD.0077B45F18	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	18	11W	86	6.5	AI	Mark			3DD.0077B45273	JT		up	releasedalive	3/20/2021 09:19
3/21/2021 07:57	19	11W	95	9	AI	Mark	13		3DD.0077B40F4A	JT		up	releasedalive	3/21/2021 08:19
3/24/2021 09:10	20	11W	87	5	AI	Mark	14		3DD.0077B47B20	KF		up	releasedalive	3/24/2021 09:32
3/24/2021 09:10	21	11W	112	11	AI	Mark			3DD.0077B41AC2	KF		up	releasedalive	3/24/2021 09:32
3/28/2021 09:40	22	11W	92	9	AI	Mark	16		3DD.0077B44450	SB		up	releasedalive	3/28/2021 10:02
3/29/2021 09:30	23	11W	82	5	AI	Mark	17		3DD.0077B4C4F8	SB	Staff gauge unknown. Subtracted 3/30's height from 3/28 and divided the difference in half and added that amount to 3/28 for 3/29's height as an estimate.	up	releasedalive	3/29/2021 09:52
3/30/2021 08:52	24	11W	94	9.5	AI	Mark	18		3DD.0077B40465	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	25	11W	86	8	AI	Mark	19		3DD.0077B5131B	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	26	11W	87	8	AI	Mark			3DD.0077B46031	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	27	11W	84	6.5	AI	Mark			3DD.0077B4D207	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	28	11W	85	9.5	AI	Mark			3DD.0077B482FB	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	29	11W	93	9	AI	Mark			3DD.0077B4D184	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	30	11W	93	9.5	AI	Mark			3DD.0077B436E0	JT		up	releasedalive	3/30/2021 09:14
3/31/2021 08:57	31	11W	96	9	AI	Mark	20		3DD.00775B1464	JT		up	releasedalive	3/31/2021 09:19
3/31/2021 08:57	32	11W	95	9	AI	Mark	21		3DD.0077B4557C	JT		up	releasedalive	3/31/2021 09:19
3/31/2021 08:57	33	11W	96	9.5	AI	Mark			3DD.0077B41F4A	JT		up	releasedalive	3/31/2021 09:19

Location: East Fork Salmon River | Species Select: CH,ST | Event Select: culled,mark,stain,noaarecap,tally,r | View Report

Start Date: 1/1/2021 | End Date: 3/2/2022

1 of 2 ? | 100% | Find | Next

Word
Excel
PowerPoint
PDF
TIFF file
MHTML (web archive)
CSV (comma delimited)
XML file with report data
Data Feed

Event Date	Fish ID	SRR Code	Length	Weight	Conditional Comments	Event Type	G	PIT Tag	Tagger	Comments	Release Location	Condition	Release Date
3/16/2021 09:29	1	11W	117	14	AI	Mark		.0077B45F73	JT, KF		up	releasedalive	3/16/2021 09:51
3/16/2021 09:29	2	11W	35	0.5	AI	Tally			JT, KF		dn	releasedalive	3/16/2021 09:51
3/17/2021 09:15	3	11W	107	12	AI	Mark		.0077B48484	JT, KF		up	releasedalive	3/17/2021 09:37
3/18/2021 09:13	4	11W	84	6	AI	Mark		.0077B47AC8	JT		up	releasedalive	3/18/2021 09:35
3/18/2021 09:13	5	11W	104	11.5	AI	Mark		.0077B404B2	JT		up	releasedalive	3/18/2021 09:35
3/19/2021 08:56	6	11W	103	11	AI	Mark		.0077B438BC	JT		up	releasedalive	3/19/2021 09:18
3/19/2021 08:56	7	11W	85	6.5	AI	Mark		.0077B45FE5	JT		up	releasedalive	3/19/2021 09:18
3/20/2021 08:57	8	11W	98	10.5	AI	Mark		.0077B3FBA7	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	9	11W	97	10	AI	Mark		.0077B5A504	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	10	11W	104	12	AI	Mark		.0077B4D26F	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	11	11W	73	4	AI	Mark		.0077B3FA9	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	12	11W	92	8.5	AI	Mark		.0077B45236	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	13	11W	89	8	AI	Mark		.0077B4FB50	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	14	11W	84	6.5	AI	Mark		.0077B4B702	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	15	11W	92	9	AI	Mark		.0077B4042E	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	16	11W	91	8.5	AI	Mark		.0077B4295A	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	17	11W	87	7	AI	Mark		3DD.0077B45F18	JT		up	releasedalive	3/20/2021 09:19
3/20/2021 08:57	18	11W	86	6.5	AI	Mark		3DD.0077B45273	JT		up	releasedalive	3/20/2021 09:19
3/21/2021 07:57	19	11W	95	9	AI	Mark	13	3DD.0077B40F4A	JT		up	releasedalive	3/21/2021 08:19
3/24/2021 09:10	20	11W	87	5	AI	Mark	14	3DD.0077B47B20	KF		up	releasedalive	3/24/2021 09:32
3/24/2021 09:10	21	11W	112	11	AI	Mark		3DD.0077B41AC2	KF		up	releasedalive	3/24/2021 09:32
3/28/2021 09:40	22	11W	92	9	AI	Mark	16	3DD.0077B44450	SB		up	releasedalive	3/28/2021 10:02
3/29/2021 09:30	23	11W	82	5	AI	Mark	17	3DD.0077B4C4F8	SB	Staff gauge unknown. Subtracted 3/30's height from 3/28 and divided the difference in half and added that amount to 3/28 for 3/29's height as an estimate.	up	releasedalive	3/29/2021 09:52
3/30/2021 08:52	24	11W	94	9.5	AI	Mark	18	3DD.0077B40465	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	25	11W	86	8	AI	Mark	19	3DD.0077B5131B	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	26	11W	87	8	AI	Mark		3DD.0077B46031	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	27	11W	84	6.5	AI	Mark		3DD.0077B4D207	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	28	11W	85	9.5	AI	Mark		3DD.0077B482FB	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	29	11W	93	9	AI	Mark		3DD.0077B4D184	JT		up	releasedalive	3/30/2021 09:14
3/30/2021 08:52	30	11W	93	9.5	AI	Mark		3DD.0077B436E0	JT		up	releasedalive	3/30/2021 09:14
3/31/2021 08:57	31	11W	96	9	AI	Mark	20	3DD.00775B1464	JT		up	releasedalive	3/31/2021 09:19
3/31/2021 08:57	32	11W	95	9	AI	Mark	21	3DD.0077B4557C	JT		up	releasedalive	3/31/2021 09:19
	33	11W	96	9.5	AI	Mark		3DD.0077B41F4A	JT		up	releasedalive	3/31/2021 09:19

PTAGIS Data_East Fork - Excel

Event Date	Fish ID	SRR Code	Length	Weight	Conditional Comments	Event Type	Genetic ID	Scale ID	PIT Tag	Tagger	Release Date
3/16/2021 8:00	1	11W	117	14	AI	Mark	1		3DD.0077B45F73	Tardy K	3/16/2021 10:00
3/17/2021 8:00	2	11W	107	12	AI	Mark	2		3DD.0077B48484	Tardy K	3/17/2021 10:00
3/18/2021 8:00	3	11W	84	6	AI	Mark	3		3DD.0077B47AC8	Tardy K	3/18/2021 10:00
3/18/2021 8:00	4	11W	104	11.5	AI	Mark	4		3DD.0077B404B2	Tardy K	3/18/2021 10:00
3/19/2021 8:00	5	11W	103	11	AI	Mark	5		3DD.0077B438BC	Tardy K	3/19/2021 10:00
3/19/2021 8:00	6	11W	85	6.5	AI	Mark	6		3DD.0077B45FE5	Tardy K	3/19/2021 10:00
3/20/2021 8:00	7	11W	98	10.5	AI	Mark	7		3DD.0077B3FBA7	Tardy K	3/20/2021 10:00
3/20/2021 8:00	8	11W	97	10	AI	Mark	8		3DD.0077B51504	Tardy K	3/20/2021 10:00
3/20/2021 8:00	9	11W	104	12	AI	Mark	9		3DD.0077B4D26F	Tardy K	3/20/2021 10:00
3/20/2021 8:00	10	11W	73	4	AI	Mark	10		3DD.0077B3FA9B	Tardy K	3/20/2021 10:00
3/20/2021 8:00	11	11W	92	8.5	AI	Mark	11		3DD.0077B45236	Tardy K	3/20/2021 10:00
3/20/2021 8:00	12	11W	89	8	AI	Mark	12		3DD.0077B4FB50	Tardy K	3/20/2021 10:00
3/20/2021 8:00	13	11W	92	9	AI	Mark			3DD.0077B4042E	Tardy K	3/20/2021 10:00
3/20/2021 8:00	14	11W	91	8.5	AI	Mark			3DD.0077B4295A	Tardy K	3/20/2021 10:00
3/20/2021 8:00	15	11W	86	6.5	AI	Mark			3DD.0077B45273	Tardy K	3/20/2021 10:00
3/20/2021 8:00	16	11W	87	7	AI	Mark			3DD.0077B45F18	Tardy K	3/20/2021 10:00
3/20/2021 8:00	17	11W	84	6.5	AI	Mark			3DD.0077B4B7D2	Tardy K	3/20/2021 10:00
3/21/2021 8:00	18	11W	95	9	AI	Mark	13		3DD.0077B40F4A	Tardy K	3/21/2021 10:00
3/24/2021 8:00	19	11W	87	5	AI	Mark	14		3DD.0077B47B20	Tardy K	3/24/2021 10:00
3/24/2021 8:00	20	11W	112	11	AI	Mark			3DD.0077B41AC2	Tardy K	3/24/2021 10:00
3/27/2021 8:00	21	11W	90	9	AI	Mark	15		3DD.0077B436DD	Tardy K	3/27/2021 10:00
3/28/2021 8:00	22	11W	92	9	AI	Mark	16		3DD.0077B44450	Tardy K	3/28/2021 10:00
3/29/2021 8:00	23	11W	82	5	AI	Mark	17		3DD.0077B4C4F8	Tardy K	3/29/2021 10:00
3/30/2021 8:00	24	11W	94	9.5	AI	Mark	18		3DD.0077B40465	Tardy K	3/30/2021 10:00
3/30/2021 8:00	25	11W	86	8	AI	Mark	19		3DD.0077B5131B	Tardy K	3/30/2021 10:00
3/30/2021 8:00	26	11W	93	9.5	AI	Mark			3DD.0077B436E0	Tardy K	3/30/2021 10:00
3/30/2021 8:00	27	11W	87	8	AI	Mark			3DD.0077B46031	Tardy K	3/30/2021 10:00
3/30/2021 8:00	28	11W	85	9.5	AI	Mark			3DD.0077B482FB	Tardy K	3/30/2021 10:00
3/30/2021 8:00	29	11W	93	9	AI	Mark			3DD.0077B4D184	Tardy K	3/30/2021 10:00
3/30/2021 8:00	30	11W	84	6.5	AI	Mark			3DD.0077B4D207	Tardy K	3/30/2021 10:00
3/31/2021 8:00	31	11W	96	9	AI	Mark	20		3DD.0077B51464	Tardy K	3/31/2021 10:00
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3/31/2021 8:00	33	11W	96	9.5	AI	Mark			3DD.0077B41F4A	Tardy K	3/31/2021 10:00
3/31/2021 8:00	34	11W	84	6.5	AI	Mark			3DD.0077B451A1	Tardy K	3/31/2021 10:00
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3/31/2021 8:00	36	11W	80	6	AI	Mark			3DD.0077B454F1	Tardy K	3/31/2021 10:00
4/1/2021 8:00	37	11W	85	6.5	AI	Mark	22		3DD.0077B47AAF	Tardy K	4/1/2021 10:00
4/1/2021 8:00	38	11W	83	6	AI	Mark	23		3DD.0077B44780	Tardy K	4/1/2021 10:00
4/1/2021 8:00	39	11W	82	6	AI	Mark			3DD.0077B4639E	Tardy K	4/1/2021 10:00
4/3/2021 8:00	40	11W	105	9	AI	Mark	24		3DD.0077B46133	Tardy K	4/3/2021 10:00
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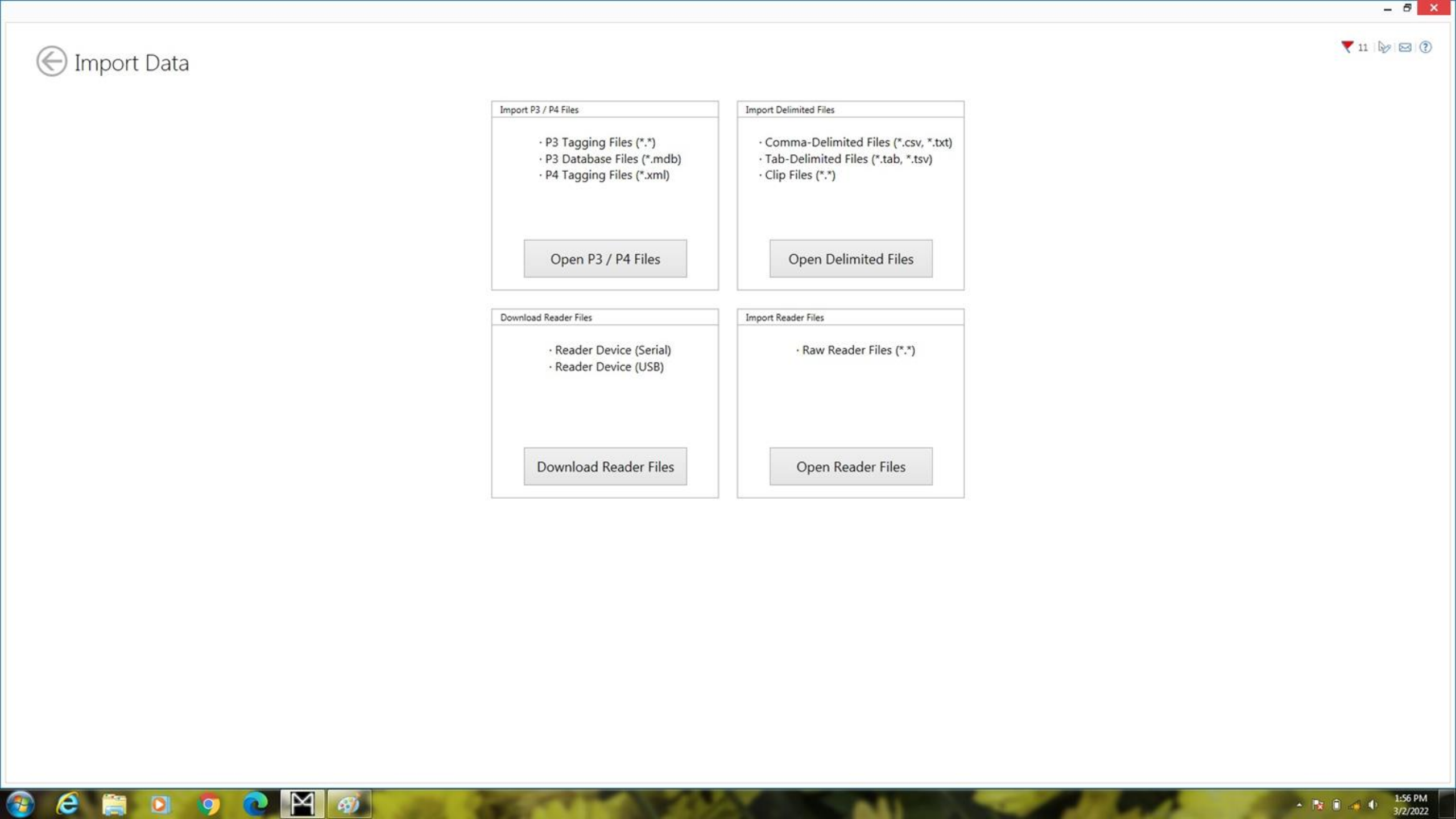
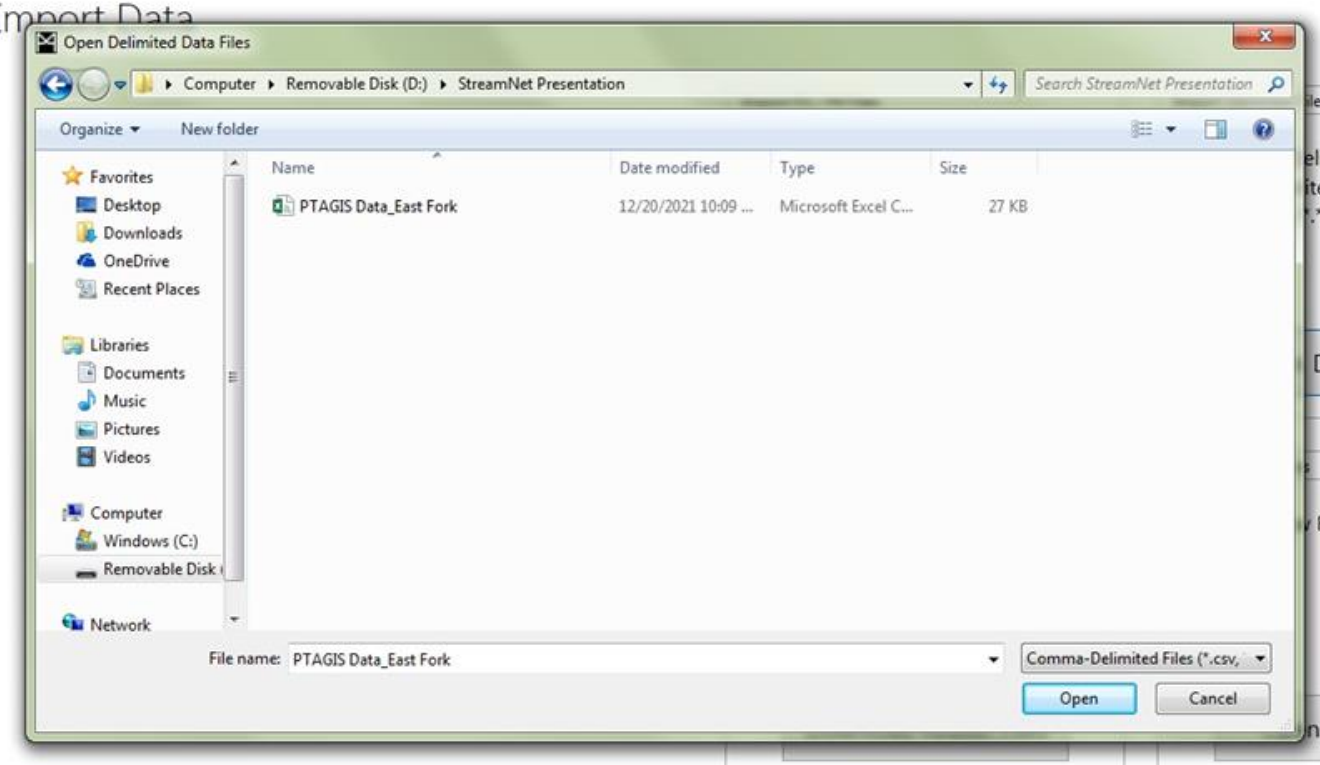
4/4/2021 8:00	42	11W	106	12.5	AI	Mark	26		3DD.0077B4C445	Tardy K	4/4/2021 10:00
4/4/2021 8:00	43	11W	97	9.5	AI	Mark	27		3DD.0077B4ADC2	Tardy K	4/4/2021 10:00
4/4/2021 8:00	44	11W	84	6.5	AI	Mark			3DD.0077B40F00	Tardy K	4/4/2021 10:00
4/4/2021 8:00	45	11W	85	7	AI	Mark			3DD.0077B42D22	Tardy K	4/4/2021 10:00
4/4/2021 8:00	46	11W	89	9	AI	Mark			3DD.0077B43678	Tardy K	4/4/2021 10:00
4/4/2021 8:00	47	11W	85	7	AI	Mark			3DD.0077B443A3	Tardy K	4/4/2021 10:00
4/4/2021 8:00	48	11W	90	8	AI	Mark			3DD.0077B48461	Tardy K	4/4/2021 10:00

PTAGIS P4 version 1.22

Import Data


Import P3 / P4 Files
· P3 Tagging Files (*.*)
· P3 Database Files (*.mdb)
· P4 Tagging Files (*.xml)
Open P3 / P4 Files
Import Delimited Files
· Comma-Delimited Files (*.csv, *.txt)
· Tab-Delimited Files (*.tab, *.tsv)
· Clip Files (*.*)
Open Delimited Files
Download Reader Files
· Reader Device (Serial)
· Reader Device (USB)
Download Reader Files
Import Reader Files
· Raw Reader Files (*.*)
Open Reader Files

Import Data



11

2:07 PM
3/2/2022

Map 'PTAGIS Data_East Fork.csv'

11

Destination

Profile: SBT Blutooth 2021 | Session Name: StreamNet Presentation | Repeating Values: EF Trapping Year 2021

Apply Tag Actions in Profile to imported data: No

Parse Options

First Row Contains Header | Field Separator: Comma

Auto-Map Columns

Column Mapping (PIT Tag is required)

Event Date	Fish ID	SRR Code	Length	Weight	Conditional Comm...	Event Type	Genetic ID	Scale ID	PIT Tag	Tagger	Release Date
Event Date	(skip)	SRR Code	Length	Weight	Conditional Com	Event Type	Genetic ID	Scale ID	PIT Tag	Tagger	Release Date
3/16/2021 8:00	1	11W	117	14	AI	Mark	1		3DD.0077B45F73	Tardy K	3/16/2021 10:00
3/17/2021 8:00	2	11W	107	12	AI	Mark	2		3DD.0077B48484	Tardy K	3/17/2021 10:00
3/18/2021 8:00	3	11W	84	6	AI	Mark	3		3DD.0077B47AC8	Tardy K	3/18/2021 10:00
3/18/2021 8:00	4	11W	104	11.5	AI	Mark	4		3DD.0077B404B2	Tardy K	3/18/2021 10:00
3/19/2021 8:00	5	11W	103	11	AI	Mark	5		3DD.0077B438BC	Tardy K	3/19/2021 10:00
3/19/2021 8:00	6	11W	85	6.5	AI	Mark	6		3DD.0077B45FE5	Tardy K	3/19/2021 10:00
3/20/2021 8:00	7	11W	98	10.5	AI	Mark	7		3DD.0077B3FBA7	Tardy K	3/20/2021 10:00
3/20/2021 8:00	8	11W	97	10	AI	Mark	8		3DD.0077B51504	Tardy K	3/20/2021 10:00
3/20/2021 8:00	9	11W	104	12	AI	Mark	9		3DD.0077B4D26F	Tardy K	3/20/2021 10:00
3/20/2021 8:00	10	11W	73	4	AI	Mark	10		3DD.0077B3FA9B	Tardy K	3/20/2021 10:00
3/20/2021 8:00	11	11W	92	8.5	AI	Mark	11		3DD.0077B45236	Tardy K	3/20/2021 10:00
3/20/2021 8:00	12	11W	89	8	AI	Mark	12		3DD.0077B4FB50	Tardy K	3/20/2021 10:00
3/20/2021 8:00	13	11W	92	9	AI	Mark			3DD.0077B4042E	Tardy K	3/20/2021 10:00
3/20/2021 8:00	14	11W	91	8.5	AI	Mark			3DD.0077B4295A	Tardy K	3/20/2021 10:00
3/20/2021 8:00	15	11W	86	6.5	AI	Mark			3DD.0077B45273	Tardy K	3/20/2021 10:00
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3/20/2021 8:00	17	11W	84	6.5	AI	Mark			3DD.0077B4B7D2	Tardy K	3/20/2021 10:00
3/21/2021 8:00	18	11W	95	9	AI	Mark	13		3DD.0077B40F4A	Tardy K	3/21/2021 10:00
3/24/2021 8:00	19	11W	87	5	AI	Mark	14		3DD.0077B47B20	Tardy K	3/24/2021 10:00
3/24/2021 8:00	20	11W	112	11	AI	Mark			3DD.0077B41AC2	Tardy K	3/24/2021 10:00
3/27/2021 8:00	21	11W	90	9	AI	Mark	15		3DD.0077B436DD	Tardy K	3/27/2021 10:00
3/28/2021 8:00	22	11W	92	9	AI	Mark	16		3DD.0077B44450	Tardy K	3/28/2021 10:00
3/29/2021 8:00	23	11W	82	5	AI	Mark	17		3DD.0077B4C4F8	Tardy K	3/29/2021 10:00
3/30/2021 8:00	24	11W	94	9.5	AI	Mark	18		3DD.0077B40465	Tardy K	3/30/2021 10:00
3/30/2021 8:00	25	11W	86	8	AI	Mark	19		3DD.0077B51318	Tardy K	3/30/2021 10:00

Cancel | Continue

2:09 PM
3/2/2022

Import Data

Session Options

Folder: 2021 EFSR
Profile: SBT Blutooth 2021
Data Entry Layout: EF Data Entry
Repeating Values (for new events): EF Trapping Year 2021

Available Sessions

- [x] StreamNet Presentation

All | None

Preview

Session Name: StreamNet Presentation
Session Created: 3/2/2022 2:08:30 PM
MRR Project: DDT
Session Message:
Session Note:

Import Errors | MRR Events

Drag a column header here to group by that column

Record#	Brood Year	Capture Method	Conditional Comm...	Detail Note	Event Date	Event Site	Event Type	Hatchery	Hold Temp	Length	Life Stage	Lat/Long Source	Latitu
1		SCREWT	AI		3/16/2021 8:00:00...	SALEFT	Mark			117	Juvenile		
2		SCREWT	AI		3/17/2021 8:00:00...	SALEFT	Mark			107	Juvenile		
3		SCREWT	AI		3/18/2021 8:00:00...	SALEFT	Mark			84	Juvenile		
4		SCREWT	AI		3/18/2021 8:00:00...	SALEFT	Mark			104	Juvenile		
5		SCREWT	AI		3/19/2021 8:00:00...	SALEFT	Mark			103	Juvenile		
6		SCREWT	AI		3/19/2021 8:00:00...	SALEFT	Mark			85	Juvenile		
7		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			98	Juvenile		
8		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			97	Juvenile		
9		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			104	Juvenile		
10		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			73	Juvenile		
11		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			92	Juvenile		
12		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			89	Juvenile		
13		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			92	Juvenile		
14		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			91	Juvenile		
15		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			86	Juvenile		
16		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			87	Juvenile		
17		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			84	Juvenile		
18		SCREWT	AI		3/21/2021 8:00:00...	SALEFT	Mark			95	Juvenile		
19		SCREWT	AI		3/24/2021 8:00:00...	SALEFT	Mark			87	Juvenile		
20		SCREWT	AI		3/24/2021 8:00:00...	SALEFT	Mark			112	Juvenile		
21		SCREWT	AI		3/27/2021 8:00:00...	SALEFT	Mark			90	Juvenile		
22		SCREWT	AI		3/28/2021 8:00:00...	SALEFT	Mark			92	Juvenile		
23		SCREWT	AI		3/29/2021 8:00:00...	SALEFT	Mark			82	Juvenile		
24		SCREWT	AI		3/30/2021 8:00:00...	SALEFT	Mark			94	Juvenile		

Cancel | Import

2:10 PM
3/2/2022

Import Data

Session Options

Folder: 2021 EFSR
Profile: SBT Blutooth 2021
Data Entry Layout: EF Data Entry
Repeating Values (for new events): EF Trapping Year 2021

Available Sessions

- [x] StreamNet Presentation

All | None

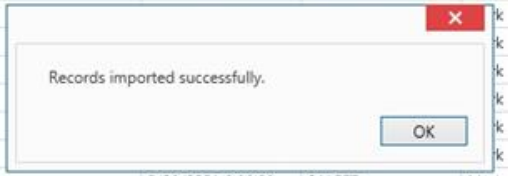
Preview

Session Name: StreamNet Presentation
Session Created: 3/2/2022 2:08:30 PM
MRR Project: DDT
Session Message:
Session Note:

Import Errors | MRR Events

Drag a column header here to group by that column

Record#	Brood Year	Capture Method	Conditional Comm...	Detail Note	Event Date	Event Site	Event Type	Hatchery	Hold Temp	Length	Life Stage	Lat/Long Source	Latitu
1		SCREWT	AI		3/16/2021 8:00:00...	SALEFT	Mark			117	Juvenile		
2		SCREWT	AI							107	Juvenile		
3		SCREWT	AI							84	Juvenile		
4		SCREWT	AI							104	Juvenile		
5		SCREWT	AI							103	Juvenile		
6		SCREWT	AI							85	Juvenile		
7		SCREWT	AI							98	Juvenile		
8		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			97	Juvenile		
9		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			104	Juvenile		
10		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			73	Juvenile		
11		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			92	Juvenile		
12		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			89	Juvenile		
13		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			92	Juvenile		
14		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			91	Juvenile		
15		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			86	Juvenile		
16		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			87	Juvenile		
17		SCREWT	AI		3/20/2021 8:00:00...	SALEFT	Mark			84	Juvenile		
18		SCREWT	AI		3/21/2021 8:00:00...	SALEFT	Mark			95	Juvenile		
19		SCREWT	AI		3/24/2021 8:00:00...	SALEFT	Mark			87	Juvenile		
20		SCREWT	AI		3/24/2021 8:00:00...	SALEFT	Mark			112	Juvenile		
21		SCREWT	AI		3/27/2021 8:00:00...	SALEFT	Mark			90	Juvenile		
22		SCREWT	AI		3/28/2021 8:00:00...	SALEFT	Mark			92	Juvenile		
23		SCREWT	AI		3/29/2021 8:00:00...	SALEFT	Mark			82	Juvenile		
24		SCREWT	AI		3/30/2021 8:00:00...	SALEFT	Mark			94	Juvenile		



Cancel | Import

PTAGIS P4 version 1.22

Session Management

11

Manage Records... | Copy | Join... | Delete | Validate | Customize... | Export | Upload...

Session Explorer

Session	Created	Modified	Project Code	File	Legacy File	Submitted	Submission Result	Submission Message
Bear Valley Tagging 2018								
Bear Valley Tagging 2019								
Bear Valley Tagging 2020								
Bear Valley Tagging 2021								
August 2021	11/16/2020 11:15:07	11/12/2021 07:44:51	BCS	BCS-2021-213-001.xml		11/12/2021 08:10:53	Loaded	
July 2021	11/16/2020 11:14:34	11/12/2021 07:40:04	BCS	BCS-2021-182-001.xml		11/12/2021 08:02:37	Loaded	
June 2021	11/16/2020 11:12:24	11/12/2021 07:30:09	BCS	BCS-2021-153-001.xml		11/12/2021 07:51:03	Loaded	
September 2021	11/16/2020 11:15:59	11/12/2021 07:50:16	BCS	BCS-2021-244-001.xml		11/12/2021 08:25:30	Loaded	
Carcass Recoveries								
Sample Folder								
2022 BV RST	11/28/2022 13:35:54	11/28/2022 13:44:20	BCS	BCS-2022-169-001.xml		11/28/2022 13:45:04	Loaded	

PTAGIS Validation Result Summary

press Validate to see results...

0 Errors | 0 Duplicates | 0 Warning

	Field	Number of Records	Message

Session Management

11

Manage Records... | Copy | Join... | Delete | Validate | Customize... | Export | Upload...

Session Explorer

Session	Created	Modified	Project Code	File	Legacy File	Submitted	Submission Result	Submission Message
Bear Valley Tagging 2018								
Bear Valley Tagging 2019								
Bear Valley Tagging 2020								
Bear Valley Tagging 2021								
August 2021	11/16/2020 11:15:07	11/12/2021 07:44:51	BCS	BCS-2021-213-001.xml		11/12/2021 08:10:53	Loaded	
July 2021	11/16/2020 11:14:34	11/12/2021 07:40:04	BCS	BCS-2021-182-001.xml		11/12/2021 08:02:37	Loaded	
June 2021	11/16/2020 11:12:24	11/12/2021 07:30:09	BCS	BCS-2021-153-001.xml		11/12/2021 07:51:03	Loaded	
September 2021	11/16/2020 11:15:59	11/12/2021 07:50:16	BCS	BCS-2021-244-001.xml		11/12/2021 08:25:30	Loaded	
Carcass Recoveries								
Sample Folder								
2022 BV RST	11/28/2022 13:35:54	11/28/2022 13:44:20	BCS	BCS-2022-169-001.xml		11/28/2022 13:45:04	Loaded	

PTAGIS Validation Result Summary

press Validate to see results...

0 Errors | 0 Duplicates | 0 Warnings

	Field	Number of Records	Message

Record Management

Validate | Customize... | Manage Open Sessions... | Export | Dot Out | Layout

StreamNet Presentation

Drag a column header here to group by that column

Record#	PIT Tag	SRR Verbose	SRR Code	Event Type	Length	Weight	Conditional Comments	Text Comments	Event Date	Event Site	Life Stage	Brood Year	Migration Year	Spawn Year	Release Site	RKM Mask
1	3DD.0077B45F73	Wild Spring Chinook	11W	Mark	117	14.0	AI	TU	03/16/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
2	3DD.0077B48484	Wild Spring Chinook	11W	Mark	107	12.0	AI	TU	03/17/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
3	3DD.0077B47AC8	Wild Spring Chinook	11W	Mark	84	6.0	AI	TU	03/18/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
4	3DD.0077B404B2	Wild Spring Chinook	11W	Mark	104	11.5	AI	TU	03/18/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
5	3DD.0077B438BC	Wild Spring Chinook	11W	Mark	103	11.0	AI	TU	03/19/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
6	3DD.0077B45FE5	Wild Spring Chinook	11W	Mark	85	6.5	AI	TU	03/19/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
7	3DD.0077B3FBA7	Wild Spring Chinook	11W	Mark	98	10.5	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
8	3DD.0077B51504	Wild Spring Chinook	11W	Mark	97	10.0	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
9	3DD.0077B4D26F	Wild Spring Chinook	11W	Mark	104	12.0	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
10	3DD.0077B3FA9B	Wild Spring Chinook	11W	Mark	73	4.0	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
11	3DD.0077B45236	Wild Spring Chinook	11W	Mark	92	8.5	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
12	3DD.0077B4FB50	Wild Spring Chinook	11W	Mark	89	8.0	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
13	3DD.0077B4042E	Wild Spring Chinook	11W	Mark	92	9.0	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
14	3DD.0077B4295A	Wild Spring Chinook	11W	Mark	91	8.5	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
15	3DD.0077B45273	Wild Spring Chinook	11W	Mark	86	6.5	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
16	3DD.0077B45F18	Wild Spring Chinook	11W	Mark	87	7.0	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
17	3DD.0077B4B7D2	Wild Spring Chinook	11W	Mark	84	6.5	AI	TU	03/20/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
18	3DD.0077B40F4A	Wild Spring Chinook	11W	Mark	95	9.0	AI	TU	03/21/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
19	3DD.0077B47B20	Wild Spring Chinook	11W	Mark	87	5.0	AI	TU	03/24/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
20	3DD.0077B41AC2	Wild Spring Chinook	11W	Mark	112	11.0	AI	TU	03/24/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
21	3DD.0077B436DD	Wild Spring Chinook	11W	Mark	90	9.0	AI	TU	03/27/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
22	3DD.0077B44450	Wild Spring Chinook	11W	Mark	92	9.0	AI	TU	03/28/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
23	3DD.0077B4C4F8	Wild Spring Chinook	11W	Mark	82	5.0	AI	TU	03/29/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
24	3DD.0077B40465	Wild Spring Chinook	11W	Mark	94	9.5	AI	TU	03/30/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
25	3DD.0077B5131B	Wild Spring Chinook	11W	Mark	86	8.0	AI	TU	03/30/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
26	3DD.0077B436E0	Wild Spring Chinook	11W	Mark	93	9.5	AI	TU	03/30/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
27	3DD.0077B46031	Wild Spring Chinook	11W	Mark	87	8.0	AI	TU	03/30/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
28	3DD.0077B482FB	Wild Spring Chinook	11W	Mark	85	9.5	AI	TU	03/30/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
29	3DD.0077B4D184	Wild Spring Chinook	11W	Mark	93	9.0	AI	TU	03/30/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
30	3DD.0077B4D207	Wild Spring Chinook	11W	Mark	84	6.5	AI	TU	03/30/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
31	3DD.00775B1464	Wild Spring Chinook	11W	Mark	96	9.0	AI	TU	03/31/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
32	3DD.0077B4557C	Wild Spring Chinook	11W	Mark	95	9.0	AI	TU	03/31/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
33	3DD.0077B41F4A	Wild Spring Chinook	11W	Mark	96	9.5	AI	TU	03/31/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
34	3DD.0077B451A1	Wild Spring Chinook	11W	Mark	84	6.5	AI	TU	03/31/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0
35	3DD.0077B45294	Wild Spring Chinook	11W	Mark	90	7.5	AI	TU	03/31/2021 08:00:00	SALEFT	Juvenile		2021		SALEFT	522.303.552.0

Record 1 of 340

Session Properties

Session	
Session	StreamNet Presentation
Created	03/02/2022 14:08:30
Modified	03/02/2022 14:12:22
Project Code	DDT
Session Message	
Session Note	
Upload	
File	format: PID-YYYY-DOY-UDF.xml
Legacy File	
Submitted	
Submission Result	
Submission Message	
Data Entry & Validation	
Profile	SBT Blutooth 2021
Data Entry Layout	EF Data Entry
Repeating Values	EF Trapping Year 2021

2:17 PM
3/2/2022

Session Management

11

Manage Records... | Copy | Join... | Delete | Validate | Customize... | Export | Upload...

Session Explorer

Session	Created	Modified	Project Code	File	Legacy File	Submitted	Submission Result	Submission Message
Bear Valley Tagging 2018								
Bear Valley Tagging 2019								
Bear Valley Tagging 2020								
Bear Valley Tagging 2021								
August 2021	11/16/2020 11:15:07	11/12/2021 07:44:51	BCS	BCS-2021-213-001.xml		11/12/2021 08:10:53	Loaded	
July 2021	11/16/2020 11:14:34	11/12/2021 07:40:04	BCS	BCS-2021-182-001.xml		11/12/2021 08:02:37	Loaded	
June 2021	11/16/2020 11:12:24	11/12/2021 07:30:09	BCS	BCS-2021-153-001.xml		11/12/2021 07:51:03	Loaded	
September 2021	11/16/2020 11:15:59	11/12/2021 07:50:16	BCS	BCS-2021-244-001.xml		11/12/2021 08:25:30	Loaded	
Carcass Recoveries								
Sample Folder								
2022 BV RST	11/28/2022 13:35:54	11/28/2022 13:44:20	BCS	BCS-2022-169-001.xml		11/28/2022 13:45:04	Loaded	

PTAGIS Validation Result Summary

press Validate to see results...

0 Errors | 0 Duplicates | 0 Warning

	Field	Number of Records	Message

Session Management

11

Manage Records... | Copy | Join... | Delete | Validate | Customize... | Export | Upload...

Session Explorer

Session	Created	Modified	Project Code	File	Legacy File	Submitted	Submission Result	Submission Message
Bear Valley Tagging 2018								
Bear Valley Tagging 2019								
Bear Valley Tagging 2020								
Bear Valley Tagging 2021								
August 2021	11/16/2020 11:15:07	11/12/2021 07:44:51	BCS	BCS-2021-213-001.xml		11/12/2021 08:10:53	Loaded	
July 2021	11/16/2020 11:14:34	11/12/2021 07:40:04	BCS	BCS-2021-182-001.xml		11/12/2021 08:02:37	Loaded	
June 2021	11/16/2020 11:12:24	11/12/2021 07:30:09	BCS	BCS-2021-153-001.xml		11/12/2021 07:51:03	Loaded	
September 2021	11/16/2020 11:15:59	11/12/2021 07:50:16	BCS	BCS-2021-244-001.xml		11/12/2021 08:25:30	Loaded	
Carcass Recoveries								
Sample Folder								
2022 BV RST	11/28/2022 13:35:54	11/28/2022 13:44:20	BCS	BCS-2022-169-001.xml		11/28/2022 13:45:04	Loaded	

PTAGIS Validation Result Summary

press Validate to see results...

0 Errors | 0 Duplicates | 0 Warnings

	Field	Number of Records	Message

Session Management

Upload Sessions to PTAGIS

Authorized PTAGIS Data Submitter

Registered Email: ktardy@sbtribes.com

Sender's Name: Rebecca Croy

Designate File Upload Operation

Hint: right-click to specify an operation for selected sessions below, or specify individually.

Operation	Session	File	Project Code	Legacy File	Result	Submitted	Submission Message
Correct	September 2021	BCS-2021-244-001.xml	BCS		Loaded	11/12/2021 08:25:30	

Record 1 of 1

Upload | Cancel | Help

Session Explorer

Session

- Bear Valley Ta
- Bear Valley Ta
- Bear Valley Ta
- Bear Valley Ta
  - August 20
  - July 2021
  - June 2021
  - Septembe
- Carcass Recov
- Sample Folde
- 2022 BV RST

PTAGIS Validation Result S

Last Ran: 06/13/2023 13:1

2 Warnings

Field		
Session: September 2021		
Mark Method	12	Any values in Mark Method will be ignored for a Recapture Event.
Brood Year	12	Any values in Brood Year will be ignored for a Recapture Event.

Dashboard

Fish Counts

Program2108 - Chinook Traps

- NOAA Permit
- PTAGIS Fish Records
- Total Mortality by Species
- Total Live Species
- Trap Efficiency
- Seasonal Total Trap Efficiency
- CAX/Trend

Program2108 - Sockeye Traps

- Bay Watch
- Bull Trout
- Mortality by Species
- PTAGIS Fish Records
- Total Live Species
- Trap Efficiency

Videography Weir

- FINS Report
- Passage vs Date
- Passage vs Time

Regional Sharing

Review and "PUSH" datasets to CAX and Streamnet

- CAX

Operational Dashboards

- Bear Valley Creek Chinook Monitoring
- Sockeye Juvenile Outmigration Monitoring

Shoshone-Bannock Tribes' Sockeye Juvenile Outmigration Monitoring

Select Location: Pettit Lake Creek

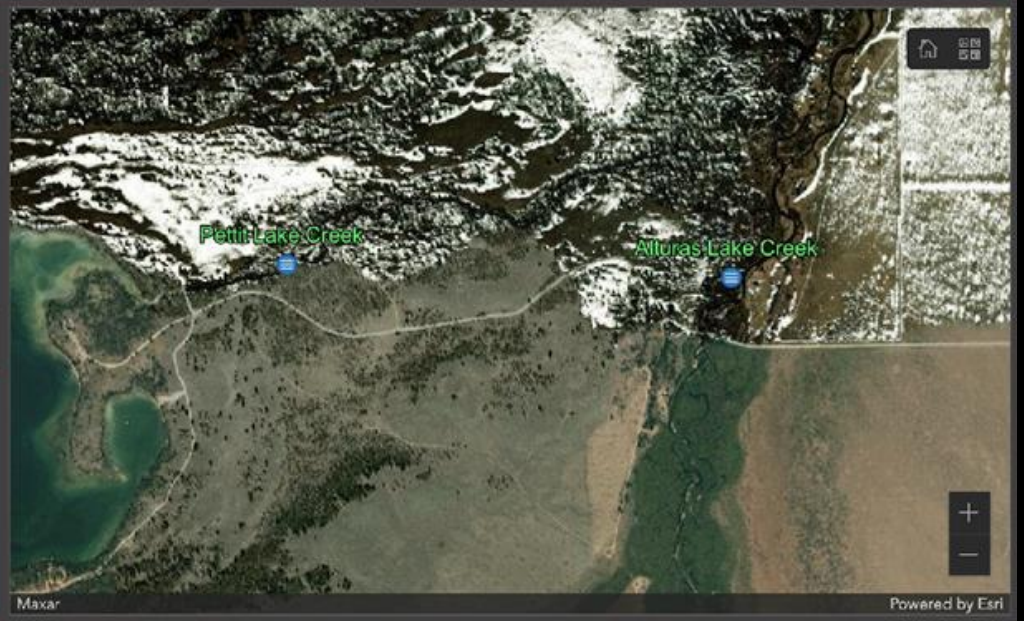
Select a date: 6/12/2023

June 12, 2023

Smolts Collected	Clipped	Tagged	Scales Taken
0	0	0	0

Year-to-Date 2023

Smolts Collected	Clipped	Tagged	Scales Taken
1,482	437	148	92



Trap Efficiency (updates daily at 3pm MST)

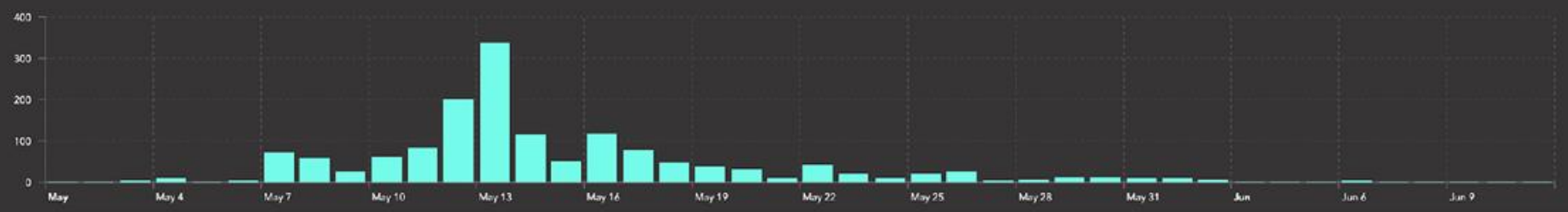
Total Trap Efficiency

28%

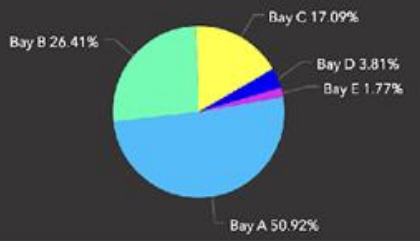
Updates daily at 3pm MST

Hydrograph

Daily Juvenile Sockeye



Bay Watch




Thank You
COPYRIGHT© SHO-BAN NEWS

Fish monitoring needs, expectations, and considerations in the context of Klamath River dam removals.

Tommy Williams
NMFS Southwest Fisheries Science Center

Fish monitoring needs, expectations, and considerations in the context of Klamath River dam removals.

Southwest Fisheries Science Center Fisheries Ecology Division – Santa Cruz, California

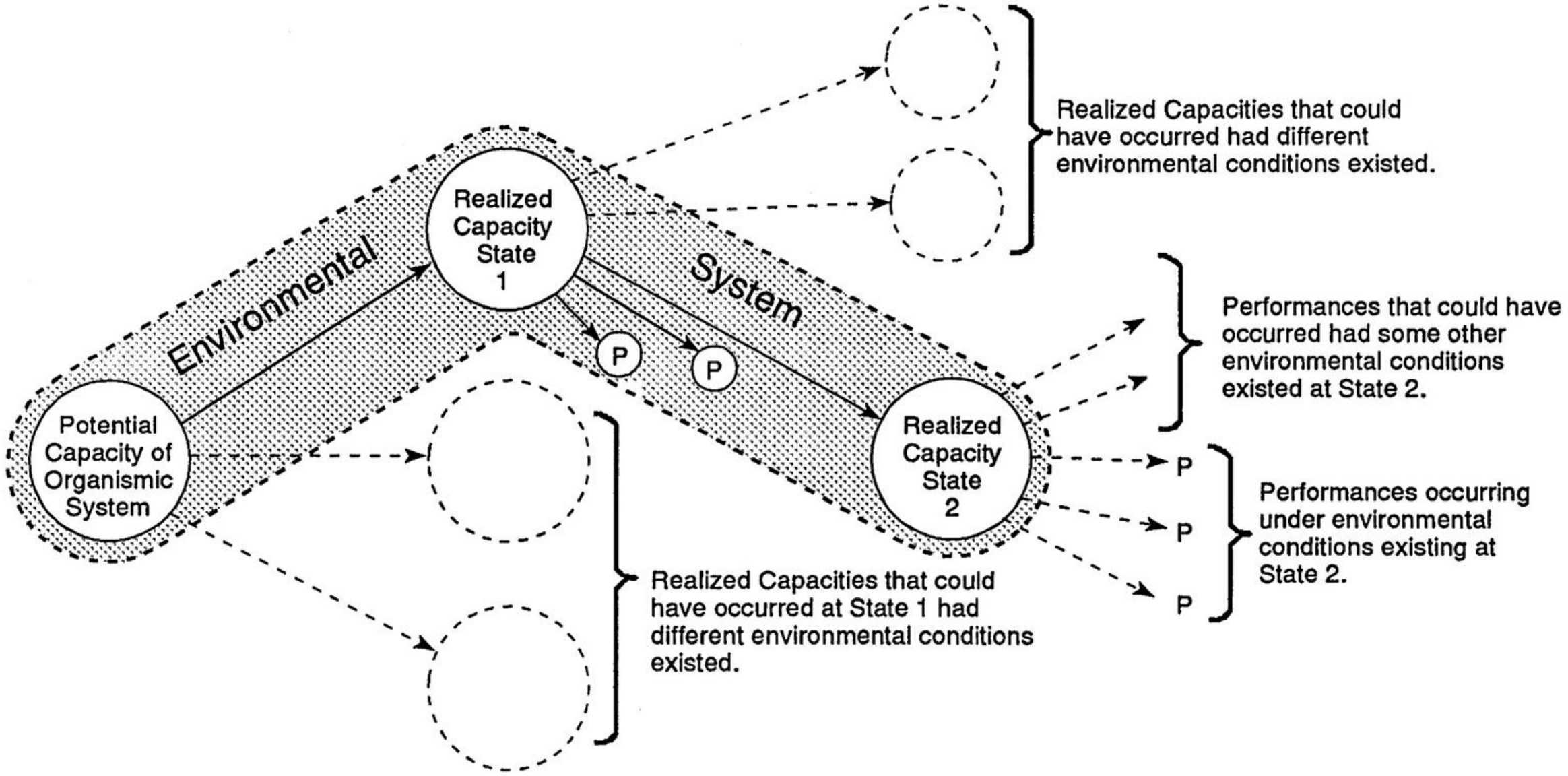
Klamath Fisheries Collaborative 14 June 2023

U.S. Department of Commerce | ***National Oceanic and Atmospheric Administration*** | ***National Marine Fisheries Service***

Motivation for presentation:

- **Review how salmonids persist in a dynamic environment, dam removal restores dynamic processes**
- **Prepare for the known unknowns- adaptive monitoring**
- **Preparing for new landscape and changing climate**

Klamath River Renewal Corporation



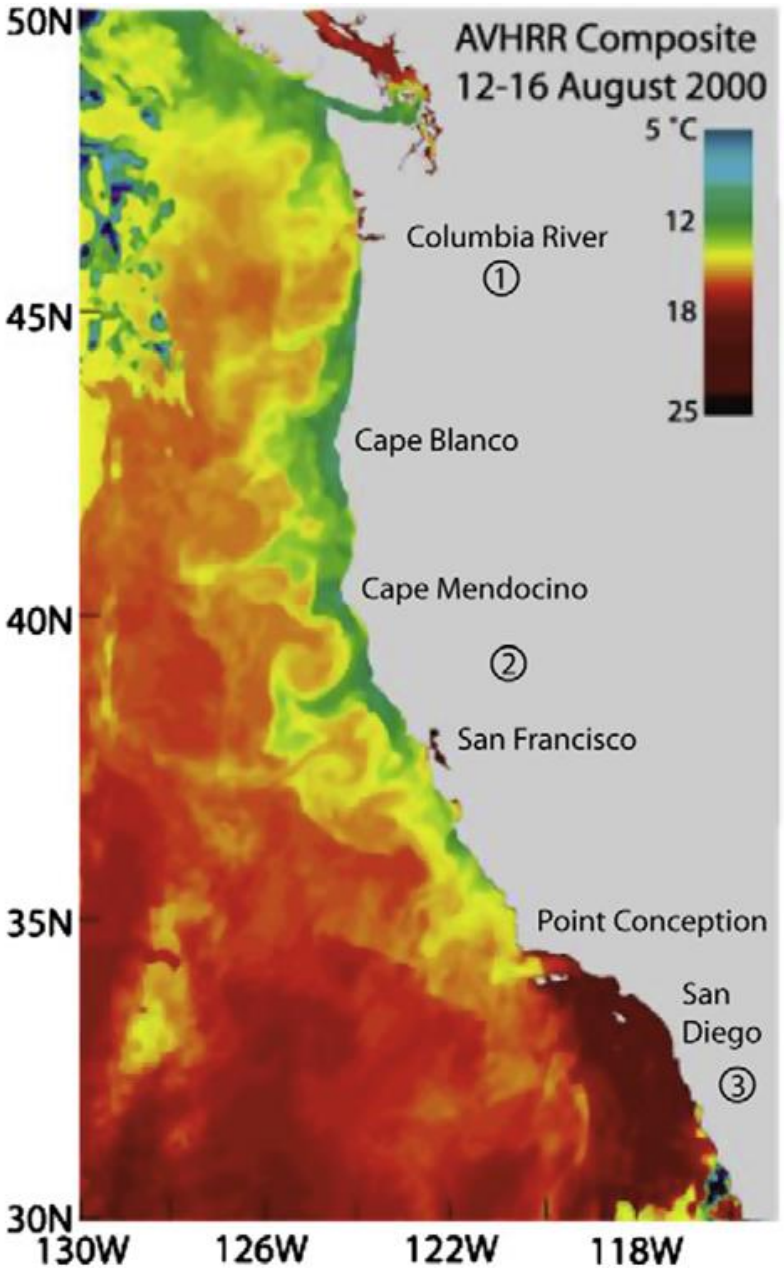
From Ebersole et al. 1997. Envir. Mgt. 21:1-14.

Natural disturbance events that influence salmonid populations throughout their range include:

- **fires**
- **landslides**
- **glaciers**
- **earthquakes**
- **volcanic eruptions**
- **floods**

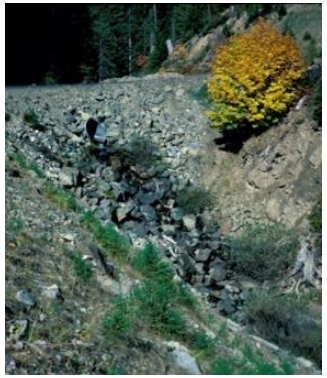
The California Current System is dynamic

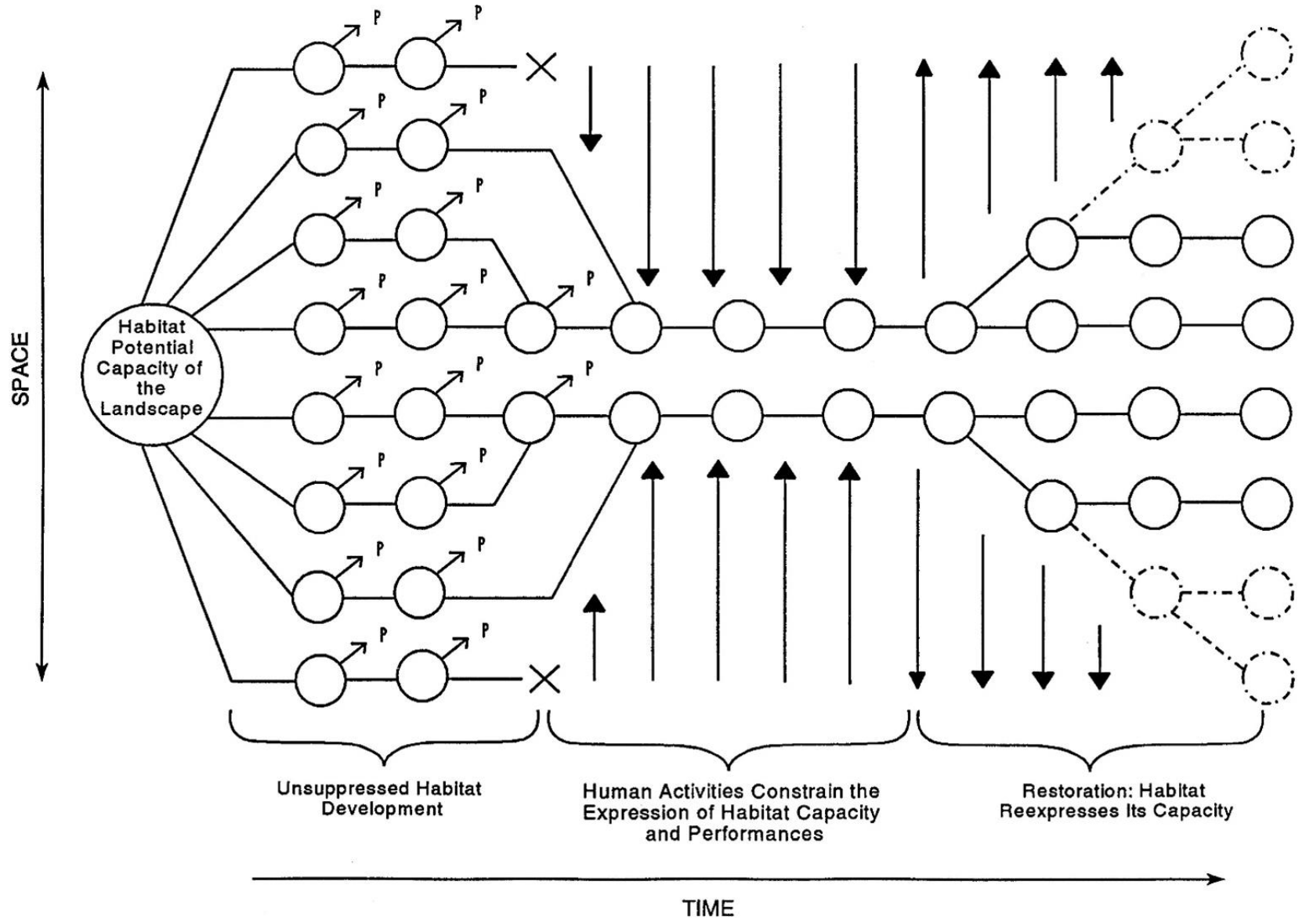
This mid-summer surface temperature snapshot shows how complex and diverse “ocean conditions” are at any given time in response to variable weather, winds, ocean currents, etc.



Anthropogenic constraints that can influence the ability of salmonid populations to track changes in environmental conditions include:

- urbanization
- land management activities
- fire (magnitude, frequency, intensity)
- water diversion and withdrawal
- flooding (magnitude, frequency)





From Ebersole et al. 1997. Envir. Mgt. 21:1-14.

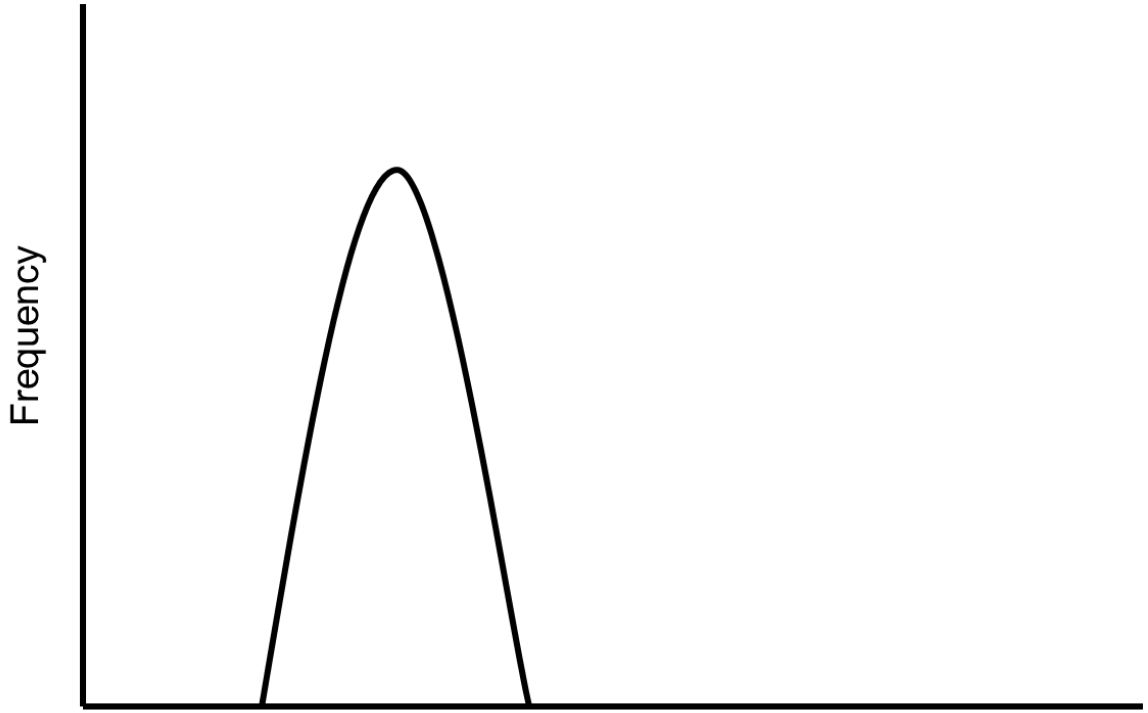
To be viable (i.e., persist) – fish need to be able to track changes in environment

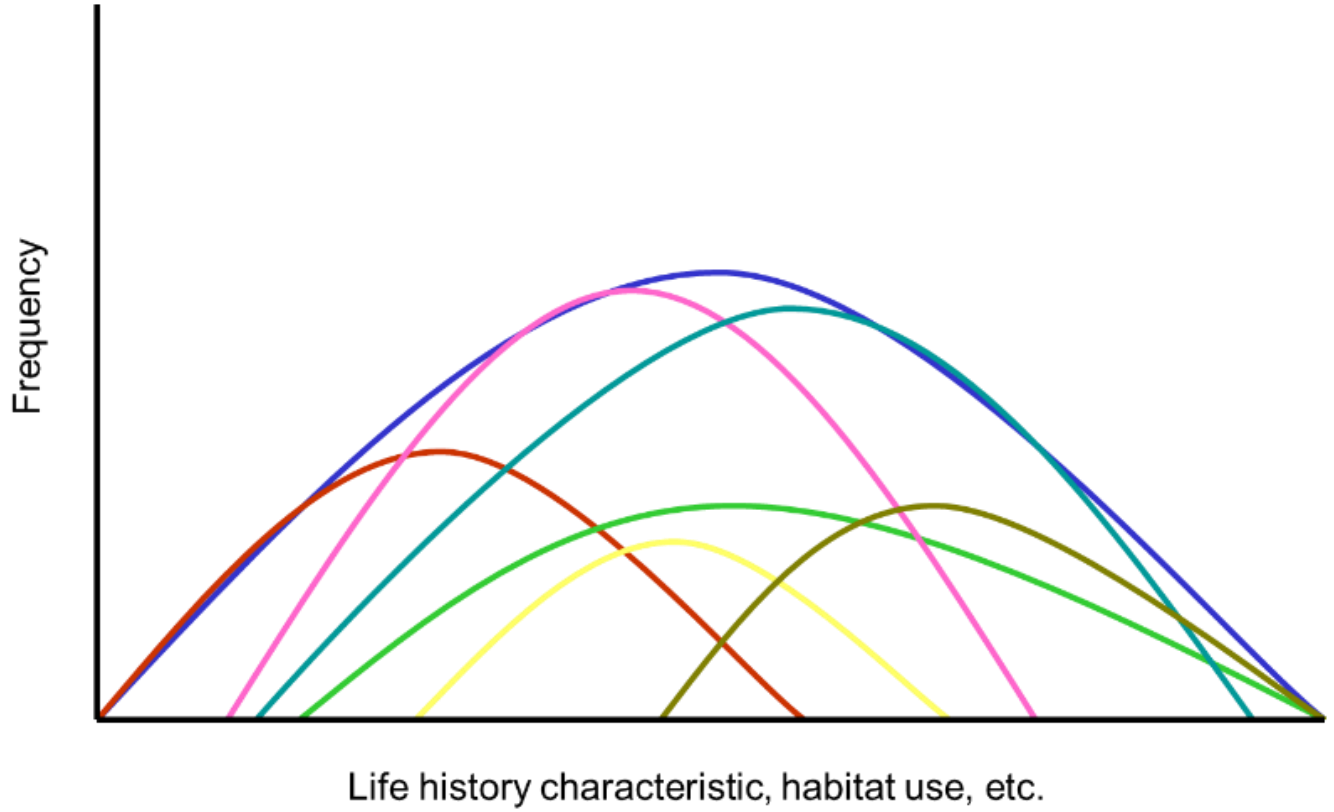
- **Individuals (within and between life stages)**
- **Populations**
- **Groups of populations**
- **Species**

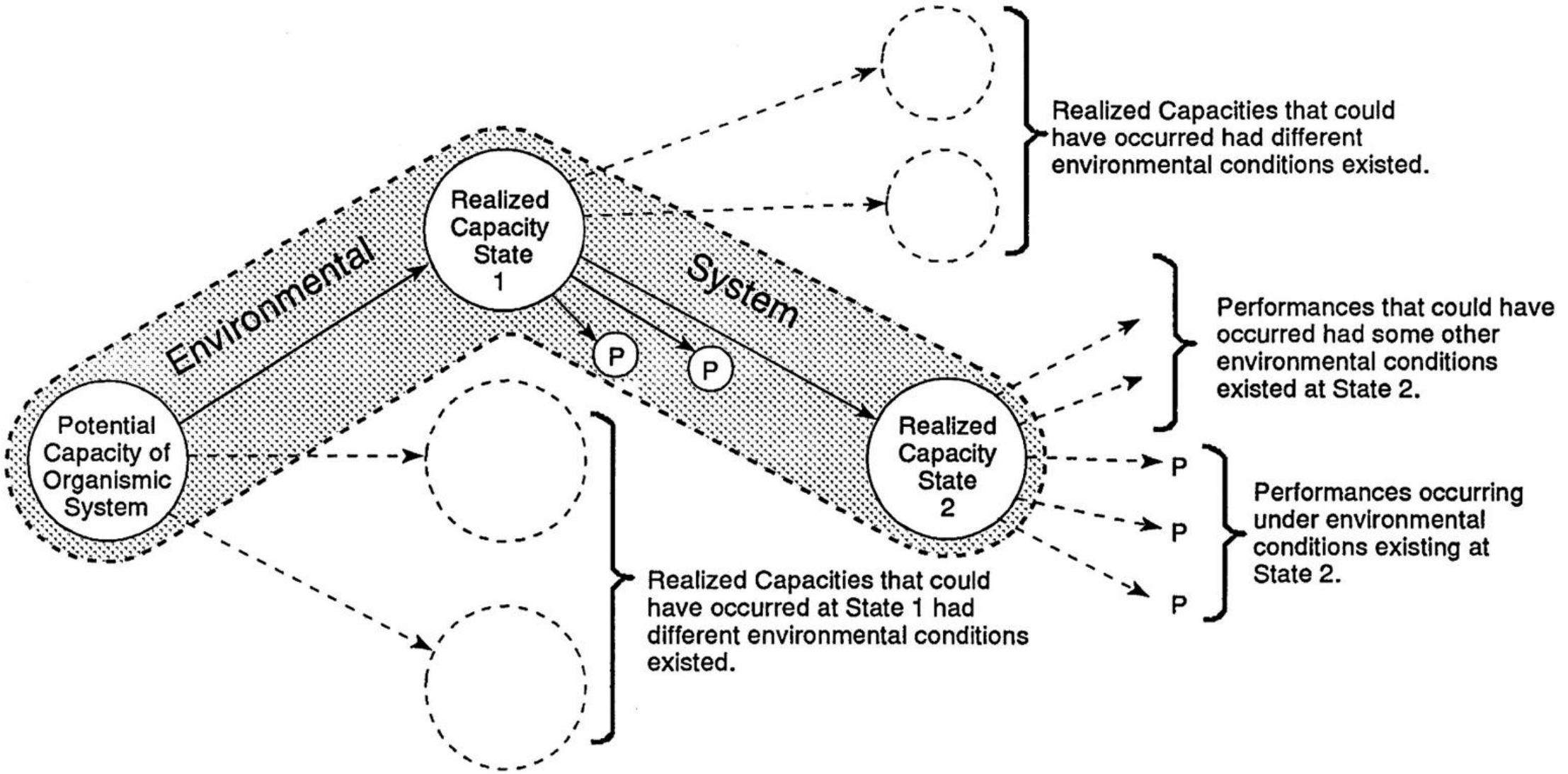
Tracking a dynamic and changing environment

- **animals (and plants, etc.) do it – salmon do it**
- **individuals, populations, groups of populations**
- **movement across the landscape / connectivity**

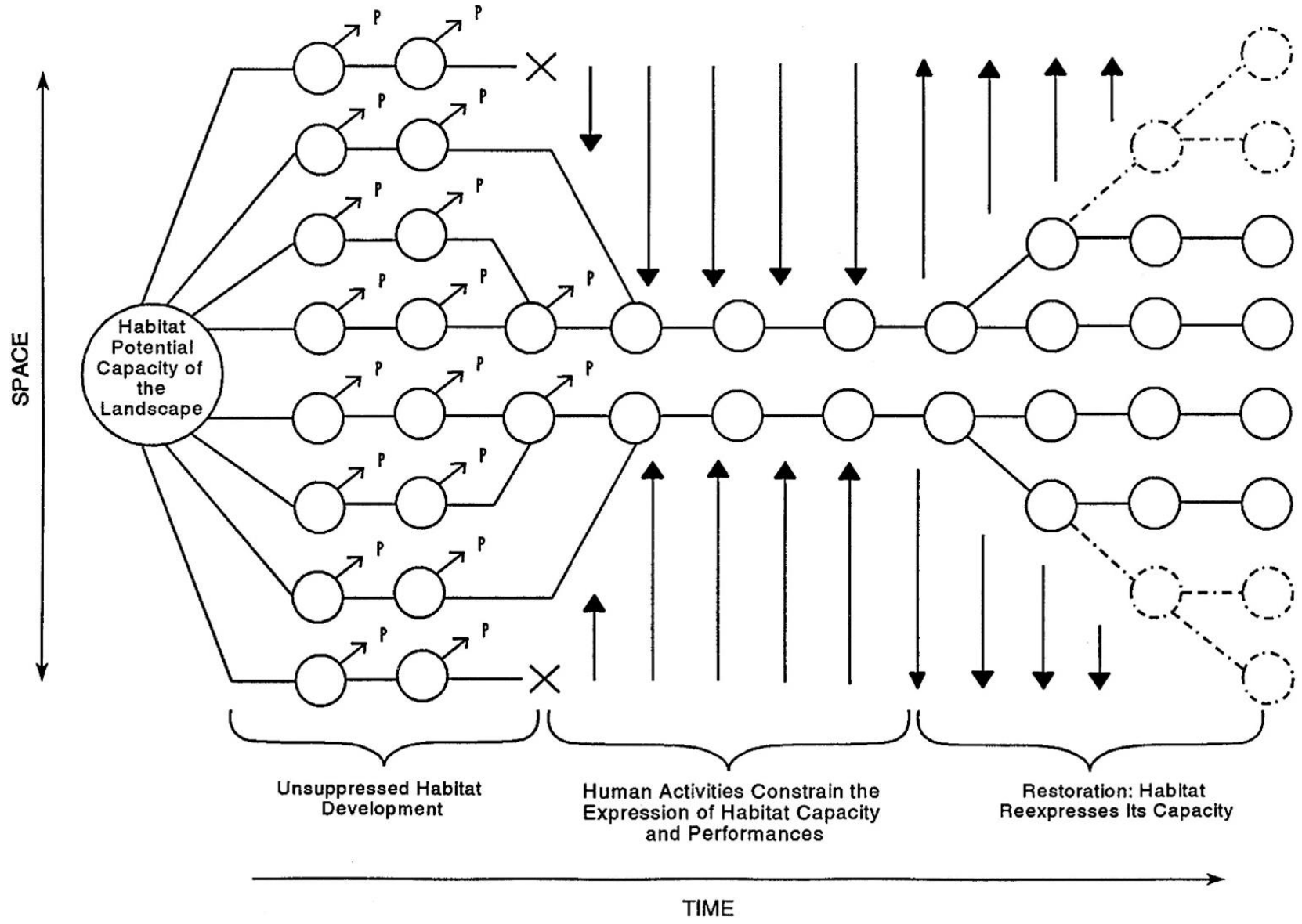
- **Straying by adults**
- **Relatively high fecundity**
- **Juvenile dispersal**
- **Distribution of run-timing**
- **Distribution of age at ocean entry**
- **Overlapping generations *(Chinook and steelhead, coho to some degree)***
- **Life-history types / ecotypes**
- **Use of non-natal habitat by juveniles**


Frequency
Life history characteristic, habitat use curve, etc.


Frequency
Life history characteristic, habitat use, etc.



From Ebersole et al. 1997. Envir. Mgt. 21:1-14.



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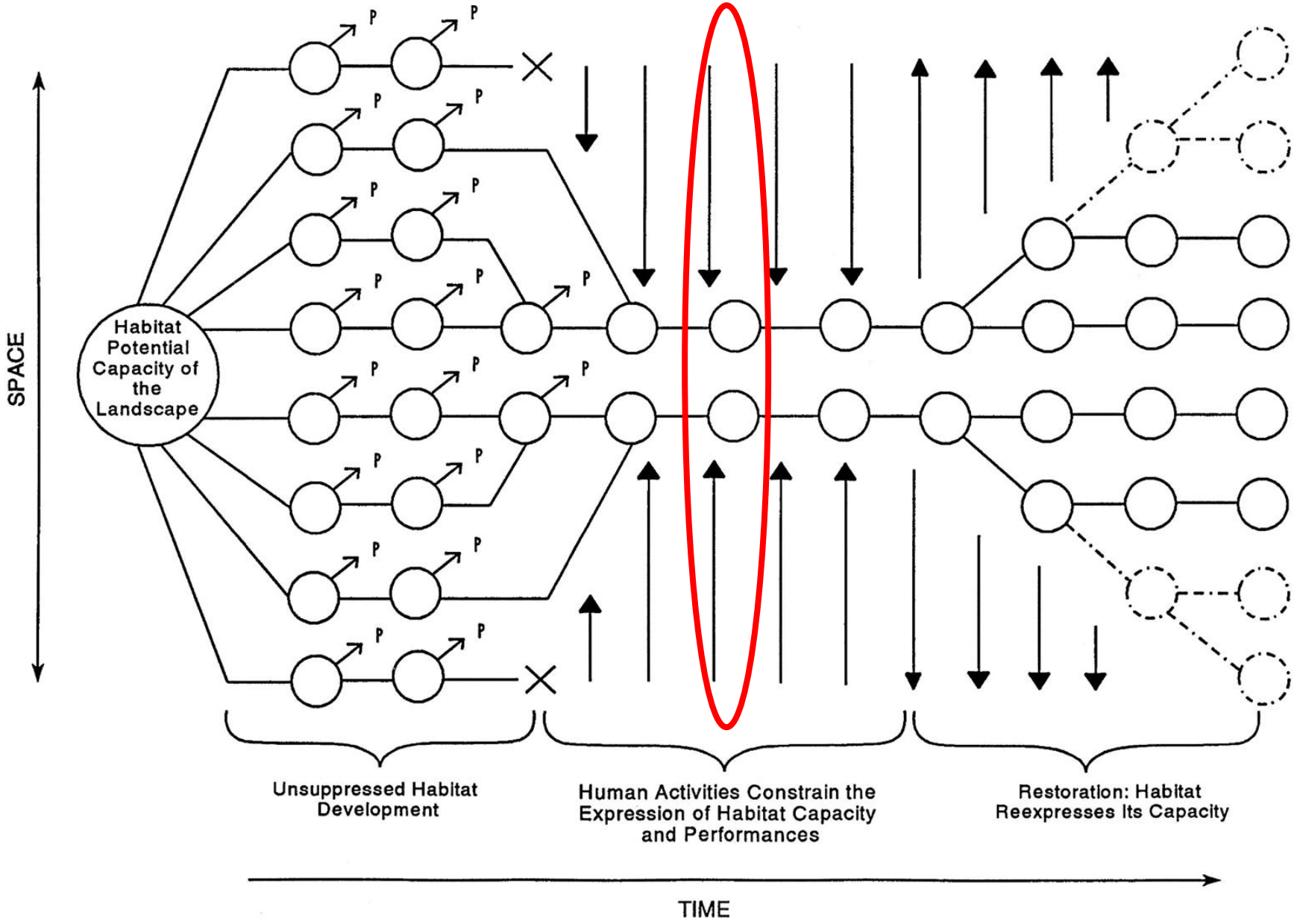

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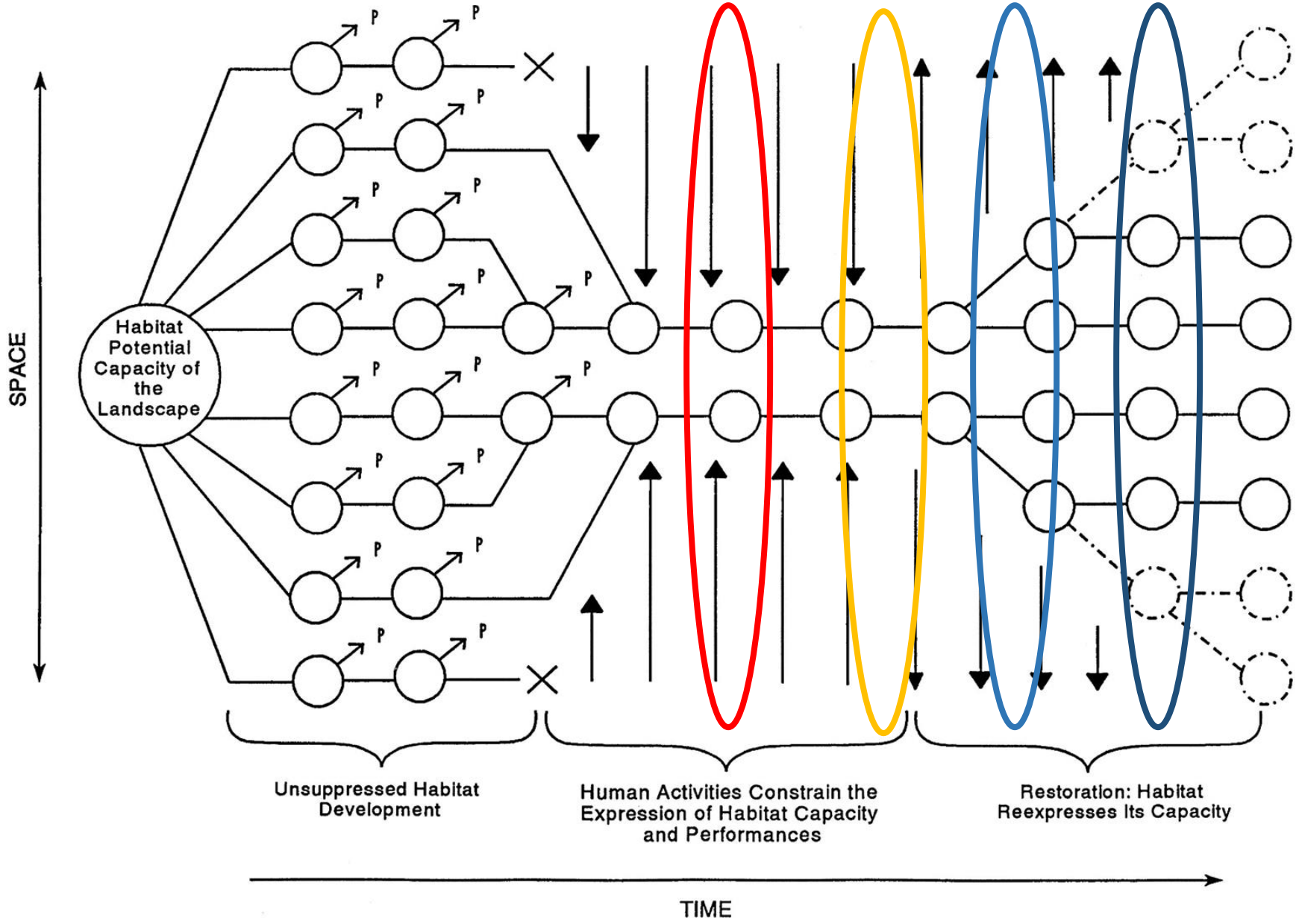
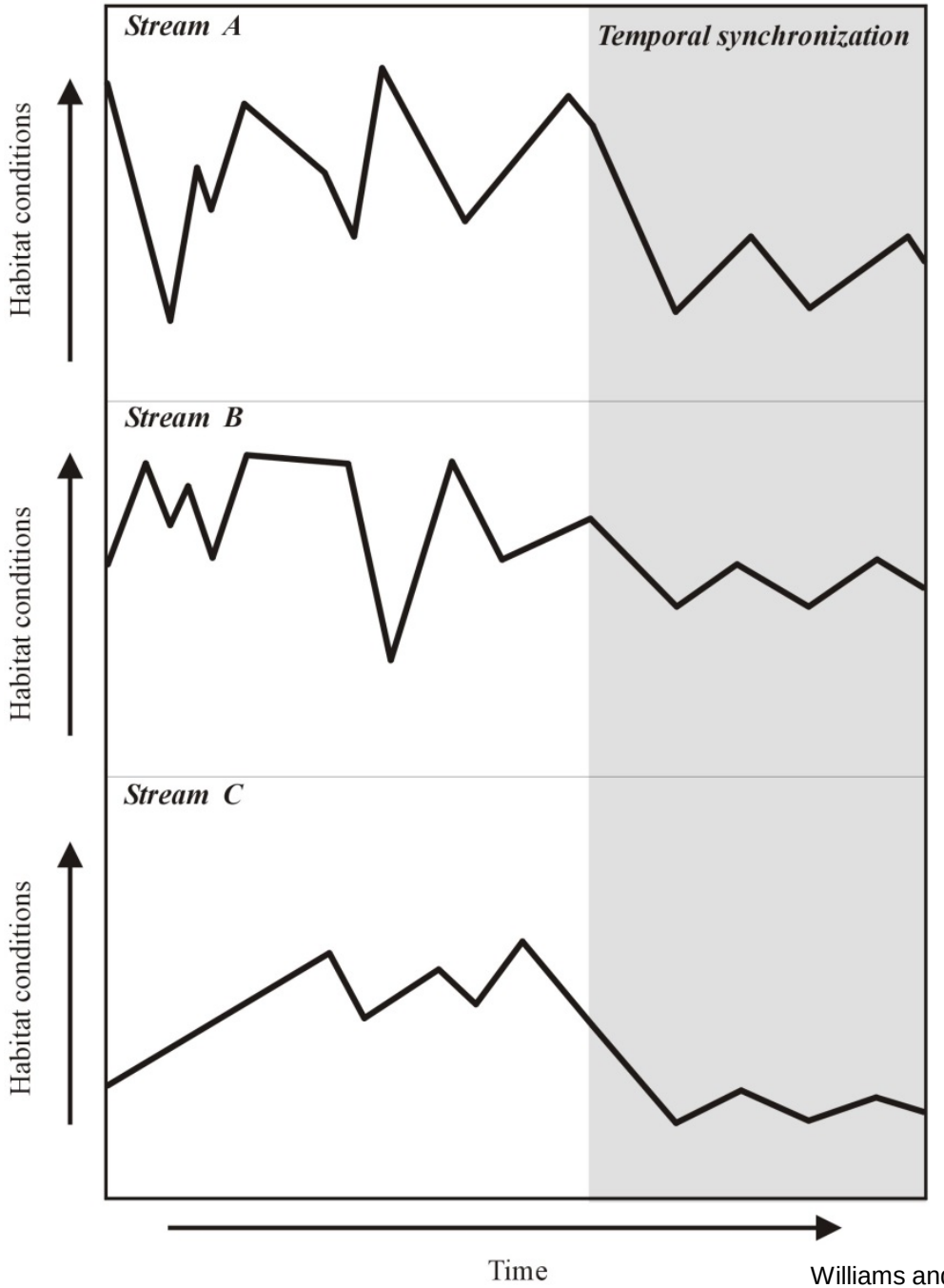
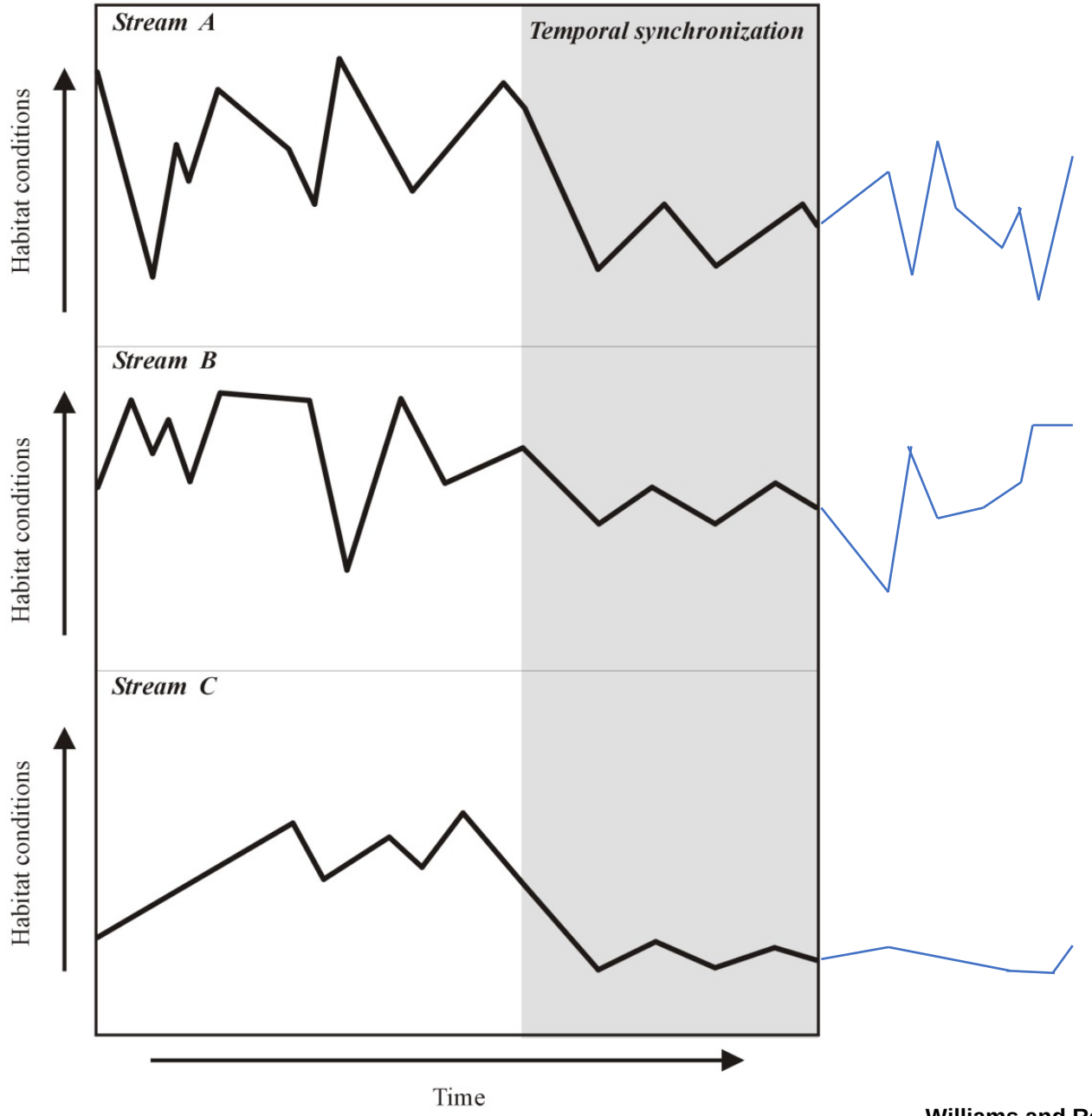


From Ebersole et al. 1997. Envir. Mgt. 21:1-14.

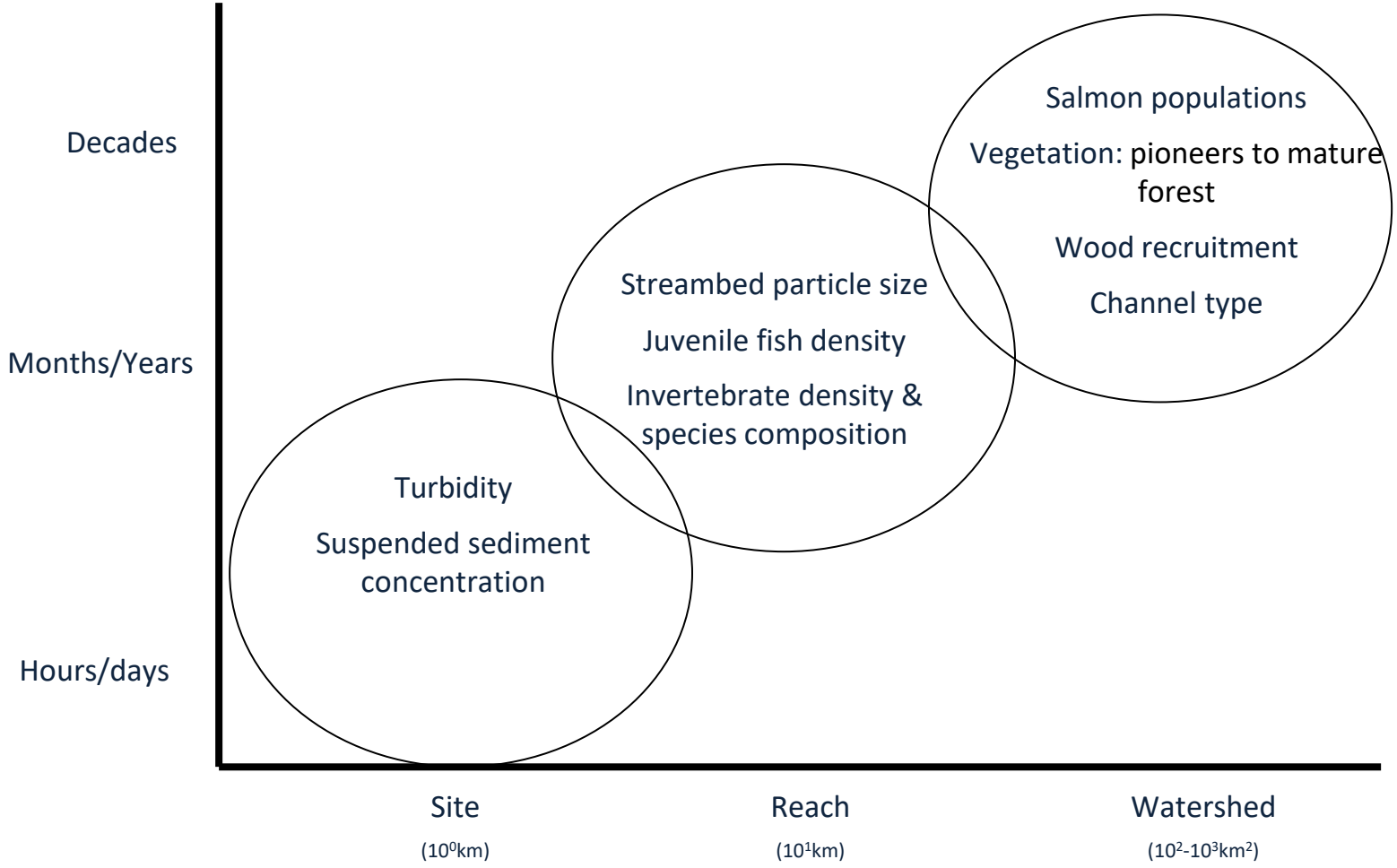


Williams and Reeves 2003



Williams and Reeves 2003

What do we know about the temporal component of dam removal response?



From George Pess – Northwest Fisheries Sci. Center

To be viable (i.e., persist) – fish need to be able to track changes in environment

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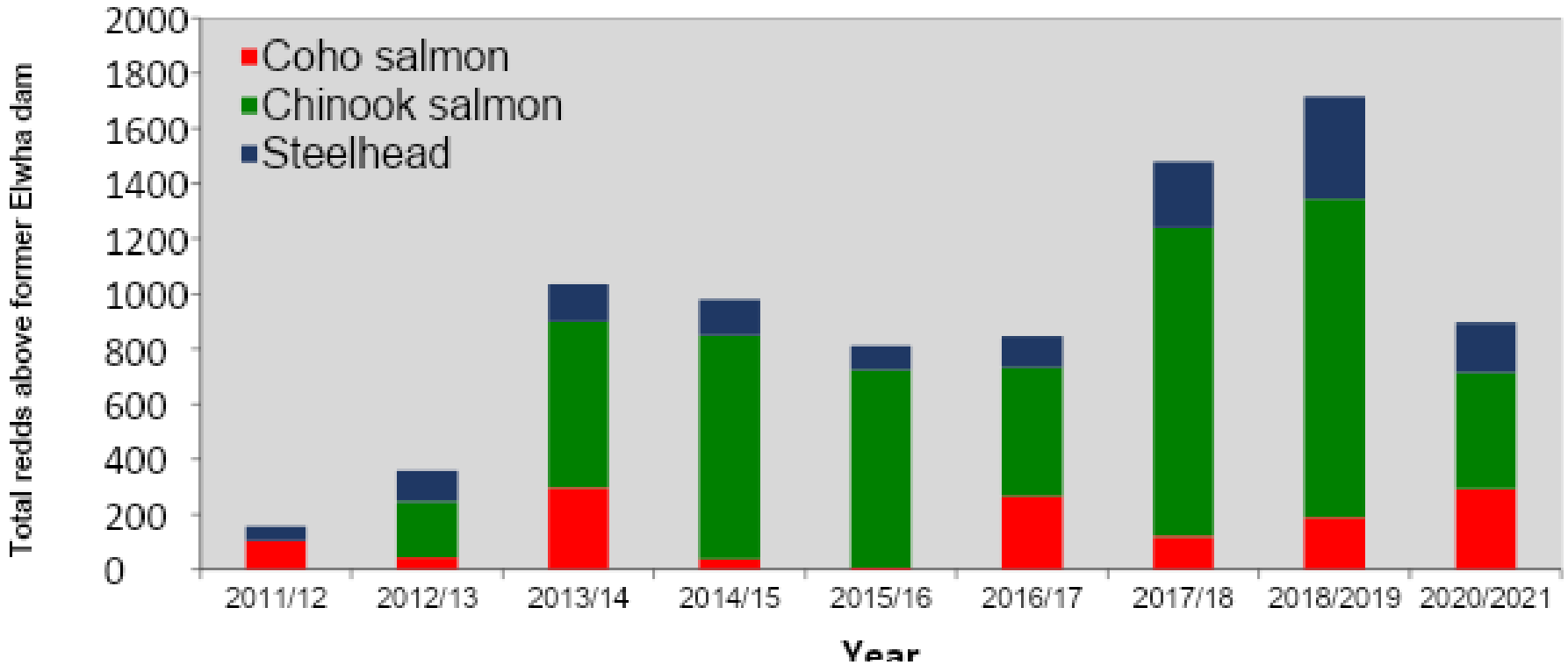
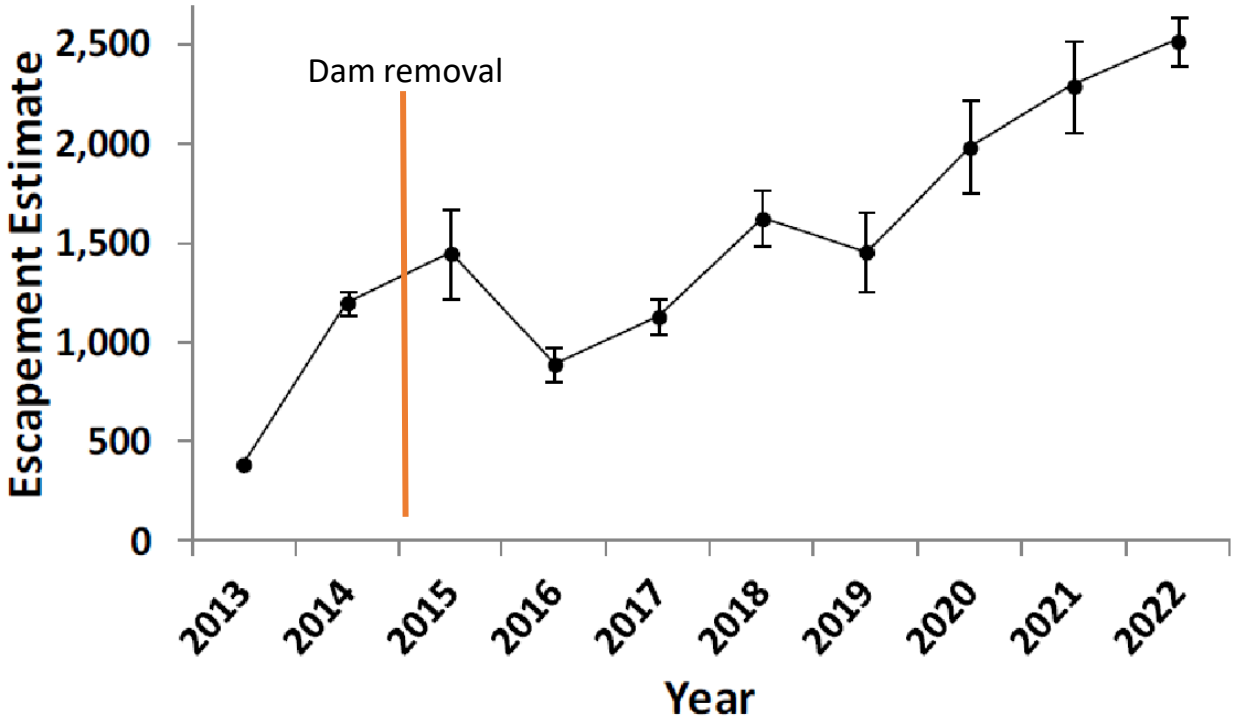
Salmonids dispersing into areas upstream of former dams Chinook salmon, steelhead, and coho salmon



From George Pess – Northwest Fisheries Sci. Center

There are more steelhead in the Elwha River after the removal of the dams

Winter steelhead (includes some hatchery winter steelhead)



Denton et al.2022

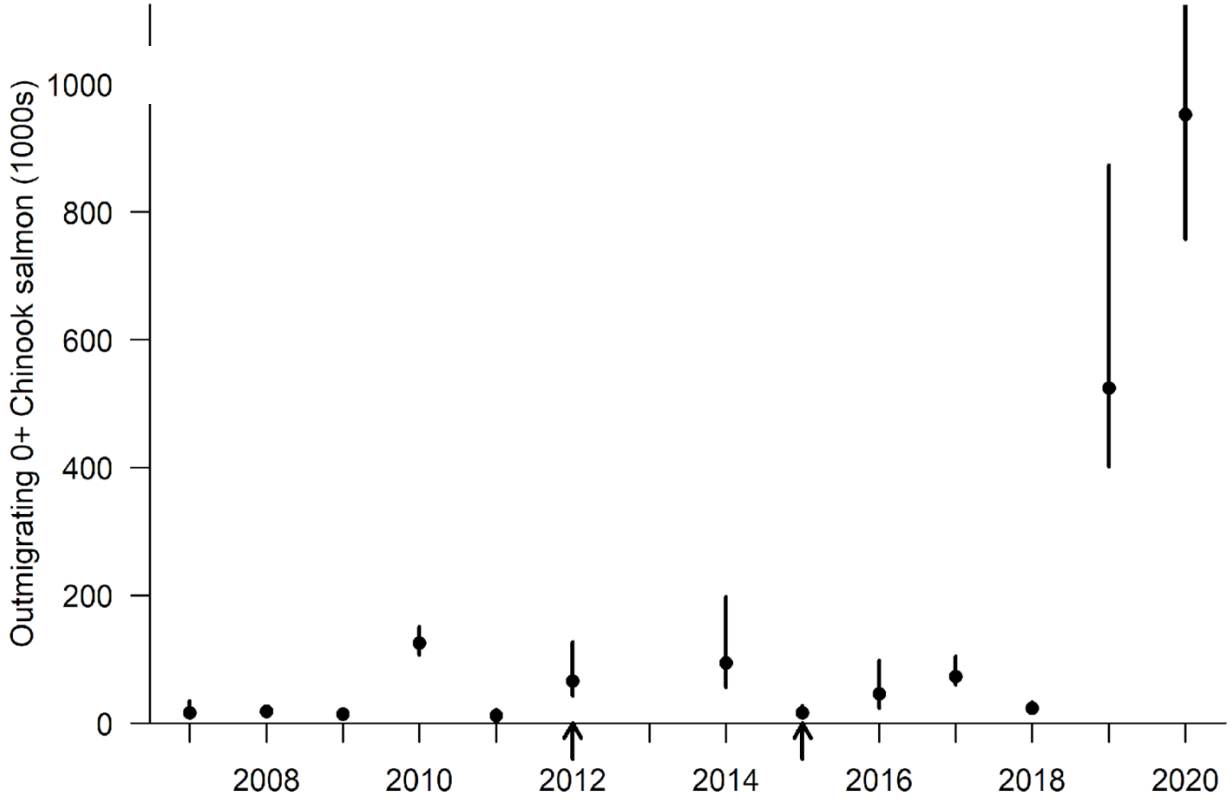
Photo by John McMillan

From George Pess – Northwest Fisheries Sci. Center

Elwha River outmigrating Chinook salmon

= median estimate and 95% credible interval.

= removal of the Elwha and Glines Canyon dams.



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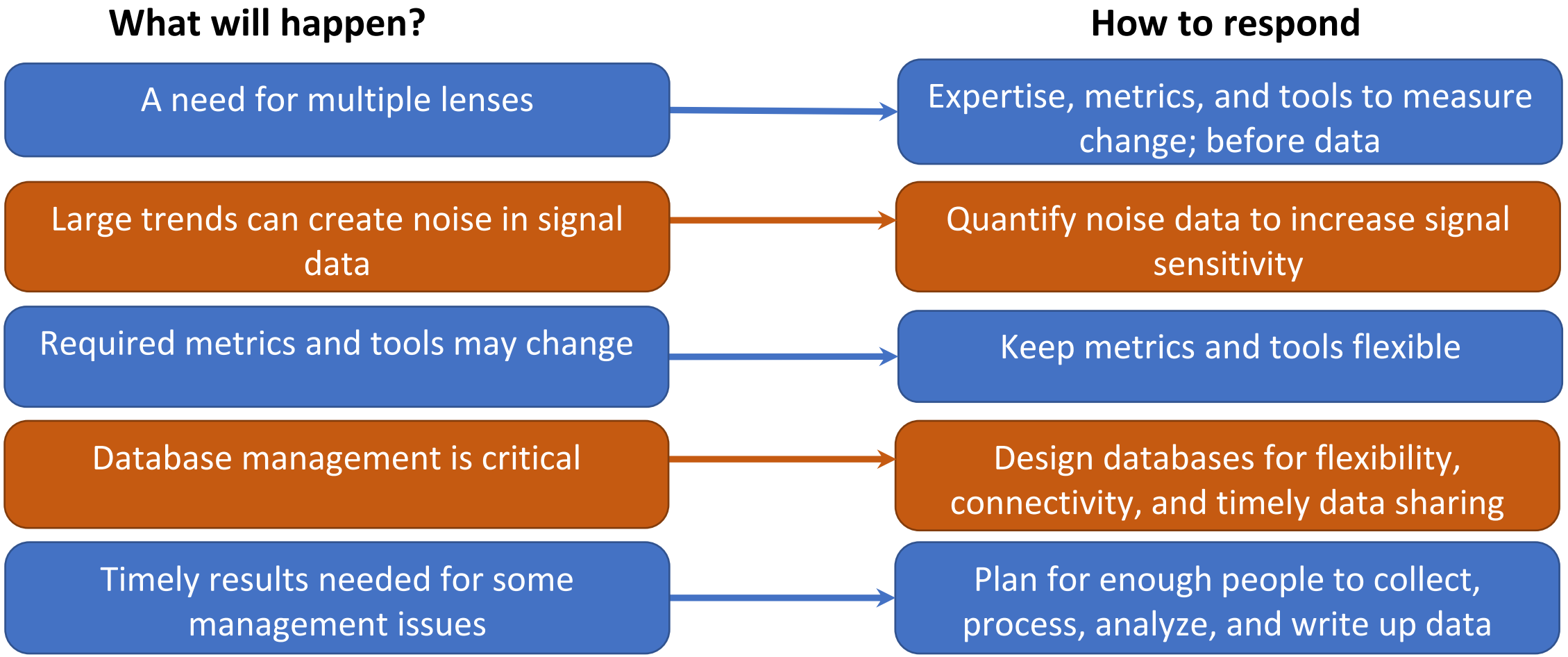
Adaptive monitoring suggestions



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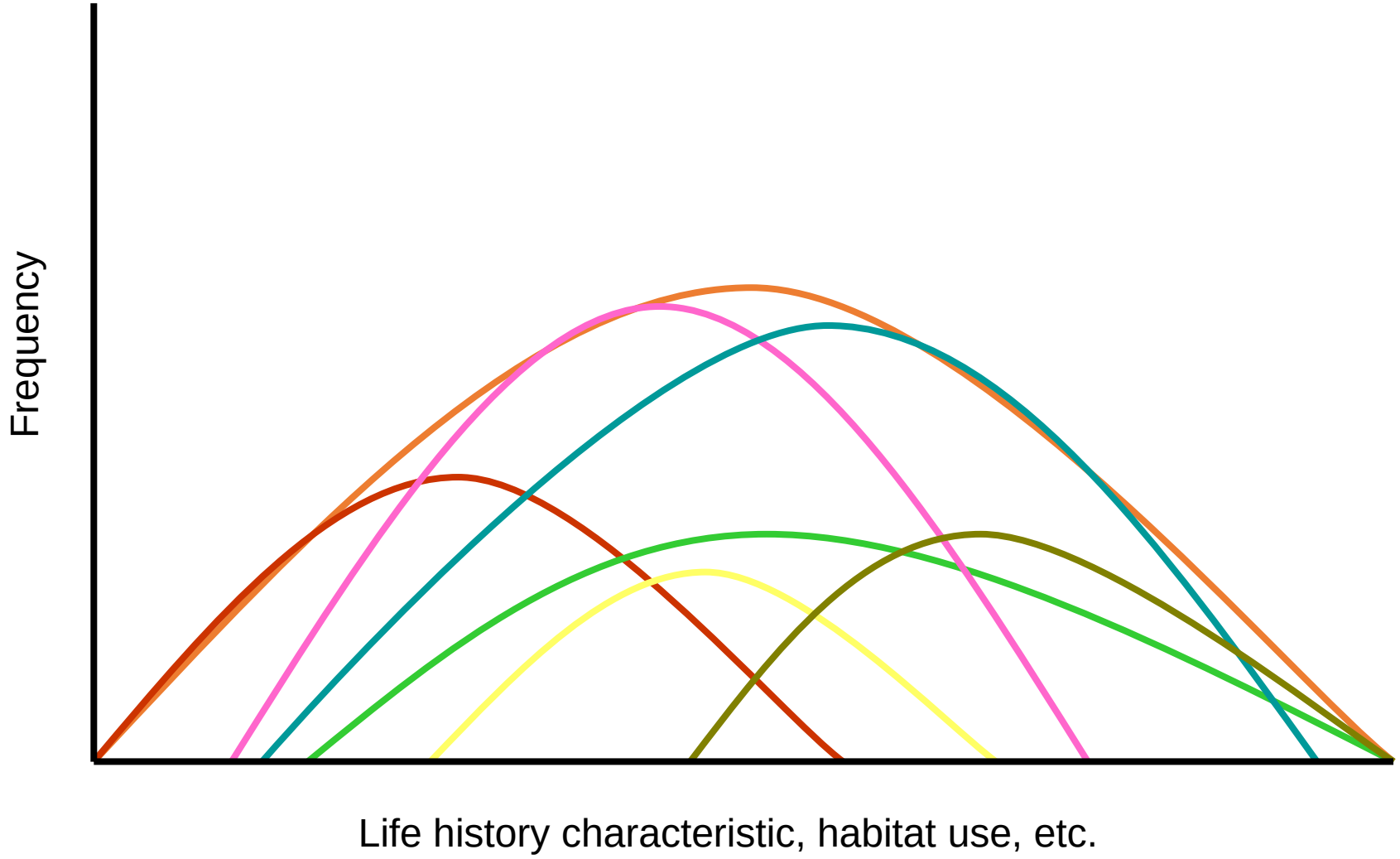
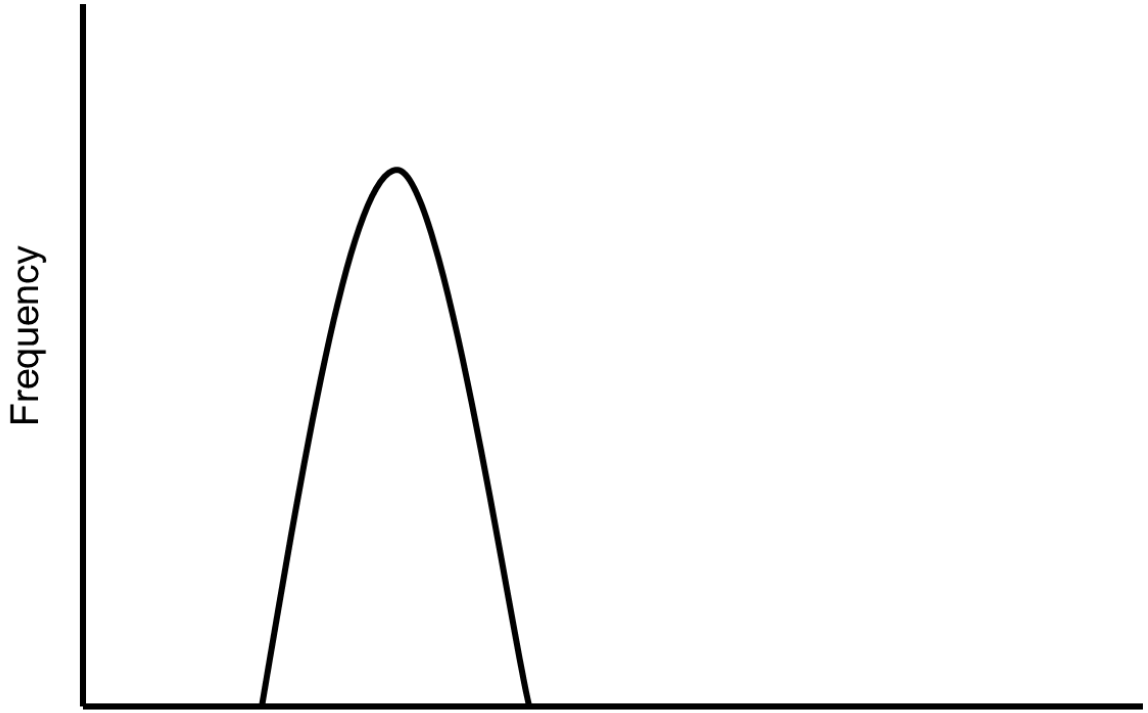
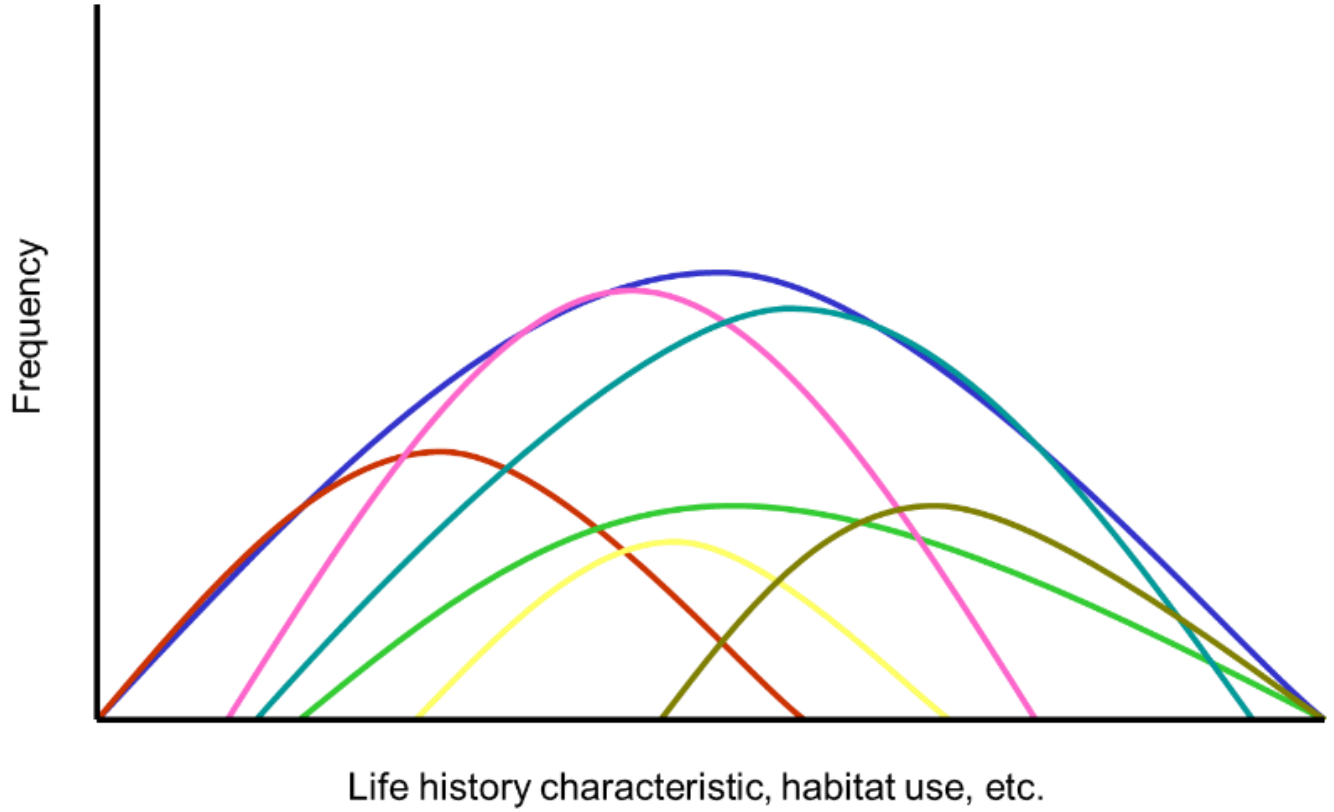

Frequency
Life history characteristic, habitat use, etc.


Frequency
Life history characteristic, habitat use curve, etc.


Frequency
Life history characteristic, habitat use, etc.

Used with permission: Ray Troll

Wrap Up

Klamath Basin Fisheries Collaborative Annual Meeting

Please provide input via this short survey

https://forms.office.com/r/n7gWsftzGM