Northwest **Power** and **Conservation** Council

November 5, 2024

MEMORANDUM

TO: **Council Members**

FROM: **Mark Fritsch**

SUBJECT: **Update on Project #2010-077-00, Tucannon River Programmatic Habitat Project**

BACKGROUND:

Presenter: Kris Buelow, Tucannon Program Coordinator, Snake River Salmon Recovery Board (SRSRB)

Summary: Kris will provide an update and overview of the accomplishments administered by this project that coordinates watershed restoration within the Tucannon Subbasin of Southeastern Washington. The watershed activities are focused on habitat protection, restoration and enhancement for salmon and steelhead.

This presentation was requested as part of the Council recommendation associated with the Anadromous Fish Habitat and Hatchery Review in April 2022. The periodic presentation is intended to provide an update on the project's accomplishments and results. No decision is needed at the meeting.

Relevance: Project #2010-077-00, *Tucannon River Programmatic Habitat Project* is one of the seven umbrella[1] projects supported by the Fish and Wildlife Program. The project uses a comprehensive watershed management

[1] see page 2 for information regarding the Program's umbrella projects.

approach, using structured and science-based decision tools to enhance implementation of on the ground activities, resolve conflicts, and formulate priorities for action in the Tucannon Subbasin.

Workplan: Fish and Wildlife Division work plan 2024; Program planning & Coordination.

Background: The Tucannon project is a habitat "umbrella" project focusing on improving ecological function in support of ESA listed salmonid recovery in the Tucannon River. The project is administered and coordinated by the Snake River Salmon Recovery Board (SRSRB), the Washington regional organization for salmon recovery. The SRSRB has managed the project in close collaboration with the Confederated Tribes of the Umatilla Indian Reservation, Columbia Conservation District, Nez Perce Tribe, US Forest Service and Washington Department of Fish and Wildlife.

The project's goal is to restore the Tucannon to an ecologically functioning watershed which possesses resiliency in the presence of future climate changes and supports the Salmon Recovery goals of returning 750 adult spring Chinook and 1,000 summer steelhead annually. The project completed a geomorphic assessment in 2011, updated in 2021, which is used to guide their restoration efforts for the Tucannon Subbasin.

Umbrella Projects

Umbrella projects are a smaller subset of the projects (#7) currently being implemented through the Program. These umbrella projects are unique, because of the coordination role they play in a particular sub-region, and also because of their approach to their implementation in offering a solicitation and review process that can fund local entities to implement projects. The funding, review and selection process is much like a mini-grant program for the area. The science review that would normally occur through an Independent Science Review Panel (ISRP) review occurs at the local level with ISRP-reviewed criteria and local technical teams. While the processes differ slightly in each area the umbrella projects under this recommendation are largely defined by their approach to: 1) serve as a coordinating entity among sponsors in a particular sub-region to identify, review, and select projects; 2) use a formal project solicitation process; and 3) allocate and administer Bonneville funds to other entities for implementation.

In 2013, as part of the Geographic Category Review in 2013, the Council formalized and established a set of principles to guide umbrella habitat projects were identified and discussed in the review decision document as Programmatic Issue B - *Evaluate and Improve Umbrella Projects*. Umbrella projects are a unique subset of the habitat projects implemented through the Program because of the coordination role they play in a

particular subregion and their offering of a project solicitation and review process that can result in local entities implementing habitat projects with Program funds.

All the Program's Umbrella Projects (except the lamprey project[2]) were part of the recently completed Anadromous Fish Habitat and Hatchery Review in April 2022. As part of the Council decision associated with this review the Council confirmed the importance of the umbrella projects and the principles as established in 2013 and 2017, with the exception that the report that was requested by Council annually (i.e., Principle #6) will no longer be a required, but requested that the sponsors of the umbrella projects present to the Council biennially on their accomplishments and results at appropriate times for the region.

More Info:

- Snake River Salmon Recovery Board website
- Snake River Salmon Recovery Region, regional area summary
- Tucannon River website

[2] In 2017, Project #2017-005-00, Pacific Lamprey Conservation Initiative was included with the original umbrella projects. It is implemented with the guidance established in the Council's 2013 recommendation through the established principals for the benefit of Pacific Lamprey.

NW Power & Conservation Council
Snake River Salmon Recovery
-- November 2024 --

Washington State Recreation and Conservation Office

Nez Perce Fisheries

Snake River Salmon Recovery

Columbia Conservation District

Forest Service, U.S. Department of Agriculture

Confederated Tribes of the Umatilla Indian Reservation

Tucannon Landowners

Washington Department of Fish and Wildlife

Bonneville Power Administration

Introduction:

- Tucannon Habitat Program (2010-77-000)
- Implementation 2020-2025
- Implementation Results

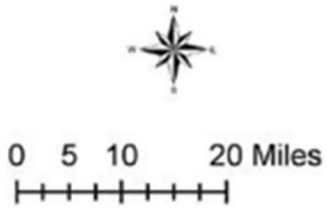
Snake River Salmon Recovery Region

Snake River Salmon
Recovery Board
410B E. Main St.
Dayton, WA 99328

www.snakeriverboard.org

The Region is comprised of:

- One Lead Entity
- Three WRIA (32, 33, & 35)
- Six Counties
- Two Federally Recognized Tribes



10 Threatened Populations within 3 DPS/ESUs

- Mid Columbia Steelhead
- Snake River Steelhead & spring/summer/fall Chinook
- Bull Trout

Tucannon Programmatic

Habitat Program (2008-020-00)

Land Manager

Habitat Program
(2007-393-00)

Programmatic (201-077-00)

Habitat Program
1994-018-00

Private Landowners

Habitat Program

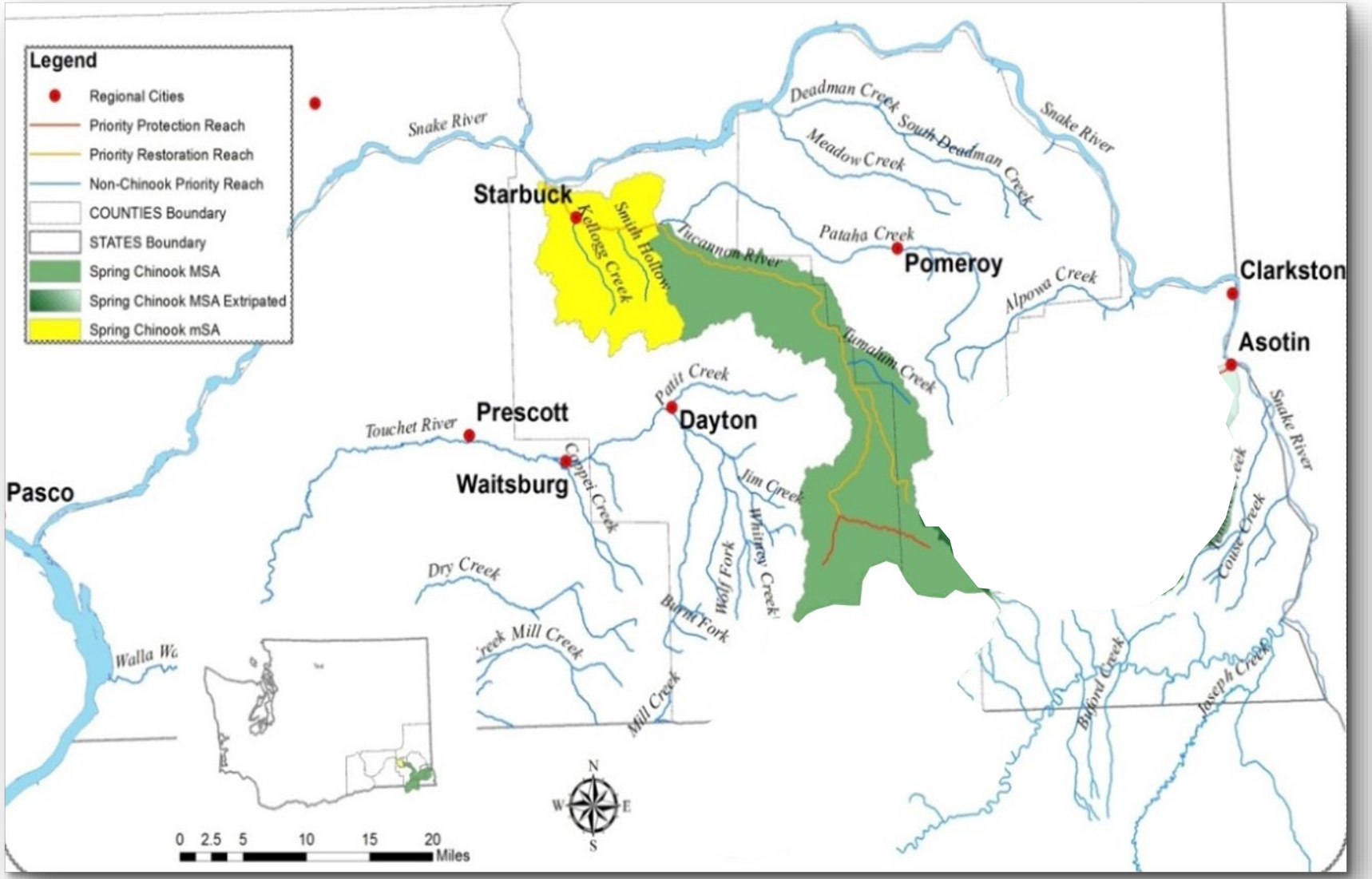
Tucannon River Basin (Based on Assessment and Planning)

Native Species

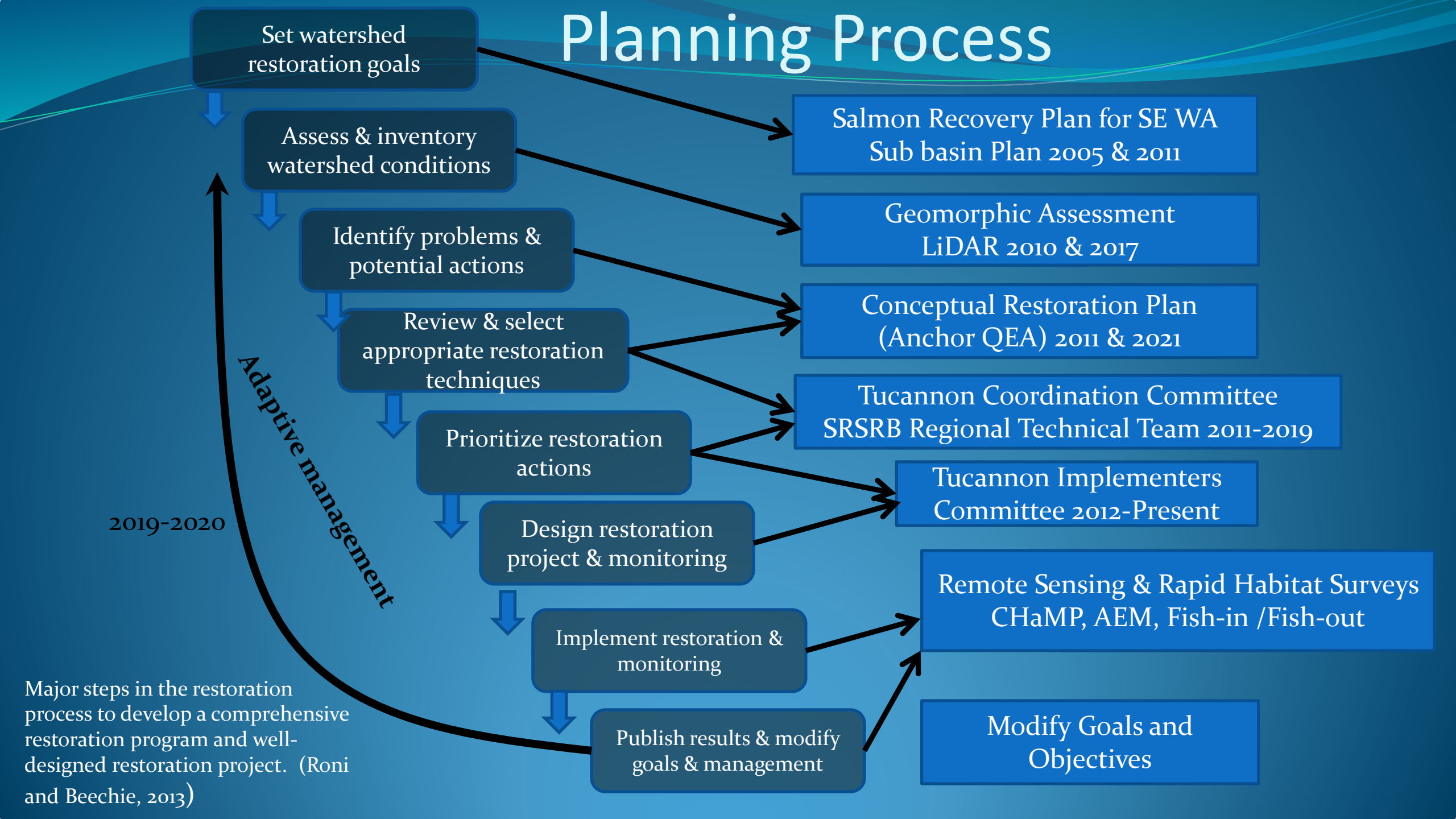
- Spring Summer Chinook
- Summer Steelhead
- Fall Chinook
- Bull Trout
- Coho
- Pacific Lamprey
- Whitefish
- Suckers & Minnows
- Freshwater Mussels
- Dace & Shiners
- Sculpin

Process Based Restoration

- Reconnecting Floodplain
- Providing Channel Meander Width
- Encouraging Channel Complexity



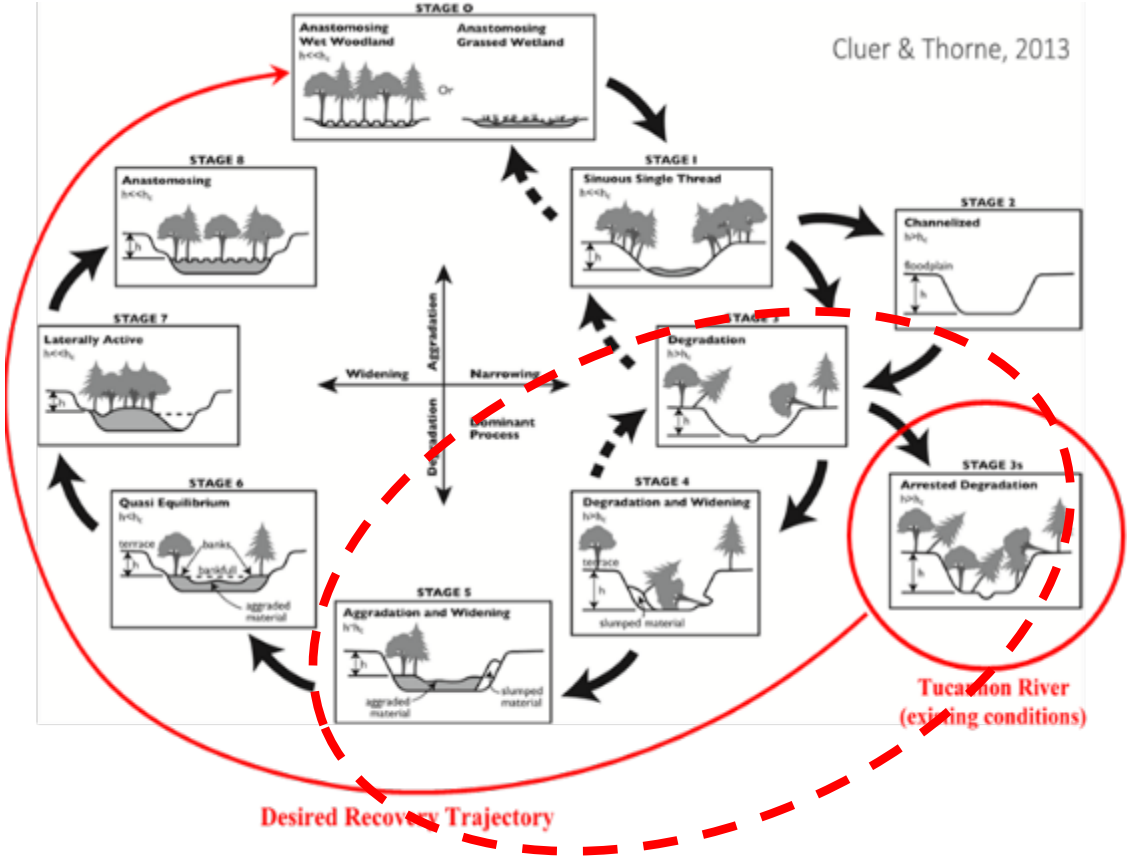
Planning Process

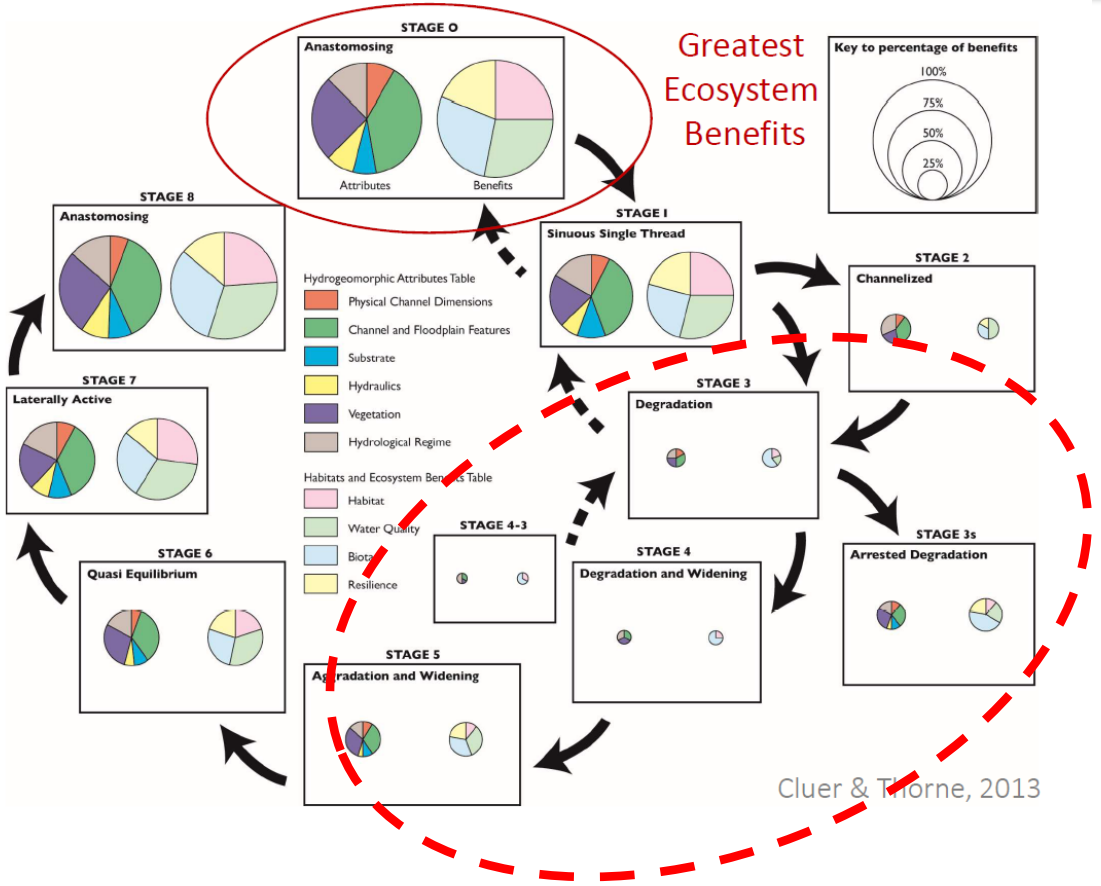


Major steps in the restoration process to develop a comprehensive restoration program and well-designed restoration project. (Roni and Beechie, 2013)

Problem Statement:

- Anastomosing to Plain Bed
  - 20% - 50% Loss in Channel Length (Hecht 1982)
  - Increased Slope and Stream Power Power (Anchor QEA 2021)
  - Incision & Low Channel Diversity (Cluer & Thorne 2013)





Goals & Objectives:

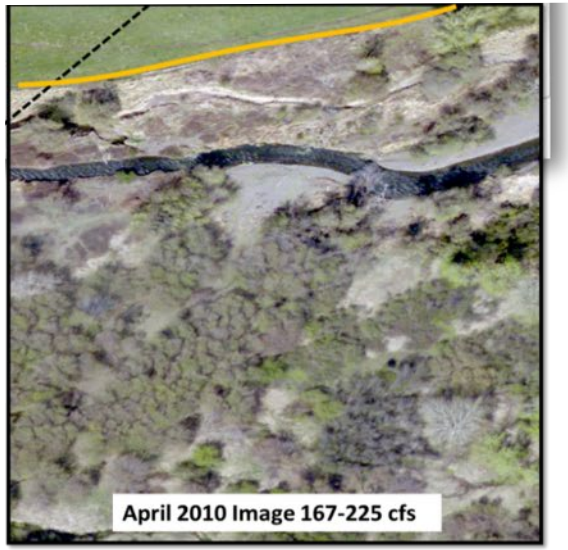
Vision: **Restore ecological function** to the Tucannon river system, to possesses resiliency **in the presence of climate & cultural change** in support of the salmon recovery goals and habitat restoration objectives of the Salmon Recovery Plan SE WA (2011) and the FCRPS (2020), **to support a viable salmon and steelhead population** firstly that meets viable salmonid population recovery criteria and then to meet healthy and harvestable population levels for the CBP medium and high goals.

Recovery Goals:

- **Spring Chinook (750 Adults)**
- **Summer Steelhead (1000 Adults)**

Habitat Objectives: (Updated 2021 Plan)

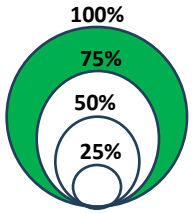
- **Floodplain Connectivity, Channel Complexity & Stream Power**
  - **Increase Channel Length**
  - **Pool Frequency & Quality**
  - **Riparian Health**
  - **Flow & Temperature Mediation**

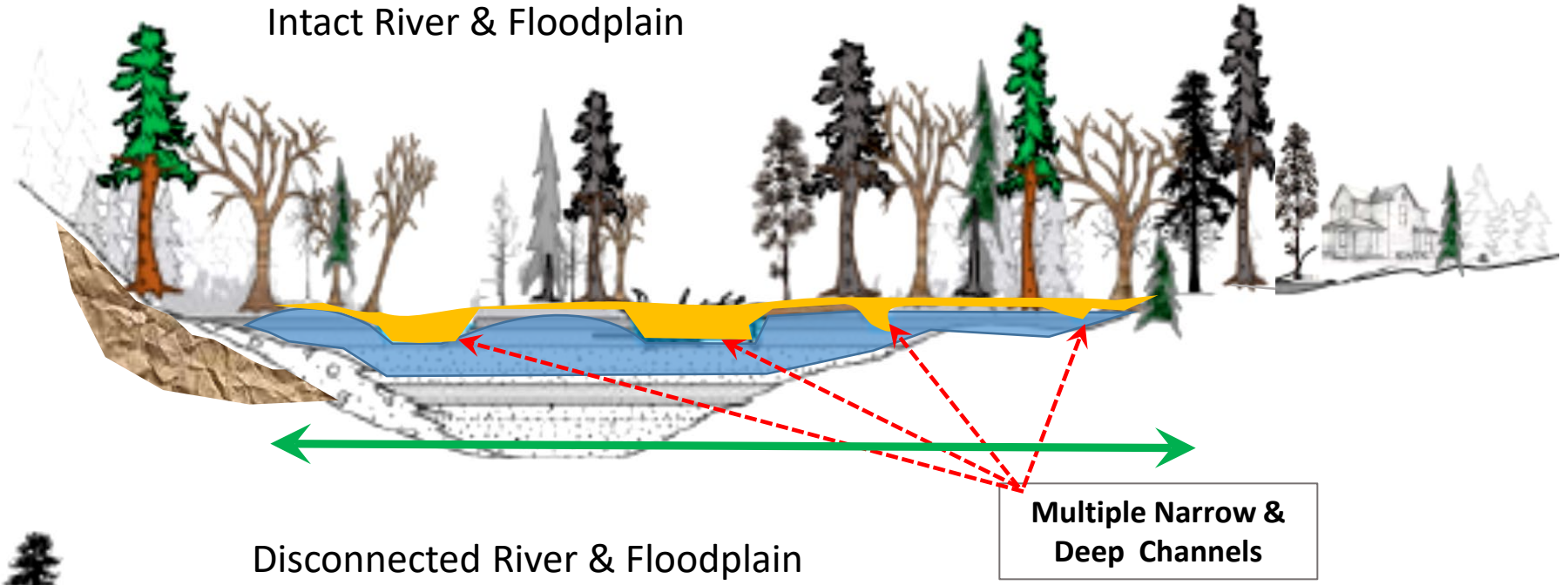


Tucannon Floodplain Model

Intact River & Floodplain

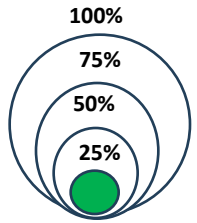
Greatest Ecosystem Benefits

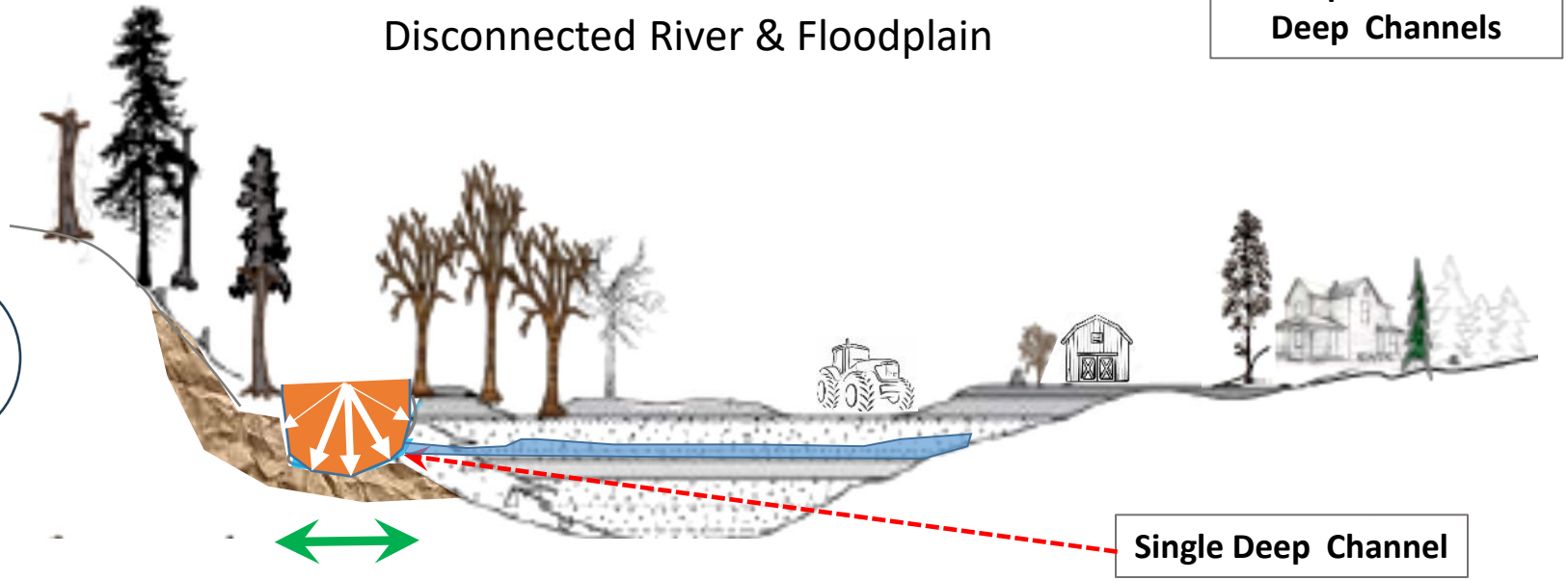




Disconnected River & Floodplain

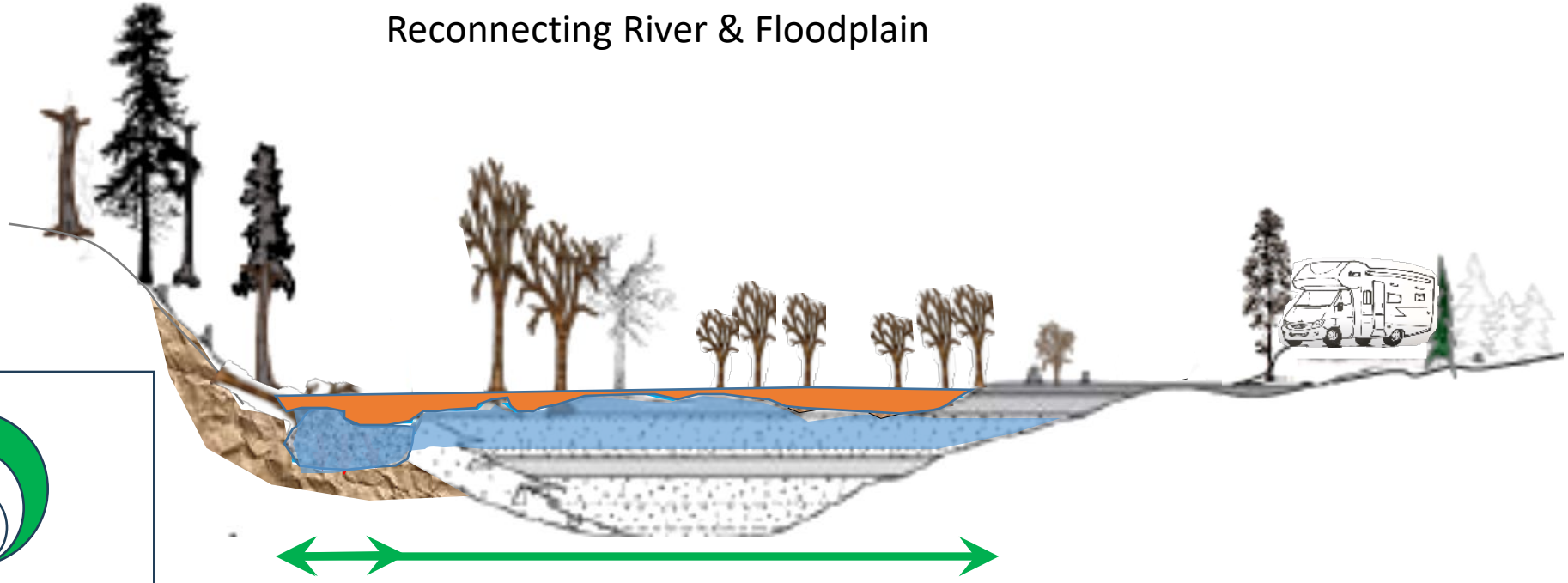
Greatest Ecosystem Benefits



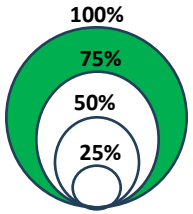


Tucannon Floodplain Model

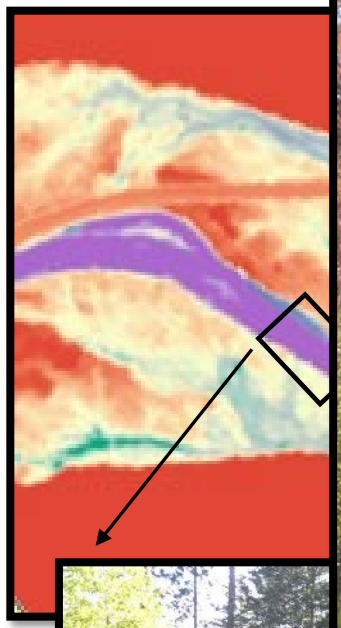
Reconnecting River & Floodplain

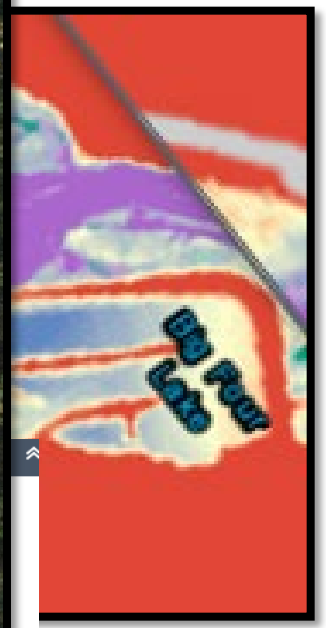


Greatest Ecosystem Benefits



Letting the River Do the Work




Fall Point
Lake

Adaptive Management

Information & decision process conducted through RTT

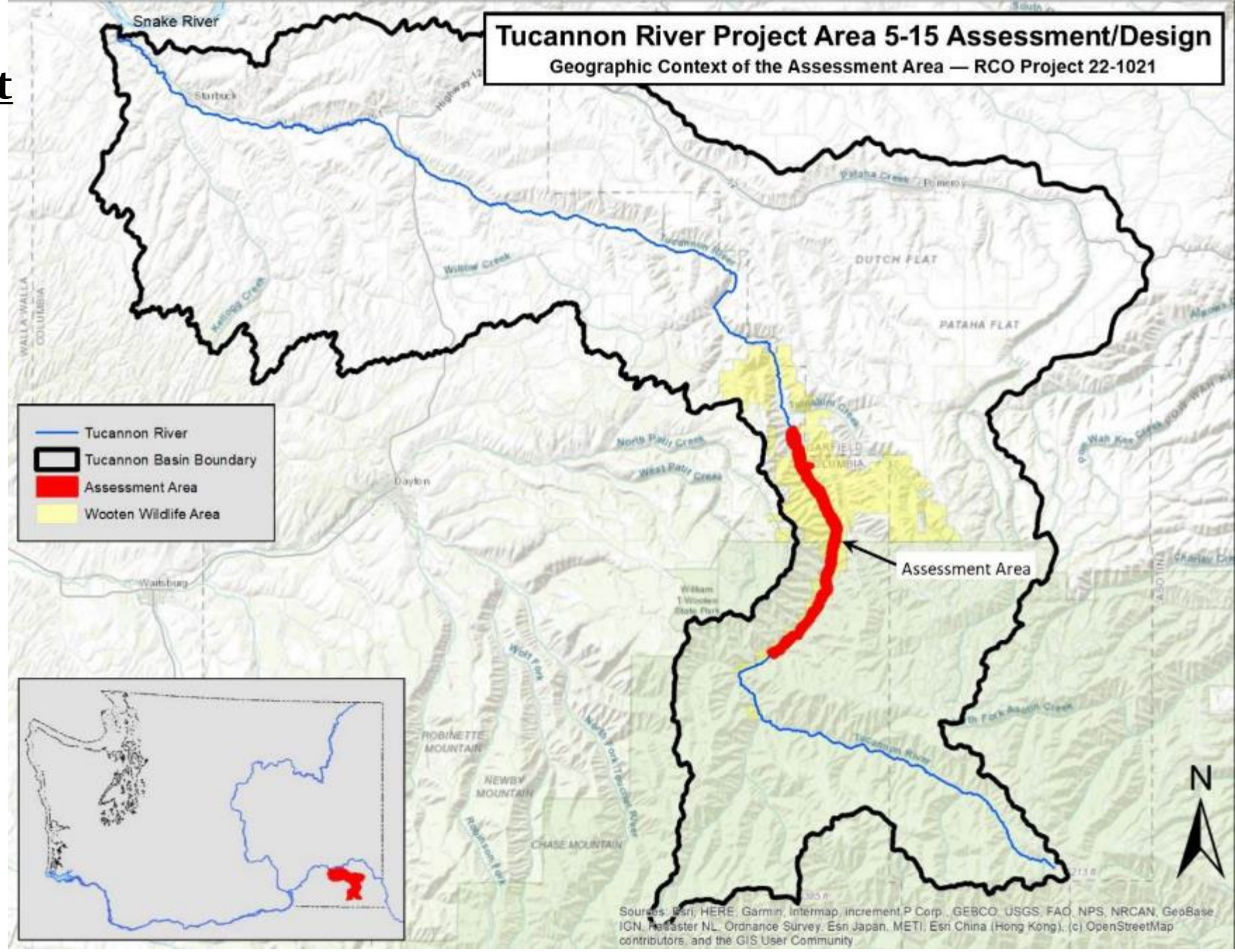
Assessment	**Geomorphic Assessment (2011) updated in 2021** which looked at distributions of ESA listed salmonids in the mainstream Tucannon & evaluated proliferation throughout the in-river lifecycle. Winter juvenile rearing and adult holding habitats were identified as limiting.
Vision	**Restore ecological function and resilience in the presence of future climatic & cultural change** in support of salmon & steelhead recovery goals developed in Salmon Recovery Plan SE WA.
Objectives	1. **Floodplain connectivity** where the 5-yr recurrence is connected at the 2- yr event. 2. **Increase channel complexity** at low-winter, mean winter and 1-yr return interval.
Strategy	Conceptual Restoration Plan (2011) updated in 2021, prioritize project reaches where the greatest gains in habitat are socially possible and fiscally responsible. **Prioritizing limiting factors which have the greatest benefit in restoring ecosystem resiliency**.
Projects	Implement project prioritized in **Conceptual Restoration Plan** 2011 Updated in 2021, at a rate of ~ 1 km/yr that directly target the priority objectives of floodplain and channel complexity.
Monitoring & Evaluation	Implement the **Tucannon Monitoring Plan** (Camp 2021), through a combination of remote sensing (watershed scale) & rapid habitat assessment (project scale). Conduct 5-year evaluation & assessment of implementation projects to determine progress toward objectives.

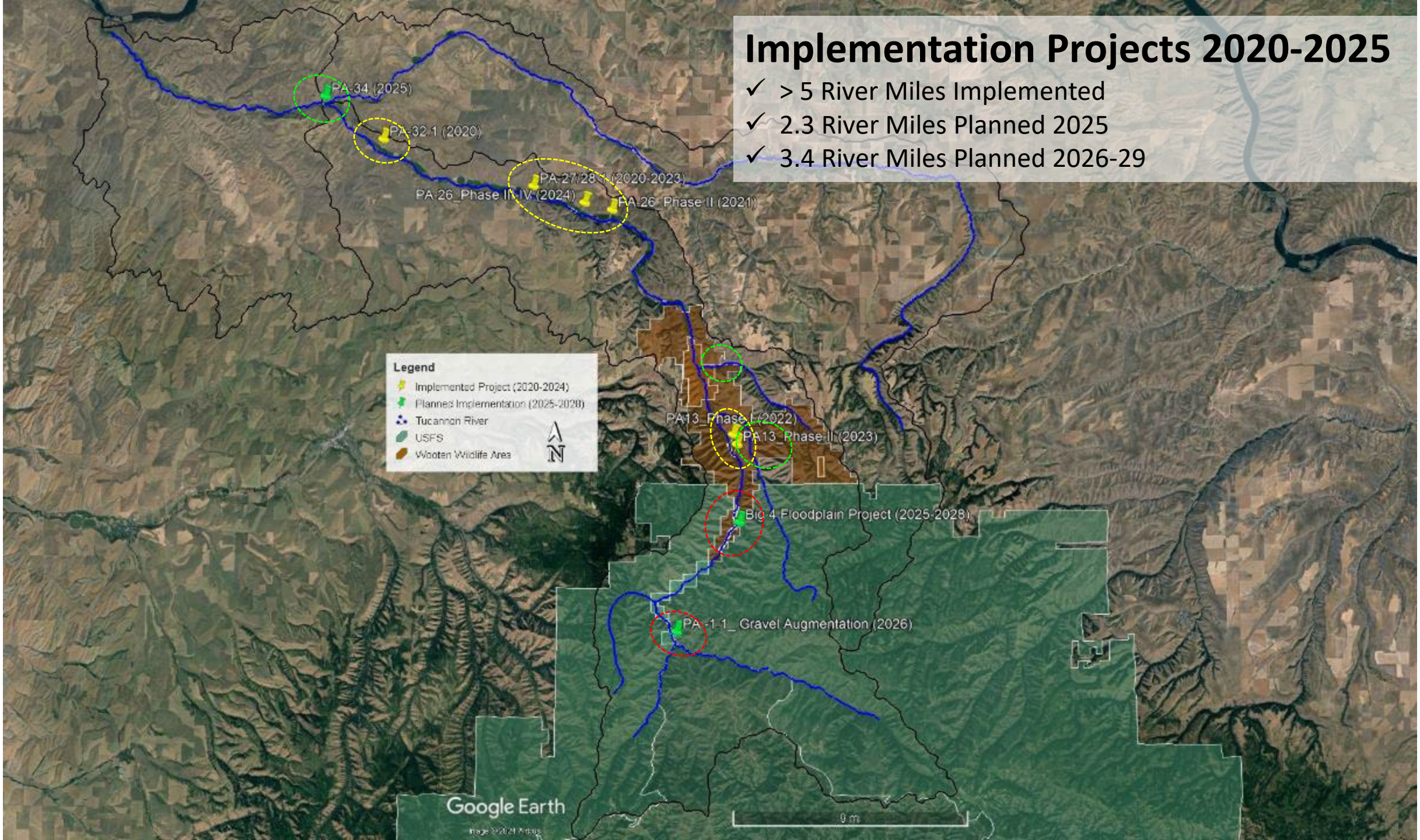
Floodplain & Assessment

10-Mile Assessment and Conceptual Design

Conducted by the Co-Managers (WDFW/CTUIR/NPT)

Assess Floodplain opportunities around the Tucannon Lakes




Implementation Projects 2020-2025
✓ > 5 River Miles Implemented
✓ 2.3 River Miles Planned 2025
✓ 3.4 River Miles Planned 2026-29
PA-34 (2025)
PA-32.1 (2020)
PA-27/28.1 (2020-2023)
PA 26_Phase III_IV (2024)
PA 26_Phase II (2021)
PA13_Phase I (2022)
PA13_Phase II (2023)
Big 4 Floodplain Project (2025-2028)
PA-1.1_ Gravel Augmentation (2026)
Legend
Implemented Project (2020-2024)
Planned Implementation (2025-2028)
Tucannon River
USFS
Wooten Wildlife Area
N
Google Earth
9 mi

Project Area 13 Tucannon Floodplain & Levee Set Back
2022 - 2023

Pre-project

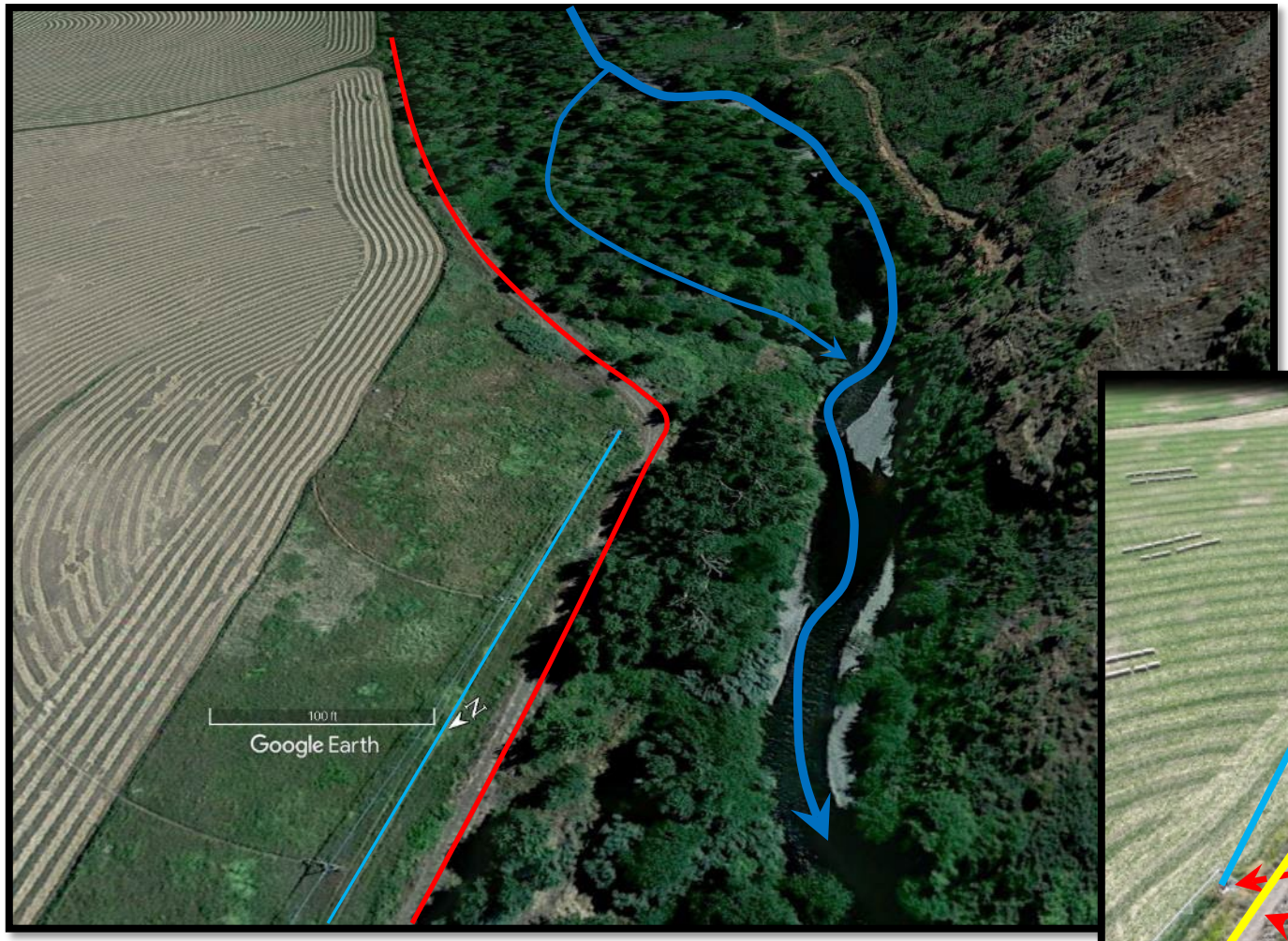
Project Construction

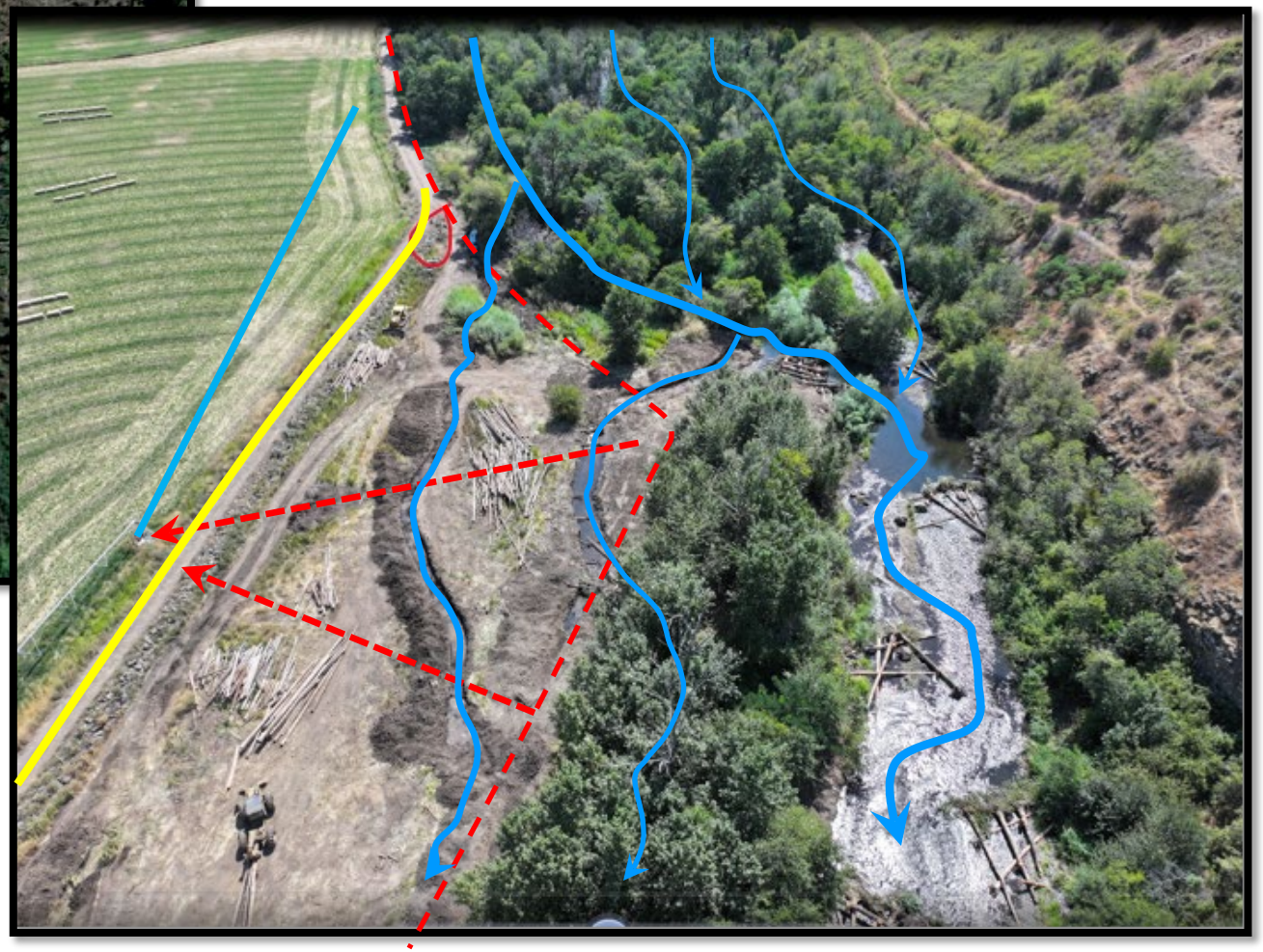
Slowing the River Down

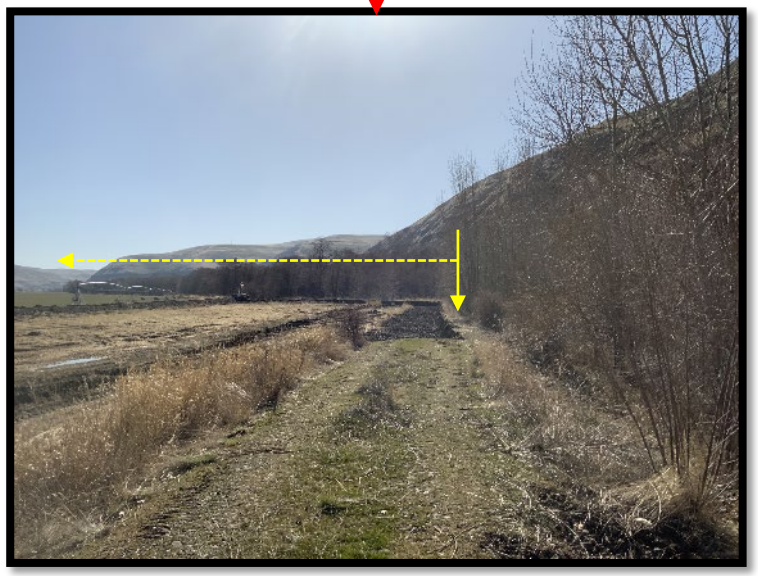
Pre-project

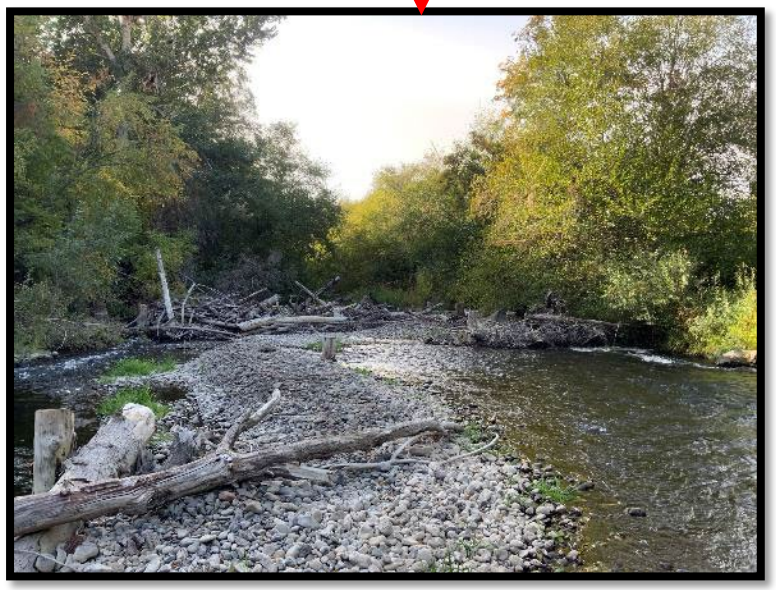
Post-project

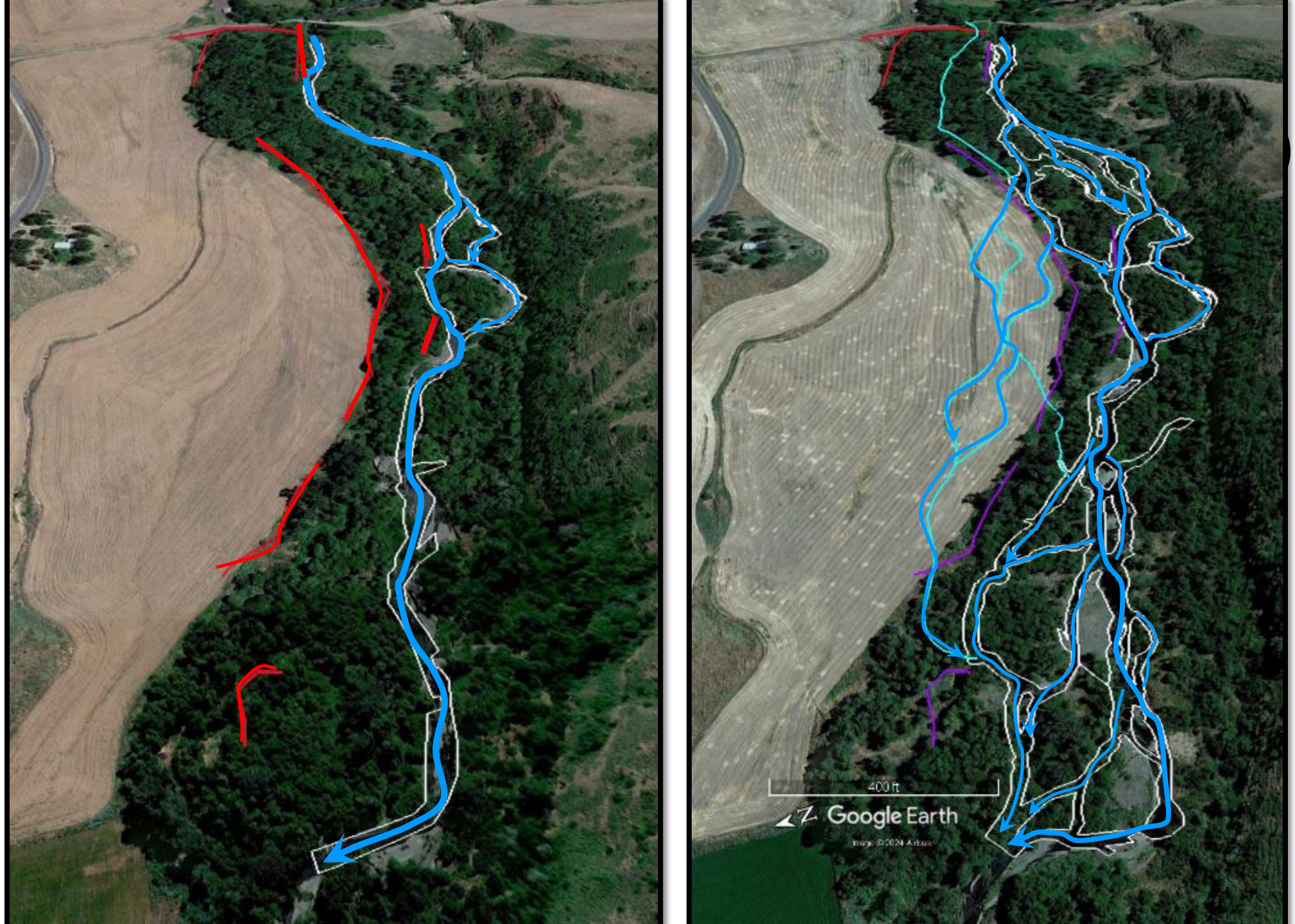
Project Area 26 Phase II-IV (2024 Construction)

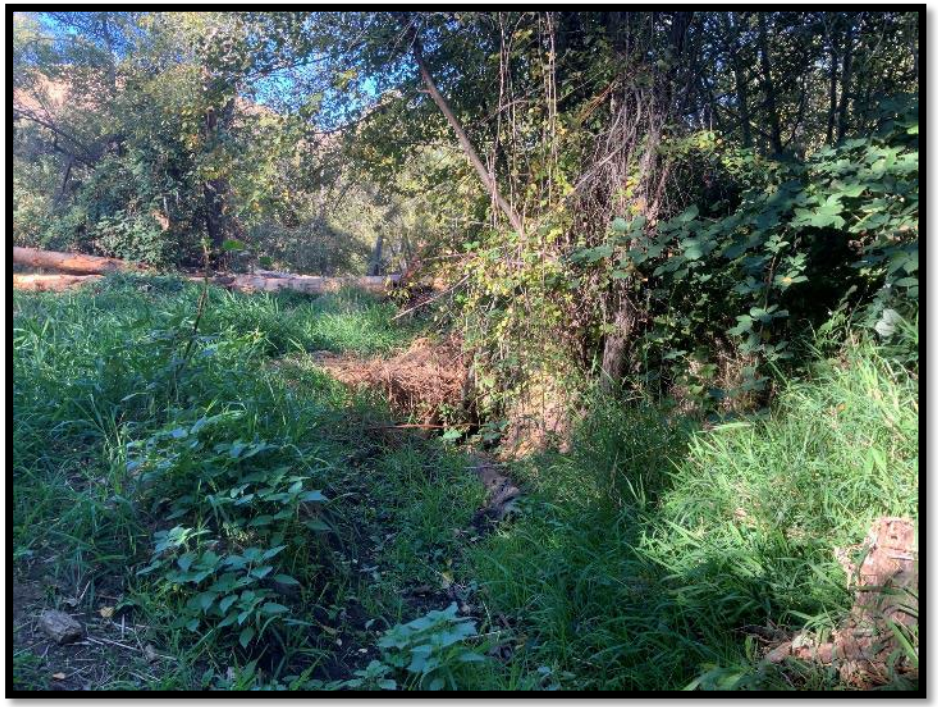








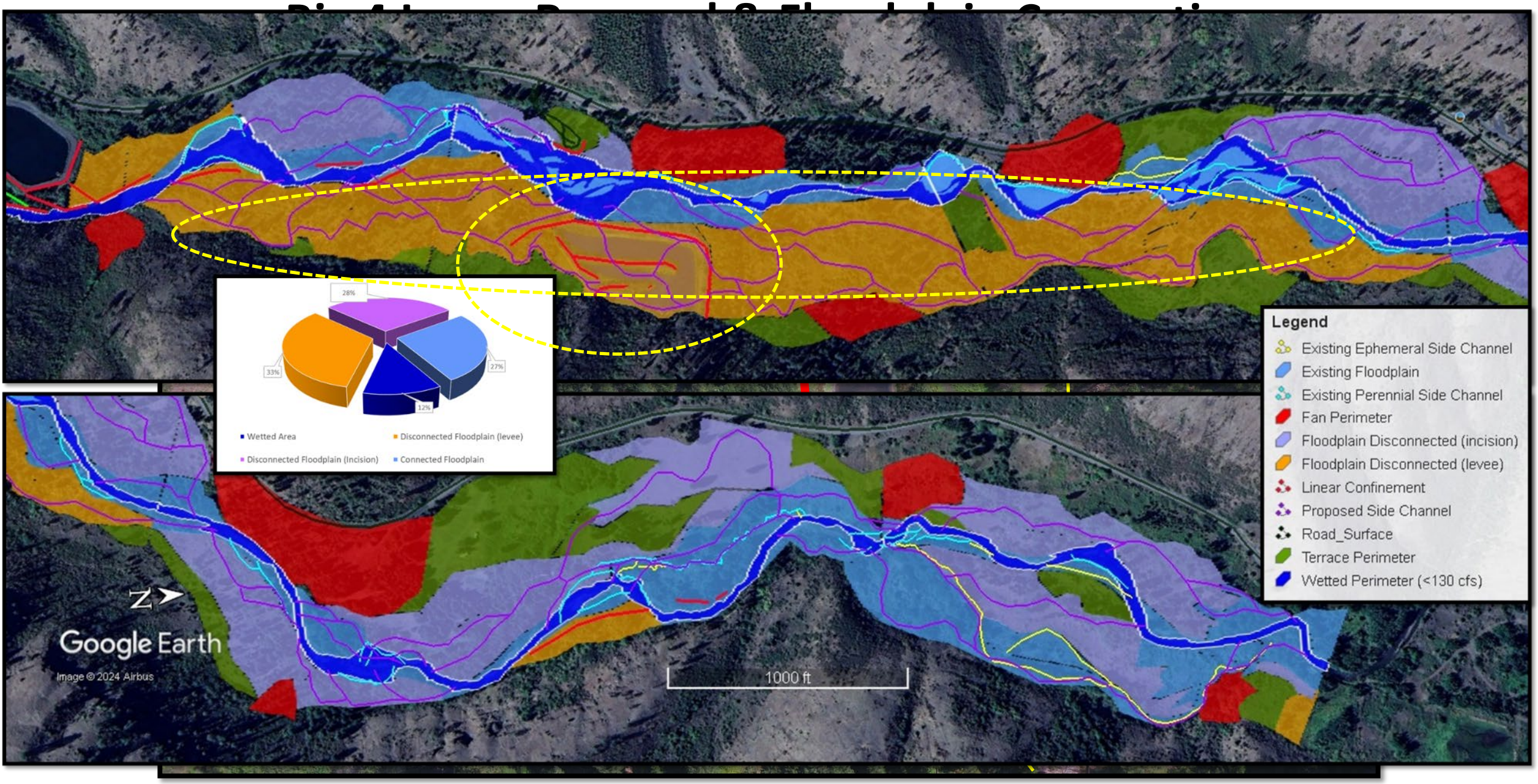

400 ft
Google Earth



Project Area 28.1

Cummings Creek 2024


Cummings Creek PALs
Phase II is a ~1 mile implemented by NPT
Main Goal is to improve channel conditions to work towards floodplain and channel connectivity


28%
33%
27%
12%
Wetted Area
Disconnected Floodplain (levee)
Disconnected Floodplain (Incision)
Connected Floodplain
Legend
Existing Ephemeral Side Channel
Existing Floodplain
Existing Perennial Side Channel
Fan Perimeter
Floodplain Disconnected (incision)
Floodplain Disconnected (levee)
Linear Confinement
Proposed Side Channel
Road_Surface
Terrace Perimeter
Wetted Perimeter (<130 cfs)
Google Earth
Image © 2024 Airbus
1000 ft

Physical Habitat Monitoring:

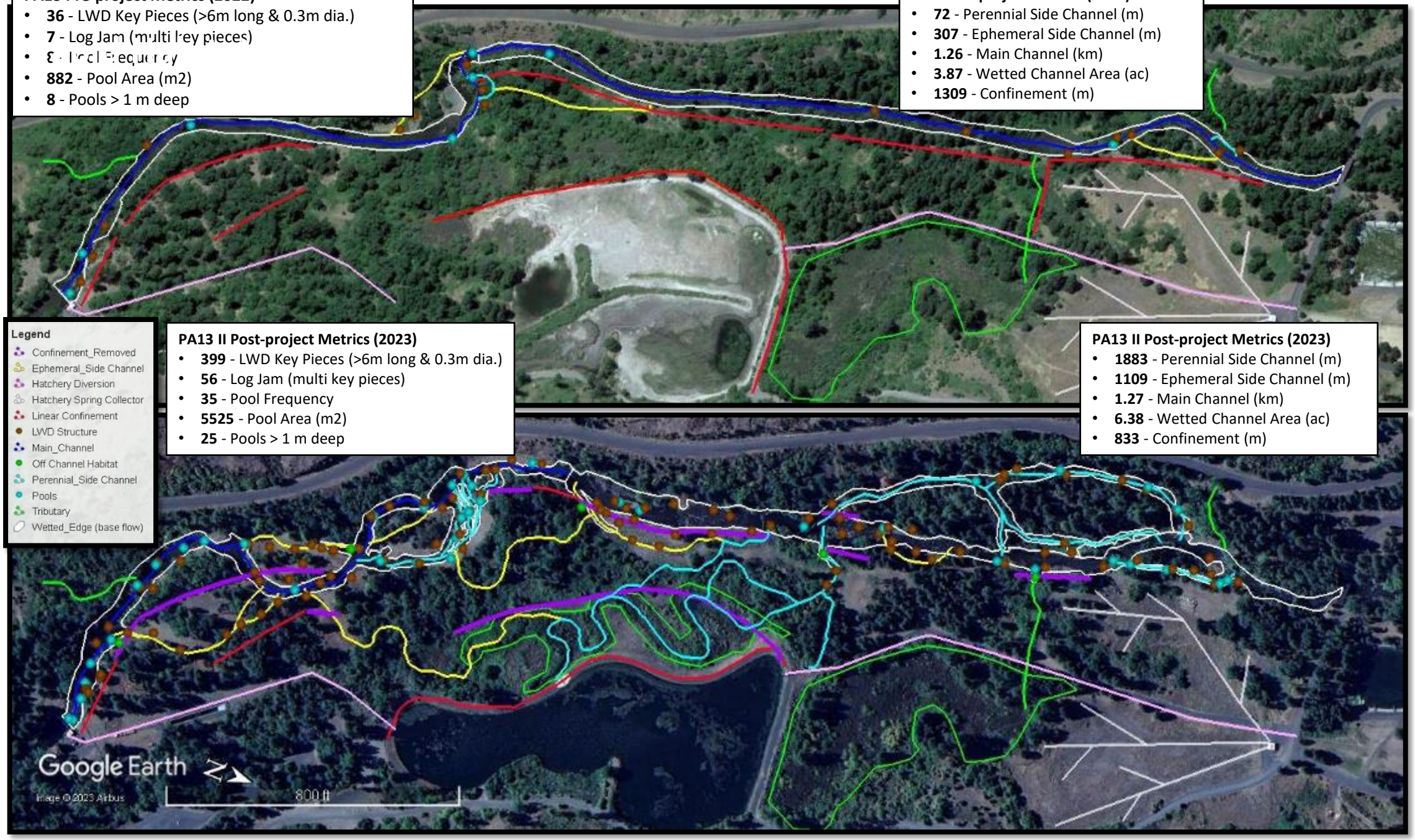
- **Physical Habitat Data Collected by Program**
  - **Rapid Habitat Surveys (Before After Implementation & Adaptive Management)**
  - **Remote Sensing (LiDAR) Long-term Change Detection (5-7 years or following significant flows)**

PA13 Pre-project Metrics (2022)

- **36** - LWD Key Pieces (>6m long & 0.3m dia.)
- **7** - Log Jam (multi key pieces)
- **8** - Pool Frequency
- **882** - Pool Area (m2)
- **8** - Pools > 1 m deep

PA13 Pre-project Metrics (2022)

- **72** - Perennial Side Channel (m)
- **307** - Ephemeral Side Channel (m)
- **1.26** - Main Channel (km)
- **3.87** - Wetted Channel Area (ac)
- **1309** - Confinement (m)



PA13 II Post-project Metrics (2023)

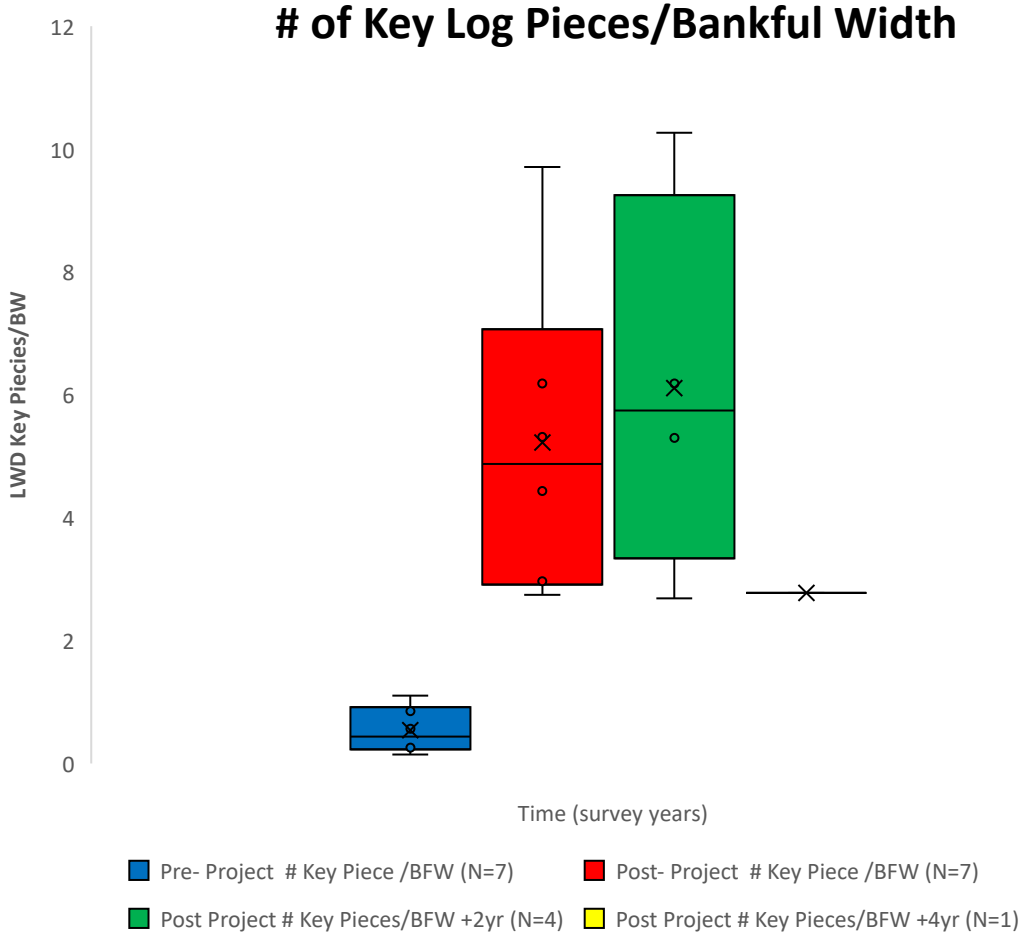
- **399** - LWD Key Pieces (>6m long & 0.3m dia.)
- **56** - Log Jam (multi key pieces)
- **35** - Pool Frequency
- **5525** - Pool Area (m2)
- **25** - Pools > 1 m deep

PA13 II Post-project Metrics (2023)

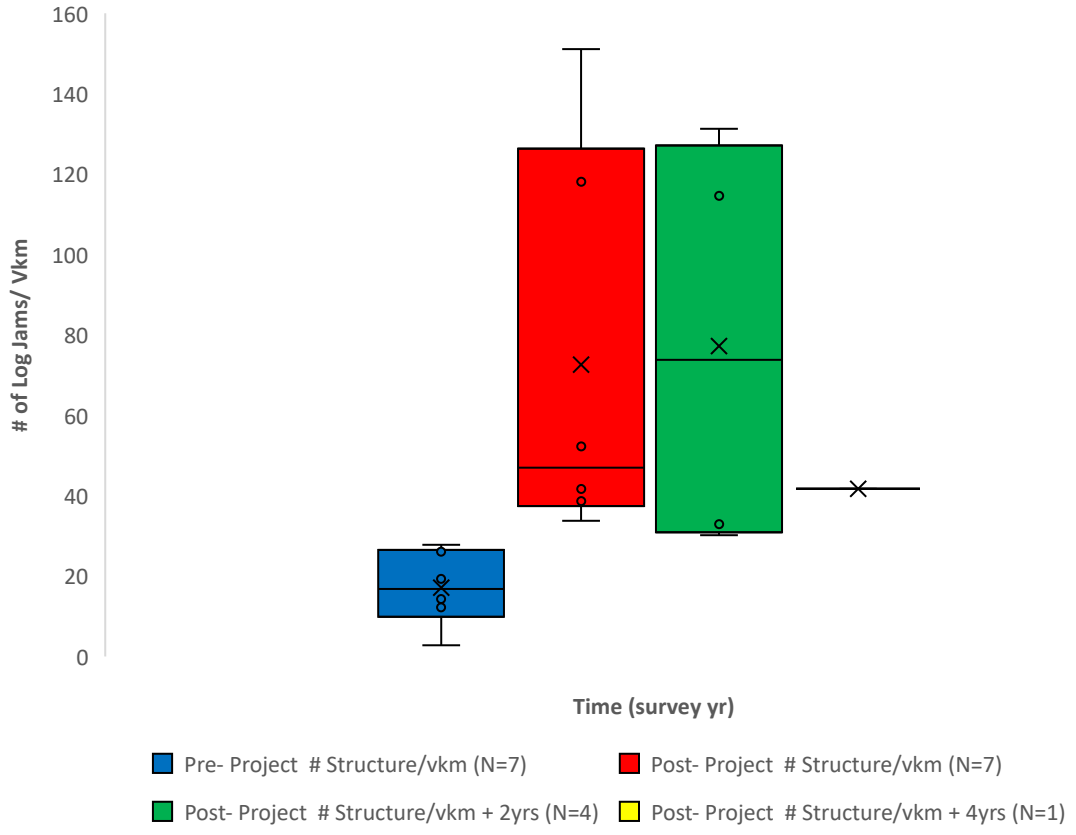
- **1883** - Perennial Side Channel (m)
- **1109** - Ephemeral Side Channel (m)
- **1.27** - Main Channel (km)
- **6.38** - Wetted Channel Area (ac)
- **833** - Confinement (m)

Results 2020-2024

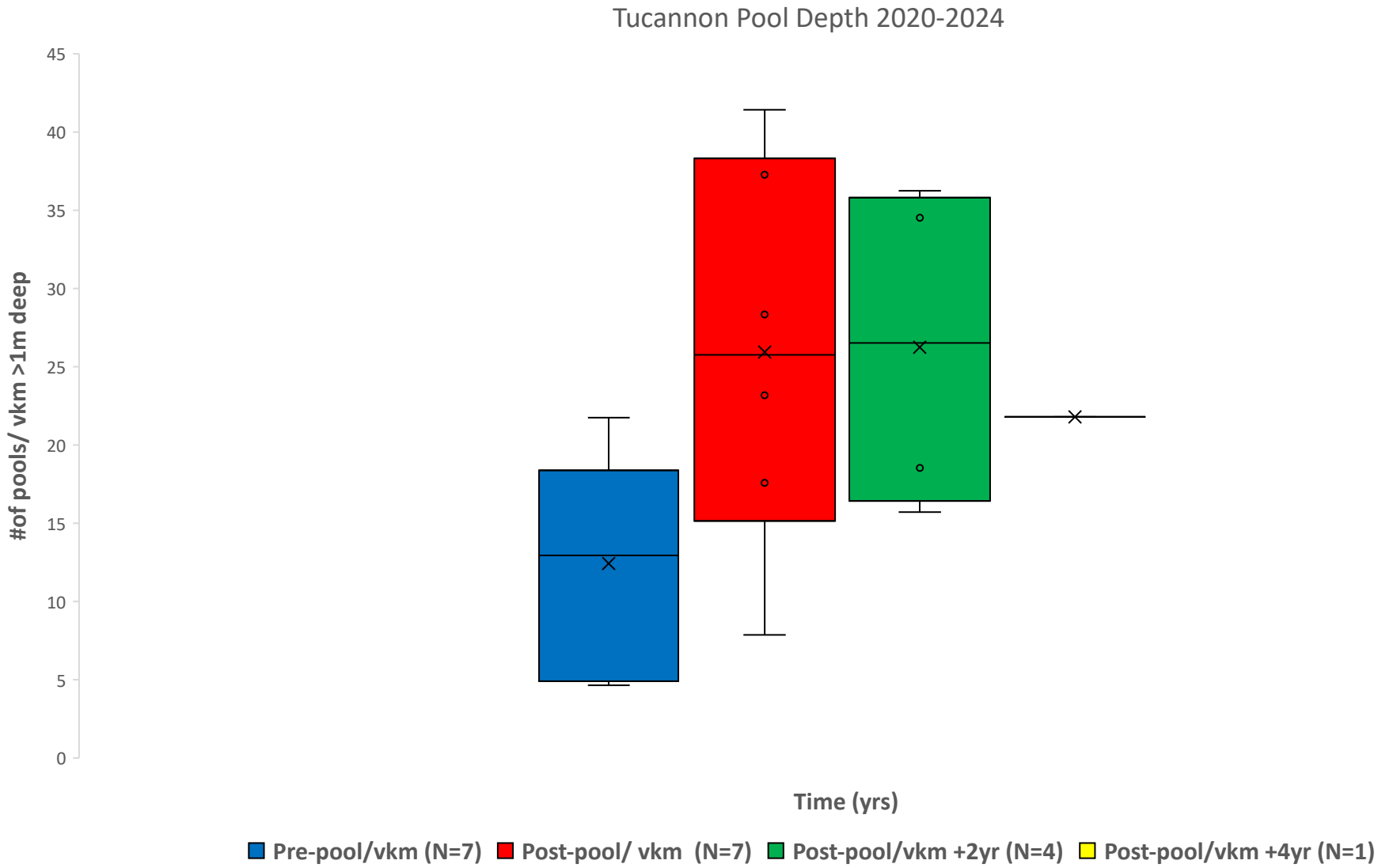
of Key Log Pieces/Bankful Width

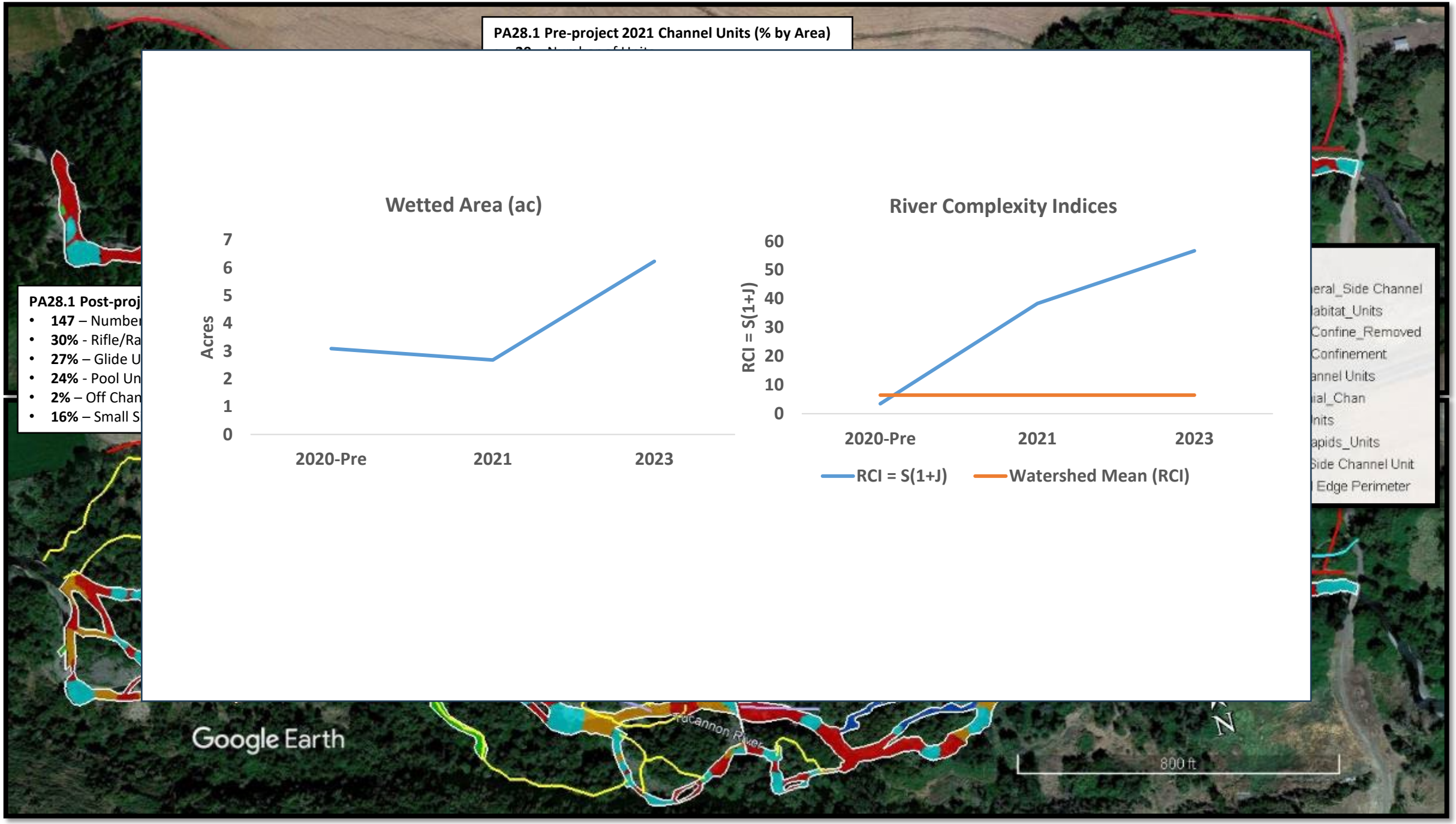


of Log Jams / River Km

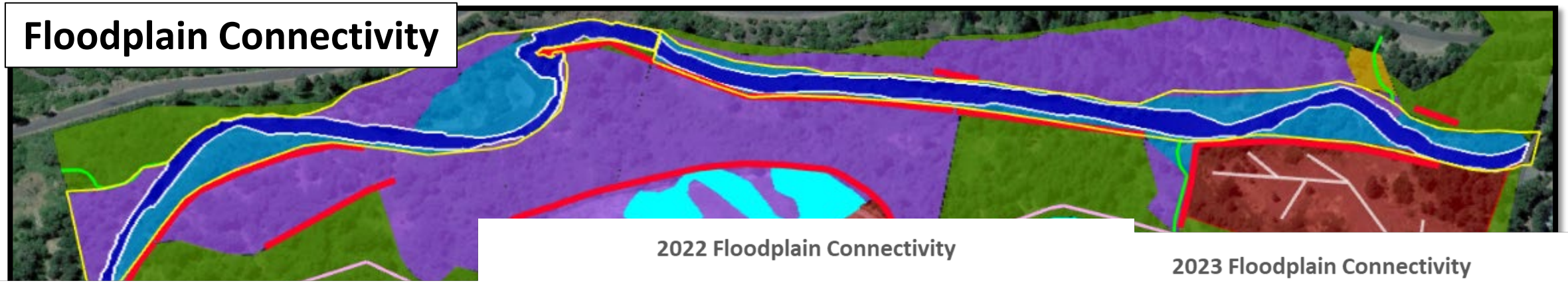


Physical Habitat Response

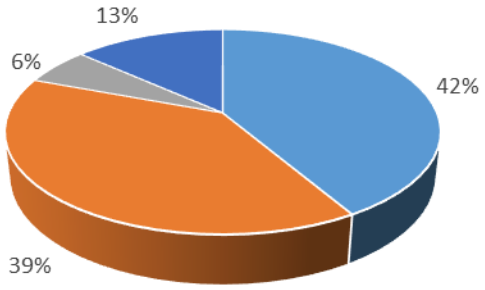



PA28.1 Pre-project 2021 Channel Units (% by Area)
PA28.1 Post-proj
• 147 – Numbe
• 30% - Rifle/Ra
• 27% – Glide U
• 24% - Pool Un
• 2% – Off Chan
• 16% – Small S
Wetted Area (ac)
Acres
7
6
5
4
3
2
1
0
2020-Pre
2021
2023
River Complexity Indices
RCI = S(1+J)
60
50
40
30
20
10
0
2020-Pre
2021
2023
RCI = S(1+J)
Watershed Mean (RCI)
eral_Side Channel
abitat_Units
Confine_Removed
Confinement
annel Units
ial_Chan
nits
apids_Units
Side Channel Unit
Edge Perimeter
Google Earth
800 ft
N

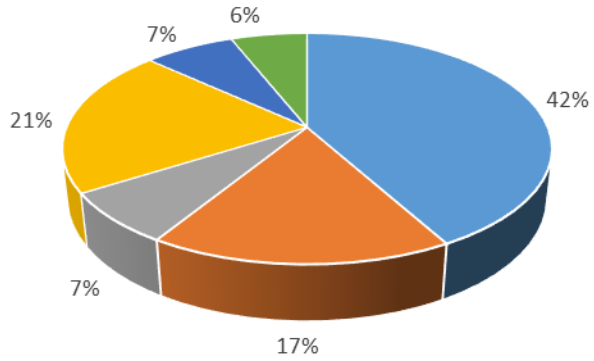
Floodplain Connectivity



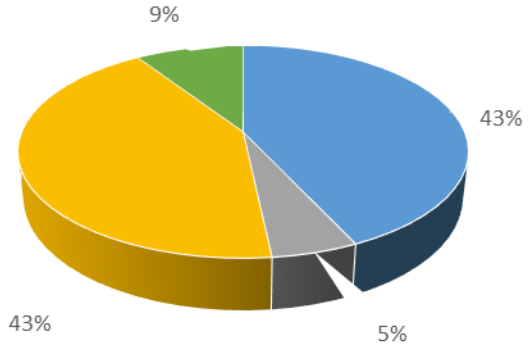
2021 Floodplain Connectivity



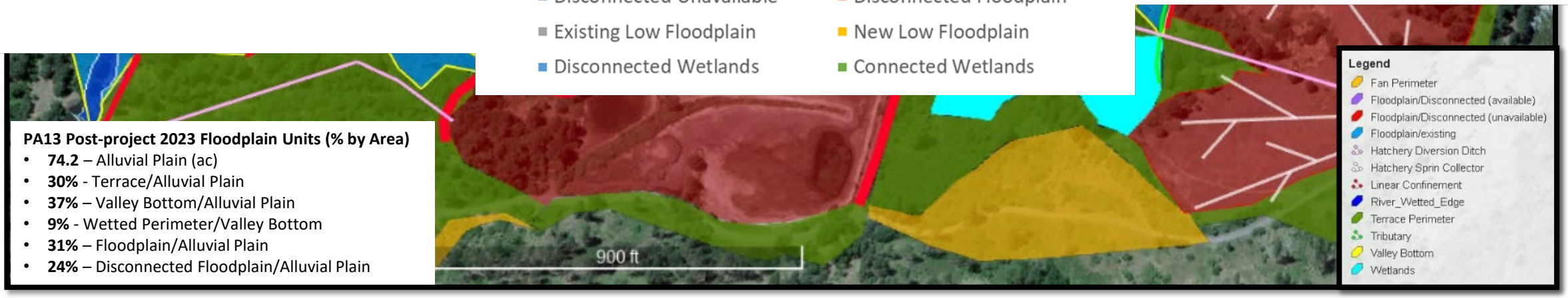
2022 Floodplain Connectivity



2023 Floodplain Connectivity



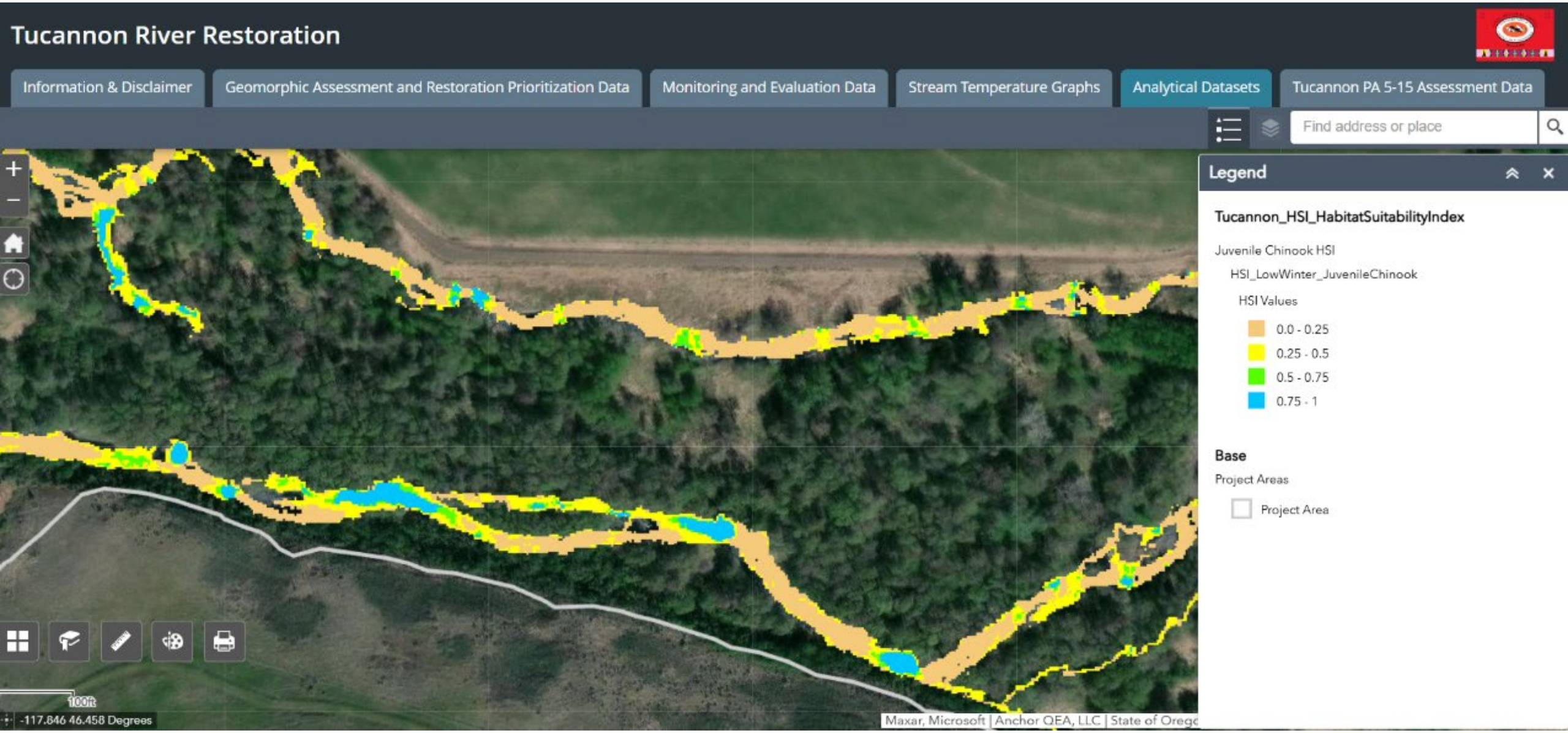
- Disconnected Unavailable
- Disconnected Floodplain
- Existing Low Floodplain
- New Low Floodplain
- Disconnected Wetlands
- Connected Wetlands



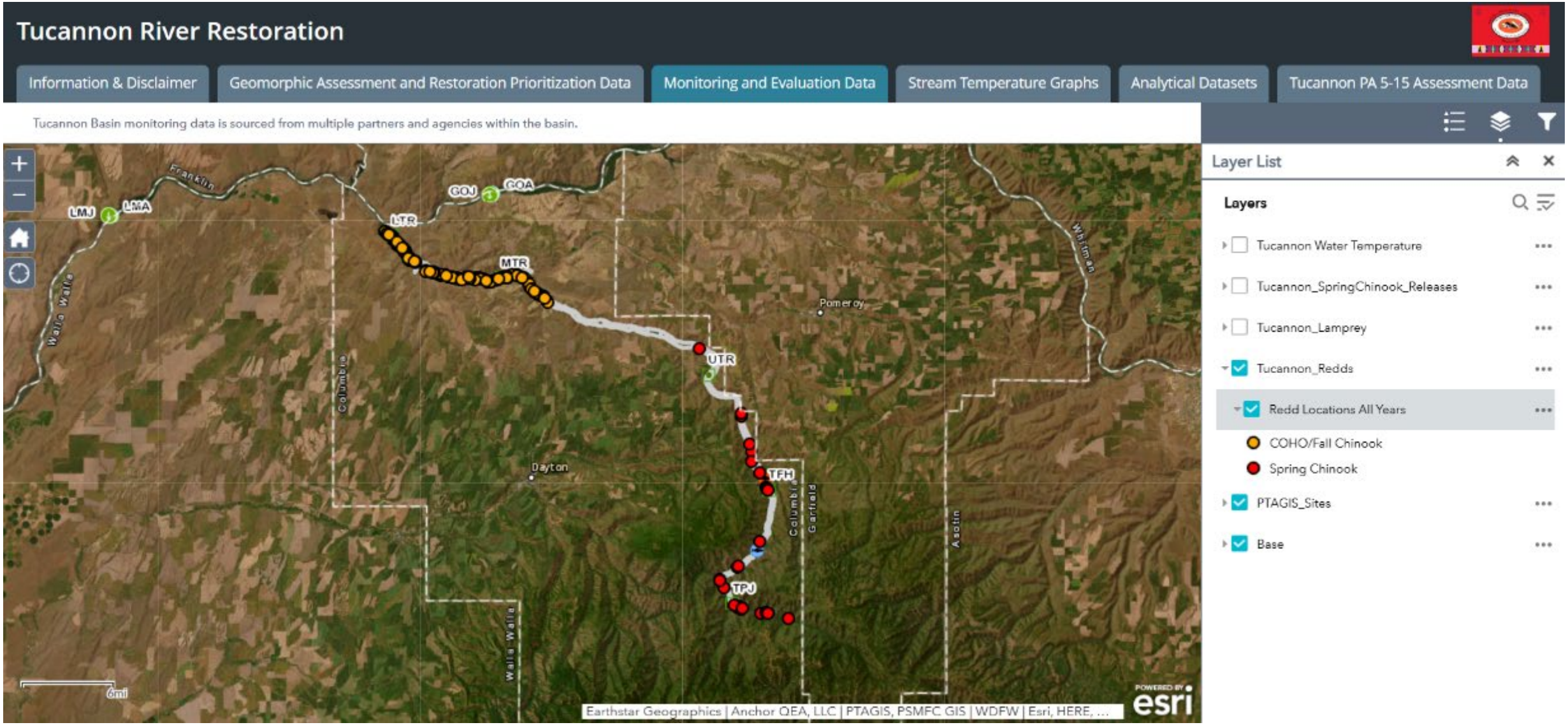
PA13 Post-project 2023 Floodplain Units (% by Area)

- **74.2** – Alluvial Plain (ac)
- **30%** - Terrace/Alluvial Plain
- **37%** – Valley Bottom/Alluvial Plain
- **9%** - Wetted Perimeter/Valley Bottom
- **31%** – Floodplain/Alluvial Plain
- **24%** – Disconnected Floodplain/Alluvial Plain

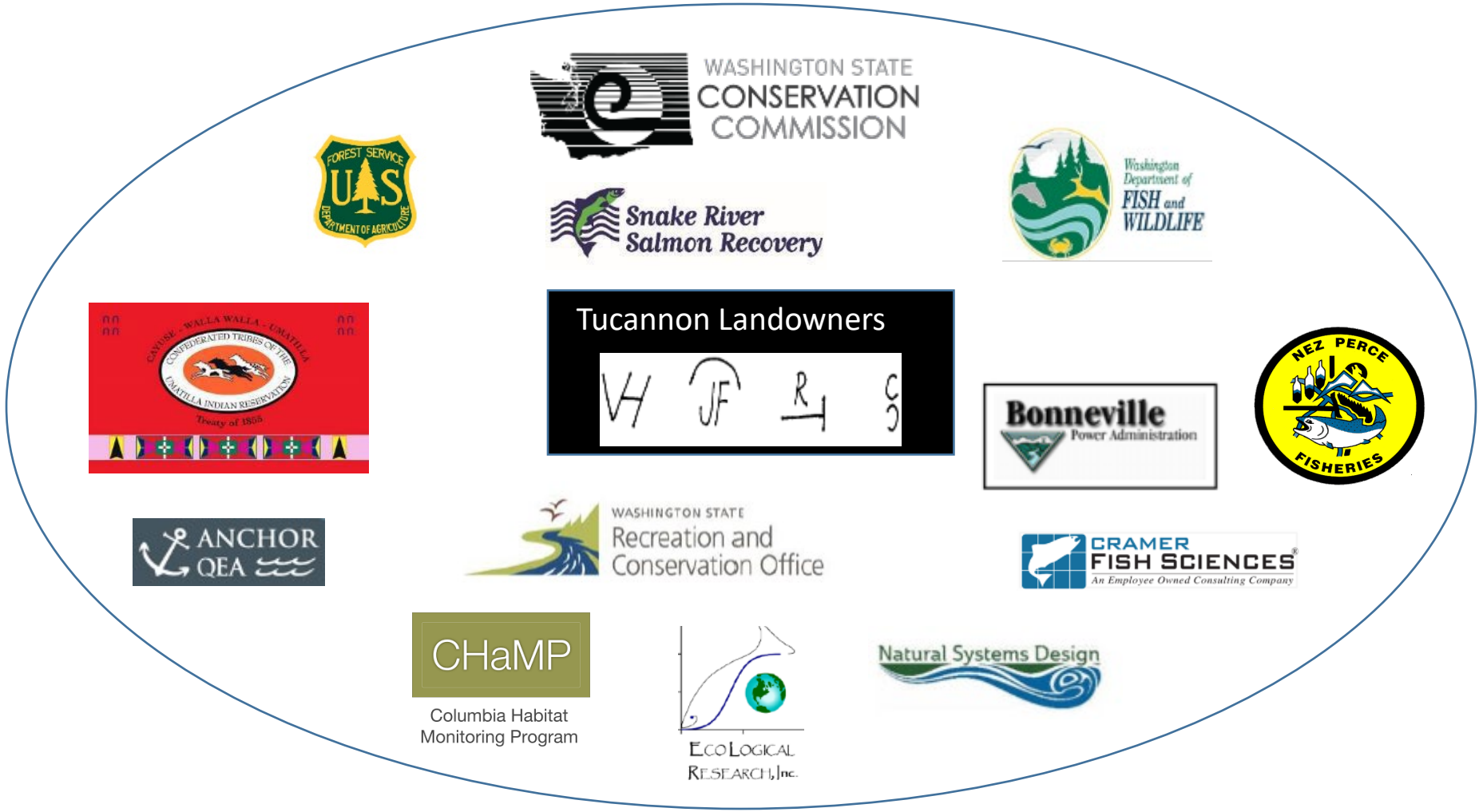
LiDAR Floodplain Connectivity & HSI Models



Tucannon Web map (tucannonriver.org Maps and Media)



Thank You!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