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

May 13, 2025

MEMORANDUM

TO: **Council Members**

FROM: **Rudy Salakory, Oregon Policy Analyst**

SUBJECT: **Overview of Cold Water Refuge (CWR) and Delta Habitat Assessment efforts in Zone 6 of the Columbia River, with updates on Wind, White Salmon, Klickitat, Umatilla, and Walla Walla Rivers; "Enhancing the CWRs we have and building the ones that salmon need"**

BACKGROUND:

Presenters: Bill Sharp, Southern Territories Coordinator, Confederated Tribes and Bands of the Yakama Nation, and Jerimiah Bonifer, Fisheries Program Manager, Confederated Tribes of the Umatilla Indian Reservation

Summary: Bill will provide an overview of the recent Cold Water Refuges (CWR) efforts undertaken through the Resilient Columbia Basin Agreement (RCBA). The purpose of this overview is to assess Zone 6 deltas and address issues concerning impaired fish passage and unfavorable cold-water refuge conditions. Bill will also summarize the findings of a recent information-gathering report from the USACE-Portland District, which focused on the Wind, White Salmon, and Klickitat deltas. Additionally, he will describe the development of partnerships, recent actions taken, and outline current efforts aimed at enhancing delta habitat effectiveness. These efforts involve the implementation of strategies specifically designed to address these impaired habitats and broad sediment fans, and the concentration of avian and piscine predators.

Jerimiah will provide an update on the efforts underway to restore aquatic function on the Umatilla and Walla Walla as well as efforts to reestablish CWR on those rivers.

Relevance: A component of the Klickitat River Spring Chinook Master Plan (YKFP Klickitat Design and Construction, Project #1988-115-35) and associated with Project # 1997-056-00, Yakama Southern Territories Habitat Project (STHP)

Background: The US Army Corps of Engineers (USACE) in coordination with the Yakama Nation, Columbia River Inter-Tribal Fish Commission (CRITFC), and others examined sedimentation impacts to cold-water refuge habitats at tributaries that flowed into the Bonneville Pool. This study was conducted under the Planning Assistance to States and Tribes (PAST) Program and contained existing condition description, geomorphic assessment, summaries of available data and discussion of data gaps and findings of the study.

Cold water refugia, predation issues, and access to quality habitats are increasingly complex issues facing out-migrating and returning salmonids in these systems.

More info:

Columbia River Cold Water Refuges Plan

Evaluation of Movement and Survival of Juvenile Steelhead (Oncorhynchus mykiss) and Coho Salmon (Oncorhynchus kisutch) in the Klickitat River, Washington, 2018–2019

Sedimentation of Tributary Deltas to the Columbia River in the Zone 6 Fishery and Effects to Cold-Water Refuge Habitat

Resilient Columbia Basin Agreement (RCBA) - United States Government and Six Sovereigns Cold Water Refuge Projects Memorandum (July 2024)

Resilient Columbia Basin Agreement (RCBA) - United States Governments and Six Sovereigns Cold Water Refuge Tributary Projects to Improve and Maintain Cool River Temperatures Memorandum (January, 2025).

A short film, ***"Land of the Yakamas"*** fosters awareness of the unprecedented changes to Yakama Nation homelands along the Wind, White Salmon and Klickitat River and the recent cause for hope...

Previous Presentations:

April 2023
Columbia River Delta Assessment for the Wind, White Salmon, and Klickitat Rivers

Yakama Nation Fisheries and Columbia River Inter-Tribal Fish Commission, Coastal Margin Observation and Prediction (CMOP) presented on the issues arising from the sediment fans/deltas of the Wind, White Salmon, and Klickitat Rivers and the Technical Assistance Agreement between the Yakama Nation and the U.S. Army Corps of Engineers.

October 2021
EPA work efforts to address temperature in the Columbia and Lower Snake River: TMDL, Federal Dam NPDES Permits and Cold Water Refuges Plan
EPA report on Cold Water Refugia as a way to address temperature issues in the Columbia River

April 2019
Step 2 review of Klickitat River Spring Chinook Master Plan (YKFP Klickitat Design and Construction, Project #1988-115-35)
Addressing the sediment fan/delta at the mouth of the Klickitat River was part of a suite of actions proposed as part of the revision of the Klickitat River Spring Chinook Master Plan.

Cold Water Refuge and Delta Habitat Assessment efforts in Zone 6 of the Columbia River, with updates on Wind, White Salmon, Klickitat, and Umatilla; *"Enhancing the CWRs we have and building the ones that salmon need"*

Northwest Power & Conservation Council – May 13, 2025

Bill Sharp, Yakama Nation Fisheries Scientist
Jerimiah Bonifer, Umatilla Fisheries Program Manager

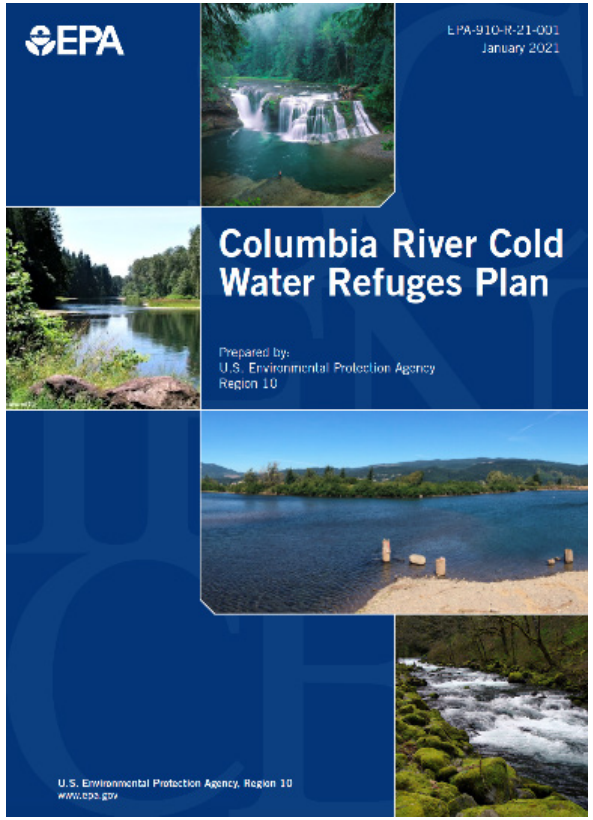
<u>Presentation Outline:</u>

- Update from April 2023 presentation
  - Federal, State, & Tribal Partnership
  - USACE – WRDA updates
  - Actions Taken – USACE Delta Assessment
  - Funding Opportunities
  - Tributary Actions to build cold water
  - Q&A

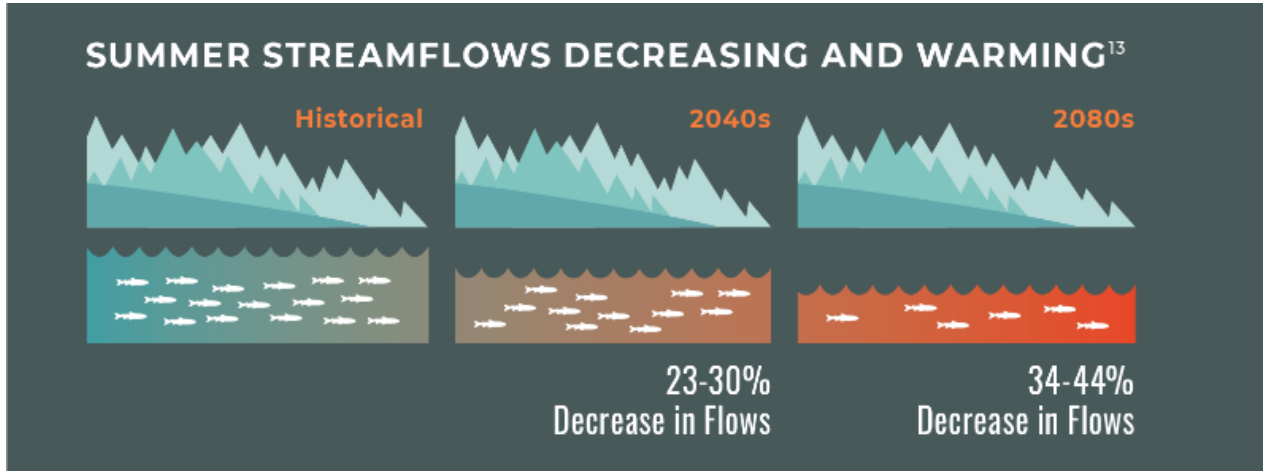
Klickitat River Delta at Bonneville Pool.

<u>Acknowledgments:</u>
YN, CTBUIR, CTBWSR, CRITFC, EPA,
COE-Portland & NWD, NMFS, NOAA-OCS, OSU, UW

Columbia River Hydrosystem Sediment Issues



- Prior to Bonneville Dam (1935) the Columbia River transported 16.4 million tons of sediment each year.
- Despite a significant increase in soil runoff from agriculture and other human development, only around 8 million tons of Columbia River sediment reaches the Pacific Ocean each year.
- Where still water of a reservoir can no longer carry much sediment, which quickly settles, creating a sediment fan or delta.
- Deltas have formed at mouths of the Klickitat, Hood, White Salmon, Wind, and Deschutes Rivers.
- These tributaries are all important Cold Water Refuges (EPA 2021).



Sediment Negatively Impacts Treaty Fishers

- Sediment can impede both scaffold-based and boat-based tribal fishers.
- Traditional fishing holes become filled in.
- Navigation hazards are created:
  - Sand bars appear in new locations.
  - Changes to the river flow create unpredictable currents, increasing risk for fishers.
  - Attention to Harmful Algal Blooms.

EPA's Columbia River Cold Water Refuges Plan – 13 primary

Zone 6	River Mile	Distance to upriver dam	EPA Priority CWR w/in Zone 6 Refuge Volume– ranking (1-13)
Bonneville Dam	146	46	Little White Salmon River (2nd) Klickitat River (5th) Herman Creek (6th) White Salmon River (7th) Wind River (8th) Hood River (12th)
The Dalles Dam	192	24	Deschutes River (3th)
John Day Dam	216	76	Umatilla River (13th) *Restore*
McNary Dam	292		

Cowlitz #1, Lewis #4, Sandy #11

Zone 6 Col. River summer temps. are predicted to continue to get warmer. August mean temps are predicted to be near **23°C by 2040 and approximately 24°C by 2080.**

- Optimal adult migration, 12-16°C. Adverse effects begin above 18°C and w/ exposure time.
- State water quality criteria, 20°C max. for Zone 6 of the Columbia River.
- Sockeye most susceptible, significant mortality at 20-21°C.

- CWR - August flows greater than 10 cubic feet per second and August water temperatures that were 2°C cooler than the mainstem Columbia River.
- Salmon and steelhead predominantly use CWR when Columbia River temperatures exceed 20°C, which occurs from approximately mid-July to mid-September on average.
- Steelhead and Fall Chinook are the primary fish migrating upstream during this time and thus are the primary species that use CWR.

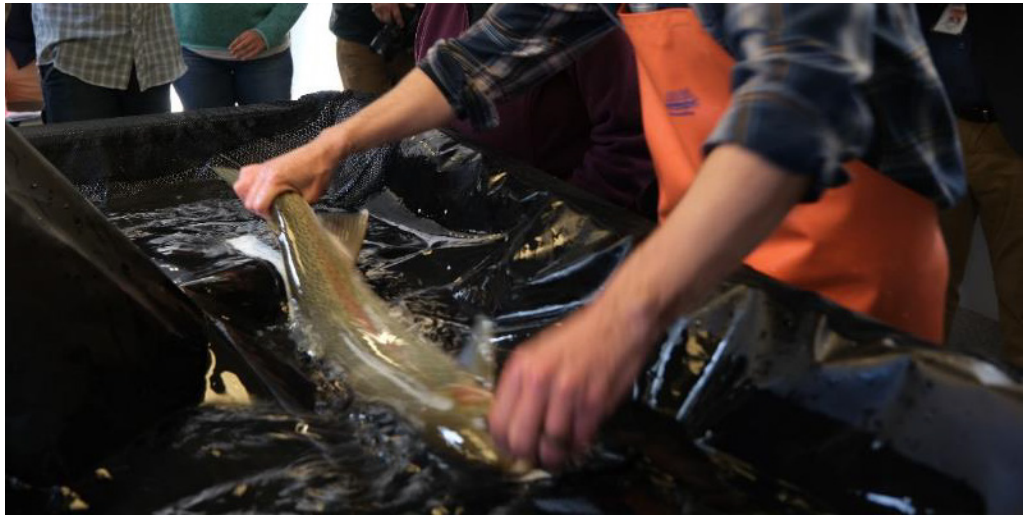
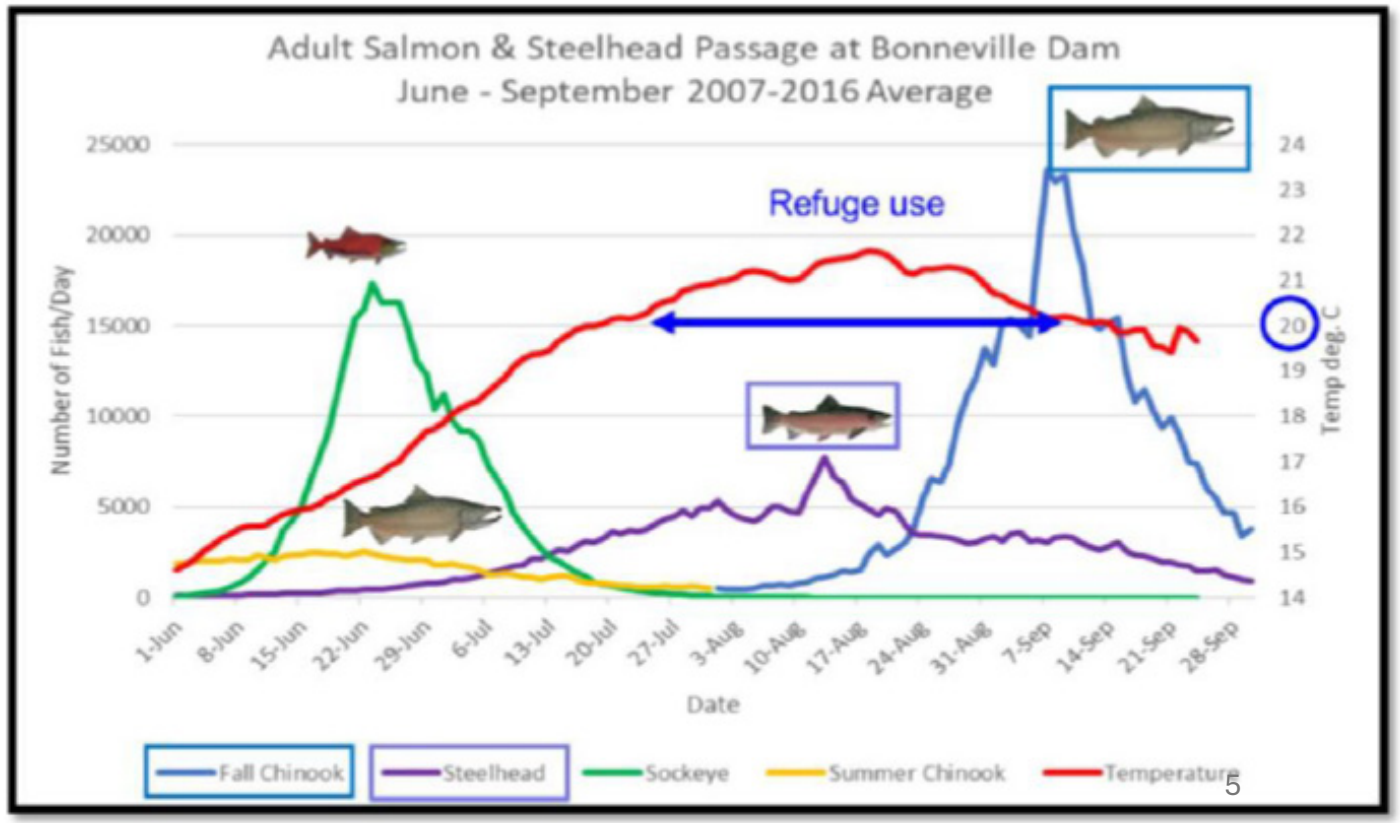


Figure 1. Salmon and steelhead passage timing and water temperature at Bonneville Dam (DART)



Tributary Name	Current (°C) (1995-2011)	2040 (°C)	Change between 2040 and current (°C)	2080 (°C)	Change between 2080 and current (°C)
Herman Creek	12.0	13.4	1.4	14.3	2.3
Wind River	14.5	15.9	1.4	16.8	2.4
Little White Salmon River	13.3	14.8	1.4	15.7	2.3
White Salmon River	15.7	17.2	1.5	18.2	2.4
Hood River	15.5	17.0	1.4	17.9	2.4
Klickitat River	16.4	17.8	1.5	18.8	2.4

Columbia River Cold Water Refuges Plan

Final January 2021

Tributary Name	River Mile	August Mean Mainstem Temperature (DART)	August Mean Tributary Temperature (NorWeST)	August Mean Temperature Difference	August Mean Tributary Flow (NHD & USGS*)	Plume CWR Volume (> 2°C Δ)	Stream CWR Volume (> 2°C Δ)	Total CWR Volume (> 2°C Δ)
		°C	°C	°C	cfs	m^3	m^3	m^3
Herman Creek (OR)	147.5	21.2	12.0	-9.2	45	168,000	1,698	169,698
Wind River (WA)	151.1	21.2	14.5	-6.7	293	60,800	44,420	105,220
Little White Salmon River (WA)	158.7	21.2	13.3	-7.9	248*	1,097,000	11,661	1,108,661
White Salmon River (WA)	164.9	21.2	15.7	-5.5	715*	72,000	81,529	153,529
Hood River (OR)	165.7	21.4	15.5	-5.9	374	28,000	0	28,000
Klickitat River (WA)	176.8	21.4	16.4	-5.0	851*	73,000	149,029	222,029

Recent Actions

Water Resources Development Act

Tribal Partnership Program expanded outside of reservation boundaries.

CRITFC become eligible to partner directly with USACE

- 2021 The Yakama Nation in coordination with the CRITFC and the USACE-Portland initiated a Planning Assistance to States and Tribes (PAST) under Sec. 2.2 of WRDA to study the Wind, White Salmon, and Klickitat River Deltas.
- Warm Springs Fisheries Program, Hood River Salmon Survival Study (PAST).
- USACE Continuing Authorities Program for their continued focus on cold-water refuge habitat issues as they relate to the ecosystem restoration.

WATER RESOURCES DEVELOPMENT ACT (WRDA)

TITLE II—STUDIES AND REPORTS
SEC. 1201. AUTHORIZATION OF PROPOSED FEASIBILITY STUDIES.

(a) NEW PROJECTS.—The Secretary is authorized to conduct a feasibility study for the following projects for water resources development and conservation and other purposes, as identified in the reports titled "Report to Congress on Future Water Resources Development"

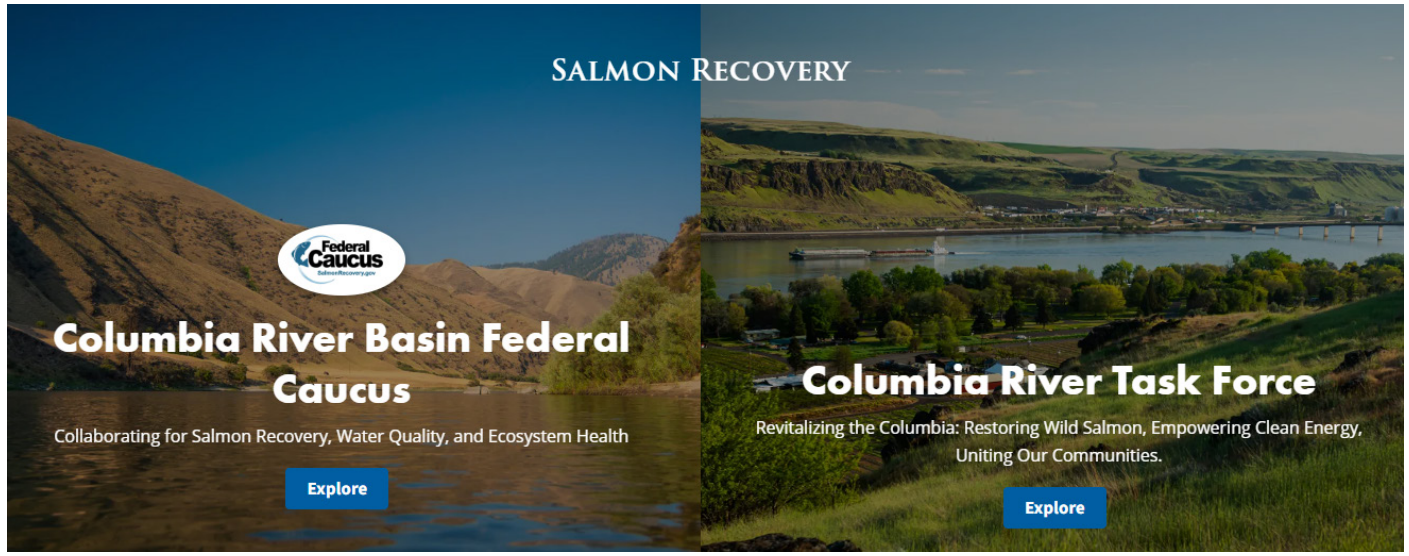
(159) WIND, KLICKITAT, HOOD, DESCHUTES, ROCK CREEK, AND JOHN DAY TRIBUTARIES, COLUMBIA RIVER, WASHINGTON.

Project for ecosystem restoration, Wind, Klickitat, Hood, Deschutes, Rock Creek, and John Day tributaries, Columbia River, Washington.

Wind River Delta at Bonneville Pool.

US Government Commitments - CWR

USG Commitment to identify priority Cold Water Refuge Projects: *"The Environmental Protection Agency and the Corps will work with the Six Sovereigns to identify and seek funding, as appropriate, to study and complete 3 to 5 projects to enhance or protect existing cold water refuge or provide additional cold water refuge in the Columbia Basin in Oregon and Washington."*



Cold Water Refuge Team

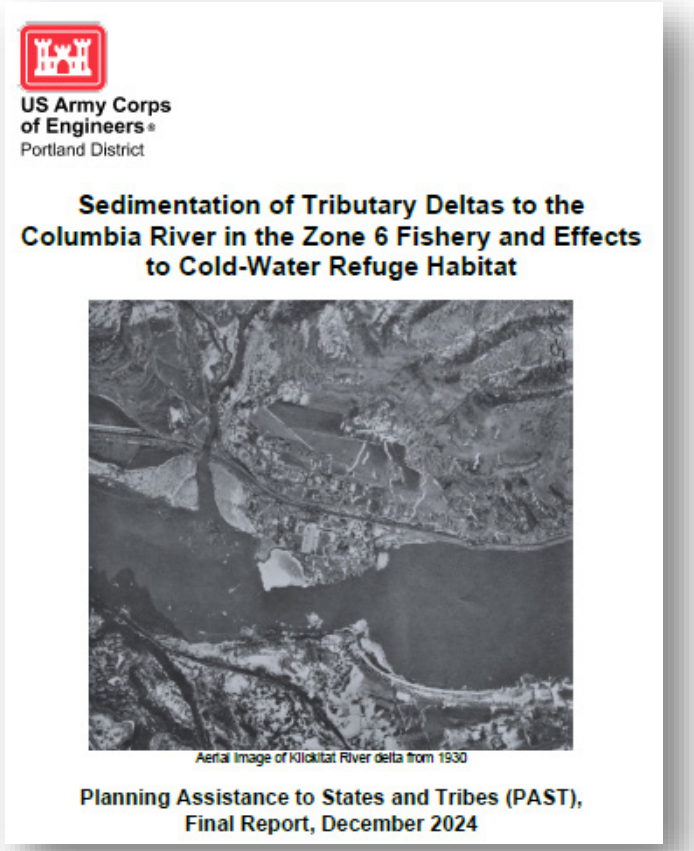
- Environmental Protection Agency
- National Marine Fisheries Service
- USACE (NWD, Portland, Walla Walla)
- Umatilla Tribe
- Yakama Nation
- Nez Perce Tribe
- Warm Springs Tribe
- Oregon Dept. of Fish & Wildlife
- Washington Dept. of Fish & Wildlife
- Columbia River Intertribal Fish Commission
- US Fish & Wildlife Service

Project Locations

- Hood River
- Columbia River Deltas (Wind, Klickitat, White Salmon, and Herman Creek)
- Deschutes River
- Umatilla River
- Walla Walla River

Columbia River Zone 6 Delta Assessment

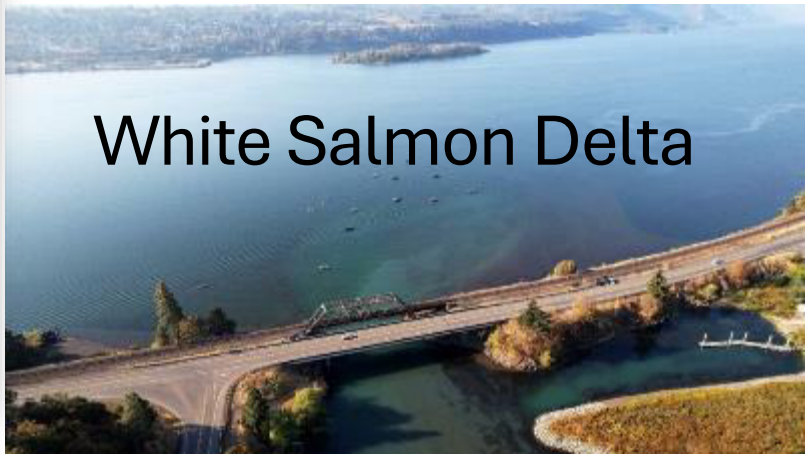
Technical Assistance Agreement
USACE – Portland District &
Yakama Nation, August 2022


US Army Corps of Engineers
Portland District

Sedimentation of Tributary Deltas to the Columbia River in the Zone 6 Fishery and Effects to Cold-Water Refuge Habitat

Aerial image of Klickitat River delta from 1930

Planning Assistance to States and Tribes (PAST), Final Report, December 2024



Planning & Data Collection

Task 1 – Develop Delta Specific Problem Statements
Task 2 – Conduct Literature Review
Task 3 – Conduct Geomorphic Assessment
Task 4 – Coordinate Bathymetric Data Collection with NOAA
Task 5 – Compile existing data sets and identify further data needs
Task 6 – Develop monitoring plans (temp, sediment, and turbidity)
Task 7 – Execute monitoring and data collection plans
Task 8 – Develop a modelling and monitoring strategy for each delta

USACE Planning Charrette

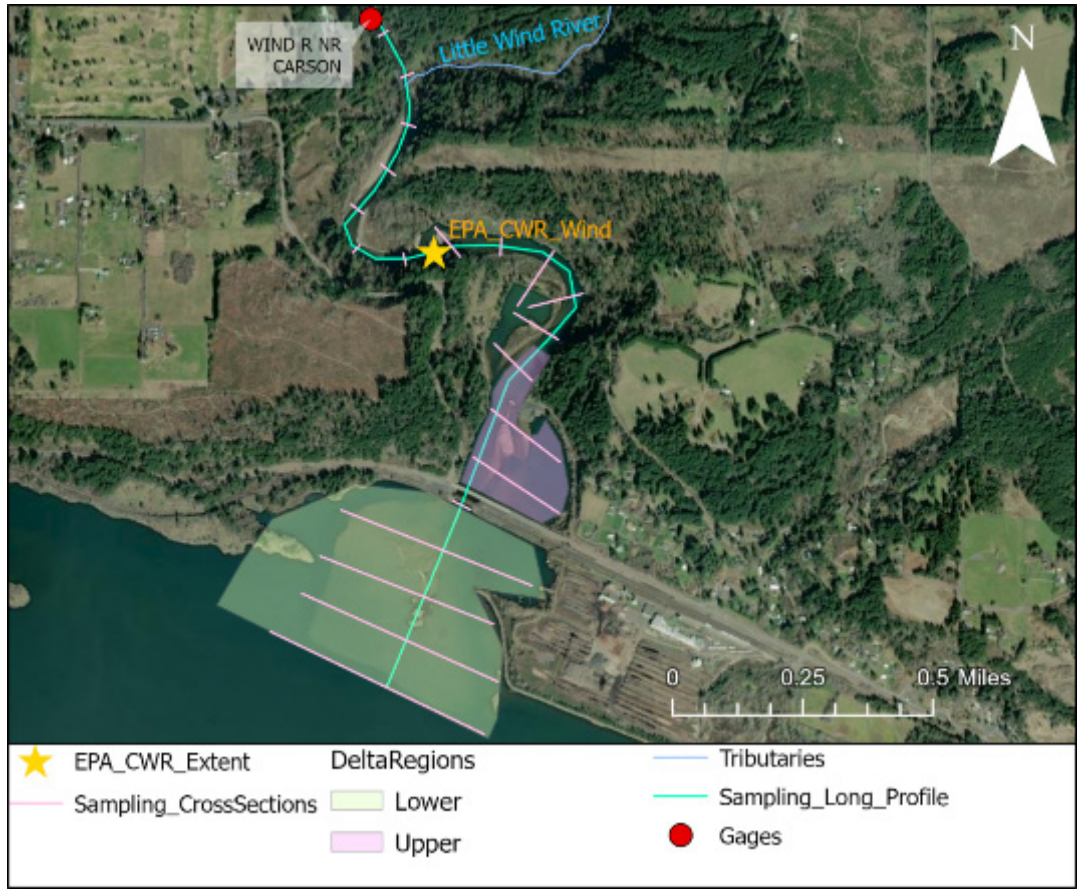
November 3rd and 4th, 2022 - The charrette focused on information gathering from tribes, state and federal resource agencies, and local government to better understand the area and provide necessary input in the refining of the project's scoped activities.

- Confederated Tribes and Bands of the Yakama Nation
- Columbia River Inter-Tribal Fish Commission
- Confederated Tribes of the Umatilla Indian Reservation
- Nez Perce Tribe
- Confederated Tribes of the Warm Springs
- City of Bingen Washington
- City of Stevenson Washington
- City of White Salmon Washington
- Klickitat County
- Washington Department of Fish and Wildlife
- Washington Department of Ecology
- Lower Columbia Estuary Partnership
- Underwood Conservation District
- Lower Columbia Fish Recovery Board
- Sandy River Watershed Council
- Northwest Power and Conservation Council
- National Oceanic and Atmospheric Administration
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Department of Agriculture
- U.S. Forest Service
- U.S. Geological Survey
- U.S. Army Corps of Engineers

Data Synthesis and Collection

- Data Synthesis
- Sources include USGS, USEPA, USACE, CRITFC, YN, NOAA, WA Dept. Ecology, WA Dept. Fish and Wildlife, Columbia River DART, NMFS, USFS NorWeST, OSU, UCD
- Water temperature, flow, depth, suspended sediment, turbidity, fish metrics, bathymetry, topography, imagery, habitat characterization
- Data types include gage timeseries, synoptic sampling, research studies, planning reports, surveys, remote sensing
- Data Collection
- Scope and funding set for USGS to install turbidity and temperature sensors in April/May 2024 at
  - **Wind River near Carson (14128500)**
  - **White Salmon near Underwood (14123500)**
  - **Klickitat River near Pitt (14113000)**

- August 2024 synoptic sampling
  - Temperature depth and cross sections
  - Water depths
  - Sediment characterization



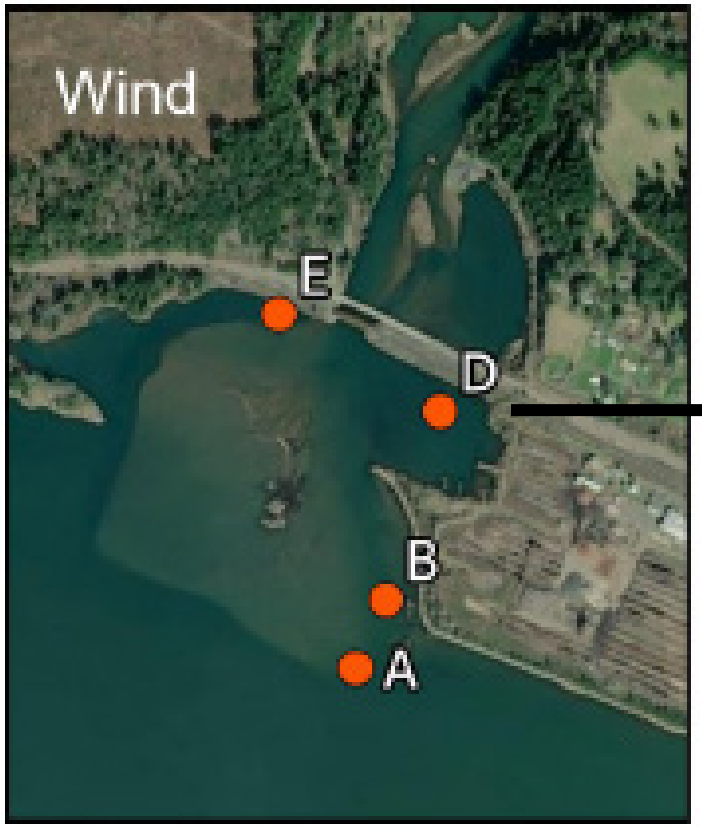
Outcomes, Key questions & next steps

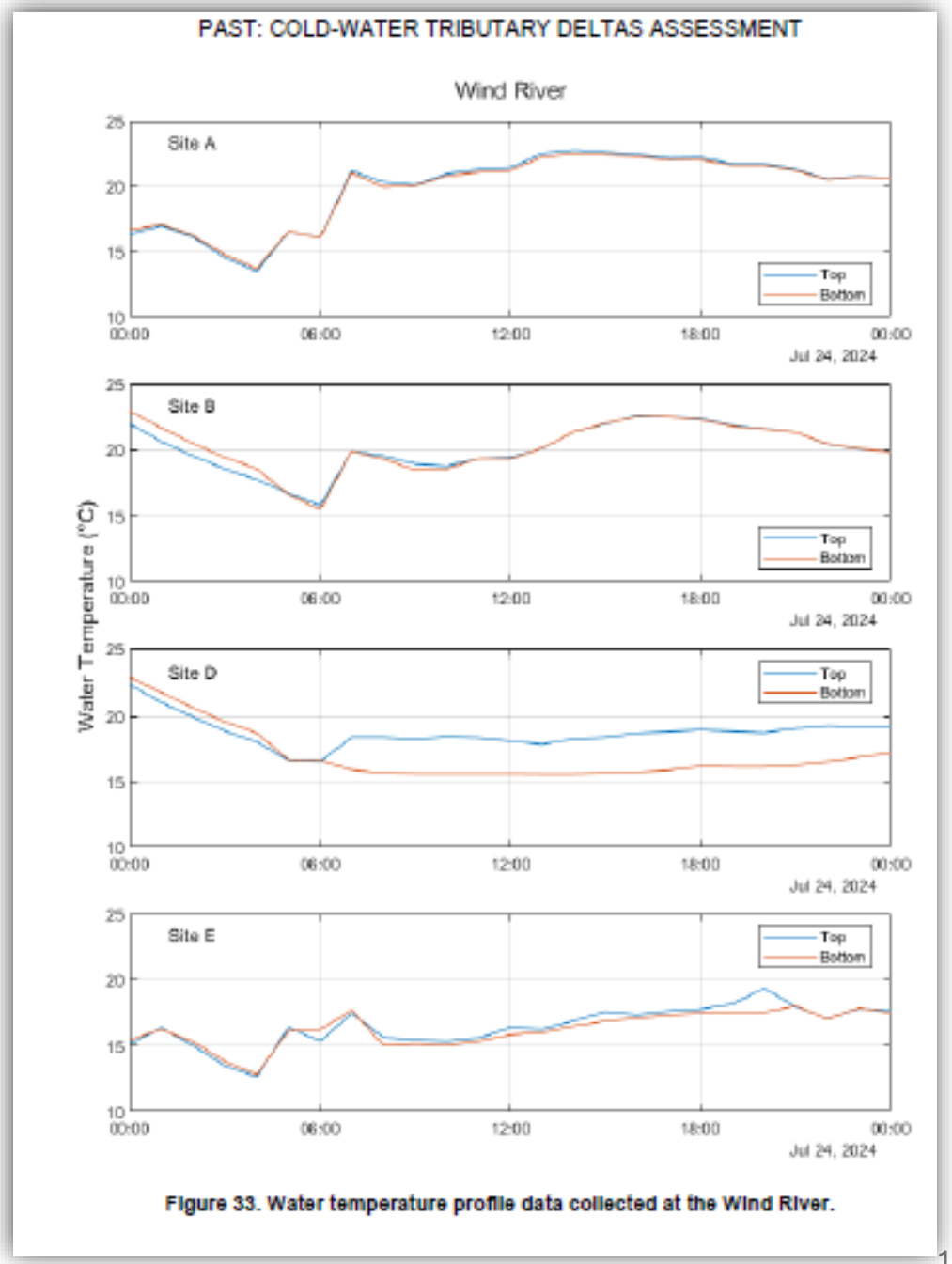
- Delta Assessment Study
  - Historical context on how Bonneville Pool and previous flood events have affected sedimentation in the CWR habitats
  - Characterize current physical conditions of CWR habitats
  - Establish continuous monitoring of tributary flows, water temperature, and turbidity
    - Set up for future projects to establish suspended sediments-turbidity correlation
    - Establish data sets needed for modeling efforts to guide management and restoration

Future uses of the Delta Assessment Study information and key questions that can be addressed

- What are the opportunities for restoration or modification of the delta areas?
- Define the types of modifications that need to be considered to provide ecological benefit
- How does sedimentation interact with/impact the federal navigation channel?
- Understand potential upstream modifications that reduce sediment load.
- Further refine mapping of the cold-water plume.

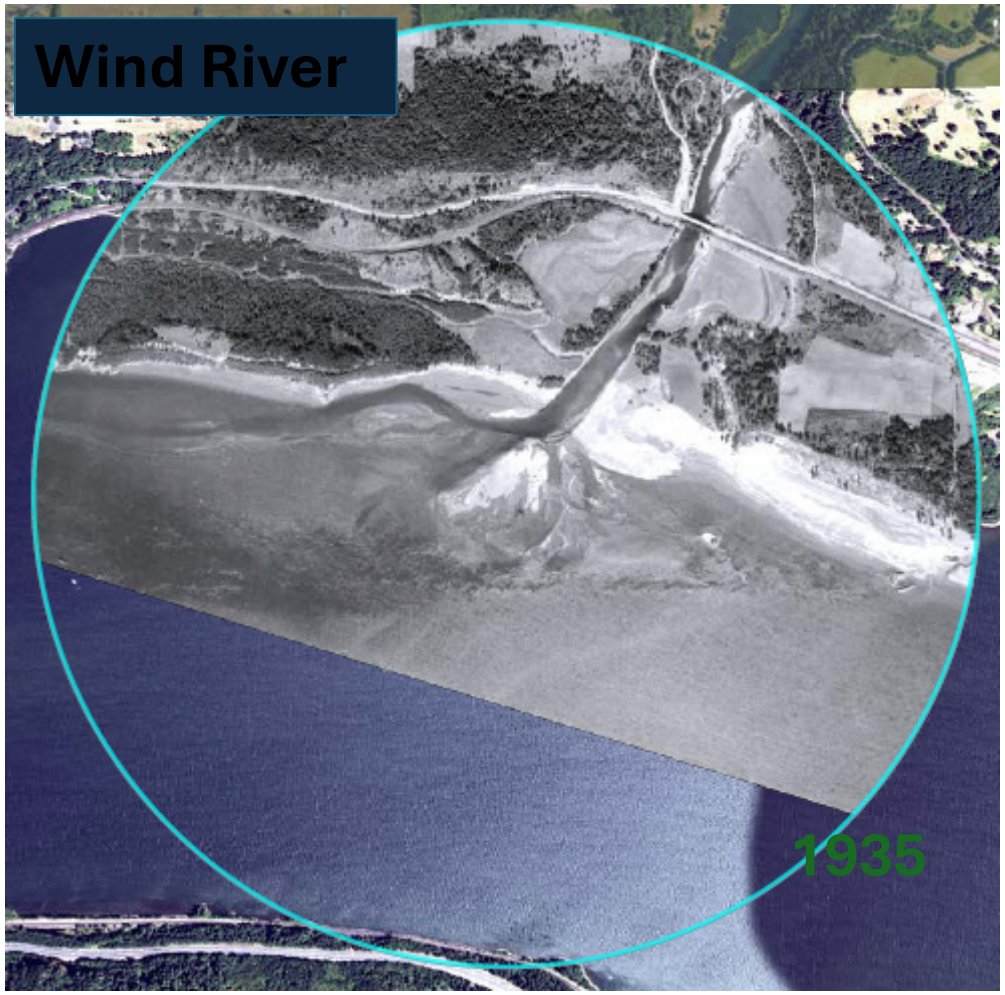
Wind River – July 2024 Temperature monitoring





Geomorphic Assessment

Qualitative assessment on the physical changes to tributary delta regions
- Geo-rectify historical aerial imagery over time
- Assess pre- and post-dam conditions



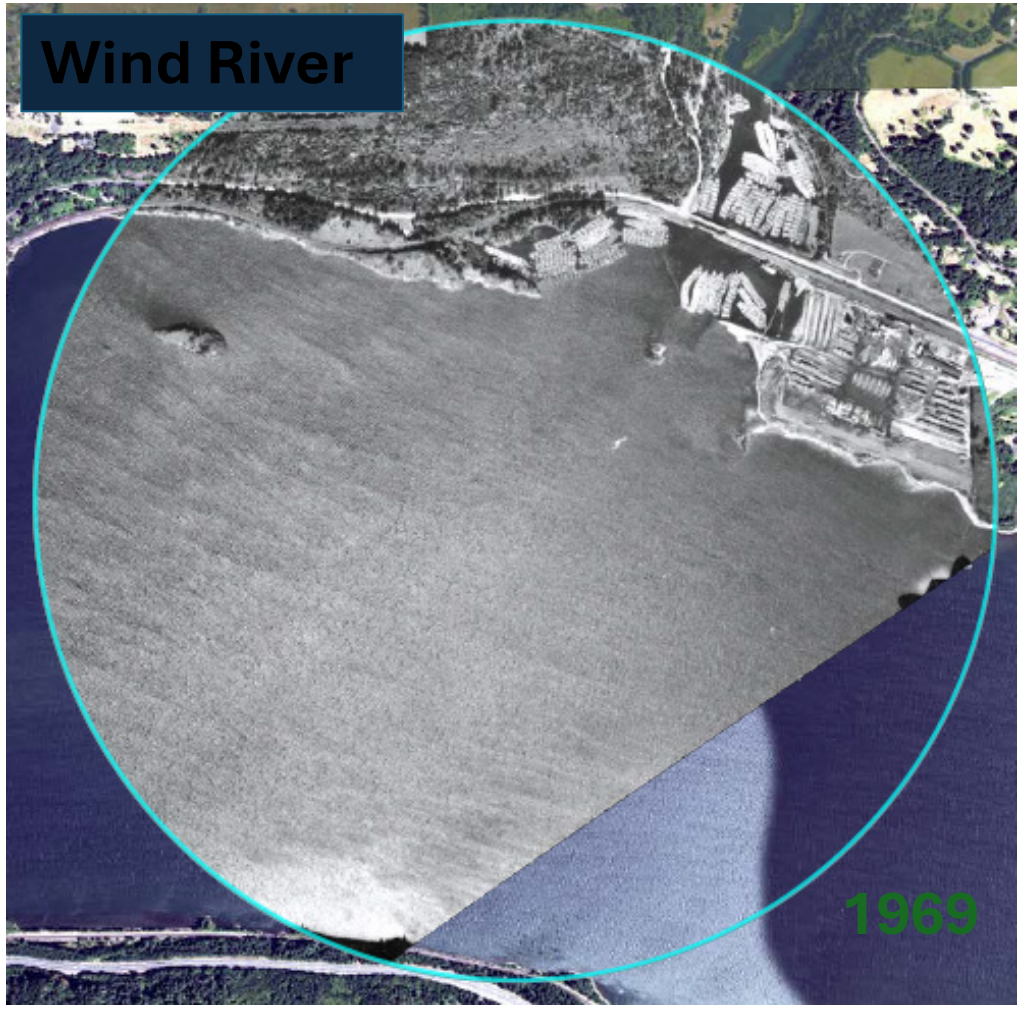
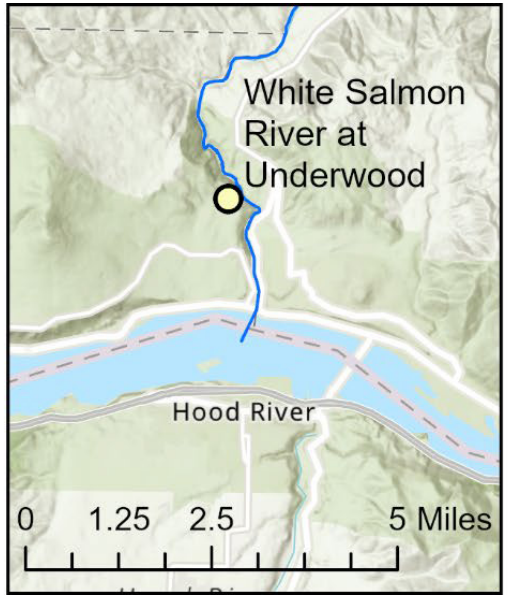
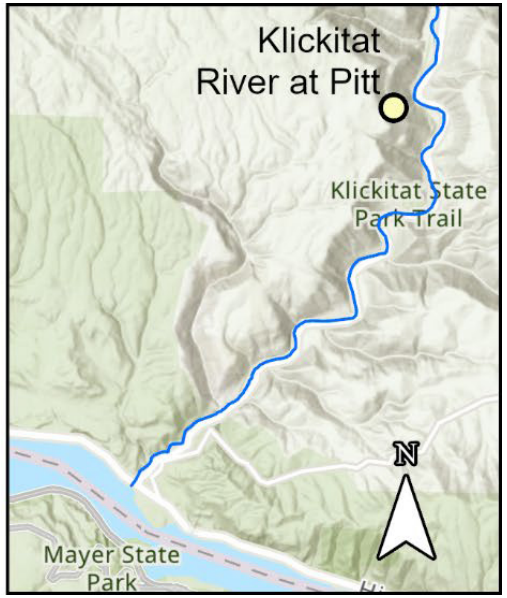


Figure 17. Historical aerial imagery of the Wind River delta. (1935 represents pre-dam with features digitized in post-dam images from 1969, 1991, and 2021)

Flow monitoring – Temperature and Turbidity.

- The USACE-NWP contracted with USGS to purchase, install, and maintain water temperature and turbidity sensors at the existing gages on the White Salmon River near Underwood, WA (USGS 14123500) and the Klickitat River near Pitt, WA (USGS 14113000) and Wind River near Carson, WA (14128500). Activated in late April early May 2024.





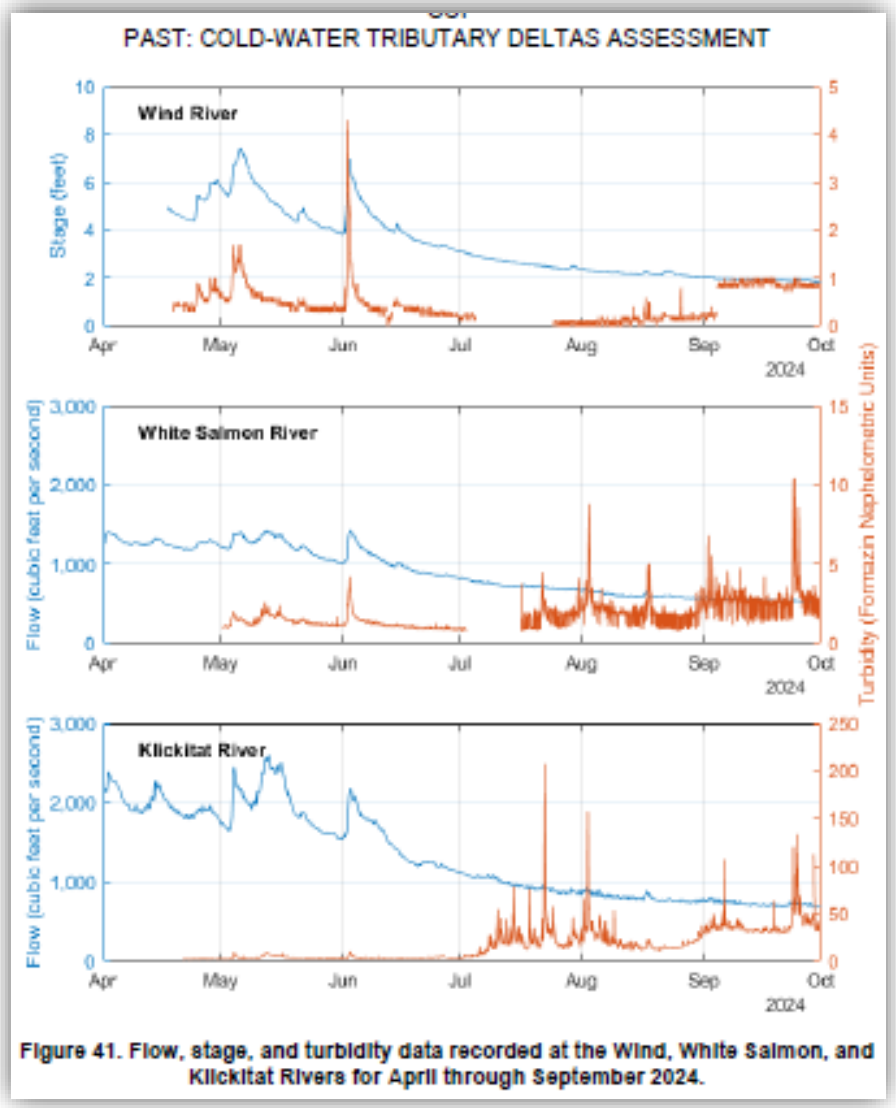
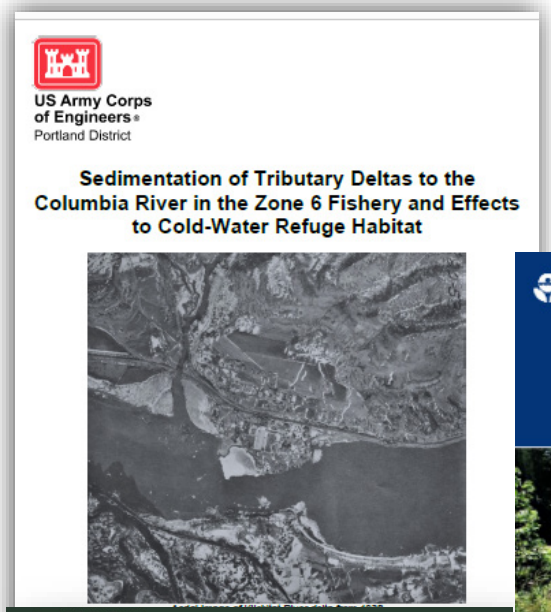
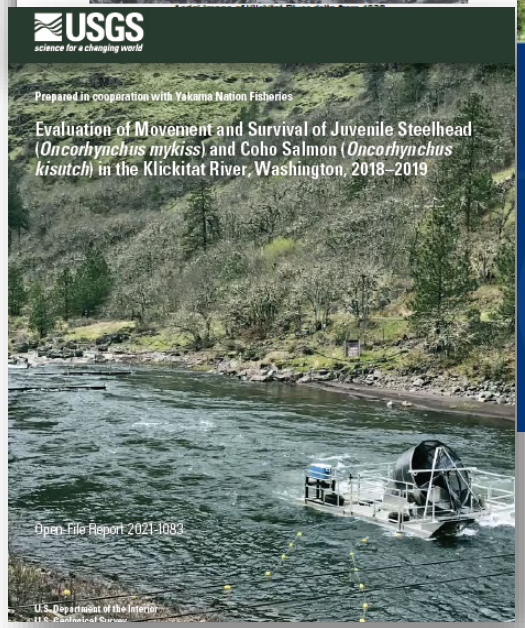
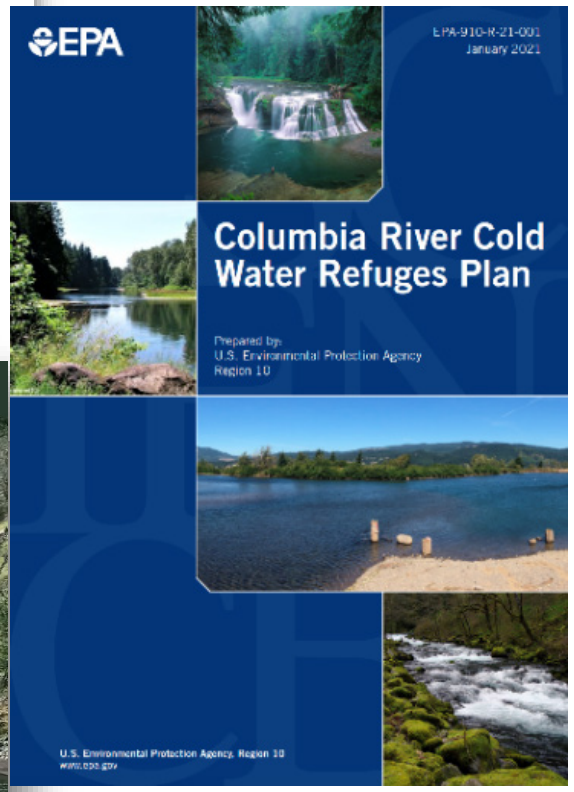


Figure 41. Flow, stage, and turbidity data recorded at the Wind, White Salmon, and Klickitat Rivers for April through September 2024.

Research to Inform Restoration Options to Improve Salmon Survival.







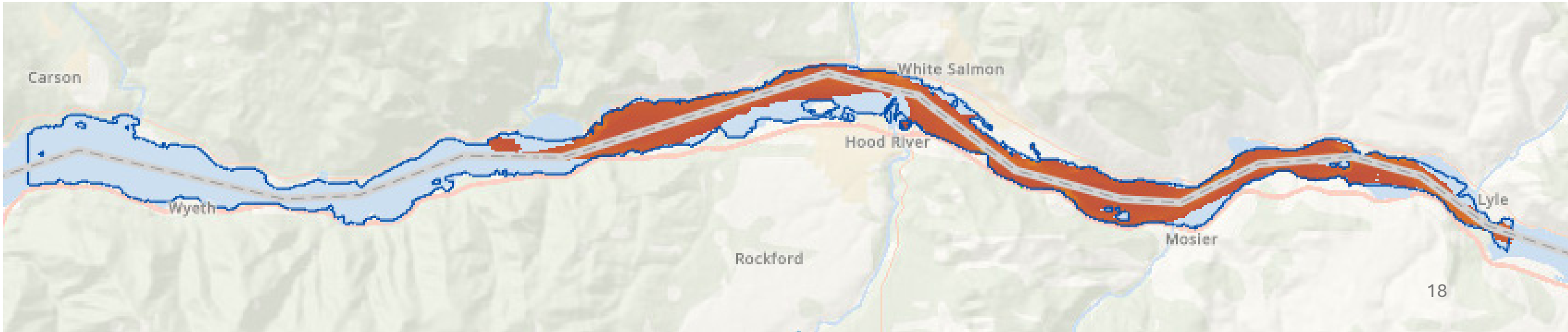
- Identify and implement opportunities for habitat restoration to increase fish survival (e.g. cold water refuges, delta restoration).
- Identify locations with a high probability of providing an aquatic habitat “lift” over current conditions.

Additional Supporting Information:

NOAA-Office of Coast Survey.
Bathometry coverage.

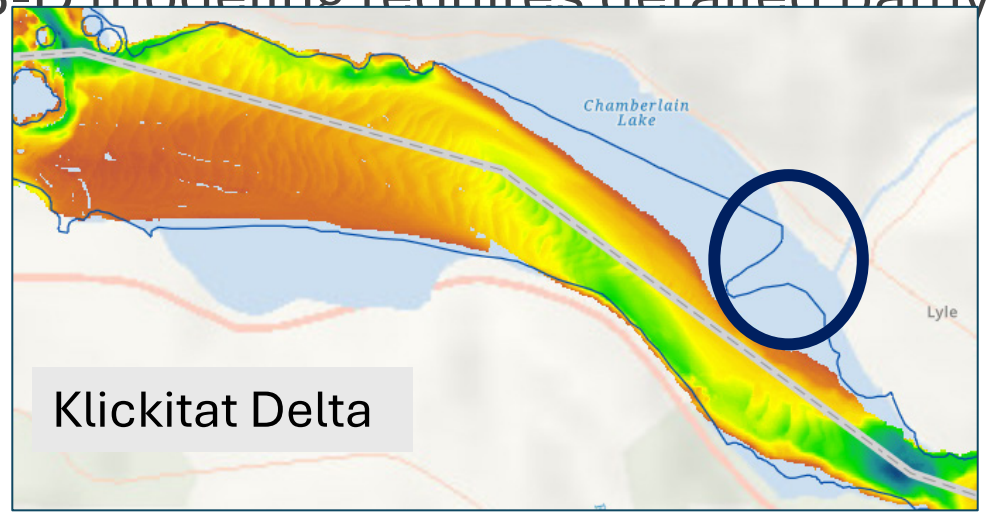
OPR-N338-NRTSE-22
Columbia River, Oregon and Washington

https://storymaps.arcgis.com/stories/ffaae163a1054ef2880dcdd492bb5ec1



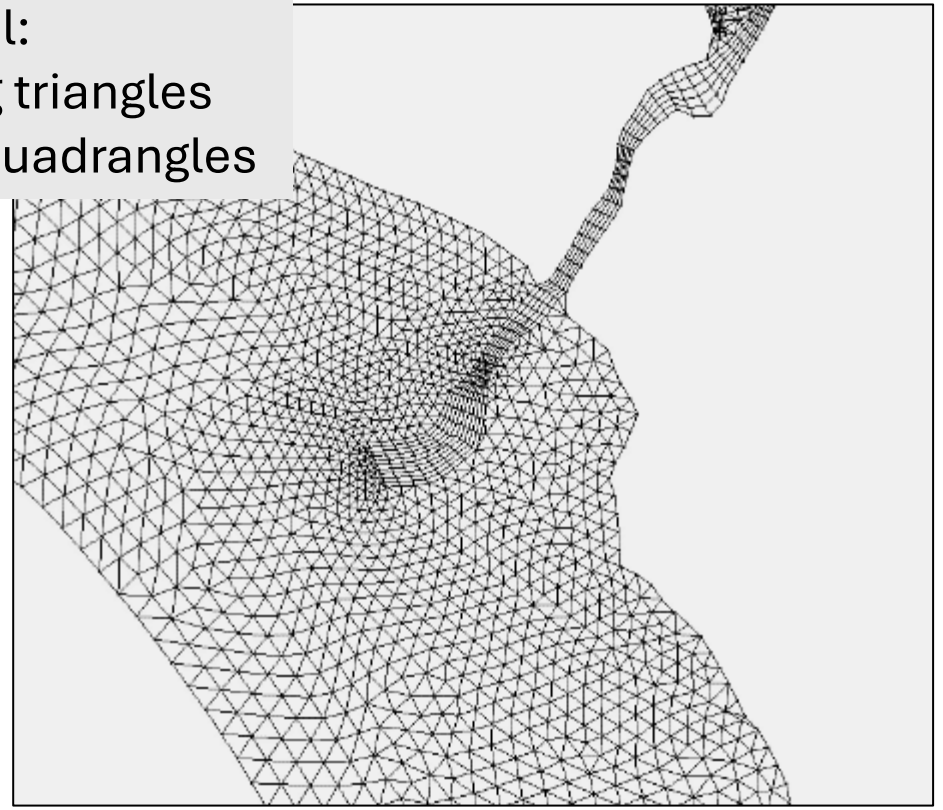
CRITFC-CMOP modeling of the deltas

- CRITFC's Coastal Margin Observation and Prediction program (CMOP) has extensive experience with 3-D hydrodynamic modeling below Bonneville dam
- The same modeling methods (SCHISM) can be applied in Zone 6 to evaluate potential modifications to the deltas
- 3-D modeling requires detailed bathymetry

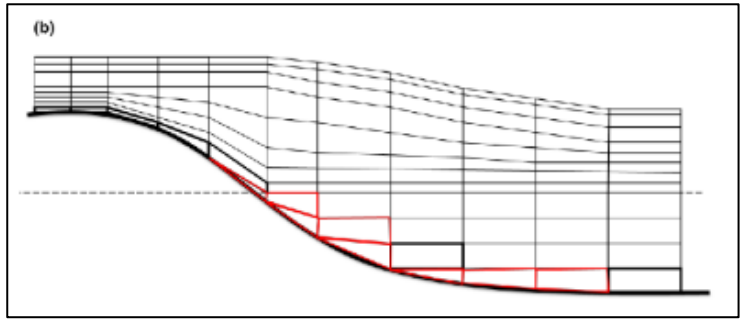


Klickitat Delta

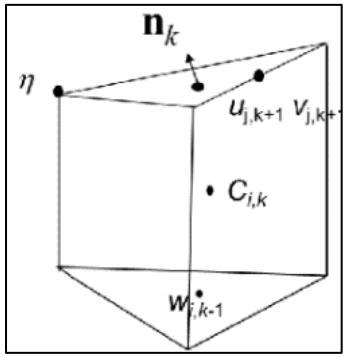
Model:
Using triangles and quadrangles



In vertical stacks

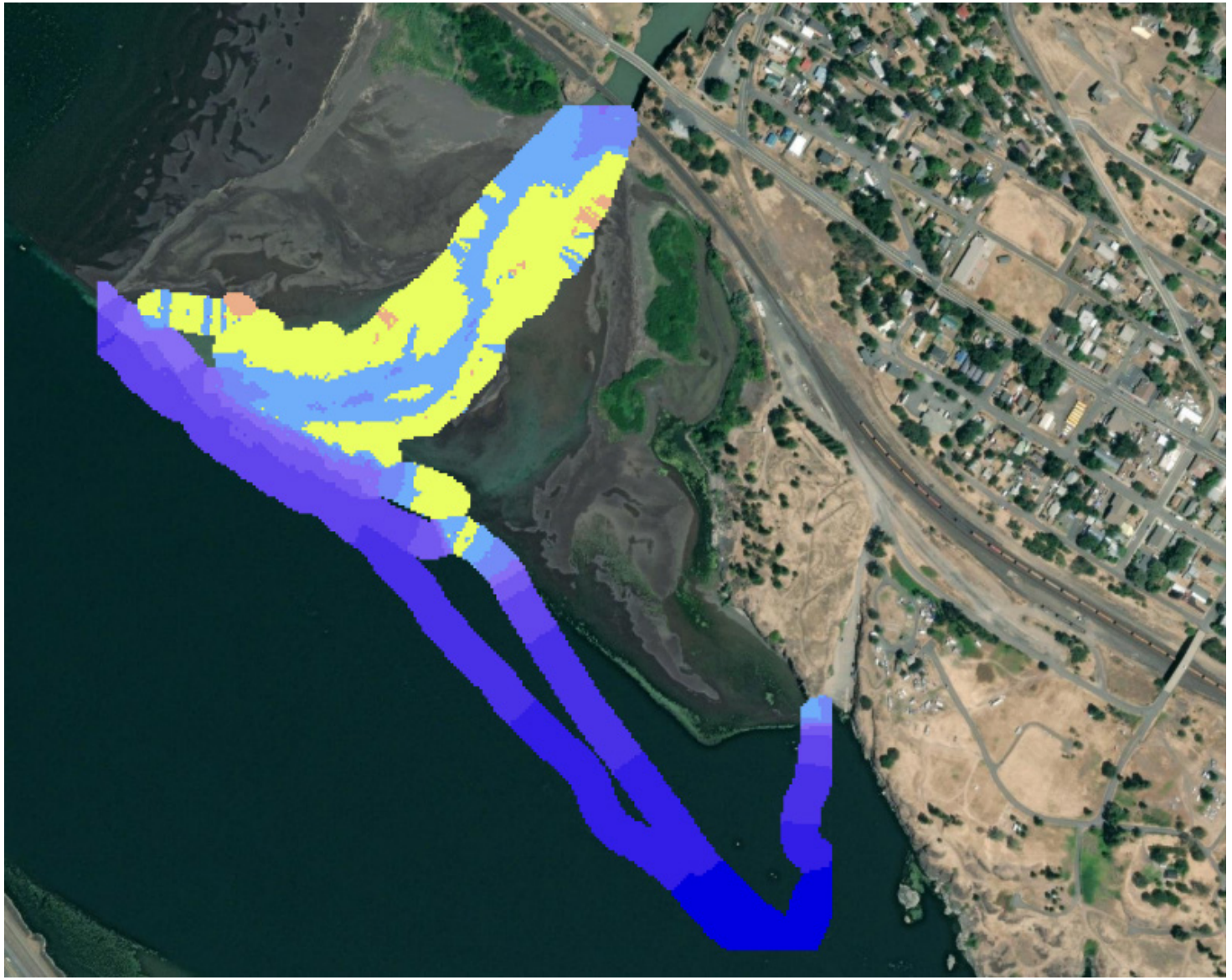


… the world as prisms



Klickitat River Delta Shallow Water Survey

CRITFC
Oregon State University



Lower Klickitat River Smolt Survival Study

- Determine reach-specific travel times and survival of tagged natural-origin juvenile steelhead and hatchery-origin juvenile coho
- Determine how long hatchery-origin juvenile coho remained in the river after hatchery release

Klickitat River – Delta Study

- **Smolt survival study**

Project Approach:

Collect and tag *O. mykiss* at YN operated rotary screw trap (rkm 4.5), the release upstream of screw trap (rkm 17).

Detect fish at telemetry arrays: Klickitat (rkm 0.8), Klickitat/Col. River confluence, Delta exit/Memaloose Island, and near Bonneville Dam.

Preliminary *O. mykiss* survival estimates from release to Bonneville Dam was **0.56** (0.26-0.86) and **0.54** (0.33-0.75) in 2018 and 2019, respectively.

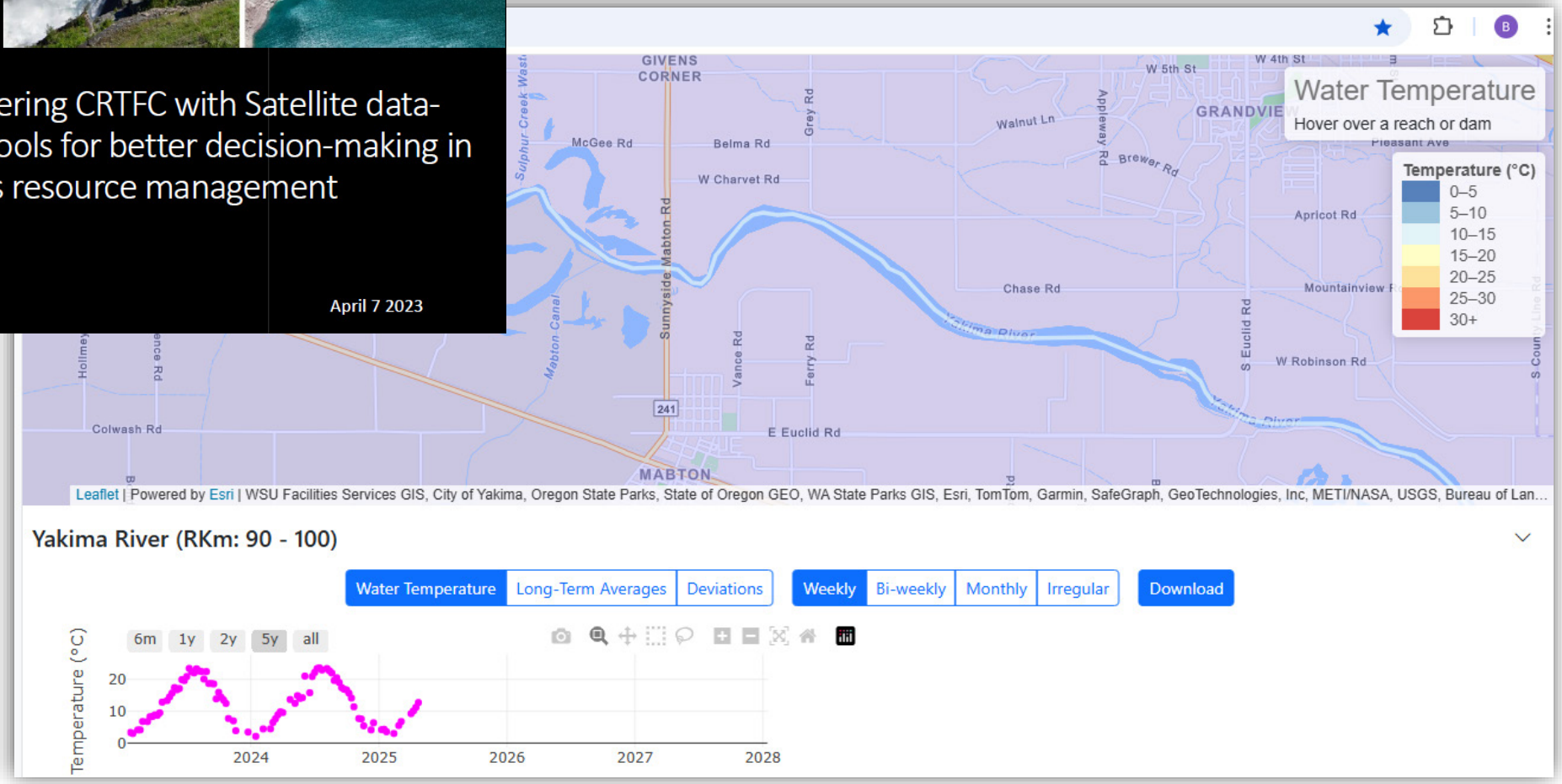
Next Steps:

Narrow in on lower Klickitat River/Delta survival (predation hot spots).

Further investigate species assemblage and abundances in lower Klickitat River

THORR – Thermal History of Regulated River, University of Washington

https://depts.washington.edu/saswe/thorr/



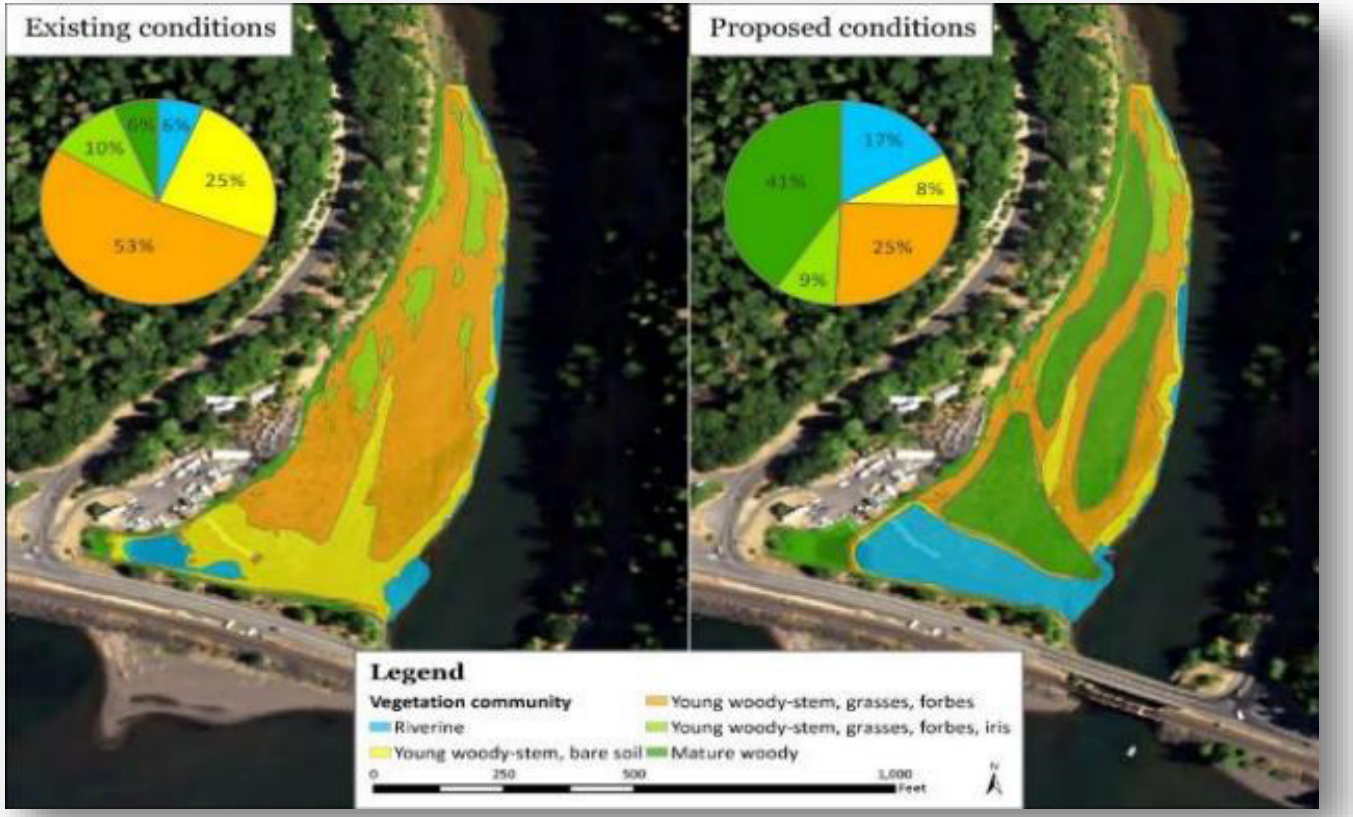
White Salmon Delta Project – Convert Sandbar to Upland

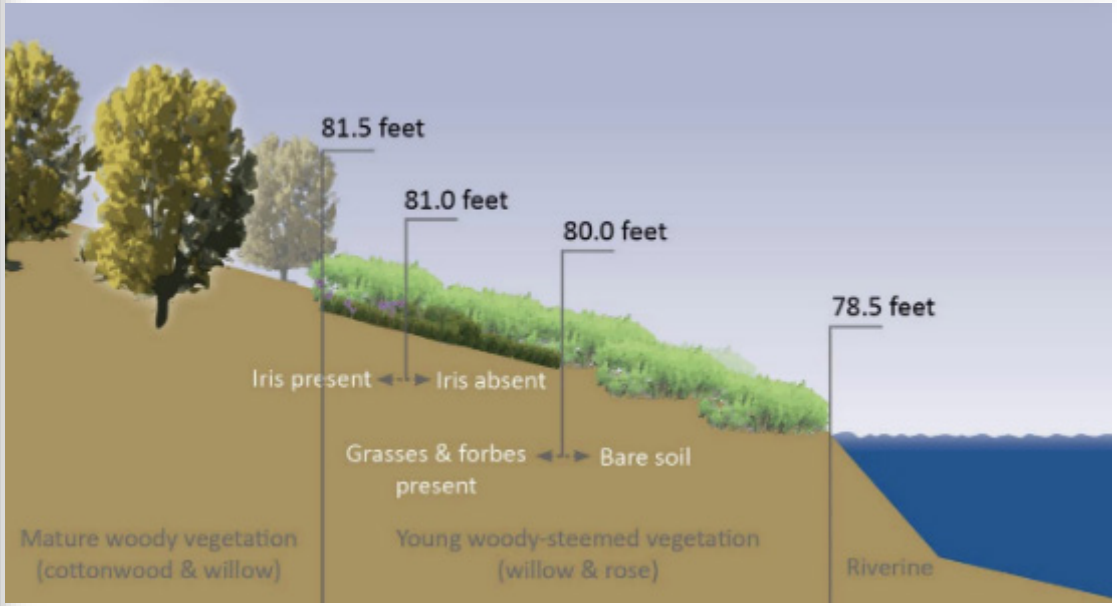
Condit Dam Decommissioning - Oct. 26, 2011

~2.4 million cu. yds. of material above the dam.

White Salmon River Delta

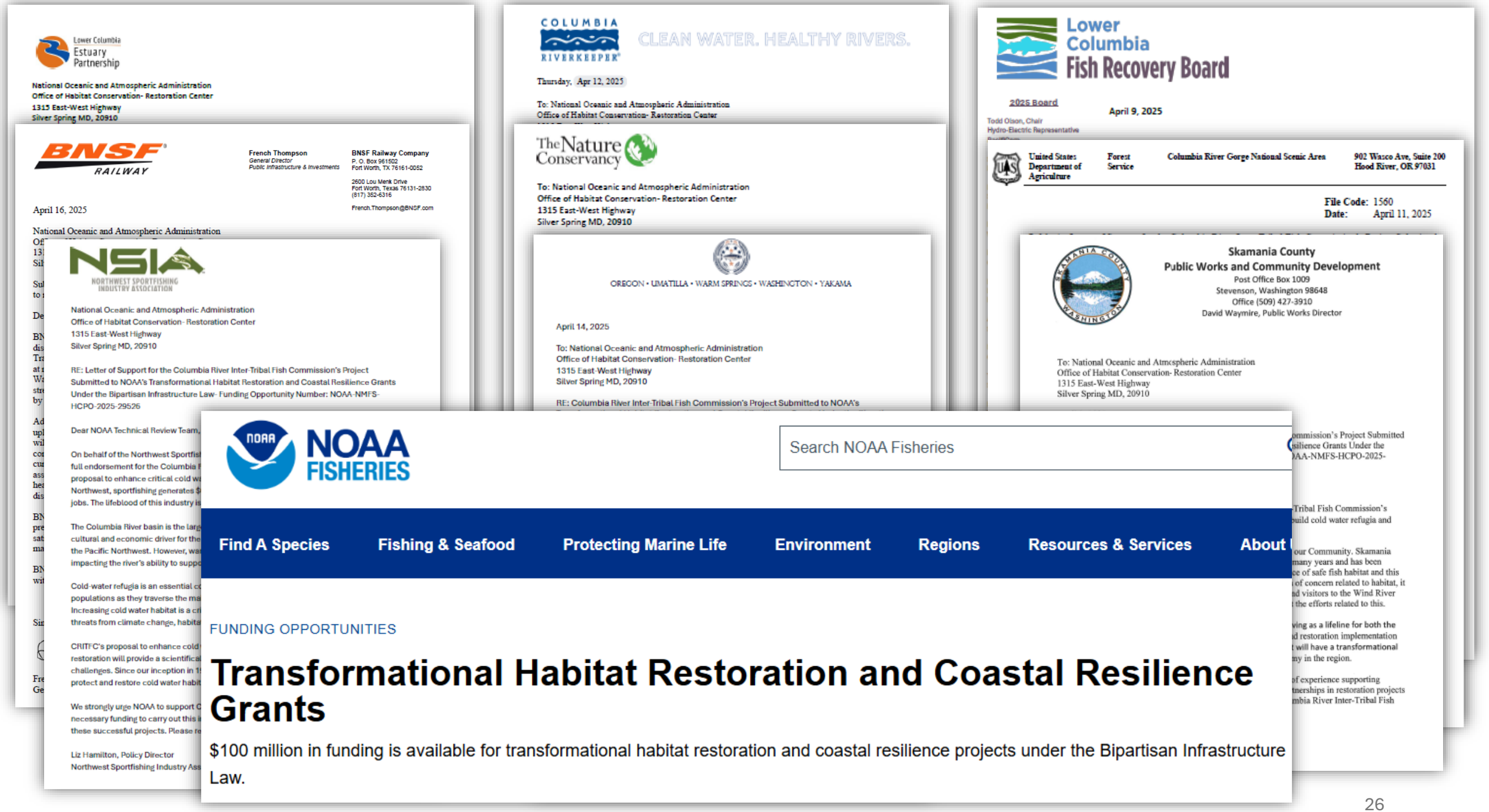
- Pool/Landform Relationship Study
- Target a four foot rise using dredged materials for vegetative growth.





White Salmon River – Boat Basin Dredging and Restoration 2018

- ~15,000 Cubic yards excavated from boat basin
- ~ 5.5 acres of sandbar converted to riparian wetland/uplands
- Salmon-friendly river cobbles with minimal riprap



Lower Columbia Estuary Partnership

National Oceanic and Atmospheric Administration
Office of Habitat Conservation- Restoration Center
1315 East-West Highway
Silver Spring MD, 20910

BNSF RAILWAY

French Thompson
General Director
Public Infrastructure & Investments

BNSF Railway Company
P. O. Box 961502
Fort Worth, TX 76161-0052

2600 Lou Menk Drive
Fort Worth, Texas 76131-2830
(817) 352-6316

French.Thompson@BNSF.com

April 16, 2025

National Oceanic and Atmospheric Administration

NSIA
NORTHWEST SPORTFISHING INDUSTRY ASSOCIATION

National Oceanic and Atmospheric Administration
Office of Habitat Conservation- Restoration Center
1315 East-West Highway
Silver Spring MD, 20910

RE: Letter of Support for the Columbia River Inter-Tribal Fish Commission's Project Submitted to NOAA's Transformational Habitat Restoration and Coastal Resilience Grants Under the Bipartisan Infrastructure Law- Funding Opportunity Number: NOAA-NMFS-HCPO-2025-29526

Dear NOAA Technical Review Team,

On behalf of the Northwest Sportfish
full endorsement for the Columbia R
proposal to enhance critical cold wa
Northwest, sportfishing generates $
jobs. The lifeblood of this industry is

The Columbia River basin is the larg
cultural and economic driver for the
the Pacific Northwest. However, wa
impacting the river's ability to suppo

Cold-water refugia is an essential co
populations as they traverse the ma
Increasing cold water habitat is a cri
threats from climate change, habita

CRITFC's proposal to enhance cold
restoration will provide a scientifica
challenges. Since our inception in 1
protect and restore cold water habit

We strongly urge NOAA to support C
necessary funding to carry out this i
these successful projects. Please re

Liz Hamilton, Policy Director
Northwest Sportfishing Industry Ass

COLUMBIA RIVERKEEPER®
CLEAN WATER. HEALTHY RIVERS.

Thursday, Apr 12, 2025

To: National Oceanic and Atmospheric Administration
Office of Habitat Conservation- Restoration Center

The Nature Conservancy

To: National Oceanic and Atmospheric Administration
Office of Habitat Conservation- Restoration Center
1315 East-West Highway
Silver Spring MD, 20910

OREGON • UMATILLA • WARM SPRINGS • WASHINGTON • YAKAMA

April 14, 2025

To: National Oceanic and Atmospheric Administration
Office of Habitat Conservation- Restoration Center
1315 East-West Highway
Silver Spring MD, 20910

RE: Columbia River Inter-Tribal Fish Commission's Project Submitted to NOAA's

Lower Columbia Fish Recovery Board

2025 Board

Todd Olson, Chair
Hydro-Electric Representative

April 9, 2025

United States Department of Agriculture
Forest Service
Columbia River Gorge National Scenic Area
902 Wasco Ave, Suite 200
Hood River, OR 97031

File Code: 1560
Date: April 11, 2025

Skamania County
Public Works and Community Development
Post Office Box 1009
Stevenson, Washington 98648
Office (509) 427-3910
David Waymire, Public Works Director

To: National Oceanic and Atmospheric Administration
Office of Habitat Conservation- Restoration Center
1315 East-West Highway
Silver Spring MD, 20910

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AA-NMFS-HCPO-2025-

Tribal Fish Commission's
uild cold water refugia and

our Community. Skamania
many years and has been
e of safe fish habitat and this
of concern related to habitat, it
nd visitors to the Wind River
the efforts related to this.

ving as a lifeline for both the
d restoration implementation
will have a transformational
y in the region.

of experience supporting
tnerships in restoration projects
mbia River Inter-Tribal Fish

NOAA FISHERIES

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FUNDING OPPORTUNITIES

Transformational Habitat Restoration and Coastal Resilience Grants

$100 million in funding is available for transformational habitat restoration and coastal resilience projects under the Bipartisan Infrastructure Law.

Improving the mainstem Columbia River salmon migration corridor through habitat restoration to rebuild Cold Water Refuge and remediate Warm Water Predation Pockets

Columbia River Intertribal Fish Commission, The Yakama Nation, and The Nature Conservancy

NOAA Office of Habitat Conservation - Bipartisan Infrastructure Law

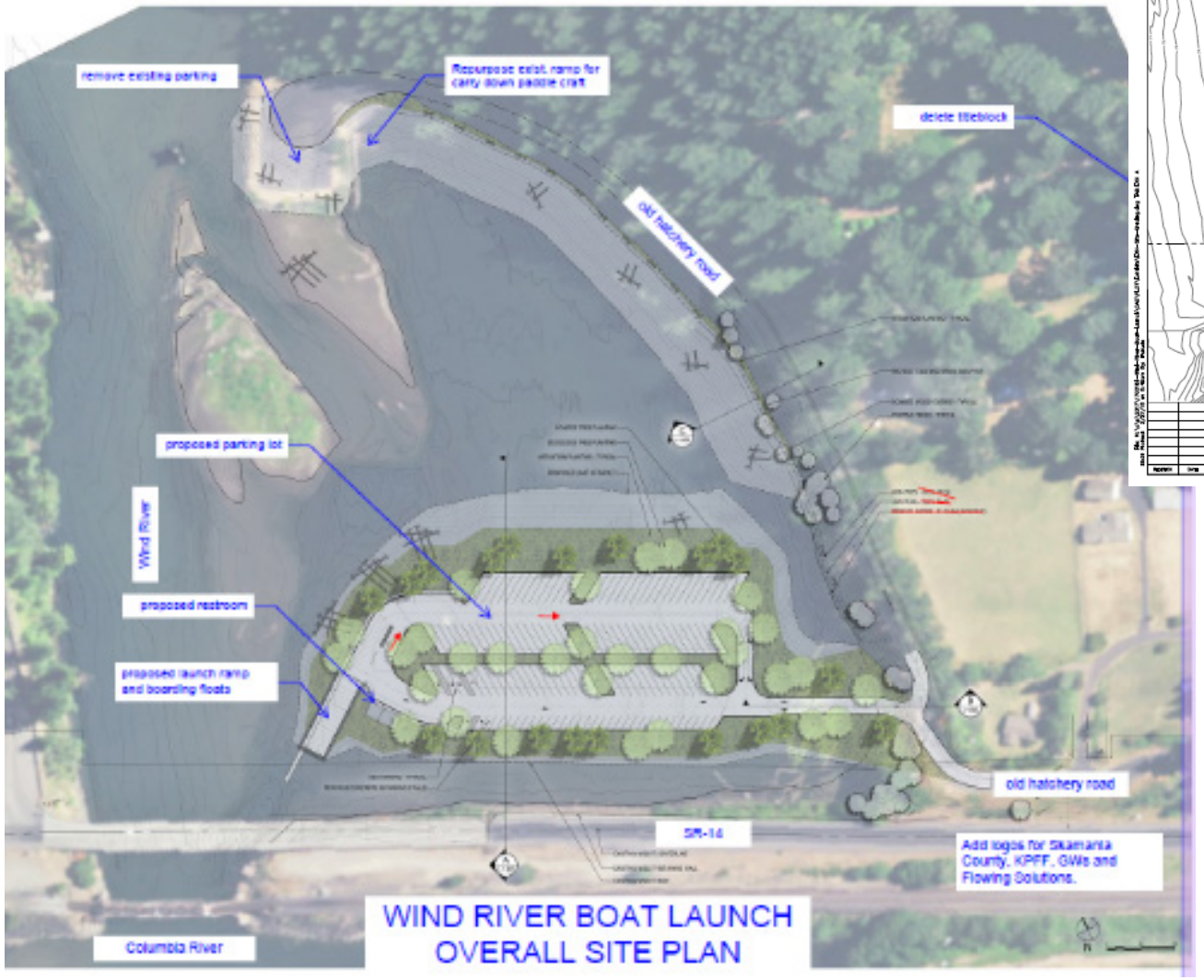
Scope of Work:

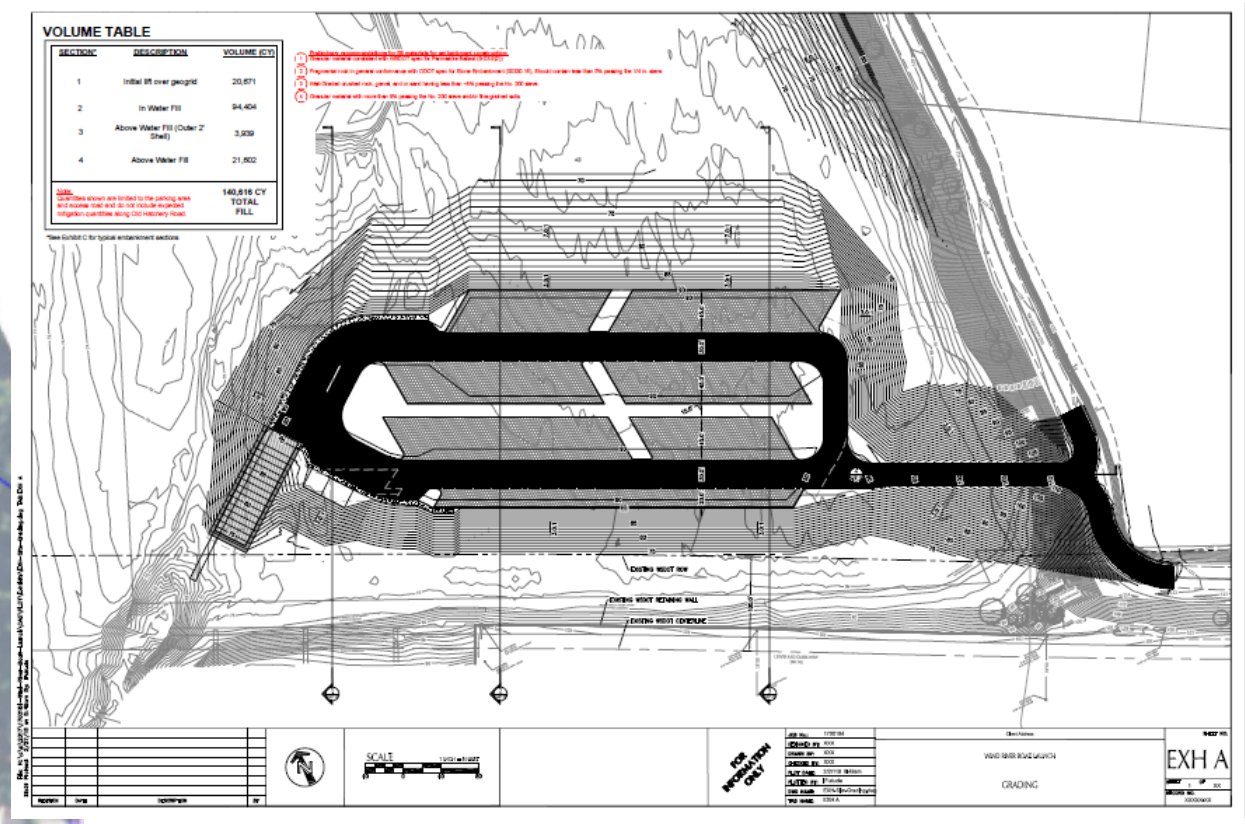
1.) To strengthen the Wind River CWR - fully design a project the provides enhanced boater access, removes detrimental shallow warm water by converting that area to a riparian upland, and dredging a deepened CWR pool.

2.) At the Klickitat Delta this project intends to design, permit, and construct two elevated riparian uplands of approximately 8-10 acres each (building out areas where emergent uplands are present).

3.) Evaluate the numerous backwaters along Zone 6 of the Columbia River and their heat and predator sinks potential and collect important information (water temperature, dissolved oxygen levels, aquatic vegetation, depth, and habitat connectivity) in order to prioritize future projects.

Wind River Delta
Skamania County Boat Launch



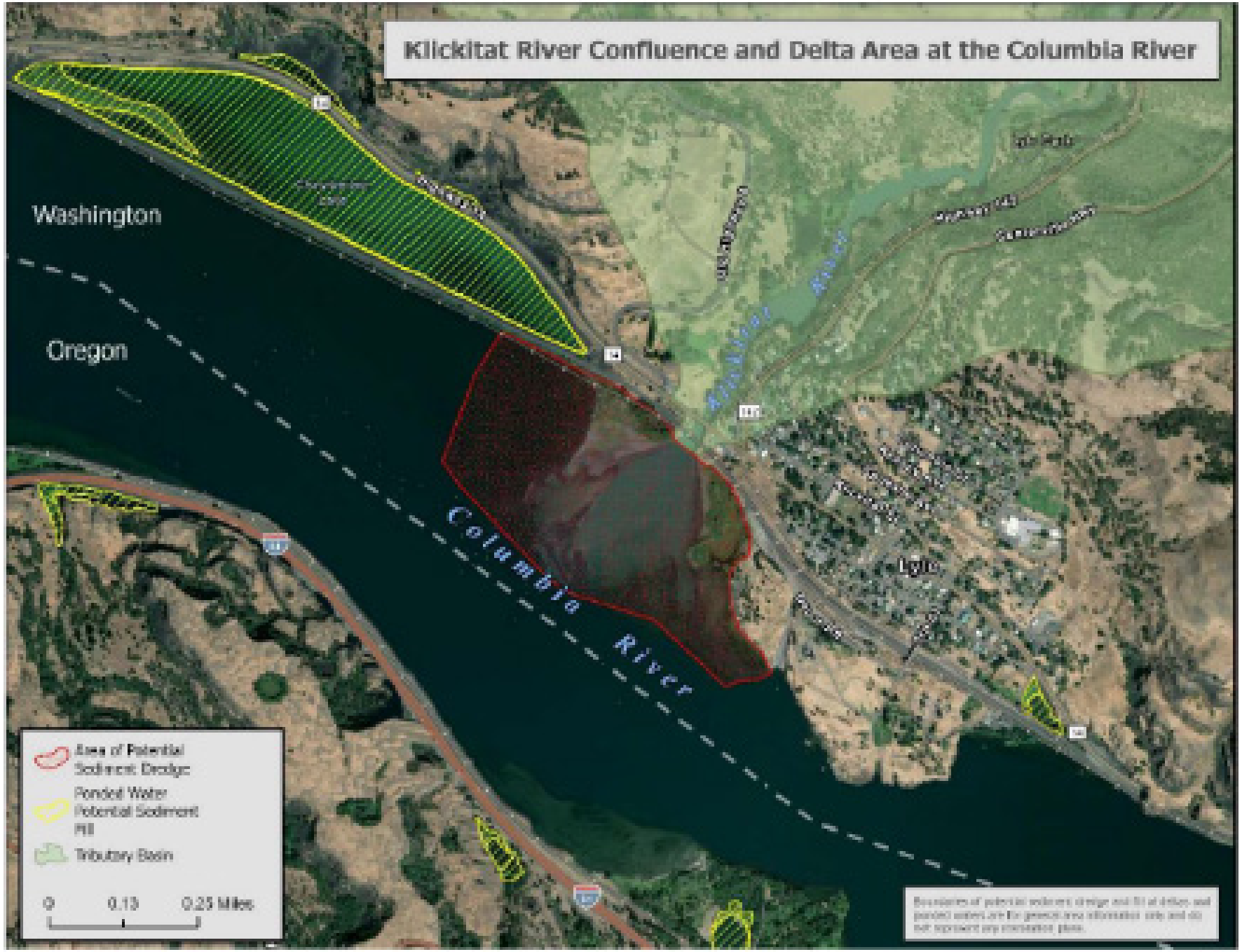


Parking Area and Access Road		
Section	**Description**	**Volume (CY)**
1	Initial lift over geogrid	20,671
2	In Water Fill	94,404
3	Above Water Fill (Outer 2' Shell)	3,939
4	Above Water Fill	21,602
	TOTAL	**140,616**

Klickitat River Delta

Dredge/Fill. Expand emergent riparian uplands using dredge material. Raise uplands by 4ft. or more above Ordinary High Pool.

Dredge/Remove. Deposit dredged material and convert portions of Chamberlin Lake into riparian uplands.

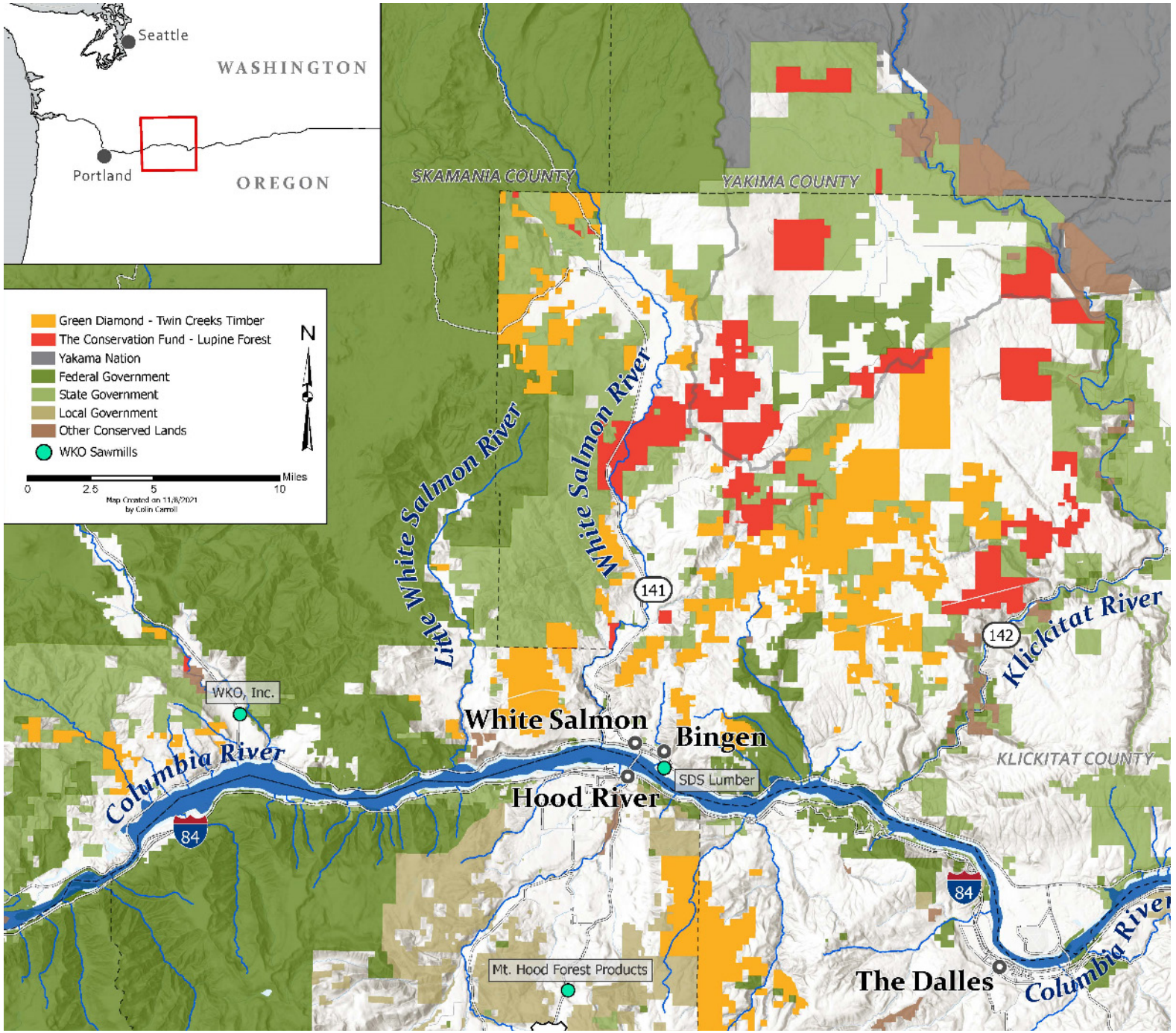


Tributary Actions:

Private Timberlands Sale November 2021

96,000 acres in WA. & OR.

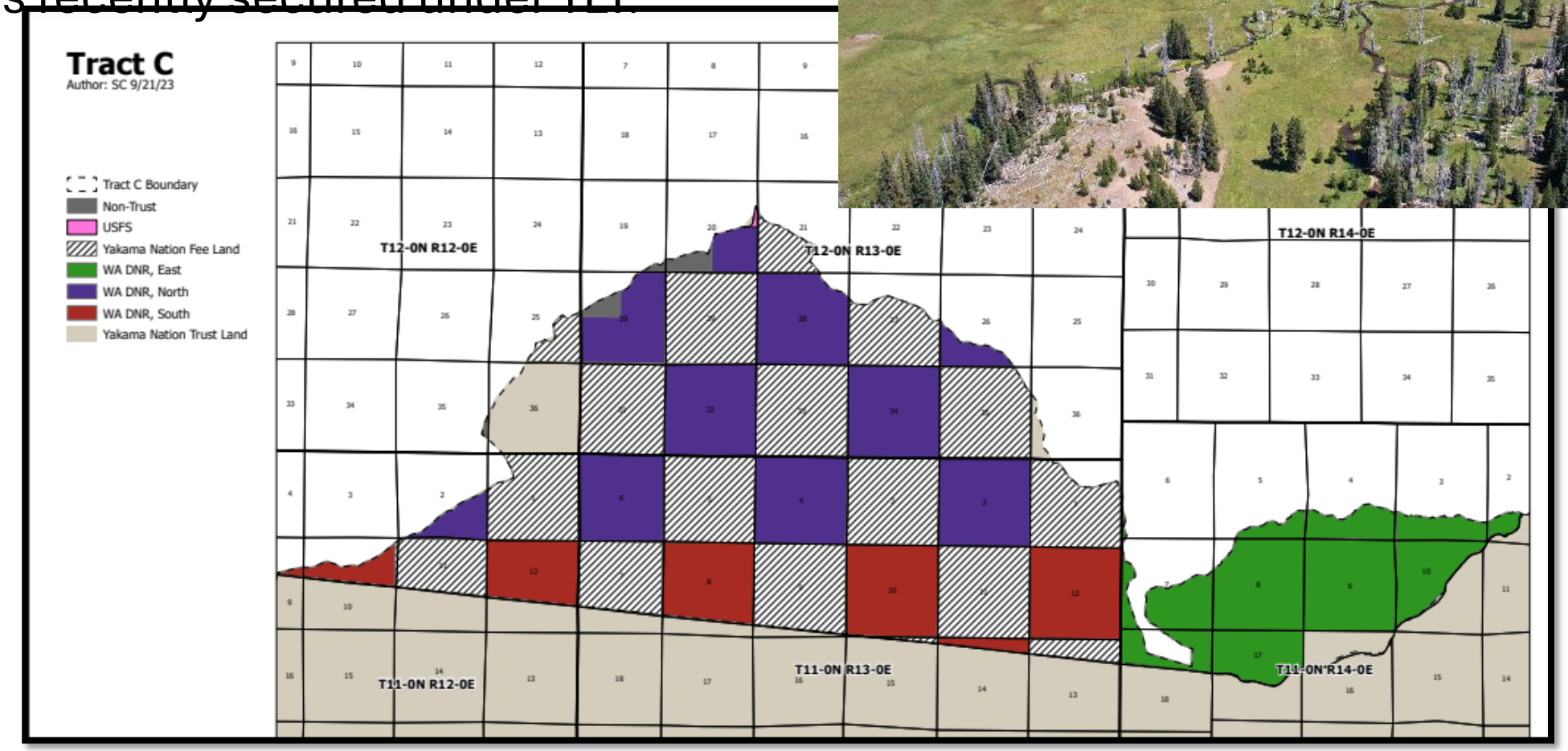
- Twin Creeks Timber, LLC acquired 61,000 acres of timberland to be managed by Green Diamond Management Company.
- The Conservation Fund acquired 35,000 acres and are working with local partners to conserve these and additional timberlands. *In 2023, Columbia Land Trust has purchased several off-reservation parcels from The Conservation Fund.*



Tributary Actions – Klickitat River

Tract C - State DNR Trust Land Transfer

Approximately 2,200 acres of 9,889 acres recently secured under TLT.



Questions?

Cold Water Refuge and Delta Habitat Assessment efforts in Zone 6 of the Columbia River, with updates on Wind, White Salmon, Klickitat, and Umatilla; *"Enhancing the CWRs we have and building the ones that salmon need"*

Northwest Power & Conservation Council – May 13, 2025

Bill Sharp, Yakama Nation Fisheries Scientist
Jerimiah Bonifer, Umatilla Fisheries Program Manager

Presentation Outline:

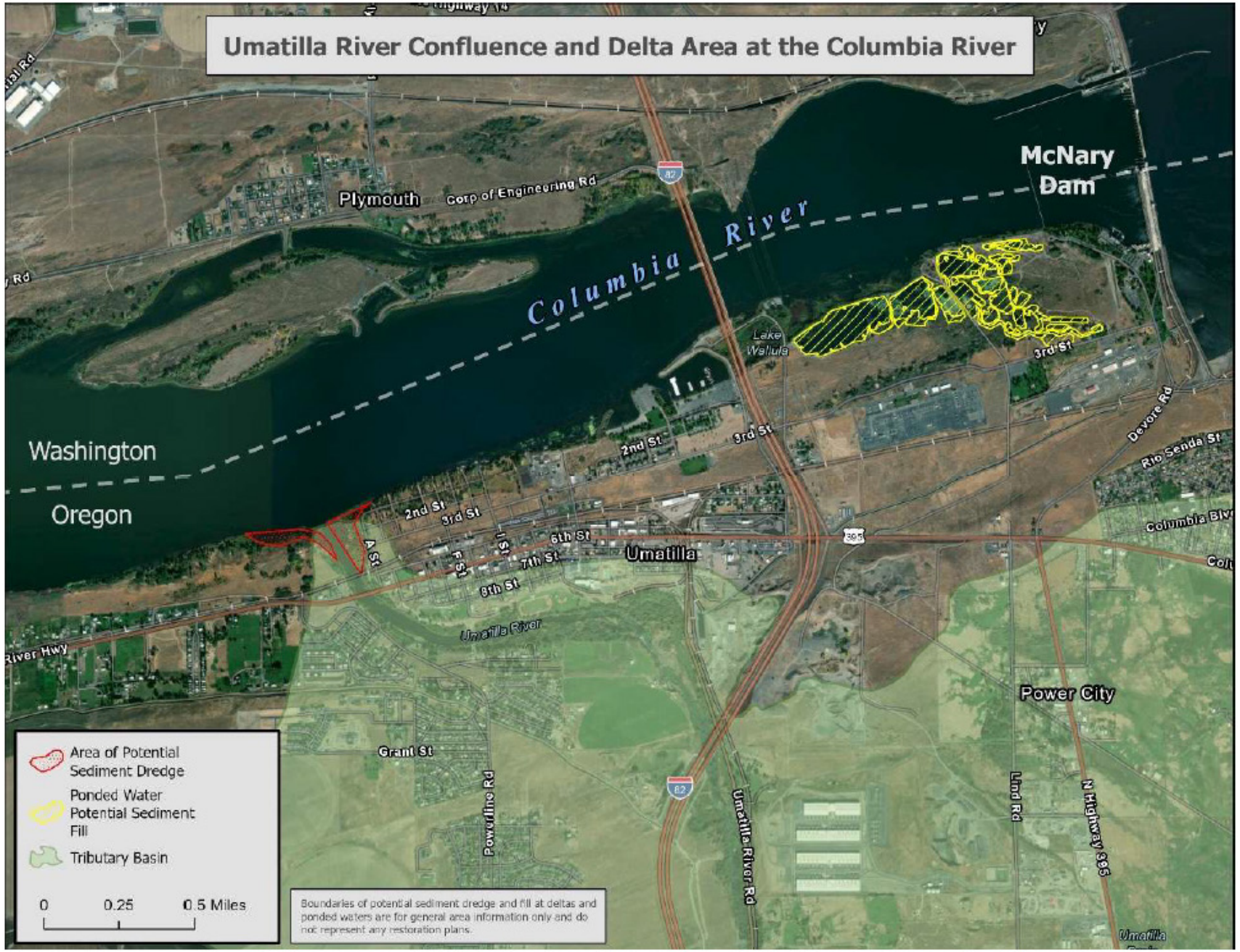
- Update from April 2023 presentation
  - Federal, State, & Tribal Partnership
  - USACE – WRDA updates
  - Actions Taken – USACE Delta Assessment
  - Funding Opportunities
  - Tributary Actions to build cold water
  - Q&A

Klickitat River Delta at Bonneville Pool.

Acknowledgments:
YN, CTUIR, CTBWSR, NPT, CRITFC, EPA,
COE-Portland & NWD, NMFS, NOAA-OCS, OSU, UW

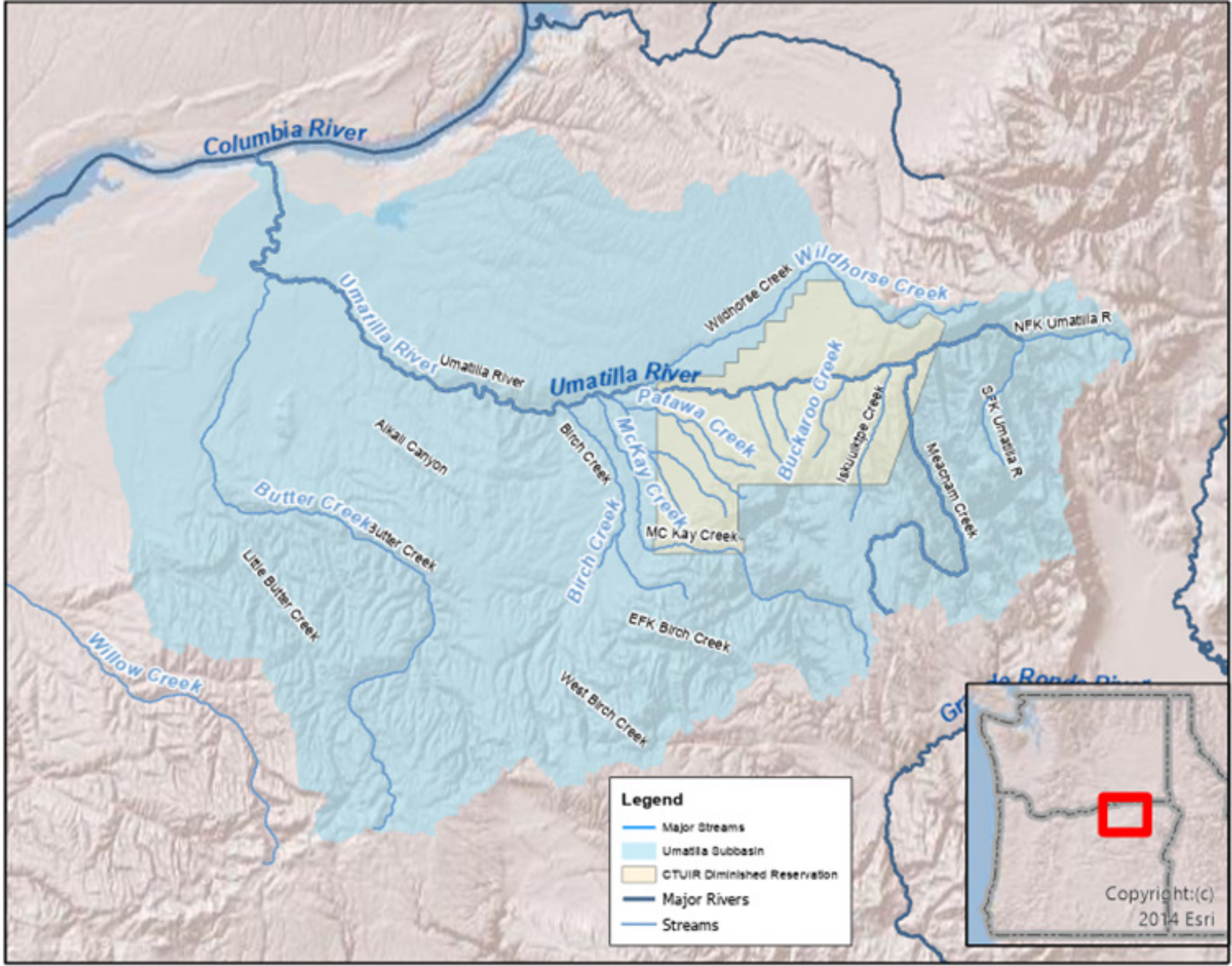
Umatilla River Confluence

- Confluence with the Columbia River at river mile 284.7, just downstream of McNary Dam.
- Nearest downstream refuge (Deschutes River) 84 river miles downstream.
- Only considered a CWR in late August and September when it is cooler than the Columbia River.
- Average temperature is warmer than the Columbia River in June and July, and the two rivers have the same average temperature of 20.8°C in August.
- In September, the Umatilla River is on average 1.9°C cooler than the Columbia River but has portions of the day that are more than 2°C cooler than the Columbia River, thereby providing intermittent CWR.

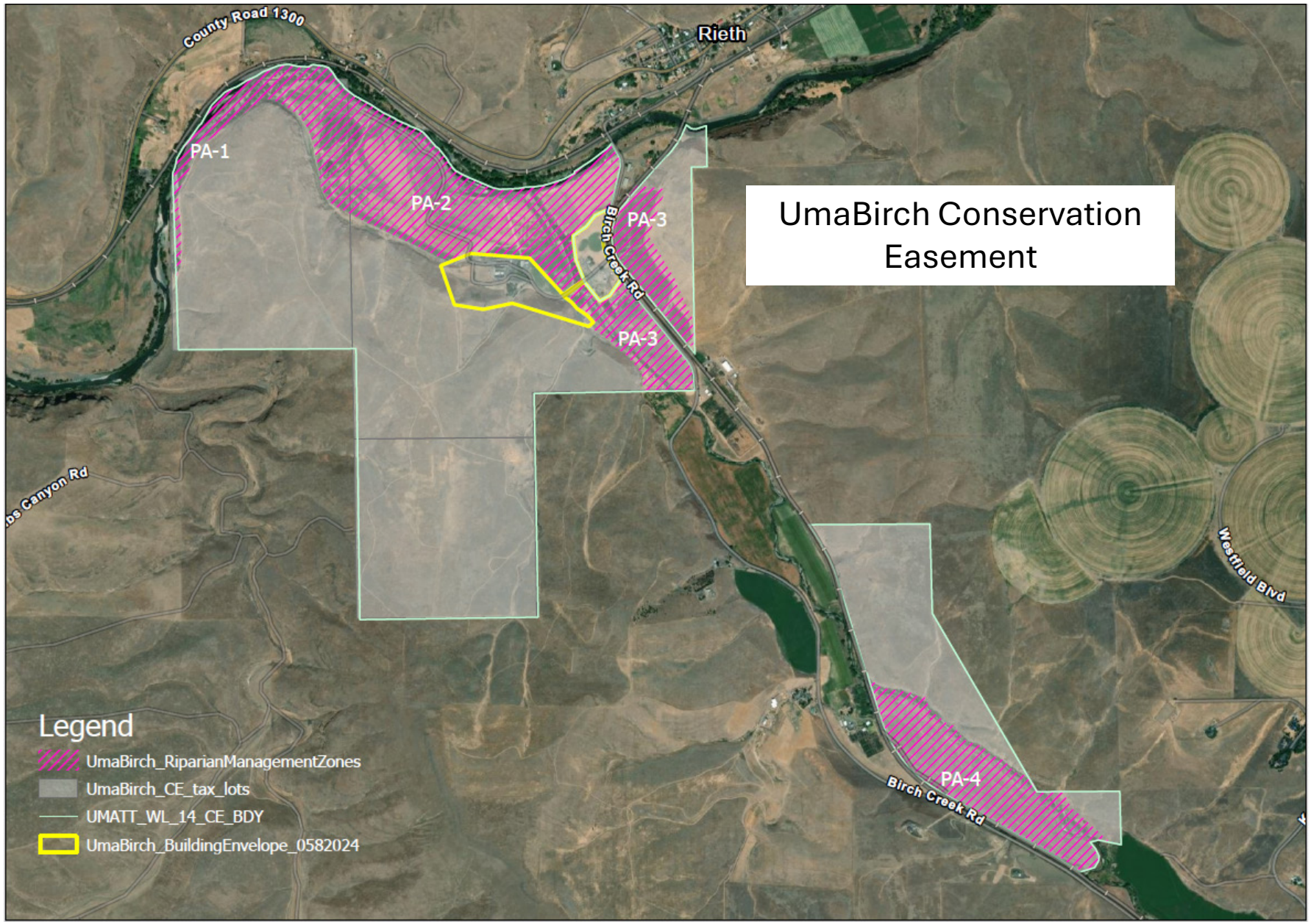


Umatilla River Basin

- 688 floodplain acres restored.
- 4152 riparian acres improved
- 7777 riparian acre's protected
- 200 miles riparian miles improved.
- 124 miles of improved fish habitat access.
- 5331.8 Acre Feet of Water Protected. (McKay Reservoir Majority)
- Negotiating Water Rights Settlement. Potential to double summer base flows.



Umatilla River – Birch Creek (UmaBirch) Confluence Conservation Easement



- 950 acre conservation easement
- Birch Creek Confluence with Umatilla River at river mile 37.5
- 3.5 cfs converted instream
- Total of 2.7 river miles of restoration

UmaBirch Project Area 4 Pre-Treatment

UmaBirch Project Area 4 Post-Treatment