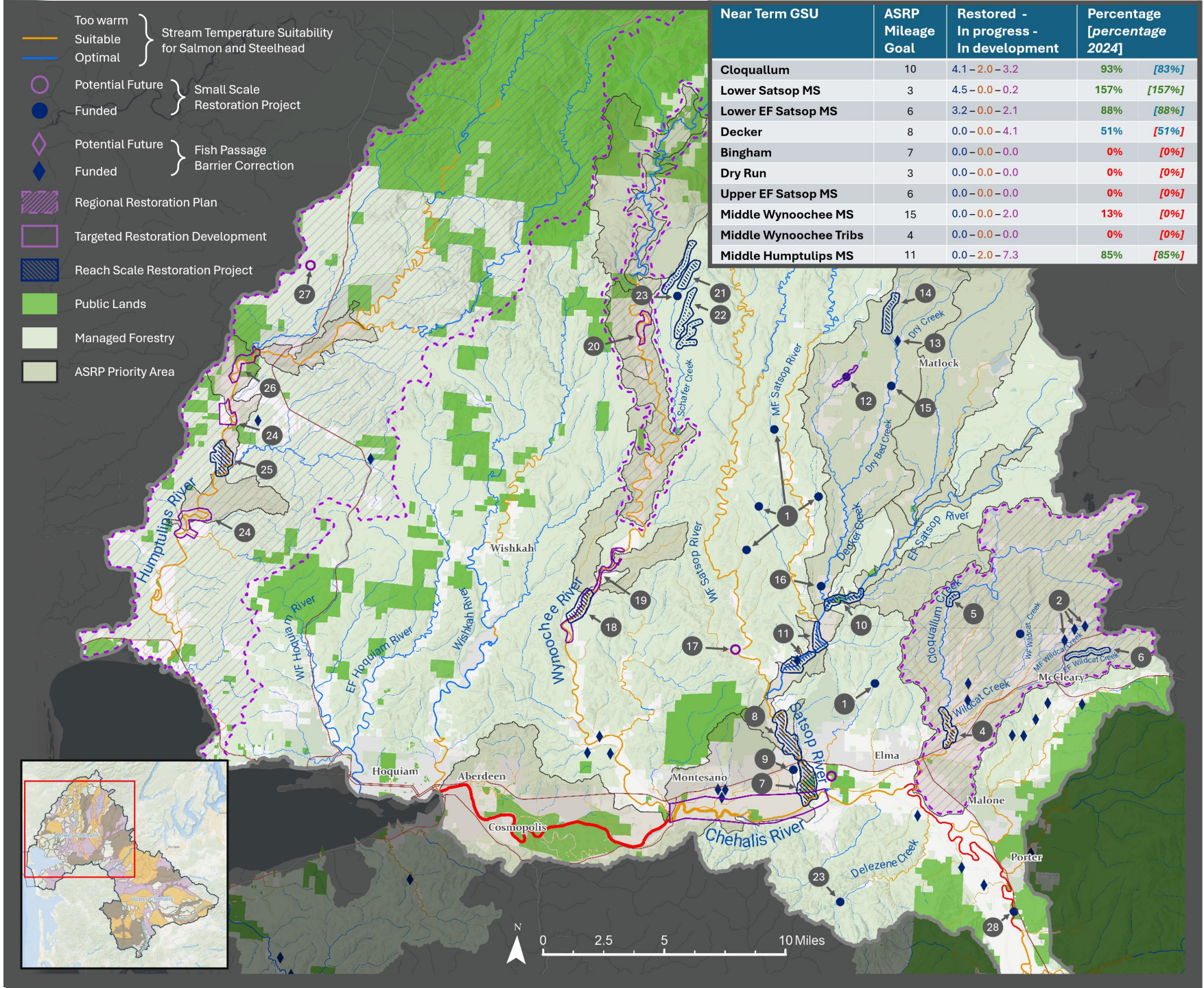
OLYMPIC MOUNTAINS & CLOQUALLUM

Facilitators:
Jane Atha & Julie Grobelny

Session 1: 10:15 to 11:45

Office of Chehalis Basin



Near Term GSU	ASRP Mileage Goal	Restored - In progress - In development	Percentage [*percentage 2024*]	
Cloquallum	10	4.1 – 2.0 – 3.2	93%	*[83%]*
Lower Satsop MS	3	4.5 – 0.0 – 0.2	157%	*[157%]*
Lower EF Satsop MS	6	3.2 – 0.0 – 2.1	88%	*[88%]*
Decker	8	0.0 – 0.0 – 4.1	51%	*[51%]*
Bingham	7	0.0 – 0.0 – 0.0	0%	*[0%]*
Dry Run	3	0.0 – 0.0 – 0.0	0%	*[0%]*
Upper EF Satsop MS	6	0.0 – 0.0 – 0.0	0%	*[0%]*
Middle Wynoochee MS	15	0.0 – 0.0 – 2.0	13%	*[0%]*
Middle Wynoochee Tribs	4	0.0 – 0.0 – 0.0	0%	*[0%]*
Middle Humptulips MS	11	0.0 – 2.0 – 7.3	85%	*[85%]*

Project Development Work

Humptulips River Restoration Plan • *Sponsored by QIN in 2023*
- Released summer 2023
- Targets coho restoration and funded by federal disaster relief funding
- Produced by workgroup consisting of QIN, NSD, GHCD, WDFW, CSP, DNR, FWS, Rayonier, CBLE, and TU.
- Used riparian data, floodplain connectivity potential, fish use, and land use to prioritize reaches for restoration
- Created sub basin specific recommendations, including the ASRP near-term Mid Humptulips

Satsop and Newaukum Riparian Connectivity Strategy •
Sponsored by CNW in 2024
- Identifies opportunities to connect riparian habitat (existing and restored) in Newaukum and Satsop River Basins

Wynoochee RM 12.5-18 & RM 34-36 • *Sponsored by GHCD in 2024*
- Data collection, alternatives analysis, and concept design for reach scale projects in on MS Wynoochee. Includes expanding EAR project area. Upper region identified from previous PD.

Middle Wynoochee Restoration Planning • *Proposed by GHCD in 2025*
- Re-evaluation of the Middle Wynoochee GSU- previous assessments identified shortcomings of desktop-based methodology. Seeks to identify best 10 miles of habitat restoration opportunities based on geospatial assessments, field reconnaissance, and landowner engagement

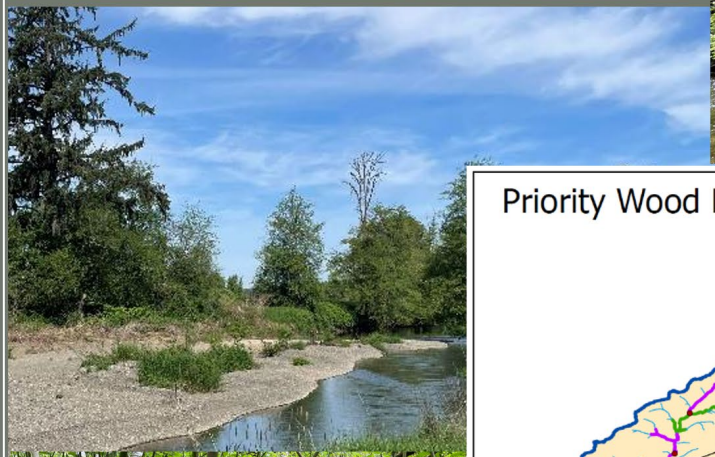
Middle Humptulips Local Strategy • *Sponsored by GHCD and TU in 2022*
- Project development through landowner engagement and developing restoration ideas/options. Coordinating with QIN on Humptulips River Restoration Plan

Olympic Timber Landowner Report • *Sponsored by GHCD in 2020*
- Desktop modeling which prioritized headwater streams for restoration based on floodplain connectivity potential and created initial concepts for top ranked reaches

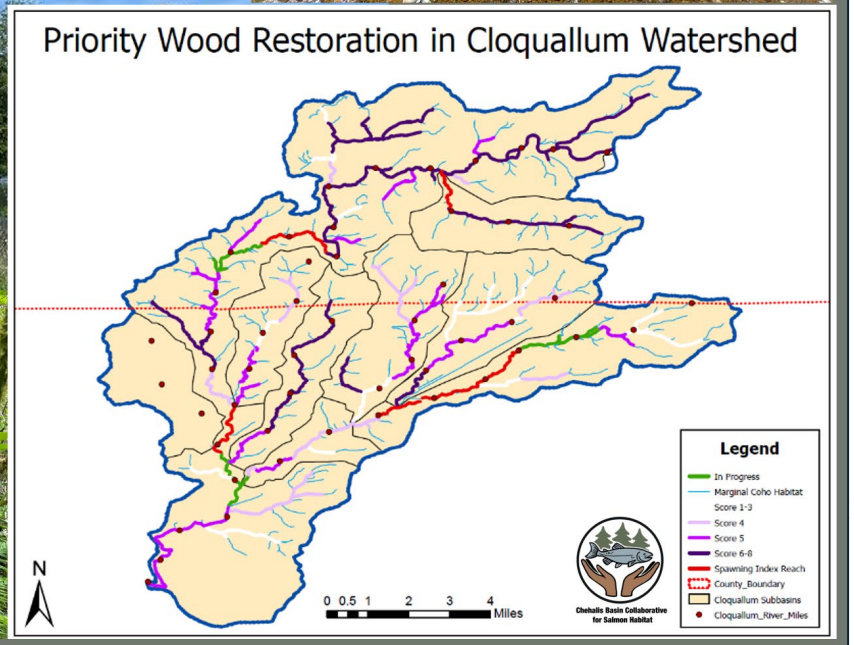
Cloquallum Local Strategy (PWR)

- Plan Development still ongoing since 2024
- Workgroup consisting of: CBC-fSH, CSP, GHCD, MCD, WDFW, QIN, USFWS, DNR, GHC, landowners
- Actions: instream wood restoration, riparian restoration, barrier correction, and implementation of climate-adaptive strategies to address low streamflow
- Model-based prioritization w/ feasibility integrated
- Active Projects: Grays Harbor CD and Mason CD have an ASRP-funded grant to Assess 55 miles of river/streams!
- Planned projects: Design for South Union Road Barriers – a priority "cluster"
- Targets treatment of impaired watershed processes over 20% of anadromy









Key Issue	2025 guidance	2026 progress/updates
Aligning sponsor-led watershed-scale restoration and protection strategies with ASRP Priorities	• Technical experts weigh in on watershed-scale planning efforts • Project sponsors coordinate planning and outreach efforts with people who work on the ground in the field	• Cloquallum workgroup has received additional funding, and next steps will include collection of field data following ASRP SC recommendations • Programmatic uncertainty remains regarding including technical experts in watershed planning efforts
Minimizing short-term impacts from restoration implementation on key species	• Coordinate with fish and habitat bios early and often • Emphasize protection and “passive” restoration actions • Utilize low-cost monitoring techniques and coordinate with technical experts to interpret habitat assessment data	• 2026 TAG discussions focused on upper watershed habitats and coastal tailed frog. TAG is hesitant to recommend large-scale projects for tailed frog until more is understood. • ASRP helped coordinate freshwater mussel surveys around 7 projects sites within the cluster area, to help avoid impacts • ASRP started a new process to request field biologist comments earlier in the project application cycle

Key Issue	2025 guidance	2026 progress/updates
Longevity and effectiveness of process-based restoration techniques	• Scientist-sponsor-landowner coordination to monitor and test physical/biological responses to treatments; this could help refine techniques in a more dynamic way and add knowledge	• Construction funding for Dry Bed Creek RM 9-11 was delayed due to uncertainties around project effectiveness; potential to fund effectiveness monitoring study which could inform similar projects • ASRP in early phases "Wood Placement Workgroup" planning for metric tracking and effectiveness monitoring recommendations
Understanding habitat function through monitoring proxy species such as macroinvertebrates	• Coordinate among study leads and technical experts to provide guidance to inform monitoring and adaptive management • Provide monitoring results to project sponsors	• Grays Harbor Stream Team has started a Citizen Science Macroinvertebrate Monitoring Program • No new guidance has been shared with ASRP project sponsors in 2026 • Macroinvertebrate data and indices compiled by ECY to inform planning



OLYMPIC MOUNTAIN CLUSTER

TRISTAN WEISS, REED OJALA-BARBOUR, DANIEL TROVILLION,
JULIE TYSON, AIMEE MCINTYRE

October 14, 2026

ASRP Progress & Planning Workshop

Office of Chehalis Basin

MONITORING AND ADAPTATIVE MANAGEMENT

- Status and Trends Monitoring
- Project Effectiveness Research
  - Beaver dam analog study
  - Sediment wedge study

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STATUS AND TRENDS

- Inform basin- and sub-basin wide status & trends
- Inform restoration for specific species
- Avoid siting projects in reaches of importance
- Minimize disturbance when disturbance cannot be avoided

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S&T: WDFW SPECIES MONITORED

- Stream-associated amphibians
- Western toad
- Freshwater mussels

Coastal Tailed Frog





Torrent Salamanders





Giant Salamanders





Western Toad





Freshwater Mussels



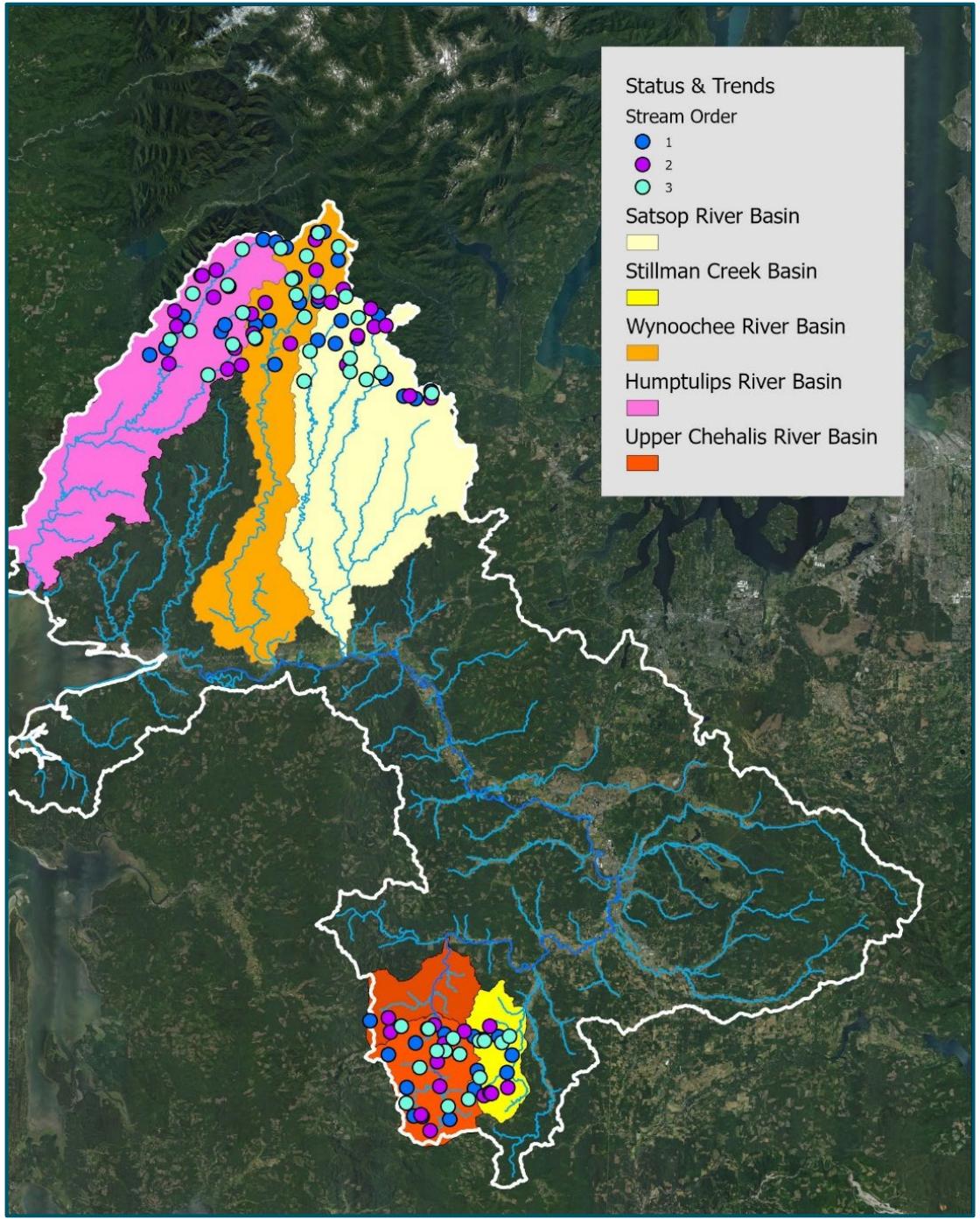


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S&T: STREAM-ASSOCIATED AMPHIBIANS

- Represents headwaters
- Changes in occupancy and abundance
- Describe relationships between amphibians and site characteristics (e.g., land use, canopy, substrate, wood loading, and stream temperature)
- Inform restoration options beyond protection & acquisition

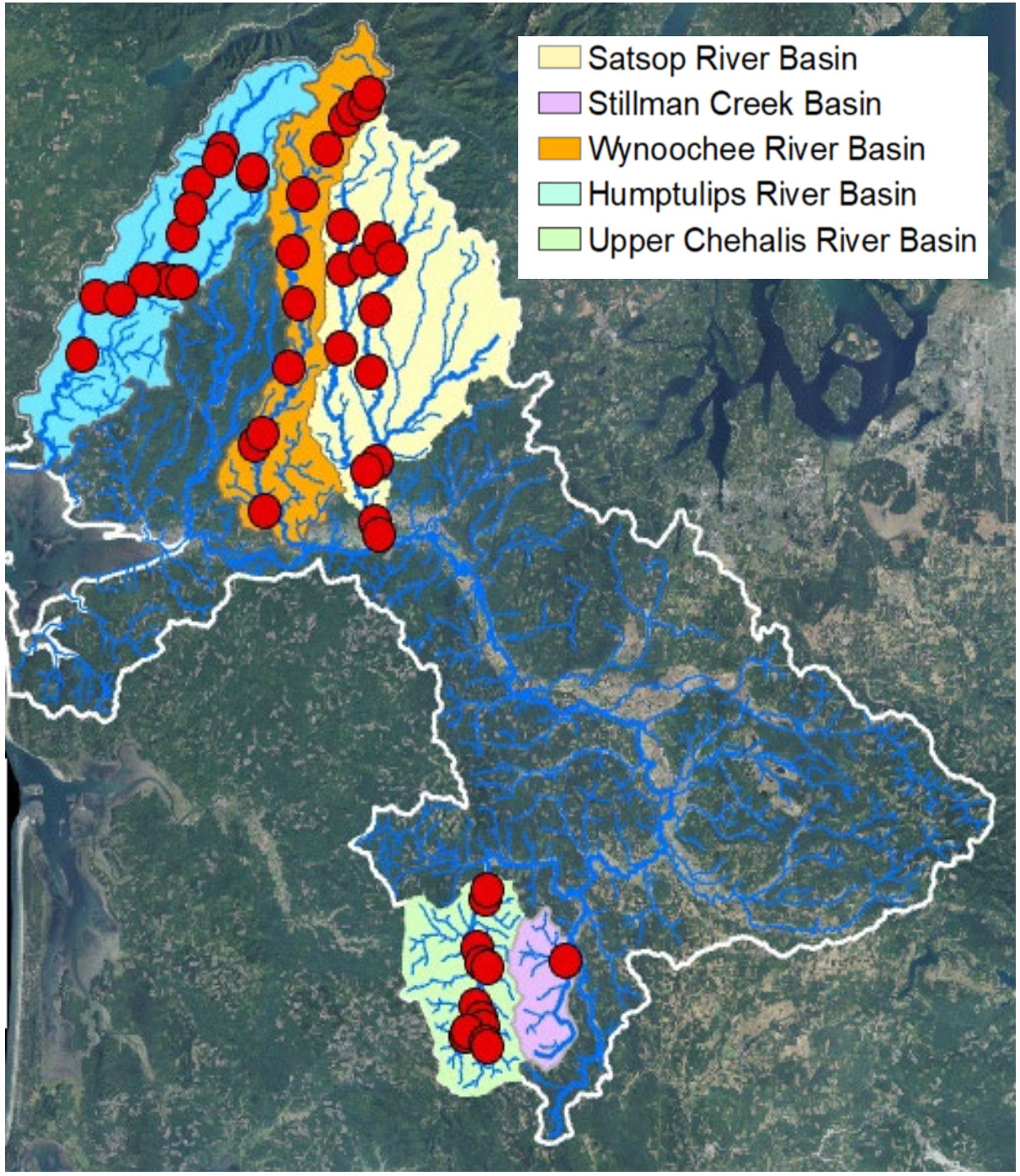
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S&T: WESTERN TOADS

- Represents medium sized rivers
- Changes in occupancy and abundance
- Explore relationships between toads, climate, land use and habitat
- Describe relationships between amphibians and site characteristics (e.g., canopy, substrate, wood loading, and stream temperature)
- Inform restoration options that benefit toads

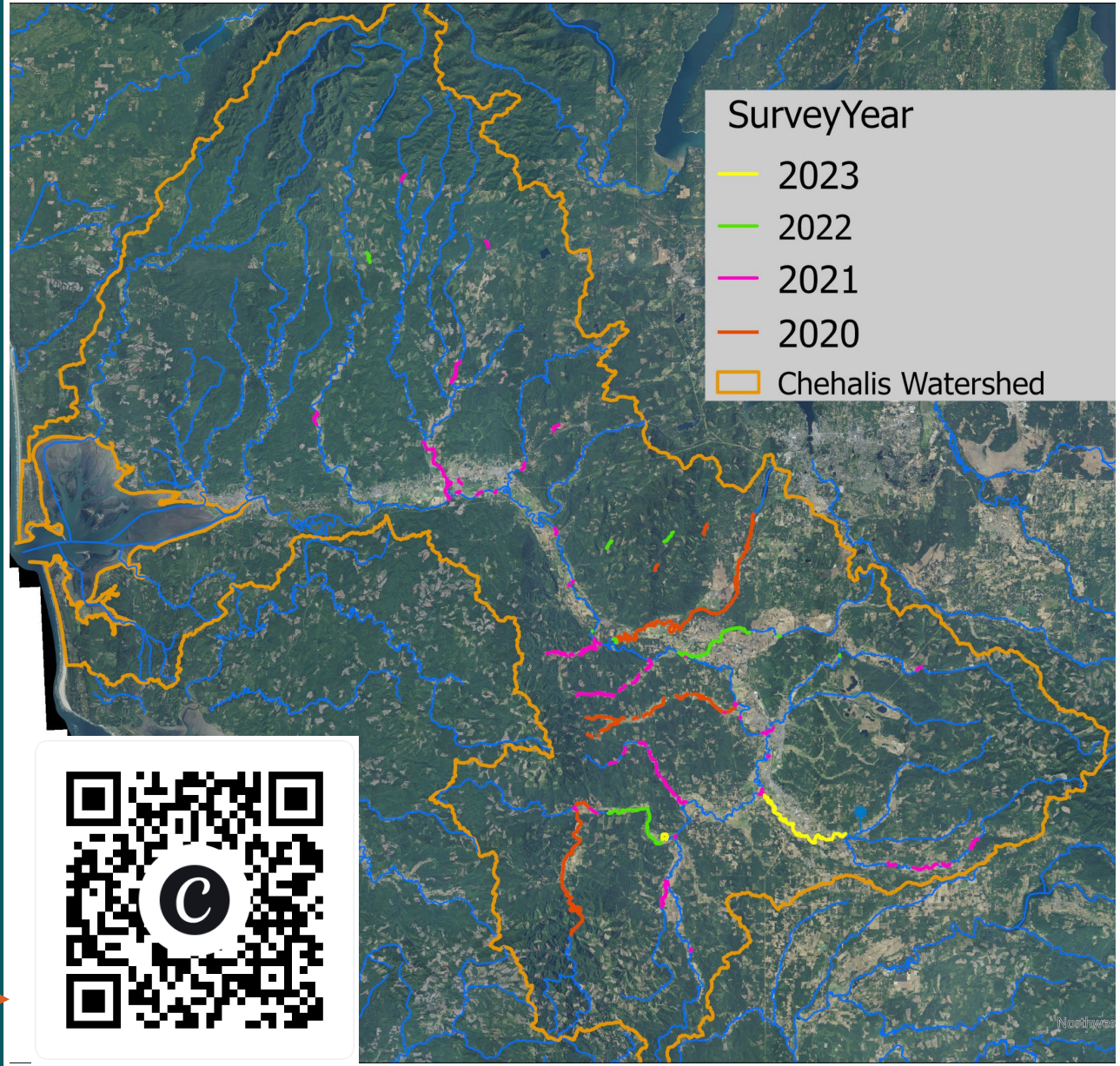
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S&T: FRESHWATER MUSSELS

- Detect and monitor mussel beds
- Track bed size and health
- Explore relationships between mussels and stream conditions
- Avoid or minimize disturbance when developing and implementing restoration projects
- Inform triggers for mussel declines
- Chehalis Freshwater Mussel Restoration Strategy document

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PROJECT EFFECTIVENESS

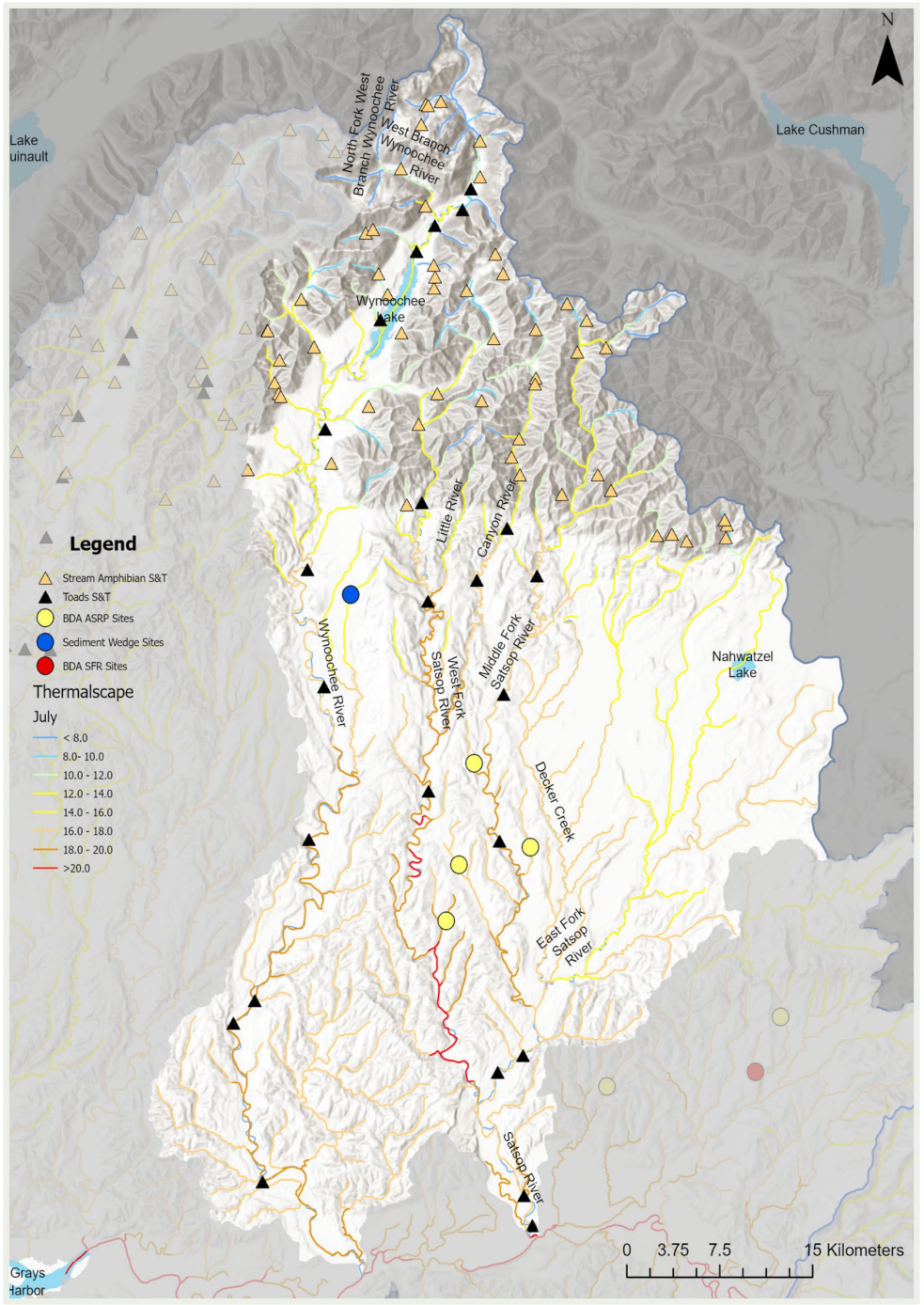
Beaver dam analog study

Sediment wedge study

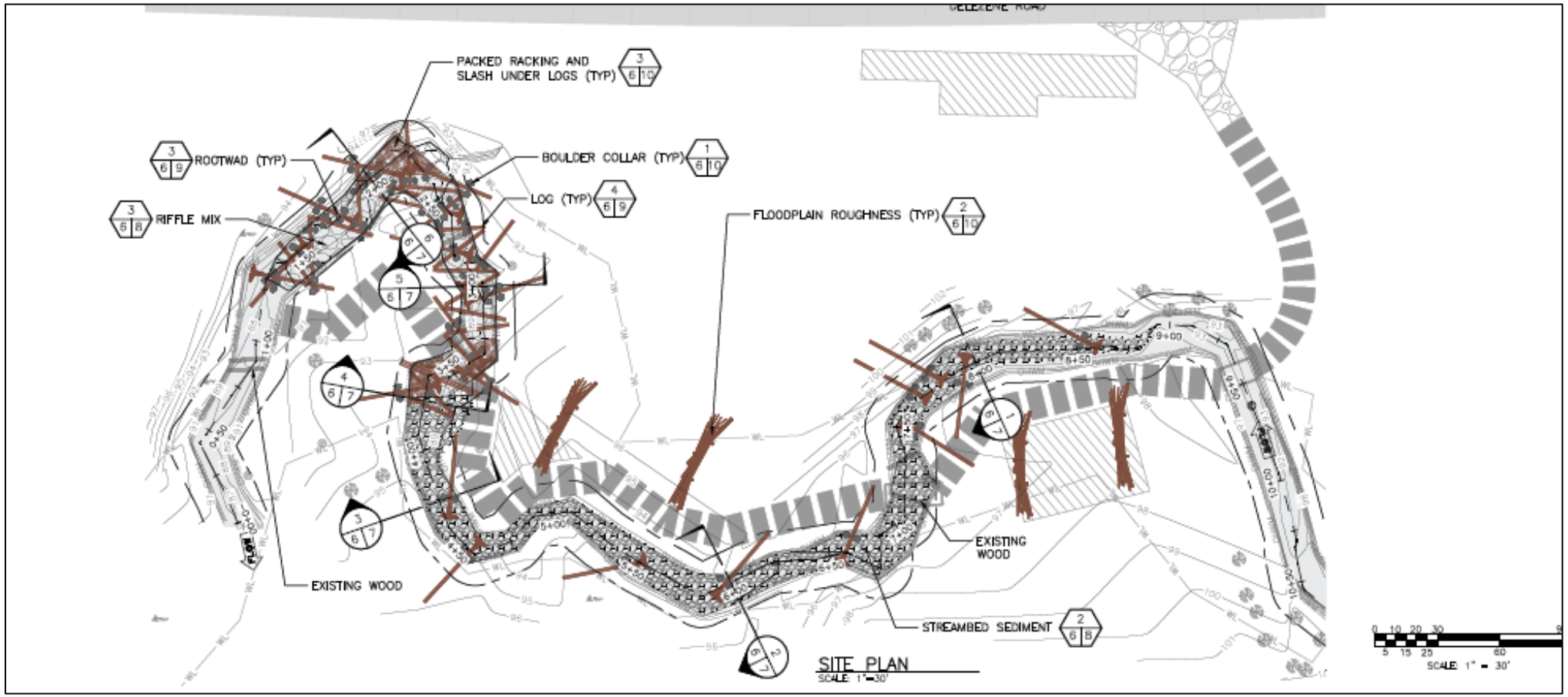
Methods/Study Design:

- Water temperature
- Water level
- Habitat complexity
- Beaver use
- Fish, amphibians, macroinvertebrates

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ENGINEERED SCHEMATIC OF DELEZENE



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PRE-TREATMENT DELEZENE





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POST-TREATMENT DELEZENE



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KEY OBSERVATIONS – SEDIMENT WEDGE STUDY



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- Engineered structures are stable
- Sediment retained after initial floods
- Results on thermal benefits and hydrology are pending final analysis

KEY OBSERVATIONS – BEAVER DAM ANALOG STUDY



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- Evident geomorphic change
  - Accumulation of Sediment
  - Scour
  - Channel-widening
- Cost-effective relative to change
  - Variable site responses depending on local conditions
- Long-term benefits may require maintenance
  - Thus far, limited direct beaver interaction with BDA structures

RESEARCH NEXT STEPS

- Final report to be developed once field activities conclude
- Exploring new opportunities related to 5-year science loop
- Understanding practitioner challenges that may inform development of relevant scientific investigations

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ACKNOWLEDGEMENTS

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Wild Fish Conservancy
The Xerces Society

Participating Landowners:
Port Blakely
Rayonier
Green Diamond
Weyerhaeuser

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Kelsey Hunter & Breana Downs

October 14, 2026

Citizen Science Macroinvertebrate Sampling in Grays Harbor County

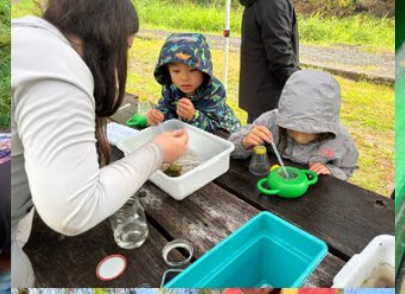
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Grays Harbor Stream Team

Grays Harbor Conservation District







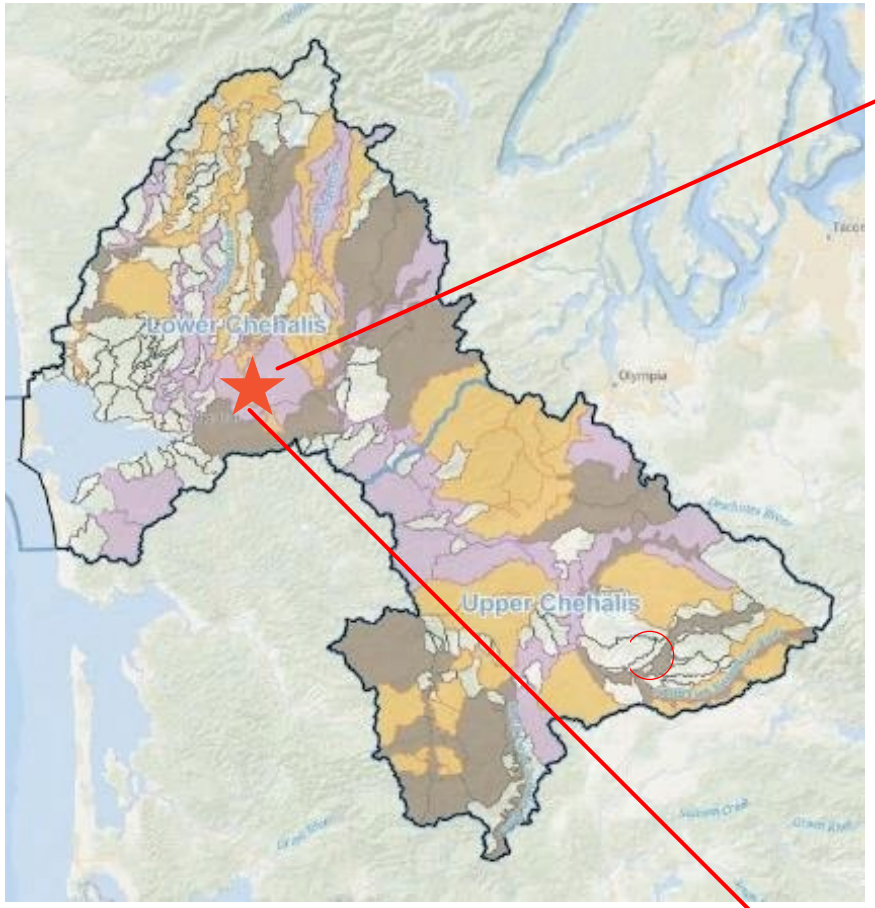








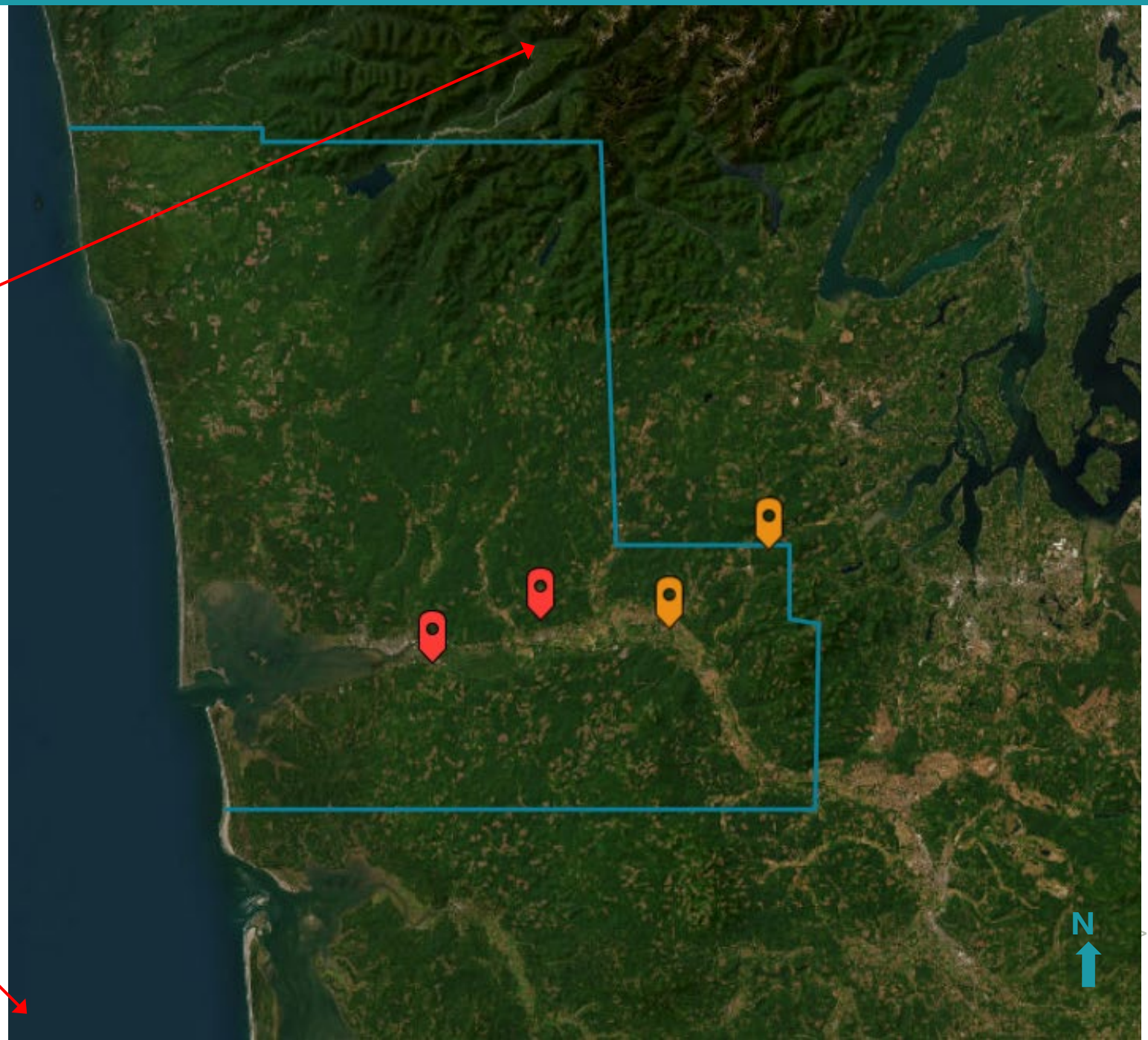


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GRAYS HARBOR STREAM TEAM

GRAYS HARBOR CONSERVATION DISTRICT

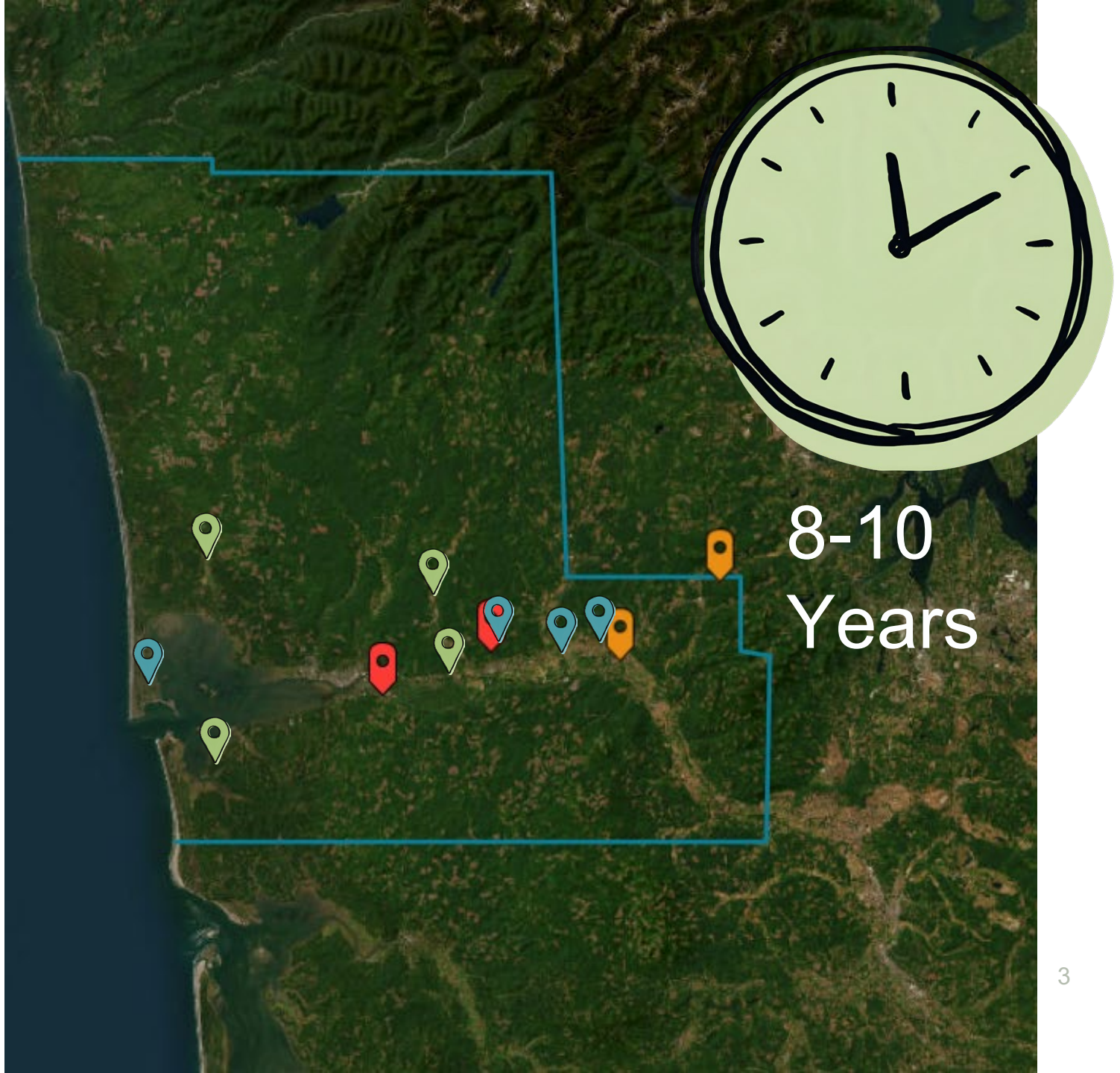


Key Takeaways

Sampling must continue

More sites must be added

Site diversity is essential



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A STRATEGIC FRAMEWORK FOR PRIORITIZING RESTORATION IN THE CHEHALIS BASIN

SCOTT COLLYARD, EDWARD KRYNAK, CHAD LARSON, DANIEL NELSON

October 14, 2026

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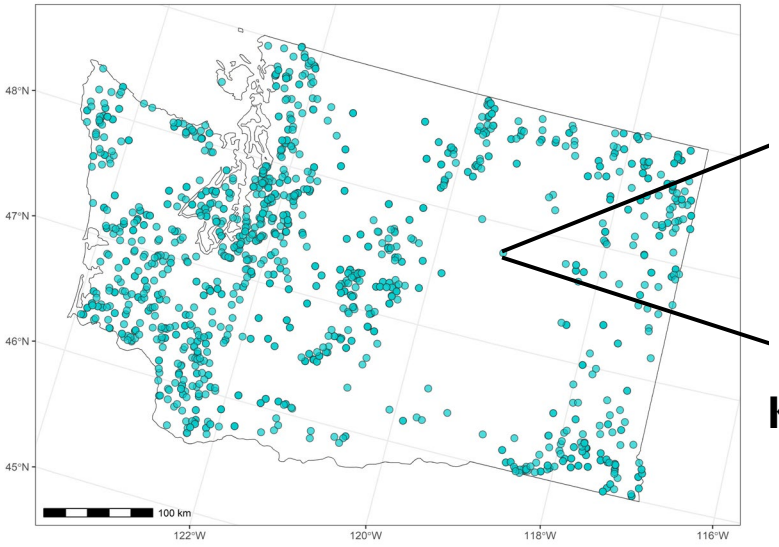


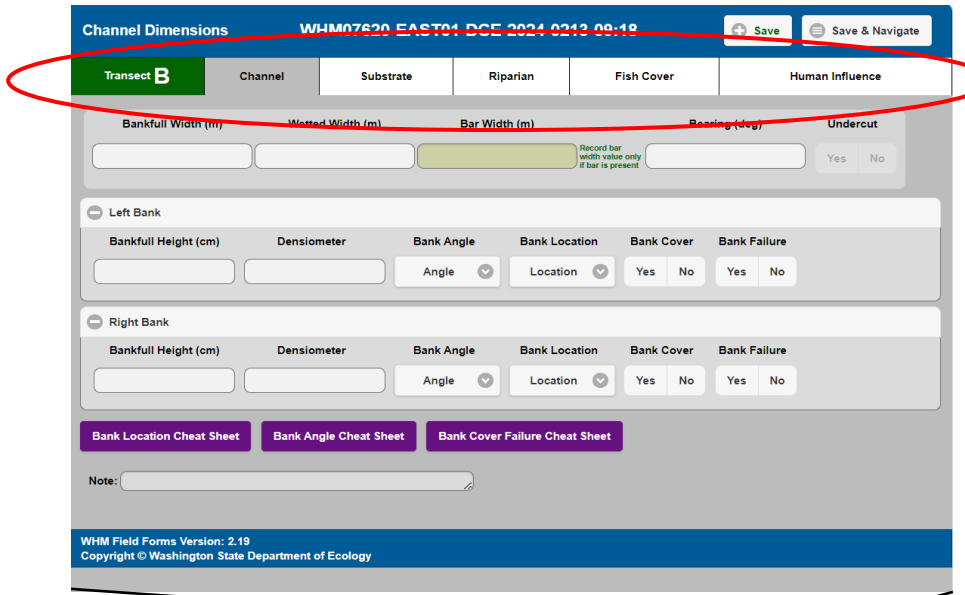


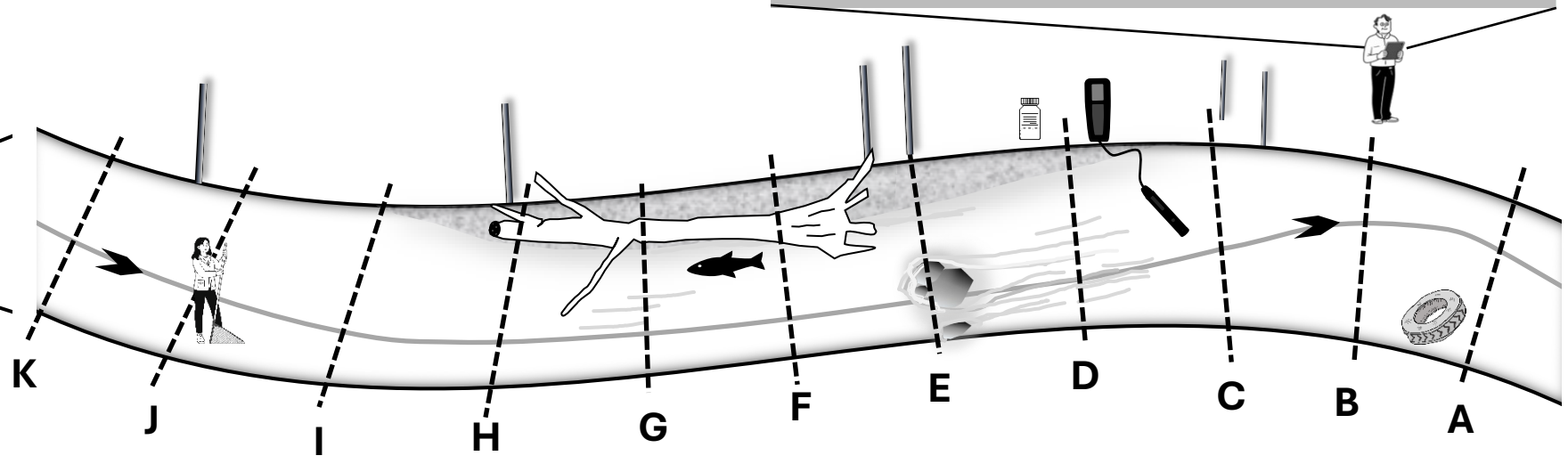
- Identify **stream reaches where restoration/protection** will most benefit anadromous salmonids using stream macroinvertebrates
- Highlight **key habitat constraints**: temperature, availability of pools and spawning substrate with existing habitat data
- Provide a **transparent, science-based framework** for strategic conservation decisions

WATERSHED HEALTH & EFFECTIVENESS MONITORING

- Statewide monitoring
- Standardized habitat and biological protocols
- Electronic field data collection
- Data QA/QC
- Open data, freely accessible online
- 200+ habitat metrics produced for every site



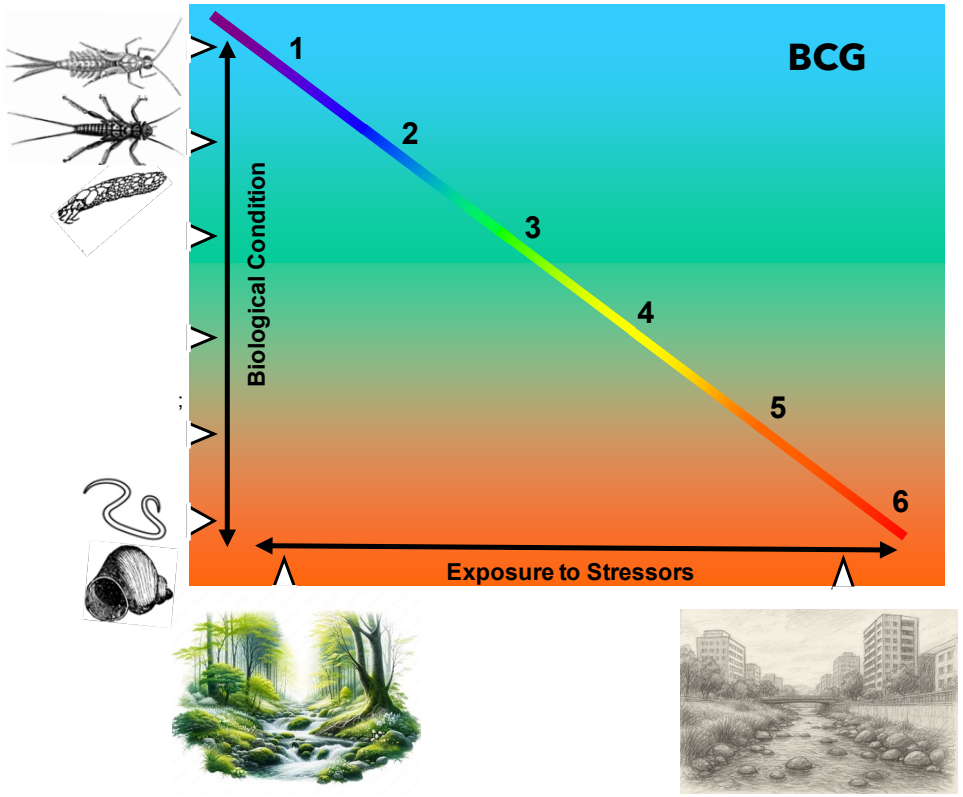


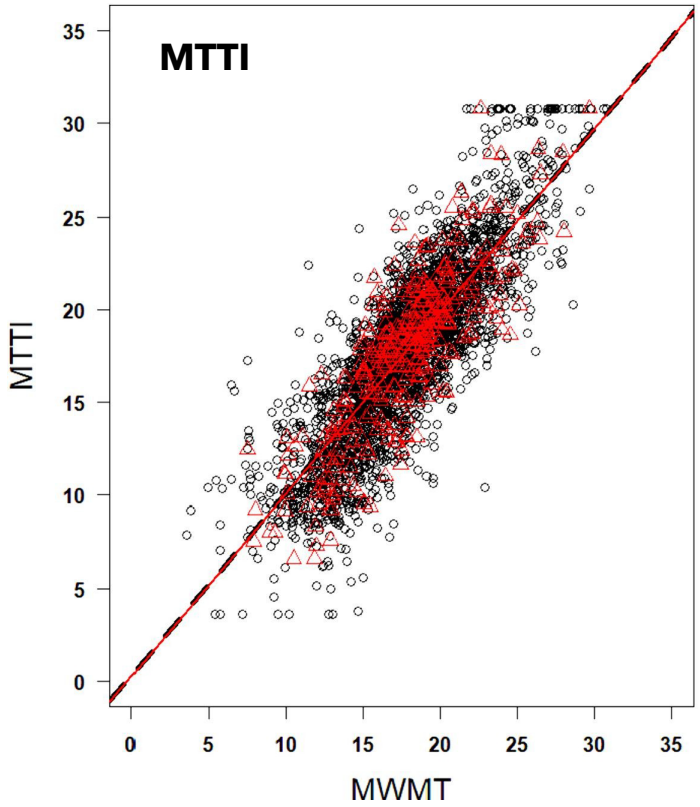


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Biology | **Fish Cover** | **Large Wood** | **Riparian Structure** | **Channel Morphology** | **Water Quality** | **Human Influence** | **Substrate**

MACROINVERTEBRATE RESPONSE



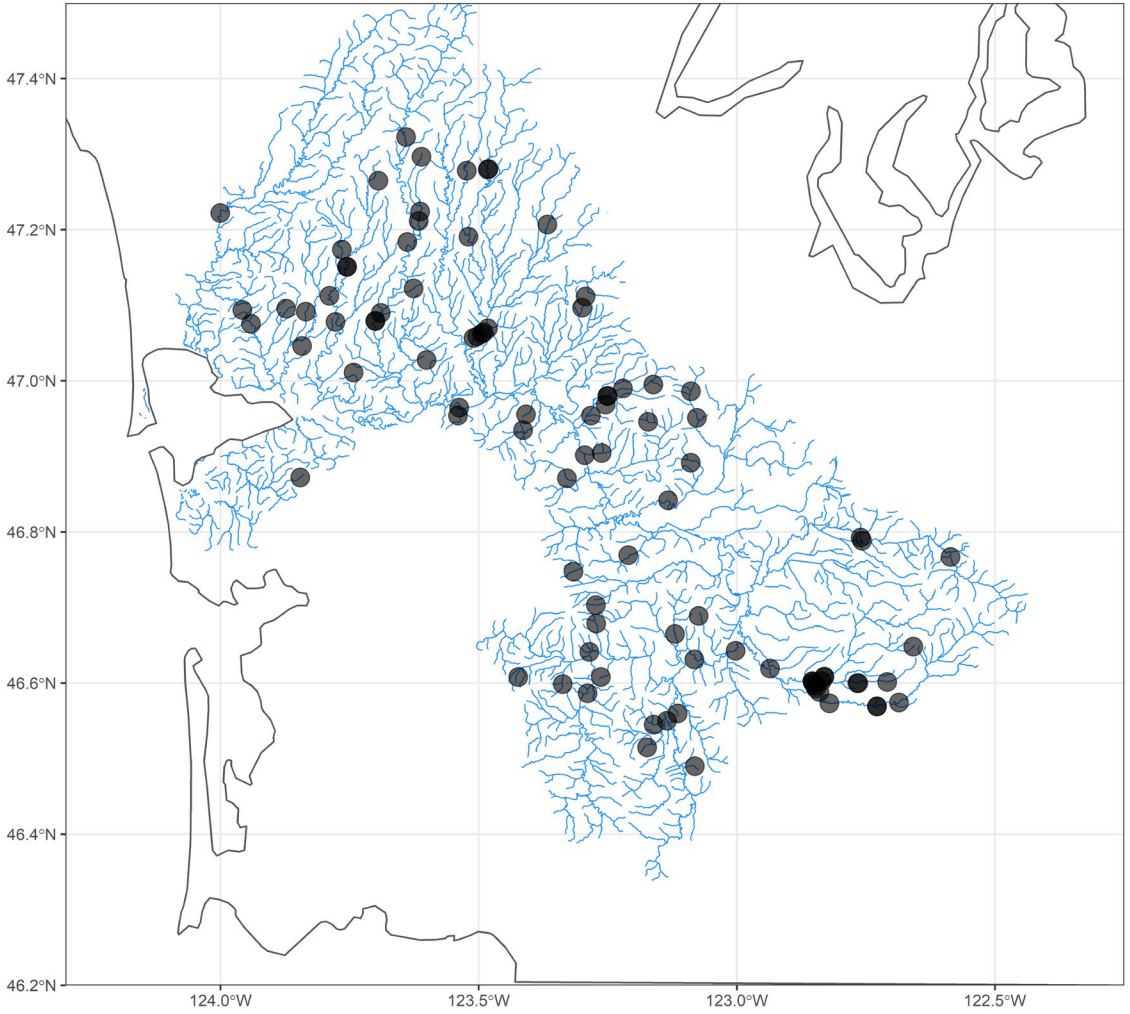


- Utilized existing **Status & Trends** monitoring data
- Calculated **Biological Condition Gradient (BCG)** and **Macroinvertebrate Thermal Tolerance Index (MTTI)**
- Visualized BCG and MTTI to evaluate **biological health** and **thermal regimes**
- Applied a **decision tree framework** to prioritize management actions

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EXISTING DATA IN THE CHEHALIS BASIN

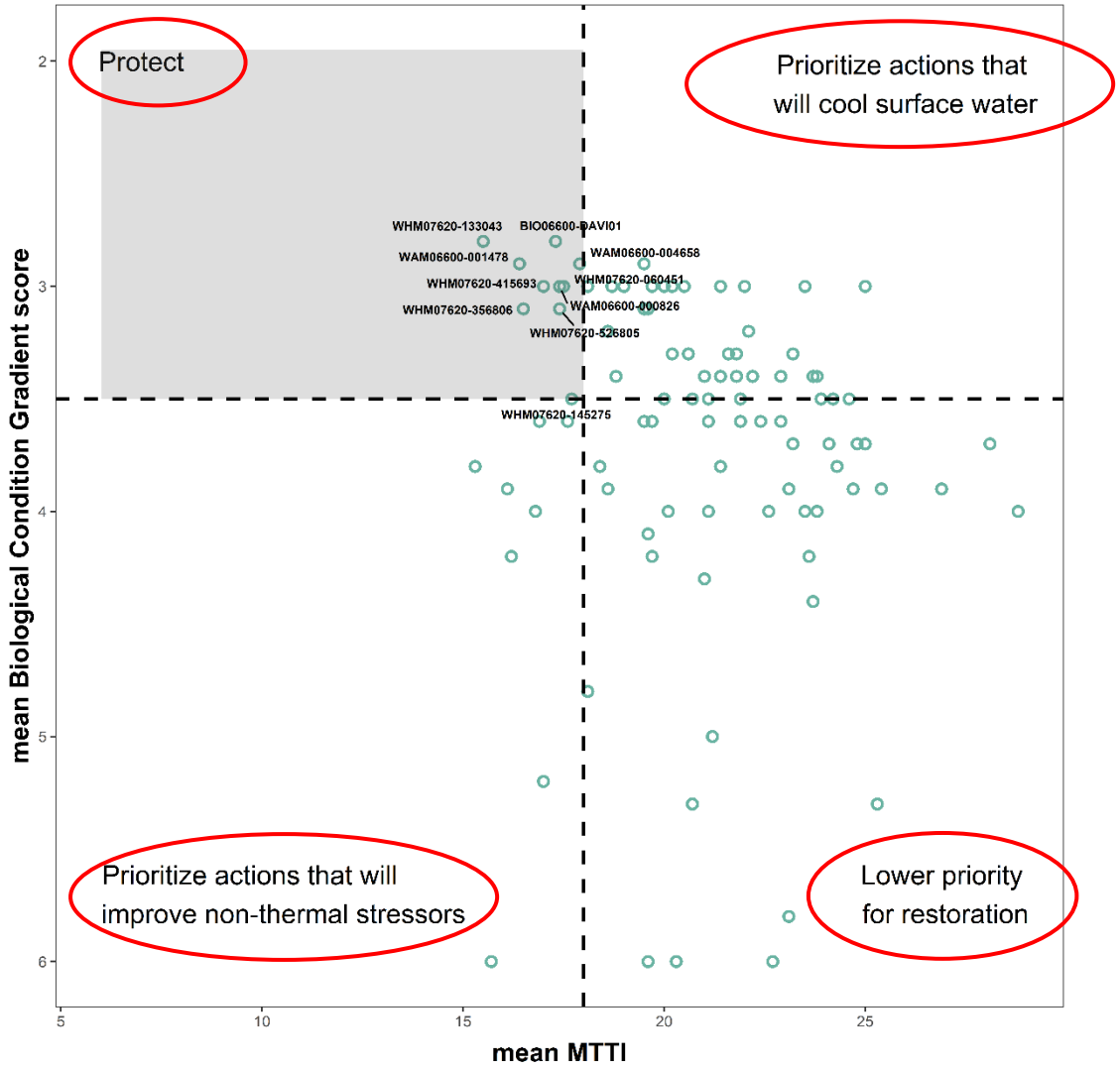
- 92 sites with existing data



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APPROACH TO PRIORITIZING RESTORATION EFFORTS

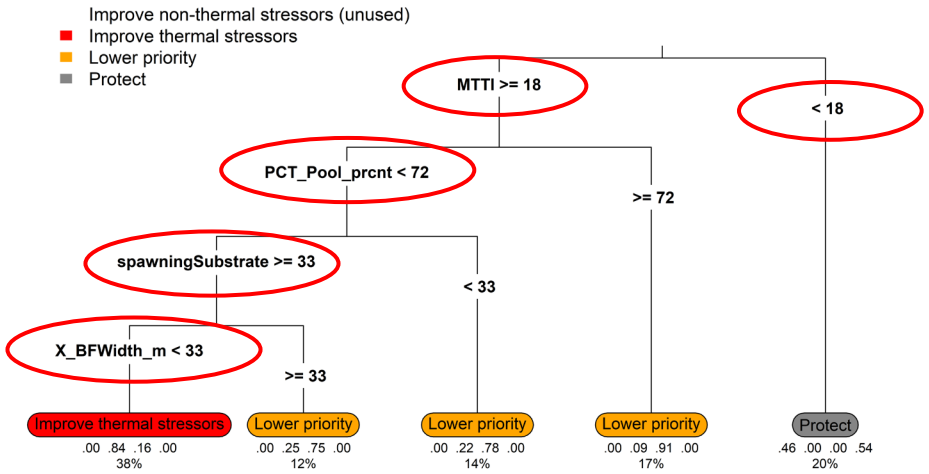
- Protection
- Improve thermal stressors
- Improve non-thermal stressors
- Lower priority for restoration

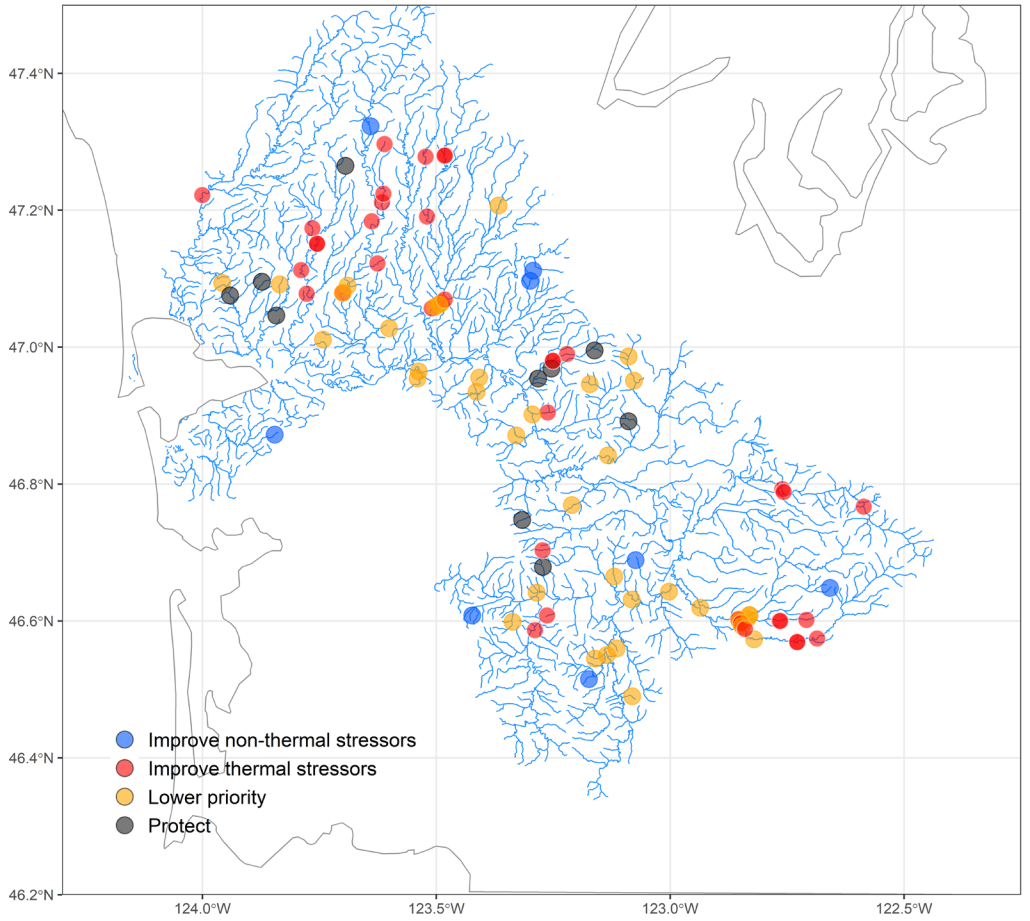


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RECOMMENDED RESTORATION EFFORTS

Decision tree





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LESSONS LEARNED/ REMAINING QUESTIONS

- Established a **transparent**, **science-based framework** for strategic conservation
- Approach can **enhance restoration effectiveness** for anadromous fish
- BCG and MTTI serve as benchmarks to **assess biological improvement** after restoration
- Working with ASRP to refine and adapt the framework for the Chehalis Basin

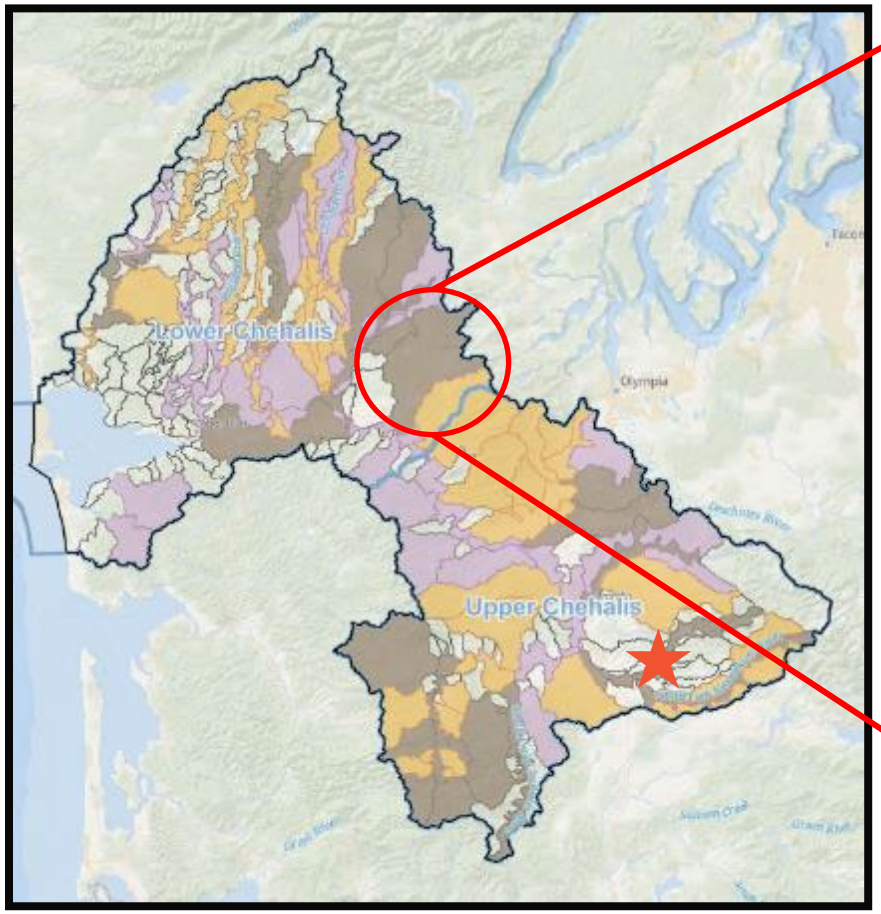


CLOQUALLUM GSU PROJECTS

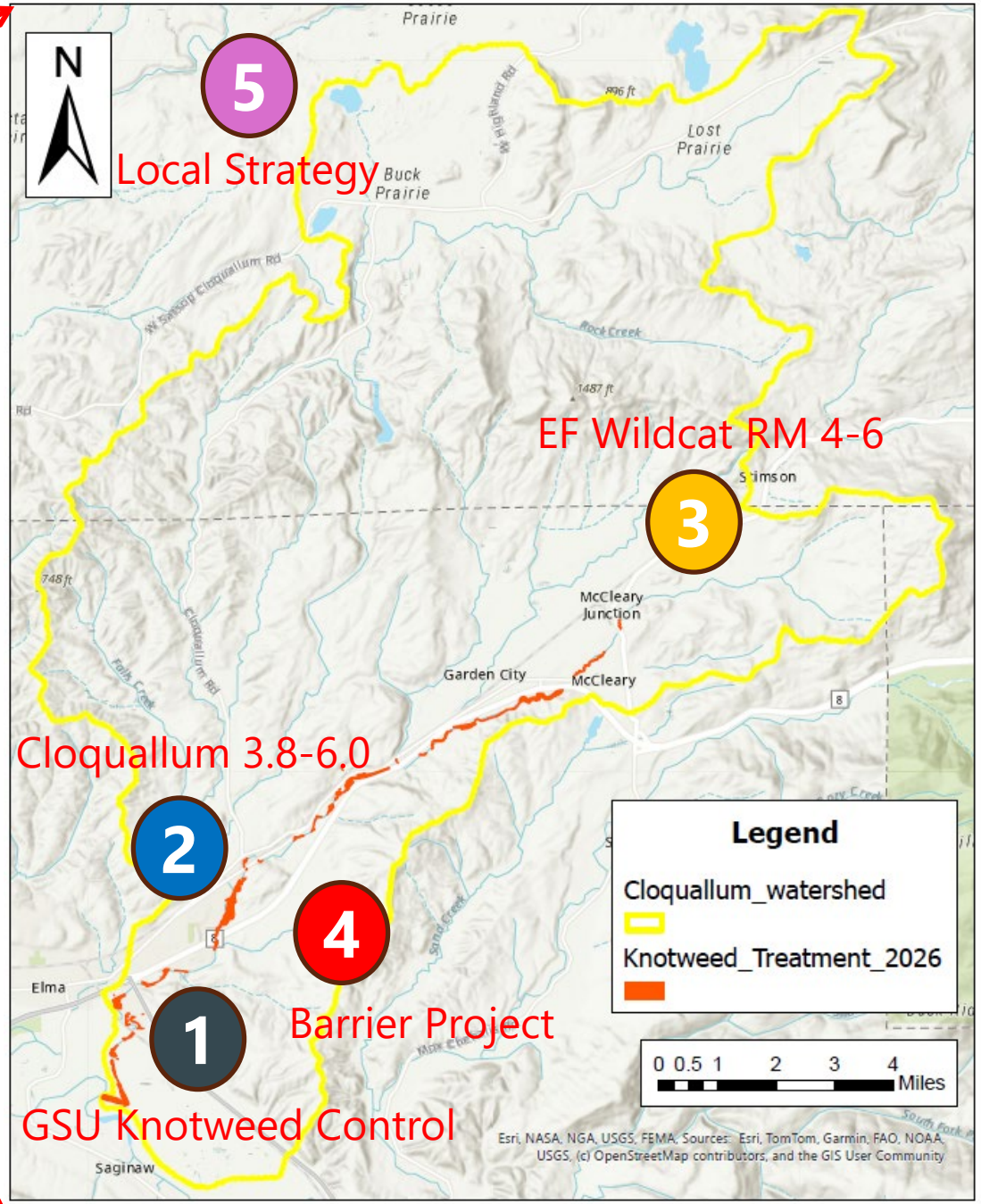
JOHN STEPANEK

October 14, 2026

ASRP Progress & Planning Workshop



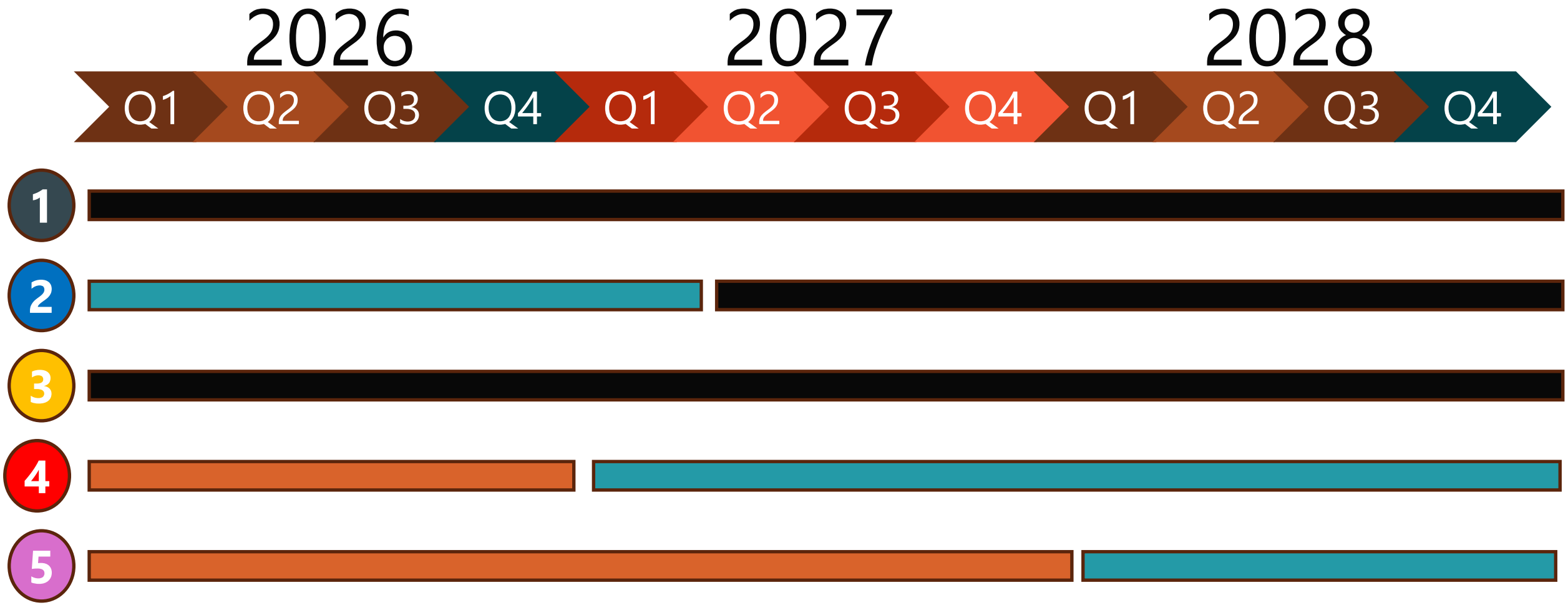
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Project Name (Sponsor)	Status	Project Cost	River miles & Acres
Cloquallum GSU Knotweed Control (GHCD) 1	Implementation In Progress	$675k ASRP $250k RGP	13 Miles and 115 Acres Treated
Cloquallum Creek RM 3.8-6.0 Restoration (GHCD) 2	Implementation 2027	$5 million ASRP $187k EMP $30k RGP	2 Miles 79 Acres
EF Wildcat Creek RM 4-6 PALS/BDAs (GHCD) 3	Implementation In Progress	$600k ASRP	2 Miles 7.5 Acres
South Union Road Barriers (GHCD) 4	Design Application soon	$200k ASRP	5 Miles 5 Barriers
Cloquallum Local Strategy (GHCD & MCD) 5	Planning In Progress	$240k ASRP	167 Miles

	BDAs/ PALS	ELJs	Side Channel Creation	Planting/ Invasive control
Water Temp	3	2		1 2 3
Winter High Flow Refugia	3	2	2	
Side Channel Habitat	3	2	2	
Floodplain Connection	3	2	2	
Habitat Diversity	3	2	2	
Sediment Storage	3	2		
Summer Low Flow	3			
Total (Structures, Acres, etc)	3 100	2 66	2 4300 ft	1 115 Acres 2 79 Acres 3 7.5 Acres

PROJECT TIMELINE

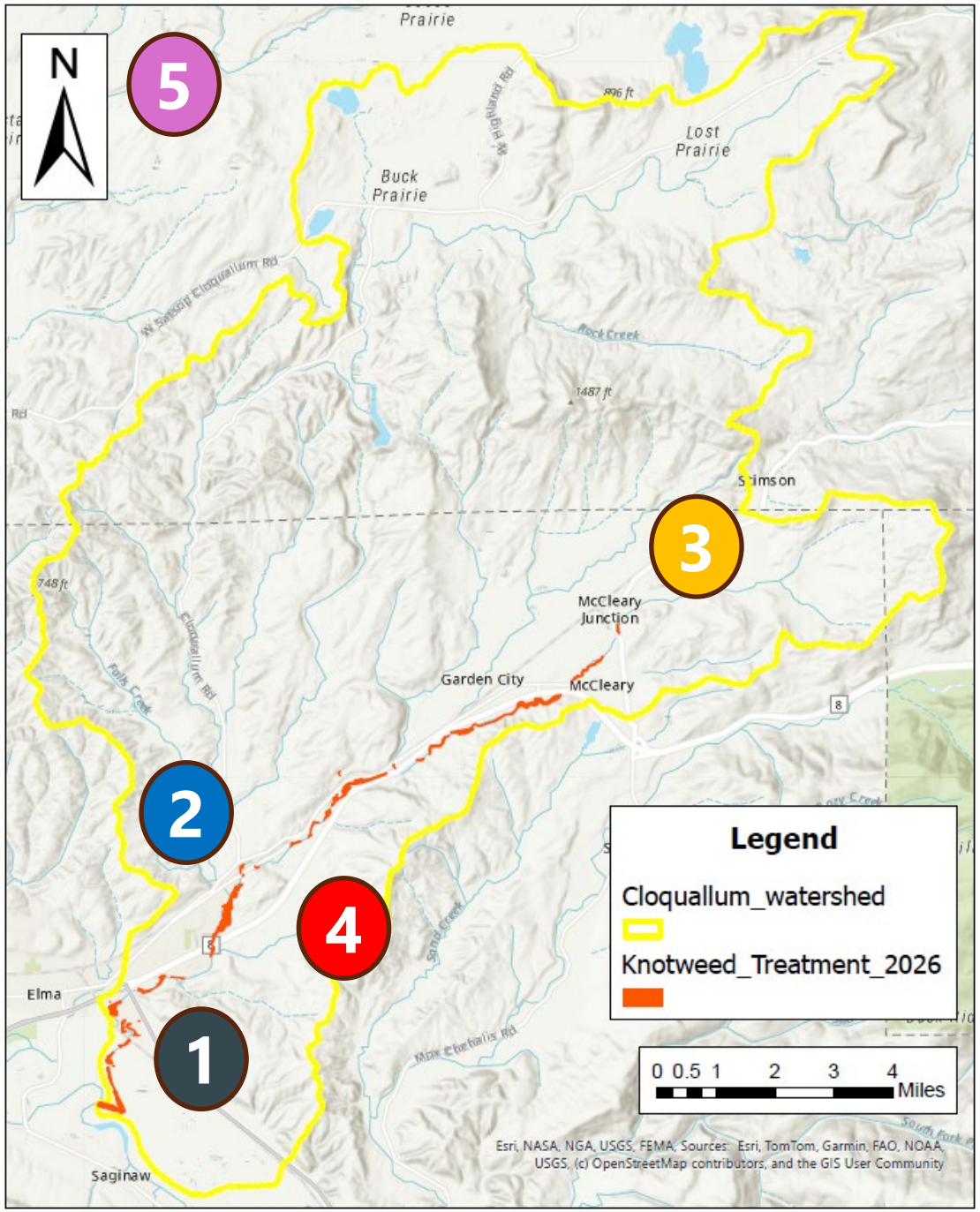


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1 Cloquallum GSU Knotweed Control

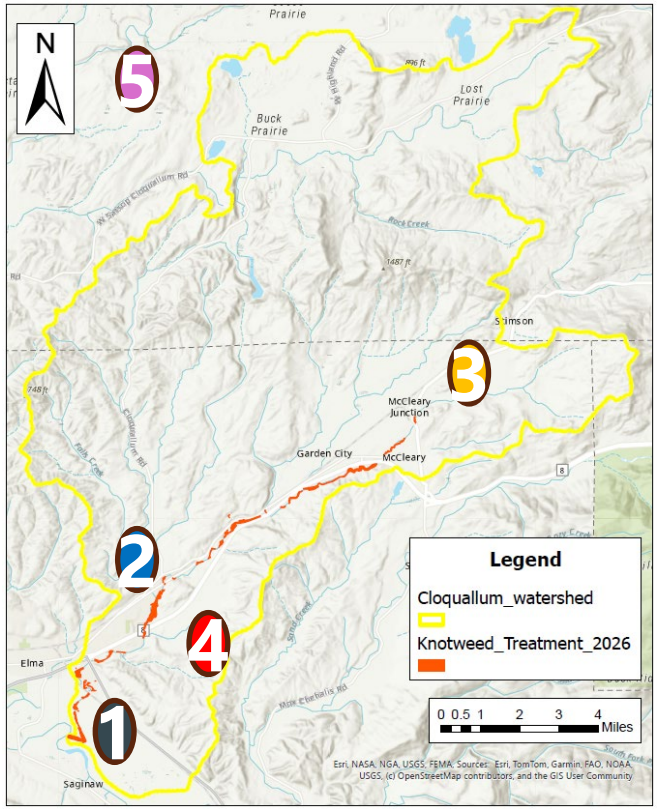
- 2024: 45 acres treated
- 2025: 95 acres treated
- 2026: 115 acres treated

- Still dozens of parcels left to treat, but majority of knotweed infestation is under control now



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2 Cloquallum Creek RM 3.8-6.0 Restoration

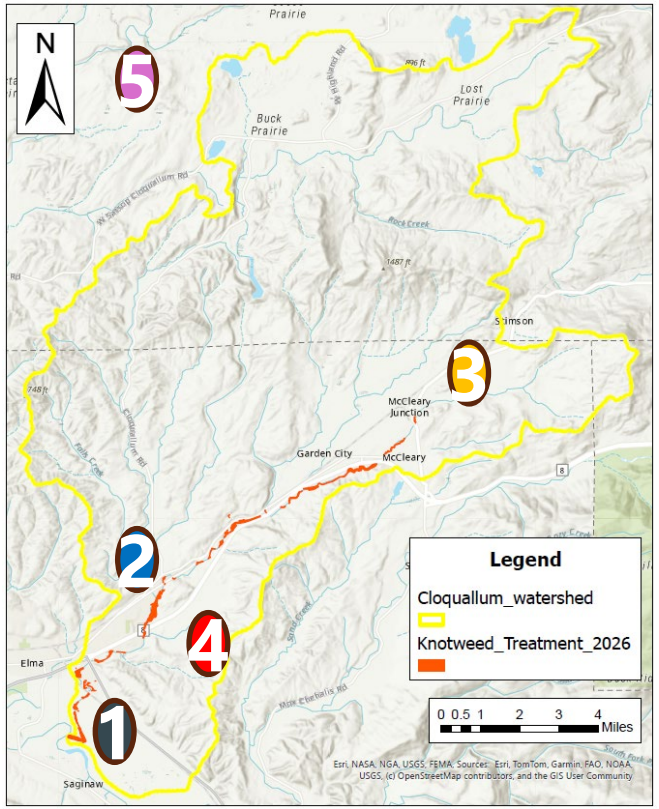




- Final Design in ASRP Review
- Construction 2027

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3 EF Wildcat RM 4-6 PALS/BDAs

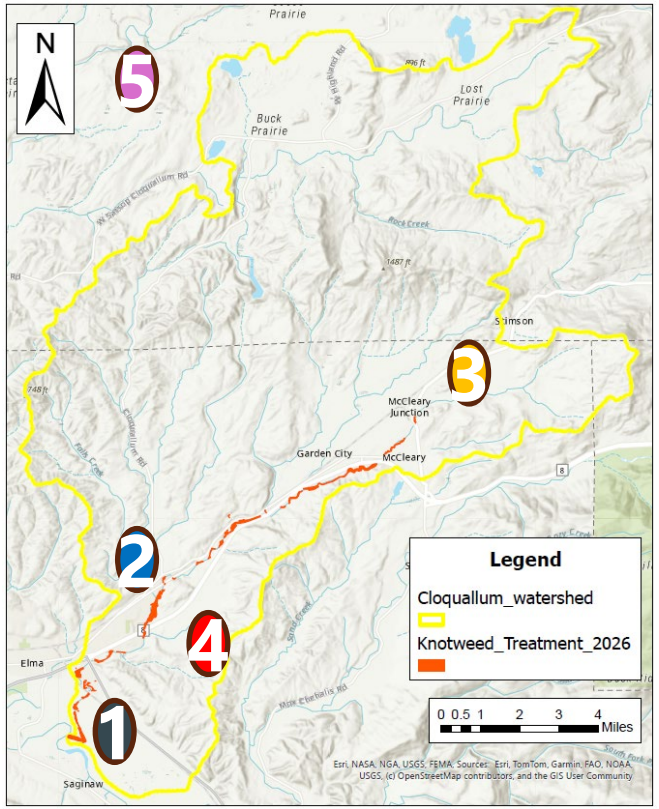




- 37/100 structures built 2026
- Remaining structures and planting next year

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4 South Union Road Barriers



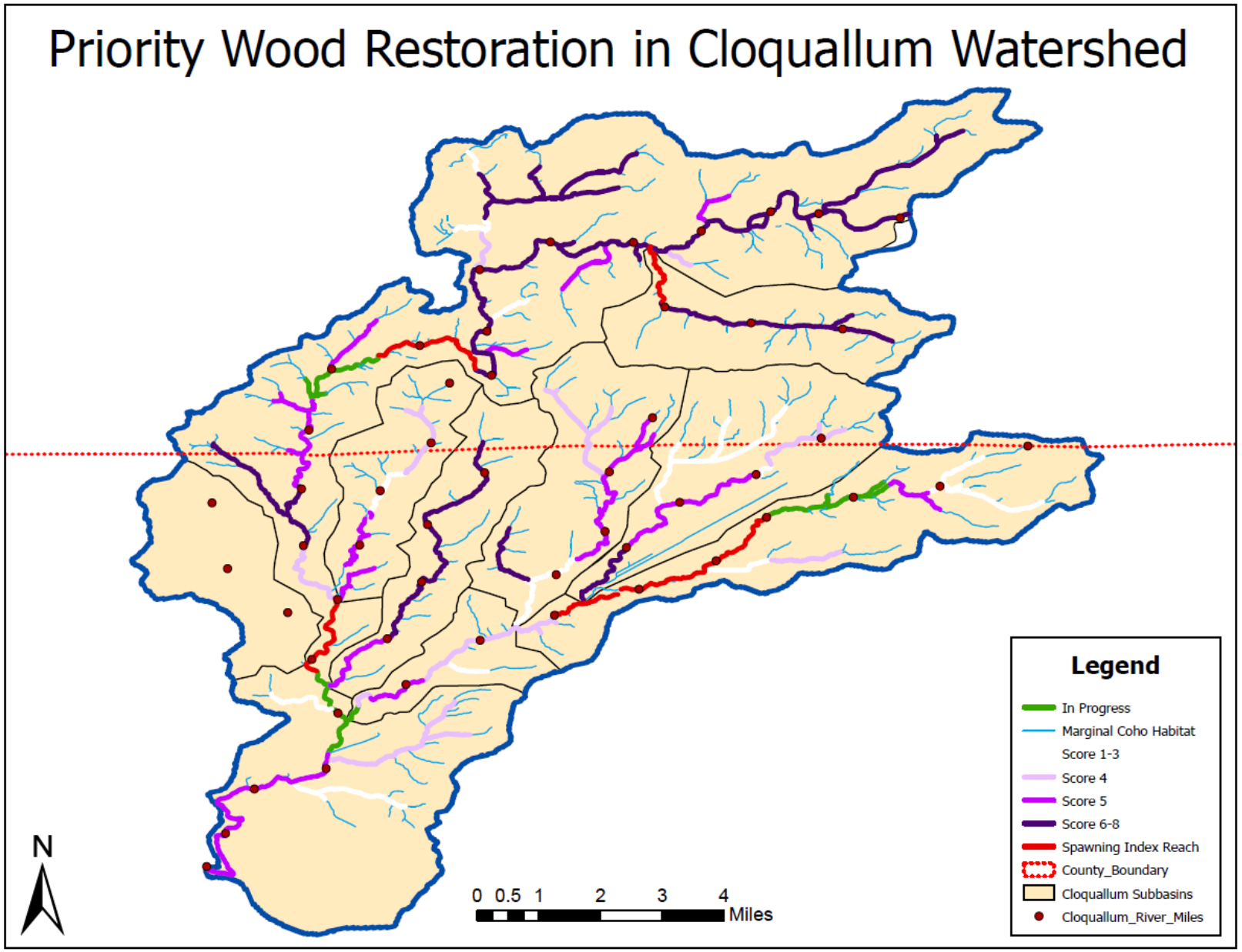


- ASRP application in progress
- Design only for 5 barriers

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5 Cloquallum GSU Local Strategy

- Working with MCD and others to survey 55 prioritized river miles and update Prioritized Watershed Restoration report



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5 Cloquallum GSU Local Strategy

Reach	John Model P	Status	County	Length (miles)	# Landowner	Miles/Landov	PALS or ELJ	Overlap with Wood model(0-3	Overlap with Riparian Model (0-3)	Barriers	Notes
Cloquallum 9.5-10.5	6.0	1-In Progress	Mason	1.8	9	1	ELJ	2	3	No	MCD already working here? QIN Index survey reach from RM 10.3-11.7?
Cloquallum 3.2-4.8	5.0	1-In Progress	GH	1.7	25	1	ELJ	1	3	No	Already doing 3.8-5.5; some overlap with index spawning reach QIN 4.1-6.0
EF Wildcat 6-7.5	5.0	1-In Progress	GH	2.1	4	3	PALS	2	0	No	already a GHCD project
Wildcat 0-0.3	4.0	1-In Progress	GH	0.3	7	1	ELJ	0	3	No	already doing this reach
Cloq trib E 0.8-3.0	7.0	2-Barriers	Mason	2.6	2	4	PALS	3	0	Yes	
S Union trib 0-2	4.0	2-Barriers	GH	2.6	20	1	PALS	2	1	Yes	Mostly Coho, satellite chum and steelhead; barrier cluster
EF Wildcat trib B 1-2	4.0	2-Barriers	GH	0.8	3	2	PALS	2	0	Yes	Coho only; priority barrier cluster downstream and within reach.
MF Wildcat trib A 0-1.0	3.0	2-Barriers	GH	1.5	12	1	PALS	2	0	Yes	single priority barrier at downstream end of reach
Arnold trib 0-1	2.0	2-Barriers	GH	1	7	1	PALS	1	0	Yes	Coho only, priority barrier cluster
EF Wildcat trib B 0-1	2.0	2-Barriers	GH	0.8	7	1	PALS	0	1	Yes	underground tunnel through McCleary
MF Wildcat trib A 1.0-1.5	2.0	2-Barriers	GH	0.6	10	1	PALS	1	0	Yes	straightened ditch along road
MF Wildcat trib A 1.5-2	2.0	2-Barriers	Mason	0.8	6	1	PALS	1	0	Yes	partially a ditch
Cloq trib E 0.6-0.8	1.0	2-Barriers	Mason	0.6	48	1	PALS	0	0	Yes	Constrained between roads, driveways and houses
Cloq trib F 0.5-1	1.0	2-Barriers	Mason	0.4	5	1	PALS	0	0	Yes	Constrained between houses/roads
MF Wildcat trib B 0-1	1.0	2-Barriers	both	0.7	8	1	PALS	0	0	Yes	partially a ditch
Rock 1-3.5	8.0	3-No Barriers	Mason	3.2	2	4	PALS	3	1	No	Field survey to confirm structure type
Cloquallum 11.7-13.3	7.0	3-No Barriers	Mason	1.6	2	3	ELJ	1	3	No	
Cloquallum 14.2-16.8	7.0	3-No Barriers	Mason	3.6	21	1	ELJ	3	3	No	Field survey to confirm structure type
Cloq trib A 0-2	7.0	3-No Barriers	Mason	2.3	2	4	PALS	3	0	No	
Bush 2.5-4.5	7.0	3-No Barriers	GH	2.4	2	4	PALS	3	0	No	mostly coho, satellite chum and steelhead
Cloquallum 7-8	6.0	3-No Barriers	GH	1.2	8	1	ELJ	2	3	No	Road close to high bank throughout reach
Cloquallum 13.3-14.2	6.0	3-No Barriers	Mason	1.1	10	1	ELJ	2	3	No	Field survey to confirm structure type
Cloquallum 16.8-20	6.0	3-No Barriers	Mason	4.2	3	4	PALS	2	0	No	Field survey to confirm structure type
Cloq trib K 0-2	6.0	3-No Barriers	GH	1.6	2	3	PALS	3	0	No	Coho only
Bush 1-2.5	6.0	3-No Barriers	GH	1.7	5	2	PALS	3	1	No	mostly coho, satellite chum and steelhead
MF Wildcat 0-1	6.0	3-No Barriers	GH	1.2	34	1	PALS	2	3	No	constrained between many houses and roads
WF Wildcat trib B 0-1	6.0	3-No Barriers	GH	1.1	1	4	PALS	2	0	No	Coho only
Cloquallum 0-1.8	5.0	3-No Barriers	GH	2.3	7	2	ELJ	0	3	No	
Cloquallum 1.8-3.2	5.0	3-No Barriers	GH	1.4	10	1	ELJ	1	3	No	
Cloquallum 8-9.5	5.0	3-No Barriers	both	2	17	1	ELJ	1	3	No	Road close to high bank throughout reach
Cloq trib B 0-0.5	5.0	3-No Barriers	Mason	0.7	2	2	PALS	3	0	No	
Cloq trib D 0-1	5.0	3-No Barriers	Mason	1	4	2	PALS	2	1	No	
Cloq trib H 0-0.5	5.0	3-No Barriers	Mason	0.6	1	3	PALS	2	0	No	
Cloq trib I 0-1	5.0	3-No Barriers	Mason	1	3	2	PALS	3	0	No	Coho only
Cloq trib J 0-1	5.0	3-No Barriers	Mason	0.6	2	2	PALS	3	0	No	Coho only
Powers 0-1.5	5.0	3-No Barriers	GH	2	17	1	PALS	1	3	No	Survey to confirm structure type; Glitch in model/hydro layer
Bush 0-1	5.0	3-No Barriers	GH	1.3	20	1	PALS	1	3	No	Coho and Chum
Wildcat 0.5-1.2	5.0	3-No Barriers	GH	0.8	7	1	ELJ	1	3	No	

RM11 CLOQUALLUM CREEK DESIGN AND PERMITTING

Contact: JACOB MURRAY – MCD

CLOQUALLUM RM11 DESIGN : OVERVIEW

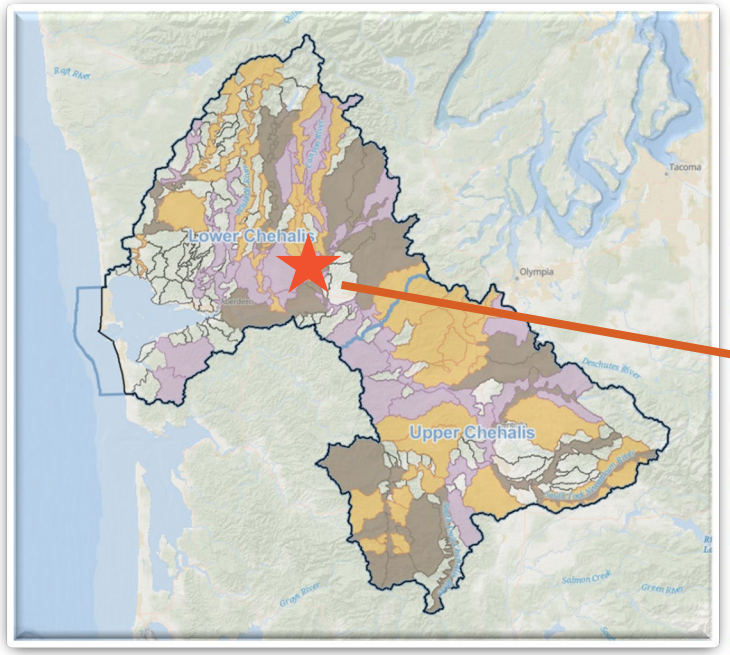
- **Sponsor/Budget**: Mason Conservation District **/** $141,016 - $188,213
- **Landowner type:** Private
- **Ecoregion and GSU:** Black Hills/Cloquallum GSU
- **ASRP Grant Category:** Priority Project
- **ASRP Project Type:** Design

- **Scope**: Pursuing final design and permitting for a 1-mile reach of Cloquallum Creek

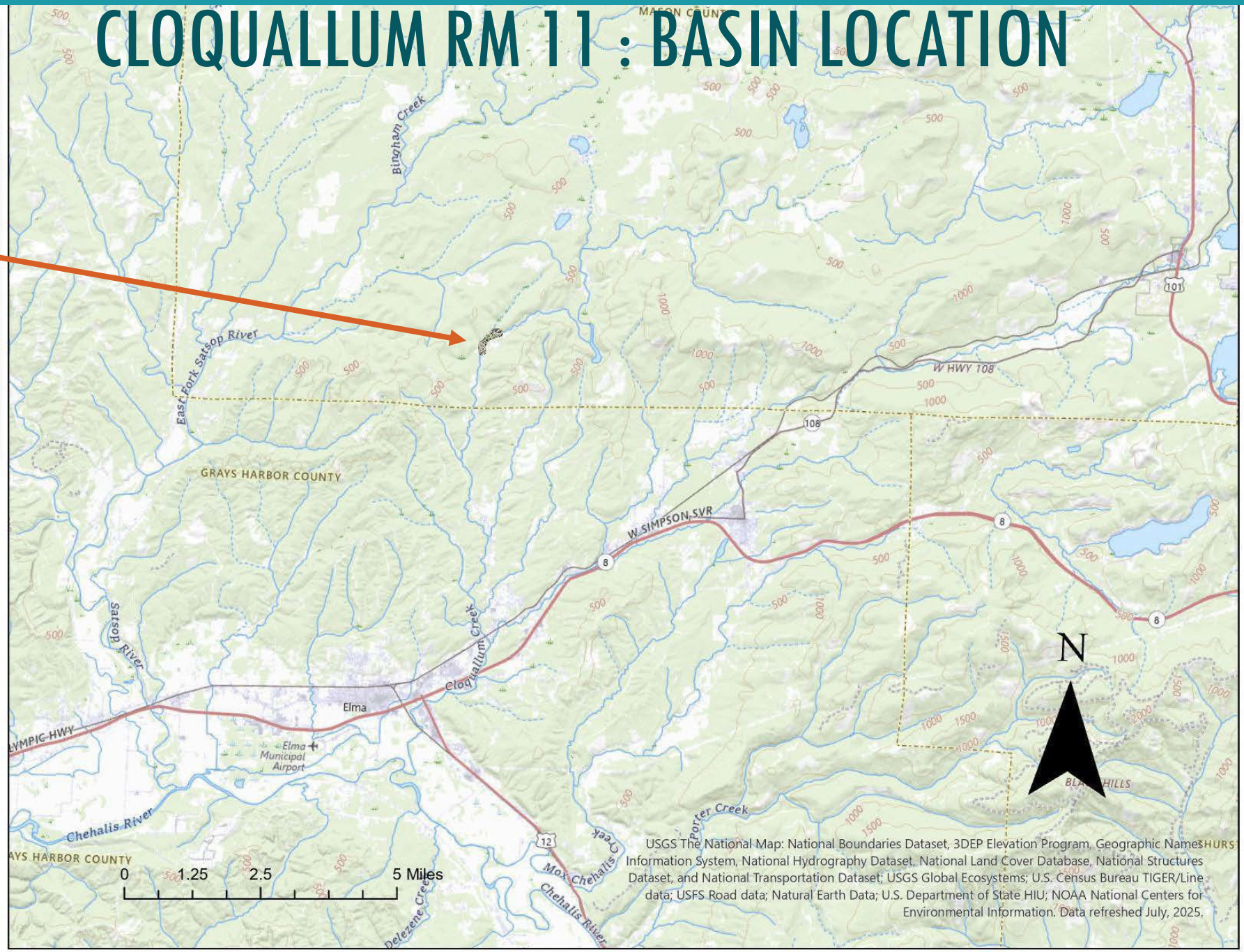
- **ASRP Priority Actions for this location:** Placement of LWD and Riparian Restoration to address Temperature and Key Habitat

- **Limiting Factors this project addresses:** Key Habitat, Barriers, and Temperature
- **ASRP Species:** Winter Steelhead, Coho, Fall Chinook, and Chum

CLOQUALLUM RM 11 : BASIN LOCATION

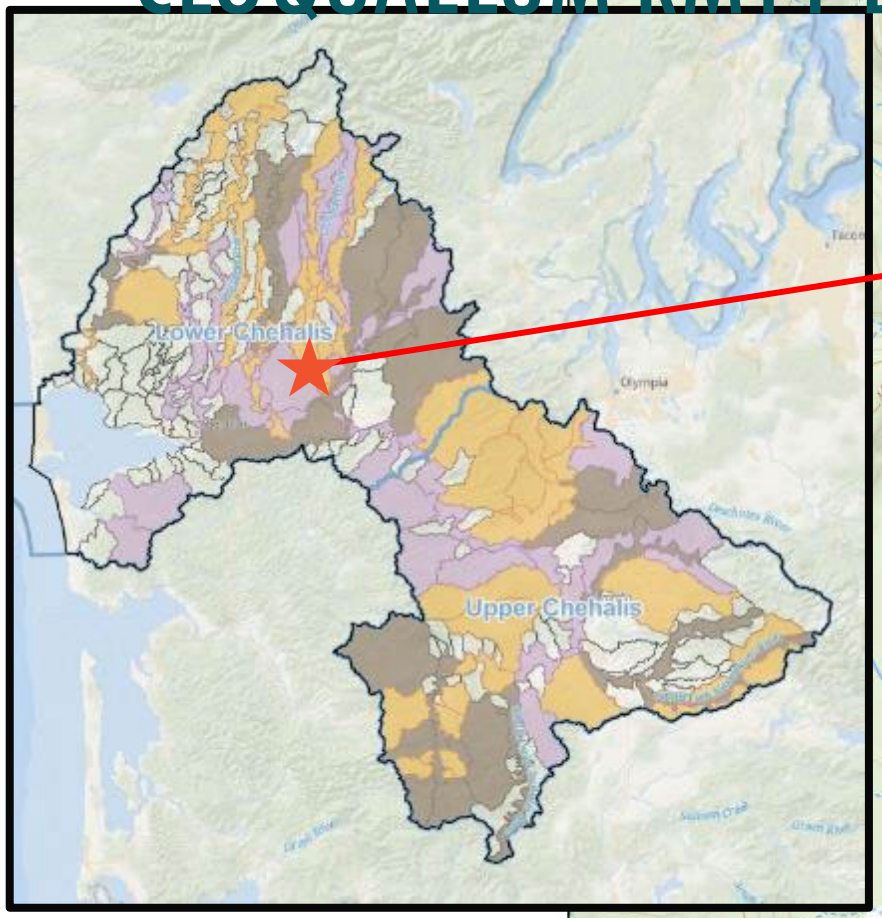


47.102063, -123.365233



CHEHALIS BASIN STRATEGY
Office of Chehalis Basin

CLOQUALLUM RM11 DESIGN: CLOQUALLUM GSU





Cloquallum Creek

W OLD CLOQUALLUM RD

Powers Creek

N

0 0.13 0.25 0.5 Miles

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information. Data refreshed July, 2023.

CHEHALIS BASIN STRATEGY

PROJECT NAME:

CLOQUALLUM RM11



CHEHALIS BASIN STRATEGY

PROJECT NAME:

CLOQUALLUM RM11



CHEHALIS BASIN STRATEGY

PROJECT NAME:

CLOQUALLUM RM11





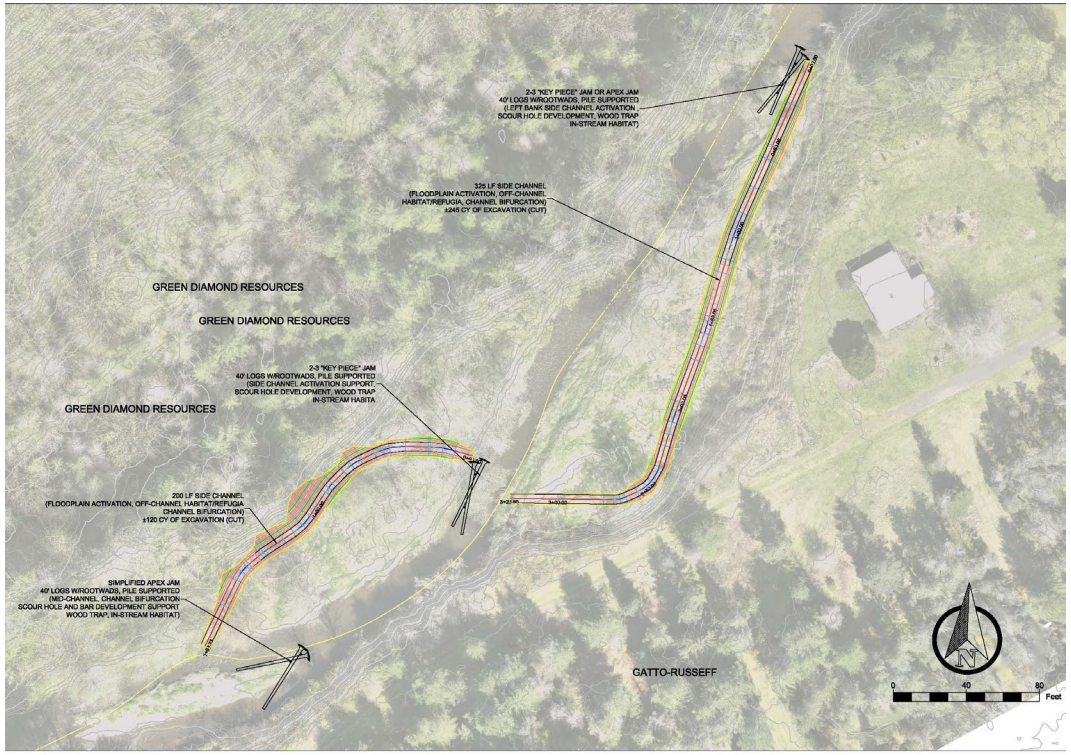
CHEHALIS BASIN STRATEGY

CLOQUALLUM RM11 : OUTCOMES

Cloquallum Creek GSU is a near term priority seeking 10.2 miles restored. Priority actions include placement of LWD and riparian restoration to address temperature and key habitat.

- Habitat Goals:
  - Increase in-stream habitat availability and quality
  - Restore channel formation processes through improved sediment processes
- Community Impact:
  - Reduced erosion risk to existing infrastructure

- Metrics:
  - 4 landowners (including GDR)
  - 1 Mile of instream habitat restored
  - 1 Acres of invasive species removed/treated
  - 1 Acres of riparian plantings
  - 594 linear feet of side channel habitat constructed



CHEHALIS BASIN STRATEGY



SATSOP CONNECTIVITY PROJECT

MITCHELL CREEK_LOWER SATSOP_RIPARIAN RESTORATION &

LOWERSATSOP_MS-RM2 TO 2.25_RIPARIAN&WETLAND RESTORATION

Conservation Northwest
Keeping the Northwest Wild

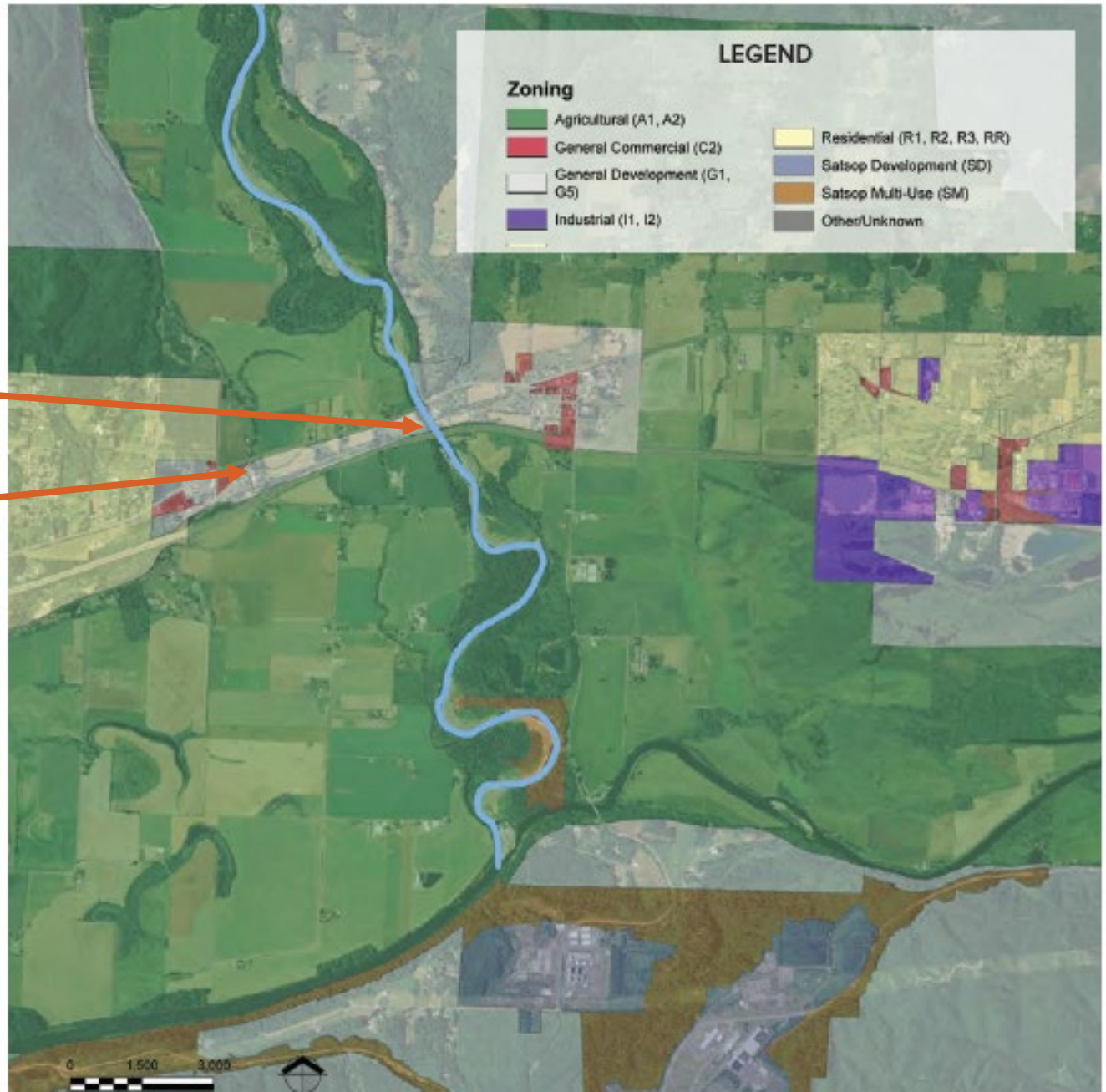
CHEHALIS BASIN STRATEGY

CONTACT: VANESSA LAVALLE FROM CONSERVATION NORTHWEST

SATSOP CONNECTIVITY PROJECT: ZONING MAP

- Lower Satsop
- Mitchell Creek

Figure 3. Zoning Map

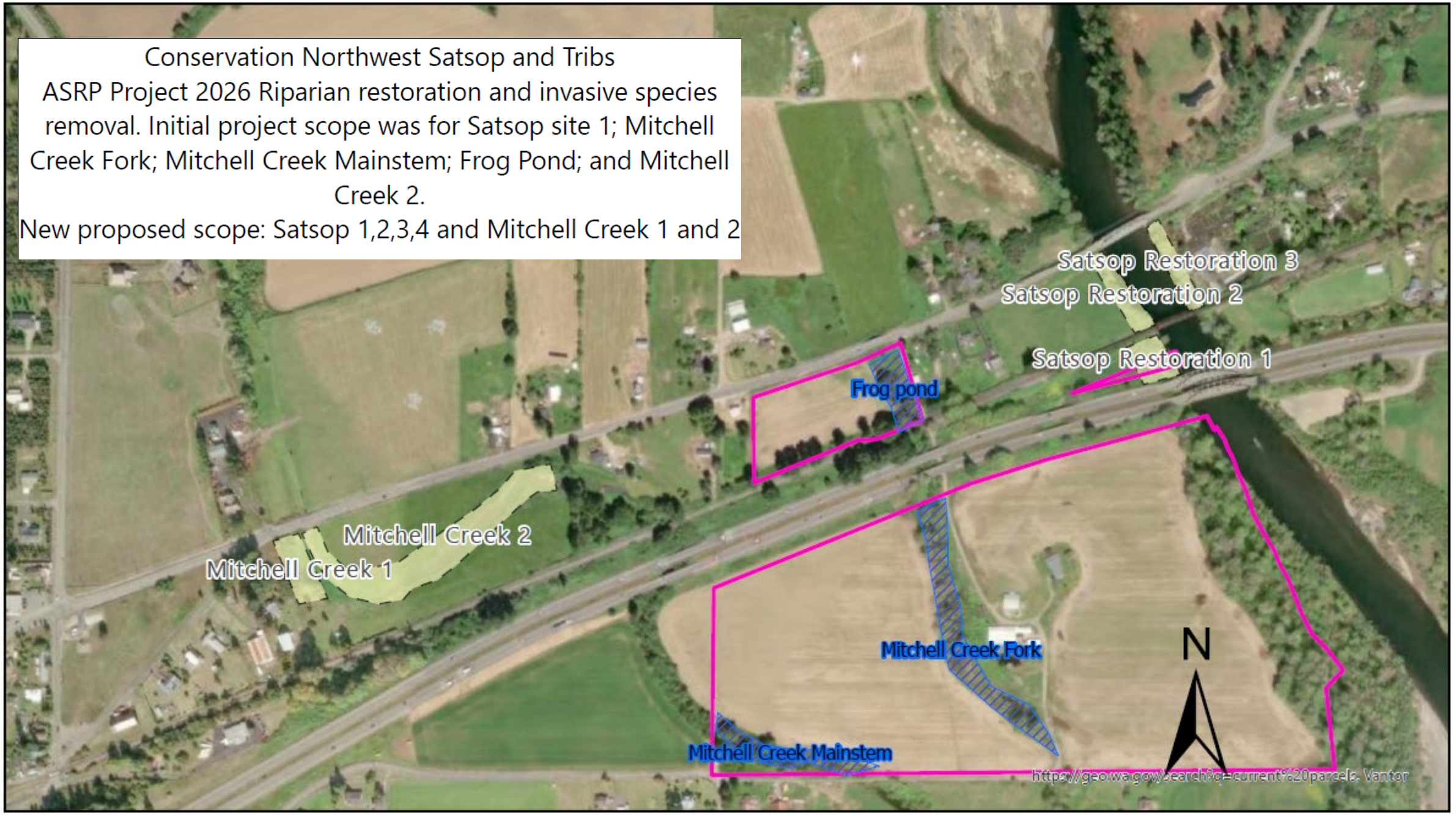


CHEHALIS BASIN STRATEGY

Conservation Northwest Satsop and Tribs

ASRP Project 2026 Riparian restoration and invasive species removal. Initial project scope was for Satsop site 1; Mitchell Creek Fork; Mitchell Creek Mainstem; Frog Pond; and Mitchell Creek 2.

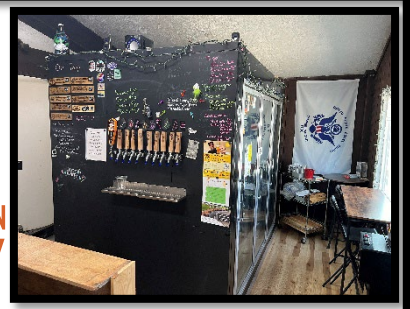
New proposed scope: Satsop 1,2,3,4 and Mitchell Creek 1 and 2



MITCHELL CREEK SITE IMAGES:

SNOWBIRD CIDERY









CHEHALIS BASIN STRATEGY



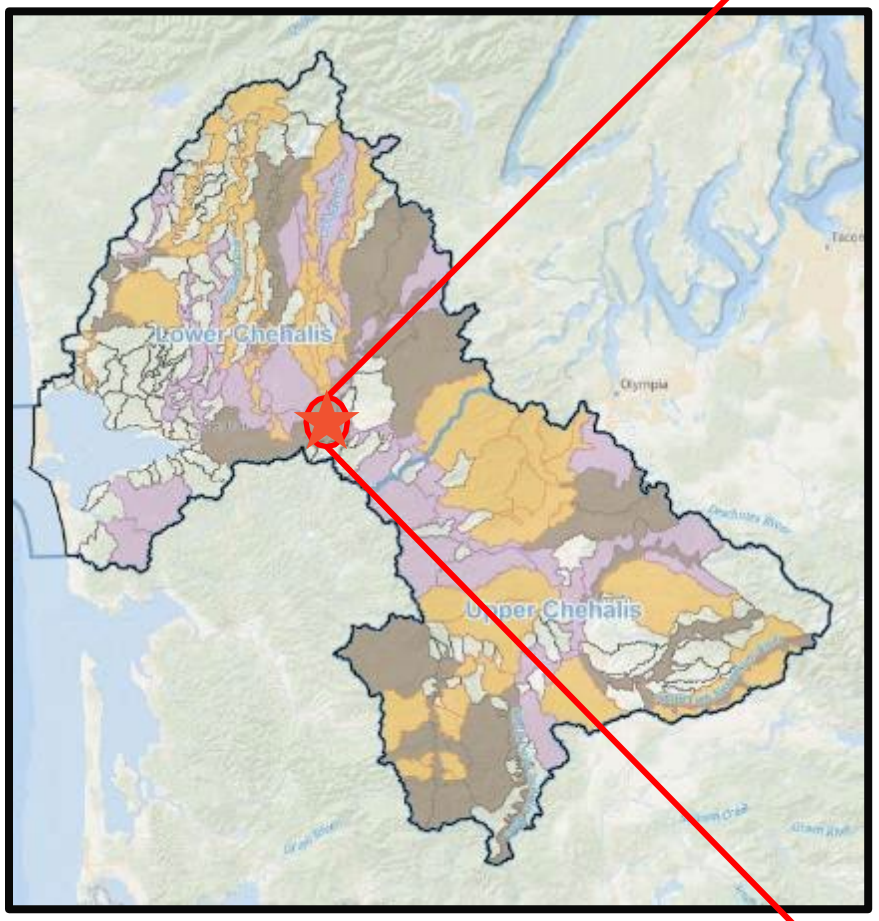
SATSOP MAINSTEM GSU GHCD PROJECTS

ANTHONY WALDROP –GRAYS HARBOR CD

October 14, 2026

ASRP Progress & Planning Workshop

Office of Chehalis Basin



Office of Chehalis Basin

773 ft
Middle Satsop Rd
Camp Creek
Satsop River
Monte Elma Rd
Olympic Hwy
Olympic Hwy
Huttula Lake
Fuller
Chehalis River
5,000 ft
N

2 Satsop RM 2.5-5.0 Project

1 Satsop RM 0-2 Project

Project Name (Sponsor)	Status	Project Cost	River miles & Acres
Satsop River RM 0-2(Grays Harbor CD) 1	Implementation	$9,007,650	2 Miles 360 Acres
Satsop River RM 2.5-5.0 (Grays Harbor CD) 2	Implementation	$5,161,083	2.5 Miles 270 Acres

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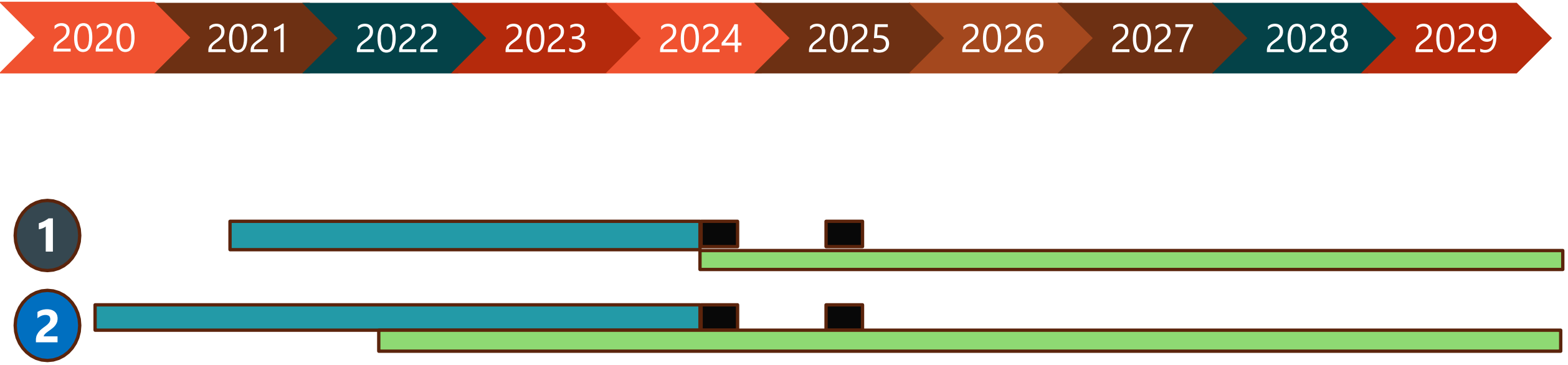
Satsop Mainstem Limiting Factors	Project Actions
Water Temperature	1 360 acres riparian restoration, 200+ flood fence piles 2 270 acres riparian restoration
Key Habitat (% of habitat in various unit types), Habitat Diversity, Channel Stability, Sediment Load,	1 43 ELJs, vertical bank sloping, scour path excavation 2 30 ELJs

Satsop RM 0-2
Summer 2024
Construction



Office of Chehalis Basin

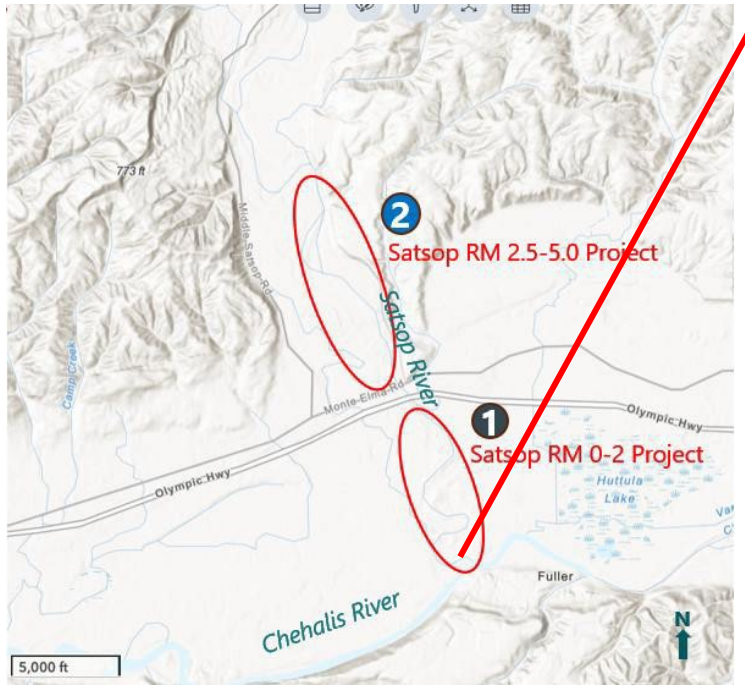
PROJECT TIMELINES

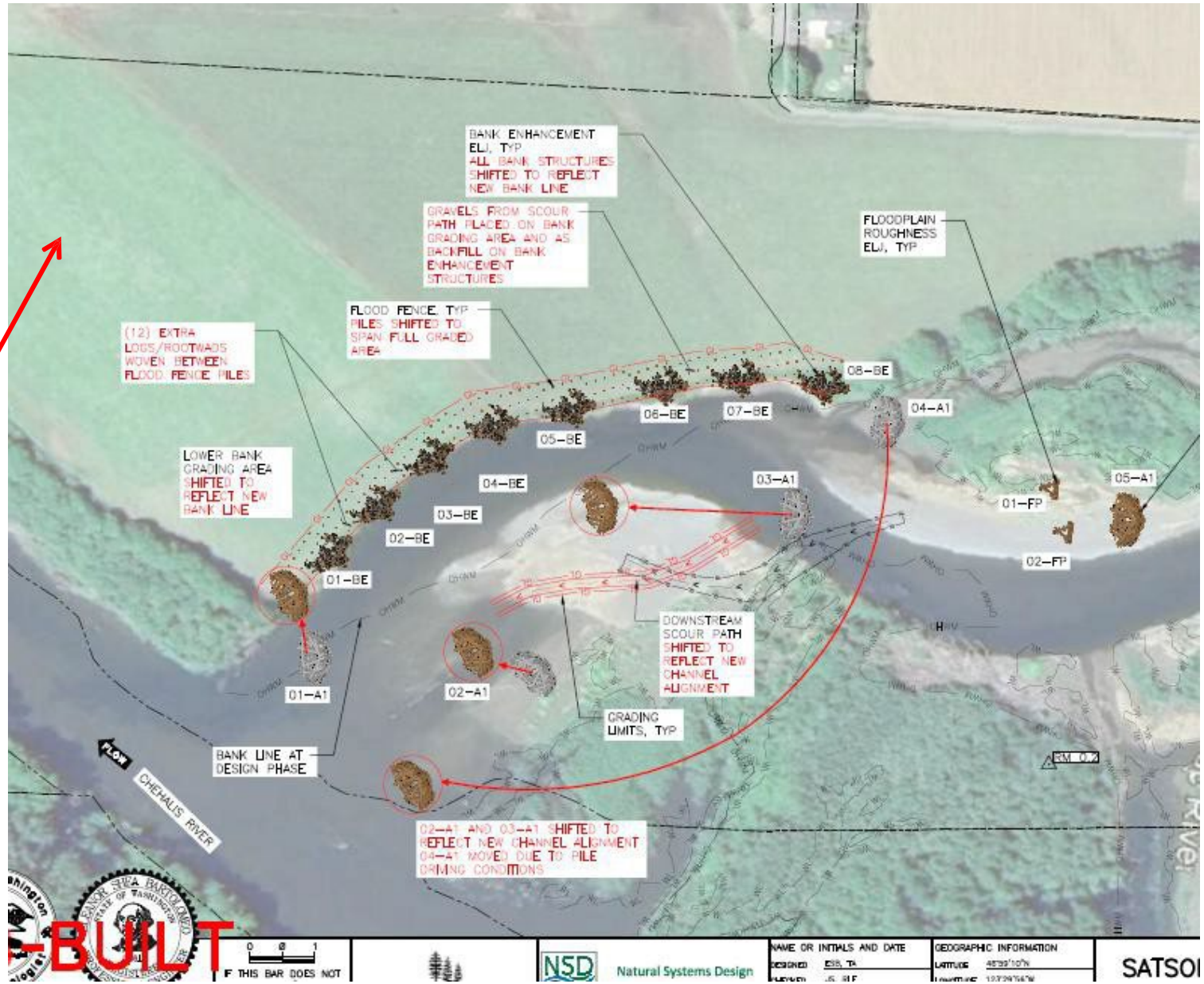


Design Construction Riparian Restoration

Office of Chehalis Basin

Site 1 1

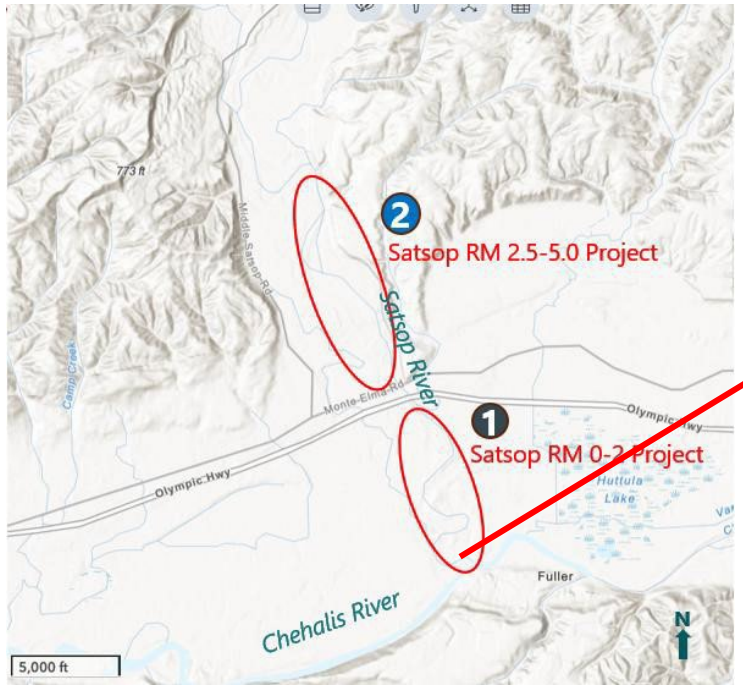


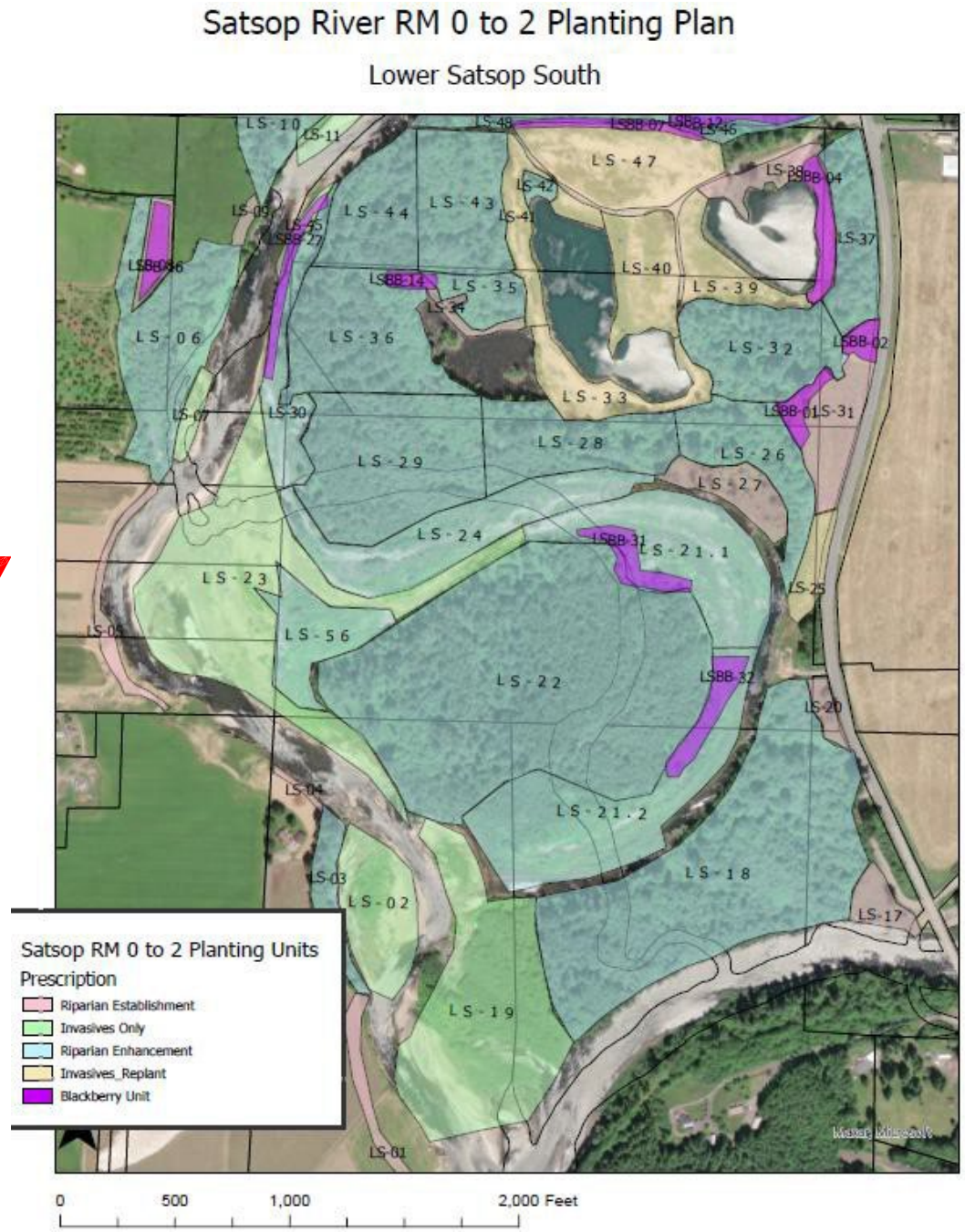


Satsop RM 0-2 As-Built (RM 0-0.7)

Office of Chehalis Basin

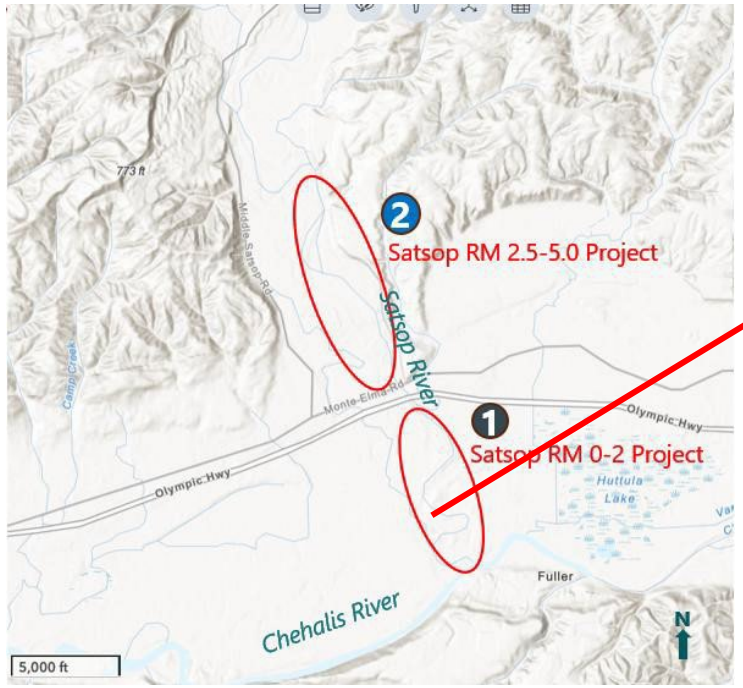
Site 1 1

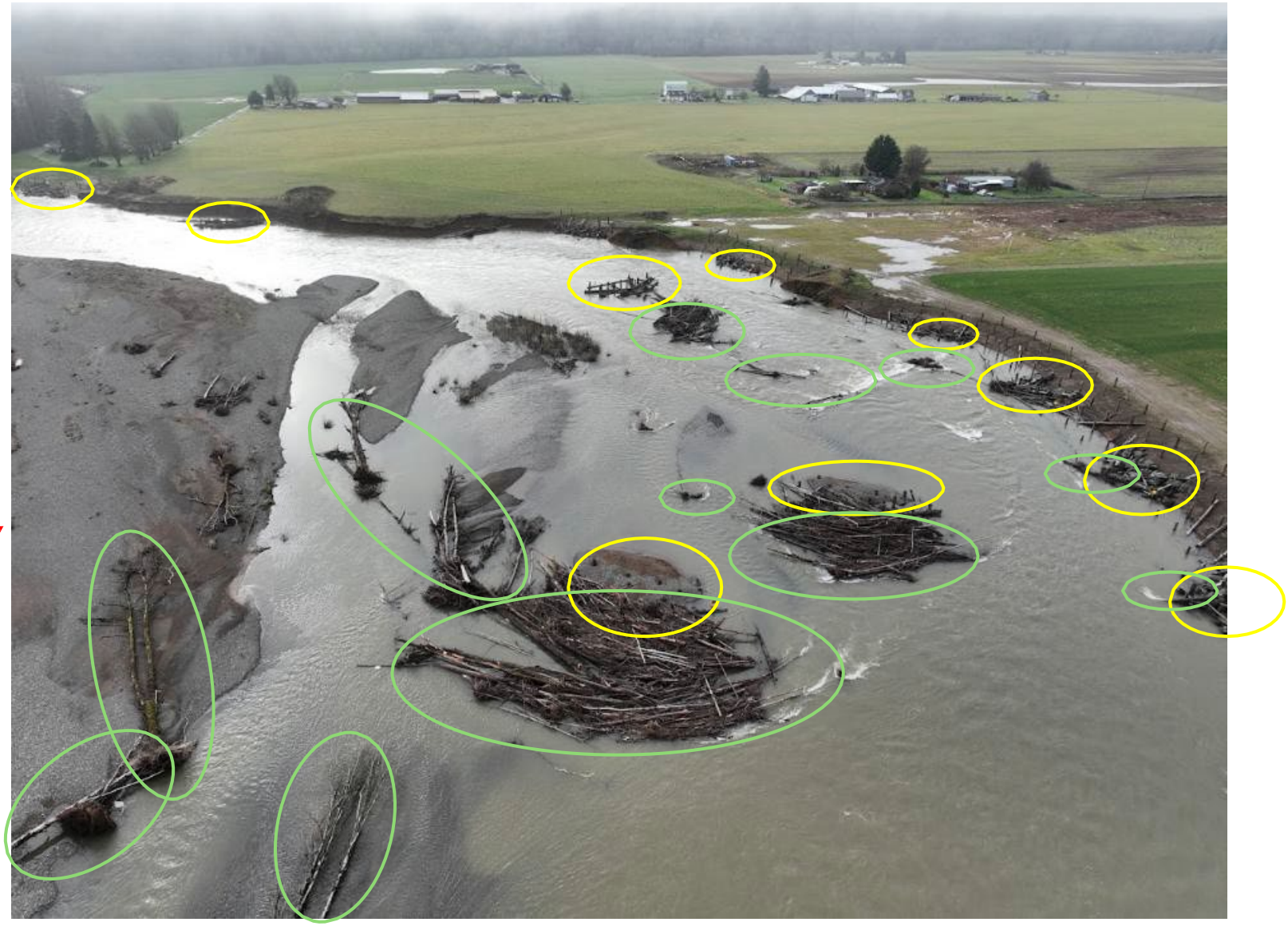




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Site 1 1





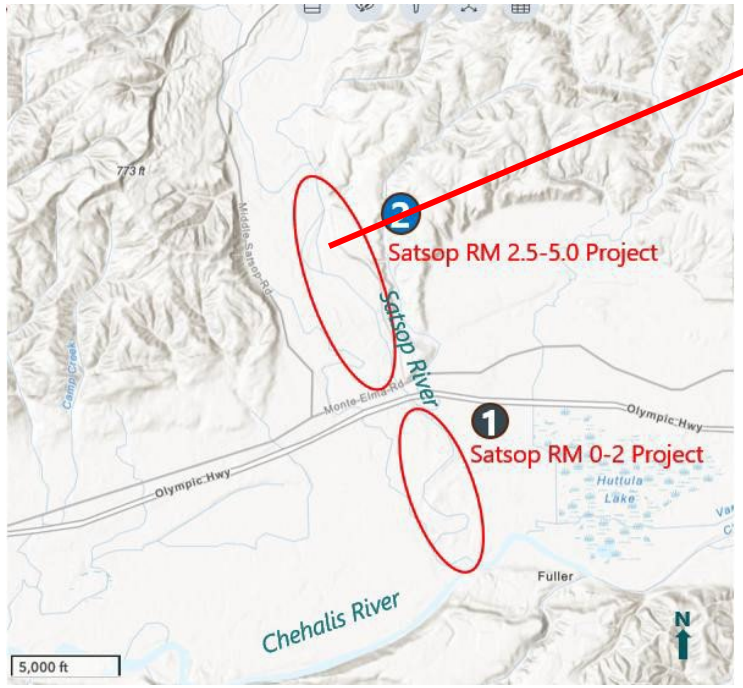
February 2026; ~4500 CFS (32'); Flood stage = 38'

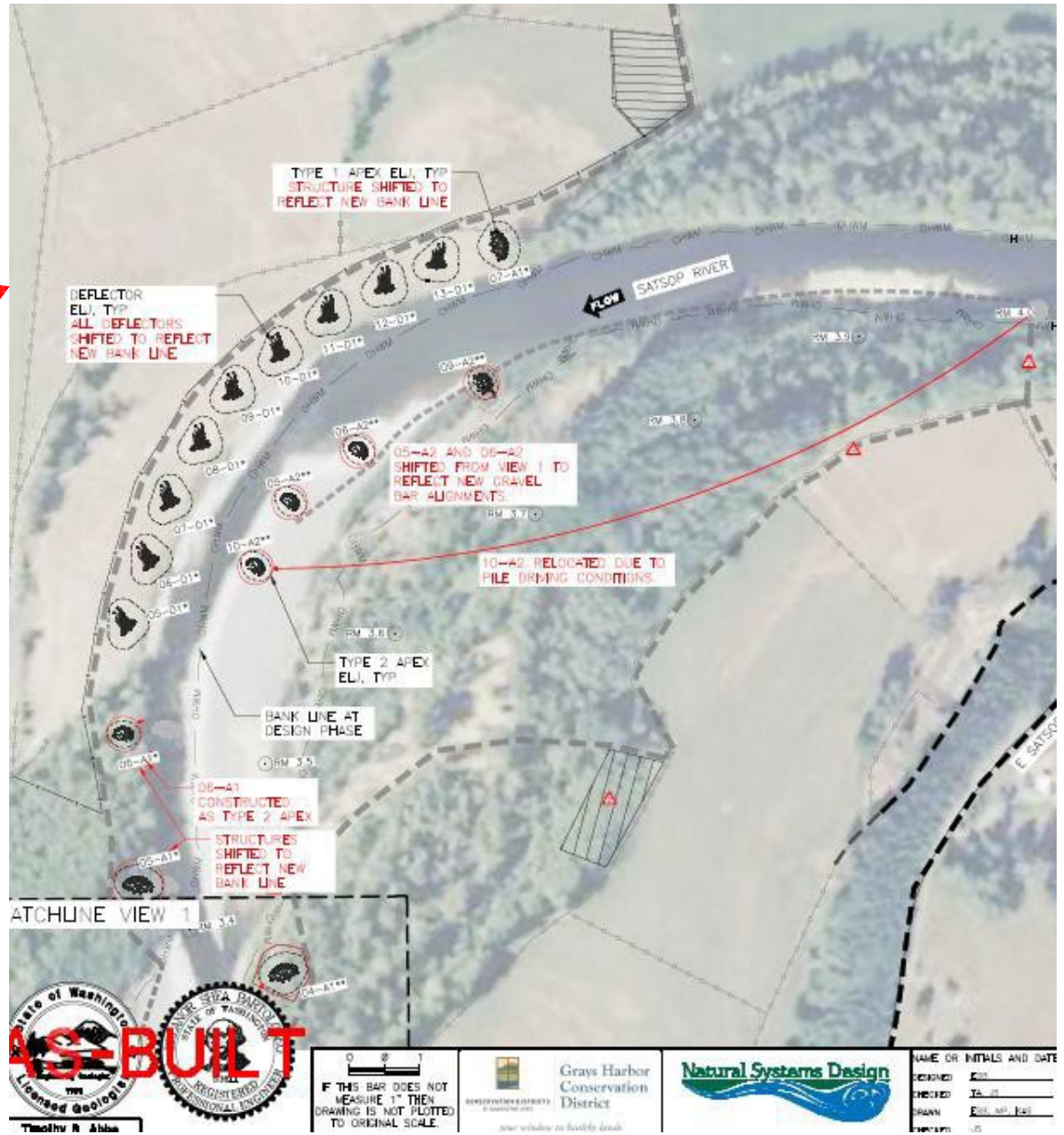
Project ELJ

Natural Wood Accumulation

Office of Chehalis Basin

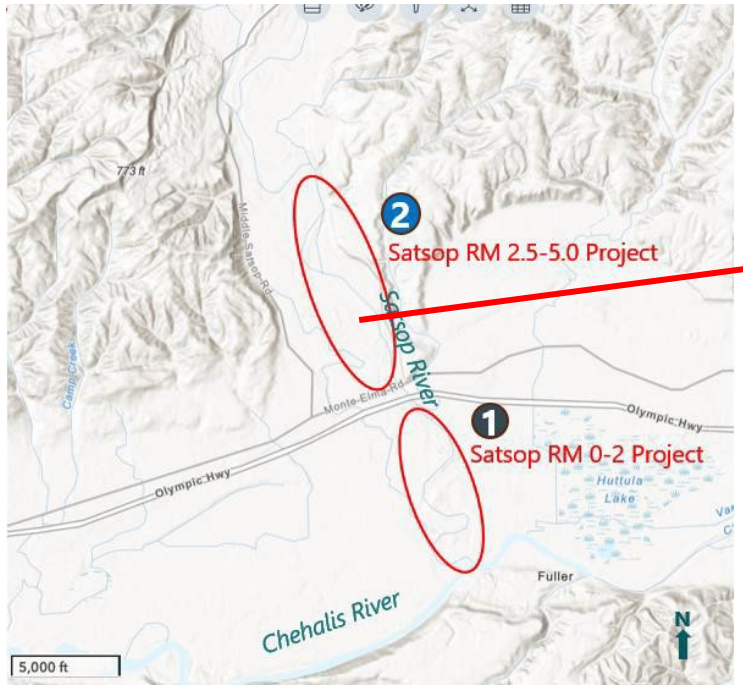
Site 2 2

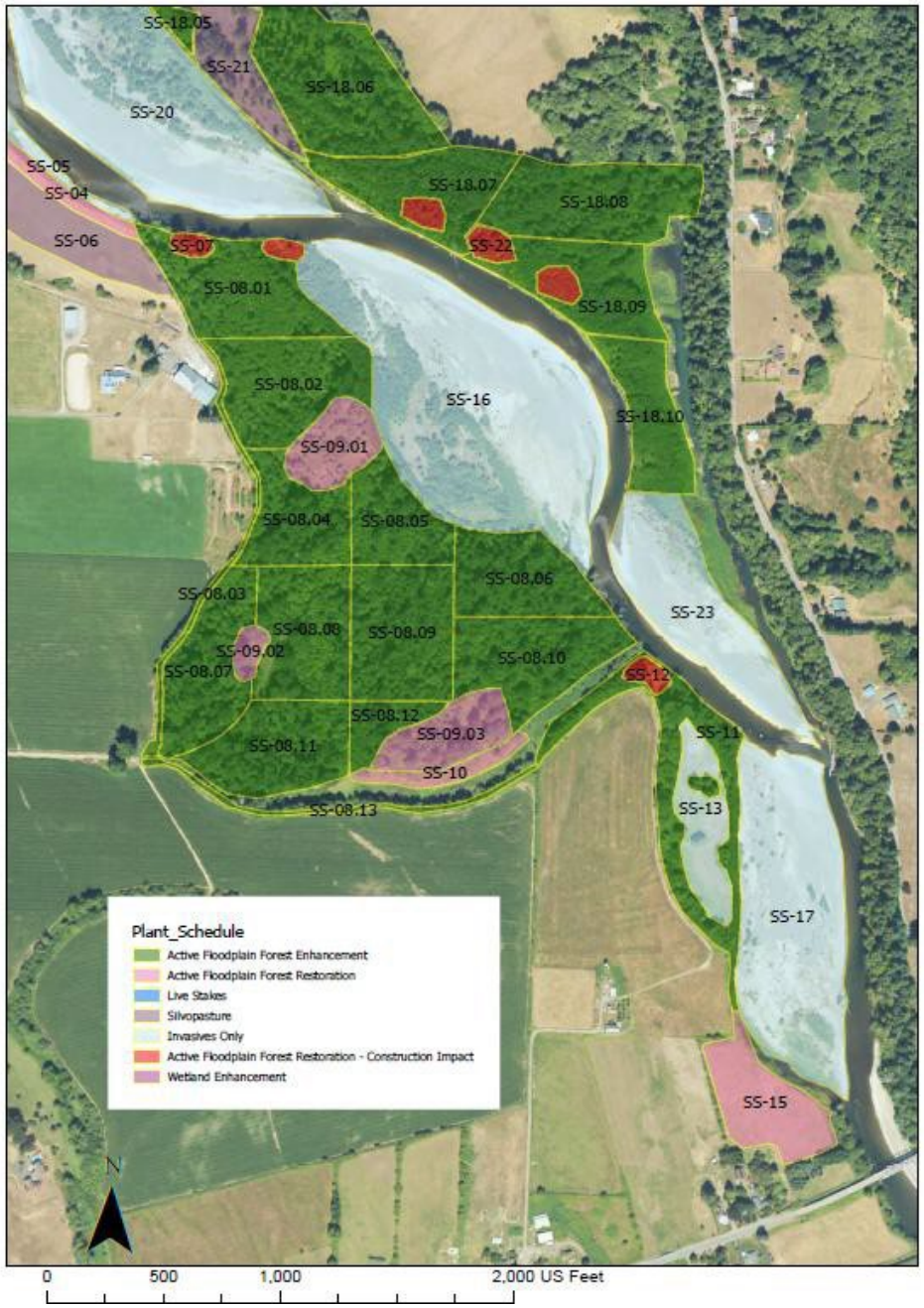




Satsop RM 2.5-5.0 As-Built (RM 3.5-4.2)

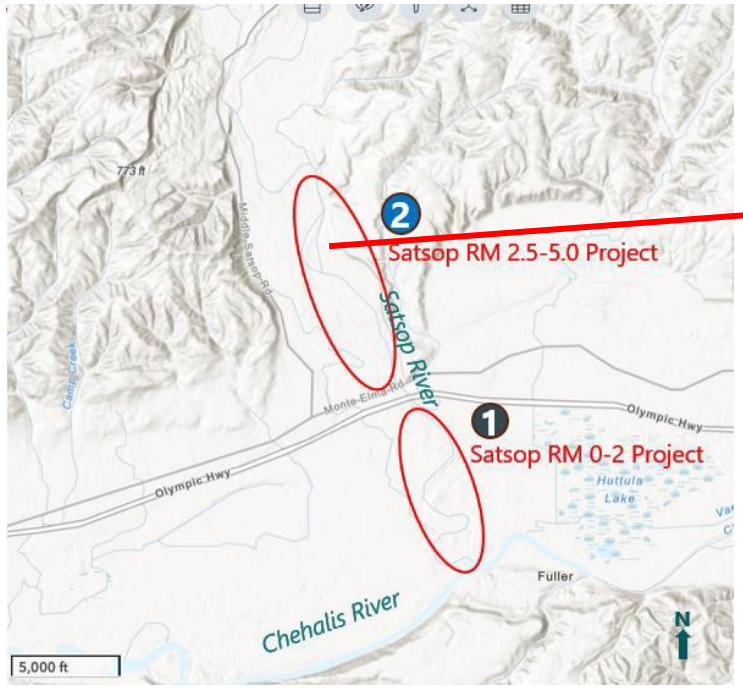
Site 2 2

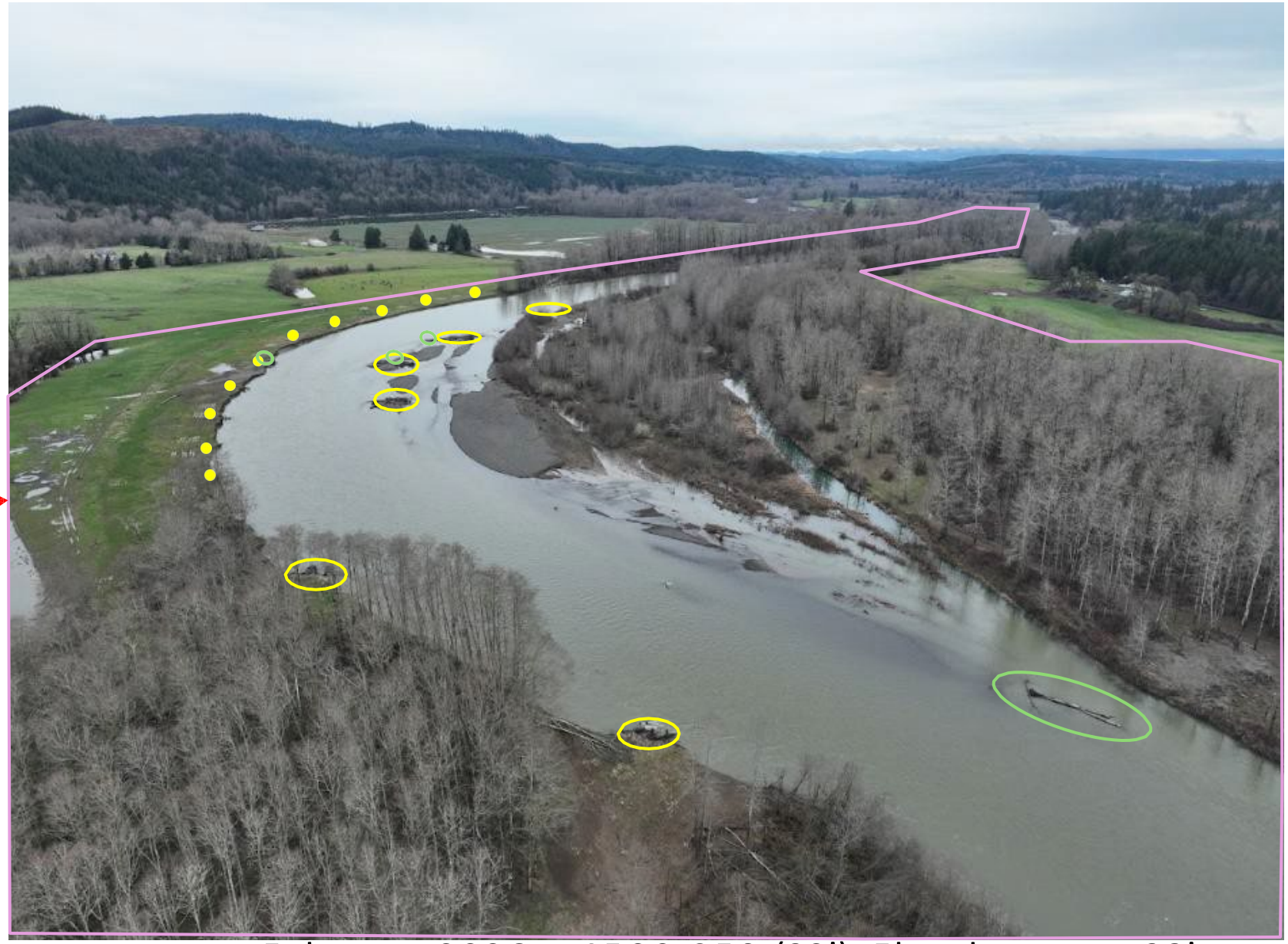




Office of Chehalis Basin

Site 2 2





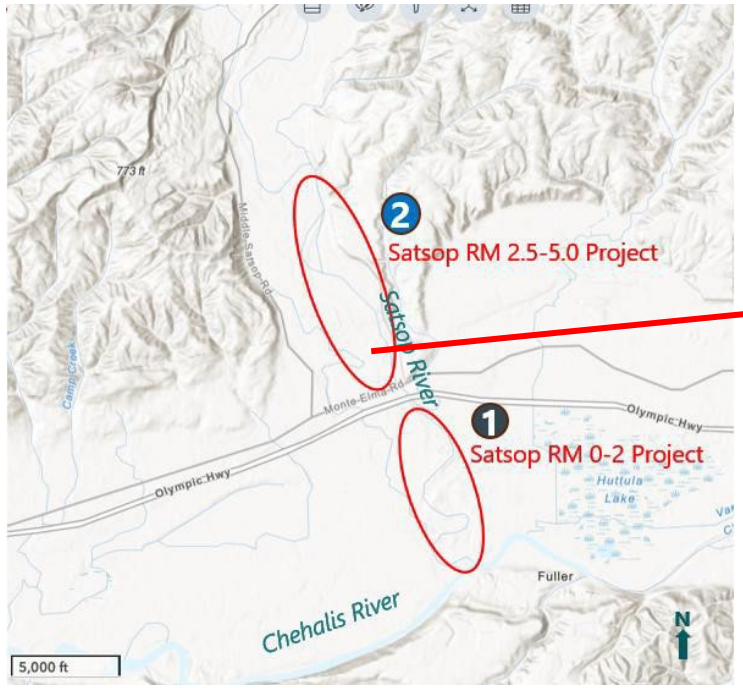
February 2026; ~4500 CFS (32'); Flood stage = 38'

Riparian Restoration Area

Project ELJ

Natural Wood Accumulation

Site 2 2





February 2026; ~4500 CFS (32'); Flood stage = 38'

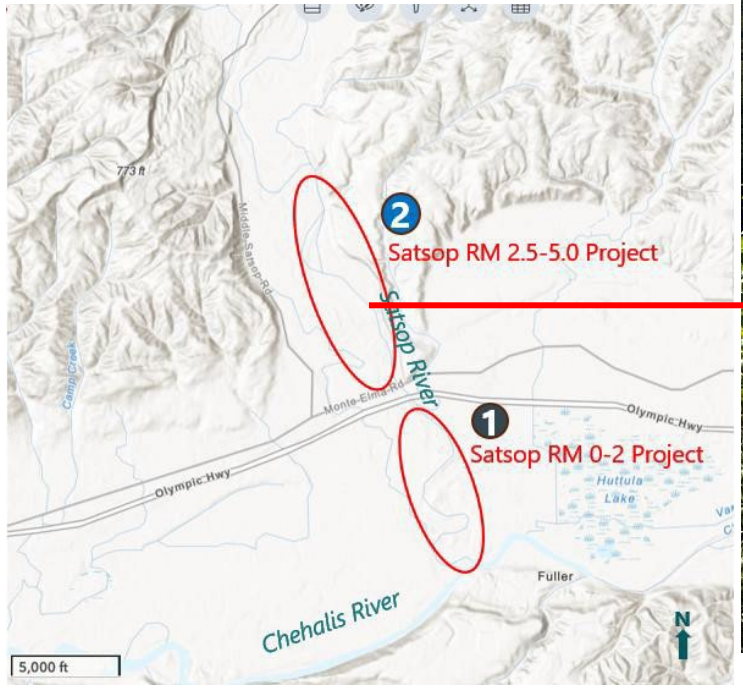
Riparian Restoration Area

Project ELJ

Natural Wood Accumulation

Office of Chehalis Basin

Site 2 2


773 ft
2
Satsop RM 2.5-5.0 Project
Satsop River
Monte Elma Rd
Olympic Hwy
1
Satsop RM 0-2 Project
Olympic Hwy
Huttula Lake
Fuller
Chehalis River
N
5,000 ft



KEY TAKEAWAYS

- ELJs are functioning very well at collecting and stabilizing natural wood moving through the system. Most evident at Satsop RM 0-2 due to ELJs not being buried and avulsion
- Floodplain diversity being created by ELJs (multiple channels across gravel bars at low/medium winter flows; back channels with cover year round)
- Riparian plantings establishing well after two years although beaver/nutria pressure is significant in some areas
- 300 to 500 acres of knotweed treatment/survey since 2022 (WDFW/GHCNWB as well) has been making a significant difference, leading to natural gravel bar succession and opening of areas for underplanting; in the next few years hoping to get to EDRR phase
- Invasive blackberry pressure is significant throughout the two sites; making progress with mow/treat/mow/plant/mow/treat cycles, however it takes significant coordination and consistency across a diversity of areas
- Lots of fish use in Satsop RM 0-2 within and around log jams year round; ad-hoc snorkeling summer 2026 showed significant and diverse fish usage; ELJs creating deep holes too
- Need to focus additional maintenance effort on riparian restoration areas adjacent to ag lands in order to reduce ag noxious weeds from spreading that were previously managed by the landowner



EF SATSOP SCHAFER REACH DESIGN AND PERMITTING

PRESENTED BY: JACOB MURRAY – MCD

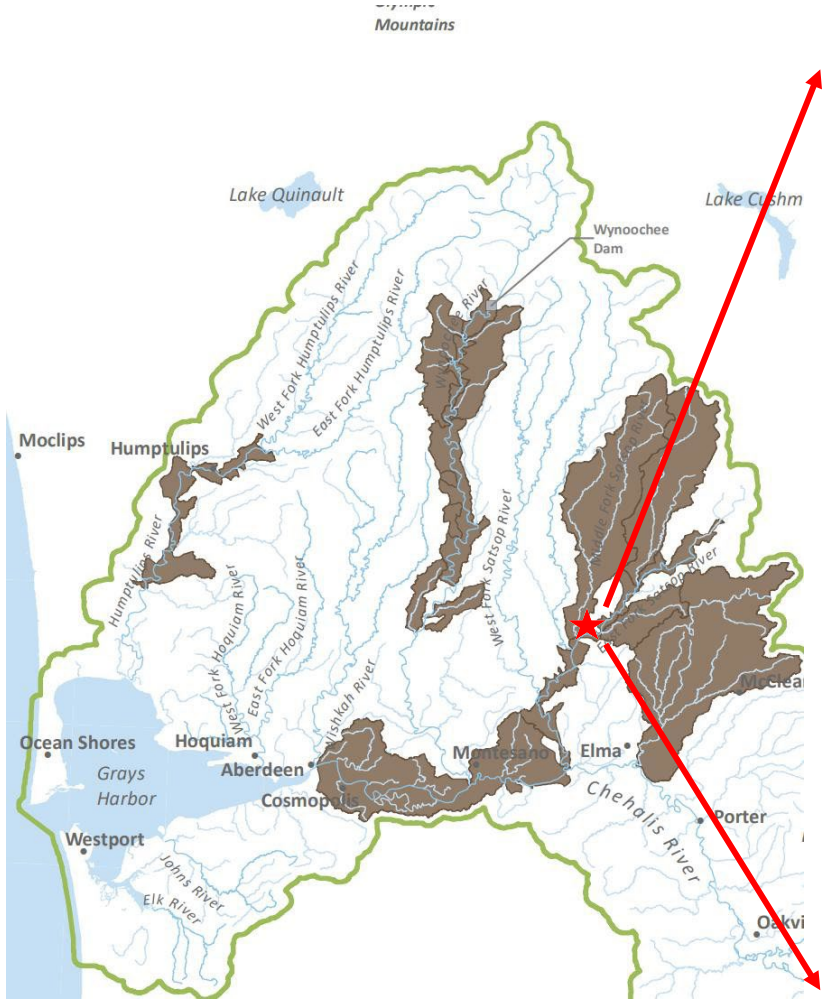
08-21-2025

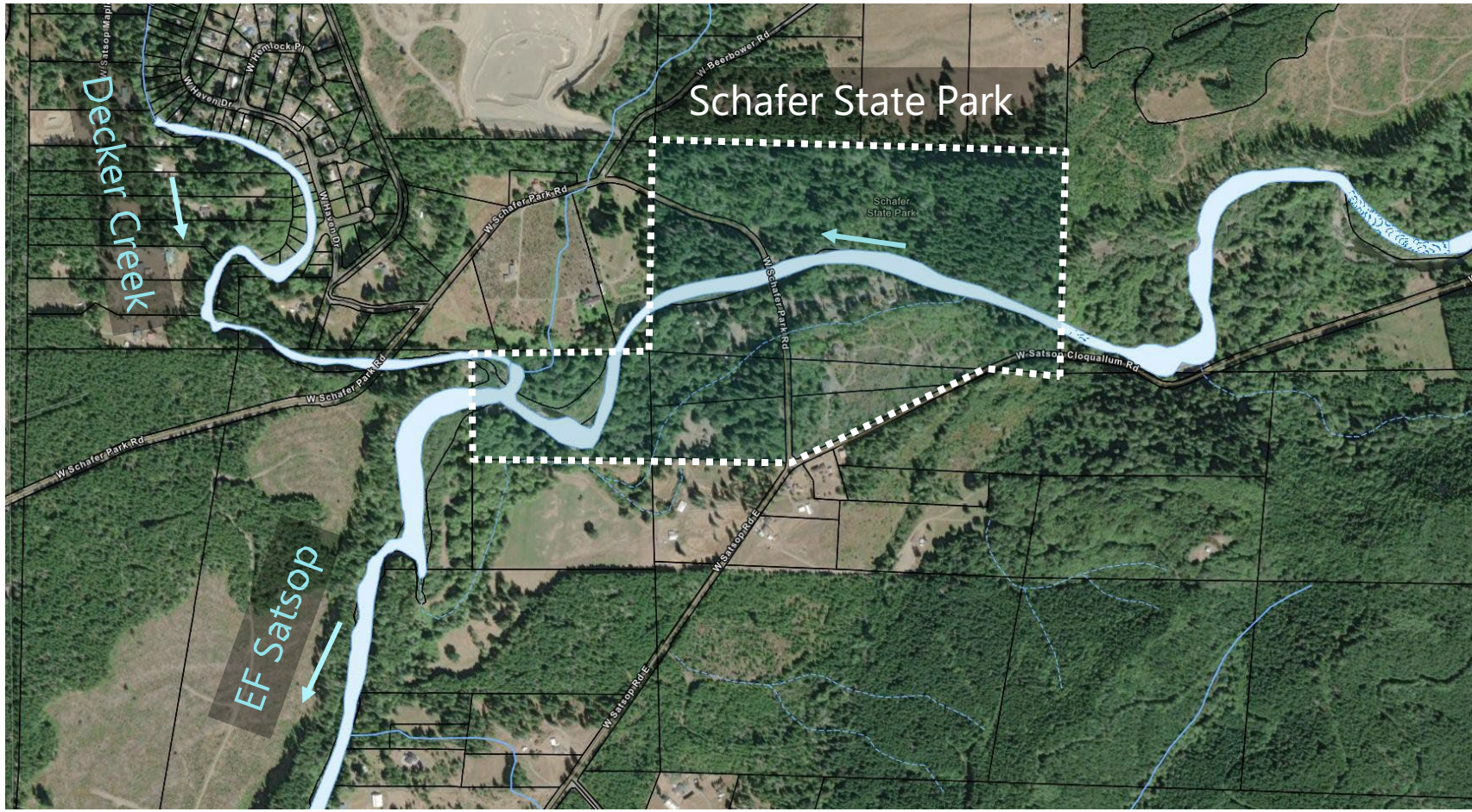
CHEHALIS BASIN STRATEGY

EF SATSOP SCHAFER REACH DESIGN : OVERVIEW

- **Sponsor/Budget**: Mason Conservation District **/** $285,850
- **Landowner type:** Private/Public
- **Ecoregion and GSU:** Upper East Fork Satsop MS GSU
- **ASRP Grant Category:** Priority Project Reach Scale
- **ASRP Project Type:** Design
- **Scope**: Pursuing final design and permitting for a 2-mile reach of the EF Satsop River
- **ASRP Priority Actions for this location:** Placement of LWD, Remove Fish Barriers, and Reconnect/Restore Floodplain
- **Limiting Factors this project addresses:** Key Habitat, Temperature, Habitat Diversity, and Flow
- **ASRP Species:** Winter Steelhead, Coho, Fall Chinook, and Chum

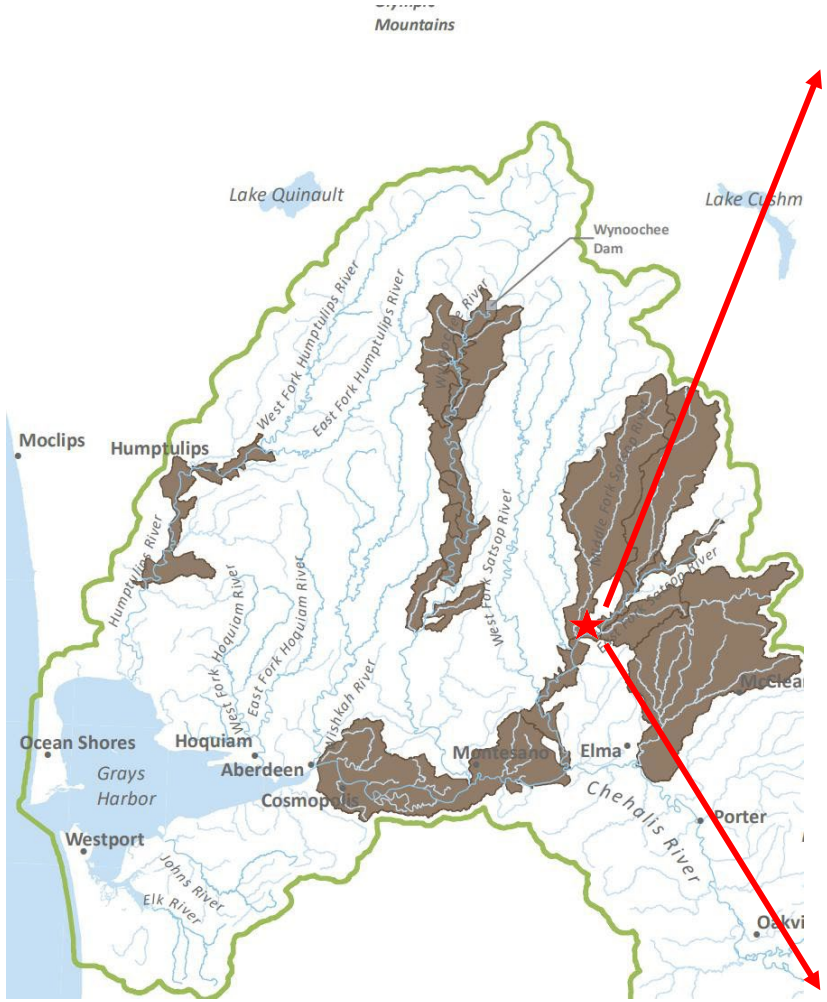
PROJECT LOCATION

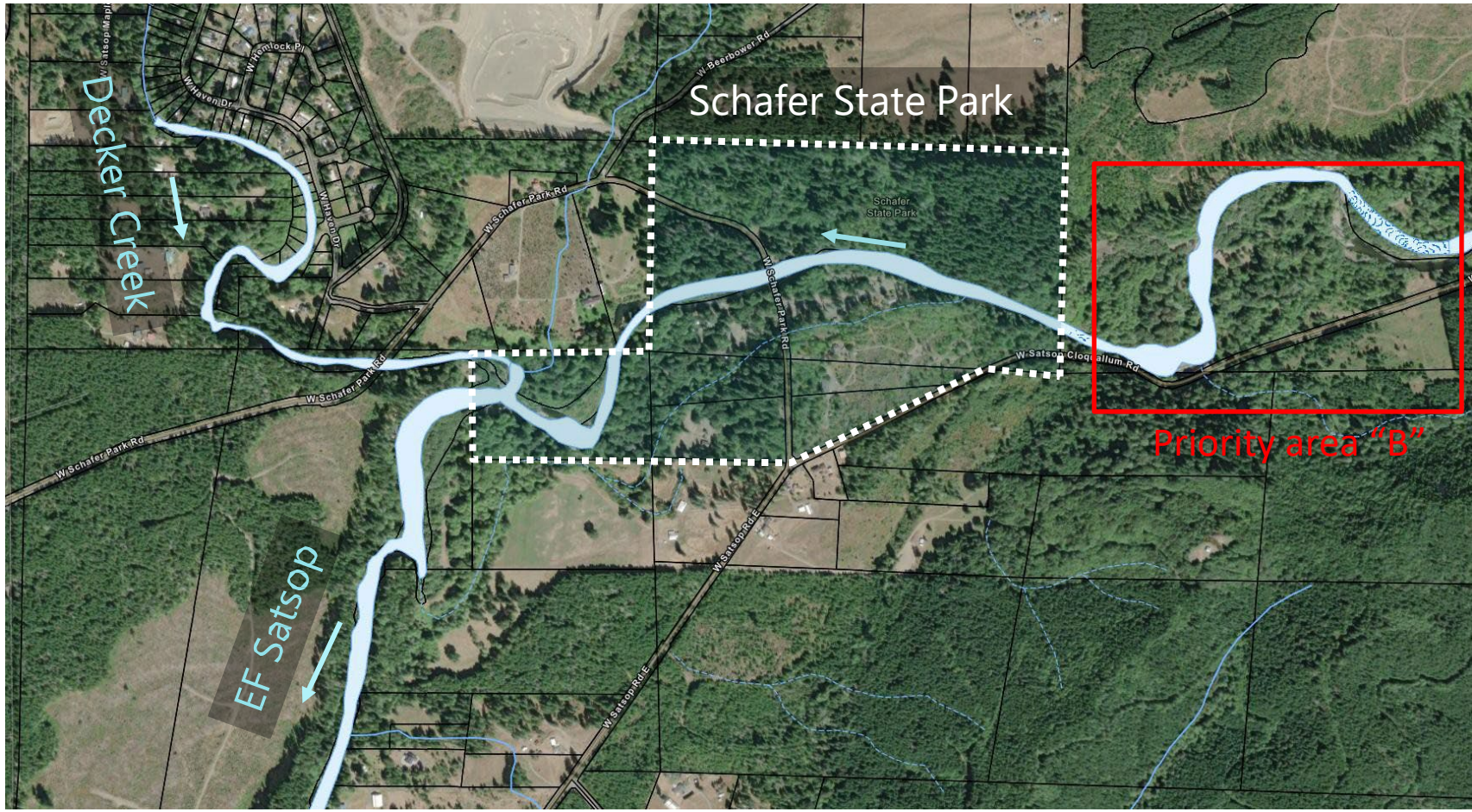




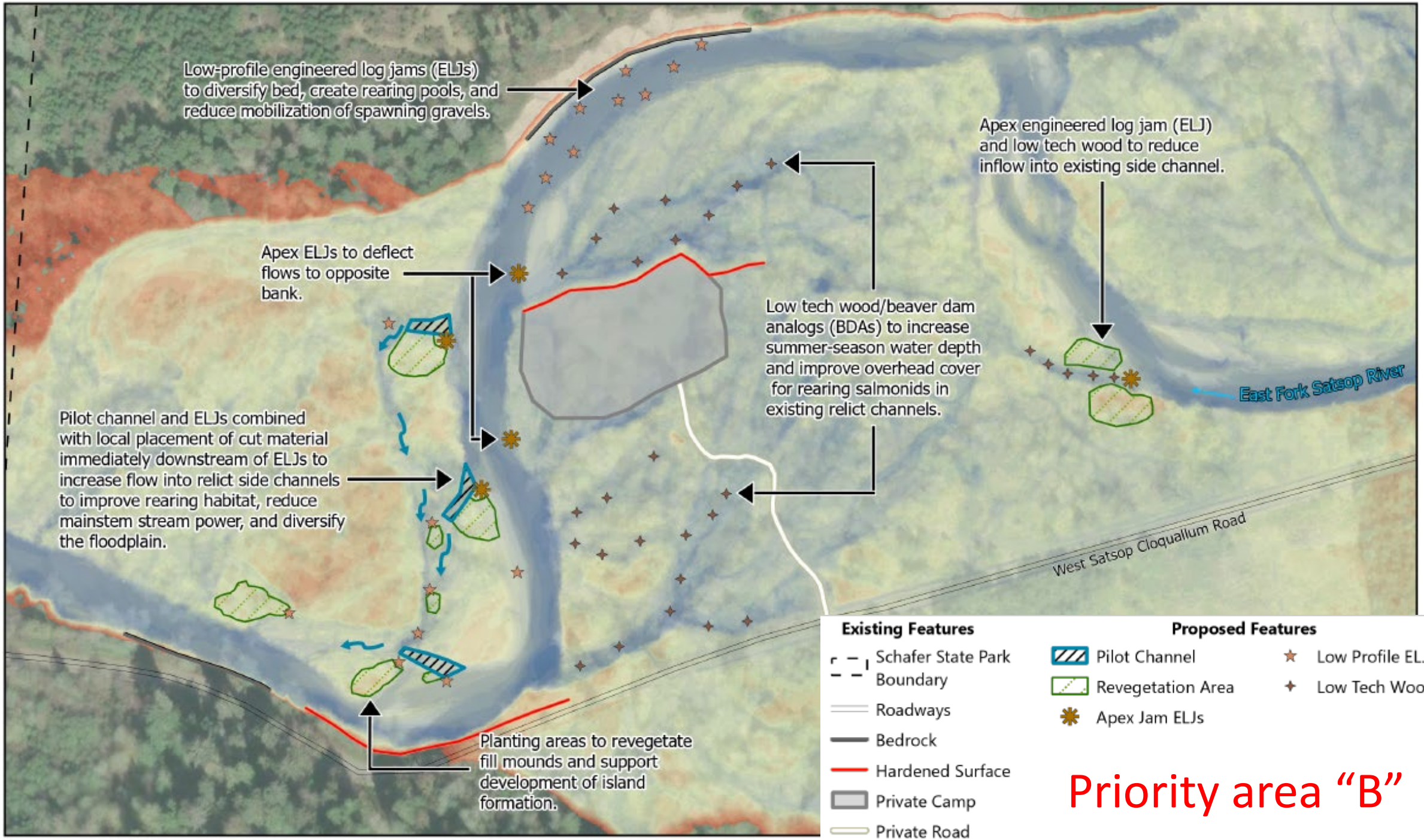
CHEHALIS BASIN STRATEGY

PROJECT LOCATION



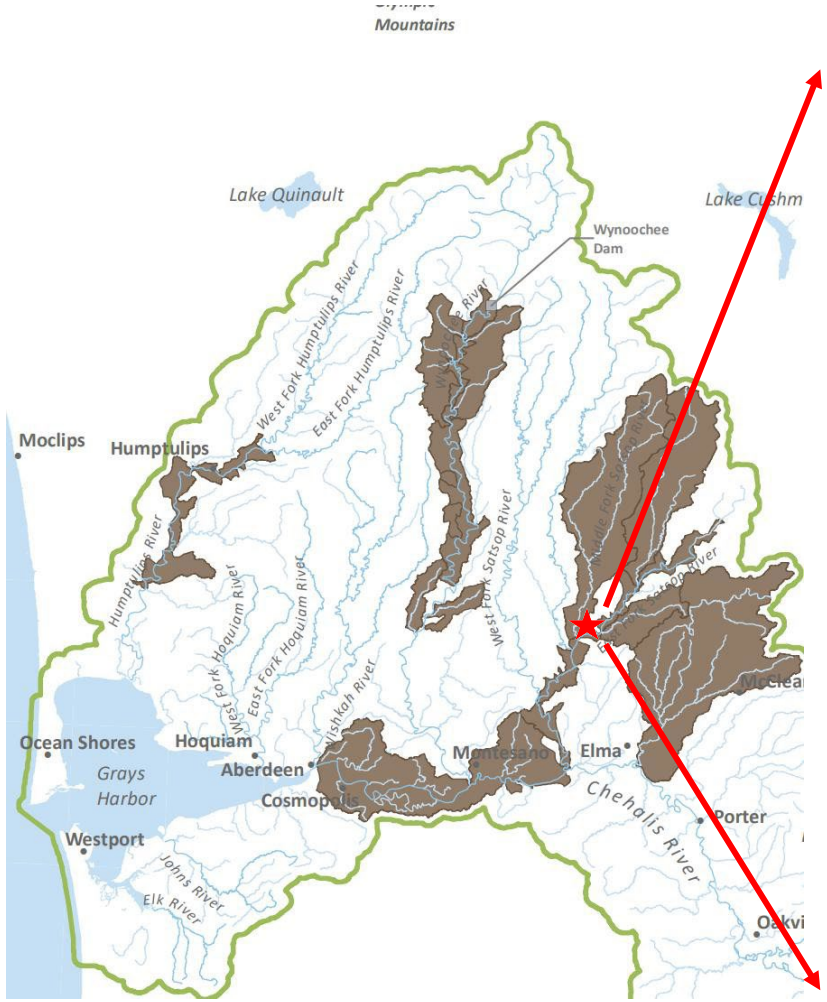


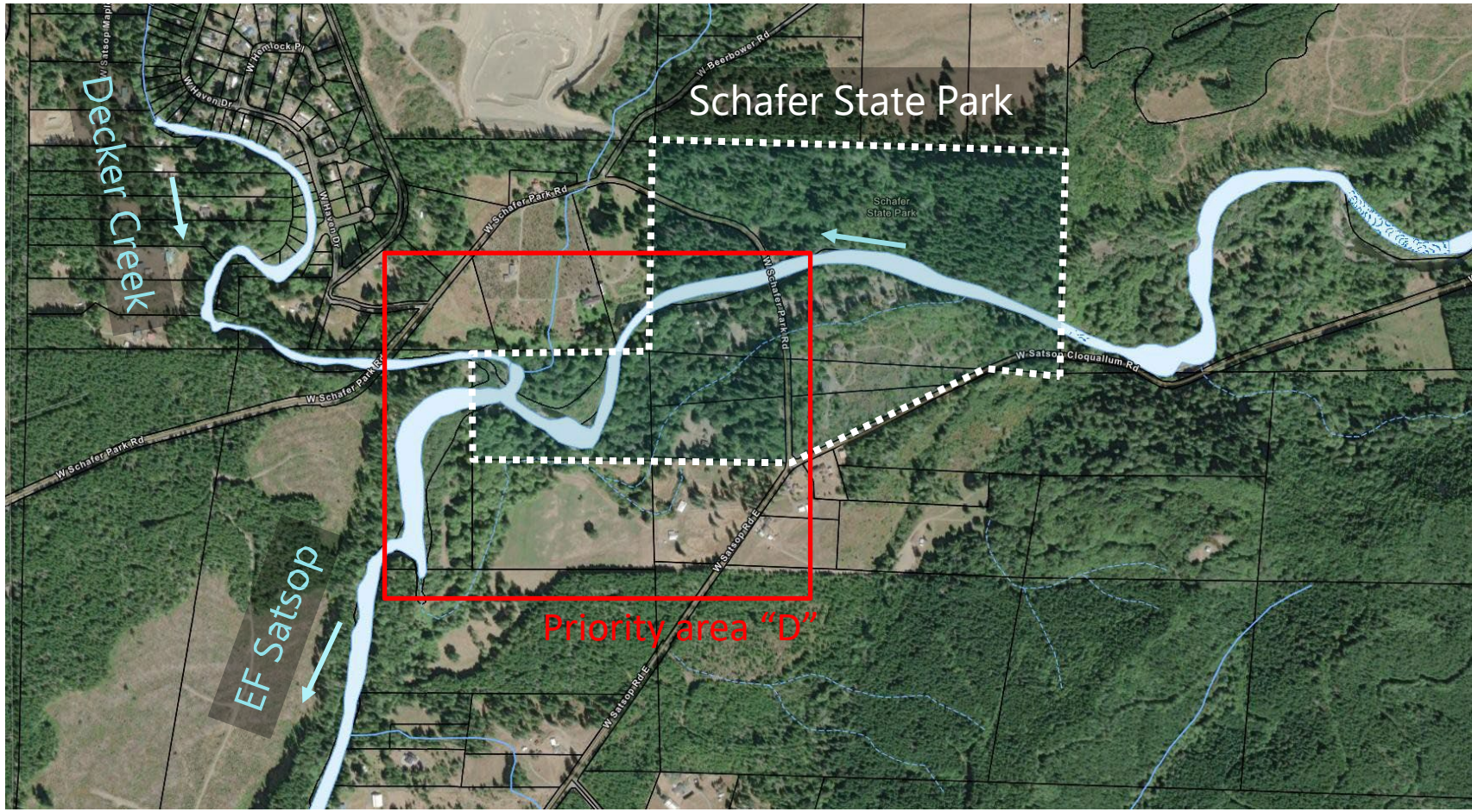
CHEHALIS BASIN STRATEGY



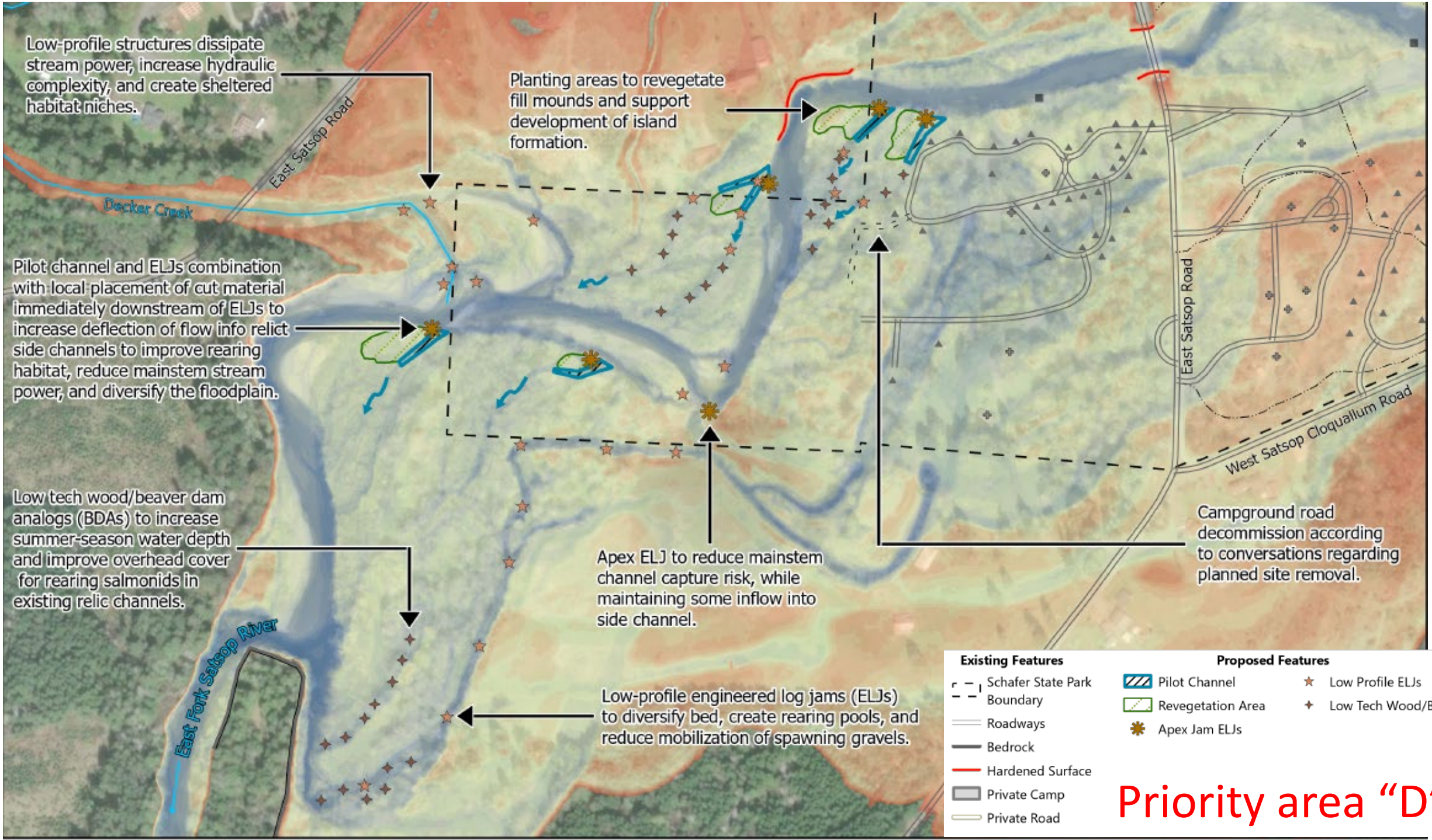
Priority area "B"

PROJECT LOCATION





CHEHALIS BASIN STRATEGY


Low-profile structures dissipate stream power, increase hydraulic complexity, and create sheltered habitat niches.
Planting areas to revegetate fill mounds and support development of island formation.
East Satsop Road
Decker Creek
Pilot channel and ELJs combination with local placement of cut material immediately downstream of ELJs to increase deflection of flow info relict side channels to improve rearing habitat, reduce mainstem stream power, and diversify the floodplain.
East Satsop Road
West Satsop Cloquallum Road
Low tech wood/beaver dam analogs (BDAs) to increase summer-season water depth and improve overhead cover for rearing salmonids in existing relic channels.
Apex ELJ to reduce mainstem channel capture risk, while maintaining some inflow into side channel.
Campground road decommission according to conversations regarding planned site removal.
East Fork Satsop River
Low-profile engineered log jams (ELJs) to diversify bed, create rearing pools, and reduce mobilization of spawning gravels.
Existing Features
Schafer State Park Boundary
Roadways
Bedrock
Hardened Surface
Private Camp
Private Road
Proposed Features
Pilot Channel
Revegetation Area
Apex Jam ELJs
Low Profile ELJs
Low Tech Wood/BDAs
Priority area "D"

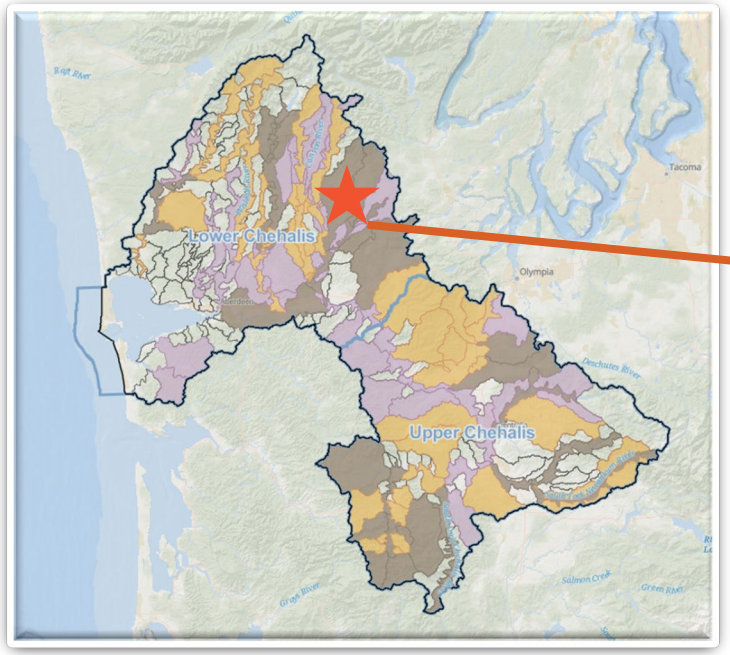
DECKER CREEK RM 1- OVERVIEW

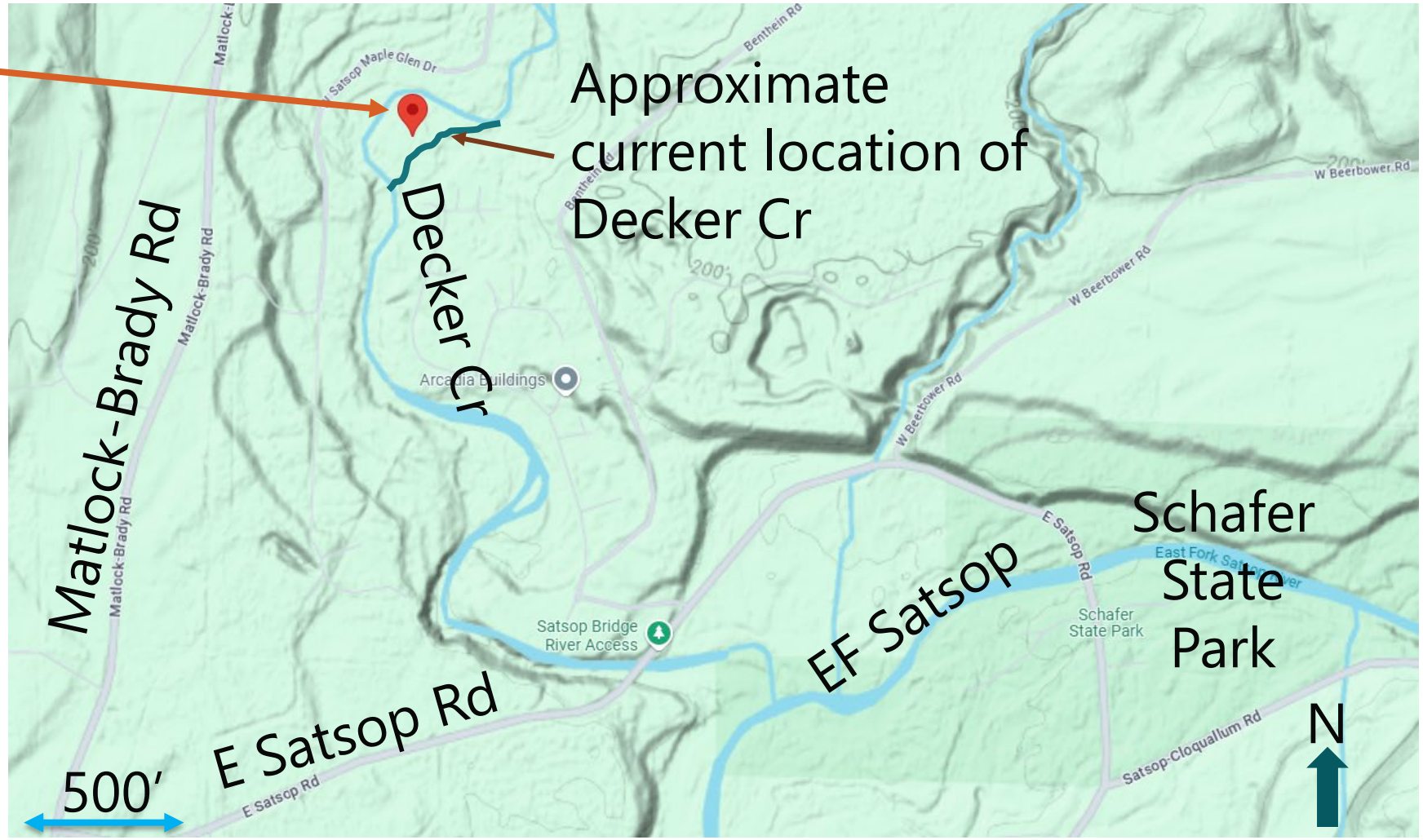
- **Sponsor/Budget**: MCD/ $249,340 + $136,886 proposed increase
- **Landowner type:** timber and residential
- **EcoRegion and** GSU**:** Olympic Mountains/Decker Cr
- **ASRP Project Type:** design, small river

- **Scope**: Excavate and reactivate a side channel on Decker Creek. Install ELJ to maintain pools in Decker Cr and add complexity to the channel. COST INCREASE – cost to include designs for the fish barrier correction.

- **ASRP Priority Actions for this location: place large wood, reconnect floodplain, Barrier Correction**
- **Limiting Factors this project addresses:** key habitat, temperature, habitat diversity
- **ASRP Species(Project Focal Species;** *list other species present at site*): steelhead, coho, fall Chinook, chum

DECKER CREEK RM 1 : BASIN LOCATION



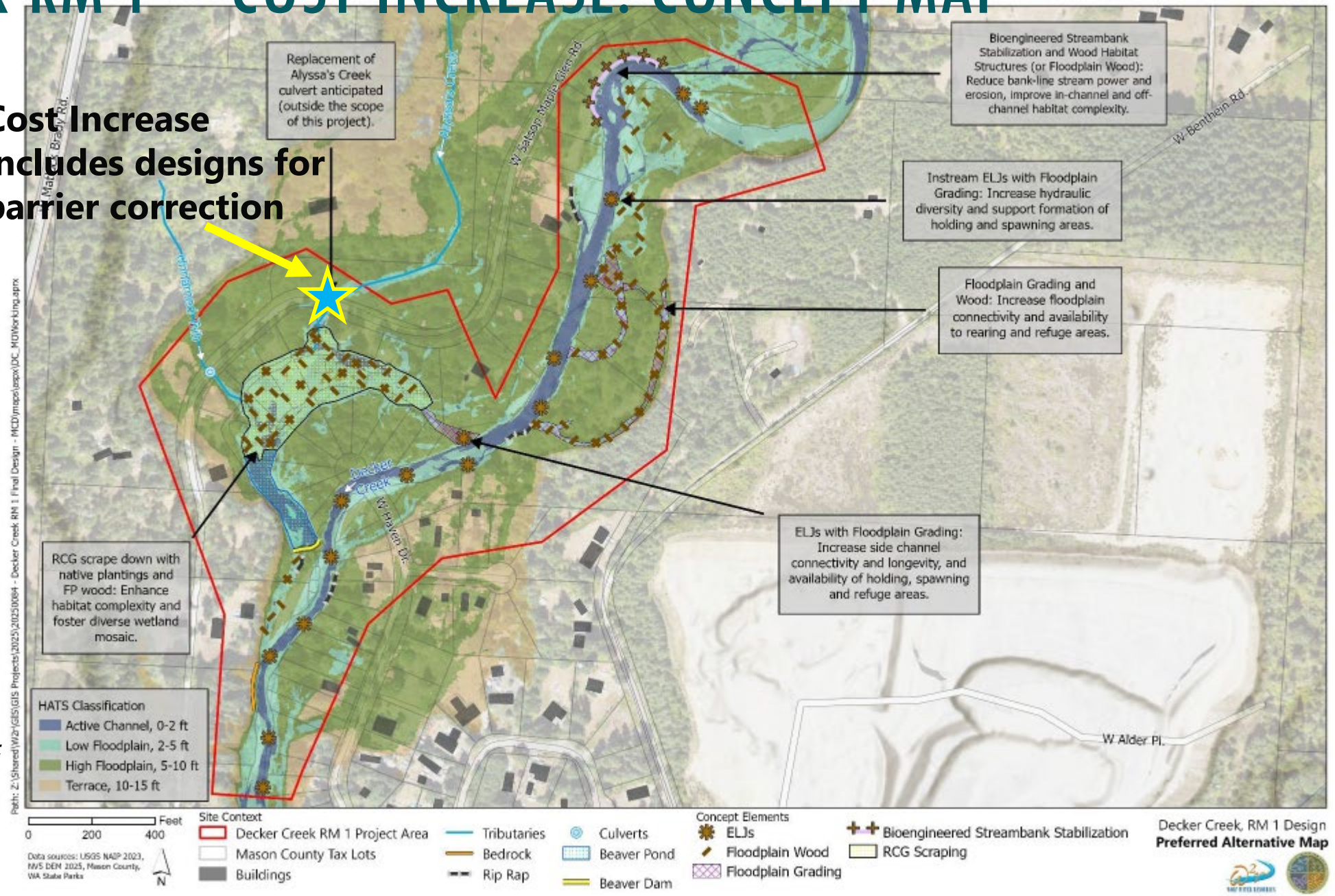


47.10481, -123.48143

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DECKER CREEK RM 1 – COST INCREASE: CONCEPT MAP

- Partially excavate remnant main channel to connect to existing outlet flows
- Install ELJs
- Complete final designs
- Designs for fish barrier correction (WDFW site ID# DC07MCD)



DECKER CREEK RM 1 : PHOTOS



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DECKER CREEK RM 1 : PHOTOS



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DECKER GSU TROUT UNLIMITED

ALEX GUSTAFSON AND ADAM HIGH

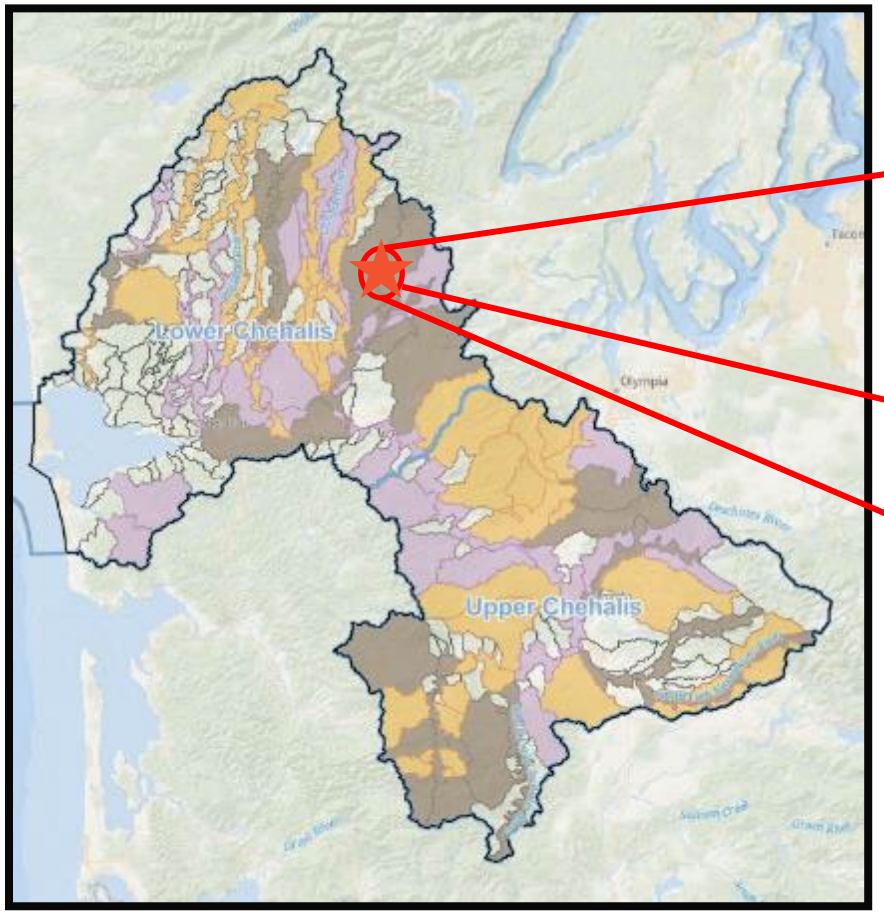
October 14, 2026

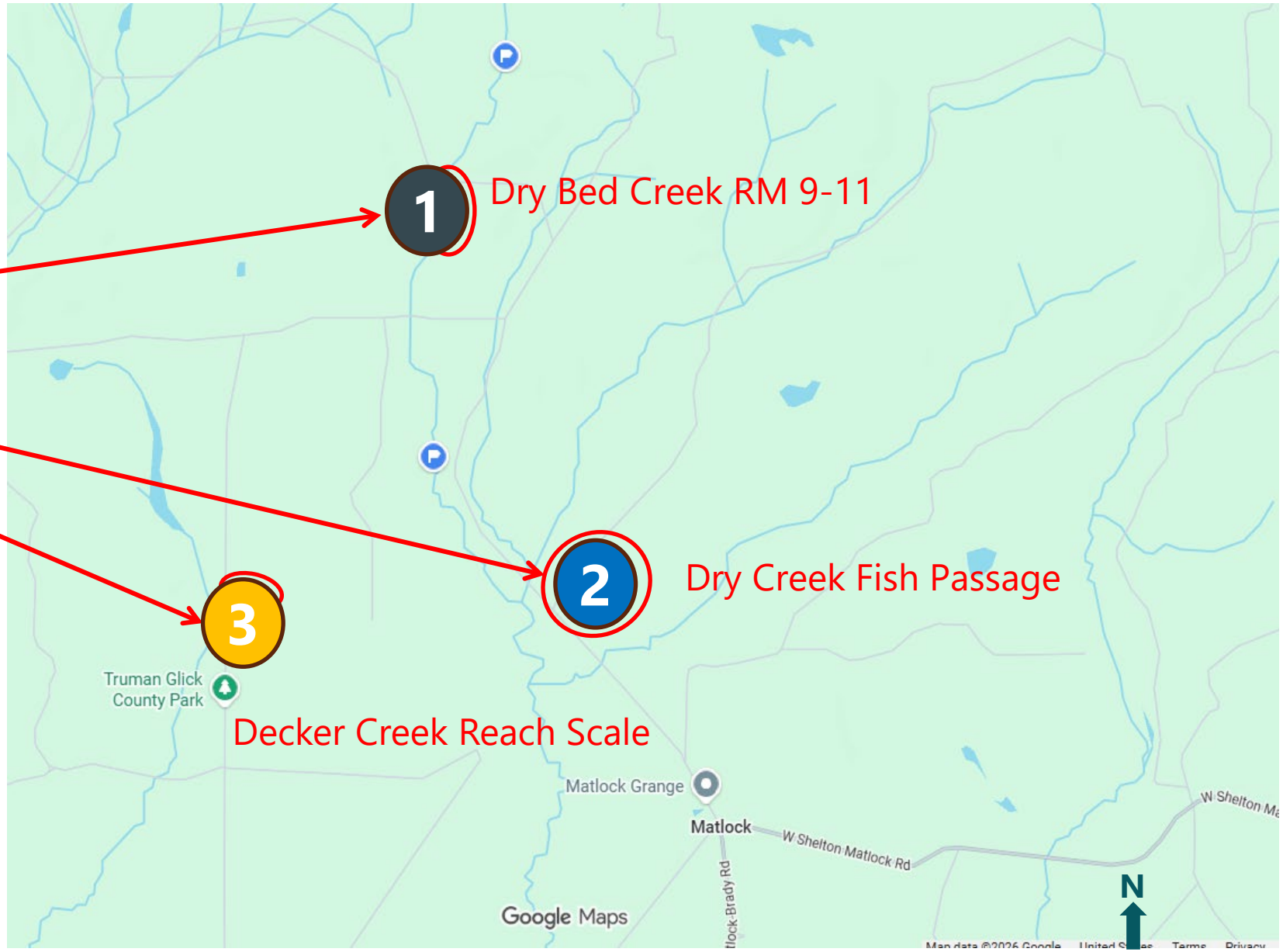
ASRP Progress & Planning Workshop

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TROUT UNLIMITED







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TROUT UNLIMITED

Project Name (Sponsor)	Status	Project Cost	River miles & Acres
Dry Bed Creek RM 9-11 (TU) 1	Design	ASRP $183.835	1.7 Miles
Dry Creek Fish Passage (TU) 2	Design	FBRB$349,750 ASRP$173,768	7.09 Miles
Decker Creek ~RM 7-9.5 (TU) 3	In development	$$ TBD	TBD Miles

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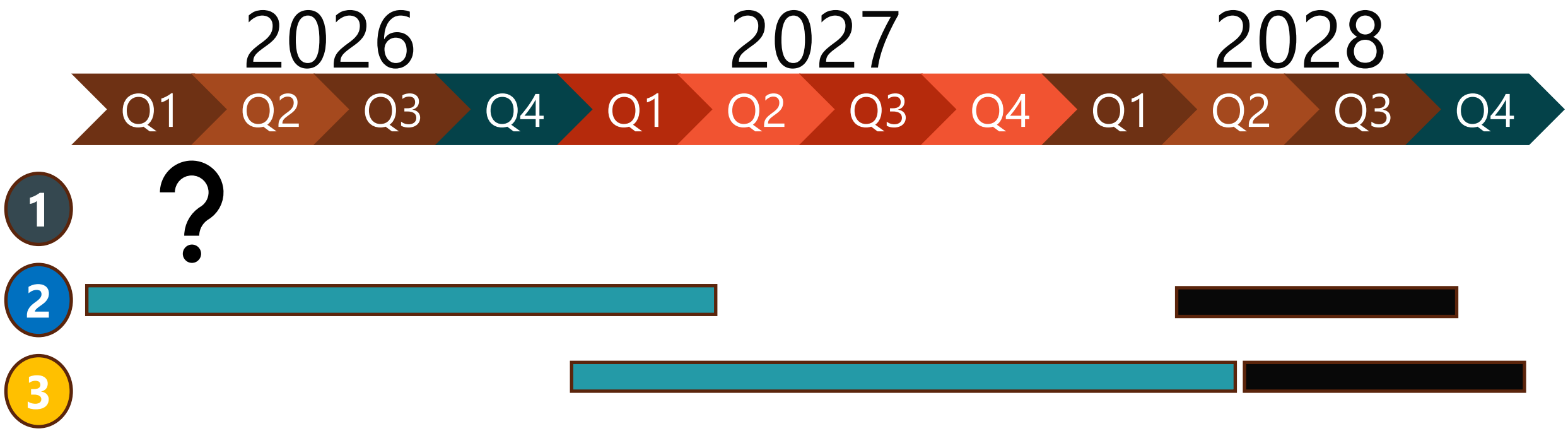
TROUT UNLIMITED

	BDAs/ PALS	ELJs	Side Channel Creation	Barrier Removal
Water Temp		1 2	1	
Winter High Flow Refugia	1	1 2	1	2
Side Channel Habitat	1	1 3	1	
Floodplain Connection	1	1 3	1	
Habitat Diversity	1	1 2 3	1	
Sediment Storage	1			
Summer Low Flow		1 2		2

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TROUT UNLIMITED

PROJECT TIMELINE



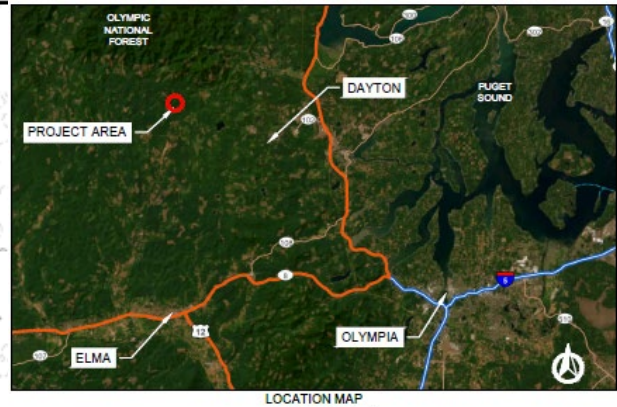
Office of Chehalis Basin

TROUT UNLIMITED

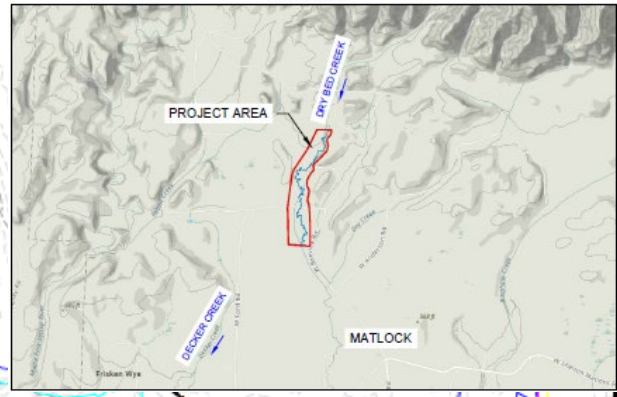
Planning Design Construction

Dry Bed Creek RM 9-11

1



LOCATION MAP
SCALE: NTS







EXISTING DRY BED CREEK ALIGNMENT

FLOW

145+00

150+00

155+00

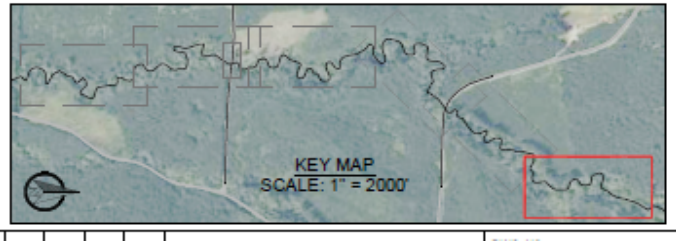
165+00

TETRA TECH
www.tetratech.com

0' 50' 100' 200'

NOTES:
1. PROPOSED MACHINE-PLACED 11-LOG BANK HABITAT STRUCTURE. SEE SHEET C-111 FOR DETAILS.
2. PROPOSED MACHINE-PLACED BANK ATTACHED PALS STRUCTURE. SEE SHEET C-112 FOR DETAILS.
3. PROPOSED HELICOPTER-PLACED 2-LOG CROSS STRUCTURE. SEE SHEET C-113 FOR DETAILS.
4. PROPOSED HELICOPTER-PLACED 3-LOG CROSS STRUCTURE. SEE SHEET C-114 FOR DETAILS.
5. PROPOSED HELICOPTER-PLACED ALCOVE HABITAT STRUCTURE. SEE SHEET C-115 FOR DETAILS.

LEGEND
- EXISTING 1-FOOT CONTOUR
- EXISTING 5-FOOT CONTOUR
- EXISTING STREAM ALIGNMENT
- EXISTING ACCESS ROAD
- PARCEL BOUNDARY
- EXISTING PROJECT BOUNDARY
- EXISTING 100-YR WSE
- EXISTING BANKFULL WSE
- PROPOSED ACCESS ROUTE
- PROPOSED HELICOPTER-PLACED LWM
- PROPOSED MACHINE-PLACED LWM



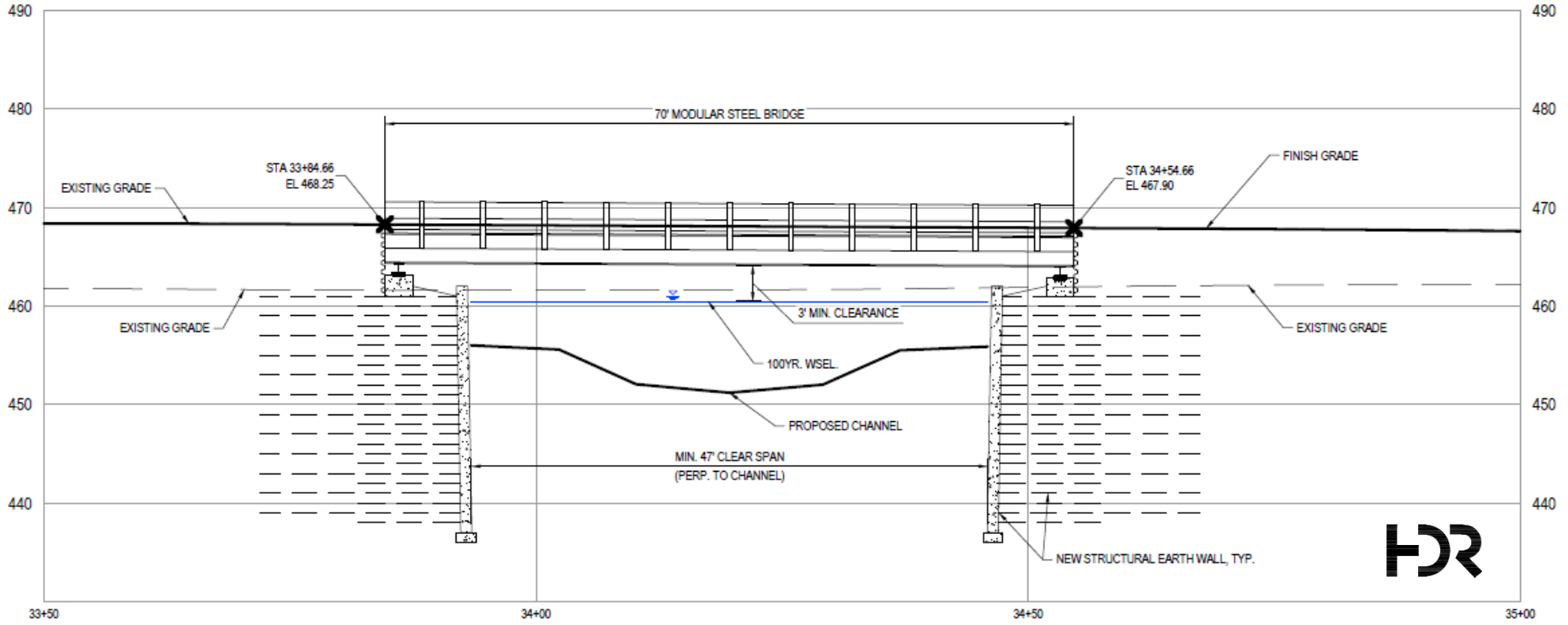
Dry Creek Fish 2 Passage





7.09mi of gain!





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TROUT UNLIMITED

HDR

Decker Creek 3 ~RM 7-9.5

4.2.4 Decker Creek – Segment 03 – Reach 13

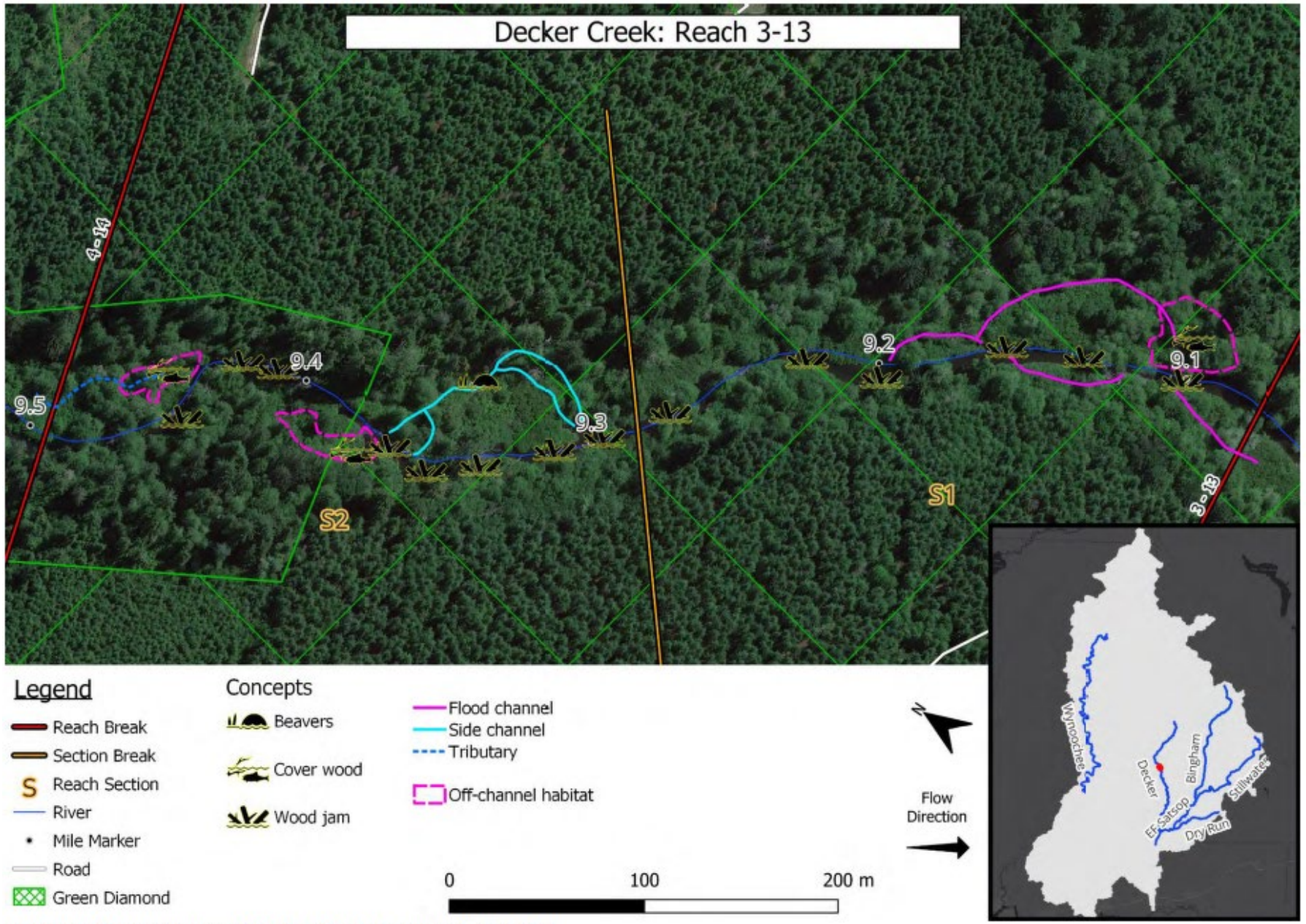


Figure 9. Overview map of Decker Creek Segment 3, Reach 13.

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TROUT UNLIMITED

LESSONS LEARNED/ REMAINING QUESTIONS

- Hydrology
- Fish use presence vs. quantity



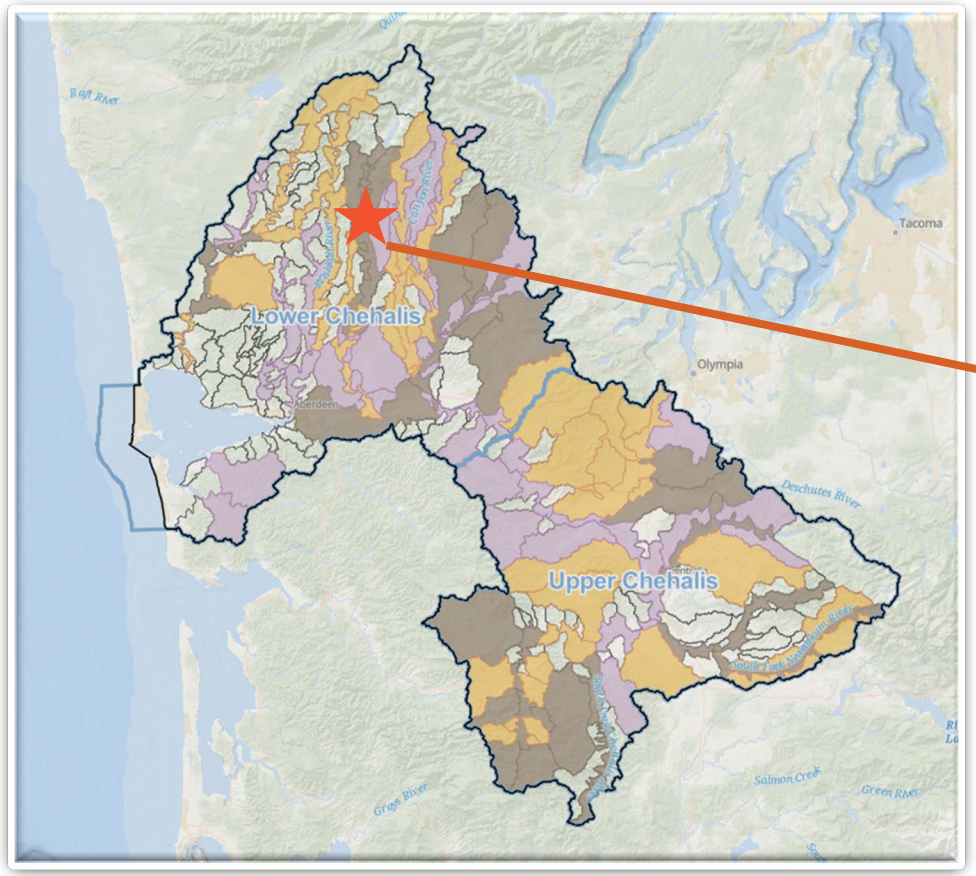
MIDDLE WYNOOCHEE GSU RESTORATION PLANNING

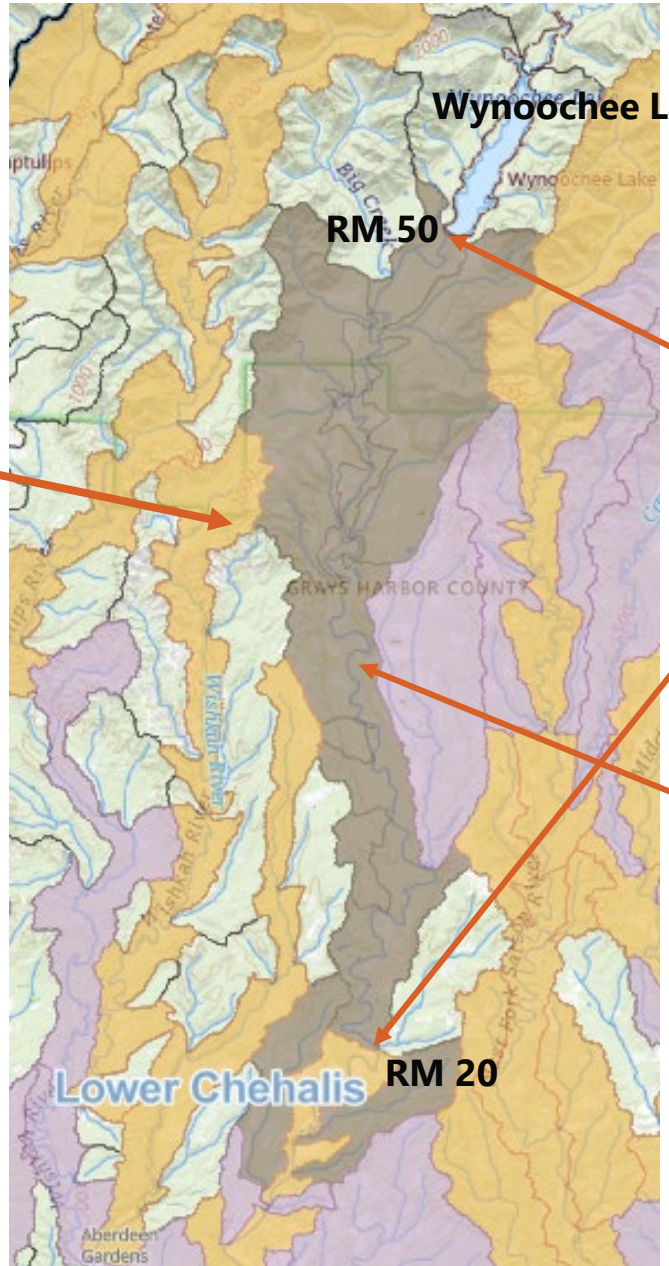
CONTACT: MACK HUNTER, GRAYS HARBOR CONSERVATION DISTRICT

MIDDLE WYNOOCHEE GSU RESTORATION PLANNING: OVERVIEW

- **Sponsor/Budget**: Grays Harbor Conservation District, Request: **$232,447.50**
- **Landowner type:** Forestry, agricultural, government owned, and residential
- **EcoRegion and GSU:** Olympic Mountains, Middle Wynoochee Mainstem GSU
- **ASRP Grant Category:** Priority Project
- **ASRP Project Scope:** Reach Scale, Riparian
- **ASRP Project Tasks:** Planning, Design
- **Short Description**: The Middle Wynoochee GSU restoration Planning project addresses Chehalis Basin Strategy Aquatic Species Restoration through identifying and planning reach-scale restoration priorities within the Middle Wynoochee MS GSU.
- **ASRP Priority Actions for this location:** Place large wood, reconnect/restore floodplain, riparian restoration
- **Limiting Factors this project addresses:** Key habitat
- **ASRP Species:** Chinook (fall), chum, coho, winter steelhead

BASIN LOCATION





GSU Extent

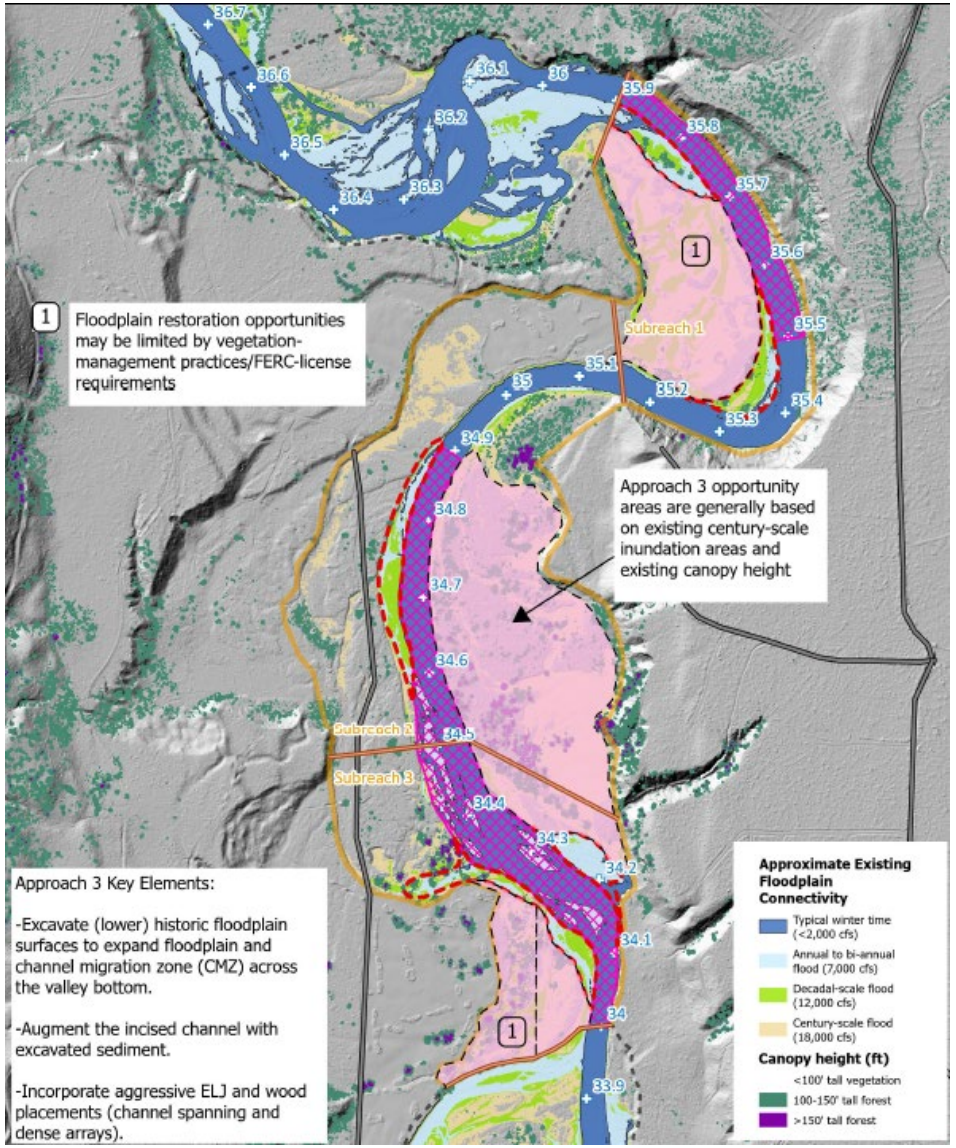
RM 34-36 Project Development

N

4 mi

CONTEXT AND DEVELOPMENT

- Satsop and Wynoochee Aquatic Habitat Restoration Planning and Prioritization (NSD, CFS)
  - GHCD-sponsored restoration prioritization
  - Identified restoration opportunities in Wynoochee GSU
- Wynoochee RM 34-36
  - Project development following previous prioritization effort
  - 2024-2025, resulted in this current effort



RESTORATION PLANNING OUTCOMES

- The overall goal of the project is to re-assess the Wynoochee MS GSU to identify and prioritize restoration opportunities (short term). This will identify a reach or GSU-wide action for implementation (long term).

- RM 34 to 36 identified shortcomings in the previous assessment, and the TRT suggested that a better understanding of the GSU was a high priority relative to work in that reach.

- This project development will seek to identify:
  - A reach of interest or a GSU wide restoration action that will be the focus of concept designs and follow up project(s)
    - 10 miles of highest priority habitat for restoration within the GSU
  - Riparian restoration opportunities (low hanging fruit)
  - Stakeholder priorities through workshops/outreach







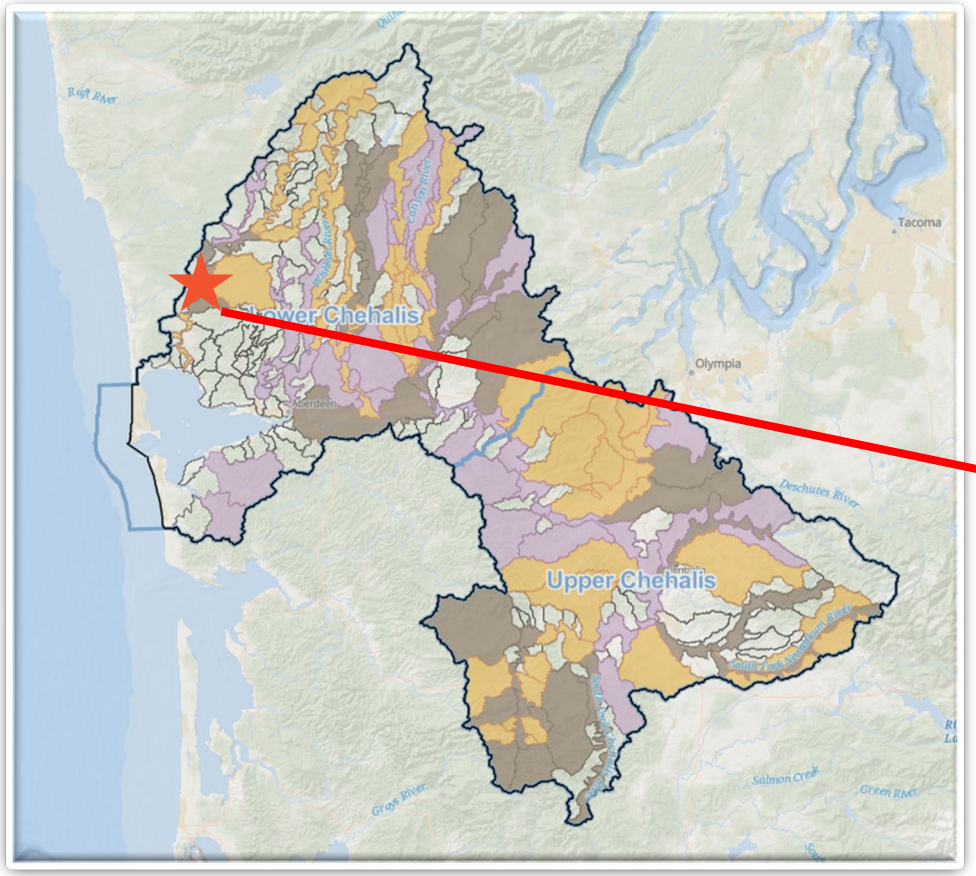
HUMPTULIPS RM 9-12 AND 18-19 RESTORATION PLANNING

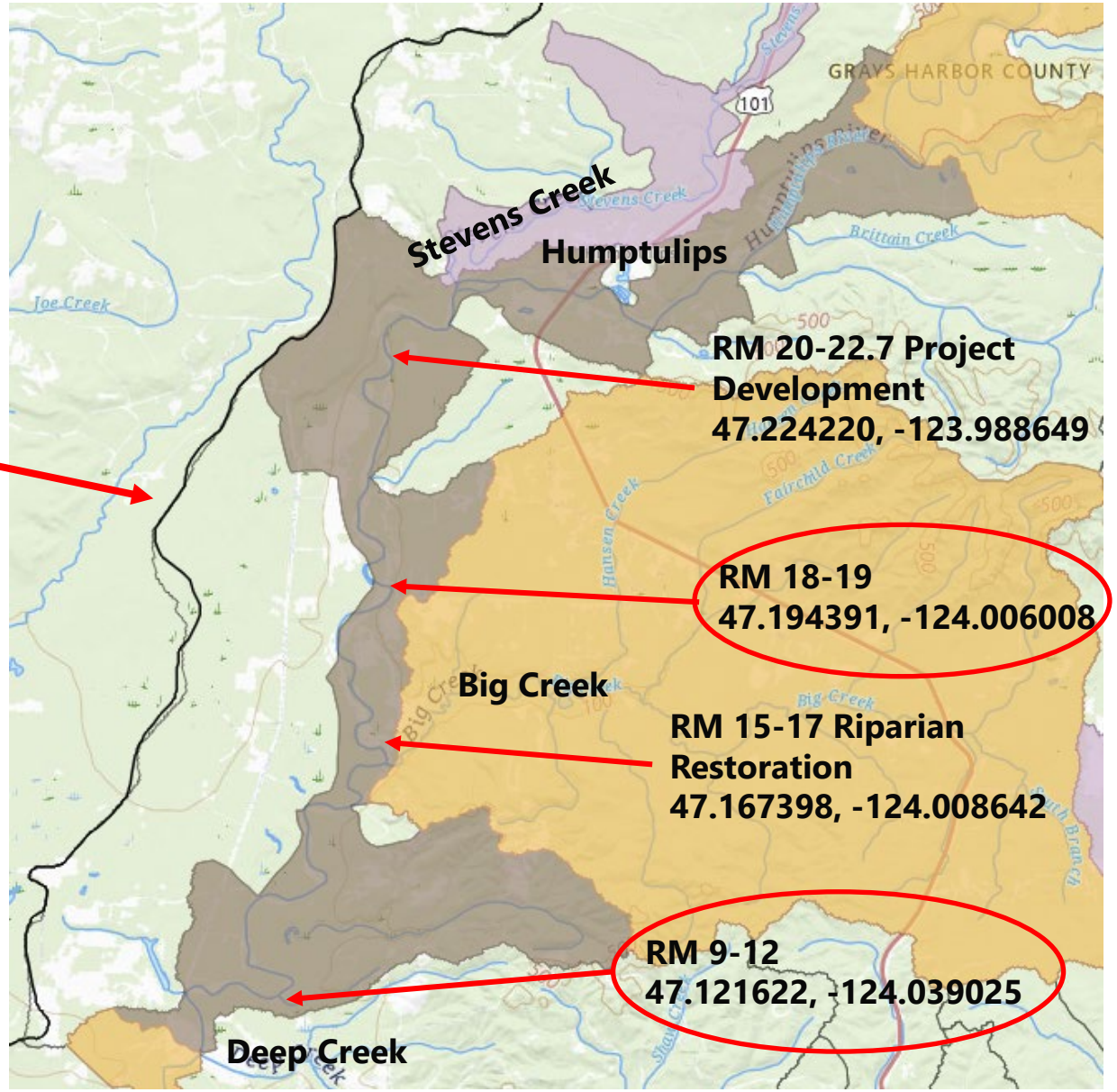
CONTACT: MACK HUNTER, GRAYS HARBOR CONSERVATION DISTRICT

HUMPTULIPS RM 9-12 AND 18-19: OVERVIEW

- **Sponsor/Budget**: Grays Harbor Conservation District, Request: **$152,697.50**
- **Landowner type:** Agriculture, residential, forestry, conservation organizations
- **EcoRegion and GSU:** Grays Harbor Tributaries, Middle Humptulips MS GSU
- **ASRP Grant Category:** Priority Project
- **ASRP Project Scope:** Reach Scale, Riparian, Barrier Correction
- **ASRP Project Tasks:** Planning, Design
- **Short Description**: The Humptulips RM 9-12 and 18-19 Restoration Planning project addresses Chehalis Basin Strategy Aquatic Species Restoration through identifying and planning reach-scale restoration within two reaches of the Middle Humptulips MS GSU.
- **ASRP Priority Actions for this location:** Place large wood, riparian restoration, and reconnect/restore floodplain
- **Limiting Factors this project addresses:** Key habitat, temperature, habitat diversity, channel stability
- **ASRP Species:** Chinook (fall), chum, coho, steelhead (winter)

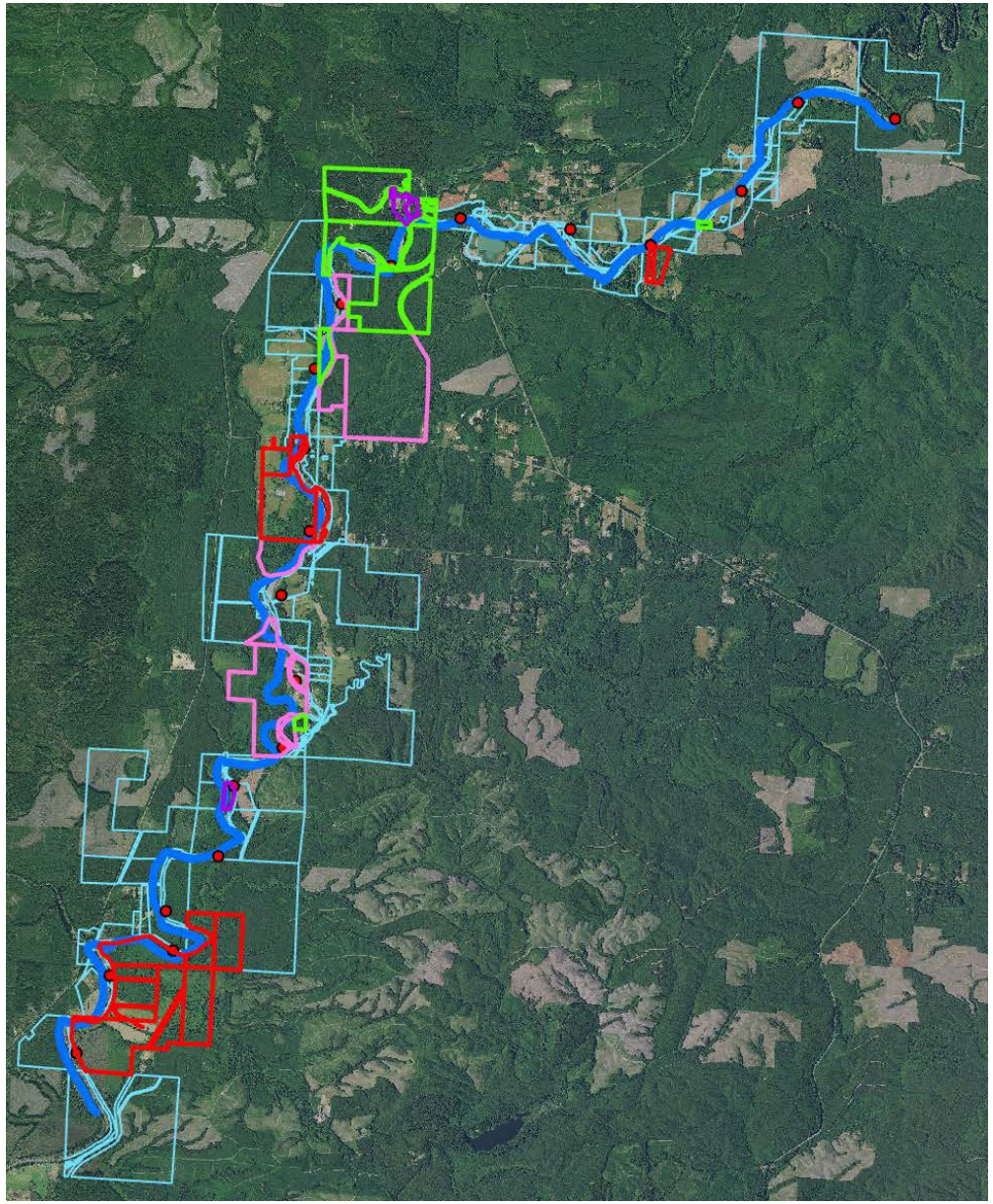
BASIN LOCATION



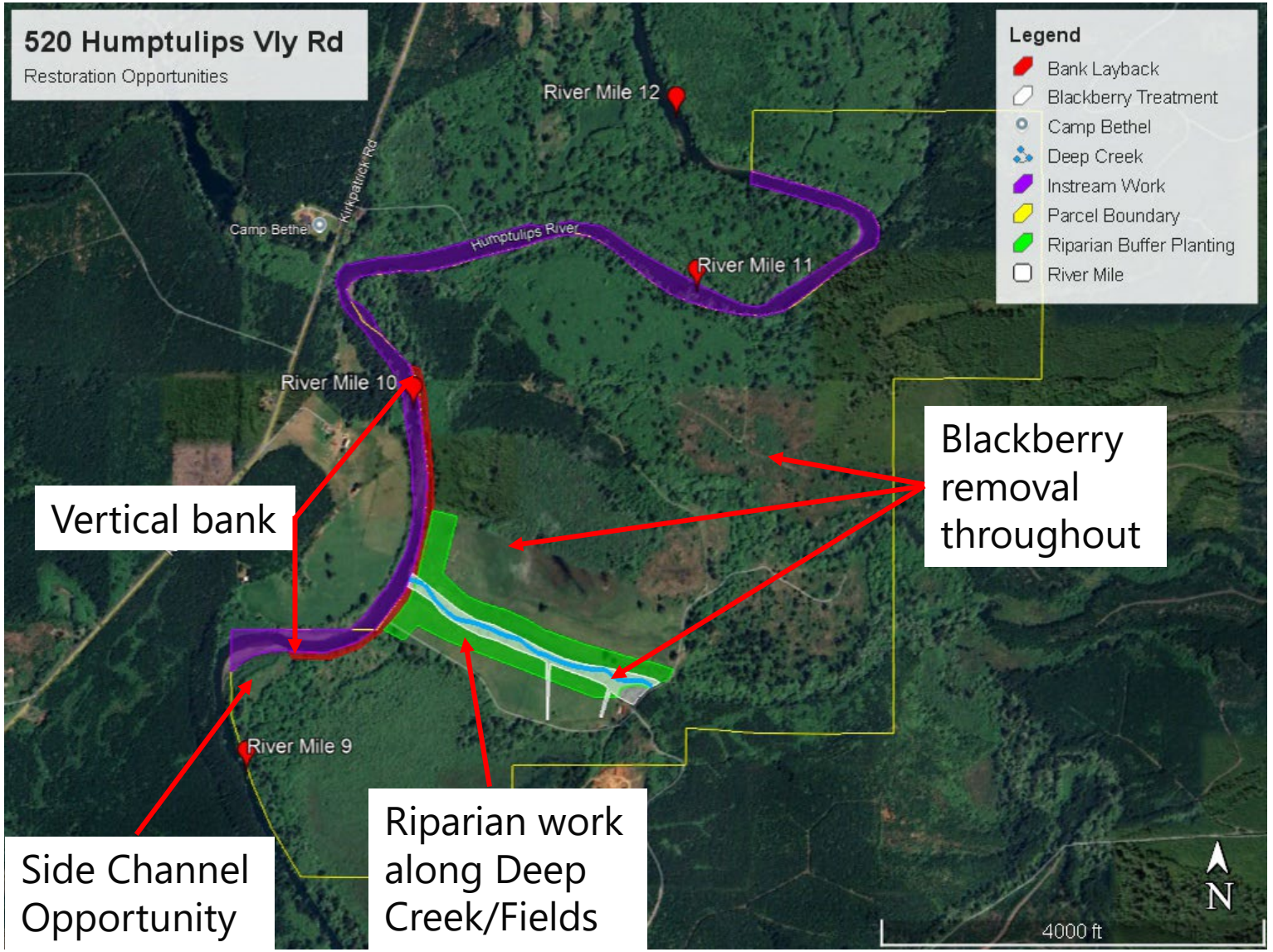


CONTEXT AND DEVELOPMENT

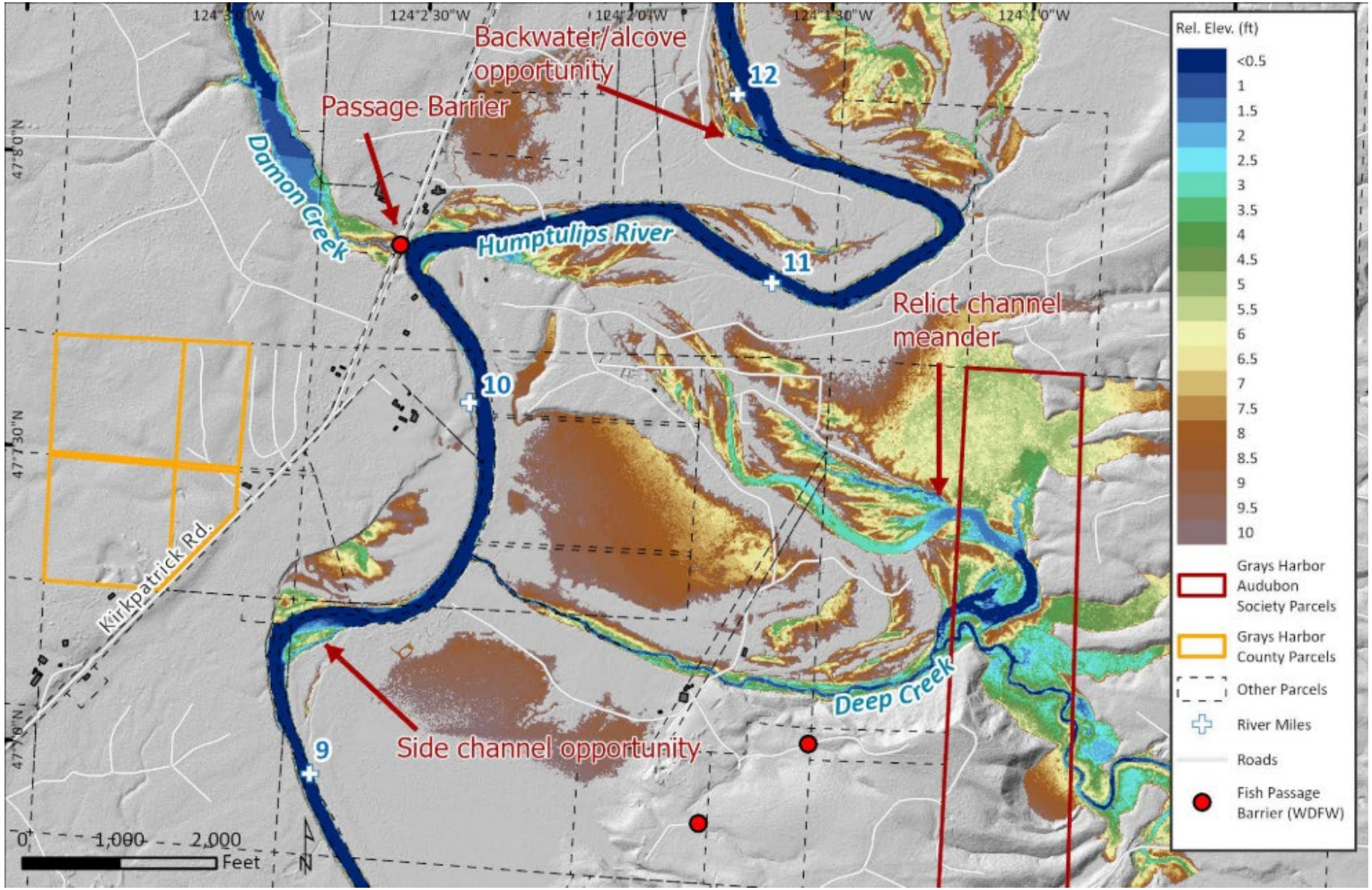
- Middle Humptulips Outreach and Project Development (RCO 22-1774P)
  - GHCD/TU co managed effort, 2023-2025
- Humptulips Restoration Strategy
  - Identified geomorphic reaches and restoration actions
  - NSD on behalf of QIN for coho fisheries disaster relief funding



CONCEPT MAP: RM 9-12



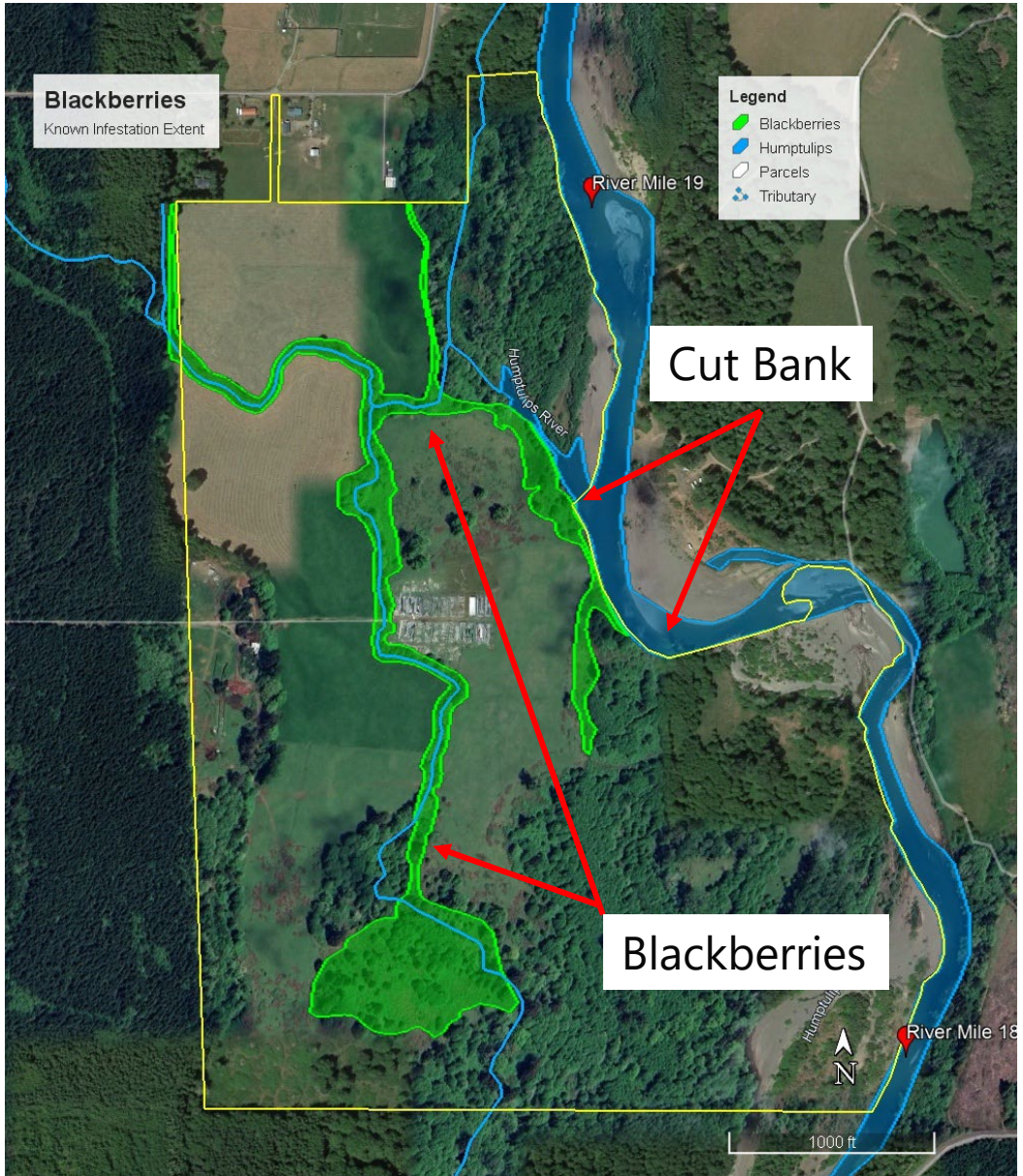
CONCEPT MAP: RM 9-12

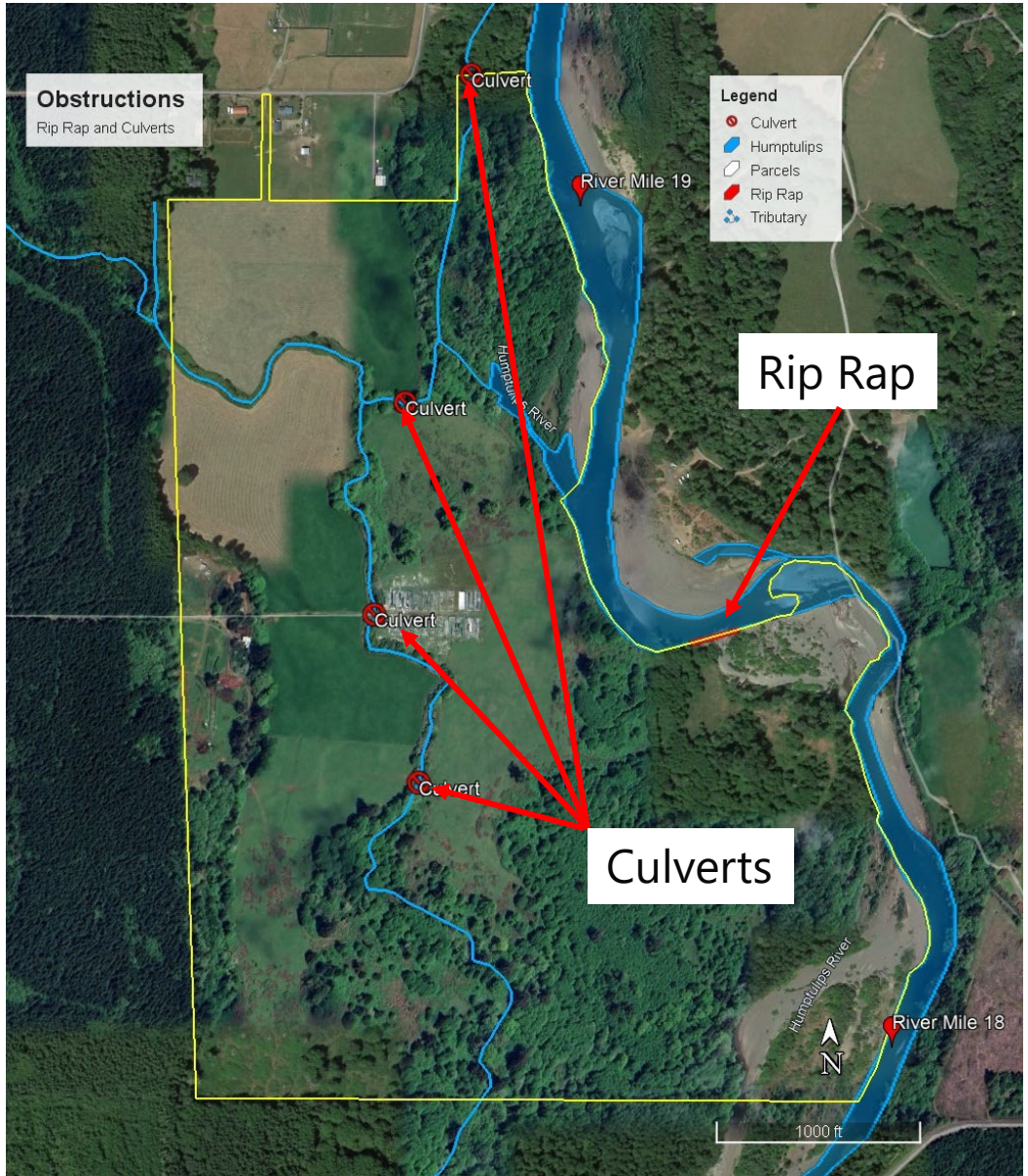


RM 9-12

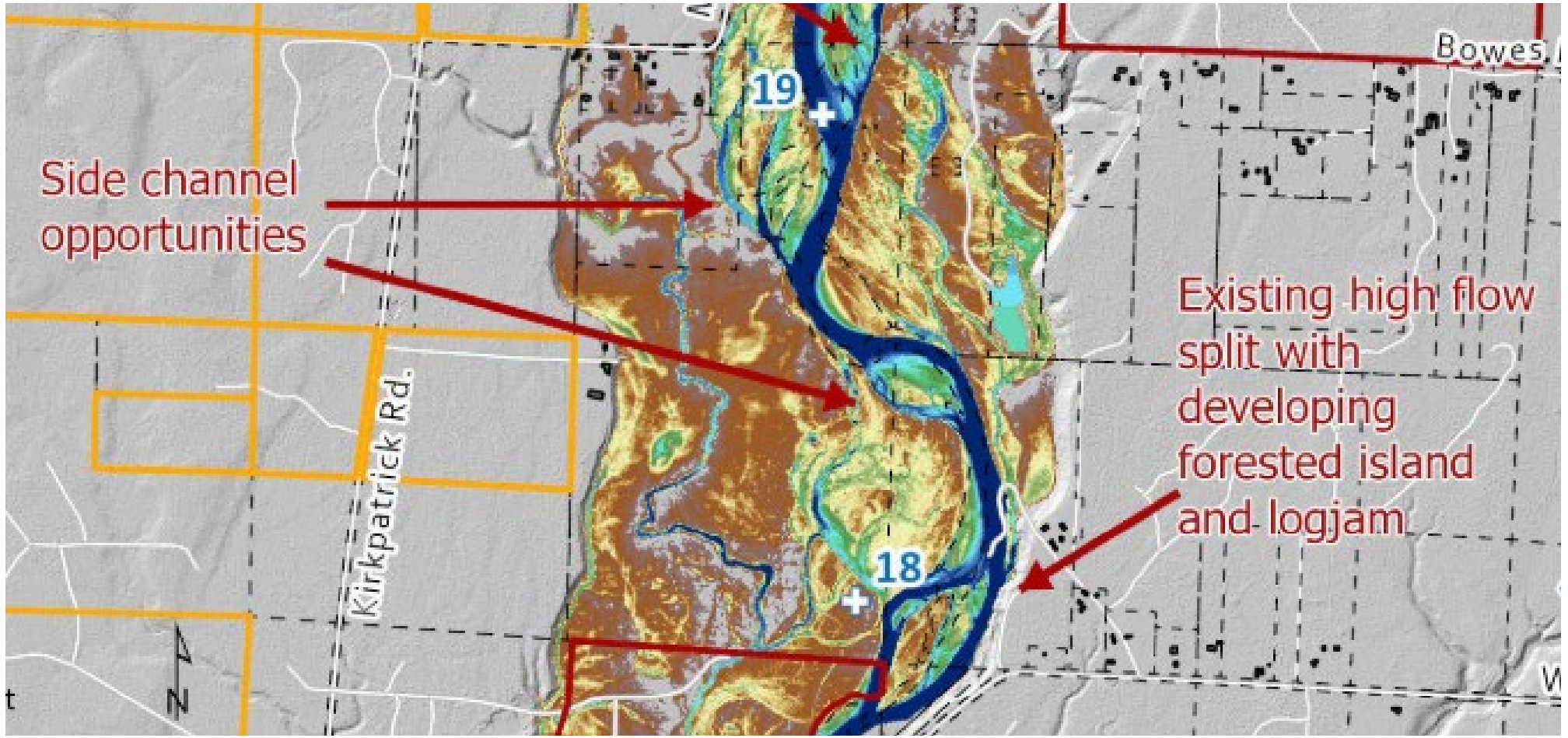


CONCEPT MAP: RM 18-19





CONCEPT MAP: RM 18-19



HUMPTULIPS RM 9-12 AND 18-19 RESTORATION PLANNING OUTCOMES

- The overall goal of the project is to plan restoration actions for the RM 9-12 and RM 18-19 reaches of the Humptulips River

- The proposed actions are directly informed by the ASRP priority actions and limiting factors for the GSU

- Estimated restoration metrics:
  - 21 landowners/interested parties contacted (3 already)
  - Up to 5 miles of mainstem restoration
  - As much as 0.10 miles of reconnected habitat
  - Roughly 35.8 acres of invasive species treatment
  - 100 or more acres of riparian plantings
  - 1 workshop event

