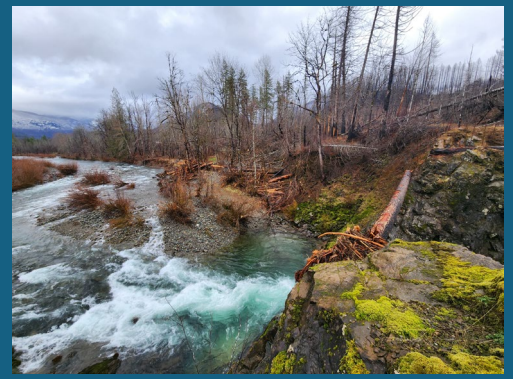
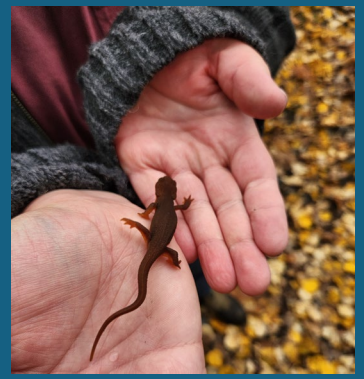
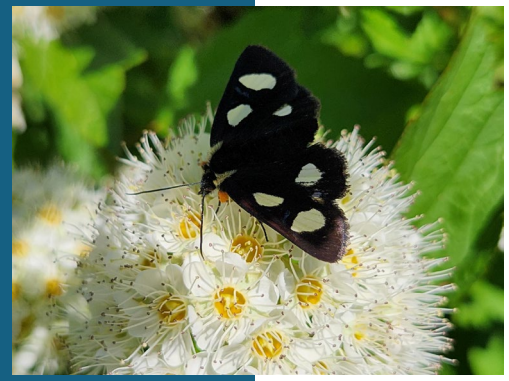




North Santiam Basin Summit

Working Together for a More Resilient Future

April 24, 2024

CITY OF Salem AT YOUR SERVICE
Public Works Department
APWA ACCREDITED AGENCY

NORTH SANTIAM WATERSHED COUNCIL

Photos by Brandin Hilbrandt

Agenda

10:00 a.m.	Welcome
10:15 a.m.	Water Management Sessions
11:00 a.m.	**BREAK**
11:15 a.m.	Legislative Updates
11:45 a.m.	Panel Discussion
12:10 p.m.	**LUNCH**
1:10 p.m.	Community Resiliency Part I
1:55 p.m.	**BREAK**
2:10 p.m.	Community Resiliency Part II
2:45 p.m.	Q& A
3:00 p.m.	Closing

Welcome

Robert Chandler, PhD, PE
Assistant Public Works Director
City of Salem

Land Acknowledgment

We acknowledge that we are here on Kalapuya Ilihi, the traditional Indigenous homeland of Kalapuyan people who were forcibly removed from these lands to reservations far from their original homeland. Their descendants are now members of the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians and the Confederated Tribes of Warm Springs Reservation, who continue to make valuable contributions to Oregon and to our local Salem community. We share this acknowledgement with respect for the Tribes and the Kalapuyan people and have committed to collaborate with the Tribes to maintain a relationship based upon respect, consistent and constructive dialogue and cooperation.

Who’s in the Room?

USACE

Dustin Bengtson, Operations Project Manager

Willamette Valley & Rogue Basin Projects

US Army Corps of Engineers®
Portland District

USACE BRIEF
2024 NORTH SANTIAM SUMMIT

Dustin Bengtson
Operations Project Manager
Willamette Valley & Rogue Basin Projects

24 April 2024

US Army Corps of Engineers®
Portland District

USACE OVERVIEW

Briefly Touch on Conservation Refill Season

Efforts Underway ~ Resilience

Next Steps and Communication Efforts

Questions

RESILIENCE

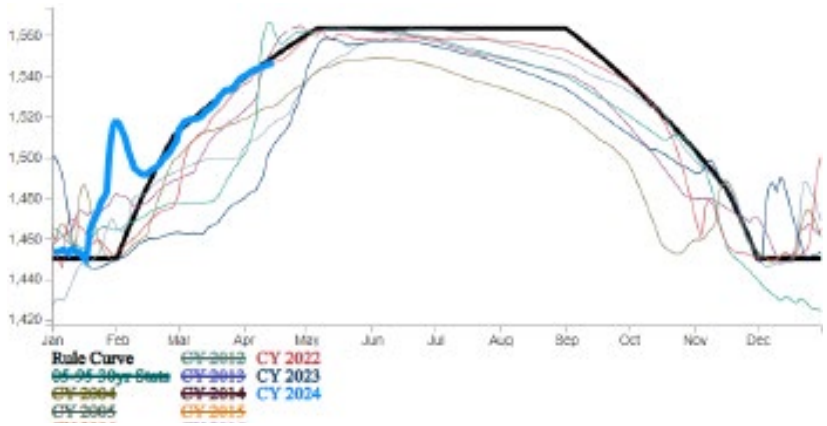
Dam Safety

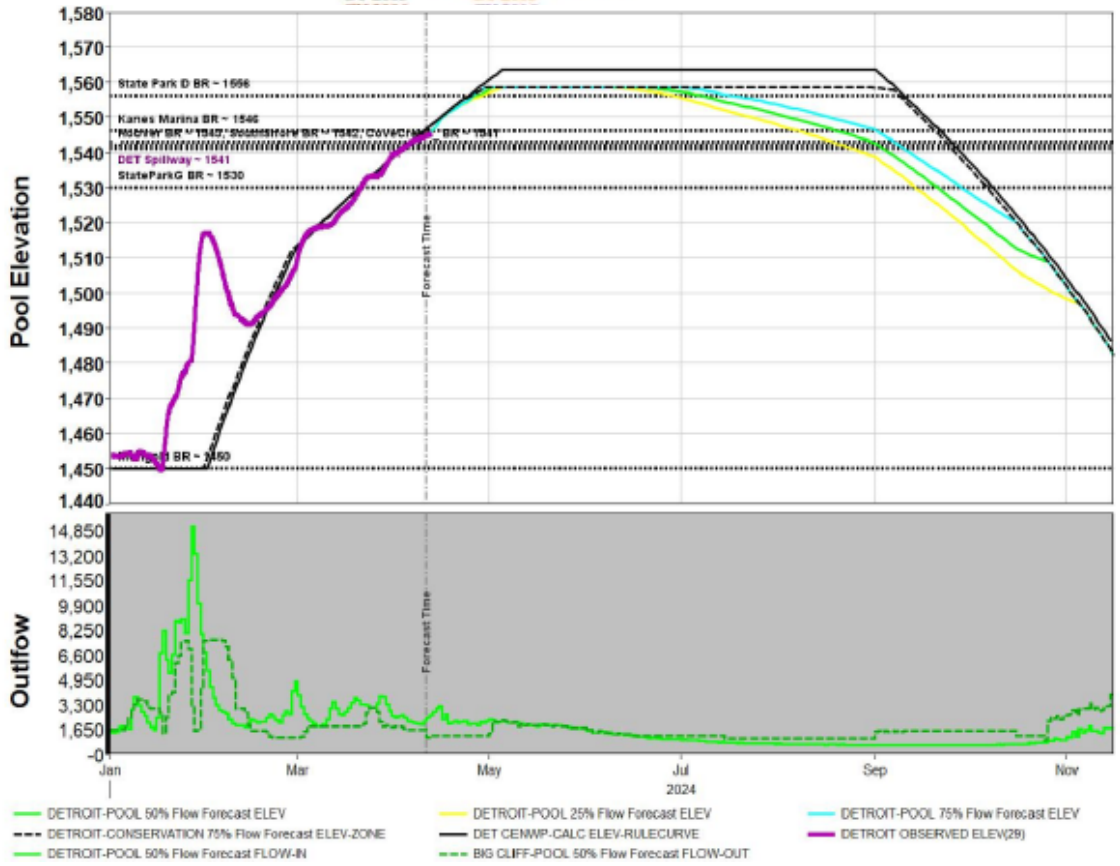
Flood Risk Management

Flow Management

Readiness - Response

CONSERVATION REFILL





WILLAMETTE PROJECT

13 Reservoirs
- 11 Multiple-purpose
- 2 Re-regulating

5 Mitigation Fish Hatcheries

Navigation Channel
- Portland Harbor to Corvallis
- 132 River Miles

Willamette Falls Locks

Willamette Bank Protection Program
- 100 miles of revetments
- Mainstem and tributaries

DAM SAFETY

Risk inherent to dams

Dam Safety Action Classification System

Seismic & hydrologic concerns – various locations in system

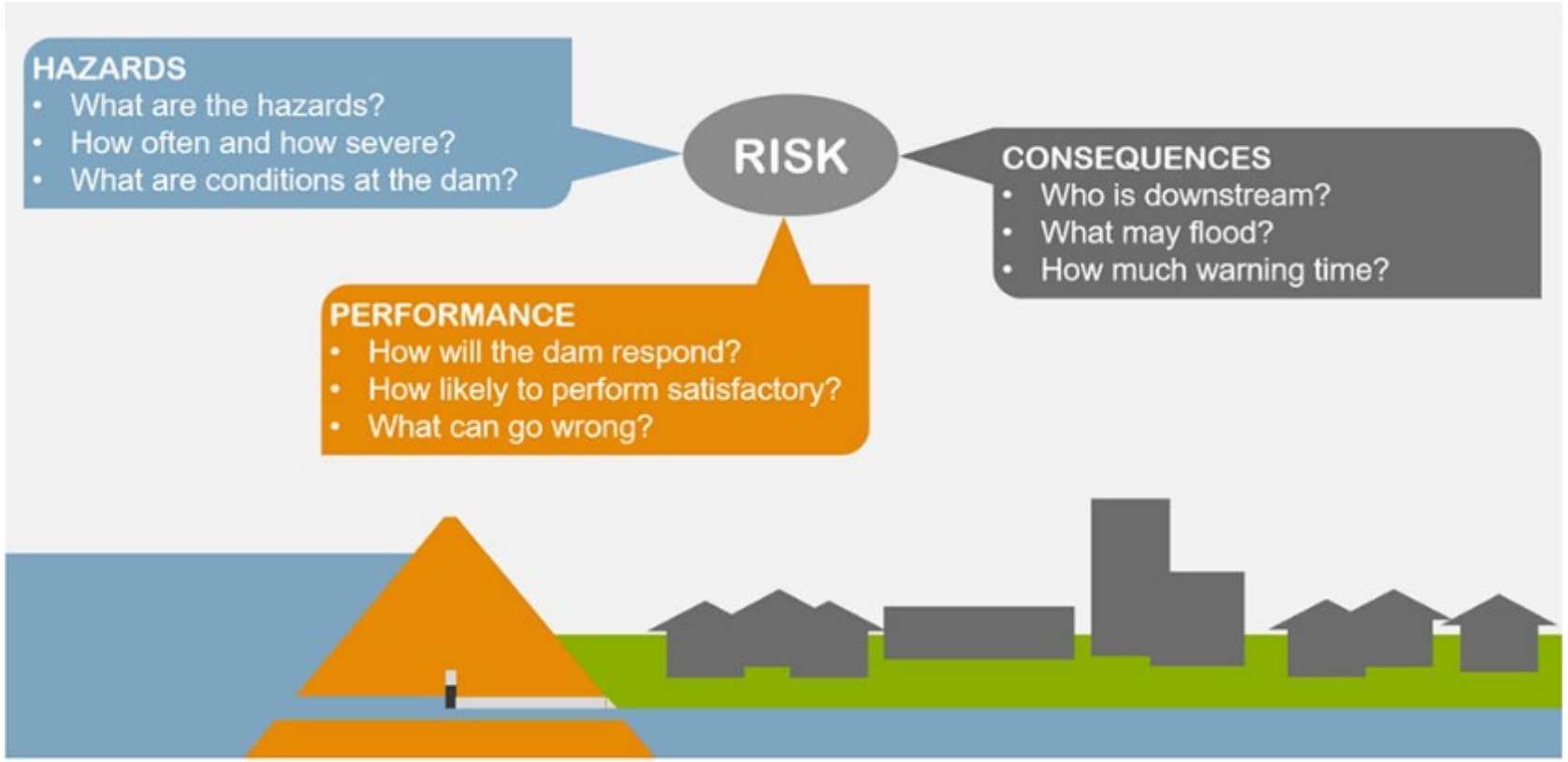
Recent seismic events

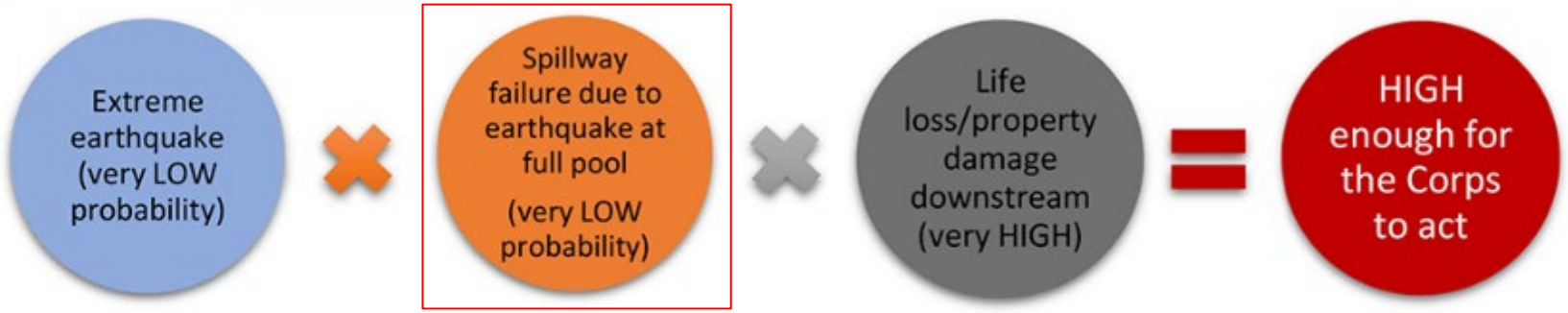
Interim Risk Reduction Measures

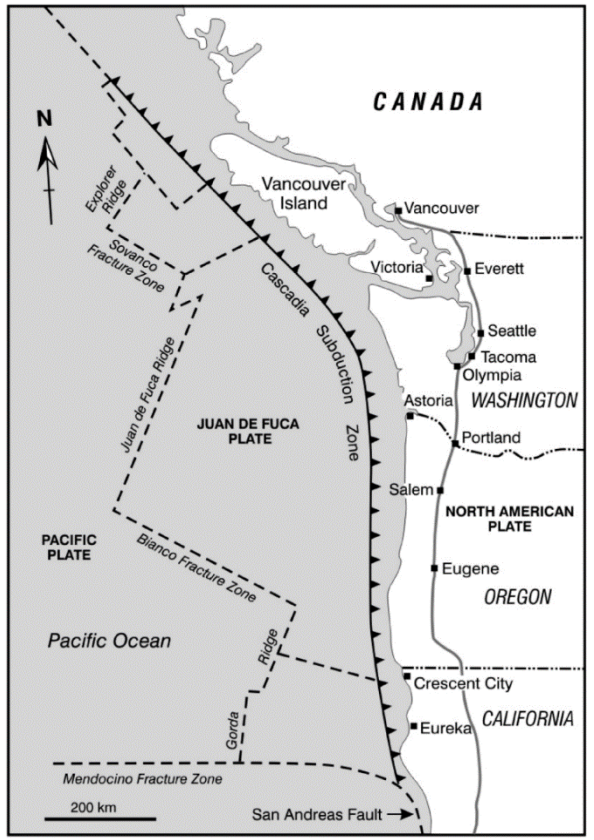
Issue Evaluation Studies

Dam Safety Modification Studies

DAM SAFETY RISK & EARTHQUAKES





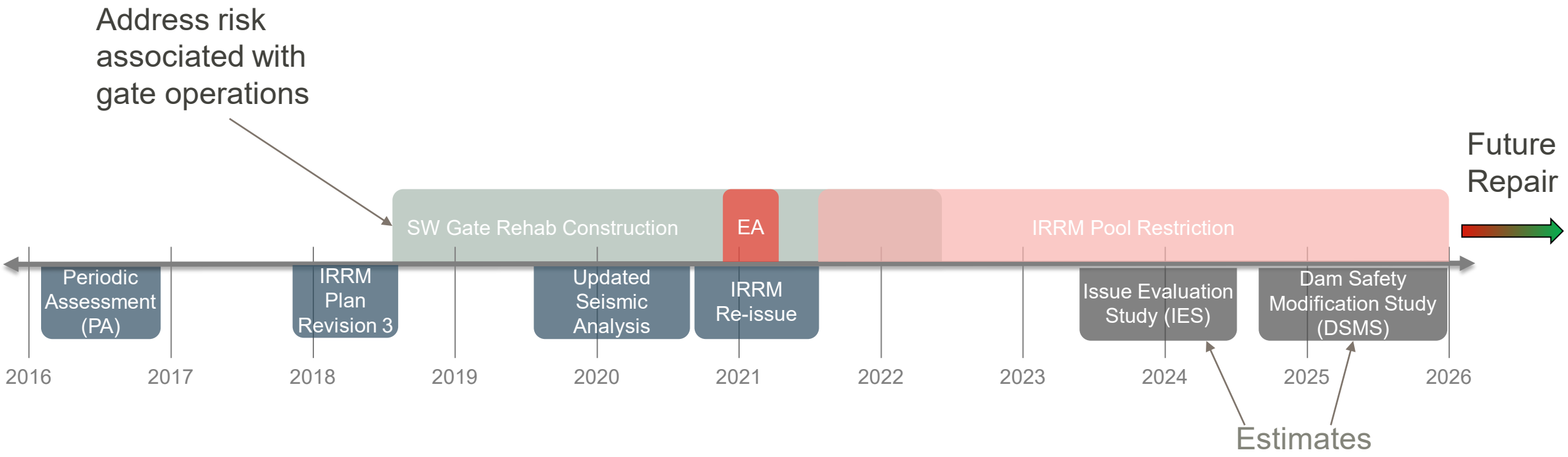


Source: Adapted from the Cascadia Region Earthquake Workgroup (2005)

ISSUE EVALUATION STUDIES - STATUS

Project/Dam	DSAC	Study Phase	Status	Target DSOG	Notes or Risk Drivers
Green Peter	4	Complete (2020)	Complete	Complete	No actionable PFMs. In routine program.
Bonneville L&D	3	DSMS	Planning	N/A	IES completed January 2024
Foster Dam	2	IES	Active – finalizing H&H products	2025	- *Overtopping (hydrologic) - *Stilling Basin (hydrologic) - *Chute Slab (hydrologic) - Piers, Gates, Anchorage (seismic) - Foundation Stability (seismic) - Main Embankment Deformation (seismic)
Hills Creek Dam	2	IES	Active – minor activity	2026	- Piers, Gates, Gate Shear Plates (seismic) - Embankment Deformation (seismic) - *Overtopping (hydrologic)
Cougar Dam	2	IES	Idle	2027	- Embankment Deformation (seismic) - *hydrologic PFMs currently below TRG include OT and CLE at left abut. - There are three PFMs related to the unrepaired gate for both hydrologic (trunnion friction and mech/elec failure) and seismic
Blue River Dam	2	IES	Idle	2028	- Piers (seismic) - Main Embankment Deformation (seismic) - Auxiliary Embankment Deformation (seismic) - *Overtopping (hydrologic)
Lookout Point Dam	3	DSMS	Idle	2027	- Piers and Gates (seismic) - *Overtopping (hydrologic)

DETROIT IES PROJECT TIMELINE



The schedule of additional spillway gate repairs is dependent on the completion of the Issue Evaluation Study, Dam Safety Modification Study, and resourcing constraints.

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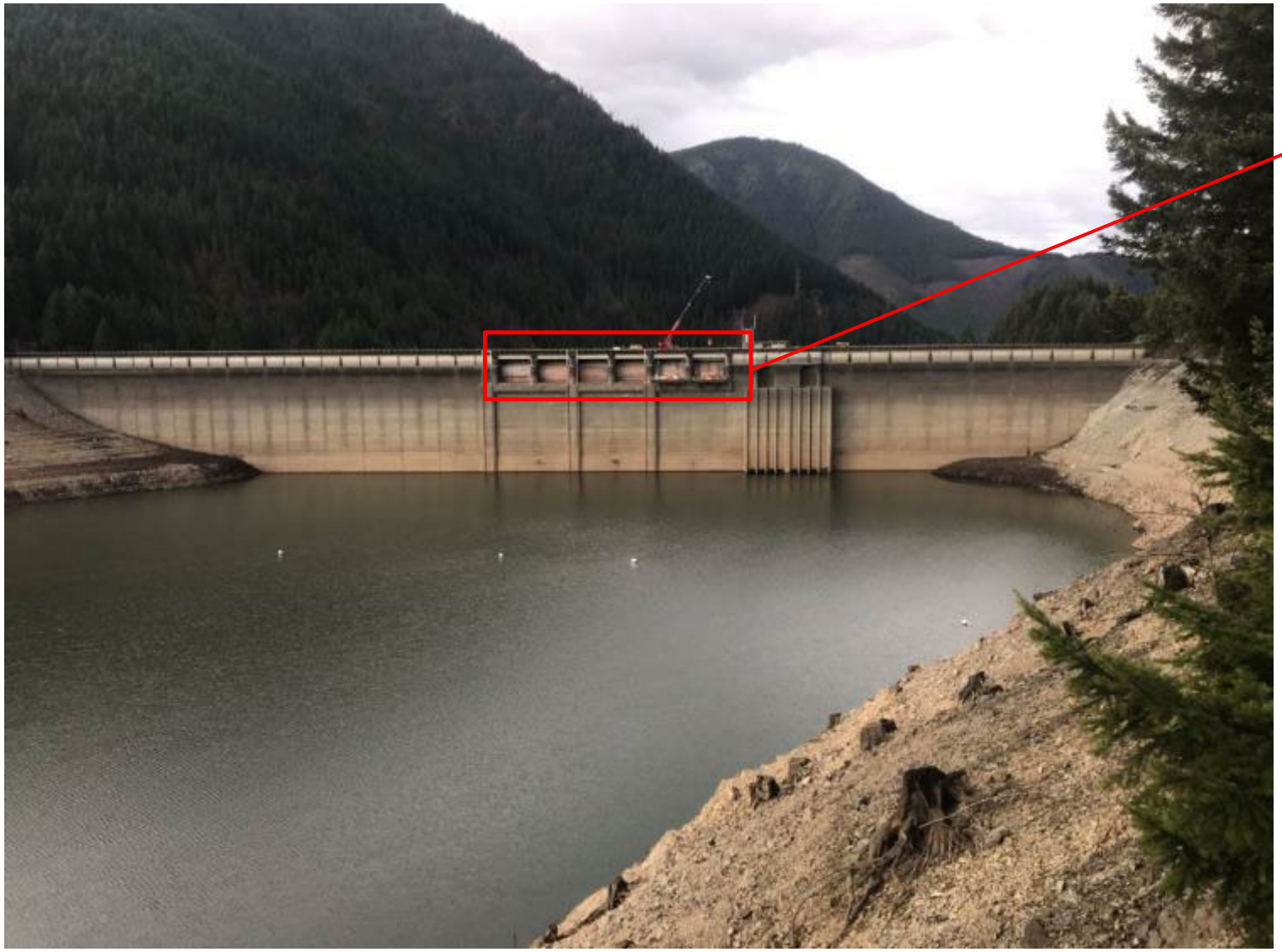
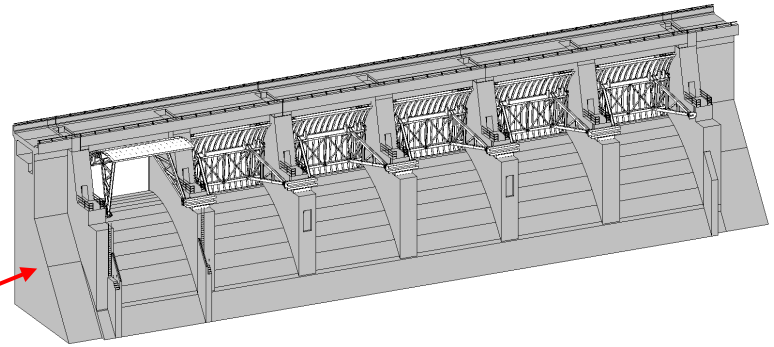
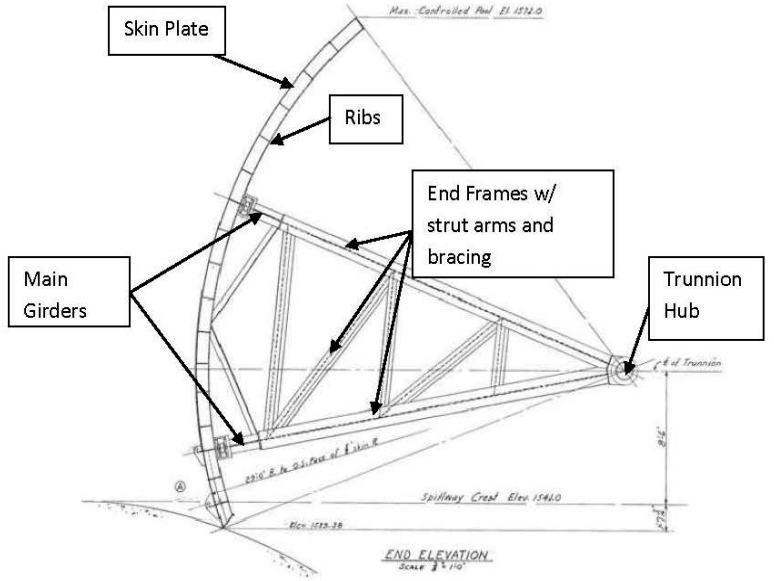
SPILLWAY GATE REPAIRS







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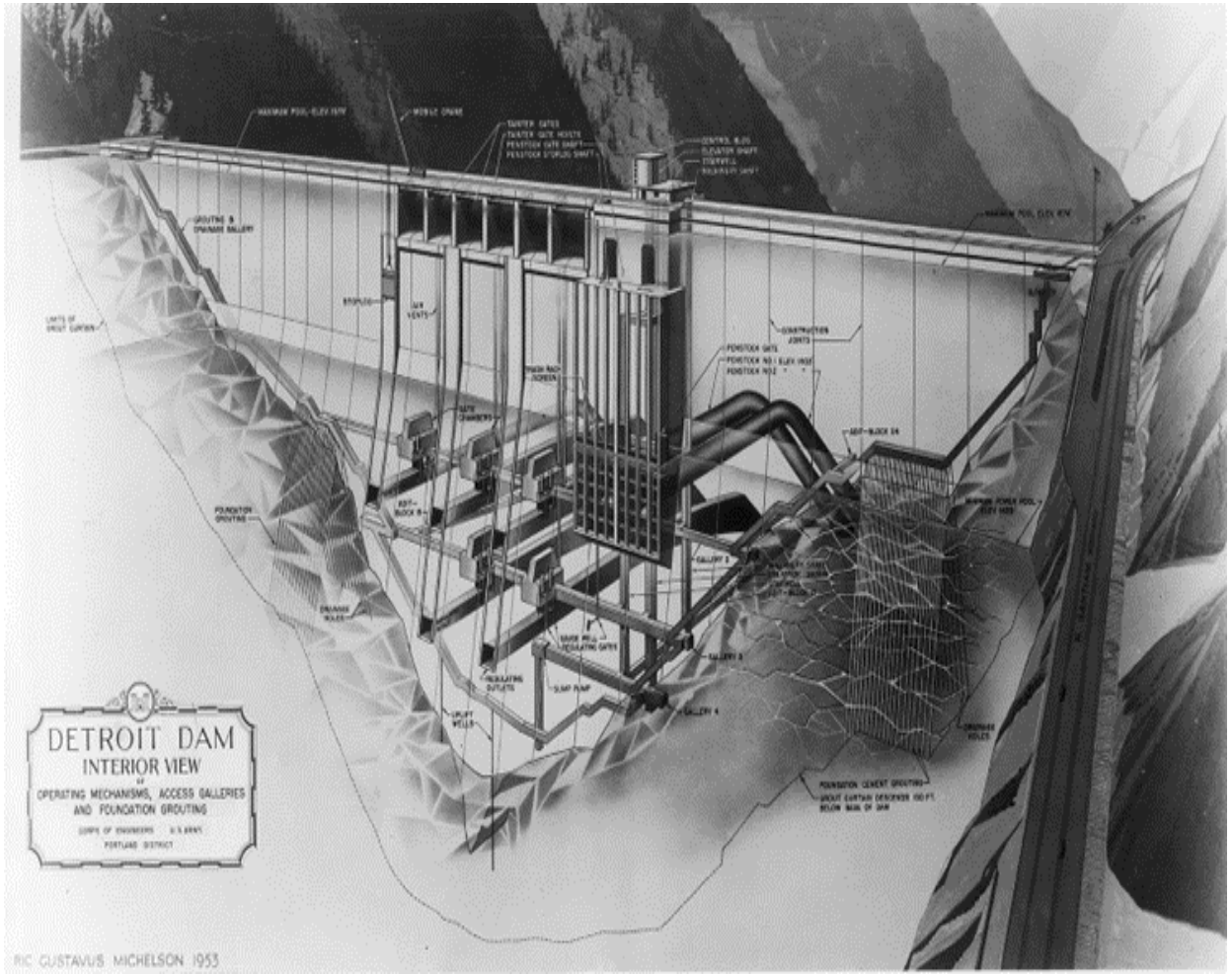
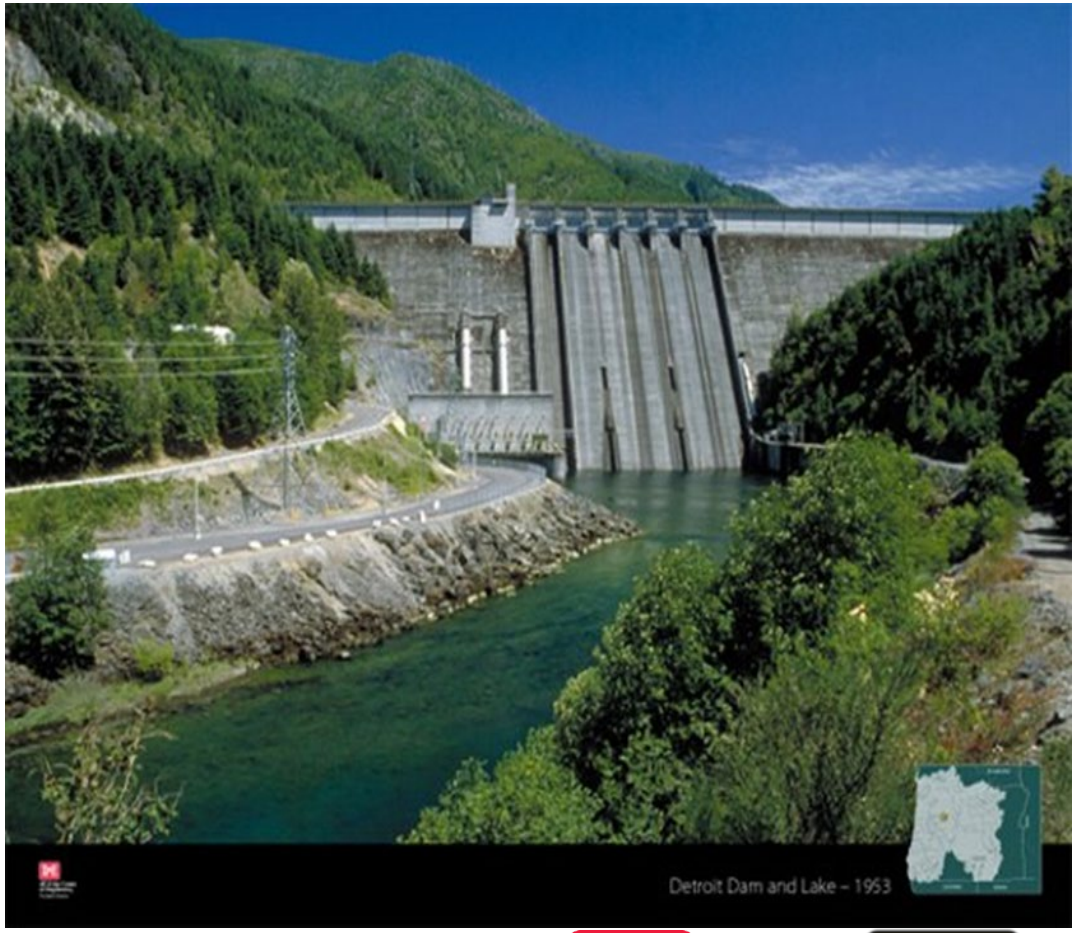
WHAT REMAINS





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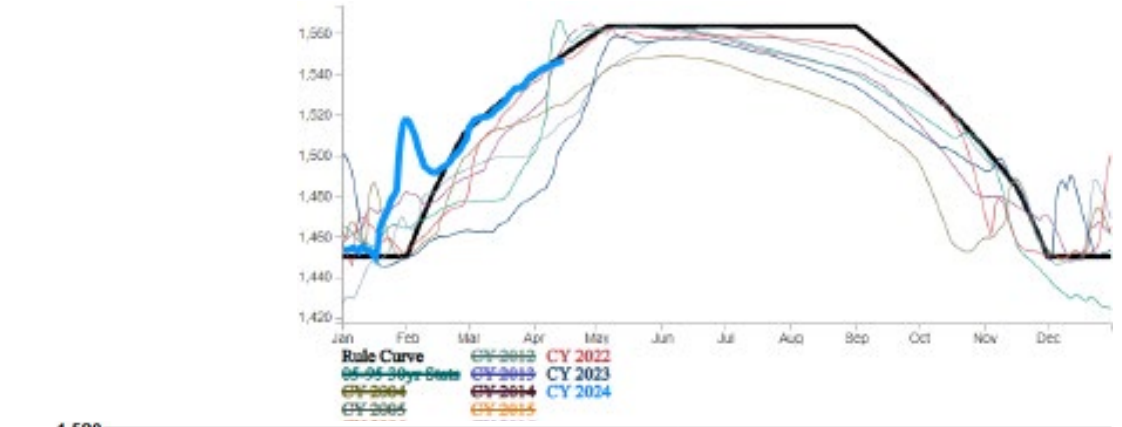
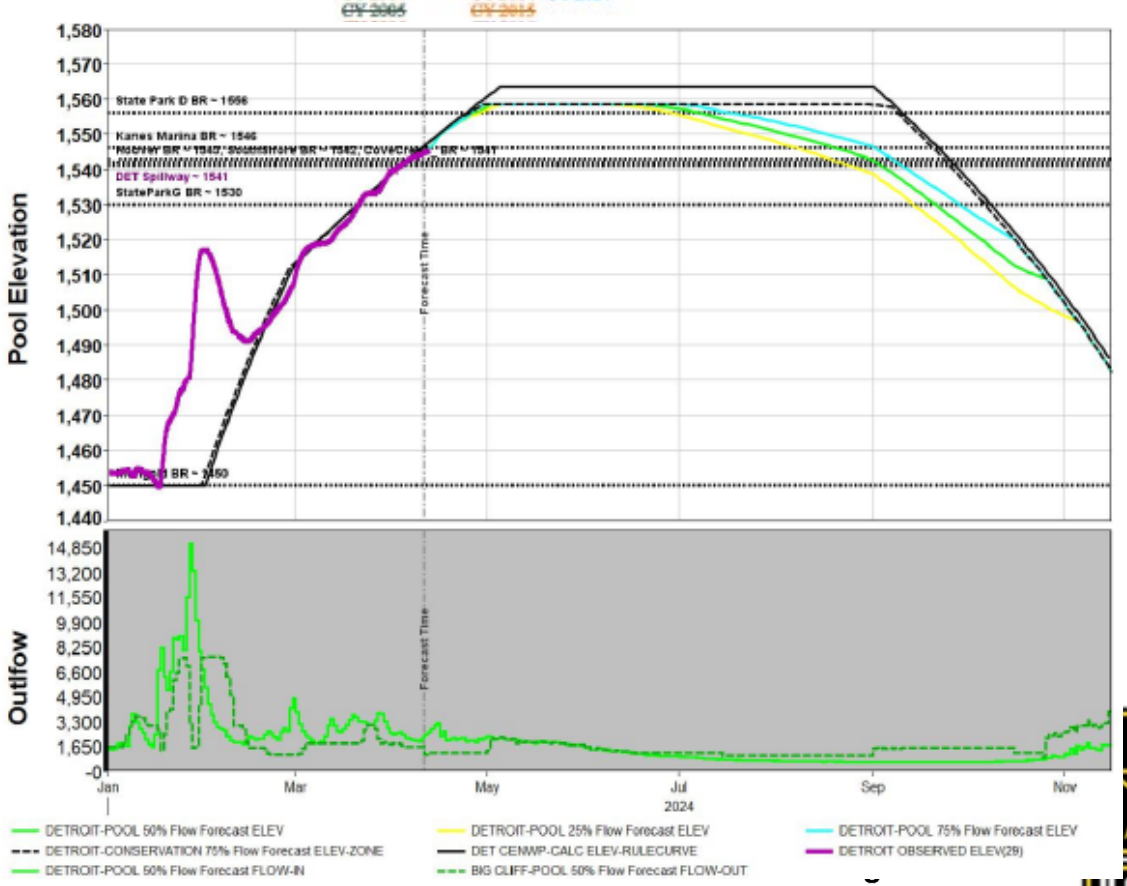
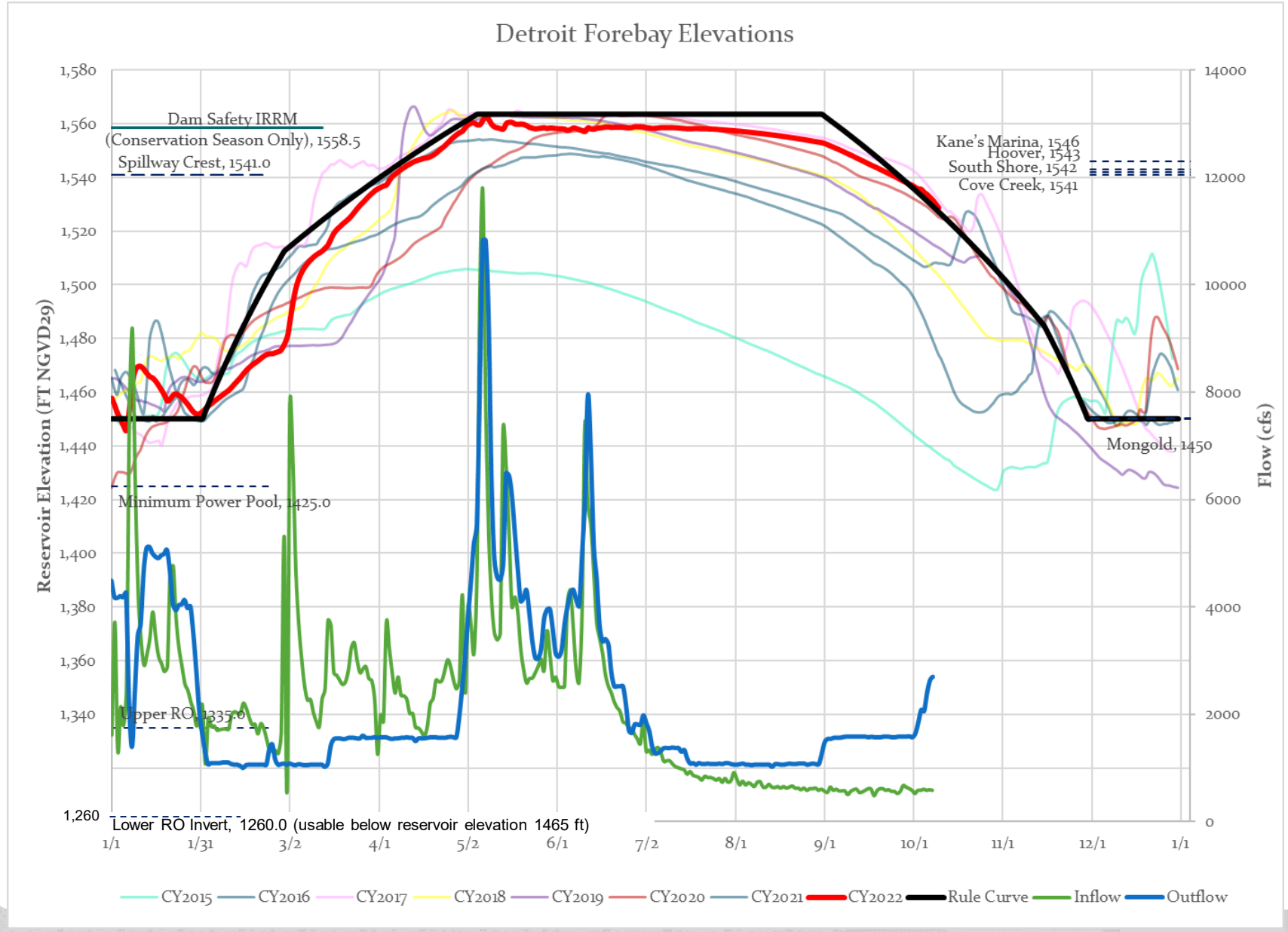
FLOW MANAGEMENT





DETROIT OPERATIONS



North Santiam

- Detroit spring/summer spill for downstream fish passage and water temperature management
- Detroit fall lower RO* use for downstream water temperature management
- Detroit winter upper RO use for downstream fish passage

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FORECAST INFORMED RESERVOIR OPERATIONS

- FIRO is a water management strategy that uses weather forecast information to increase flexibility in reservoir release decisions.
- Additional flexibility may translate to a range of benefits:
  - Flood protection
  - Municipal and Industrial water supply
  - Irrigation water supply
  - Fish and Wildlife
  - Groundwater recharge
- FIRO both depends on accurate forecasts of precipitation and runoff
- The latest FIRO implementation study will occur in the Willamette Valley System of reservoirs
  - First FIRO implementation in a large multi-reservoir system.

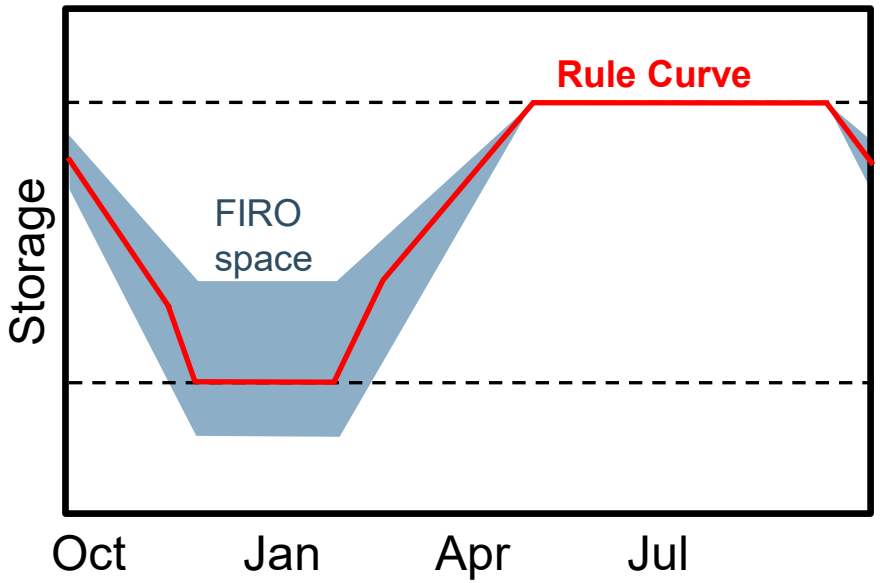
FORECAST INFORMED RESERVOIR OPERATIONS (FIRO)

Beginning in 2023, USACE will assess the viability of FIRO in the Willamette Valley System.

- Strategies that leverage accurate forecasts to enable more flexible water management will be tested *at each reservoir* and *for the system as a whole*.
- Assessment is expected to take 5 years to complete.

What FIRO is

- A careful, science-based assessment of local climate, weather forecast skill and operations.
- A strategy to extend planning horizons for improved flexibility.
- Additional flexibility must improve authorized purposes

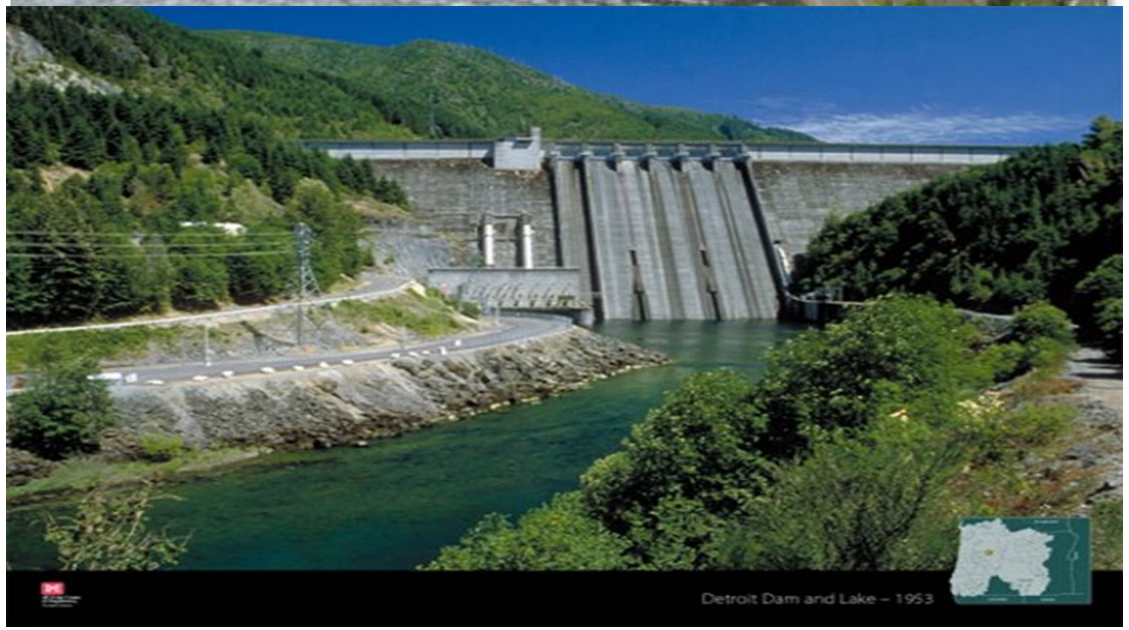


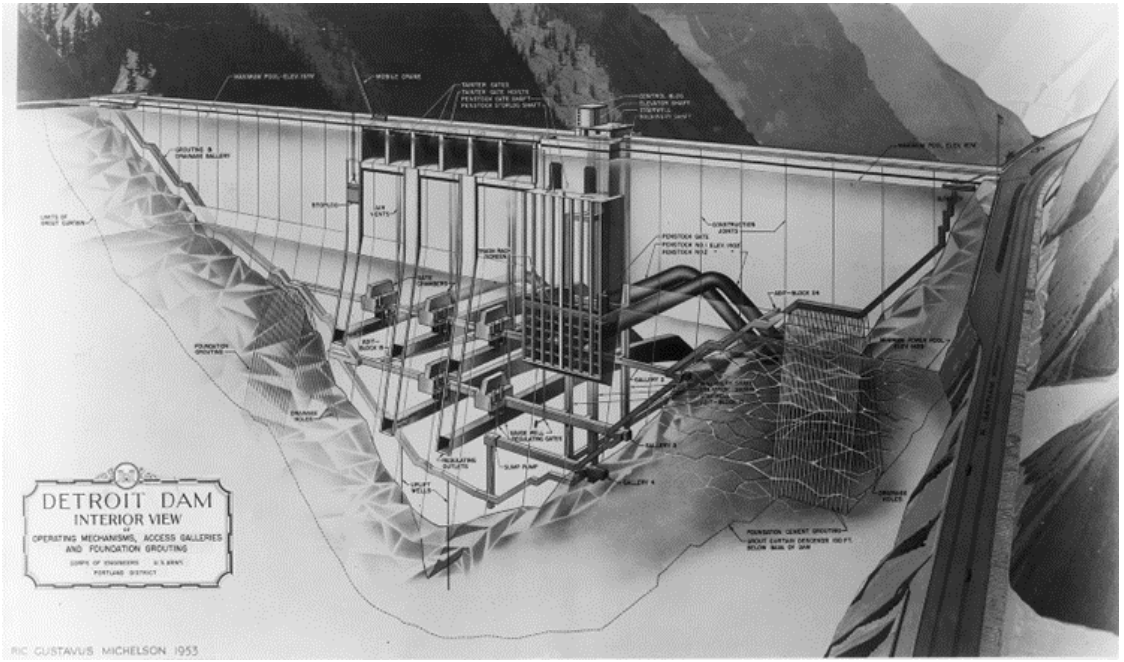
An example of a FIRO flexible operations strategy. Willamette FIRO may differ.

What FIRO is not

- An immediate remedy for an ongoing drought
- A way to avoid environmental law (NEPA, ESA)
- A binding process
- A way to circumvent Congressional authority over dam purposes or water control plans (rule curves)

ENDANGERED SPECIES ACT COMPLIANCE





2008 BIOP & INJUNCTION REVIEW

- March 2018 - Complaint filed by Plaintiffs alleging violations of the Endangered Species Act (ESA) related to alleged failure to implement Biological Opinion (BiOp) fully
- April 2018 - Corps reinitiated ESA consultation
- **August 2020 - Court rules in favor of Plaintiffs on all claims**
- **September 1, 2021 - Judge issues injunction ordering the Corps to carry out specified measures to improve fish passage and water quality in the Willamette River Basin**
- Judge's injunction has the full effect of the law and its requirements must be met unless the judge grants relief or when new BiOp is issued

INJUNCTION OPERATIONS IMPLEMENTATION SCHEDULE

		January	February	March	April	May	June	July	August	September	October	November	December
North Santiam	IM#10a				Detroit Downstream Fish Passage (DSFP) & Downstream Temperature Management (DSTM)								
	IM#10	Detroit Winter RO Prioritization (PR) for DSFP											Detroit Winter RO PR
	IM#10	Big Cliff Spread Spill (TDG Abatement)											
South Santiam	IM#11						Outplanting above Green Peter Dam						
	IM#12a			GPR Spill PR for DSFP									
	IM#12b											Green Peter Deep Drawdown for DSFP	
	IM#13a										Foster Spill for DSFP		
	IM#13b		Foster Delayed Refill + Spillway for DSFP				Foster Fish Weir Spill for DSTM						
McKenzie	IM#14												Cougar Deep Drawdown for DSFP
	IM#15		Cougar Delayed Refill for DSFP										
Middle Fork Willamette	IM#8	Hills Creek Winter RO PR for DSFP											
	IM#17			LOP Spill PR for DSFP									
	IM#16											Lookout Point Deep Drawdown for DSFP	
	IM#19	FC DD											FC Deep Drawdown
	IM#20		Fall Creek Delayed Refill for DSFP										

INJUNCTION MEASURES

- Complete reinitiated ESA consultation and issue a new BiOp by December 31, 2024
- **Operational measures to improve fish passage and water quality**
  - **Increased spill operations**
  - **Novel reservoir operations including delayed refills and deep drawdowns**
- Outplant adult spring Chinook salmon above Green Peter Dam
- Structural Measures
  - Dexter Fish Facility
  - Structural improvements for Big Cliff Dam total dissolved gas reductions
  - Cougar Dam regulating outlet improvements
- Research, Monitoring, & Evaluation
- Follow established maintenance outage schedules and emergency protocols
- Provide biannual status reports detailing progress and compliance with the injunction measures

DEEP RESERVOIR DRAWDOWNS

What: Deep reservoir drawdowns were ordered at 4 Corps Willamette Valley System Dams:

- Cougar: A 27-foot drawdown to El. 1505 ft., from 15 November – 15 December
- Fall Creek: A 43-foot drawdown to El. 685 ft., from 01 December – 15 January
- Lookout Point: A 75-foot drawdown to El. 750 ft., from 15 November – 15 December
- Green Peter: A 142-foot drawdown to El. 780 ft., from 15 November – 15 December

Why: The Judge ruled that to avoid "irreparable harm to threatened species" interim measures that improve passage and water quality in the WVP were needed.

- The deep reservoir drawdowns are expected to provide immediate improvement to downstream fish passage and survival of ESA-listed fish species, including spring Chinook salmon and winter steelhead.

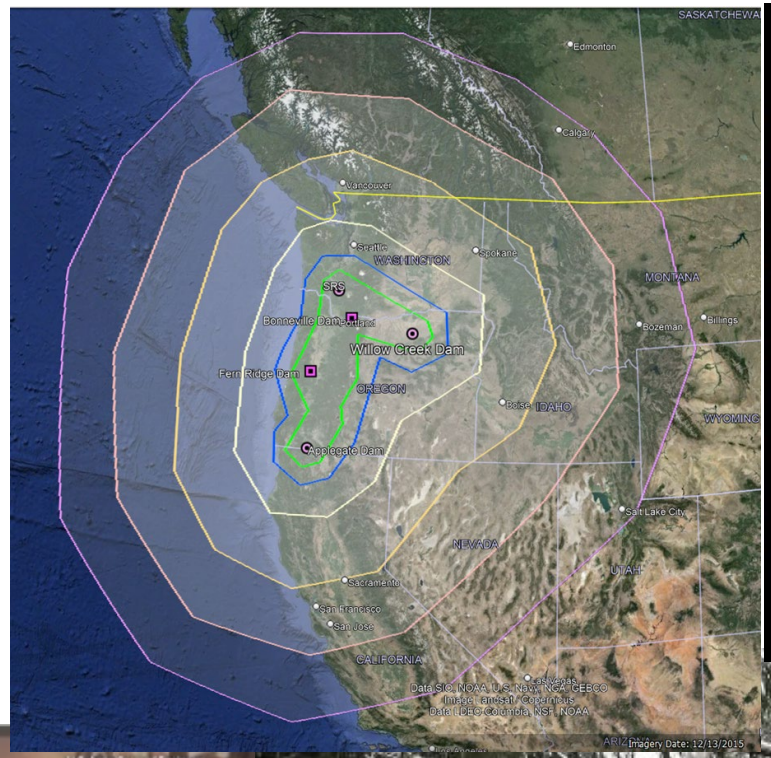
Duration: Deep drawdowns will be implemented each fall until the injunction is lifted (which should occur at the end of December 2024), and perhaps even longer.

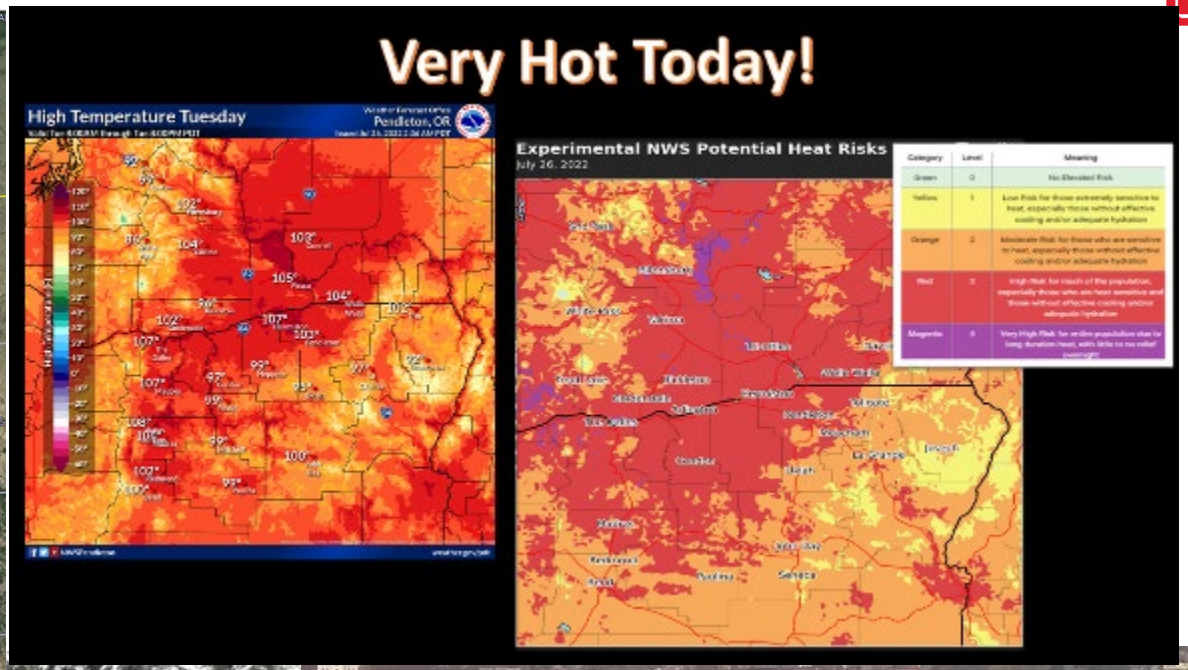
- In the Corps' DEIS, operational fish passage is being considered as an interim or long-term strategy for downstream fish passage improvement depending on the reservoir.
- Deep drawdown operations and structural downstream fish passage are both expected to be included in new BiOp.

DOWNSTREAM FISH PASSAGE MONITORING

- Downstream fish passage is being monitored through a series of studies:
  - Bulk-Marking Reservoir Distribution Studies
  - Rotary Screwtrapping
  - Radio-Tag Telemetry Study
- This information will be used to evaluate fish response from the spill and deep drawdown operations.

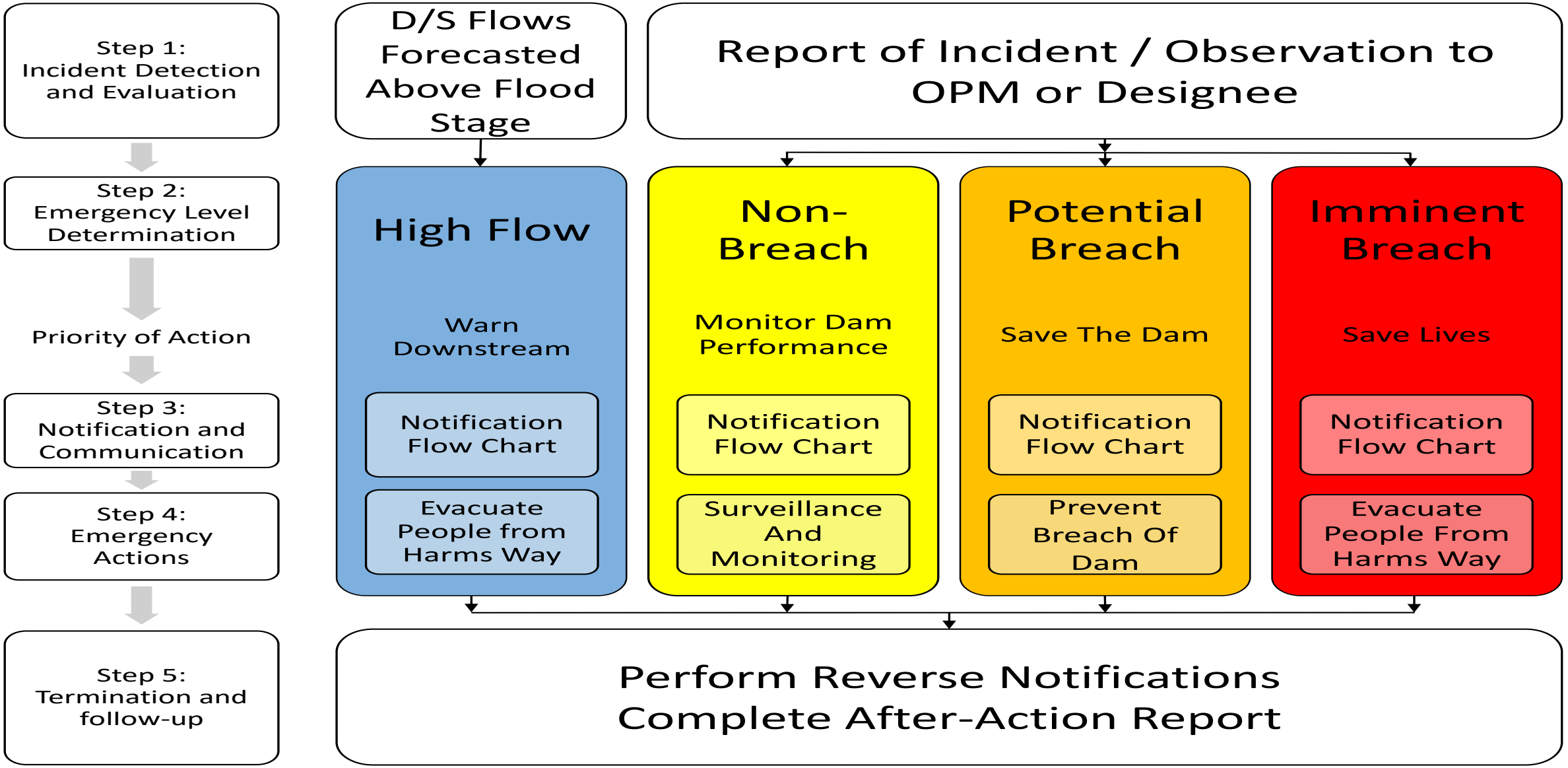
READINESS


SASKATCHEWA
Edmonton
Calgary
Vancouver
Seattle
WASHINGTON
Spokane
MONTANA
Bozeman
Billings
Bonneville Dam
Willow Creek Dam
Fern Ridge Dam
OREGON
Boise
IDAHO
WYOMING
Appeqate Dam
Salt Lake City
NEVADA
UTAH
Sacramento
San Francisco
San Jose
CALIFORNIA
Las Vegas
Imagery Date: 12/13/2015

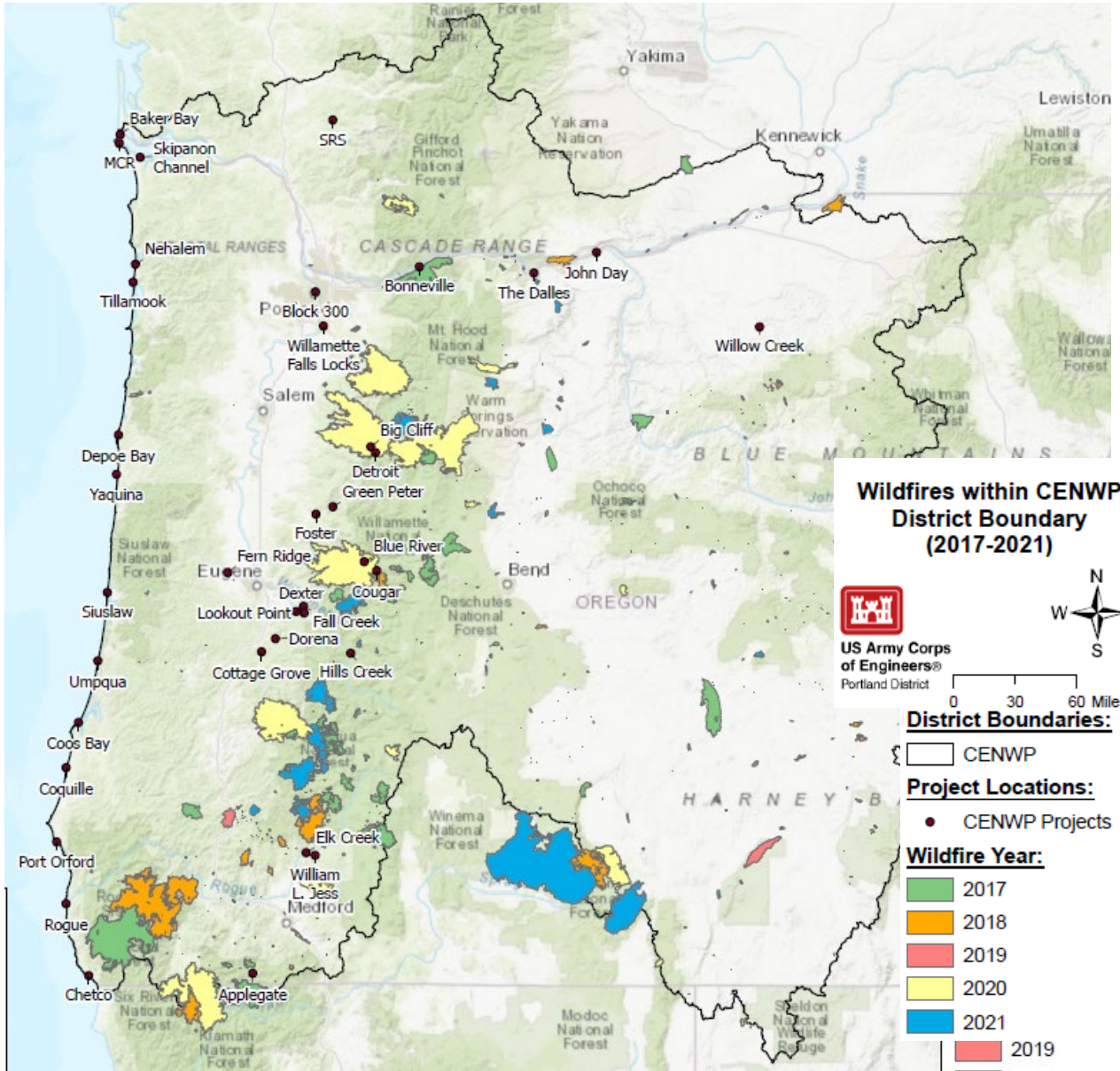

Very Hot Today!
High Temperature Tuesday
Pendleton, OR
Experimental NWS Potential Heat Risks
July 26, 2022


U.S. Army Corps of Engineers

EAP NOTIFICATION



Post Wildfire Watershed risks



Wildfires within CENWP District Boundary (2017-2021)

US Army Corps of Engineers®
Portland District

N
W E
S

0 30 60 Miles

District Boundaries:

- CENWP

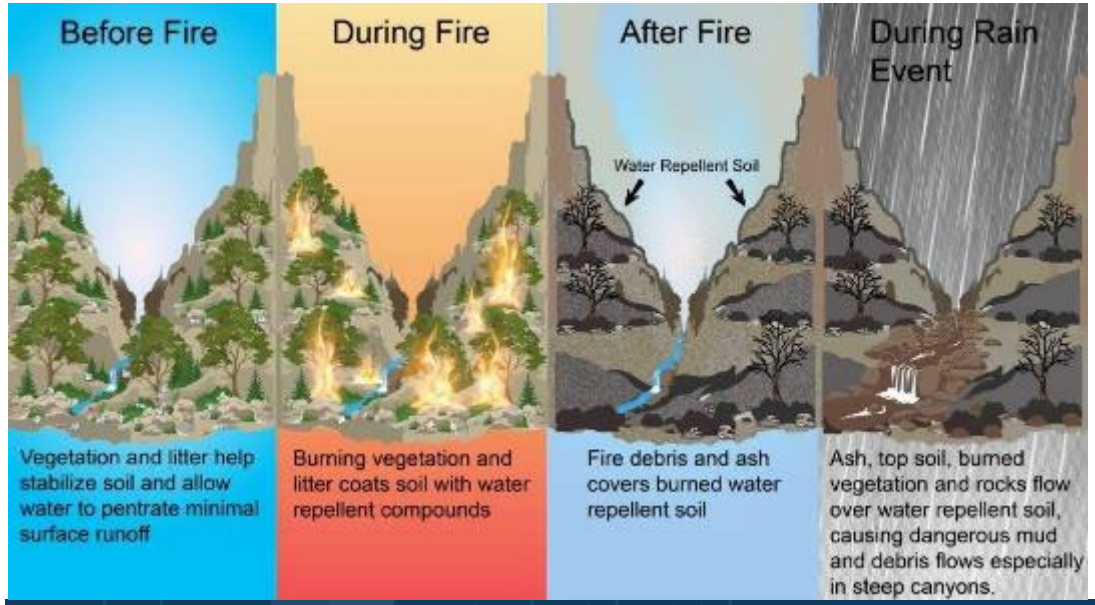
Project Locations:

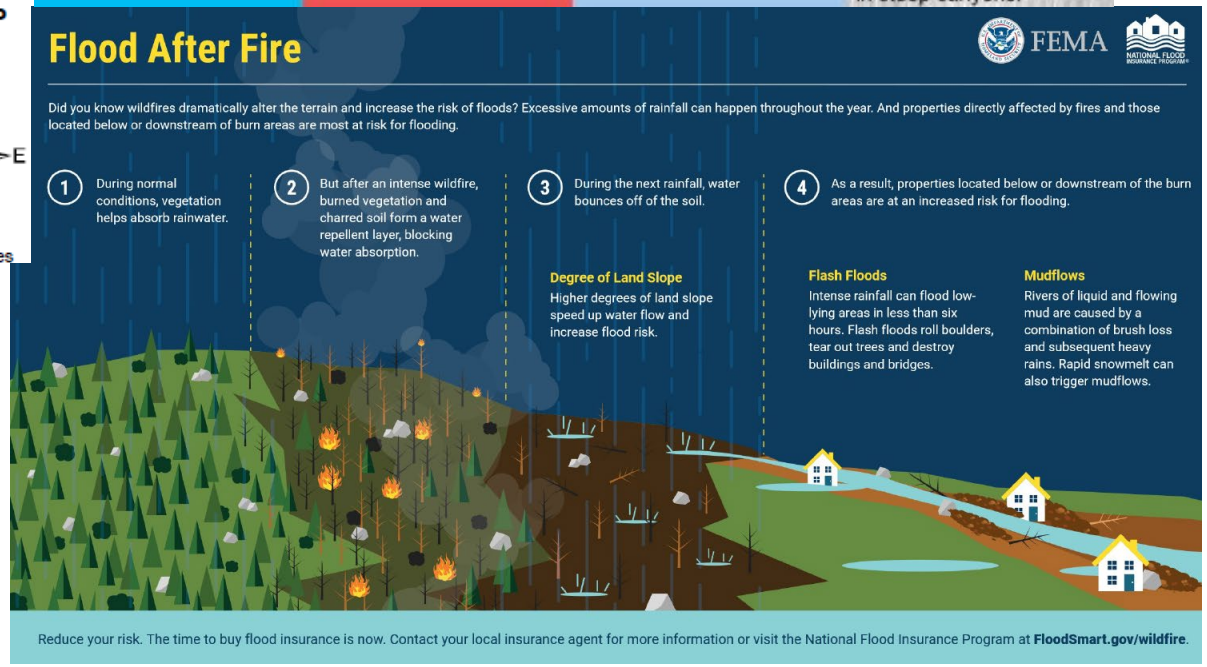
- CENWP Projects

Wildfire Year:

- 2017
- 2018
- 2019
- 2020
- 2021

2019





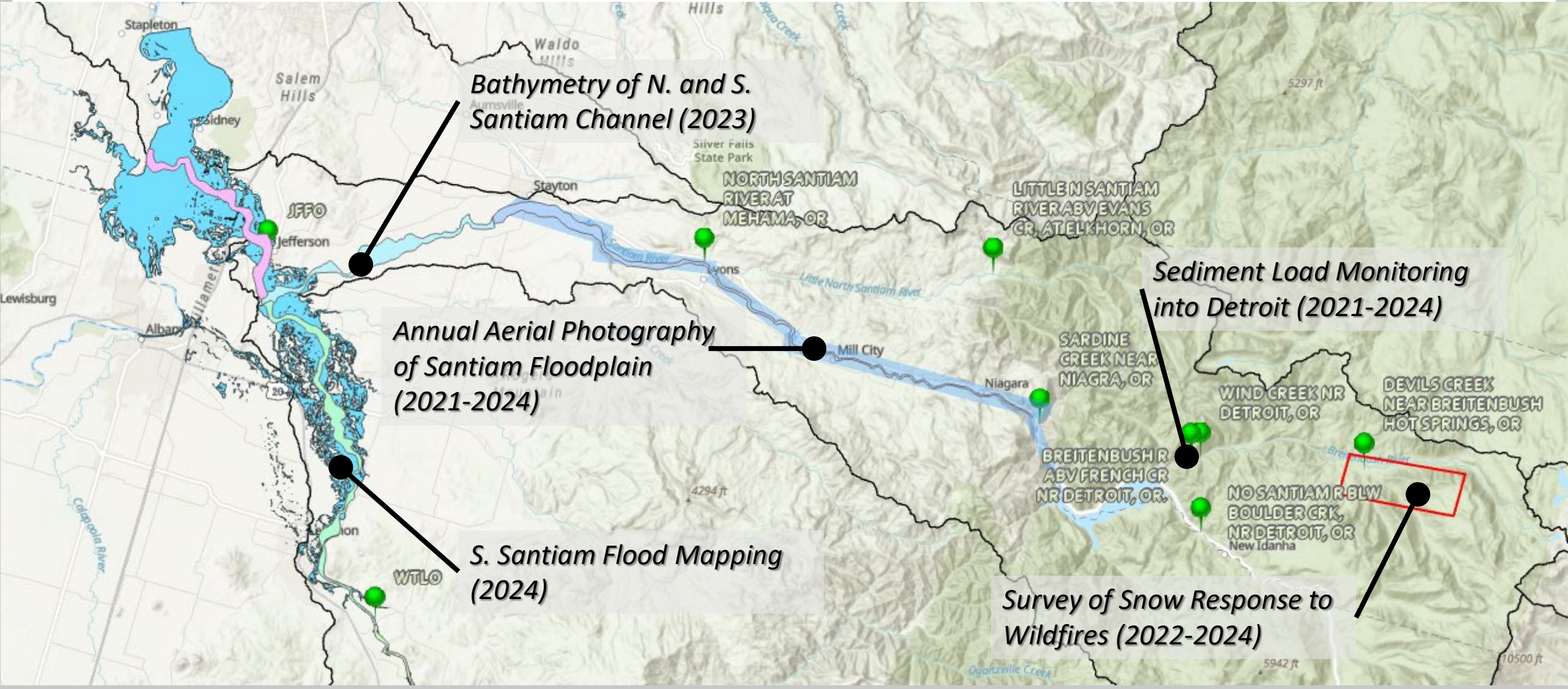
CORPS FLOODPLAIN MANAGEMENT

ONGOING EFFORTS

Contact: Paul Sclafani
Paul.Sclafani@usace.army.mil

USGS Monitoring Site

100-Yr Floodplain (S.Santiam)



CORPS FLOODPLAIN MANAGEMENT

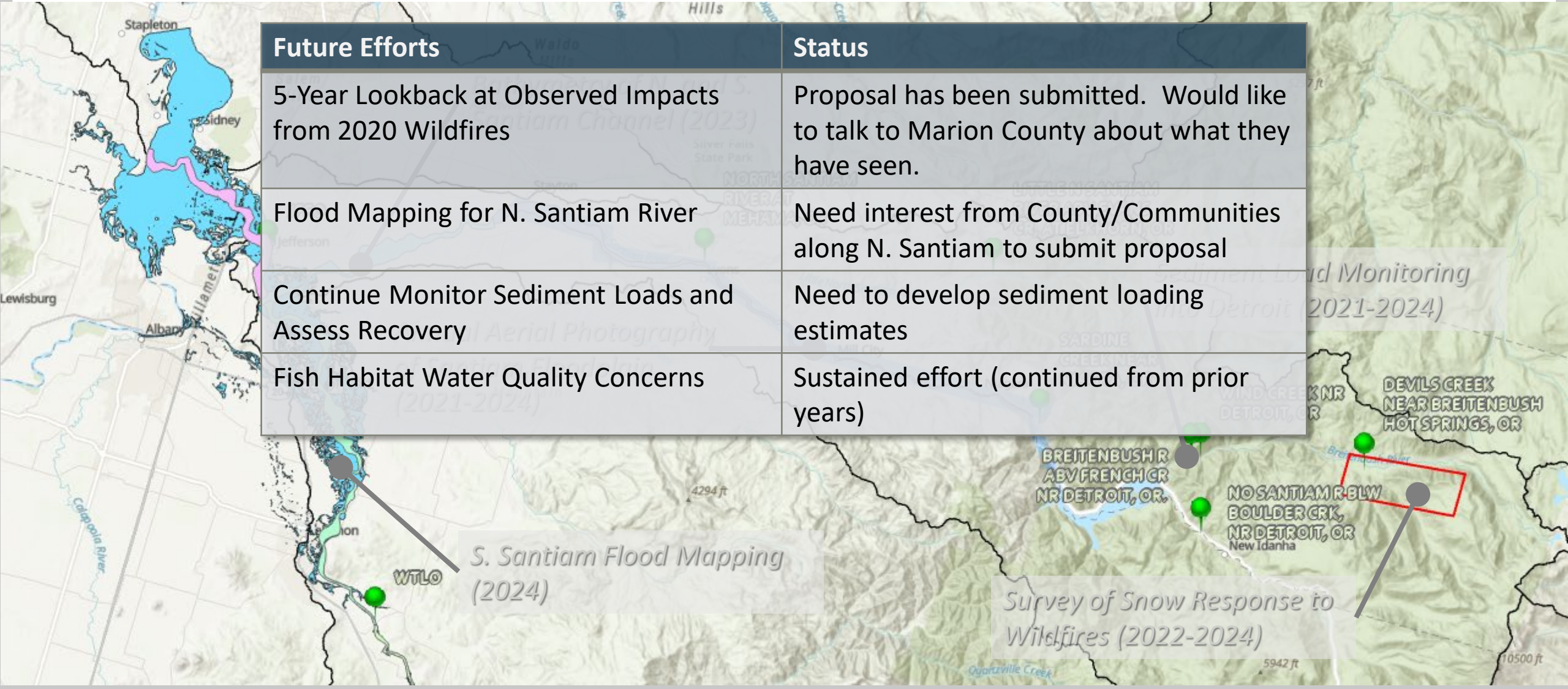
GOALS FOR FUTURE EFFORTS

Contact: Paul Sclafani
Paul.Sclafani@usace.army.mil

USGS Monitoring Site

100-Yr Floodplain (S.Santiam)

Future Efforts	Status
5-Year Lookback at Observed Impacts from 2020 Wildfires	Proposal has been submitted. Would like to talk to Marion County about what they have seen.
Flood Mapping for N. Santiam River	Need interest from County/Communities along N. Santiam to submit proposal
Continue Monitor Sediment Loads and Assess Recovery	Need to develop sediment loading estimates
Fish Habitat Water Quality Concerns	Sustained effort (continued from prior years)



SUMMARY

Dynamic changes within the system – increasing pressure on authorized purposes using existing infrastructure.

Maintenance Management - infrastructure assessment, maintenance, and re-capitalization is a constant process informing risk and investment.

Flood Risk Management – always a prime driver, bringing new tools to the fight

Readiness – Reliability investments, planning, exercises, communication

QUESTIONS

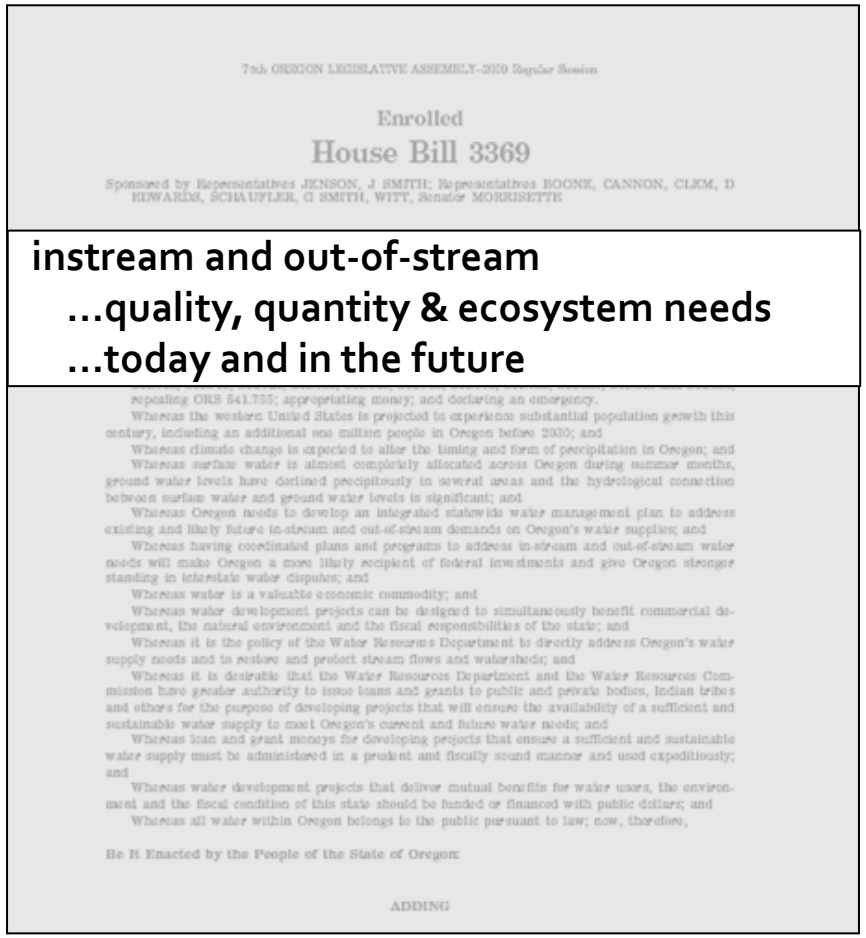
Oregon's Integrated Water Resources Strategy

Crystal Grinnell, Oregon Water Resources Department

OREGON
WATER
RESOURCES
DEPARTMENT

History

- House Bill 3369 (2009)
- Oregon Revised Statute 536.220
  - Describes agency roles
  - Engage state and federal agencies, tribes, stakeholders, public
  - Outlines content
  - Update frequency
- 2012 IWRS
- 2017 IWRS
  - Added 9 actions



74th OREGON LEGISLATIVE ASSEMBLY--2009 Regular Session

Enrolled

House Bill 3369

Sponsored by Representatives JENSON, J SMITH; Representatives BOONE, CANNON, CLEM, D EDWARDS, SCHAUFLER, G SMITH, WITT, Senator MORRISETTE

instream and out-of-stream
...quality, quantity & ecosystem needs
...today and in the future

repealing ORS 541.755; appropriating money; and declaring an emergency.

Whereas the western United States is projected to experience substantial population growth this century, including an additional one million people in Oregon before 2030; and

Whereas climate change is expected to alter the timing and form of precipitation in Oregon; and

Whereas surface water is almost completely allocated across Oregon during summer months, ground water levels have declined precipitously in several areas and the hydrological connection between surface water and ground water levels is significant; and

Whereas Oregon needs to develop an integrated statewide water management plan to address existing and likely future in-stream and out-of-stream demands on Oregon's water supplies; and

Whereas having coordinated plans and programs to address in-stream and out-of-stream water needs will make Oregon a more likely recipient of federal investments and give Oregon stronger standing in interstate water disputes; and

Whereas water is a valuable economic commodity; and

Whereas water development projects can be designed to simultaneously benefit commercial development, the natural environment and the fiscal responsibilities of the state; and

Whereas it is the policy of the Water Resources Department to directly address Oregon's water supply needs and to restore and protect stream flows and watersheds; and

Whereas it is desirable that the Water Resources Department and the Water Resources Commission have greater authority to issue loans and grants to public and private bodies, Indian tribes and others for the purpose of developing projects that will ensure the availability of a sufficient and sustainable water supply to meet Oregon's current and future water needs; and

Whereas loan and grant moneys for developing projects that ensure a sufficient and sustainable water supply must be administered in a prudent and fiscally sound manner and used expeditiously; and

Whereas water development projects that deliver mutual benefits for water users, the environment and the fiscal condition of this state should be funded or financed with public dollars; and

Whereas all water within Oregon belongs to the public pursuant to law; now, therefore,

Be It Enacted by the People of the State of Oregon:

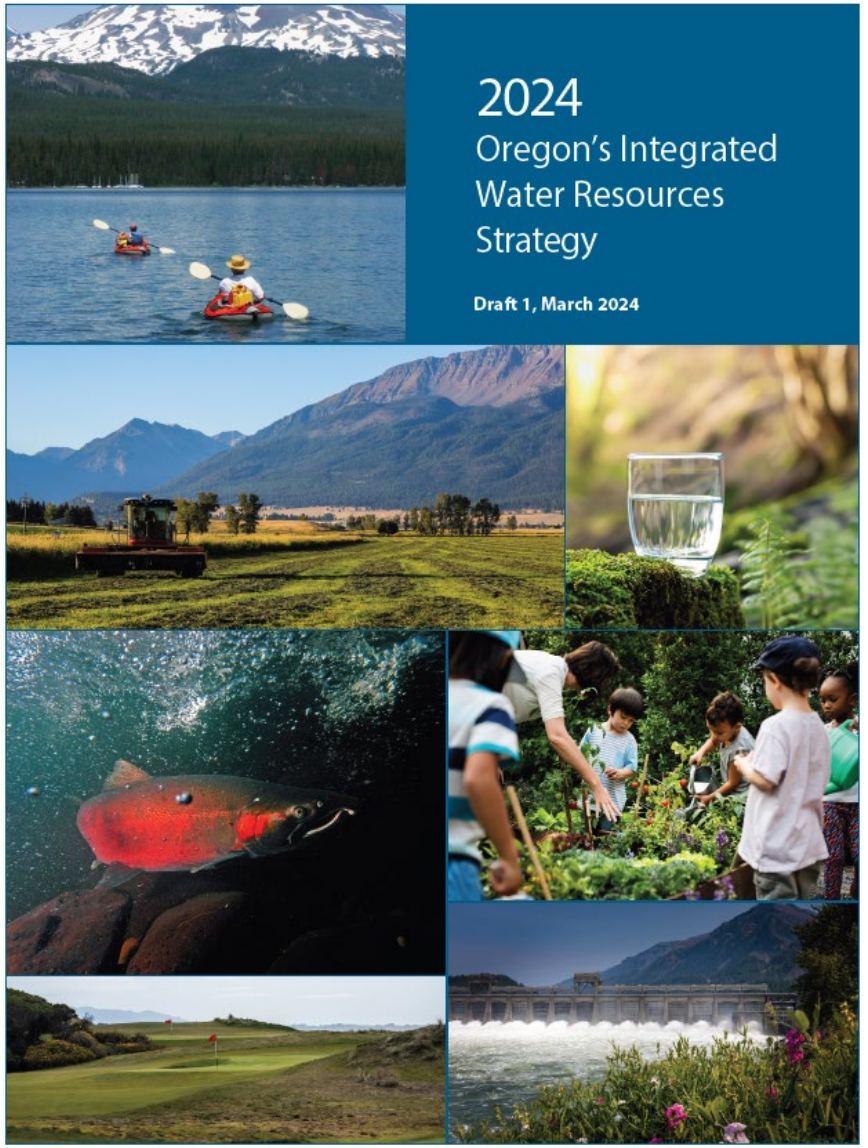
ADDING

Outreach & Engagement

- Oregon's Kitchen Table
  - Community Conversations across state
  - Culturally-Specific Conversations
  - Survey in 9 languages
  - About 1900 people participated
  - https://www.oregonskitchentable.org/results
- 100-Year Water Vision (2019-2020)
  - Community Conversations across state
  - Survey
  - Technical Workshop
  - About 850 participants

Draft 1

- Kept most 2017 actions
- Two new actions
  - “Lead Meaningful Community Engagement”
  - “Develop Instream & Ecosystem Water Demand Forecasts”
- Group actions by type
  - Funding
  - Partnerships & Planning
  - Data & Analysis
  - Stewardship



Oregon's 2024 Integrated Water Resources Strategy Framework and Actions - Draft 1, March 2024

Focusing on: Climate change, population growth, land use change, economic impacts, and energy demand

Goal 1: Improve Understanding of Oregon's Water Resources
- Objective 1: Understand Water Resources
- Objective 2: Understand Instream and Out-of-Stream Needs
- Objective 3: Understand the Pressures that Affect Our Needs and Supplies

Goal 2: Meet Oregon's Water Resources Needs
- Objective 4: Meet Oregon's Instream and Out-of-Stream Needs

Chapter 1: Funding

Funding

1A [13A] – Fund Development and Implementation of Oregon's Integrated Water Resources Strategy
1B [13B] – Fund Water Resources Management Activities at State Agencies
1C [13C-13E] – Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Chapter 2: Partnerships and Planning

Education & Outreach

2A [8C] – Promote Community Education and Outreach
2B [8A] – Support Implementation of K-12 Environmental Literacy Plan
2C [8B] – Provide Career Training for the Next Generation of Water Professionals
2D [8D] – Identify Water Research Needs & Partnerships

Coordination & Collaboration [new]

3A [9C] – Partner with Tribes, Federal Agencies, and Neighboring States in Long-Term Water Resources Management
3B [6B] – Improve State Interagency Coordination
3C [new] – Lead Meaningful Community Engagement

Water Planning

4A [9A] – Support Integrated Place-Based Planning and Other Water Planning Efforts
4B [9B] – Coordinate State and Local Natural Resource Plans

Land Use Planning

5A [6A] – Improve Integration of Water Information and Land Use Planning
5B [6C] – Encourage Low Impact Development Practices and Green Infrastructure

Natural Hazard Mitigation Planning & Extreme Events

6A [5.5A] – Plan and Prepare for Drought & Wildfire Resiliency
6B [5.5B] – Plan and Prepare for Flood Events
6C [5.5C] – Plan and Prepare for a Cascadia Earthquake & Tsunami Event

Chapter 3: Data and Analysis

Water Resource/Supply Information

7A [1B] – Improve Water Resource Data Collection and Monitoring
7B [1A] – Conduct Additional Groundwater Basin Studies
7C [1C] – Enhance Interagency Data Coordination
7D [5A] – Support Basin-Scale Climate Change Research

Instream & Ecosystem Water Needs

8A [4A] – Analyze the Effects on Water from Energy Development Projects and Policies
8B [3A] – Determine Instream Flow Needs (Quality and Quantity)
8C [3B] – Determine Needs of Groundwater-Dependent Ecosystems
8D [new] – Develop Instream & Ecosystem Water Demand Forecasts

Out-of-Stream Water Needs

9A [2B] – Improve Water-Use Measurement and Reporting
9B [2A] – Regularly Update Out-of-Stream Water Demand Forecasts

Chapter 4: Stewardship

Healthy Ecosystems

10A [11A] – Improve Watershed Health, Resiliency, and Capacity for Natural Storage
10B [11D] – Protect and Restore Instream Habitat and Fish Passage/Screening
10C [11B] – Develop Additional Instream Protections
10D [11C] – Prevent and Eradicate Invasive Species
10E [11E] – Develop Additional Groundwater Protections

Clean Water

11A [12A] – Ensure the Safety of Oregon's Drinking Water
11B [12B] – Reduce the Use of and Exposure to Toxics and Other Pollutants
11C [12C] – Implement Water Quality Pollution Controls

Water Use & Management

12A [2C] – Determine Unadjudicated Water Right Claims
12B [10A] – Improve Water-Use Efficiency and Water Conservation
12C [10C] – Encourage Water Reuse Projects
12D [10B] – Improve Access to Storage
12E [10D] – Reach Environmental Outcomes with Non-Regulatory Alternatives
12F [10F] – Provide an Adequate Field Presence
12G [10G] – Strengthen Water Quantity and Water Quality Permitting Programs

Water Infrastructure

13A [7A] – Maintain, Upgrade, Decommission Water and Wastewater Infrastructure
13B [7B] – Encourage Regional (Sub-Basin) Water and Wastewater Systems
13C [7C] – Support Dam and Levee Safety

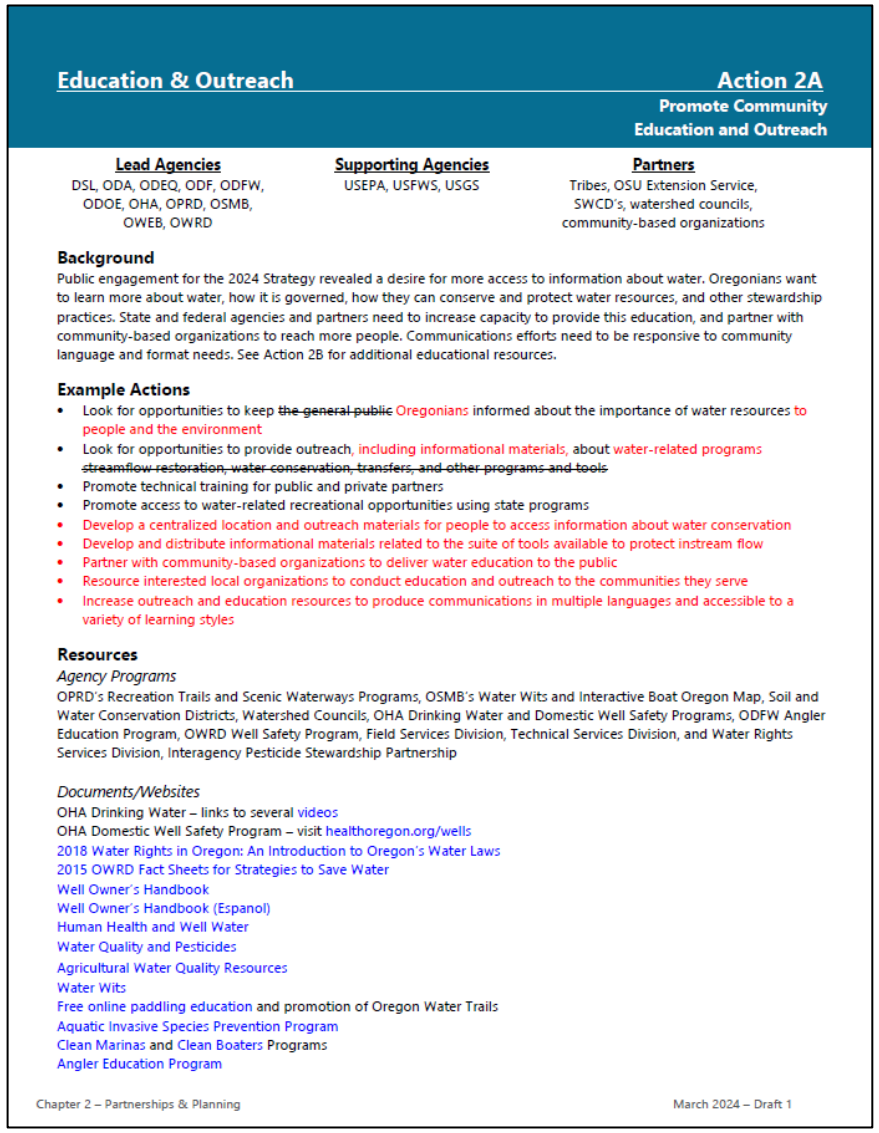
Water & Energy

14A [4B] – Develop Non-Traditional Hydroelectric Power
14B [4C] – Promote Strategies that Increase/Integrate Energy and Water Savings

Note: 2017 IWRS numbering is shown in **[brackets]**.

Draft 1

- New! Action Summaries
- Who
- Example Actions Include
  - Climate Change
  - Equity & EJ
- Resources
  - Workgroups
  - Programs
  - Funding
  - Documents
  - Websites



Education & Outreach — **Action 2A: Promote Community Education and Outreach**

Lead Agencies	Supporting Agencies	Partners
DSL, ODA, ODEQ, ODF, ODFW, ODOE, OHA, OPRD, OSMB, OWEB, OWRD	USEPA, USFWS, USGS	Tribes, OSU Extension Service, SWCD's, watershed councils, community-based organizations

Background

Public engagement for the 2024 Strategy revealed a desire for more access to information about water. Oregonians want to learn more about water, how it is governed, how they can conserve and protect water resources, and other stewardship practices. State and federal agencies and partners need to increase capacity to provide this education, and partner with community-based organizations to reach more people. Communications efforts need to be responsive to community language and format needs. See Action 2B for additional educational resources.

Example Actions

- Look for opportunities to keep ~~the general public~~ Oregonians informed about the importance of water resources to people and the environment
- Look for opportunities to provide outreach, including informational materials, about water-related programs ~~streamflow restoration, water conservation, transfers, and other programs and tools~~
- Promote technical training for public and private partners
- Promote access to water-related recreational opportunities using state programs
- Develop a centralized location and outreach materials for people to access information about water conservation
- Develop and distribute informational materials related to the suite of tools available to protect instream flow
- Partner with community-based organizations to deliver water education to the public
- Resource interested local organizations to conduct education and outreach to the communities they serve
- Increase outreach and education resources to produce communications in multiple languages and accessible to a variety of learning styles

Resources

Agency Programs

OPRD's Recreation Trails and Scenic Waterways Programs, OSMB's Water Wits and Interactive Boat Oregon Map, Soil and Water Conservation Districts, Watershed Councils, OHA Drinking Water and Domestic Well Safety Programs, ODFW Angler Education Program, OWRD Well Safety Program, Field Services Division, Technical Services Division, and Water Rights Services Division, Interagency Pesticide Stewardship Partnership

Documents/Websites

OHA Drinking Water – links to several videos
OHA Domestic Well Safety Program – visit healthoregon.org/wells
2018 Water Rights in Oregon: An Introduction to Oregon's Water Laws
2015 OWRD Fact Sheets for Strategies to Save Water
Well Owner's Handbook
Well Owner's Handbook (Espanol)
Human Health and Well Water
Water Quality and Pesticides
Agricultural Water Quality Resources
Water Wits
Free online paddling education and promotion of Oregon Water Trails
Aquatic Invasive Species Prevention Program
Clean Marinas and Clean Boaters Programs
Angler Education Program

Thank you!

Crystal Grinnell, Oregon Water Resources Department

Crystal.A.Grinnell@water.oregon.gov

OREGON
WATER
RESOURCES
DEPARTMENT

Break Time!
15 Minutes

Stretch your legs, take care of your needs, and meet your neighbor.

Water Infrastructure for Needed Housing

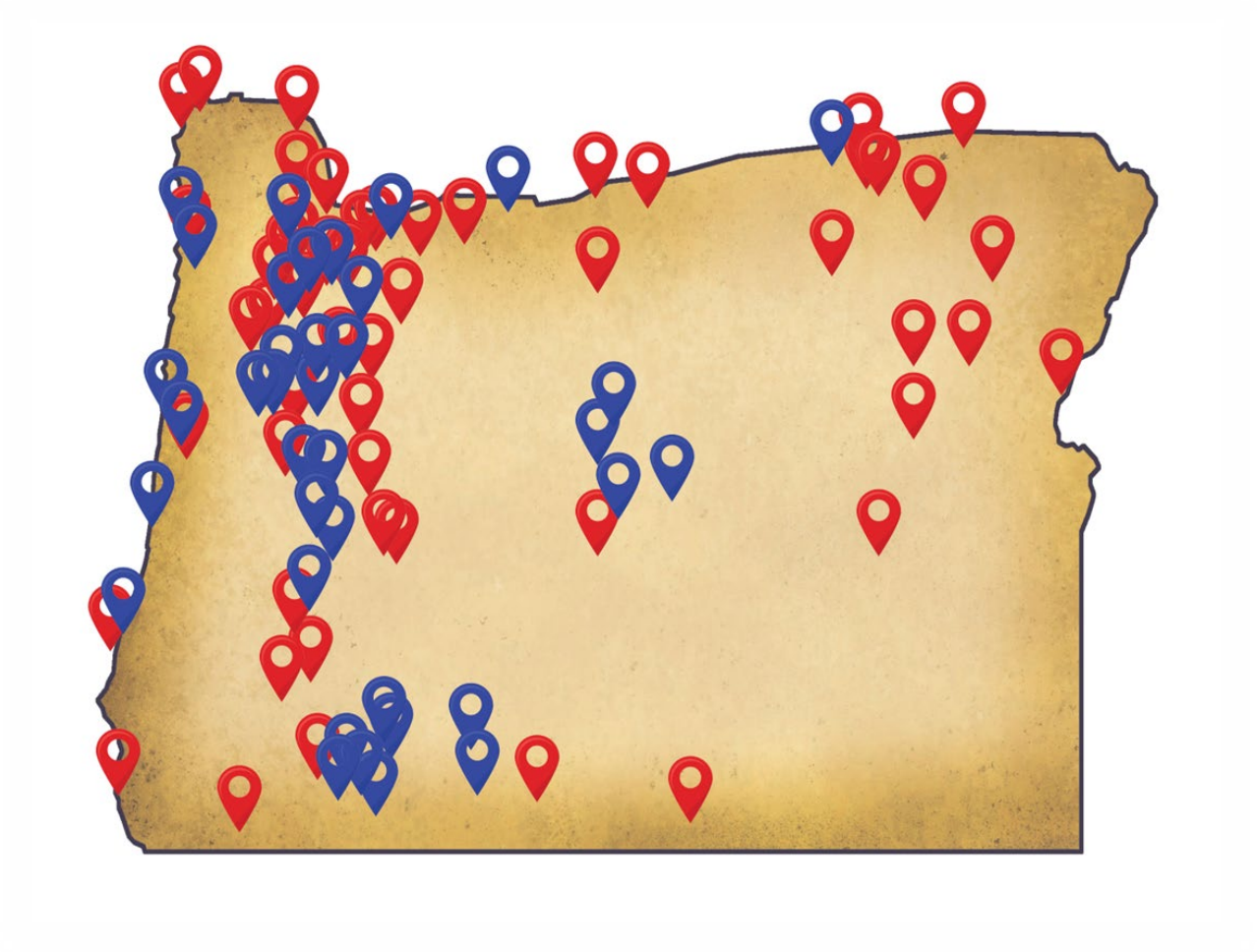
Michael Martin, League of Oregon Cities

League of Oregon Cities

Infrastructure Funding

225 Projects Submitted

38 City Projects Funded



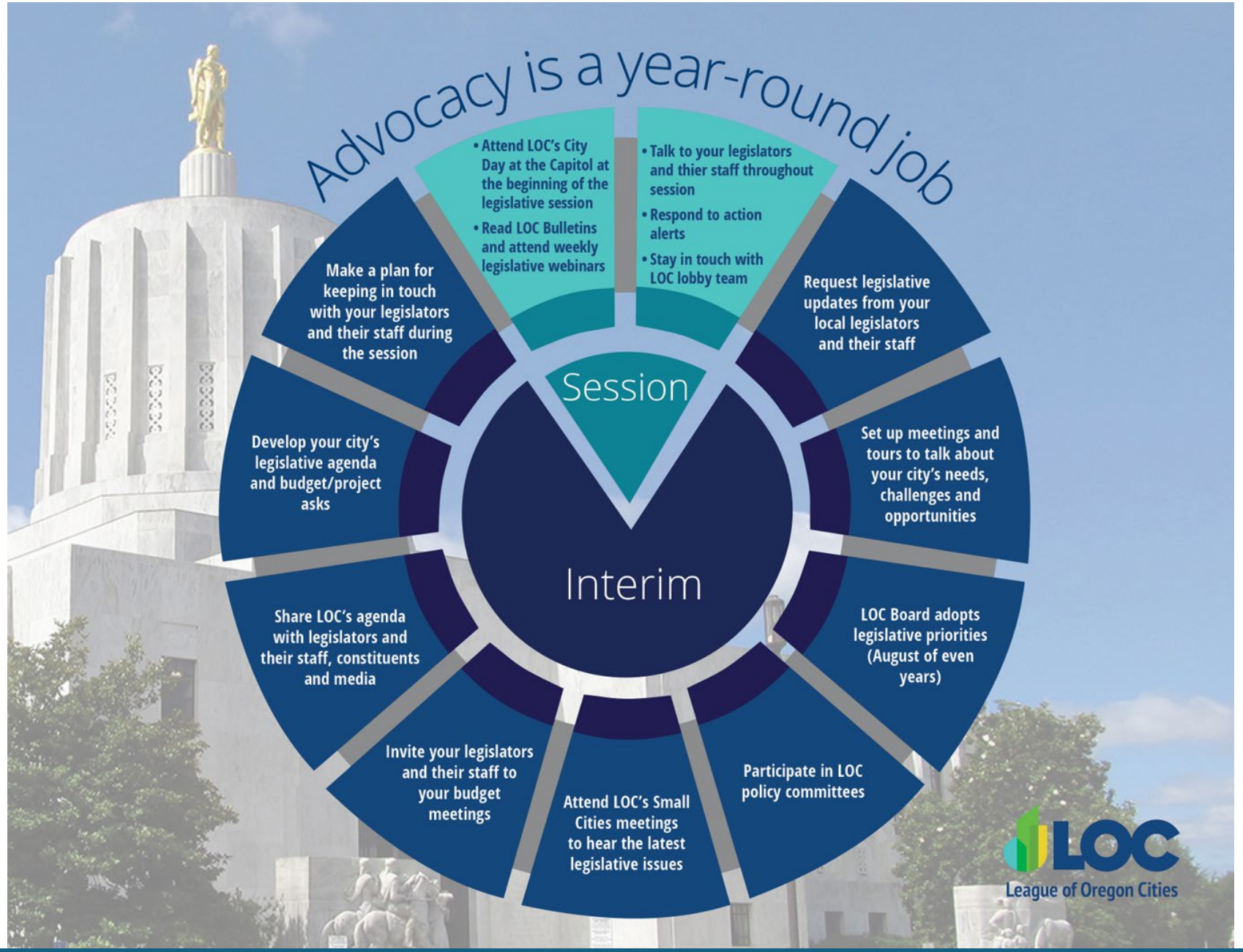
Infrastructure Funding

- Senate Bill 1530
  - $94.3M for direct allocations, *mostly* water/sewer/stormwater projects to support housing development.

- House Bill 4134
  - $7.1M for infrastructure to support housing development in 4 cities

More Water Legislation

- House Bill 4049A – PFAS Study Bill


Advocacy is a year-round job
Session
Interim
• Attend LOC's City Day at the Capitol at the beginning of the legislative session
• Read LOC Bulletins and attend weekly legislative webinars
• Talk to your legislators and thier staff throughout session
• Respond to action alerts
• Stay in touch with LOC lobby team
Make a plan for keeping in touch with your legislators and their staff during the session
Request legislative updates from your local legislators and their staff
Develop your city's legislative agenda and budget/project asks
Set up meetings and tours to talk about your city's needs, challenges and opportunities
Share LOC's agenda with legislators and their staff, constituents and media
LOC Board adopts legislative priorities (August of even years)
Invite your legislators and their staff to your budget meetings
Attend LOC's Small Cities meetings to hear the latest legislative issues
Participate in LOC policy committees
LOC
League of Oregon Cities

2023 Legislative Update: Water Related Legislation

Bryn Hudson, Oregon Water Resources Department

OREGON WATER RESOURCES DEPARTMENT

2023 Legislative Session

- Sine Die June 25, 2023
- More than 2,500 measures introduced
  - Tracked over 500 bills
  - Over 80 pieces of water related legislation
- Biennial Budgets

$143 million Drought Package

Shared Investments across multiple agencies*

- **$8.8 million:** Data and Analysis
- **$7.5 million:** Drinking Water Security
- **$9.7 million:** Agricultural Resilience and Food Security
- **$35.2 million:** Instream Priorities and Watershed Health
- **$68.9 million:** Water Project Improvements
- **$4.4 million:** Outreach and Engagement
- **$29 million:** Carryover funding

*Per press release via Representative Helm's Office

Oregon's 2017 Integrated Water Resources Strategy

A framework for improving our understanding of Oregon's water resources and meeting our instream and out-of-stream needs, including water quantity, water quality, and ecosystem needs

(1) Understand Water Resources Today

Further Understand Limited Water Supplies & Systems
(groundwater, surface water, and their interaction)

Improve Water Quality & Quantity Information

Further Understand Our Water Management Institutions

Understanding Water Resources / Supplies / Institutions

- 1.A Conduct additional groundwater investigations
- 1.B Improve water resource data collection & monitoring
- 1.C Coordinate inter-agency data collection, processing, and use in decision-making

OBJECTIVES

CRITICAL ISSUES

RECOMMENDED ACTIONS

(2) Understand Instream and Out-of-Stream Needs

Further Define Out-of-Stream Needs / Demands
(i.e., diverted water)

Further Define Instream Needs / Demands
(i.e., left-in-place water)

Understanding Oregon's Out-of-Stream Needs/Demands

- 2.A Regularly update long-term water demand forecasts
- 2.B Improve water-use measurement & reporting
- 2.C Determine unadjudicated water right claims
- 2.D Authorize the update of water right records with contact information
- 2.E Regularly update Oregon's water-related permitting guide

Understanding Oregon's Instream Needs/Demands

- 3.A Determine flows needed (quality & quantity) to support instream needs
- 3.B Determine needs of groundwater dependent ecosystems

(3) Understand the Coming Pressures That Affect Our Needs and Supplies

Economic Development | **Water & Energy** | **Climate Change** | **Extreme Events**

Population Growth | **Water & Land Use** | **Water-Related Infrastructure** | **Education & Outreach**

Water & Energy

- 4.A Analyze the effects on water from energy development projects & policies
- 4.B Take advantage of existing infrastructure to develop non-traditional hydroelectric power
- 4.C Promote strategies that increase/integrate energy & water savings

Climate Change

- 5.A Support continued basin-scale climate change research efforts
- 5.B Assist with climate change adaptation & resiliency strategies

Extreme Events

- 5.A Plan and prepare for drought resiliency
- 5.B Plan and prepare for flood events
- 5.C Plan and prepare for a Cascadia subduction earthquake event

Economic Development & Population Growth
(See Actions 2A and 3A)

Water & Land Use

- 6.A Improve integration of water information into land use planning (and vice versa)
- 6.B Improve state agency coordination
- 6.C Encourage low-impact development practices and green infrastructure

Water-Related Infrastructure

- 7.A Develop and upgrade water and wastewater infrastructure
- 7.B Encourage regional (sub-basin) approaches to water and wastewater systems
- 7.C Ensure public safety/dam safety

Education and Outreach

- 8.A Support Oregon's K-12 environmental literacy plan
- 8.B Provide education and training for Oregon's next generation of water experts
- 8.C Promote community education and training opportunities
- 8.D Identify ongoing water-related research needs

OBJECTIVES

CRITICAL ISSUES

RECOMMENDED ACTIONS

(4) Meet Oregon's Instream and Out-of-Stream Needs

Place-Based Efforts | **Water Management & Development**

Healthy Ecosystems | **Public Health** | **Funding**

Place-Based Efforts

- 9.A Continue to undertake place-based integrated, water resources planning
- 9.B Coordinate implementation of existing natural resource plans
- 9.C Partner with federal agencies, tribes, and neighboring states in long-term water resources management

Water Management & Development

- 10.A Improve water-use efficiency and water conservation
- 10.B Improve access to built storage
- 10.C Encourage additional water reuse projects
- 10.D Reach environmental outcomes with non-regulatory alternatives
- 10.E Continue the water resources development program
- 10.F Provide an adequate presence in the field
- 10.G Strengthen water quantity & water quality permitting programs

Healthy Ecosystems

- 11.A Improve watershed health, resiliency, and capacity for natural storage
- 11.B Develop additional instream protections
- 11.C Prevent and eradicate invasive species
- 11.D Protect and restore instream habitat and habitat access for fish and wildlife
- 11.E Develop additional groundwater protections

Public Health

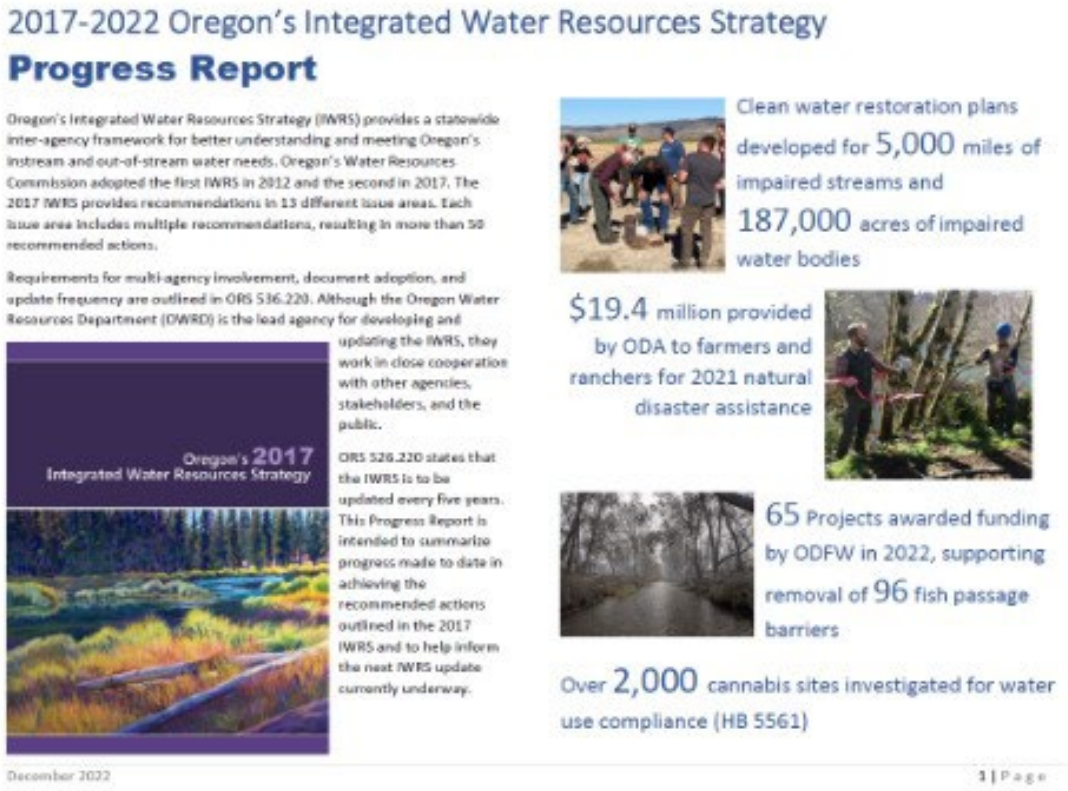
- 12.A Ensure the safety of Oregon's drinking water
- 12.B Reduce the use of and exposure to toxics and other pollutants
- 12.C Implement water quality pollution control plans

Funding

- 13.A Fund development and implementation of Oregon's IWRS
- 13.B Fund water resources management activities at state agencies
- 13.C Invest in local or regional water planning efforts
- 13.D Invest in feasibility studies for water resources projects
- 13.E Invest in implementation of water resources projects

Integrated Water Resources Strategy Implementation

- IWRS provides a statewide framework for better understanding and meeting instream and out-of-stream water needs
- Resources and policy to facilitate interagency work & implement IWRS
- Expands update timeline to every 8 years
- Interagency workplan requirements



2017-2022 Oregon's Integrated Water Resources Strategy

Progress Report

Oregon's Integrated Water Resources Strategy (IWRS) provides a statewide inter-agency framework for better understanding and meeting Oregon's instream and out-of-stream water needs. Oregon's Water Resources Commission adopted the first IWRS in 2012 and the second in 2017. The 2017 IWRS provides recommendations in 13 different issue areas. Each issue area includes multiple recommendations, resulting in more than 50 recommended actions.

Requirements for multi-agency involvement, document adoption, and update frequency are outlined in ORS 536.220. Although the Oregon Water Resources Department (OWRD) is the lead agency for developing and updating the IWRS, they work in close cooperation with other agencies, stakeholders, and the public.

Oregon's 2017 Integrated Water Resources Strategy

ORS 536.220 states that the IWRS is to be updated every five years. This Progress Report is intended to summarize progress made to date in achieving the recommended actions outlined in the 2017 IWRS and to help inform the next IWRS update currently underway.

Clean water restoration plans developed for 5,000 miles of impaired streams and 187,000 acres of impaired water bodies

$19.4 million provided by ODA to farmers and ranchers for 2021 natural disaster assistance

65 Projects awarded funding by ODFW in 2022, supporting removal of 96 fish passage barriers

Over 2,000 cannabis sites investigated for water use compliance (HB 5561)

December 2022

1 | Page

Place-Based Integrated Water Resources Planning

- “Voluntary, locally initiated and led effort, involving a balanced representation of water interests who work in partnership with the state to understand and meet their instream and out-of-stream water supply needs.”
- Made program permanent and allocated resources for staff and grant dollars
- Department staff working to stand up the permanent fund using lessons learned from pilot program

Water Projects Grants and Loans

- Water projects to evaluate, plan, and develop instream and out-of-stream water projects that have economic, environmental and social/cultural benefits.
- $60 million Lottery Bonds for 2023-25 Biennium
  - $10 million for Water Projects Grants and Loans
  - $50 million for irrigation modernization, as specified by the Legislature
- First cycle: Funding decision in June 2024 (cycle closed)
- Second cycle: Funding decision in December 2024 (apps due July 10, 2024)

Water Availability Reporting System Update

- Database that estimates surface water availability across the state
  - Current model reflective of period from 1958-1987
- Resources to update and refine database
  - Underlying data updates for 1991-2020 period
  - Software modernization for more flexibility for future updates and cross programmatic data integration

Conclusion

- Full legislative summary for water-related legislation available online
- OWRD working to hire new staff, implement existing and new programs
- Looking toward preparation for 2025 legislative session

- Contact: bryn.hudson@water.oregon.gov

Panel Discussion

How water management policy and upcoming legislation may impact resiliency in the watershed.

Please raise your hand if you have a question for the panel.

Lunch Time

Our refreshments and lunch today are hosted by the City of Salem and provided by Isaac's Downtown

Geren Island
Bennett Dam Complex

James Winslow, PE, Assistant City Engineer

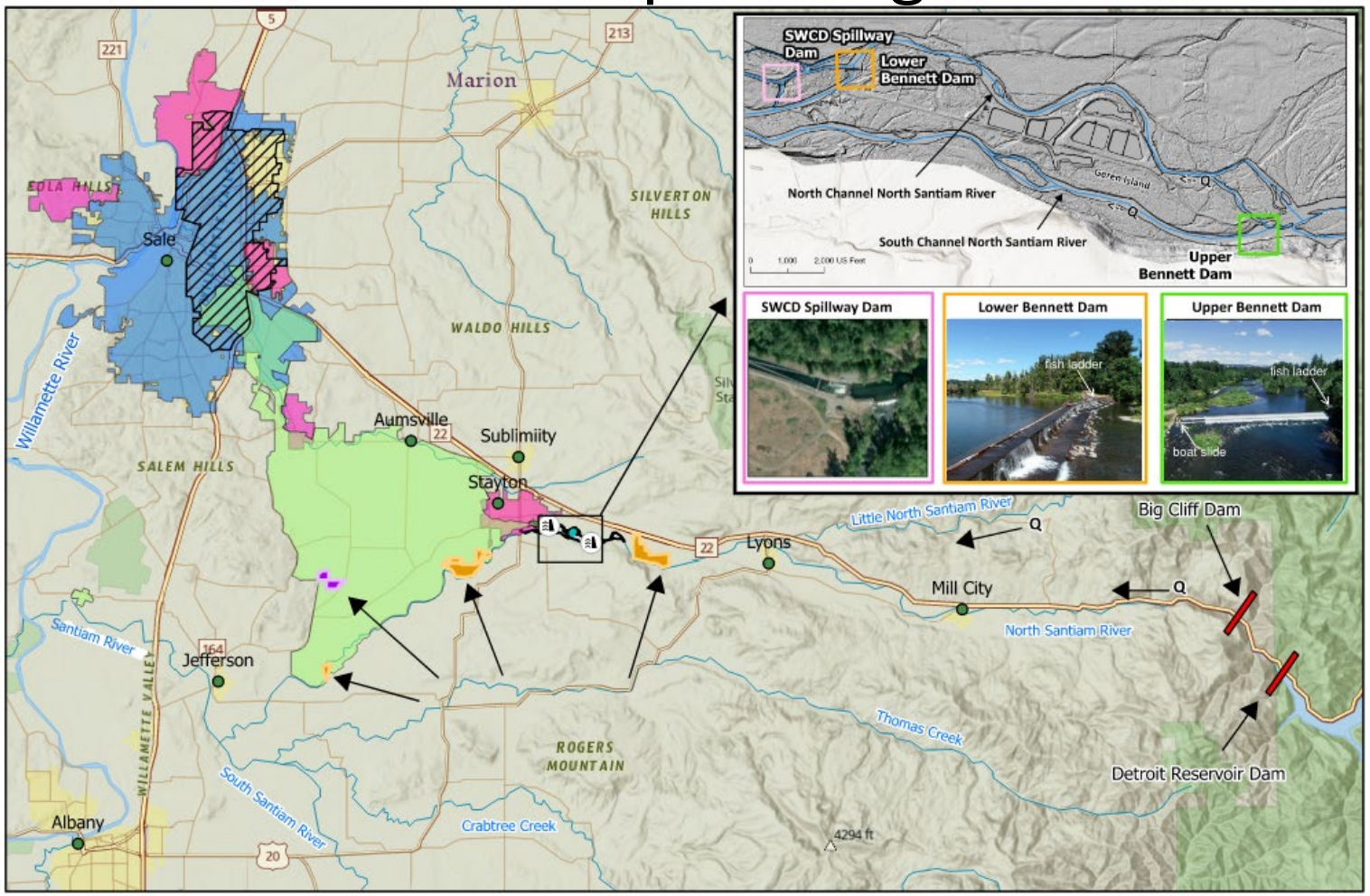
Rob Keller, PE, Senior Project Manager

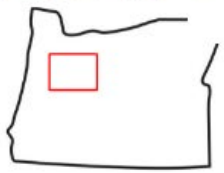
CITY OF Salem
AT YOUR SERVICE

Public Works Department

APWA ACCREDITED AGENCY

Geren Island Bennett Dam Complex: Regional Location





North Santiam, Lower Watershed

- Cities
- Geren Island
- Confederated Tribes of the Grand Ronde
- Confederated Tribes of the Siletz Indians
- SWCD Facility Boundaries
- Bennett Dams
- City of Salem Emergency Service Areas
- City of Salem Water Service Area
- Disadvantaged Population (EJ40)

SANTIAM WATER CONTROL DISTRICT

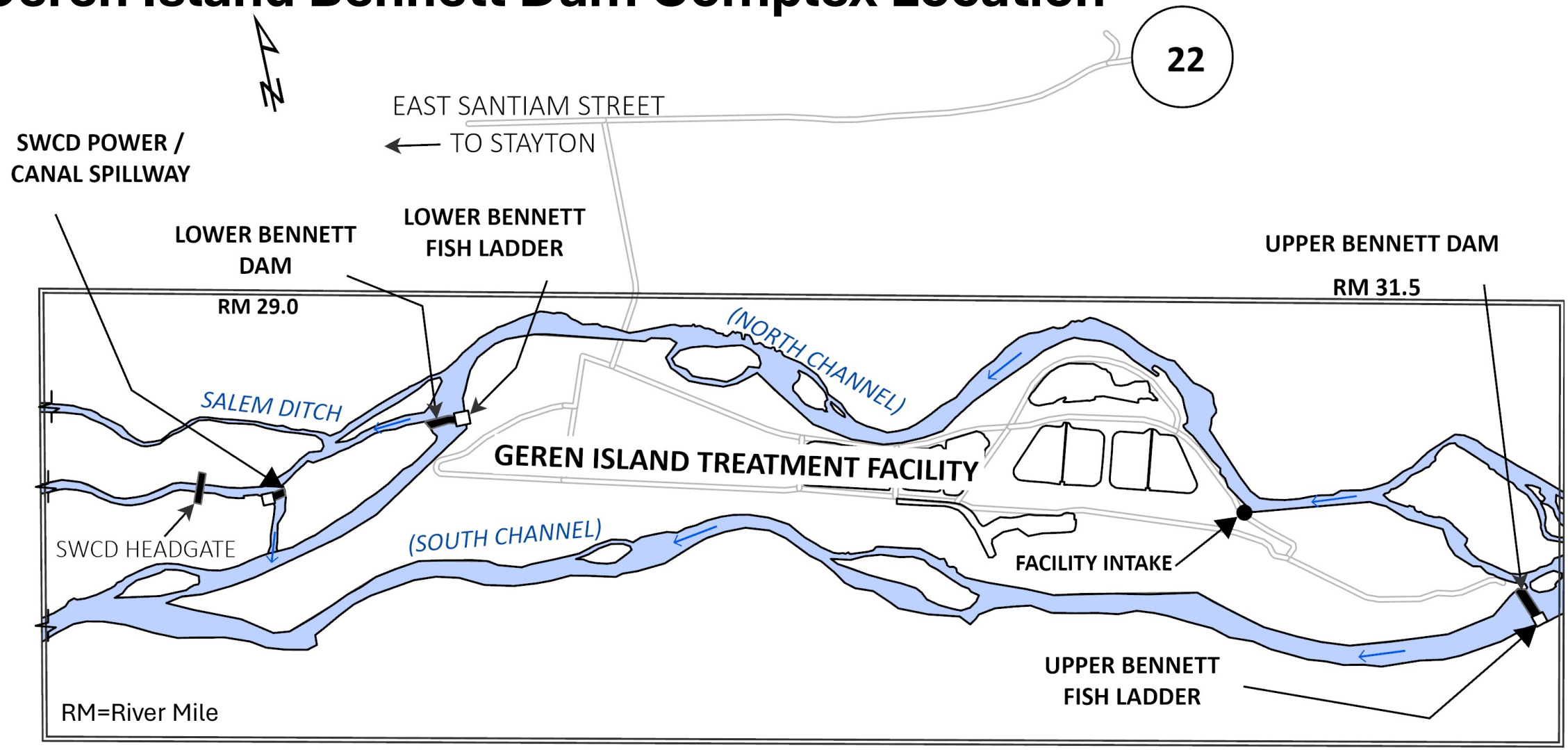
CITY OF Salem AT YOUR SERVICE

0 5 10 Miles

N

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Geren Island Bennett Dam Complex Location



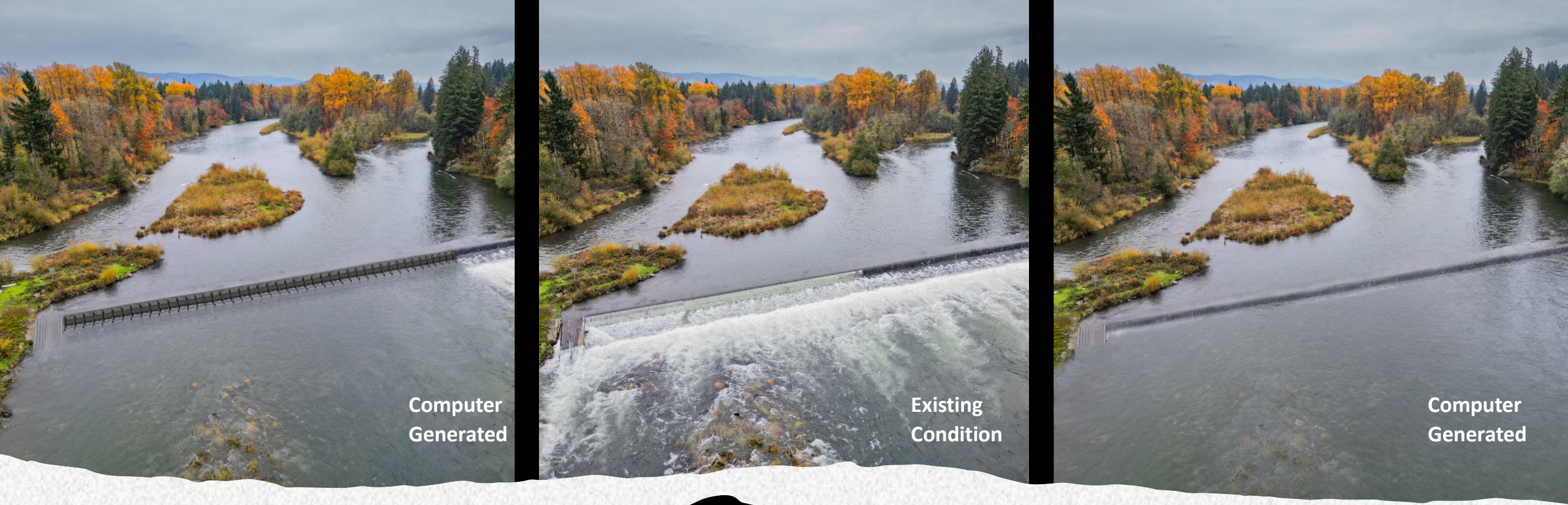
Thanks!
NOAA Grant Application for Transformational Habitat Restoration and Coastal Resilience Program

City of Salem in partnership with Santiam Water Control District

- Transforming and Restoring River Dynamics and Ecosystem Resilience in the North Santiam River

Technical Support and Letters of Support

- The Confederated Tribes of Grand Ronde
- North Santiam Watershed Council
- City of Salem – City Council & Mayor
- City of Stayton
- Marion County
- Marion Soil & Water Conservation District
- Upper Bennett Neighbors
- Willamette Riverkeeper
- Bonneville Environmental Foundation
- The Confederated Tribes of Grand Ronde
- Greenbelt Land Trust
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Water Resources Department
- Santiam Hospital
- United State Department of the Interior – US Fish and Wildlife Service



Transforming and Restoring River Dynamics and Ecosystem Resilience in the North Santiam River

Project Objectives

- Replacement of Upper Bennett Dam
- Installation of new Fish Ladder on Lower Bennett Dam

Transforming and Restoring River Dynamics & Ecosystem Resilience in the North Santiam River

Goals

- Improving Steam Flow
- Enhancing Fish Passage
- Increasing Sediment and Woody Debris Transport
- Enhancing Juvenile Fish and Eels Pass-through at High Flows

Transforming and Restoring River Dynamics and Ecosystem Resilience in the North Santiam River

Next Steps

- Secure funding
- Technical Advisory Committee
- Community Engagement
- Advertisement for Design and Construction teams

Confederate Tribes of Grand Ronde: Current and Upcoming Projects

Anna Ramthun, Natural Resources Specialist

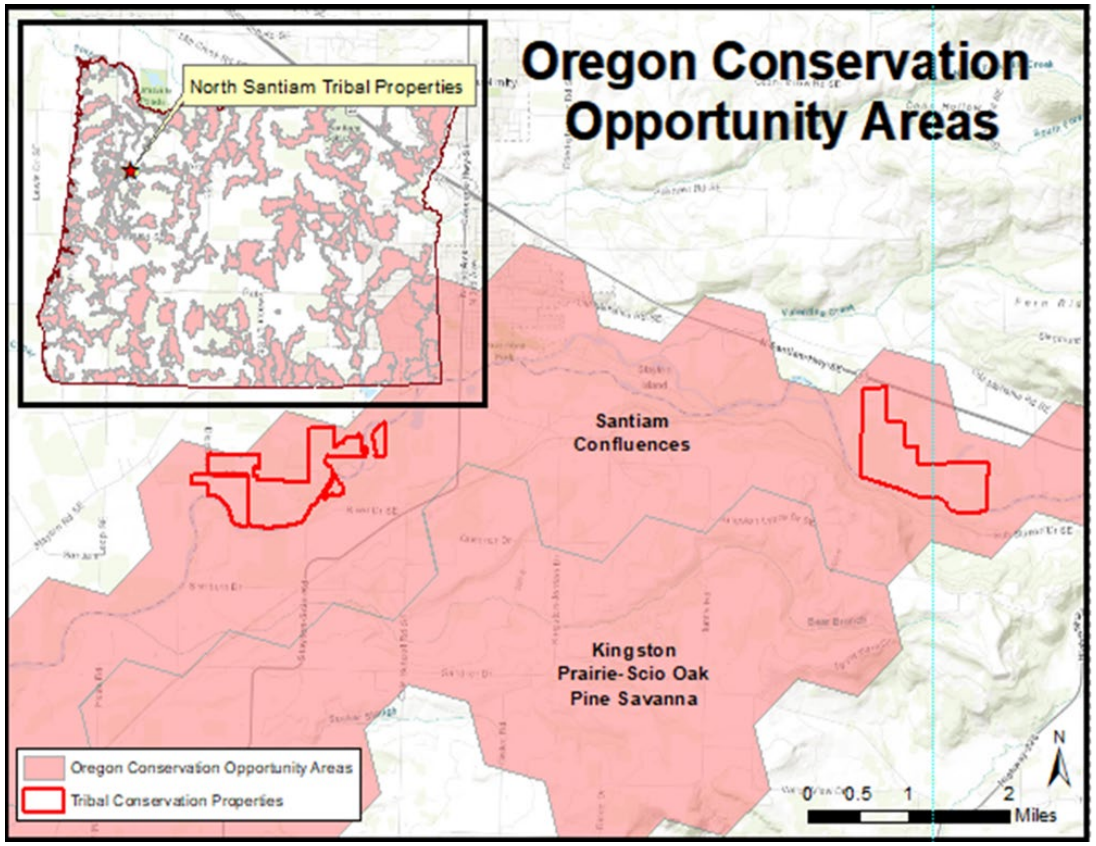
Historic Stewardship

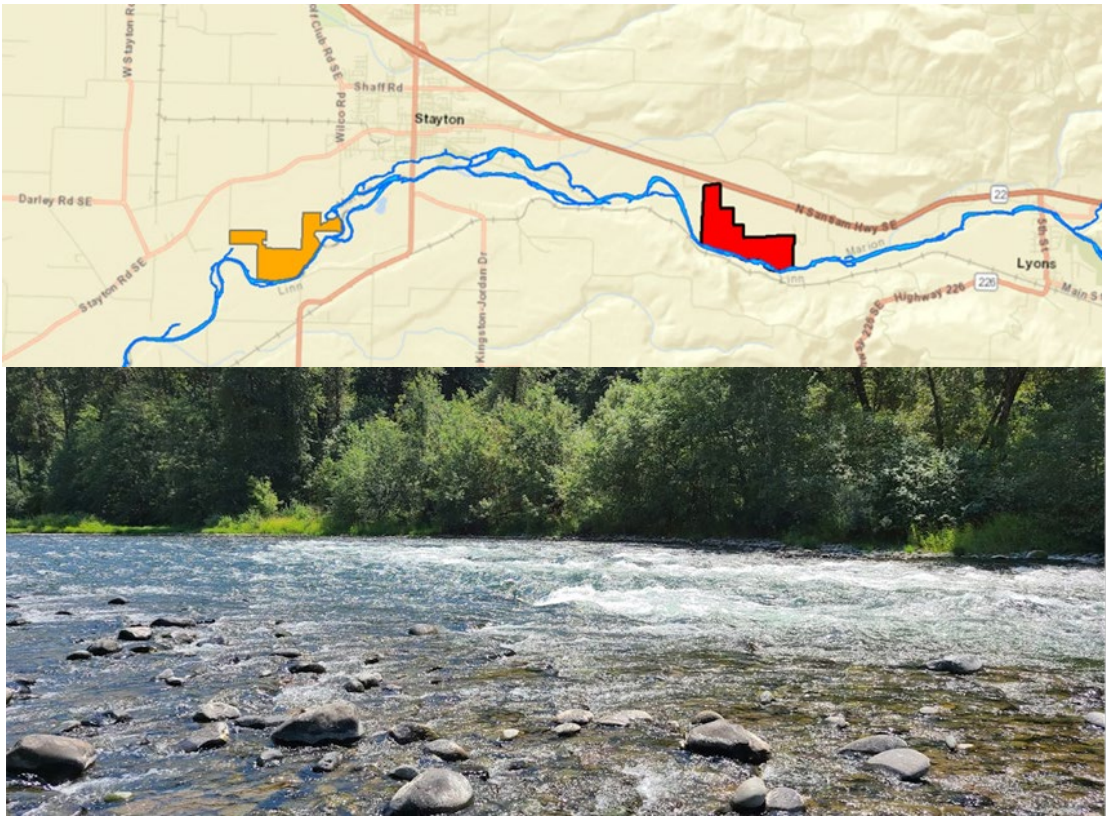
- 30 Tribes and bands from western Oregon, northern California, and southwest Washington
- Seasonal Resources
- Landscape Management

Current Management

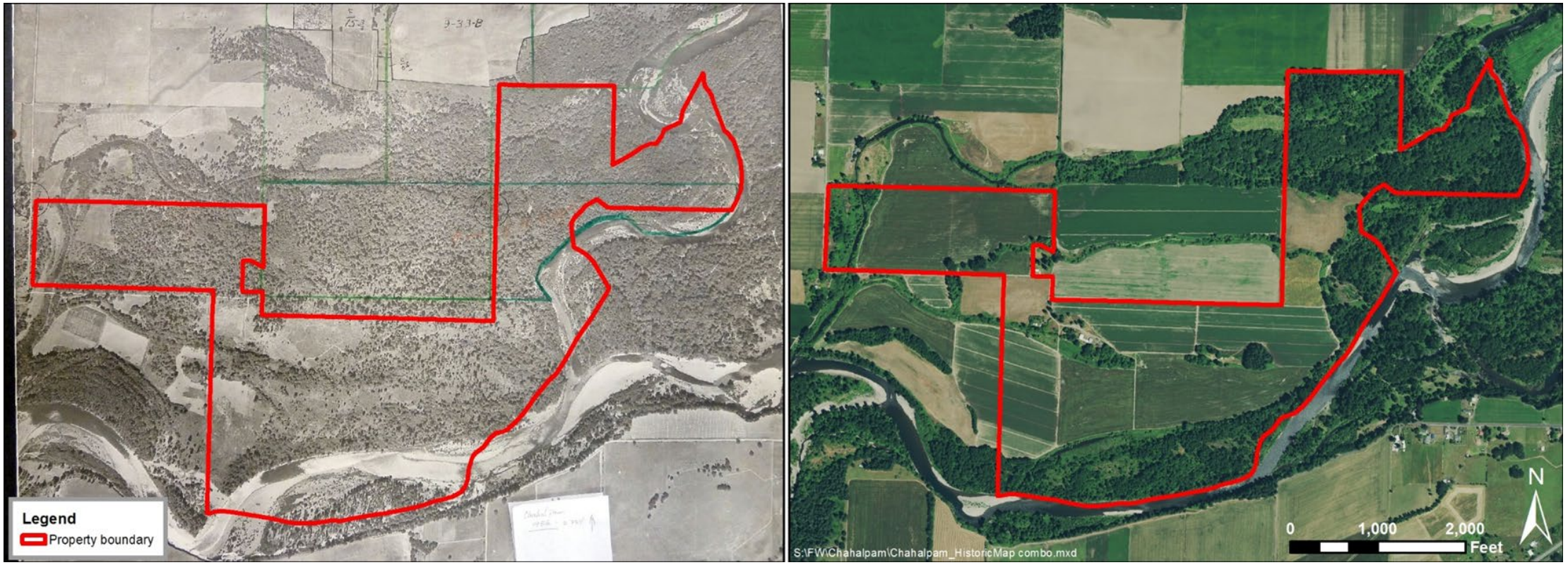
The Natural Resources Department serves the Grand Ronde Tribal membership through responsible stewardship of all natural resources important to the cultural identity, self-sufficiency, and sovereignty of current and future generations.

North Santiam Conservation Properties





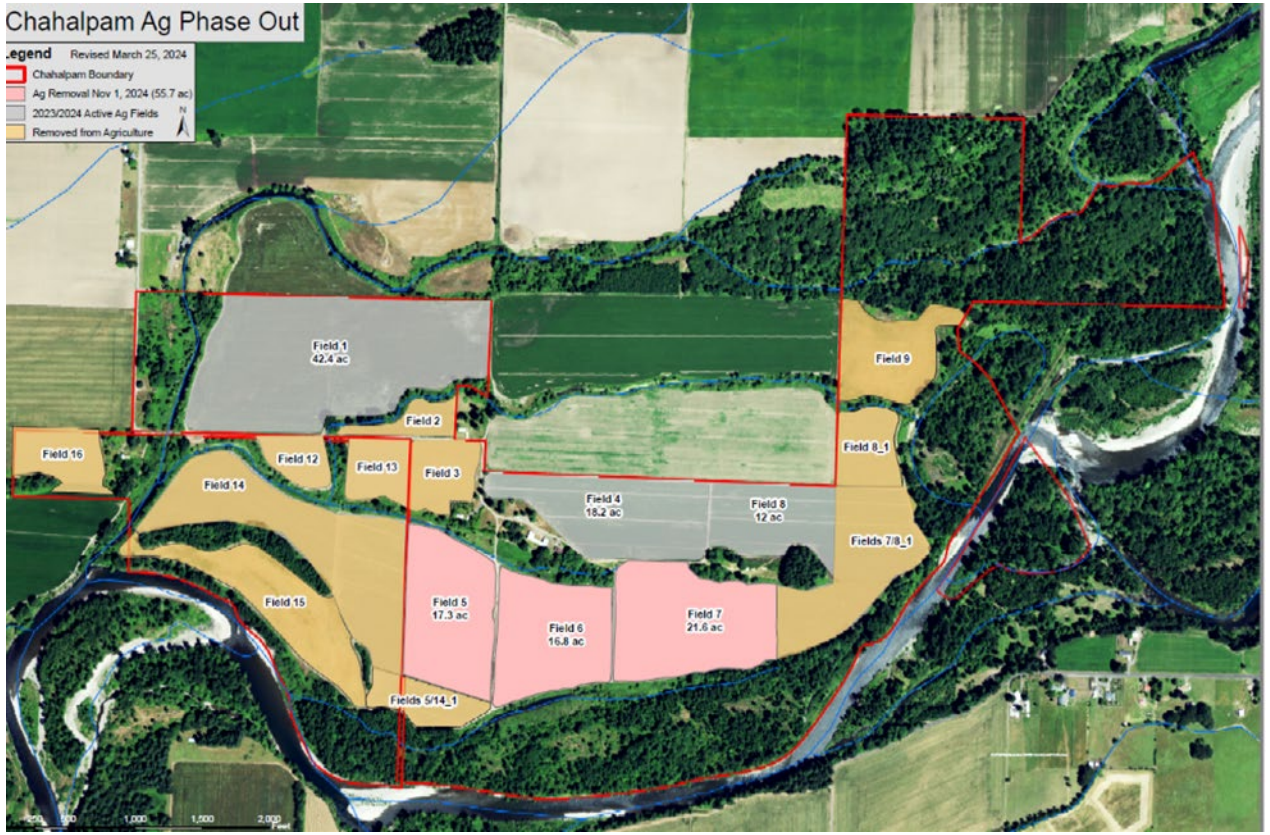
Chahalpam 1935-2014

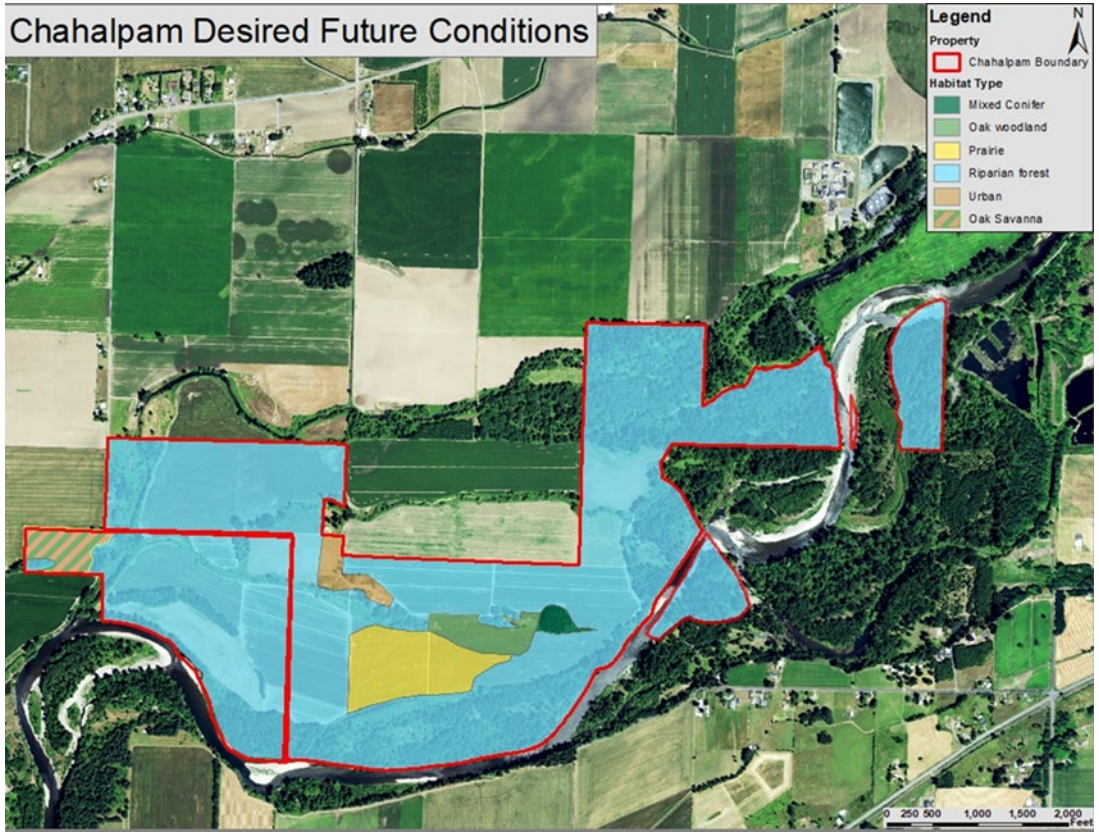


Chahalpam Current Projects

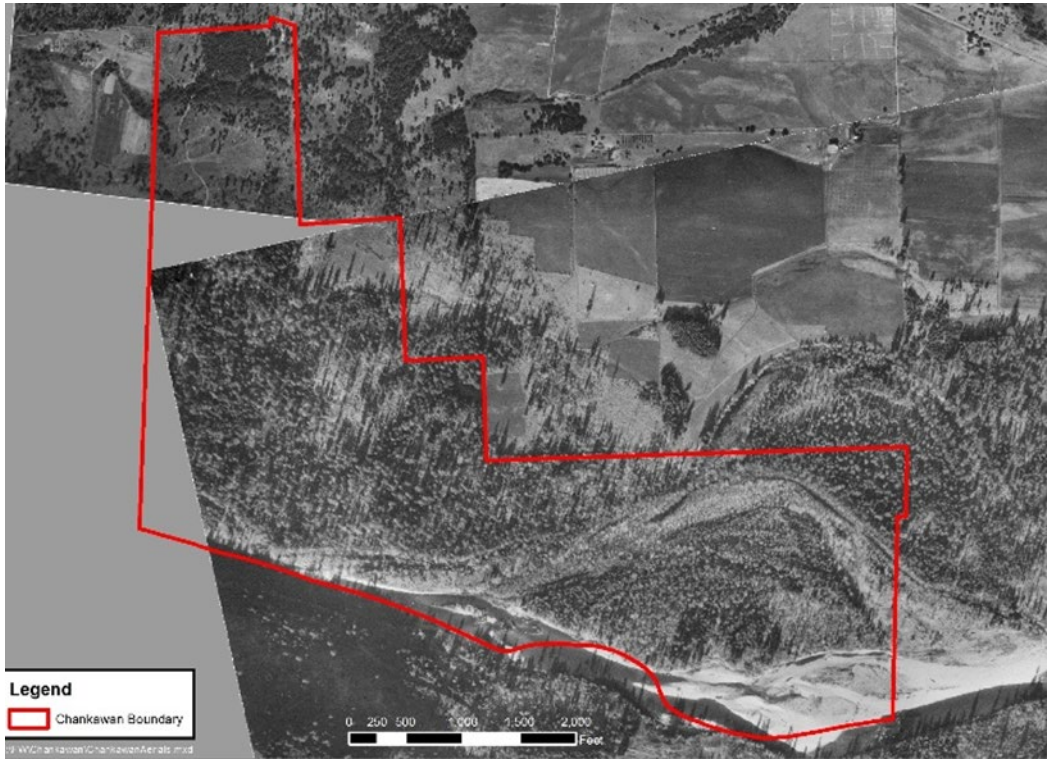
- Channel Reconnection
- Riparian Forest Restoration
- Oak Savanna Restoration
- Invasive Species Management

Chahalpam Upcoming Projects and Long Term Goals





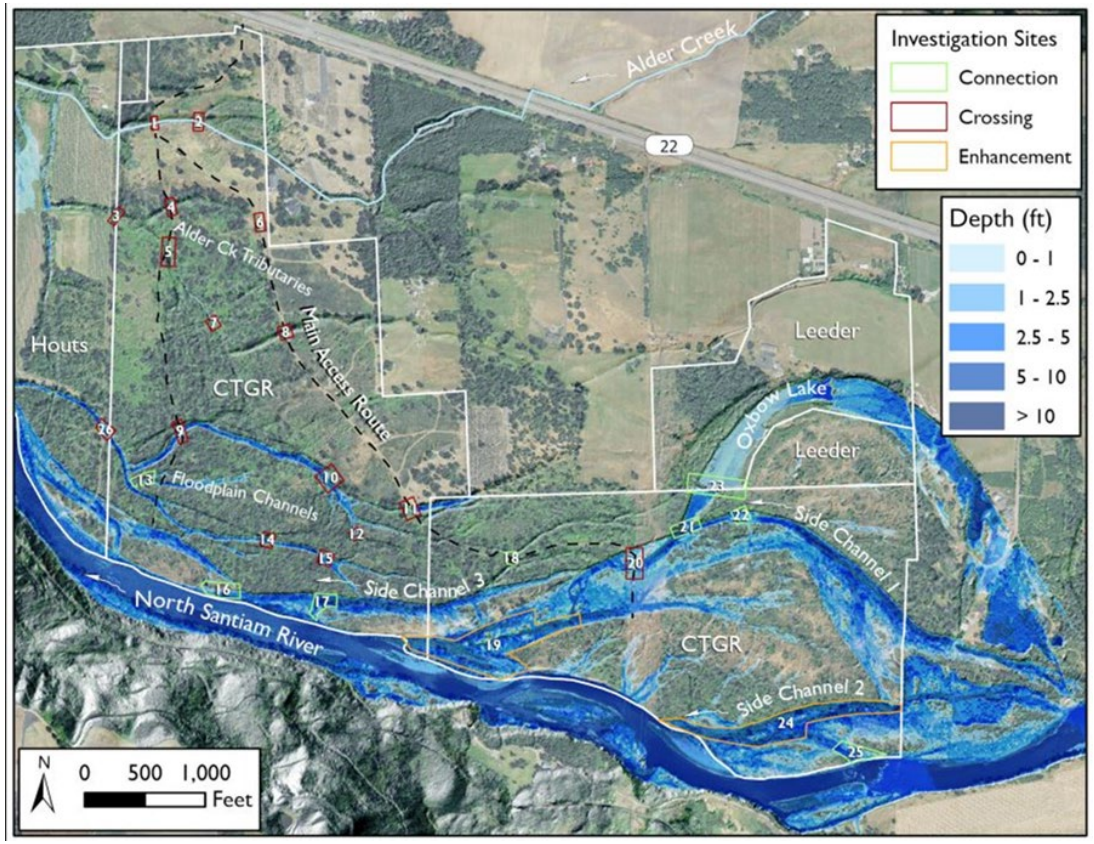
Chankawan 1936-2023

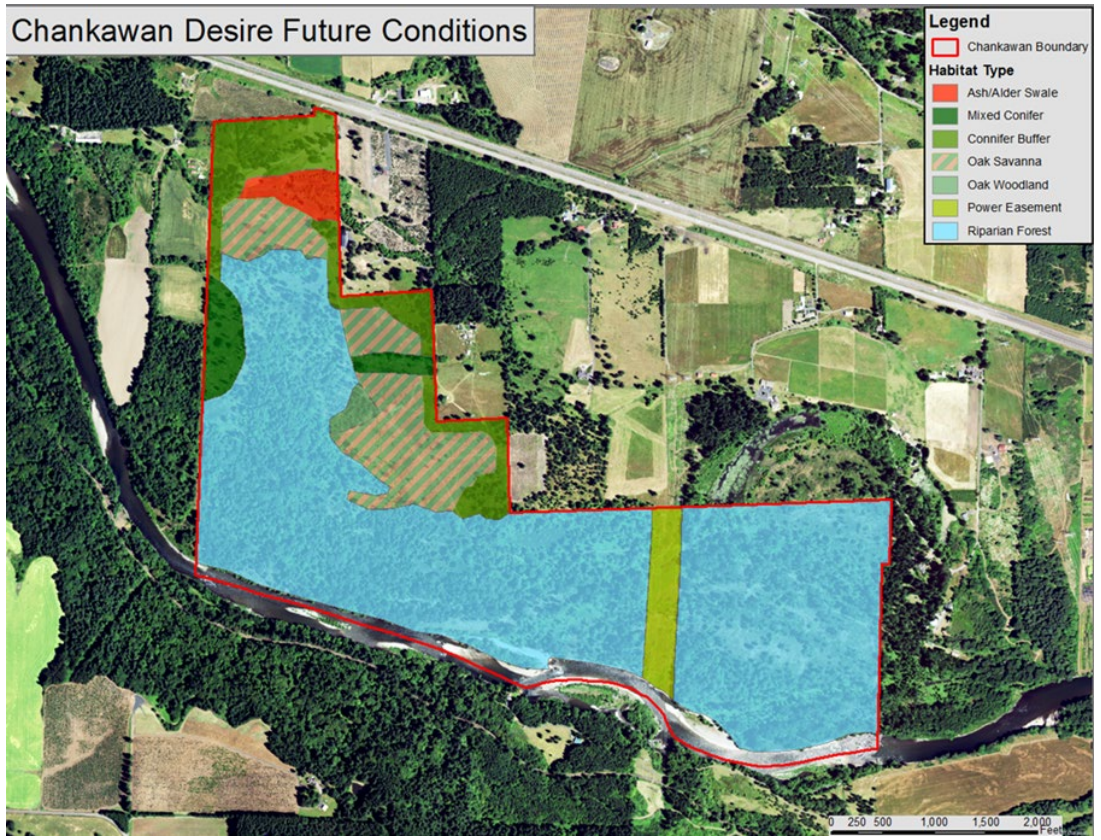


Chankawan Current Projects

- Invasive Species Removal and Fuels Reduction
- Willamette Daisy Restoration
- Reforestation

Chankawan Upcoming Projects and Long Term Goals





North Fork Breitenbush (NFBB) River Floodplain Restoration

Mark Richardson, US Forest Service, Detroit Ranger District

Overview of Presentation

- Why the need for restoration? Current condition and past actions
- How will the floodplain be restored? Design and implementation
- Monitoring approaches and results from similar projects
- Project timeline and future plans

Project location: ~12 miles east of Detroit along Highway 46, at the confluence of North Fork and South Fork Breitenbush Rivers

Current Conditions – NFBB River

Current Conditions of NFBB River:

- Reduced channel complexity
- River incision (down-cutting)
- Concentrated flows
- Habitat decline
- Due to past management actions
  - “stream cleaning” – removing large wood
  - Logging in riparian area

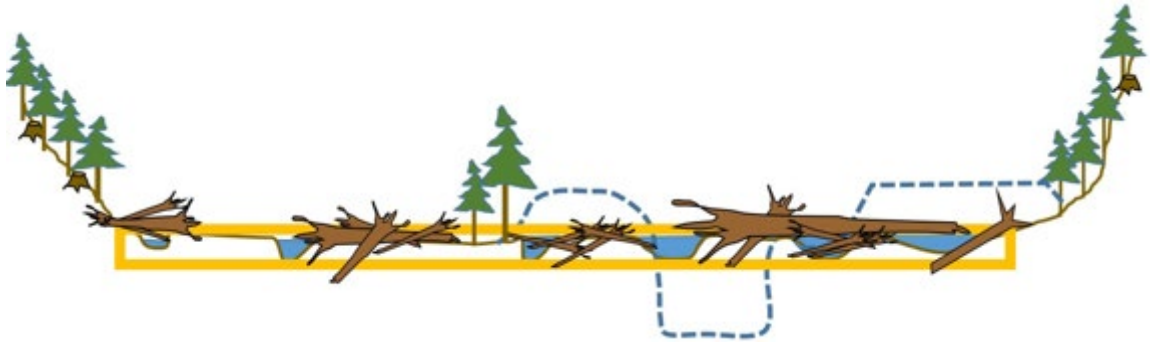
Goal of floodplain restoration:

- Properly functioning floodplain
- Multi-threaded river channel
- Sufficient large wood
- Habitat complexity
- High water table

Staley Creek, Oregon, 2017

Restored vs. Unrestored

Degraded condition – disconnected floodplain, single channel, “firehose effect”



Restored condition – connected floodplain, habitat diversity

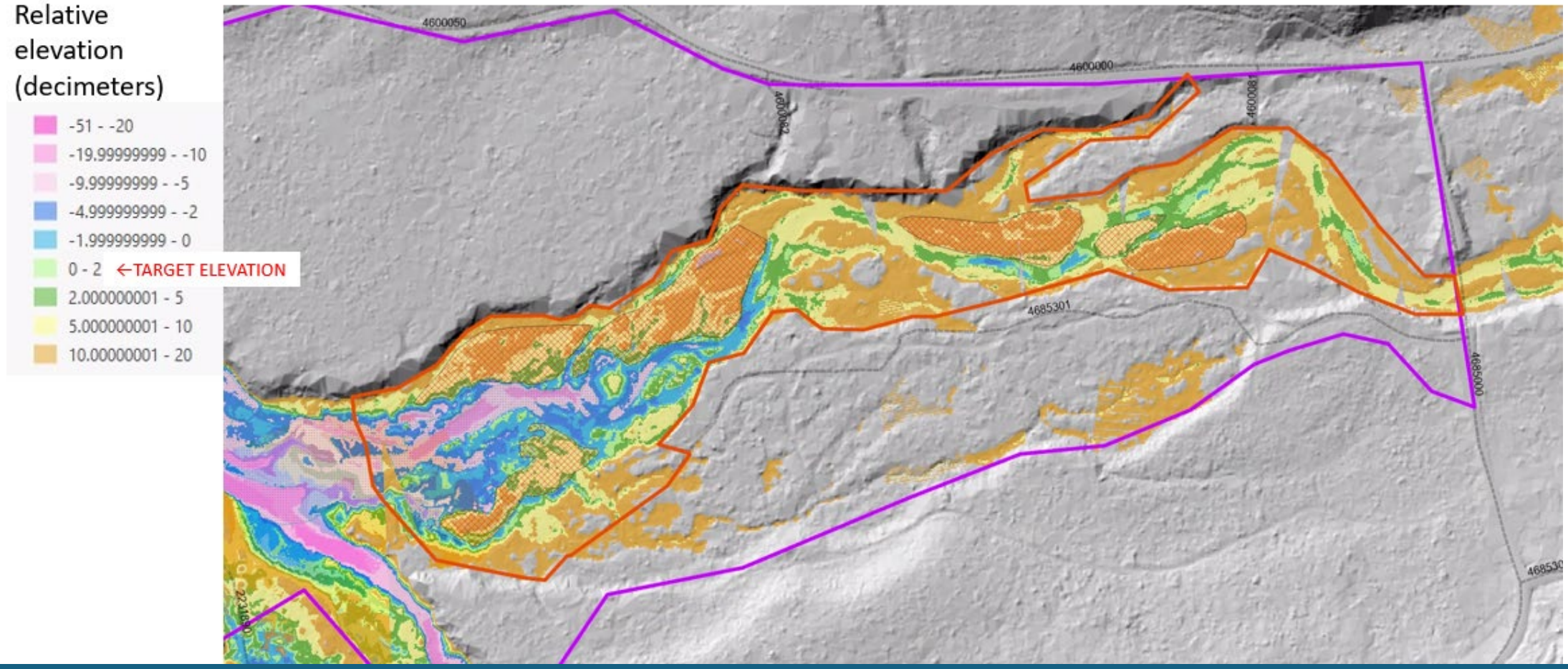
Deer Creek, Oregon, 2016

Why here?

- “North Fork Breitenbush River has the greatest spawning and rearing potential for listed fish on the entire Detroit Ranger District… resetting the stream channel back to a ‘Stage 0’ multi-threaded channel network can greatly improve the carrying capacity for endangered salmonids.” – Darrin Neff, fish biologist
  - ESA-listed spring chinook salmon
  - Bull trout re-introduction potential
  - Improve habitat for all aquatic organisms
- Designated Priority Watershed – identified in 2017 as a focus watershed for restoration on Detroit Ranger District
- Use of GIS tools to identify wide valley, depositional reaches of streams
  - The entire NFBB River has large stretches of historic floodplain currently disconnected from the main river channel
- Related projects in time and space – post-fire condition and impacts, adjacent soil rehabilitation project, acquiring wood from hazard tree mitigation
- Just one phase of many projects on NFBB

Design Approach – GIS and Field Verification

Fundamental assumption – restore to the river **valley** slope, not the river **channel** slope



Implementation in Action

Coal Creek, Oregon, 2019

Main implementation tasks

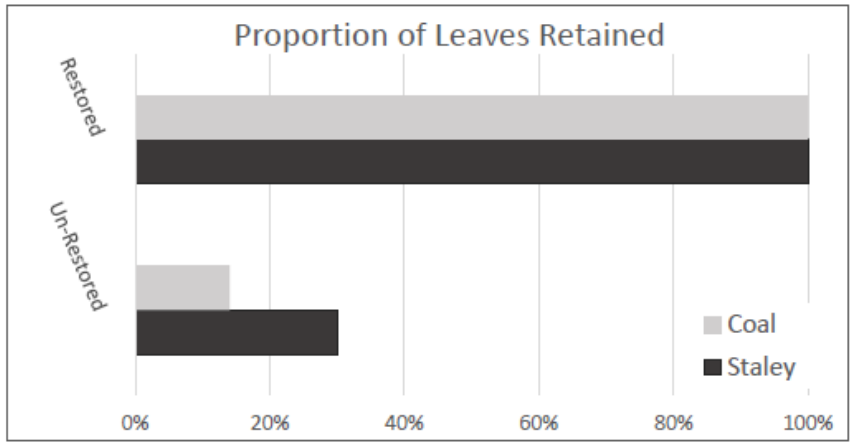
- Redistribute floodplain material from high elevation areas to low elevation areas
- Add a lot of wood throughout floodplain
- Diversion stream channel
- Turbidity monitoring
- Fish salvage

Monitoring – Flow Cameras

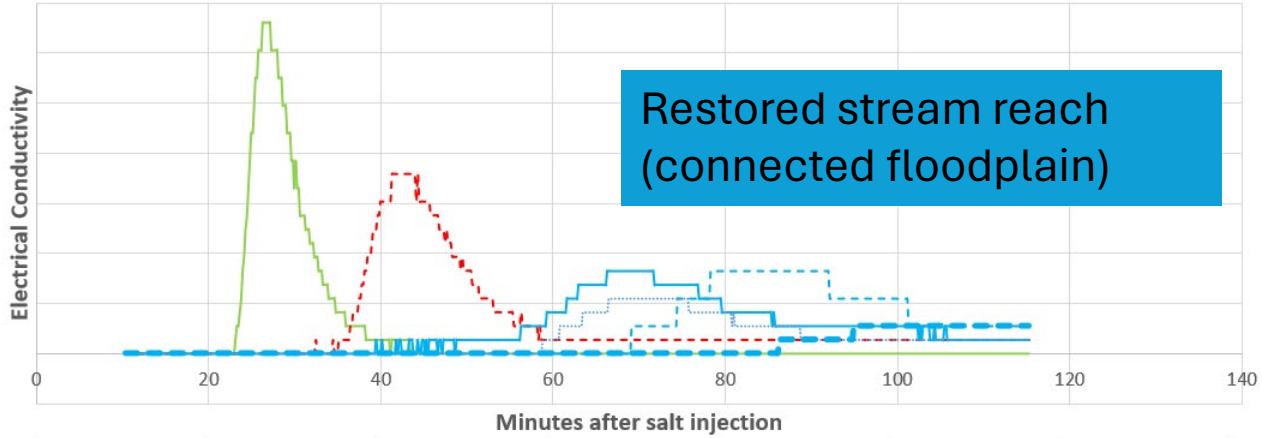
Coal Creek, Oregon, 2019

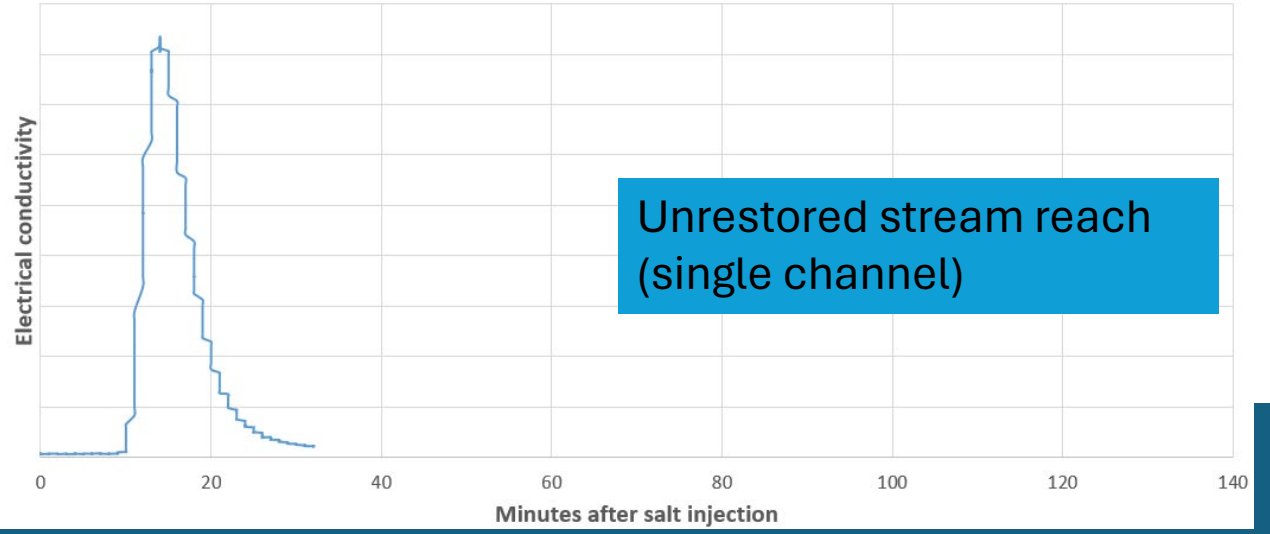
Monitoring - Nutrient Retention

"Low tech" monitoring for coarse nutrients – leaf release



"High tech" monitoring for fine nutrients – use salt as a dissolvable material to trace nutrient flowpaths and residence time





Monitoring – Stream Temperature

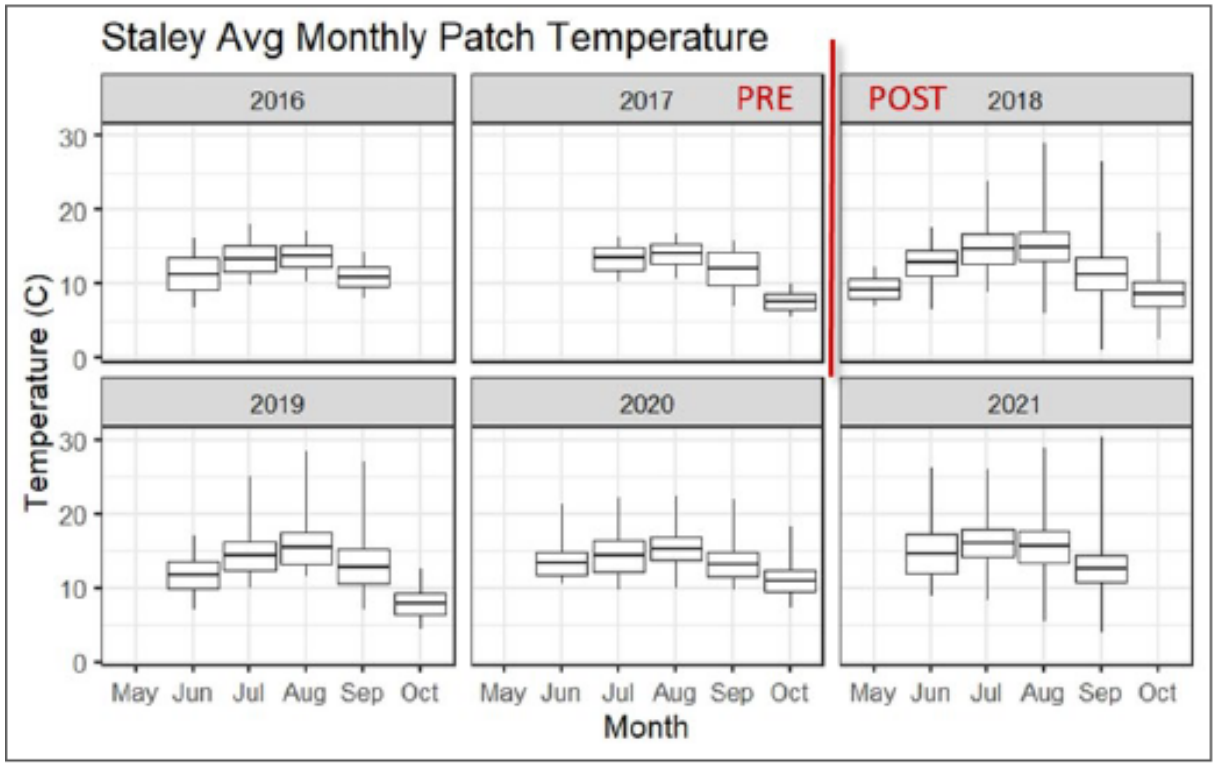


Figure 9. Box and whisker plots of stream temperatures, averaged over about 30 temperature loggers deployed at patches each year. Stream temperature variance has increased, as well as a slight increase in high temperatures likely due to an increase of solar radiation from vegetation removal over the restored reach.

Staley Creek, Oregon, 2017

Timeline

- **2024 – 2025 – NEPA**, permitting, pre-project monitoring, design, partner involvement (ODFW, NSWC)
- **Summer 2025 or 2026** – floodplain restoration implementation
- **“After” implementation** – monitoring, riparian vegetation restoration/recovery, beaver re-introduction(?), culvert replacement
- **What’s next?** 6 miles of NFBB River up to Wilderness boundary that could be restored
  - High quality fish habitat
  - A mix of low intensity (e.g. log placement, river clean-up, infrastructure removal) and high intensity (floodplain/Stage-0 restoration) projects – site-specific!

Break Time!
15 Minutes

Stretch your legs, take care of your needs, and meet your neighbor.

Partners of the North Santiam Update

Brandin Hilbrandt, Executive Director, North Santiam Watershed Council

Suzanne de Szoeke, Technical Lead and Coordination, GSI

Partners of the North Santiam Update

North Santiam Basin Summit

April 24, 2024

Brandin Hilbrandt – North Santiam Watershed Council, Executive Director
Suzanne de Szoeke – GSI, Technical Lead and Coordination

Topics

- Activities under the Advancing the PNS grant
  - Background
  - Summary of the updated Master document
  - PNS Projects Database: Smartsheet
- PNS Next Steps

Partners of the North Santiam Mission

The North Santiam River Watershed is made more resilient by Partners implementing coordinated actions to restore ecological processes that maintain habitat for species while supporting and improving social and economic interests in local communities

Background

- Applied for the Focused Investment Partnership (FIP) grant, not chosen
  - Feedback: Areas to develop and strengthen
- Secured the Advancing the PNS grant to address those areas
  - Funding ends in December 2024

Background

- Advancing the PNS Grant: Goals
  - More focused implementation strategy
  - More refined collaborative prioritization process
  - Well-defined effectiveness monitoring framework
  - Comprehensive stakeholder engagement and fundraising strategies
  - Formalized governance structure with implementation accountability
  - To increase success of funding pursuits, such as a FIP grant

Updated Resiliency Action Plan Supplemental

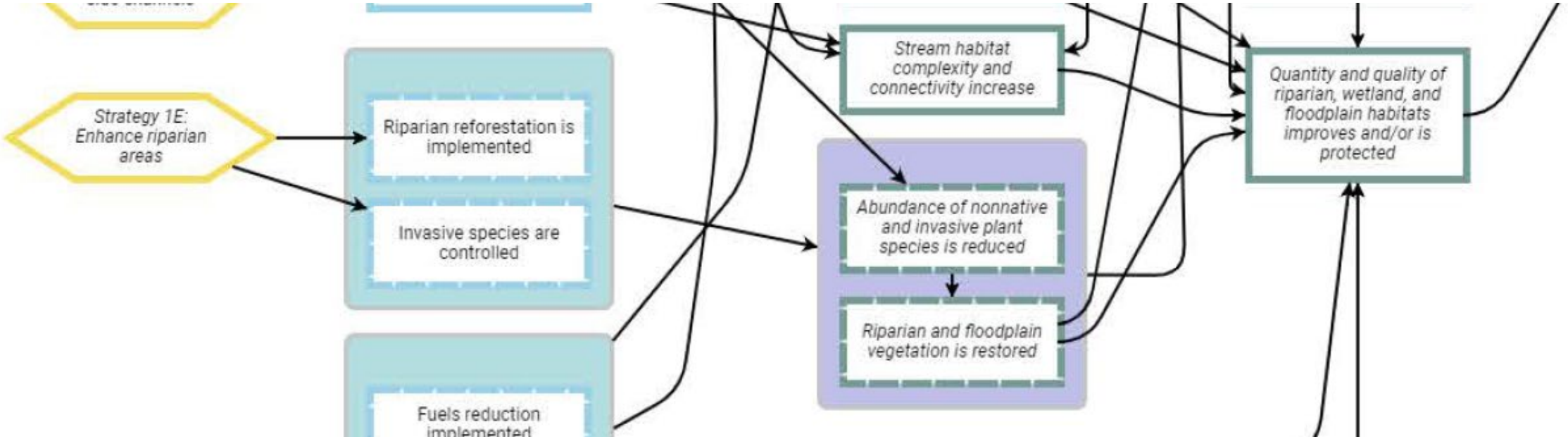
Components

- Governance Structure
- Theory of Change Framework
- Project Prioritization Process
- Monitoring Framework
- Stakeholder Engagement Strategy
- Fundraising Plan

Theory of Change Framework

- Describes theories and assumptions for how restoration are predicted to yield desired ecological outcomes

- Results Chain (model output)= Visual representation of the theory of change framework
  - Strategy
  - Implementation action
  - Ecological outcome
  - Ecological priority
  - Social priorities and human well-being priorities



Theory of Change: Results Chain

PNS Initiatives

- Restoration strategies grouped based on similarities in restoration approach

- Three Initiatives:
  - Riparian and Aquatic Habitat Enhancement (RAHE)
  - Flow Restoration and Source Water Protection (FRSWP)
  - Oak Woodland and Prairie Restoration

Project Prioritization /Support Process

- Created an Evaluation Criteria and Scoring Matrix for three project types:
  - Implementation
  - Planning/Stakeholder Engagement
  - Monitoring
- Process Overview
  - Project manager completes a Project Form (Evaluation Criteria and Scoring Matrix)
  - Project manager meets with a review team, which provides recommendations/support and keeps records
  - Project manager enters project information into the Smartsheet database

PNS Projects Database: Smartsheet

- Excel database with Partner projects put into Smartsheet
  - Spreadsheet for data entry/updates and tracking
  - Forms for data entry for new projects
- Adding new projects
  - Project support process
  - Use Smartsheet forms or enter into spreadsheet

Monitoring Framework Approach

- Implementation monitoring and effectiveness monitoring identified for ecological outcomes under two initiatives (RAHE and FRSWP)
- Focused strategy on three key ecological outcomes to monitor
  - Aquatic habitat access is expanded
  - Riparian and floodplain habitats are restored
  - Erosion and sedimentation are reduced

Funding Sources

- Updated list of funding opportunities, shows how it fits with PNS Initiatives
- Includes:
  - funding source
  - type of funding
  - areas of interest
  - grant amounts
  - grant deadlines and
  - applicable initiative

PNS Next Steps

- Pursuing a Focused Investment Partnership grant
- Priorities:
  - Addressing TMDLs (e.g., temperature) and sediment to improve fish habitat
  - Addressing areas affected by wildfire
    - Wildfire led to lack of vegetation, which led to lack of shade and erosion, impacting TMDLs
  - Build off the existing and required efforts to fill in gaps
    - Make efforts contiguous

Focused Investment Partnership Approach Idea: Strategies

- Riparian and Instream Habitat Restoration
  - Planting to increase shade
  - Instream structures to add depth and complexity
- Sediment Projects
  - Agricultural BMPs
  - Community stormwater projects
  - Sediment reduction, road, drainage, soil erosion reduction
  - Improving fish passage to reduce erosion
  - Remove culverts to reduce erosion
  - Beaver projects
    - Moisture retention in watershed [reduced runoff]
  - Floodplain and side channel reconnection projects filter water

Thank you!

Financial Support: Oregon Watershed Enhancement Board

Resiliency Action Plan Supplemental Development: Partners

Brandin Hilbrandt
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Suzanne de Szoeke
sdeszoeke@gsiws.com

Reach out to us if you would like to participate in the Partners of the North Santiam!

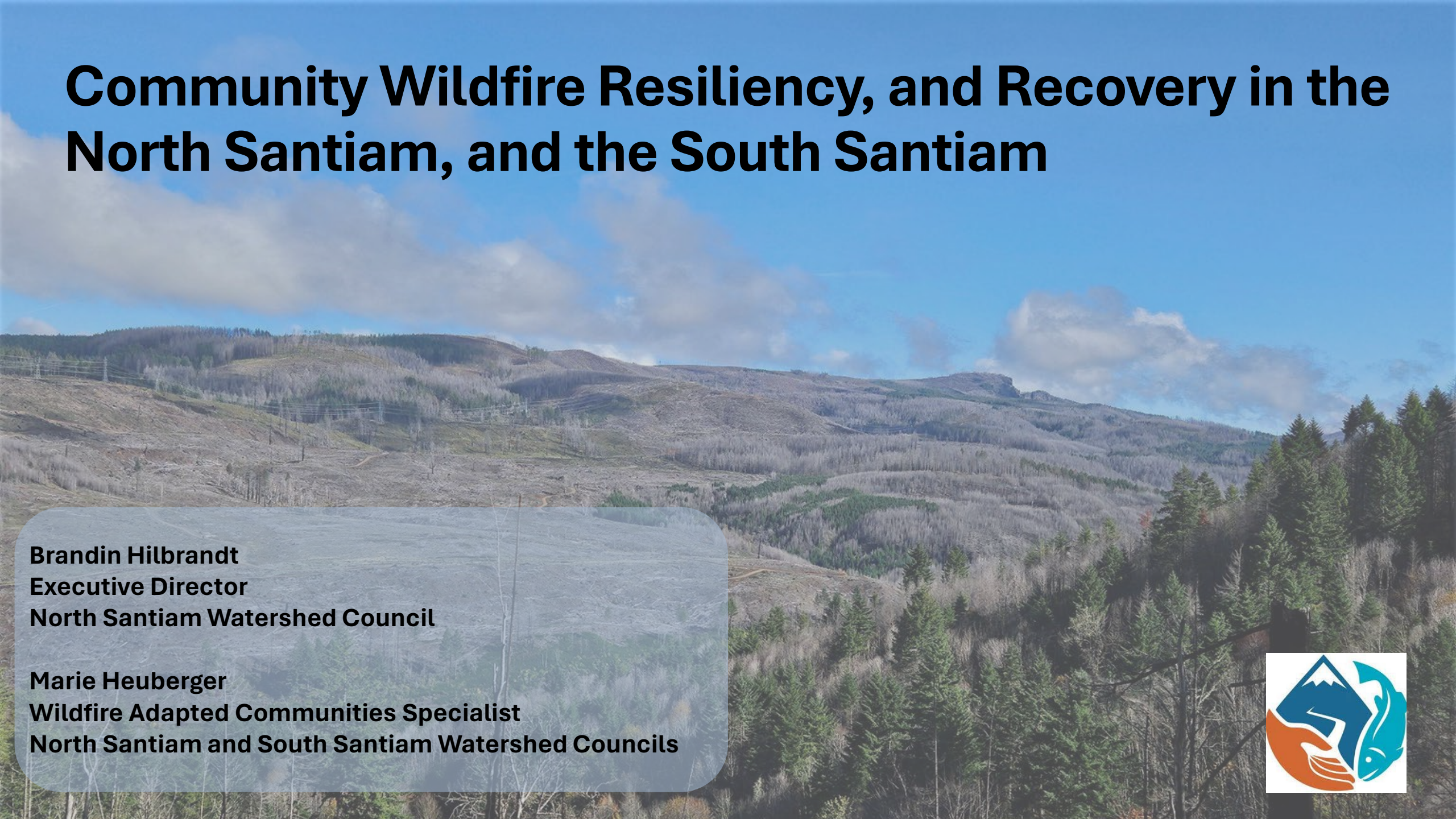
Community Wildfire Resiliency, and Recovery in the North Santiam, and the South Santiam

Brandin Hilbrandt, Executive Director, North Santiam Watershed Council

Marie Heuberger, Wildfire Adapted Communities Specialist

North Santiam and South Santiam Watershed Councils

Community Wildfire Resiliency, and Recovery in the North Santiam, and the South Santiam



Brandin Hilbrandt
Executive Director
North Santiam Watershed Council

Marie Heuberger
Wildfire Adapted Communities Specialist
North Santiam and South Santiam Watershed Councils

Wildfire Adapted Communities Specialist - A Shared Position for the Greater Santiam Area

October 2021

Conversations around joint funding for work in the Santiam Basin Begin based on Congressional Direct Funding Opportunity

May 2022

Proposal to Sustainable Northwest from BEF for a subaward that encompasses funding for several components, including a shared position in the Santiams

September 2022

Project subawarded to Santiams Watershed Councils (WC), McKenzie, and Clackamas WC

May 2023

North Santiam and South Santiam WCs agree on successful candidate, with South Santiam as lead

Position Time Frame

May 2023 — Wildfire Adapted Communities Specialist Position — Sept 2024

A Seat at the Table: Community Wildfire Protection Plans (CWPPs)

“The 2024 update to the Linn County CWPP is a countywide effort initiated to reduce wildland fire risk to communities and residents, the natural environment, and quality of life in Linn County.”

Linn County Wildfire Ready Night

On the evening of Wednesday December 6th, 2023, the CWPP Steering Committee hosted a community open house at the Sweet Home Fire Station 21. There were 40 participants from the general public and 22 steering committee members and other partners from local, state, and federal agencies, and local and regional organizations and non-profits.

Participants learned about the draft Community Wildfire Protection Plan, how to schedule a home fire risk assessment, and shared their priorities and concerns about wildfire preparedness & response.

Marion County CWPP was recently updated, and sought public input from the Marion County communities early in 2023

#	Accomplishment/Activity	Quantity
1	# of landowners contacted	293
2	# of seedlings funded	260
3	# of landowners engaged in post-fire reforestation	2
4	# of attendees at events and convenings	72
5	# of landowners served in post-fire recovery an/or risk reduction (e.g., 15 landowners participating in reforestation projects and 5 landowners participating in fuels reduction)	5
6	Estimated # of acres for potential post-fire recovery and/or risk reduction	660
7	Confirmed engagement in OR FRN by at least one representative. Representative may include hired staff as a result of this grant, other staff, or other representative from the watershed council's local wildfire recovery/resiliency partnership.	3

- Fuels Reduction projects completed in conjunction with community partners (like Pearly, pictured below).
- May-September focus on outreach at community events.
- Execution of community events centered around providing agency to attendees.

NORTH AND SOUTH SANTIAM WATERSHED COUNCILS

Community Events

Native Plant Propagation Workshop
Presentation given at North Santiam State Recreation Site on how landowners can propagate 24 different popular native plants from both cuttings and seeds.

Broom Making with Scotch Broom
In the pursuit of finding ways to use invasive plants, we harvested Scotch Broom to create traditional brooms from large stems and shoots, as well as learn about its origins and mythos.

Continuing Wildfire Recovery in the North Santiam Communities: 2020 Post-Wildfire Riparian Restoration Project

Project Goal: to address soil erosion and sedimentation concerns, assist with bank stabilization using native plantings in highly and moderately burn severity areas, using BAER report maps, to lessen impacts to drinking water suppliers, improve water quality and improve riparian and aquatic habitats

Landowners: 45 along riparian corridor of North Santiam River, and the Little North Fork of the Santiam

Acres Impacted: 31 acres of riparian habitat

Stream miles: 3.7

Natives Planted in 2023: 58,210 for Post-Wildfire Project; 160,000 total across the Beachie Creek Perimeter

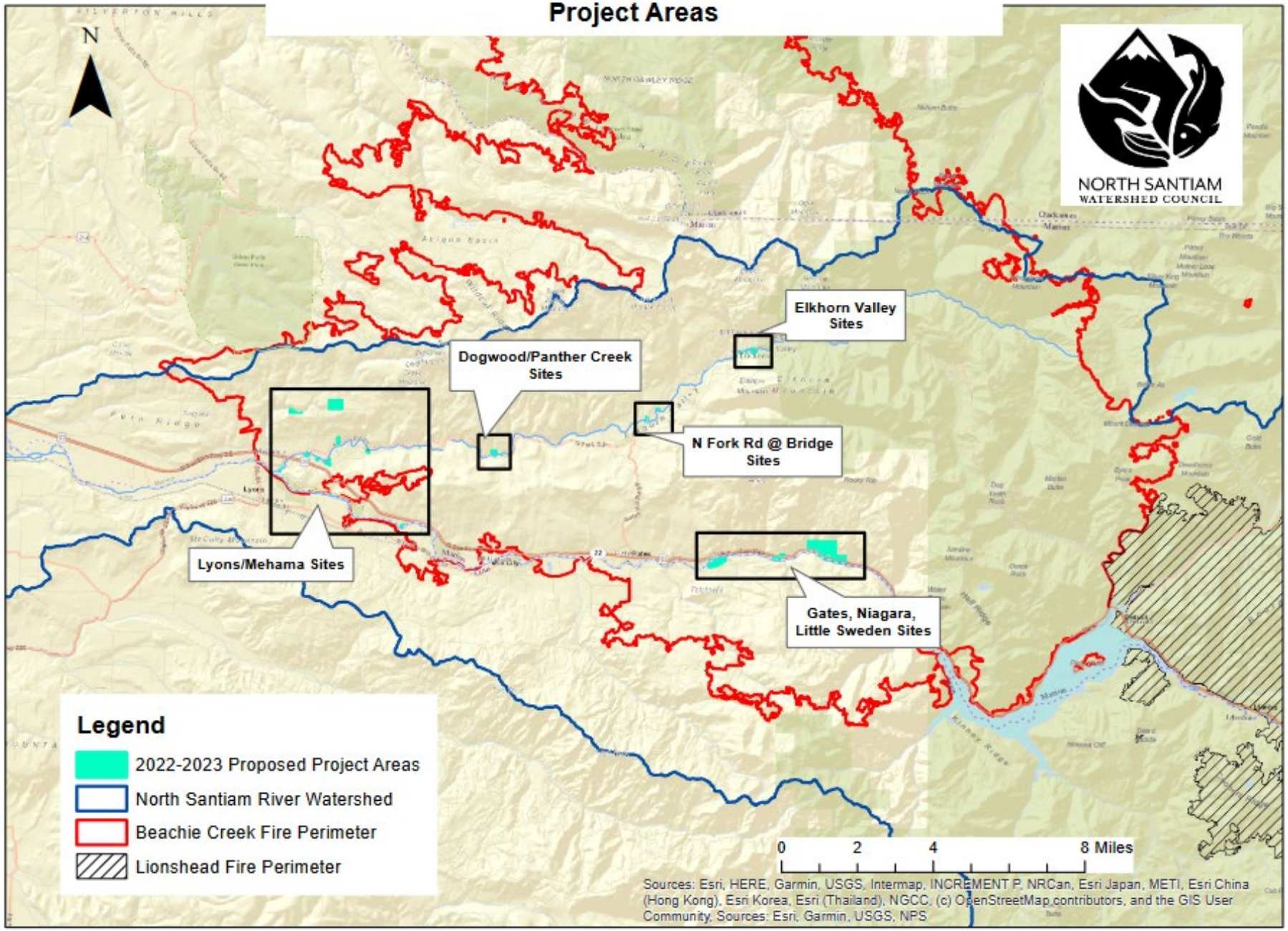
Project Cost: $218,000

Project Timeline: August 2021 - June 2025

Funding Source: Oregon Watershed Enhancement Board, and City of Albany (SEP)

Partners: Marion Soil & Water CD, OSU Extension, Bonneville Environmental Foundation, One Tree Planted, City of Salem, City of Albany, ODF, Confederated Tribes of Warm Springs and BLM.

Beachie Creek Fire Perimeter - North Santiam Watershed Project Areas





Plantings in the Elkhorn Community by RFranco Restoration’s crew in February 2023 and February 2024

Looking Forward: North Santiam Post-Fire Watershed Resource Assessment and Prioritization Guide

Goal of project is to collaborate with local and regional partners, researchers and agencies including the U.S. Geological Survey Integrated Water Science (IWS) Program, U.S Army Corps of Engineers and U.S. Forest Service PNW Research, on new postfire data, field-based surveys and modeling in the North Santiam to synthesize information and update its resource assessment.

One objective will include strategic planning of actionable, long-term restoration guidance in the Breitenbush and Little North Santiam subwatersheds for terrestrial, riparian and aquatic habitat improvement, protection of water quality and assist ecological recovery where needed.

Questions?

Thank you for your time

Brandin Hilbrandt
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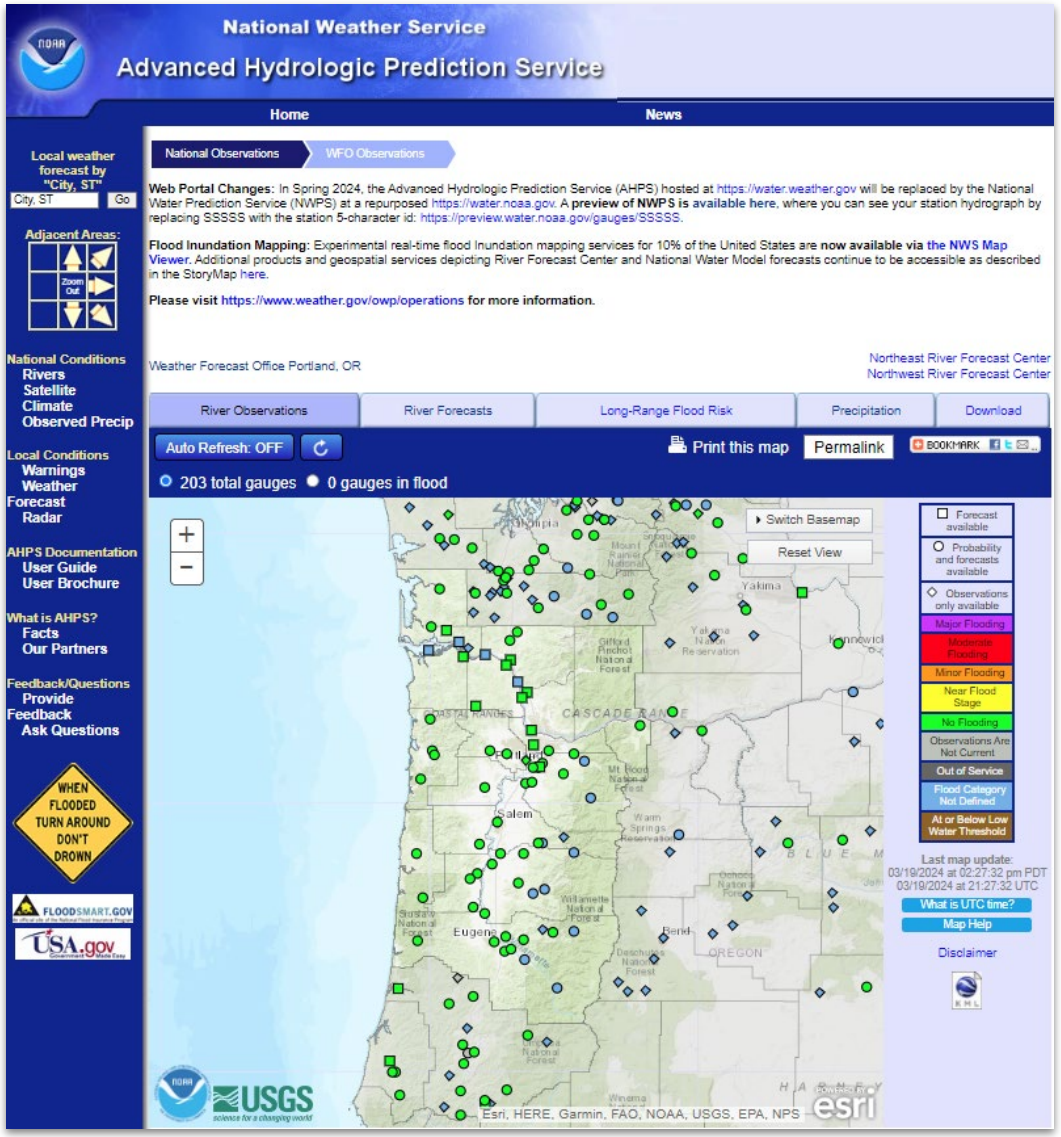
Marie Heuberger
Wacs.SSWC@gmail.com

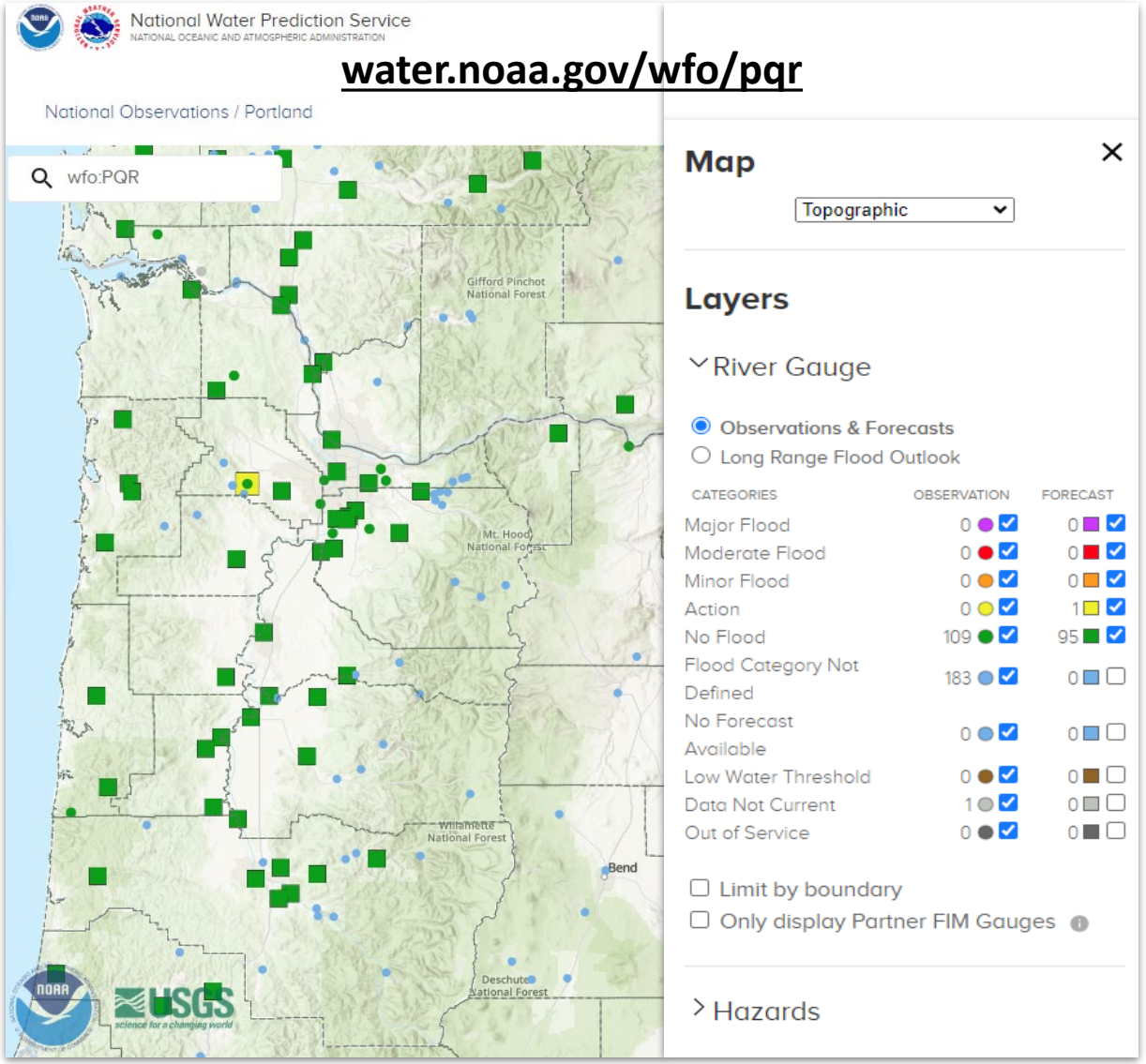
NWS Hydrology Updates

Andy Bryant, Senior Service Hydrologist
NOAA National Weather Service – Portland Weather Forecast Office
andy.bryant@noaa.gov

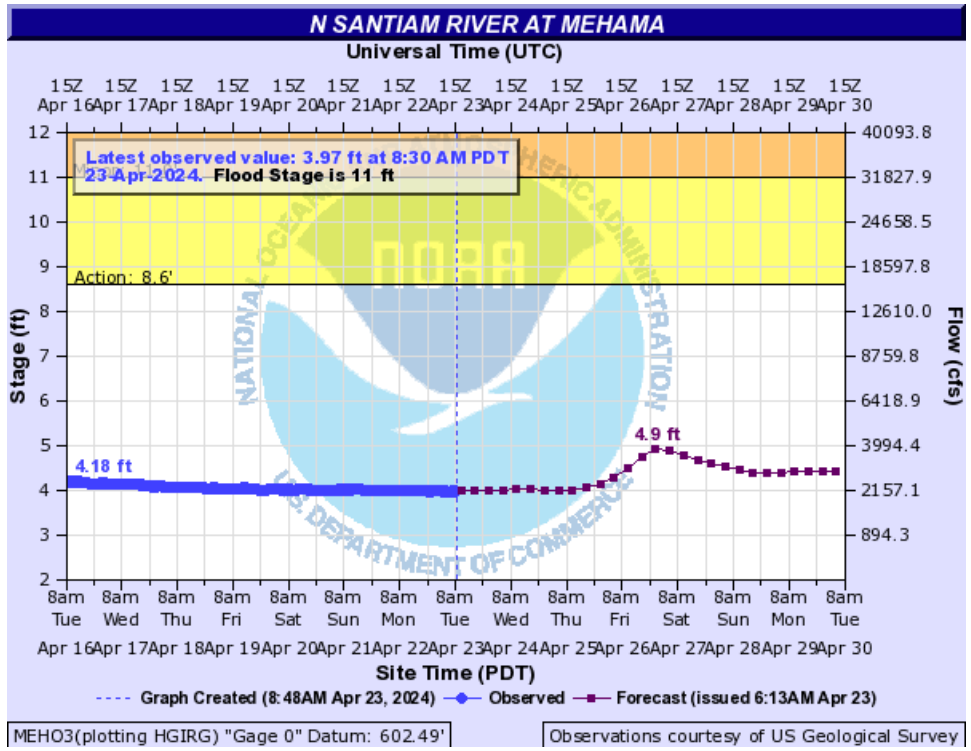
- Website – transition from AHPS to NWPS
- Flood Inundation Mapping – coming this fall
- Water Supply Forecast for North Santiam basin

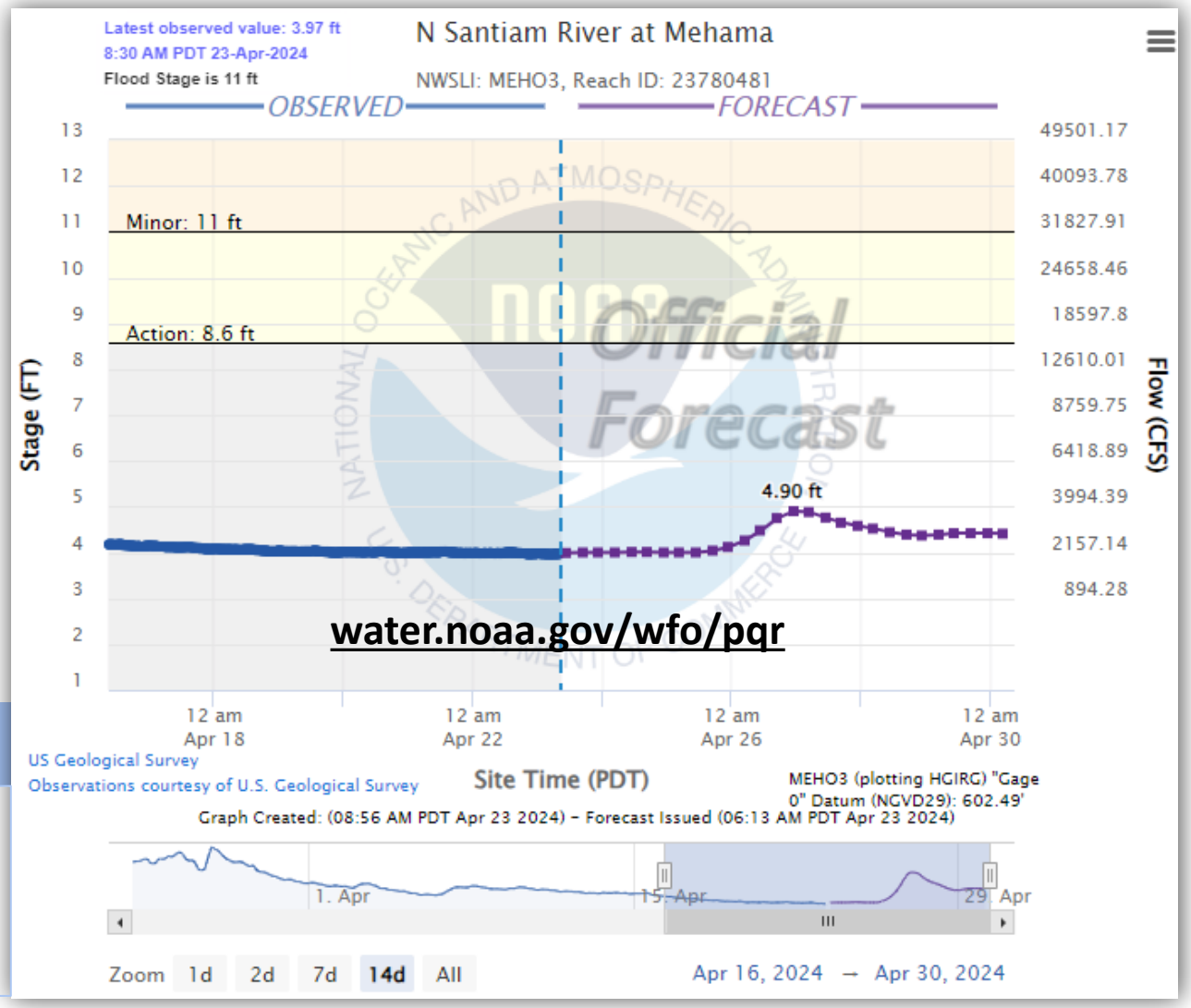
AHPS transition to National Water Prediction Service





Transition to National Water Prediction Service





NWPS Advantages

- Direct access to deterministic, probabilistic, and National Water Center forecasts
- Time / scaling flexibility
- Future access to flood inundation maps

NWS Flood Inundation Mapping Services Implementation

Map Legend

10% Population served by **October 2023**.

30% Population served by **October 2024**.

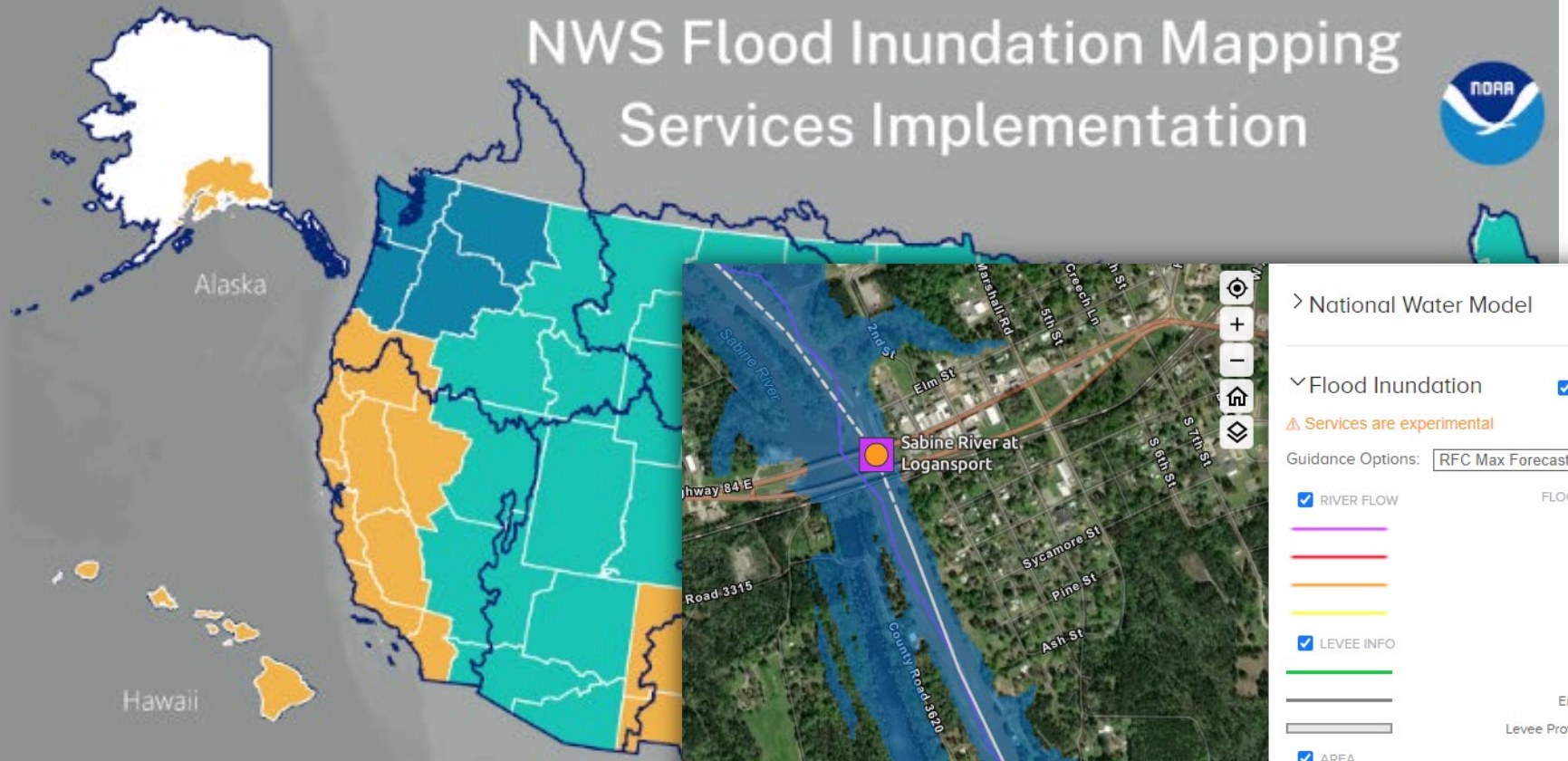
60% Population served by **October 2025**.

100% Population served by **October 2026**.

NWS County Warning Areas

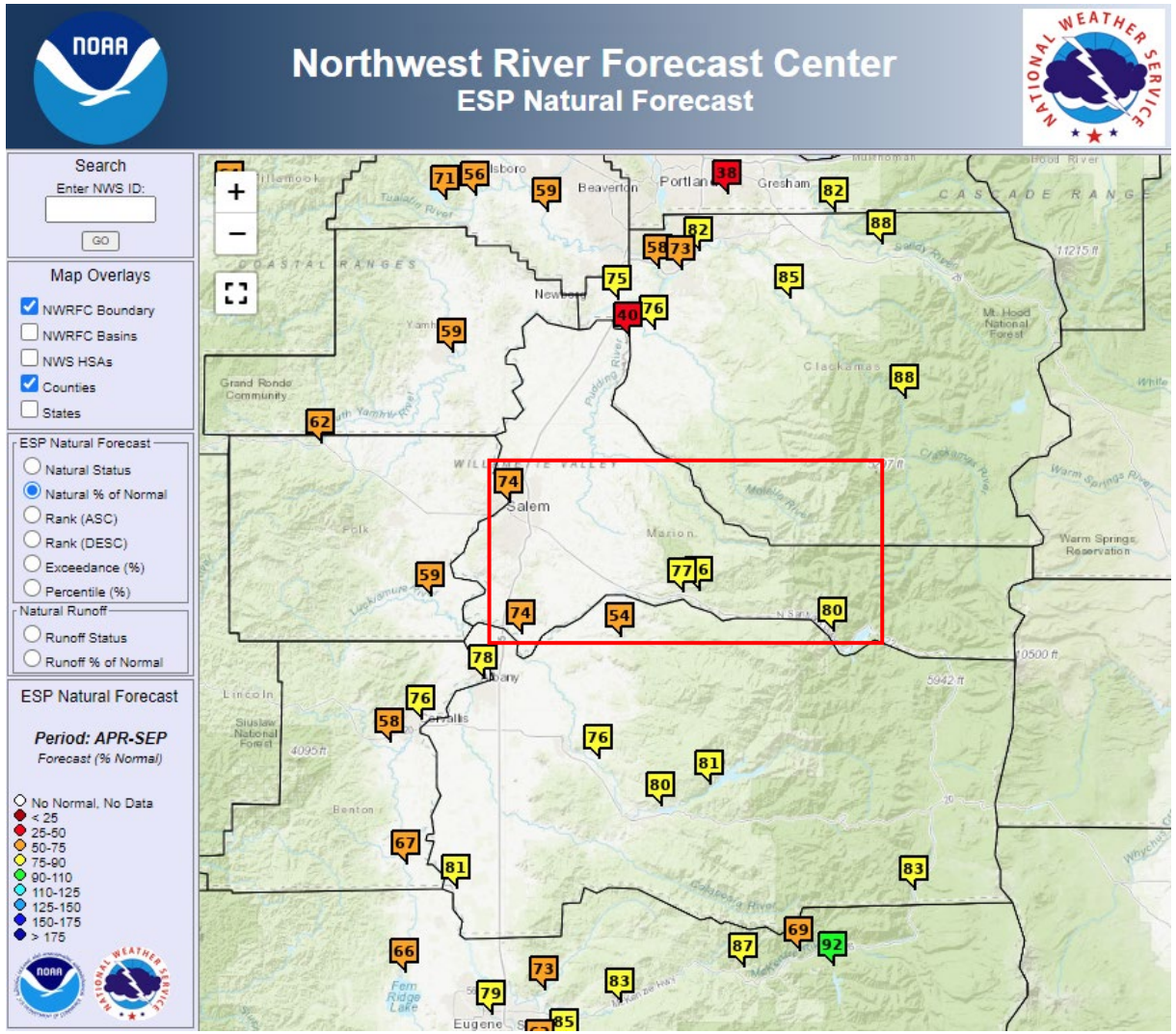
NWS River Forecast Center Boundaries

*100% is approximate. Does not include all parts of Alaska, American Samoa, and Guam. Implementation areas are subject to change.



The **National Weather Service's National Water Center** is working in coordination with **NWS River Forecast Centers, Weather Forecast Offices**, and other Federal partners to release forecast flood inundation mapping services to the Nation.

Seasonal Volumetric Forecasts

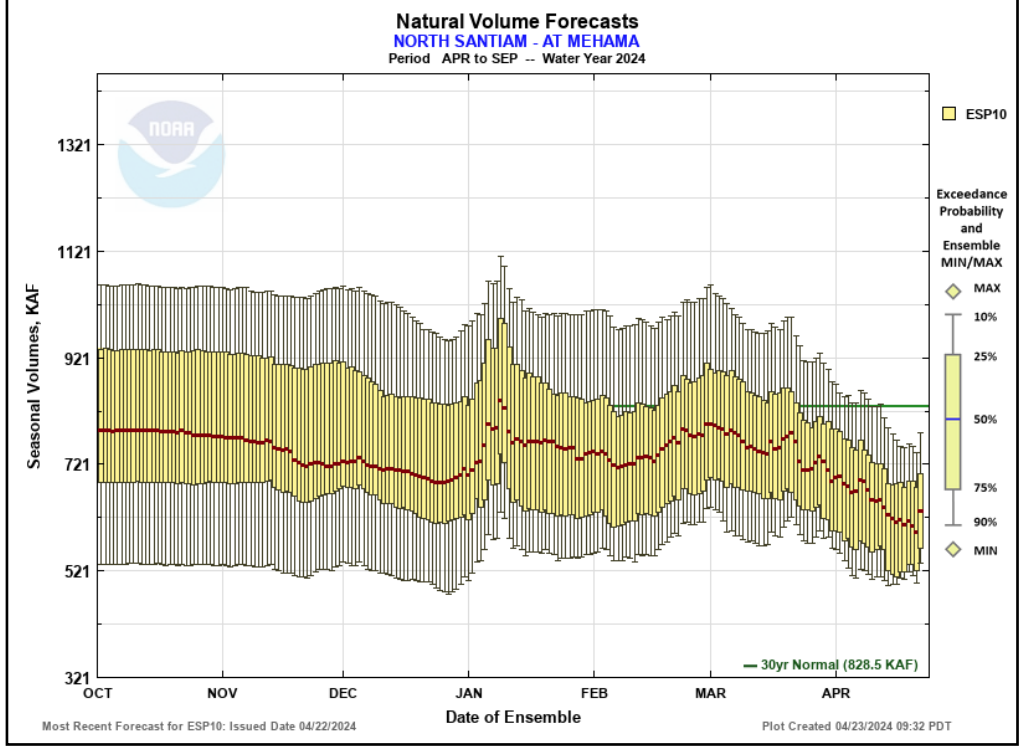


- Volumetric forecasts for most river forecast points, in units of Acre-feet
- Updated daily by Northwest River Forecast Center
- Available for various periods, including
  April – September (spring & summer) and
  October – September (full water year)
- Value shown on map is the median of the forecast.
- “Ensemble” prediction uses short-term forecast (next 10 days) and ~80 years of historical temperature and precipitation to create range of forecast volumes
- Range of uncertainty typically decreases through the water year and is usually most volatile in the spring.

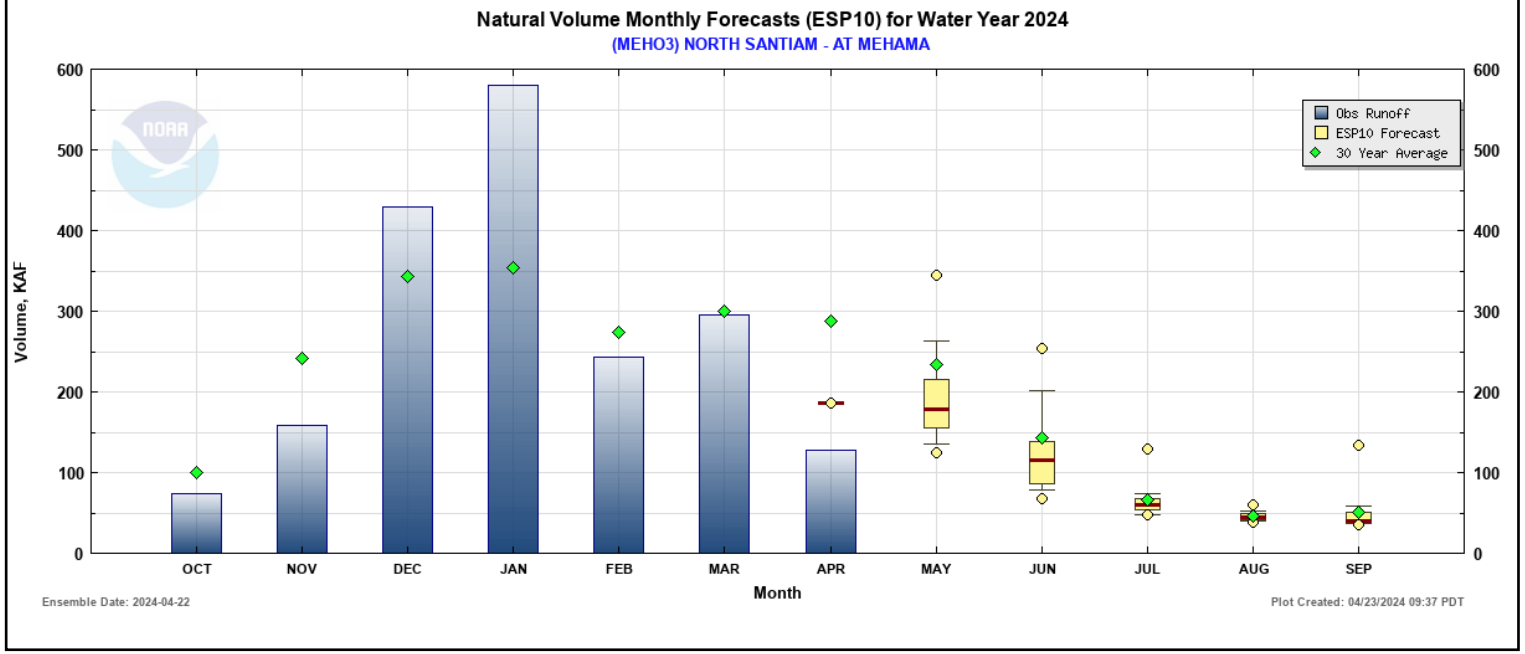
ENSEMBLE STREAMFLOW PREDICTION:
www.nwrfc.noaa.gov/natural/index.html

Seasonal Volumetric Forecasts – North Santiam

Forecast Evolution Plot



Monthly Forecast Volumes, based on latest forecast



ENSEMBLE STREAMFLOW PREDICTION:
www.nwrfc.noaa.gov/natural/index.html

Partner Updates

Please raise your hand if you have an update to share with the group.

Closing

Robert Chandler, PhD, PE | City of Salem | rchandler@cityofsalem.net
Jennifer Mongolo | City of Salem | jmongolo@cityofsalem.net

CITY OF Salem AT YOUR SERVICE
Public Works Department
APWA ACCREDITED AGENCY

NORTH SANTIAM
WATERSHED COUNCIL

Thank you!

Thank you so much for joining us today. We look forward to continuing to work together for a more resilient future!

Special thanks to Brandin Hilbrandt for many of the photos in this presentation