



Agenda & Presentations

September 15-16, 2016

- Item 1: Consent Agenda
- Item 2: Director's Report
- Item 3: Salmon Recovery Management Report
- Item 4: Reports from Partners: COR, WSC, RFEGC, Agencies
- Item 5: WDFW Budget Requests and ESRP Project Lists
- Item 6: Follow-up from Workgroup on Budget Efficiencies
- Item 7: Introduction to the Allocation Special Committee
- Item 8: Monitoring
- Item 9: Tour Overview and Introduction to the Hood Canal Region



Management Reports

Governor's Salmon Recovery Office
Salmon Grant Section

Agenda Item 3

September 15, 2016

SRFB



Governor's Salmon Recovery Office

Brian Abbott, Executive Coordinator

Agenda Item 3

September 15, 2016

GSRRO



Governor's Salmon Recovery Office

- Budget Reduction
- Salmon Recovery Network
- Communication Plan and Fundraising strategy
- State of the Salmon 2016
- Salmon Recovery Conference
- Fish Barrier Removal Board
- Budget document



Salmon Section Report

Tara Galuska
Senior Grant Manager

Agenda Item 3
September 15, 2016

SRFB



Salmon Section Report

- 2016 Grant Round
 - September 19-21: Review Panel project review meeting
 - October: Review Panel Comment forms to sponsors
 - October 24-26: Regional presentations to Review Panel and staff
 - December 7 & 8: SRFB Funding Meeting



Salmon Section Report

2016 Grant Round: Application Numbers

	Number of Applications	Grant Request	Match	Total Project Cost
Salmon	184	\$55 million	\$39 million	\$94 million
PSAR Large Capital	18	\$70 million	\$20 million	\$90 million
TOTAL	202	\$125 million	\$59 million	\$184 million

Questions?



Fish Barrier Removal Board (FBRB)

Briefing to the
Washington State Salmon Recovery Funding Board

September 15, 2016

Tom Jameson, WDFW Fish Passage & Screening
Division Manager



Agenda

- BN 2017-19 Project List
- Funding
- Current Activities of the FBRB
- Questions

FBRB Members –WDFW, DNR, WSDOT, GSRO, Washington State Association of Counties, Association of Washington Cities, Confederated Tribes of the Colville Reservation, Yakama Indian Nation, Salmon Recovery Council of Regions

Two Barrier Removal Pathways Approaches

- Coordinated (partnership) approach: leverage large gains made by the investments of WSDOT, forest industry, and local governments with funding to repair barriers in close proximity to other barrier repairs. Local nominations (Cities and Counties) submitted nominations (September 2015).
- Whole stream (Watershed) approach: prioritize barrier repairs in whole stream reaches and sub-basins that will have the largest benefit to salmon at a population scale. Lead Entity and Salmon Recovery Regions submitted priority watershed nominations (July 2015)

2017-2019 Construction Windows for Fish Passage JUL – SEP 17 & 18

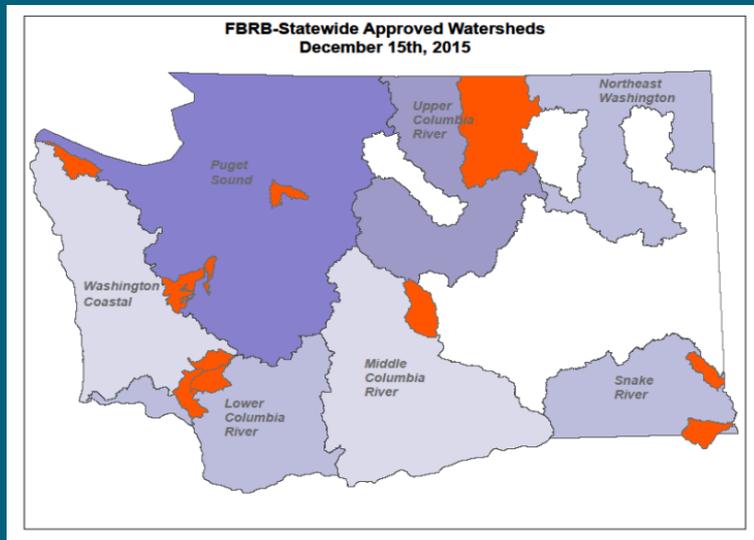
Coordinated Pathway

- Board selected and ranked 15 projects out of 224 individual projects nominated
(Design and Construct x 9, Design Only x 6)



- County Barriers x 10
- City Barriers x 3
- Private Barriers x 2

Watershed Pathway



Statewide – Lead Entity Nominated

- Lower Columbia
 - Lower Cowlitz
- Yakima River
 - Wilson/Cherry
- Upper Columbia
 - Okanogan
- Snake River
 - Snake River Tributaries
 - Grande Ronde Tributaries

Puget Sound - Board Selected

- Pysht River
- Pilchuck Creek
- Goldsborough Creek

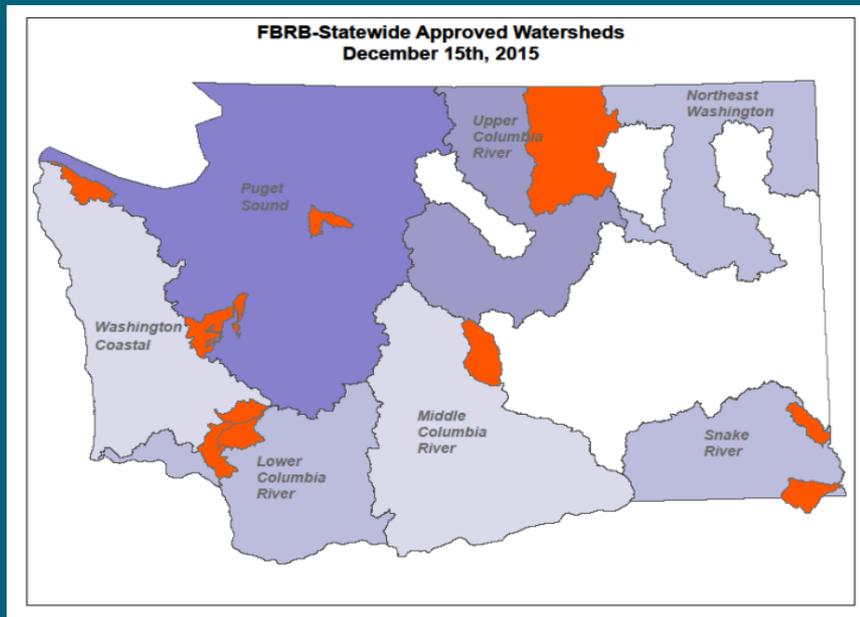
Coast – Board Selected

- Newaukum

* For selection of watersheds in Puget Sound and Coast recovery regions the board used Intrinsic Potential modeling for Coho and Steelhead to produce habitat productivity estimates in order to select the watersheds

Watershed Pathway Projects

- Board selected and ranked 64 projects from Lead Entity and Salmon Recovery Region nominations (Design and Construct x 49, Design Only x 15)



- County Barriers x 34
- City Barriers x 3
- Private Barrier x 20
- State Barrier x 7

FBRB 2017-19 Project List

79 Projects, 154 Miles of Habitat,
\$51.4 M Funding Request

Puget Sound & Hood Canal

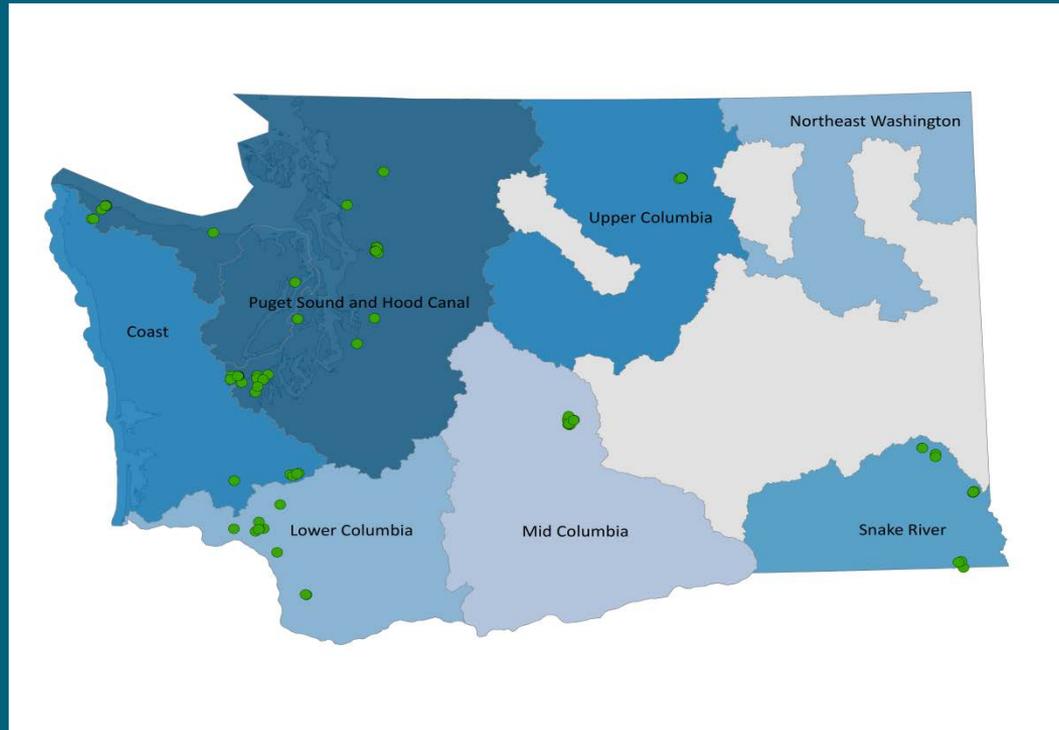
39 projects
91.6 miles

Washington Coast

6 projects
10.6 miles
habitat

Lower Columbia

10 projects
25.3 miles



Upper Columbia

5 projects
1.6 miles

Middle Columbia

8 projects
6.9 miles

Snake River

11 projects
17.8 miles

FBRB Funding

- Policy bill from Legislature came with no funding
- WDFW received \$300K in City and County transportation funding in the March 2016 Supplemental Budget
- The FBRB's 17-19 BN request is for \$51.4M
- This request will fund the design (Phase 1), engineering and construction (Phase 2) of 79 fish passage barriers throughout the state using a grant program and existing salmon recovery networks in close coordination with local governments.
- 59 of the projects will be design and construction while 20 projects will be design only.
- The FBRB has proposed that RCO be the financial grant managers for the Board. They will be making the budget request for Capital funding
- Eligible Grant Recipients will be ; Local Governments: Counties, Cities, and Towns, State Agencies, Non-Profit Organizations, Conservation Districts, Regional Fish Enhancement Groups and Tribal Governments
- The FBRB is drafting an operations manual modeled after the manual used by the FFFPP

FBRB Match

- The FBRB approved a lower, 15%, initial match requirement for the first biennium
- The match requirements are subject to change after the 17/19 BN at the discretion of the FBRB
- Match may include cash, bond funds, grants, in-kind labor, equipment and materials, and other barrier corrections within the same sub-watershed
- Under certain circumstances a project match may be a hardship for the project sponsor. A match certification credit may be used to meet the spirit of providing matching resources and help increase coordination within a watershed (at a HUC 10 scale).
- Another barrier removal within the same watershed by the same sponsor or another entity may be used as match

FBRB Current Activities

- Implementing communication strategies; preparing a legislative handout and talking points for board members
- Contacting all sponsors that submitted nominations on the Coordinated Pathway approach
- Reaching out to the restoration community concerning the status of their Watershed Pathway nominations for 2017-19 projects, and for development of a 2019-21 project list

Questions?

Tom Jameson

Habitat Program – Fish Passage and Screening Division Manager

| Direct: 360.902.2612 | Mobile: 360.688.4963

| Email: thomas.jameson@dfw.wa.gov |

| 1111 Washington St SE | Olympia, WA 98501-1091 |

| http://wdfw.wa.gov/conservation/habitat/fish_passage/

Jay Krienitz

Mike Ramsey

Tish Conway-Cranos

Estuary and Salmon Restoration Program



Program Context and History

P.S. Nearshore Ecosystem Restoration Project

- *14 year \$20 million science investigation*
- *Defining problems in the nearshore*
- *Developing process-based solutions*
 - *Proposing large scale Army Corps/WDFW projects*

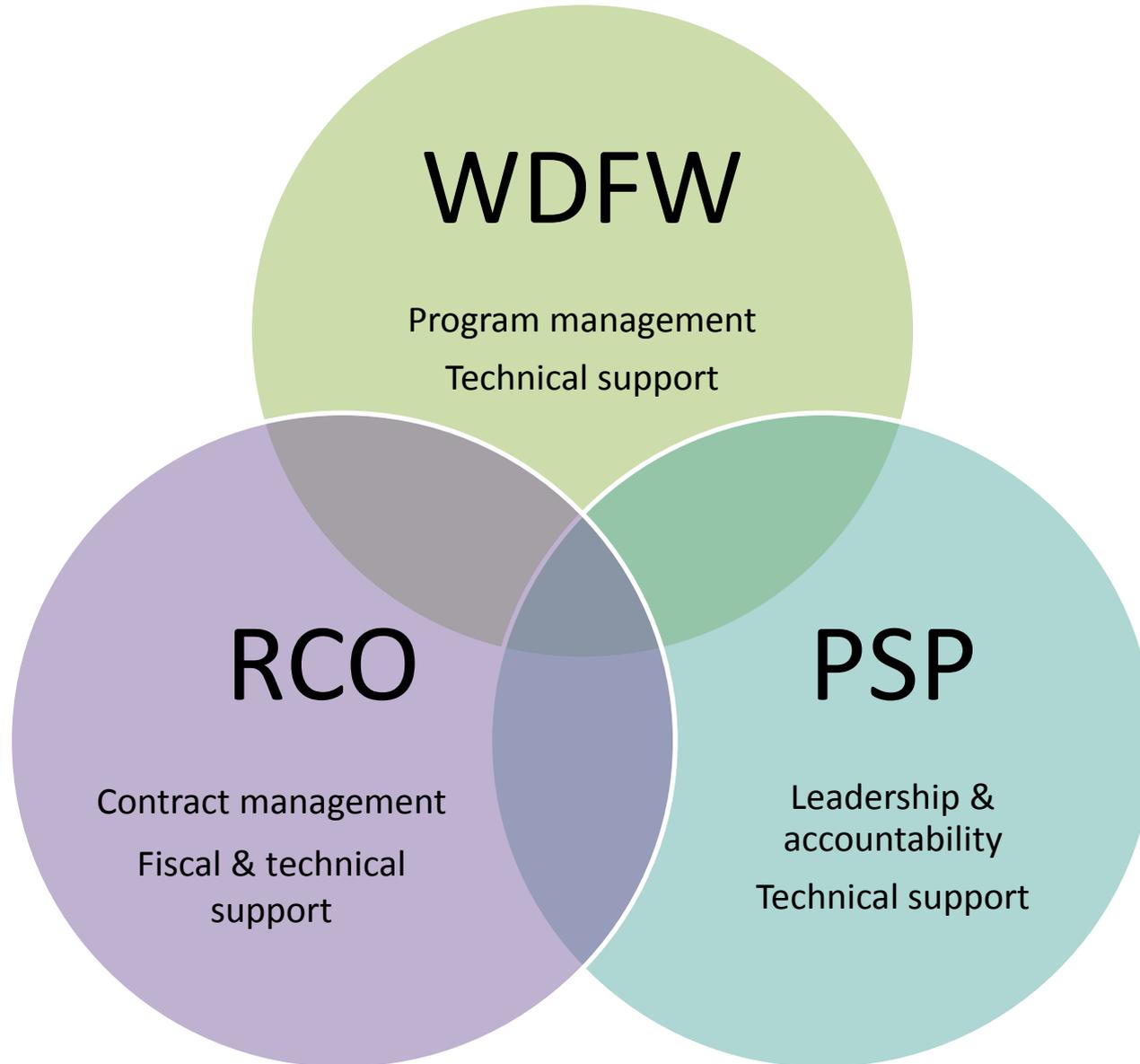


Estuary and Salmon Restoration Program

- *Created in 2006*
- *Implementing nearshore ecosystem restoration projects*
 - *Developing local/regional partnerships and strategies*
- *Advancing adaptive management*



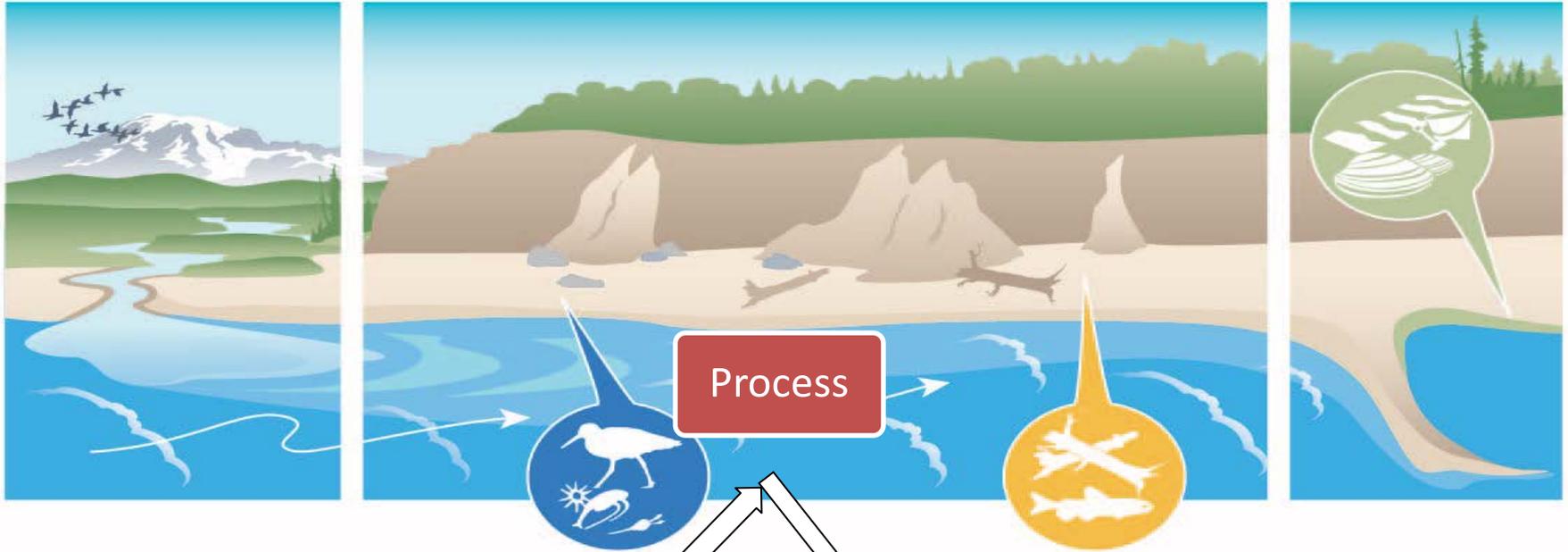
Managing Partners



Restoring Nearshore Natural Processes

75% of large river estuaries are diked and filled

1/3 of beaches are armored



Structure



Function

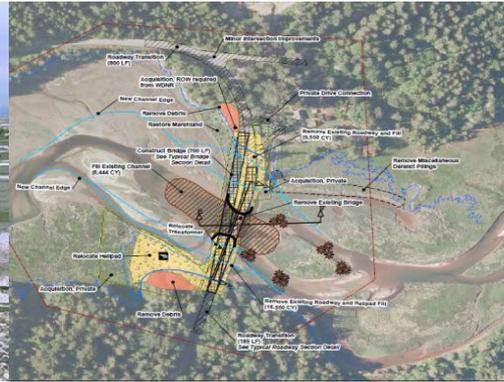
Actions!

Eligible Project Actions:

Acquisition



Feasibility & Design



Construction



Monitoring & AM



Eligible Applicants:

- Federal, State, & Local agencies
- Native American tribes
- Non-governmental or pseudo-governmental entities
- Private or public corporations

Providing Benefits to Nearshore Communities

More than just habitat: Ecosystem Goods and Services



Infrastructure Improvements

Recreation and Public Access

Drainage and Flood Storage

Resiliency to Climate Change

Program Funding to Date

State Competitive Funds

	Appropriation	Need
2006 Supplemental Capital Appropriation	\$2,500,000	-pre approp
2007-2009 Capital Appropriation	\$12,000,000	\$21,500,000
2009-2011 Capital Appropriation	\$7,000,000	\$21,600,000
2011-2013 Capital Appropriation	\$5,000,000	\$13,500,000
2013-2015 Capital Appropriation	\$10,000,000	\$33,700,000
2015-2017 Capital Appropriation	\$8,000,000	\$27,200,000
<i>2017-2019 Capital Request</i>	<i>\$20,000,000</i>	<i>~\$30m (draft)</i>
TOTAL	\$44.5 approp	\$147.5 need

Federal Partnerships

2007-2009 NOAA Partnership	\$1,115,000	
2010-11 FFY EPA Marine & Nearshore	\$1,358,000	
EPA federal partnership funds	\$3,800,000	
2016 NOAA Coastal Ecosystem Resiliency	\$1,421,277	
2016 NOAA Regional Coastal Resilience	\$159,597	
TOTAL	~\$7.8 million to date	

Project Awards

Award range	\$50,000 - \$2,600,000
Average project request	\$300,000 - \$400,000
Number funded projects	89 projects

Proposal Routes to Investment Plan

1

New Restoration or Protection Projects

- 28 Site visits
- 30 Pre-proposals
- 25 Full proposals
- Presentations
- Ranked by technical team

2

Portfolio Projects

- Portfolio status update -2 A&R projects, 3 Learning
- Revised budget
- Ranked by ESRP staff

3

Learning Projects

- 24 Pre-proposals
- Ranking/invite
- 12 Full Proposals invited
- Ranked by technical team **(October)**

4

NEW! Small Grants Projects

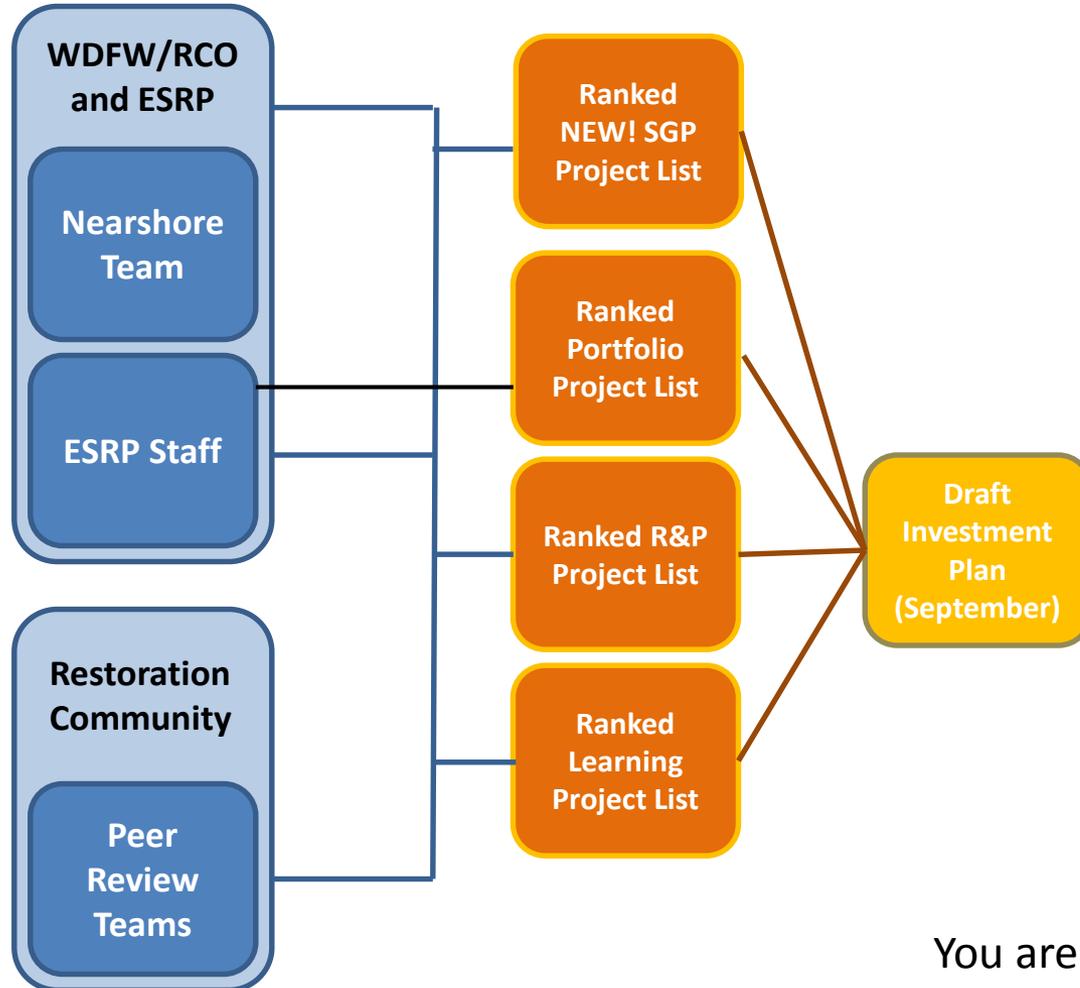
- Site visits
- 7 Full proposals
- Technical review
- MRC geographic areas and aligned with strategic plans
- \$50-\$100k -\$500k total for program

5

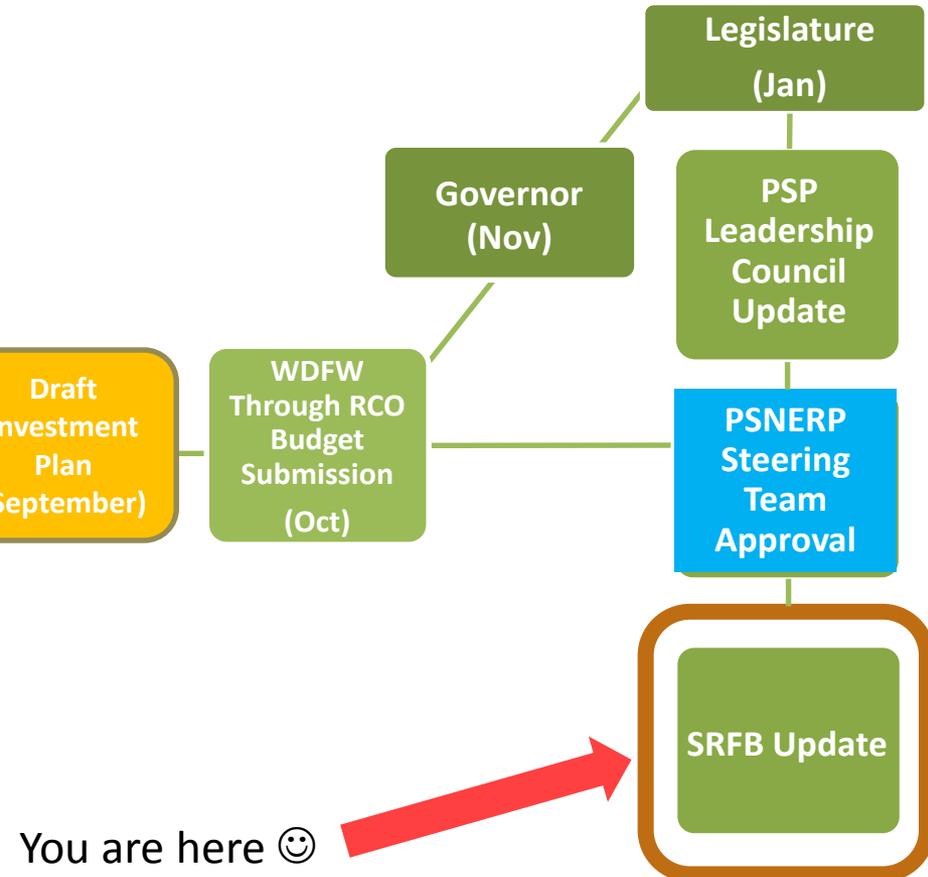
PSAR/FbD Coordinated Investment Project List Addition: Final Step

2016 Investment Plan Development

Project Solicitation & Draft Investment Plan Development (April – September 2016)



Investment Plan Submission (Sept 2016 – Jan 2017)



PSNERP
Methods

Analysis &
Problems

Objectives

Needs

Projects

Results

Restore and Protect River Deltas



Funded Project Example

Skokomish Estuary Restoration Sponsor: Skokomish Tribe & Mason Conservation District

Phase I (2007) - 108 acres completed

Phase II (2010) - 216 acres completed

Phase III (2011) - 525 acres completed

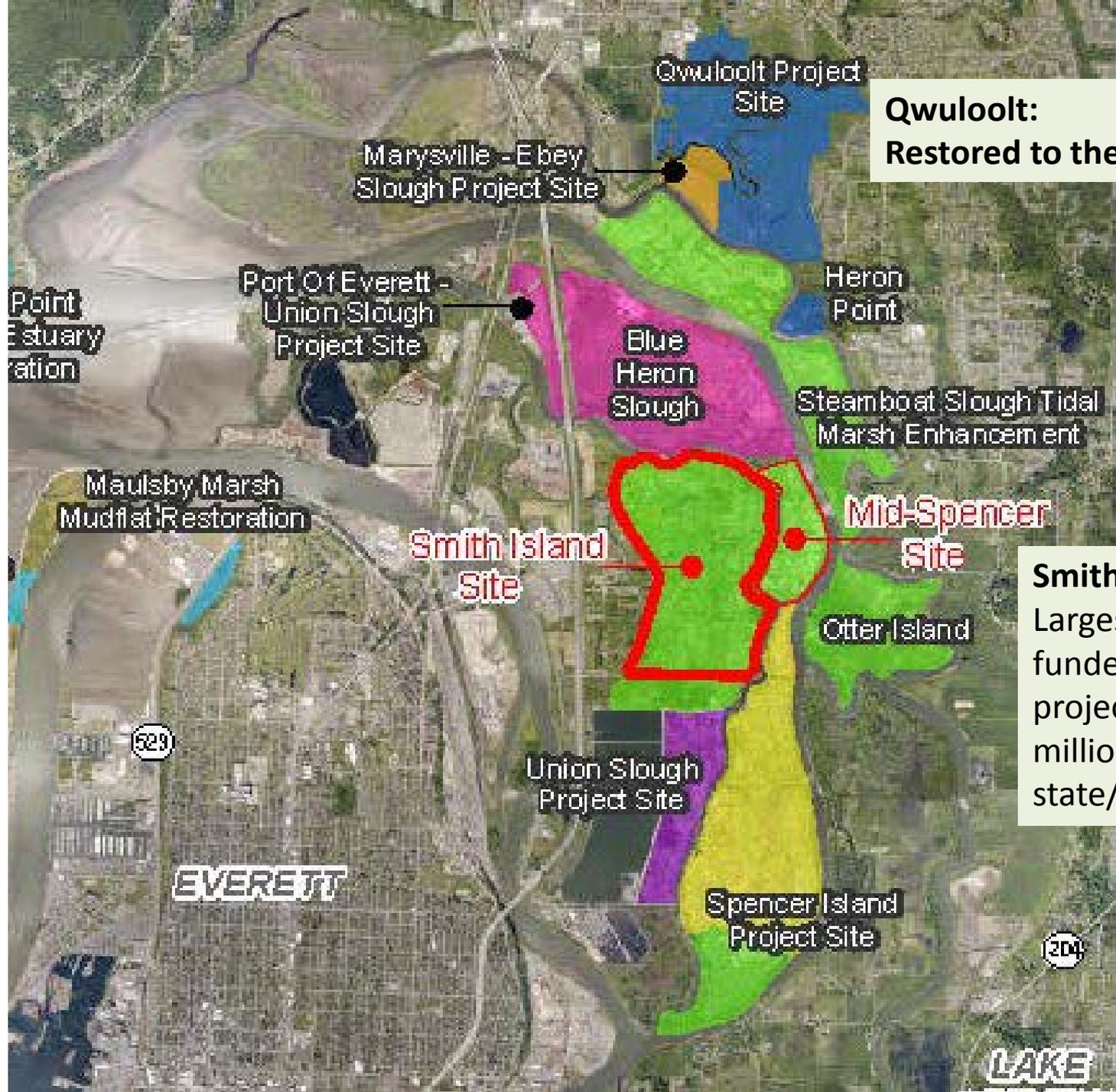
Phase IIIc(2014) - 330 acres underway

Total: 1,179 acres \$3.7 Million in ESRP Funding



**62 Jobs
created
equivalent**



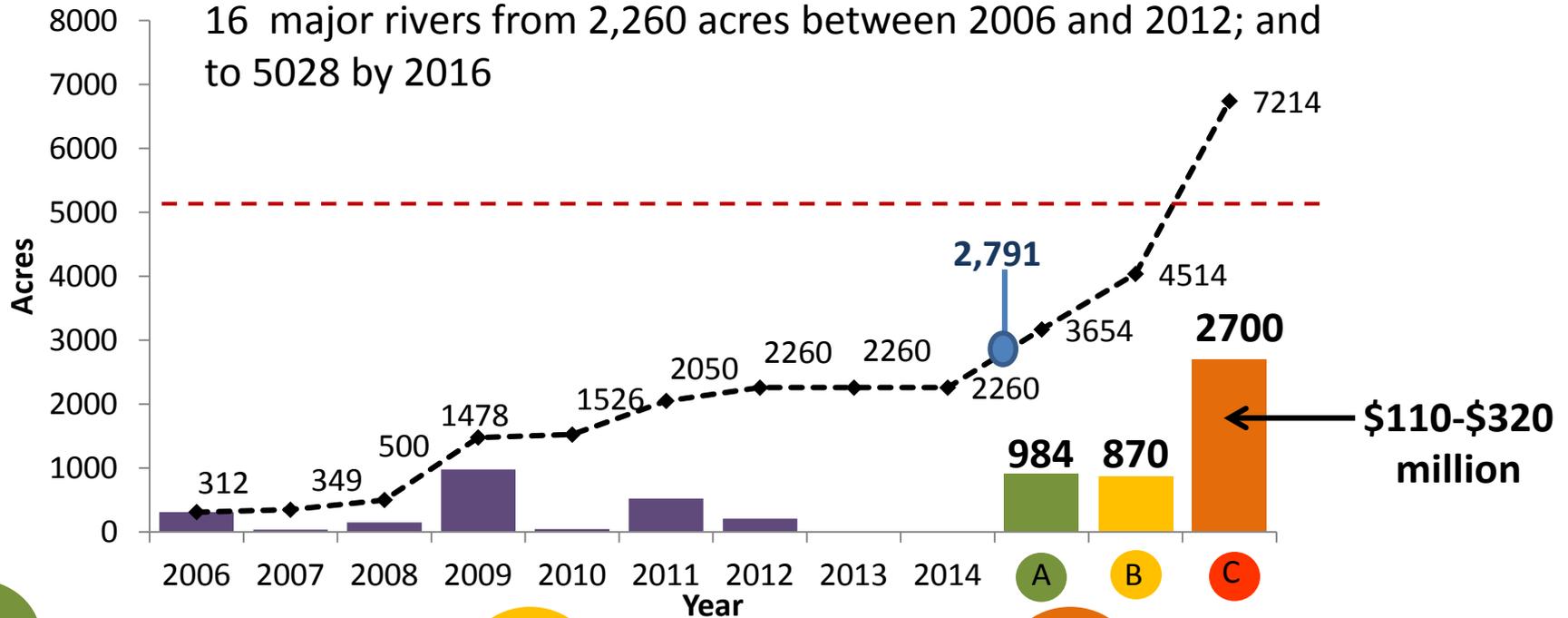


Qwulooft:
Restored to the tides!

Smith Island:
Largest ESRP-funded project \$5.4 million state/federal

Estuary Restoration Target Tracking and Reporting

(4.4.f) “Increase the acreage of Puget Sound estuaries restored in the 16 major rivers from 2,260 acres between 2006 and 2012; and to 5028 by 2016



A

~1-3 Years

- Three Crabs Restoration
- Fir Island Farms!**
- Skokomish Phase Three
- Everett Riverfront
- Smith Island Restoration
- Blue Heron Slough
- Qwuloolt Estuary Restoration!**
- Steamboat Slough
- Mid-Spencer Island

B

Possible in 3-8 Years

- Diking District 6
- zis a ba Restoration**
- Leque Island Restoration**
- Deepwater Slough Phase 2
- Spencer Island**
- Quilceda Estuary

C

Uncertain

- Lower Nooksack Project
- Union Pacific Setback Levee
- Thein Farm
- Ellingsen Restoration
- Telegraph Slough
- North Fork Levee Setback
- Everett Marshlands
- Duckabush

Restore and Protect Beaches and Embayments



Before



After

Project Example: Leque Island Restoration



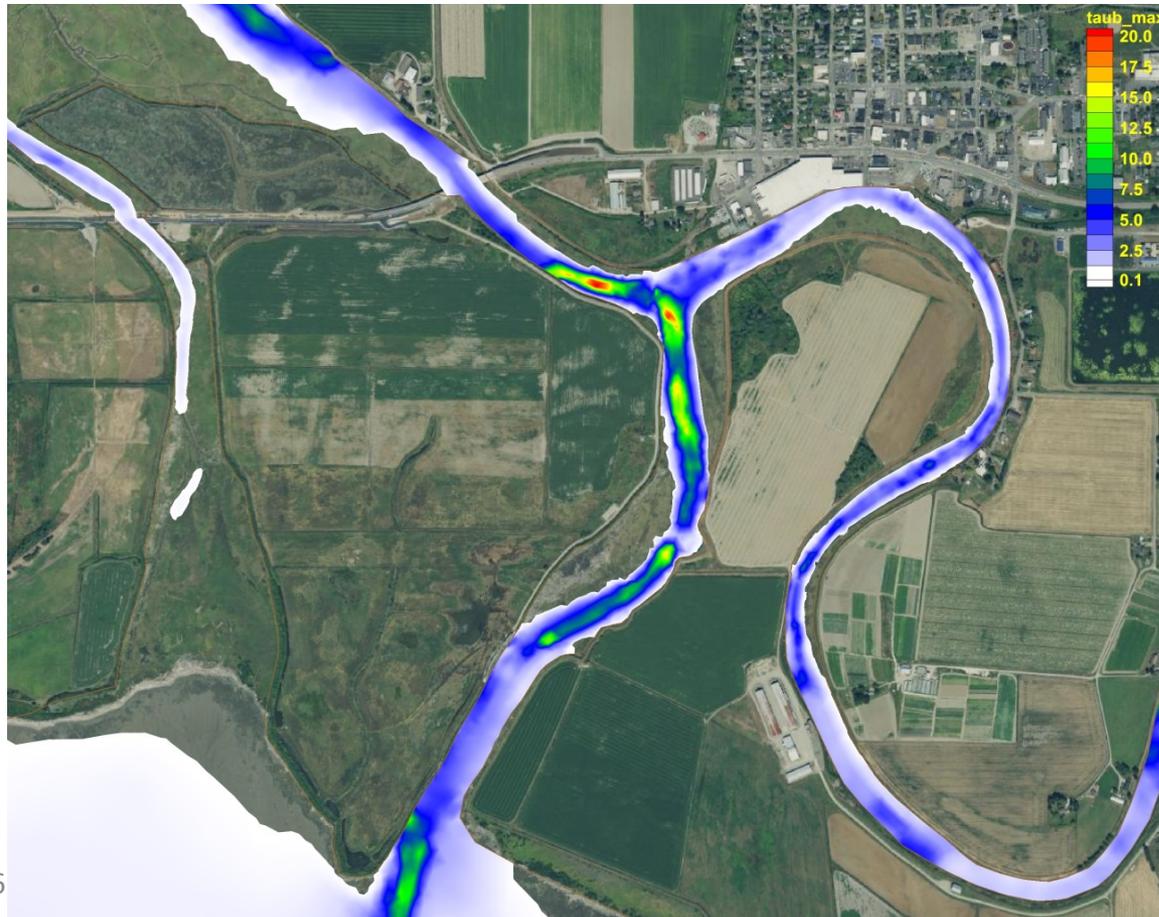
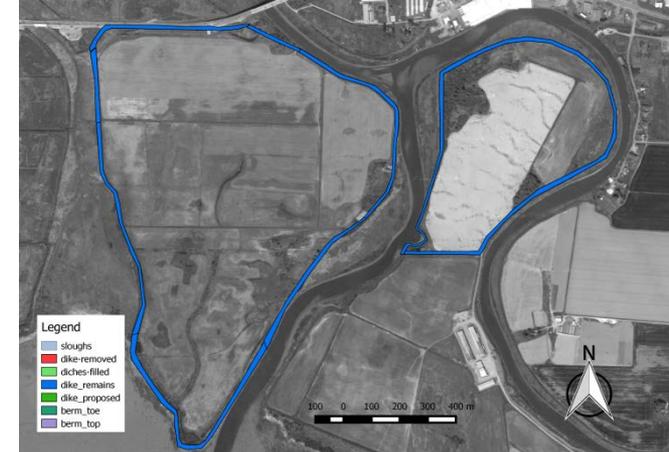
ESRP Request	\$2,000,000
SRFB Request	\$6,630,991

Port Susan Bay



Restoration Scenario Simulation October 2005 Conditions

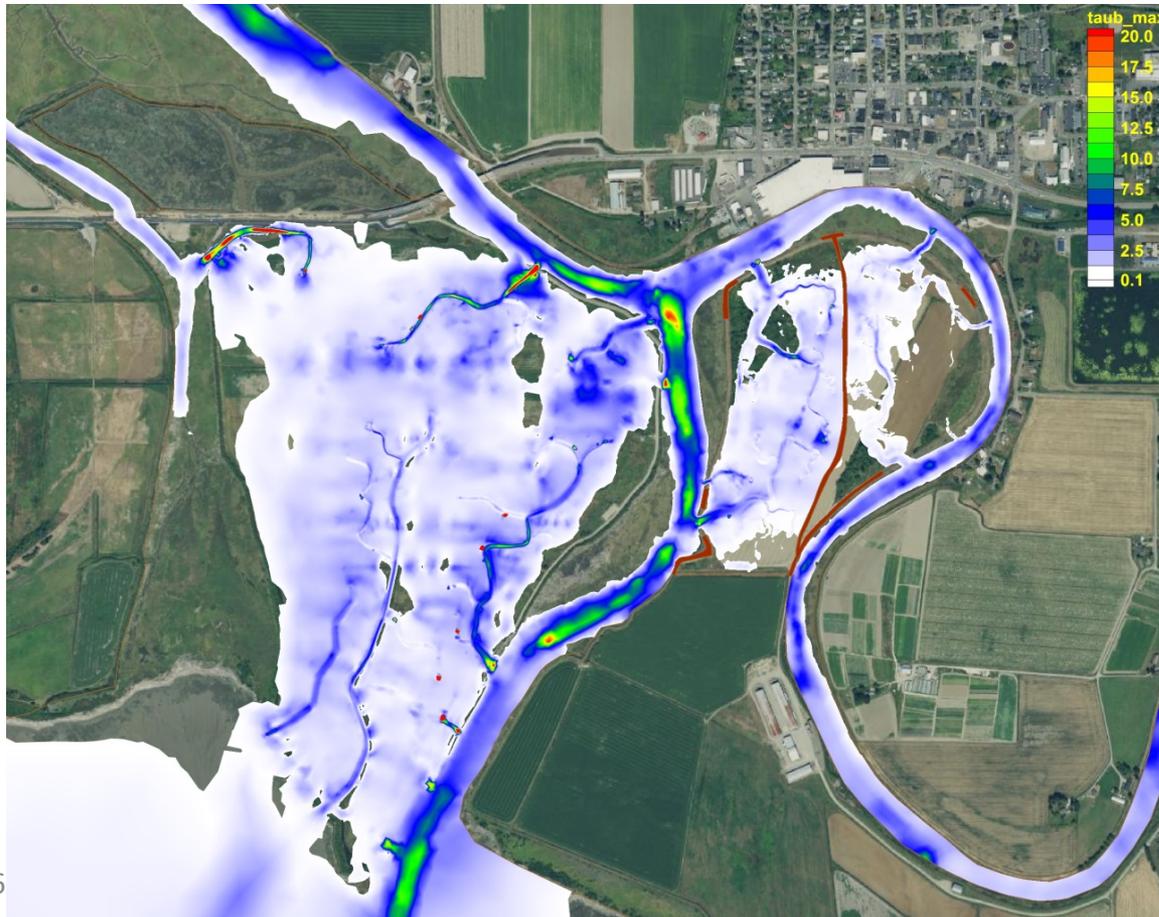
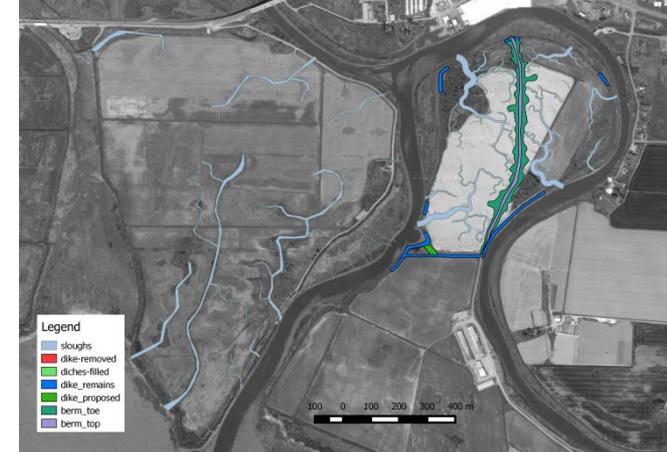
Baseline Conditions
Max. shear stress (Scale V^2)



Restoration Scenario Simulation

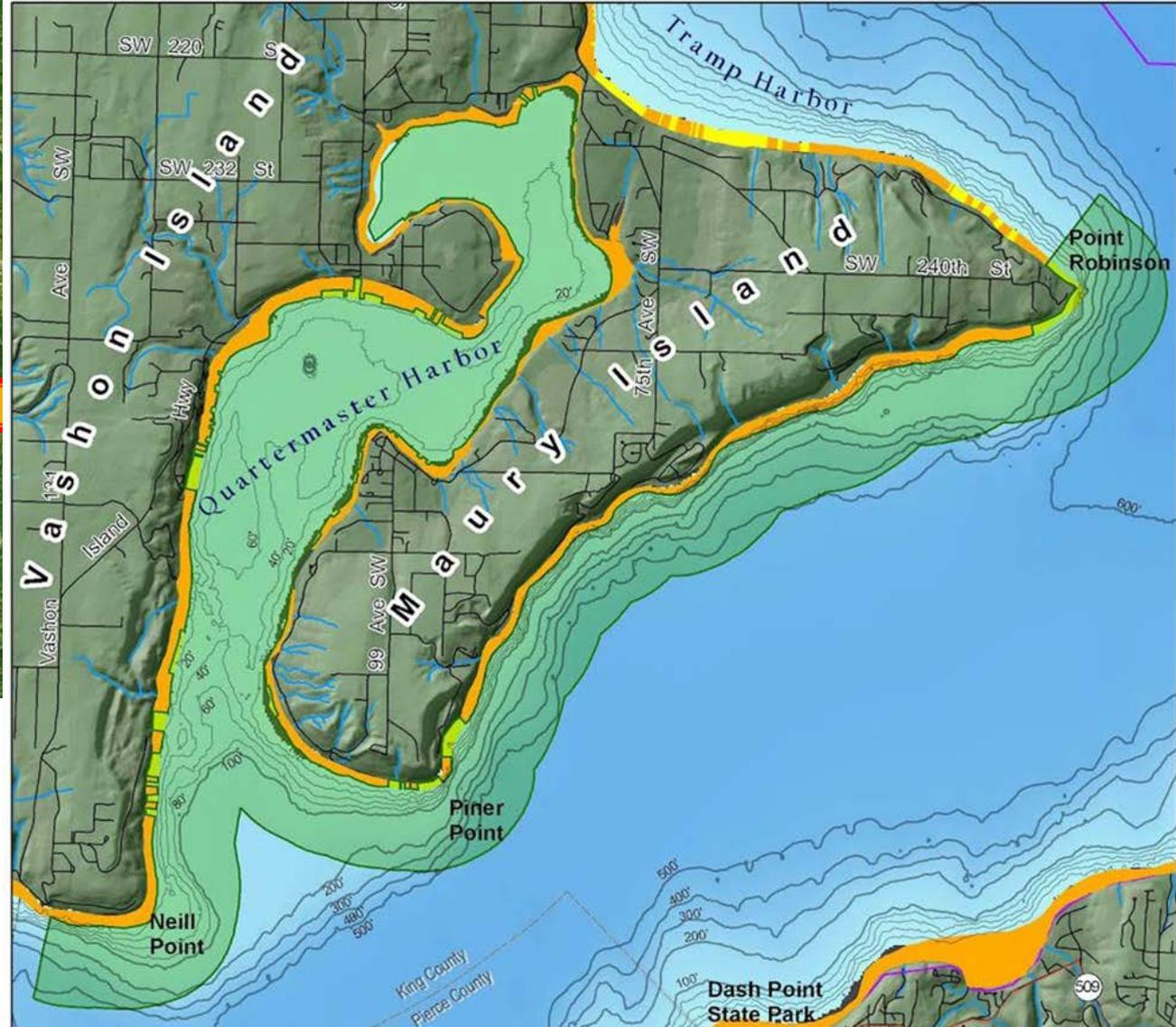
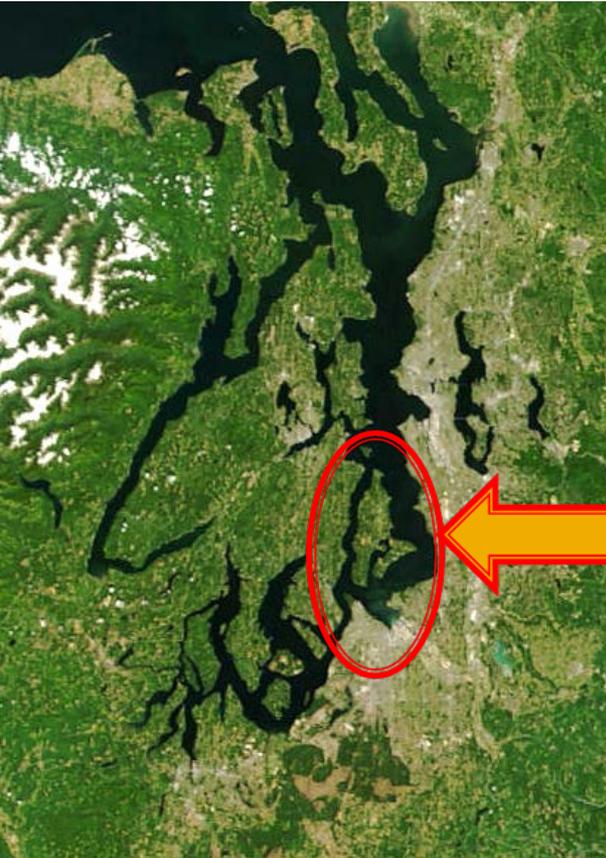
October 2005 Conditions

Option 1 – Full Dike Removal at Leque
Maximum Bed Shear Stress (Scale V2)



October 31, 2016

Project Example: Maury Island Aquatic Reserve



ESRP Request	\$1,645,600
SRFB Request	\$955,625
Total	\$2,601,225

Project Example: Maury Island Aquatic Reserve



Project Example: SGP – Fidalgo Bay Shoreline Restoration



Fidalgo Bay Protection and Restoration



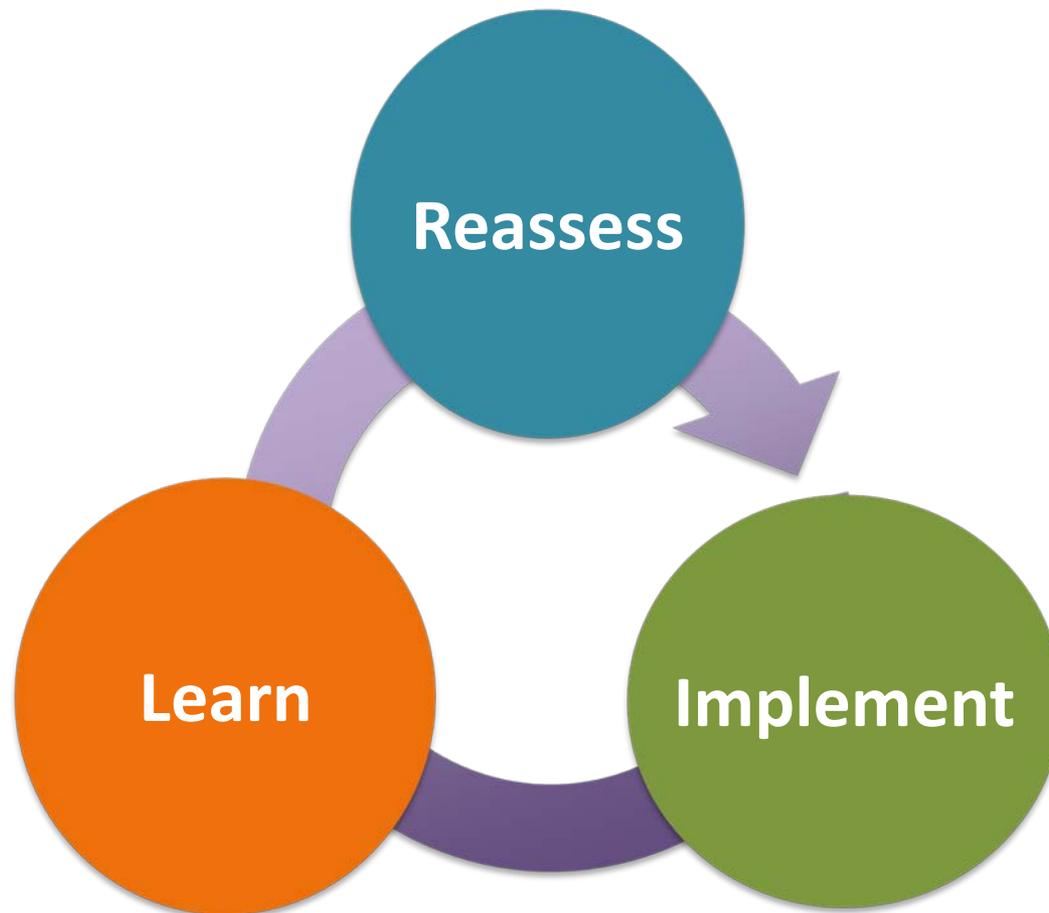
ESRP Request	\$79,299
Match	\$34,250
Total	\$113,540

ESRP Learning Program: Research to inform restoration



- The Puget Sound nearshore is complex and dynamic
- With limited funds for restoration, we must strategically apply current scientific knowledge to restoration projects
- The learning program actively solicits and guides scientific investigations to best inform restoration implementation, goals and priorities

ESRP adaptive management cycle



ESRP Learning Program: Research to inform restoration

Process:

1. Pre-proposals
2. Full Proposals
3. Ranking by technical review
4. 10% of total ESRP award



ESRP Learning Program: Research to inform restoration

	Criterion	Description
1	Importance (10 pts.)	Does project answer the most important questions limiting our ability to restore and protect the Puget Sound nearshore ecosystem?
2	Efficiency (10 pts.)	Project sponsor has to have a good plan with reliable methods to achieve the outcome/answer the primary question in a reasonable timeframe.
3	Policy Impact (10 pts.)	The project informs key capital funding program policies (like ESRP) and guidance and decisions on how work is achieved in the future.
4	Transferability (10 pts.)	The project answers questions that affect multiple or broad landscapes (Large river delta scale, large beach systems) or other large nearshore landscapes in Puget Sound.
5	Learning Priority (5 pts.)	The project addresses one of our stated learning objectives.

ESRP Learning Program: Research to inform restoration



- Field investigations of ecosystem response to restoration actions
- Prioritization to maximize ecosystem benefits relative to potential costs
- Predictive models of ecosystem processes (e.g., sediment transport, vegetation development)

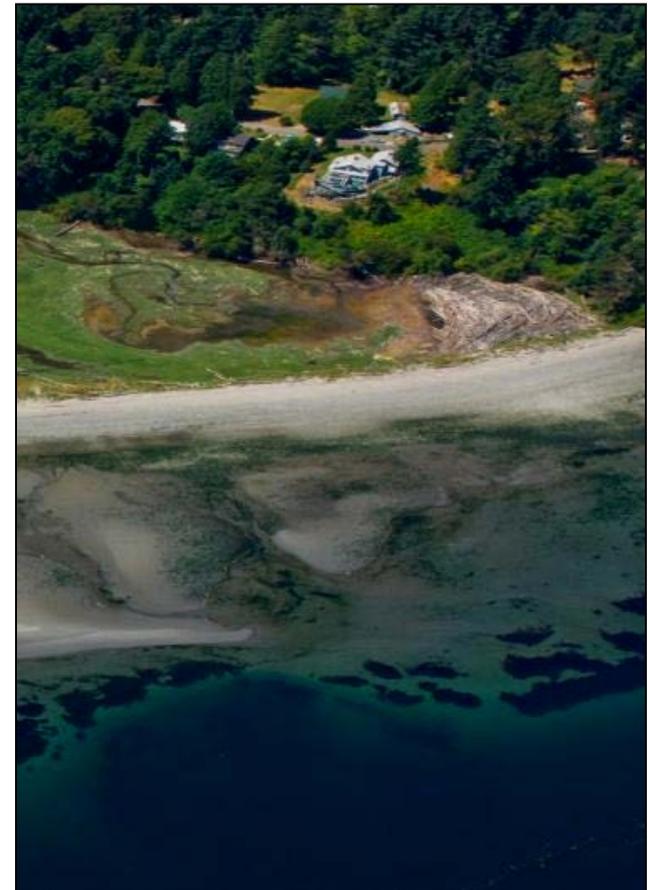
2017-2019 Projects: Beaches

- **Snohomish railroad beach nourishment (ongoing)**
- **Local effects of bulkhead removal (ongoing)**
- **Drift-cell scale effects of armor removal (proposed)**
- **Regional variation in feeder bluff supply (proposed)**
- **Identifying target beaches for restoration and protection (ongoing)**



2017-2019 Projects: Embayments

- Tidal wetland connectivity guidelines (proposed)
- Fish passage analysis of tidal water crossings (proposed)
- Prioritization of coastal embayment restoration near railroads (proposed)



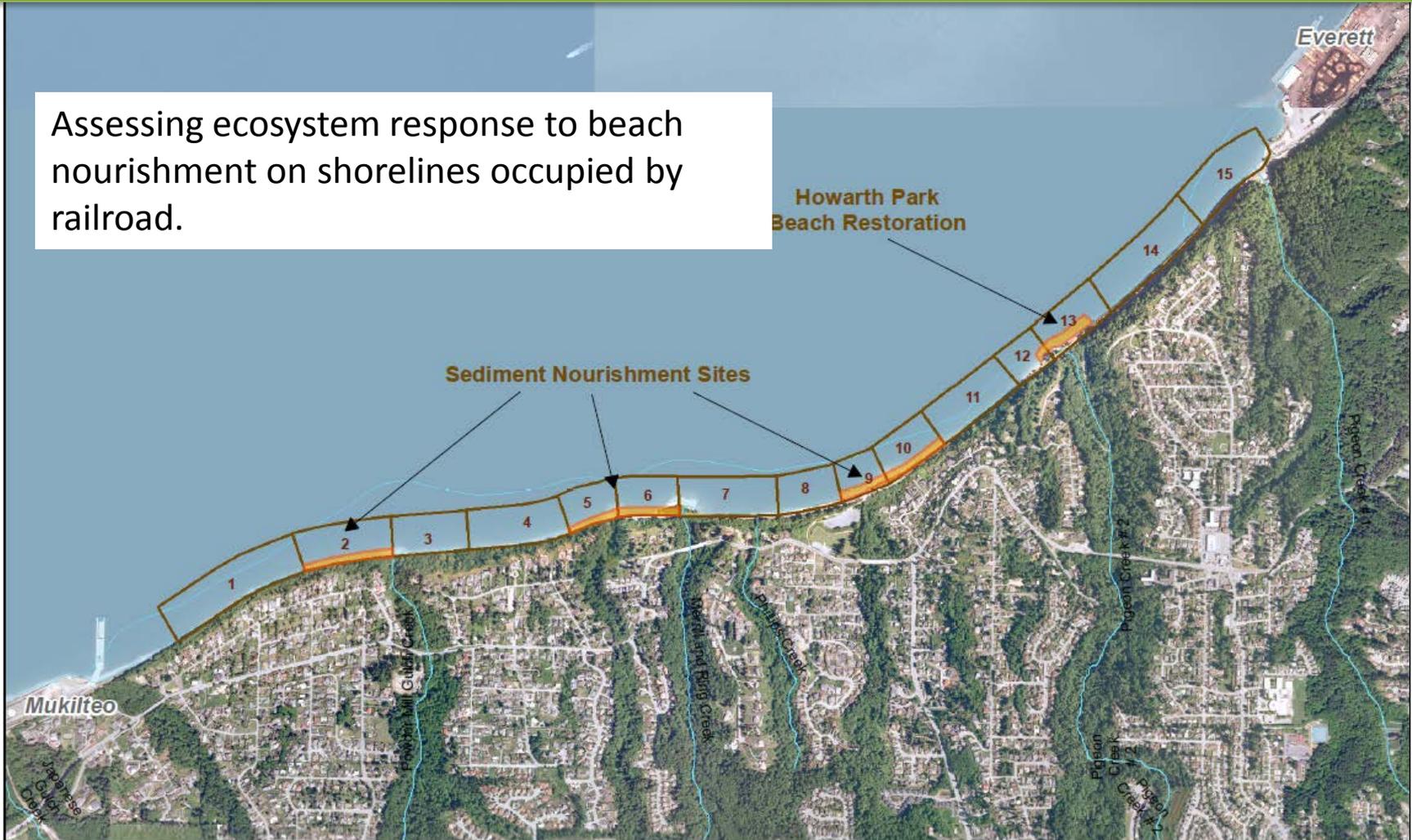
2017-2019 Projects: River Deltas

- **Ecosystem response to Snohomish estuary restoration (ongoing and proposed)**
- **Predicting sediment transport and deposition in the Snohomish estuary (proposed)**
- **Agriculture and sea level rise in the Snohomish river delta (proposed)**
- **Bird response to restoration in North Puget Sound (proposed)**
- **Adaptive management for Nisqually River delta (proposed)**
- **Predicting tidal vegetation development in restored river deltas (proposed)**
- **Strengthening channel design guidance for river delta restoration (proposed)**



Project example: Snohomish Beach Nourishment

Assessing ecosystem response to beach nourishment on shorelines occupied by railroad.



Nearshore Beach Nourishment
Figure 1



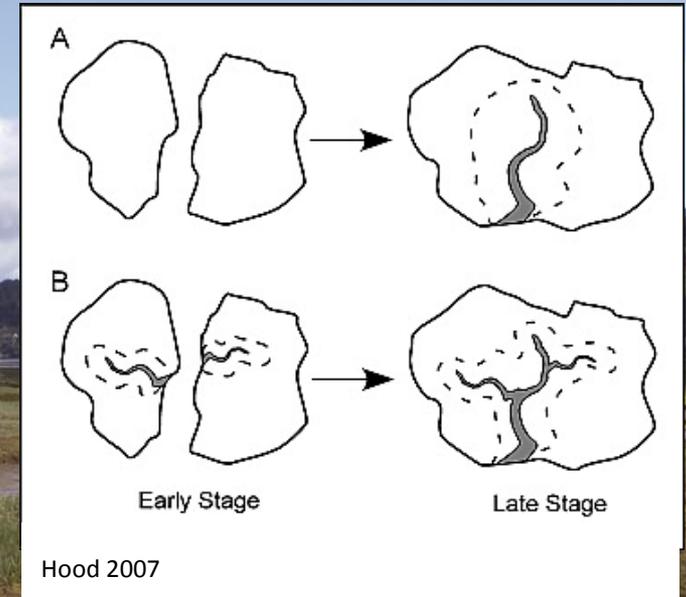
Snohomish County

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SURFACE WATER MANAGEMENT
(425) 388-3464

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Project example: Scaling tidal geometry with marsh island area for Puget Sound

Measuring relationship between island size and number of channels to inform restoration project design



Hood 2007 Scaling tidal channel with marsh island area: A tool for habitat restoration, linked to channel formation processes. Water resources research

Hood 2015 Geographic variation in Puget Sound tidal channel planform. *Geomorphology*.230.98-108

New Federal Funding

NEW NOAA GRANTS!

#1 ranked national NOAA Coastal Resiliency Habitat Project

Award: \$1.4 Million

- Smith Island
- Mid Spencer Island
- Communications and Science Support

Washington Coalition to Plan for and Improve Coastal Resiliency

Award: \$800k out \$4 million | ~\$160 million nationally requested



UW TODAY

ENVIRONMENT | UW AND THE COMMUNITY | UW TODAY BLOG

March 14, 2016

NOAA funds Washington Sea Grant to help communities protect their coasts

Hannah Hickey
News and Information

Washington Sea Grant was recently awarded nearly \$900,000 by the National Oceanic and Atmospheric Administration to help coastal communities protect against hazards, including tsunamis, winter storms and sea-level rise.

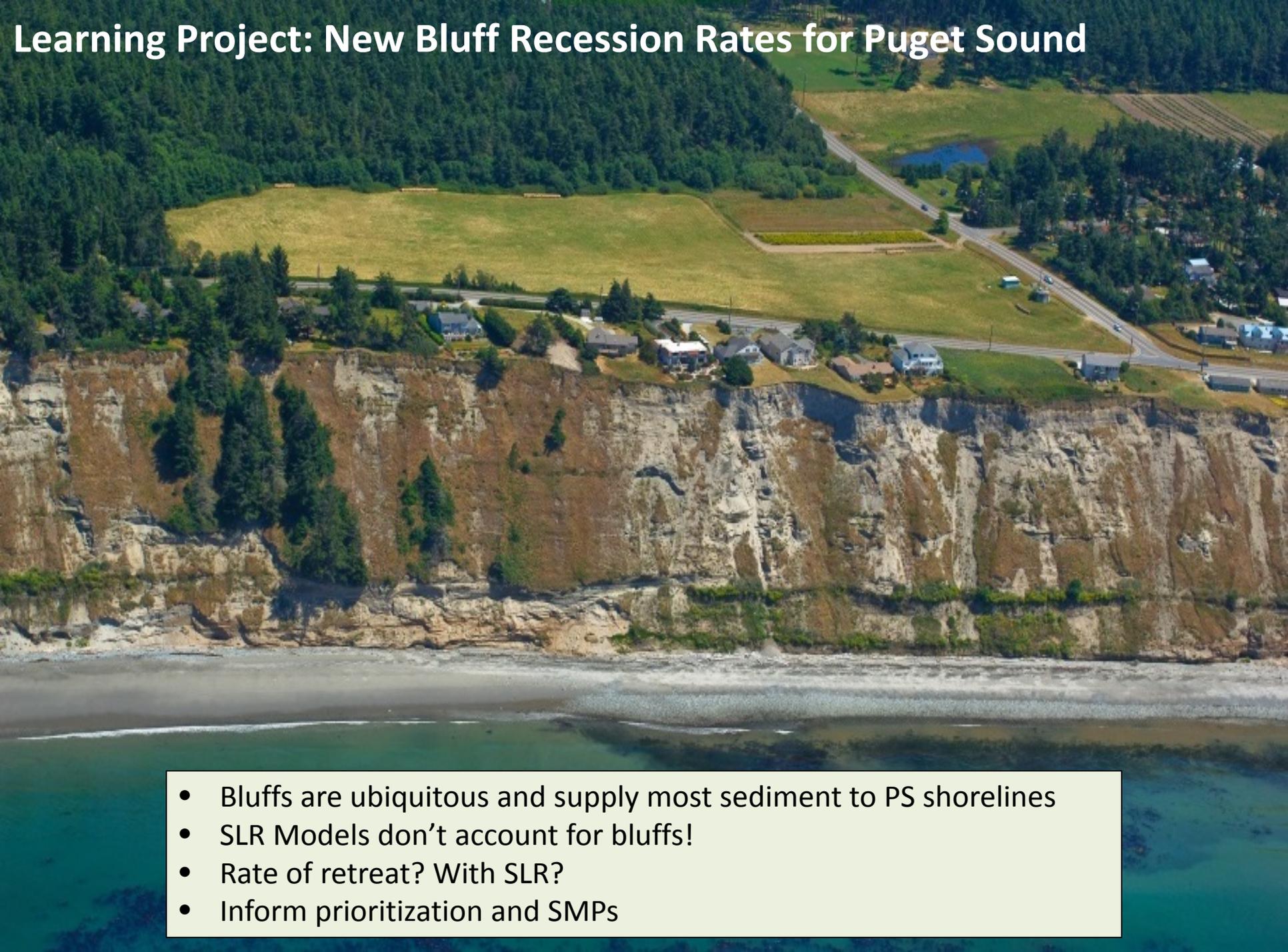
The three-year project will help prepare Washington's roughly 3,100 miles of coastline and more than 45 coastal cities for current and future hazards. The award is one of six NOAA Regional Coastal Resilience Grants awarded this year.



Ian Miller, a coastal hazards specialist with Washington Sea Grant, will lead a team of

Whidbey's Island County, seen here in a 2006 photo, is an initial partner on the

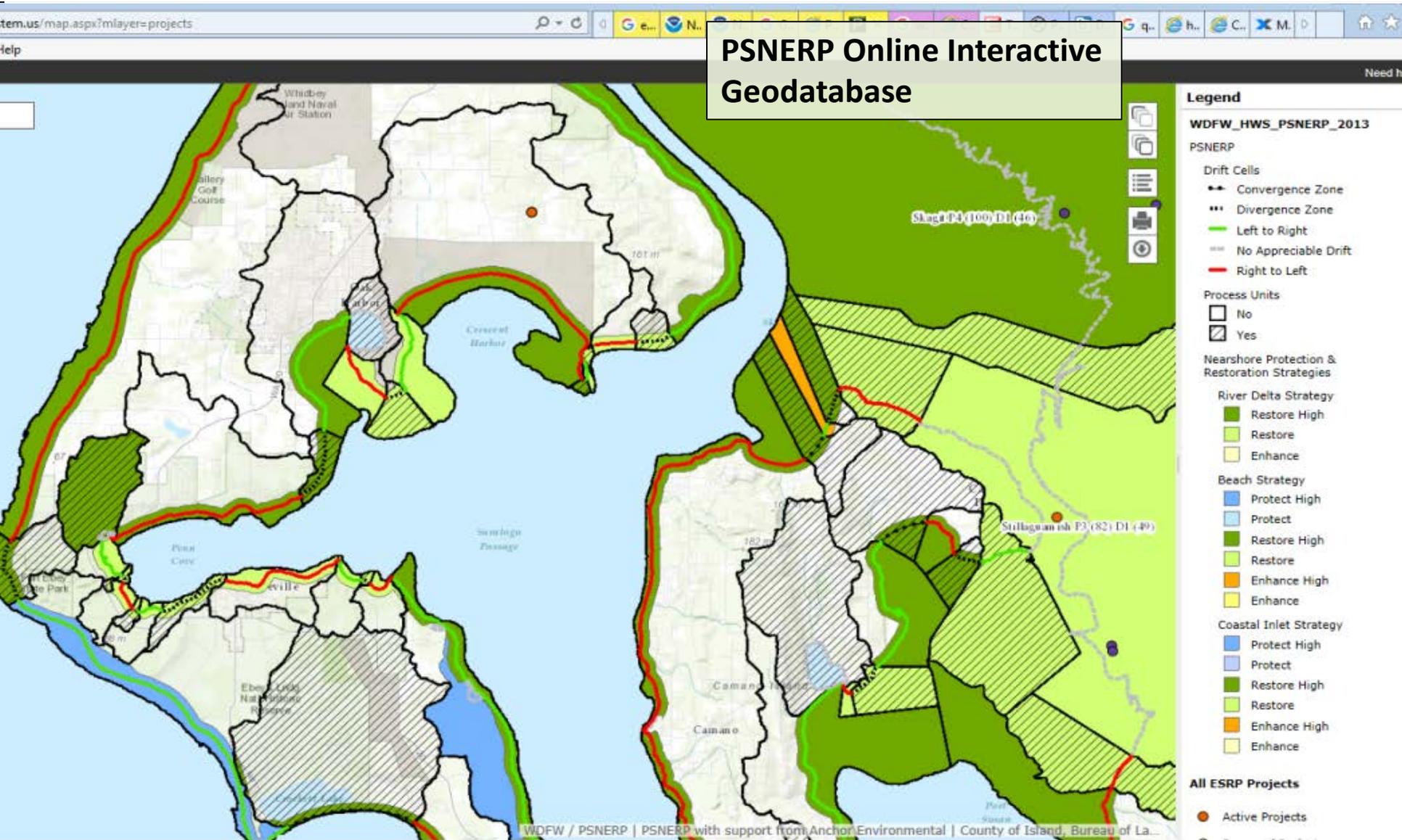
Learning Project: New Bluff Recession Rates for Puget Sound



- Bluffs are ubiquitous and supply most sediment to PS shorelines
- SLR Models don't account for bluffs!
- Rate of retreat? With SLR?
- Inform prioritization and SMPs

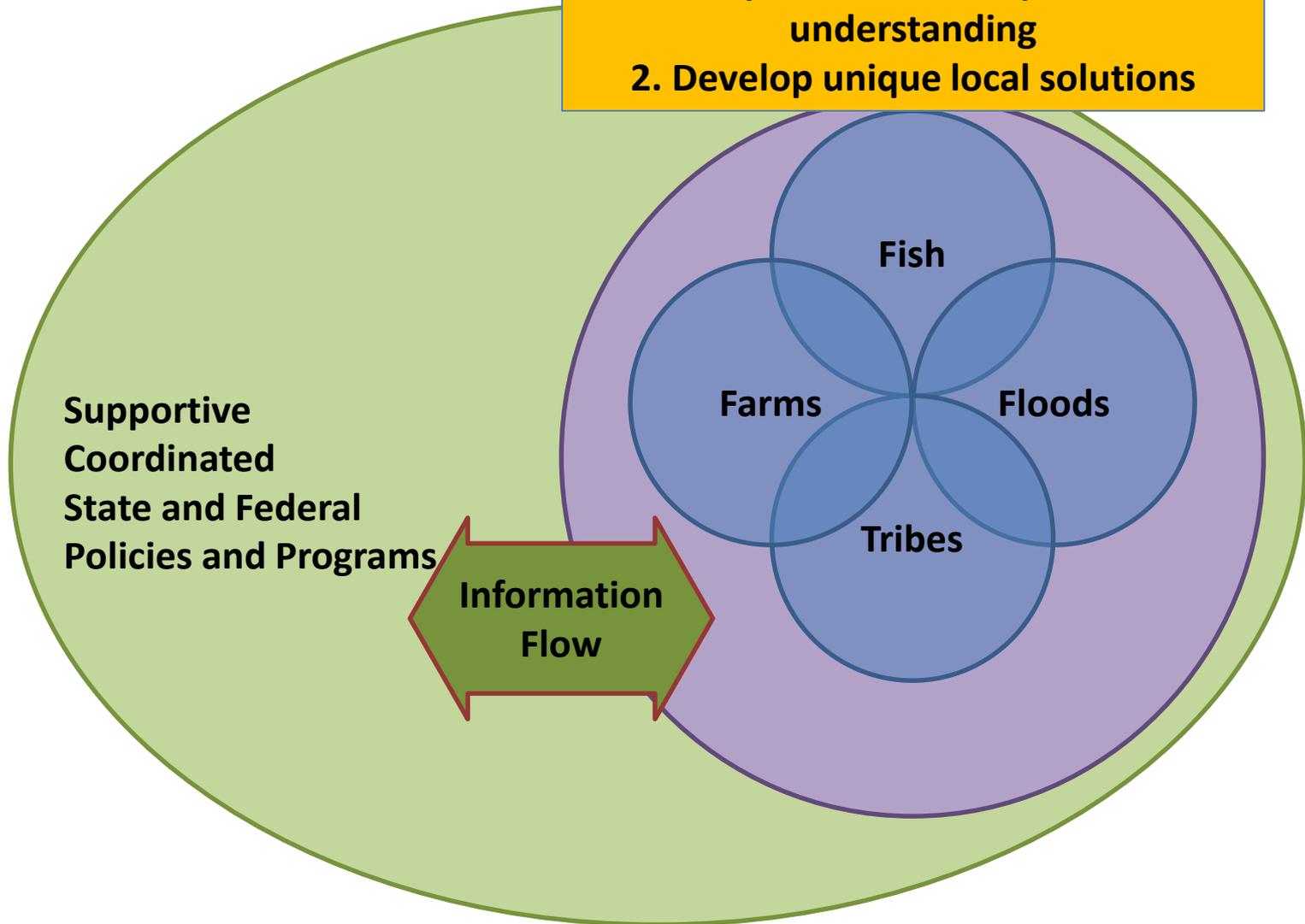
Learning Project: Improved PSNERP Beach Restoration Strategies Map

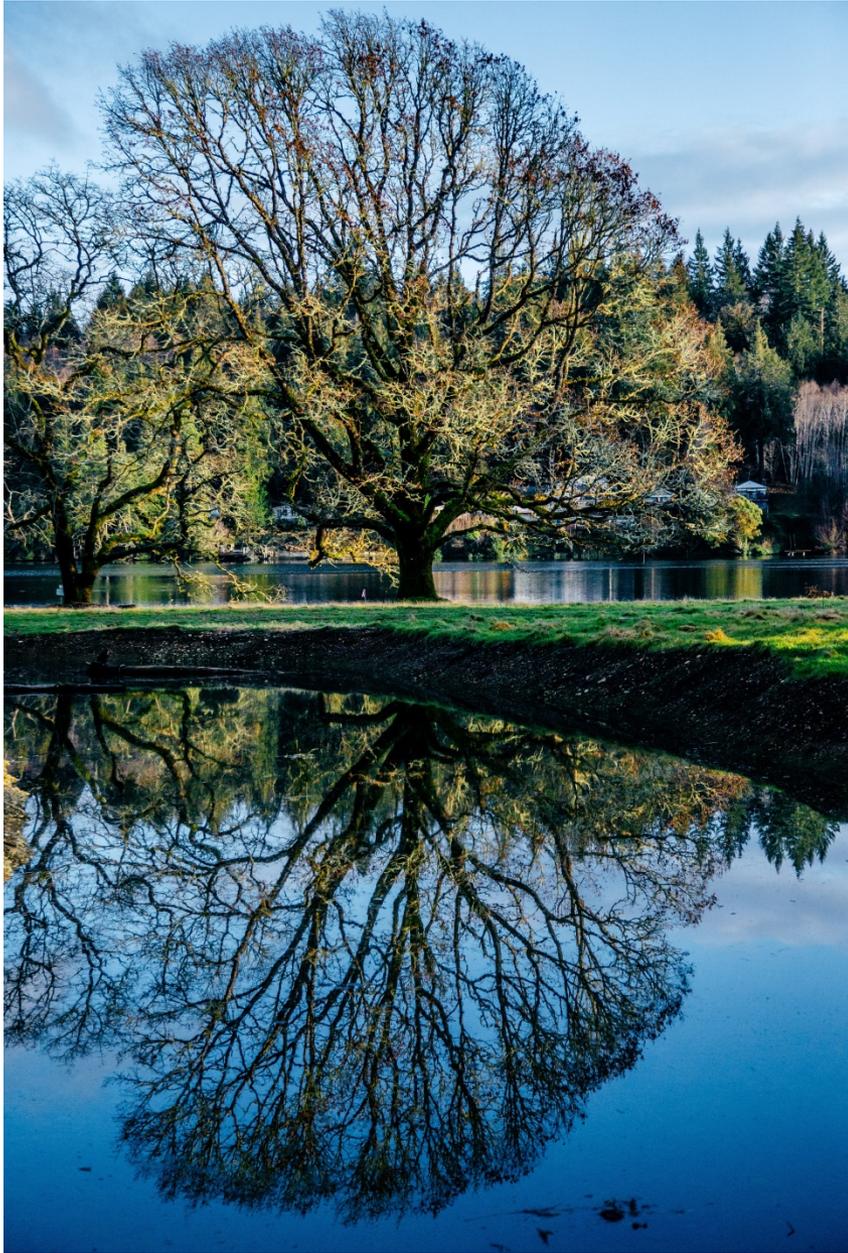
- New Shoreline Armoring, Parcel Detail, and Climate Data



Fostering Multi-Benefit Innovation

1. Foster place-based cooperation and understanding
2. Develop unique local solutions





THANK YOU!

Jay Krienitz –Program Manager

Mike Ramsey –Grants Manager

Tish Conway-Cranos –Science Manager



ESTUARY & SALMON
RESTORATION PROGRAM



SRFB Monitoring Panel 2016 Recommendations

Keith Dublanica, GSRO

Marnie Tyler, Monitoring Panel Chair

Agenda Item 8

September 15, 2016

SRFB



Background

- Panel Established June 5, 2014
- Includes seven members:
 - Pete Bisson
 - Ken Currens
 - Dennis Dauble
 - Jody Lando
 - Phil Roni
 - Marnie Tyler
 - Micah Wait



2016 Activities

- Annual evaluation of each monitoring component
- Focused review of Project Effectiveness
- In-depth dialogue with PE project leads
- Site visit to Hood Canal IMW
- Updated reporting approach taken with FIFO
- Regional monitoring proposal review
- Assisting in Project Effectiveness RFP review



2016 Recommendations

General Recommendations:

1. Make tentative monitoring funding decisions at the June SRFB meeting.
2. Move reporting deadlines for monitoring practitioners to December.
3. Continue to dedicate money to IMW restoration treatment.
4. Truncate the current Project Effectiveness study in 2018 and scope an enhanced design to begin in 2019.



If Monitoring Budget is Reduced:

1. Defer monitoring of three Project Effectiveness categories:
 - livestock exclusion
 - riparian restoration
 - acquisition.

2. Defer two tasks in western Washington IMWs:
 - EMAP/GRTS habitat sampling in the Strait of Juan de Fuca IMW
 - Hydrogeomorphic surveys in the Hood Canal IMW.



IMW: Asotin - Conditioned

1. Commence post-treatment monitoring in 2017. Do not alter existing treatments unless absolutely necessary.
2. Steelhead abundance data should be aggregated over the entire watershed so it will be possible to determine if habitat structure additions have improved viable salmonid population (VSP) parameters at the population scale.
3. Steelhead smolt and adult abundance should be estimated before and after restoration and summarized across all three branches of the Asotin Creek. The progress report also should include an estimate of the amount of restoration needed and the amount of time needed, in order to see a response.



IMW: Hood Canal - Conditioned

1. Estimate the expected increase in smolt capacity potential following restoration, assuming all restoration is accomplished under fully seeded conditions. This should allow project staff to determine if the restoration will produce sufficient additional coho smolts to detect population level changes.
2. Project staff shall conduct a review of the experimental design and methods of analysis being used in the Hood Canal IMW to determine if a BACI design remains the best approach.
3. Limiting factors and specific restoration objectives for the coming year should be clearly articulated.



IMW: Lower Columbia - Conditioned

1. Principal investigators shall revisit and prioritize limiting factors and assess whether currently recorded population metrics are appropriate for measuring response.
2. The schedule for restoration activities and evaluation period should be updated so the life expectancy of this IMW can be determined. The project leads will estimate the number of treatment years remaining, and identify the number of years of post-treatment monitoring needed to detect a response.



IMW: Lower Columbia - Conditioned

(continued from previous slide)

3. Principal investigators shall provide guidance on restoration priorities in the coming year and propose an implementation schedule.
4. The IMW team shall continue to participate in regular meetings with the Lower Columbia Fish Recovery Board (LCFRB) so that all parties understand the intended type of restoration treatment that will advance the study objectives. The monitoring panel recommends that the SRFB apply this same condition to the IMW funding disbursed to the LCFRB.



IMW: Skagit - Clear

- Continue support as currently scoped.



IMW: Strait of Juan de Fuca - Conditioned

1. Principal investigators will evaluate the necessity of including EMAP habitat data collection in the study.
2. The progress report shall include a description of how data will be archived in a location that can be made accessible to interested parties in future years.



Project Effectiveness Monitoring— Conditioned

1. Reporting will be streamlined. Summary and analysis of data collected in 2016-2017 shall be incorporated in the 2018 final report.
2. Tighten the fish-sampling window to a 2-month period.
3. Defer monitoring of three project categories: acquisition, riparian restoration, and livestock exclusion.
4. The contractor shall prepare a plan for making all data and analyses from Phase 1 accessible upon its completion.



IMW: Status and Trends Fish Monitoring (FIFO) - Clear

- Continue support of the status and trends fish monitoring conducted by Washington State Department of Fish and Wildlife as currently scoped.



2016 Tasks Remaining

- Evaluate regional monitoring project proposals
 - Assess Salmonid Recolonization 2017 White Salmon River
 - Puyallup River Juvenile Salmon Assessment Project
 - Evaluating Causes of Decline of Pacific Herring
 - Asotin IMW Monitoring Year 10
 - Spring Chinook Survival in Lake Wenatchee
- Update M18 to reflect changes in review process
- Continue to Develop Adaptive Management Framework with SRFB



Expected Developments in 2017

- Scope Project Effectiveness, Phase II
- Evaluate PE, IMW, and FIFO for progress toward goals and 2016 conditions
- Provide recommendations to the SRFB regarding the Monitoring Program
- Update reporting requirements and review process



Questions?



GSRO Staff Recommendations

Intensively Monitored Watersheds (IMWs):

- Move to approve \$1,456,000 in allocated funding from 2016 PCSRF for Intensively Monitored Watersheds for the 2017 field season.

Project Effectiveness Monitoring:

- Move to approve \$245,000 (estimate) in allocated funding from 2016 PCSRF for Reach-Scale Project Effectiveness Monitoring during the 2017 field season. The final amount will be determined through the RCO Request for Proposal process.



GSRO Staff Recommendations

Status and Trends Monitoring (Fish In/Fish Out)

- Move to approve \$208,000 in allocated funding from 2016 PCSRF for Status and Trends Monitoring during the 2017 field season.

Monitoring Panel contract extensions

- Move to approve \$100,000 in allocated funding from 2016 PCSRF to support the monitoring panel through September 30, 2017.



Hood Canal Salmon Recovery Overview

Hood Canal Coordinating Council



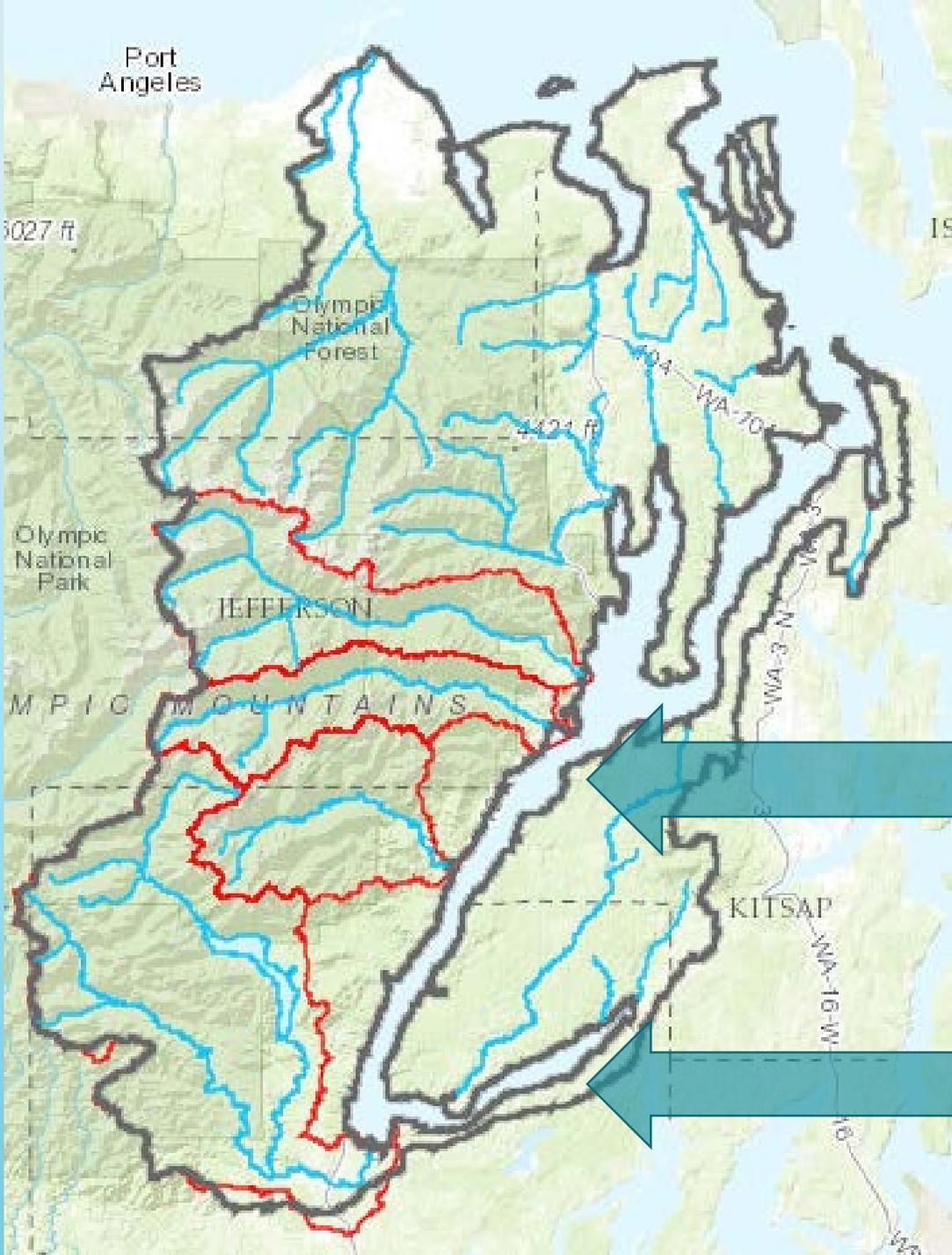


What is important to
salmon recovery in
Hood Canal?



Where are the fish
in Hood Canal?

Many drainages



ESA Listed *Chinook* Recovery Plans Implementation in Hood Canal

Mid-Hood Canal Chinook

- Dosewallips River
- Duckabush River
- Hamma Hamma River

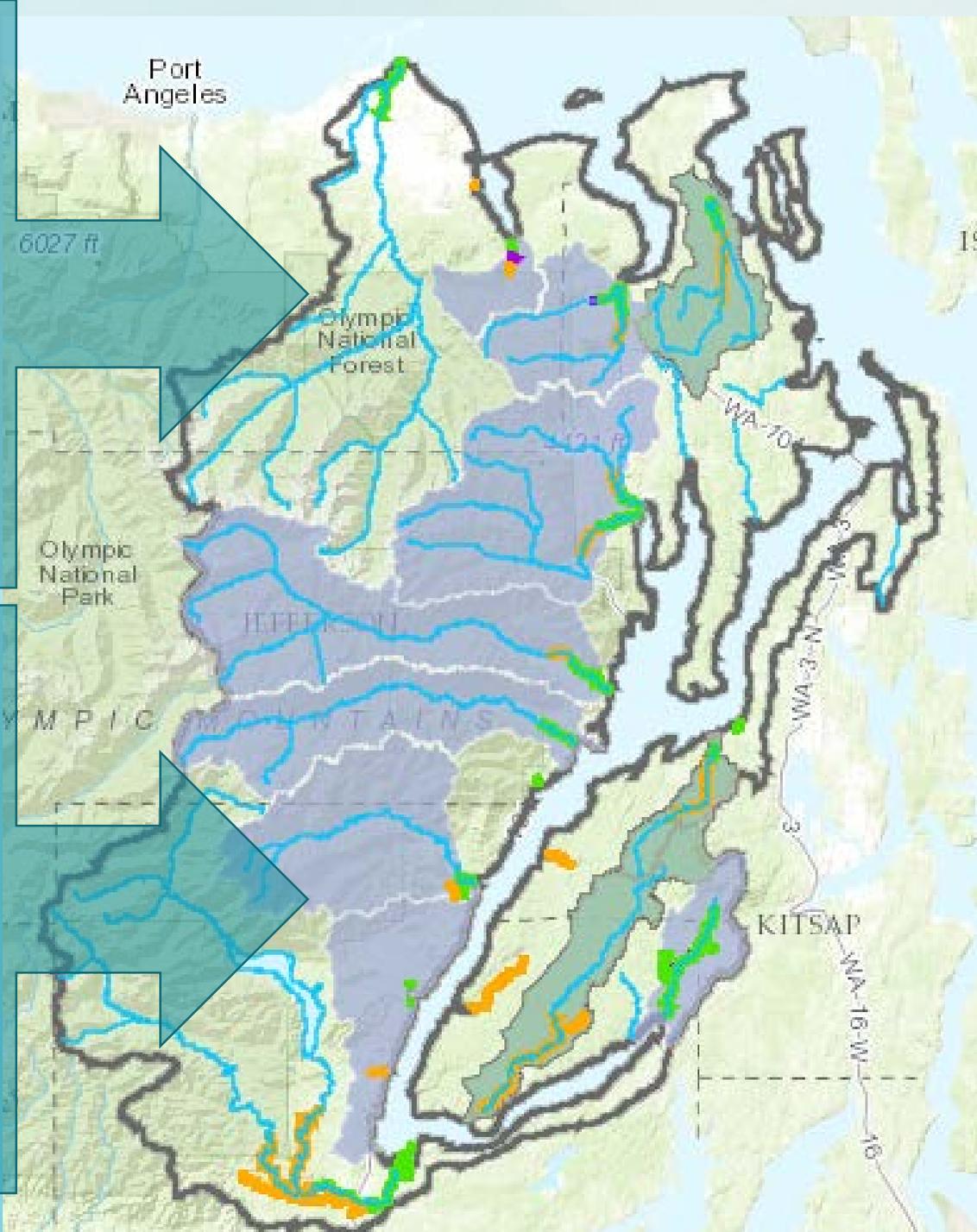
Skokomish River Chinook

Eastern Strait of Juan de Fuca Population

- Jimmycomelately Creek
- Salmon Creek
- Snow Creek
- Chimacum Creek

Hood Canal Population

- Union River
- Tahuya River
- Big Beef Creek
- Little Quilcene River
- Big Quilcene River
- Dosewallips River
- Duckabush River
- Hamma Hamma River
- Lilliwaup Creek



ESA Listed *Summer Chum* Recovery Plan Implementation

Summer_Chum_StatusV2 - Summer Chum (WDFW PHS)

- Presence - Documented
- Presence - Documented Historic
- Presence - Presumed

Summer_Chum_StatusV2 - Summer Chum - Watersheds

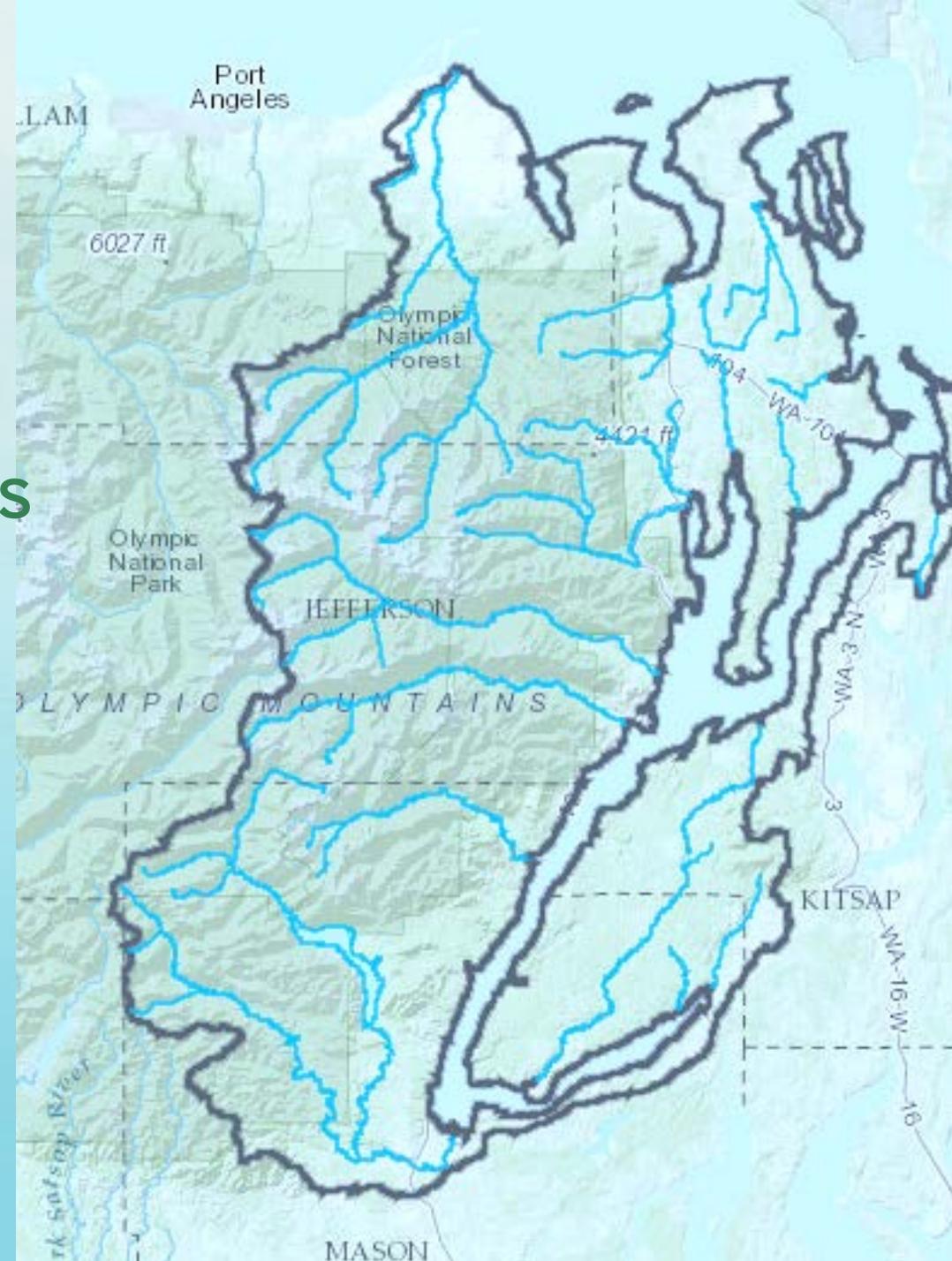
- Present
- Re-introduced

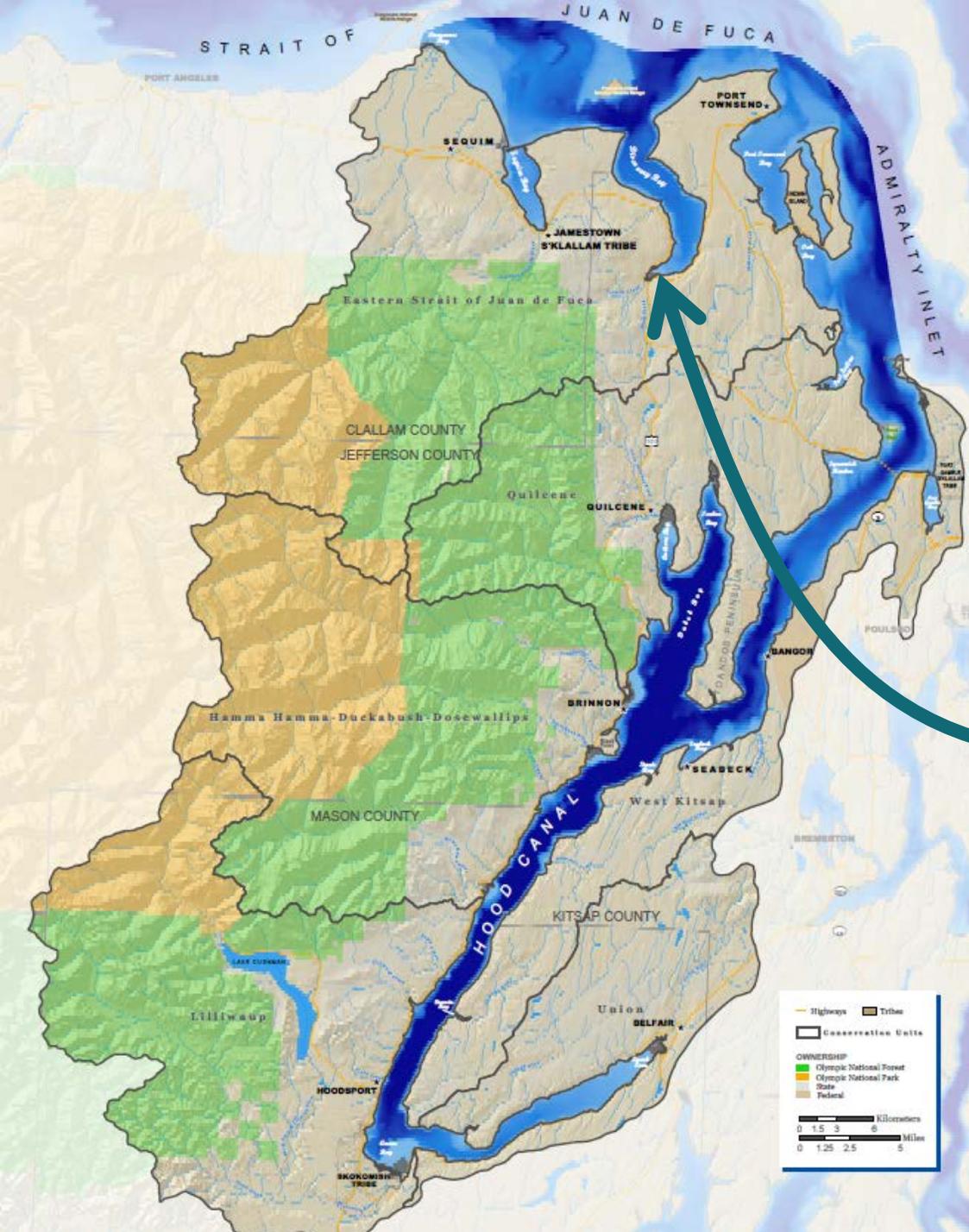
Keystone Actions

What are the highest priority actions needed for salmon recovery in the Hood Canal region?

or

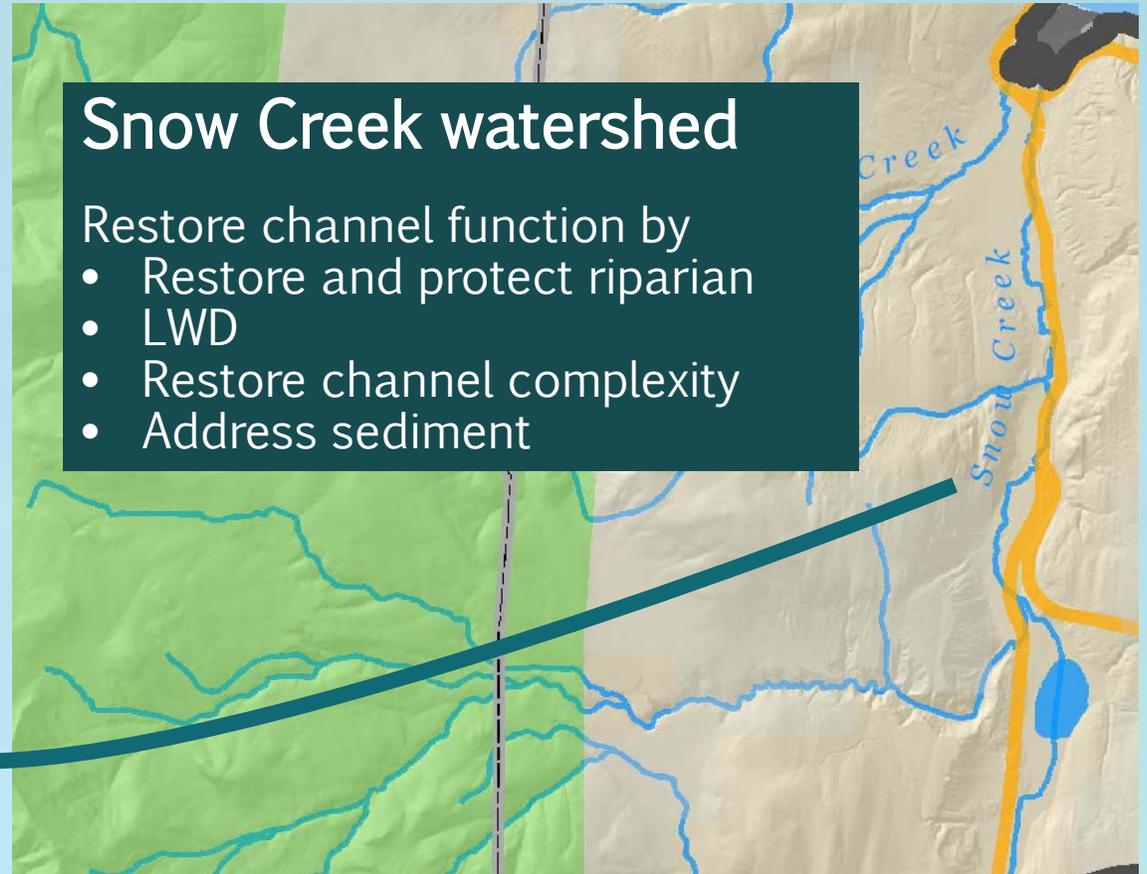
where we can make **significant headway** where it needs to be made.

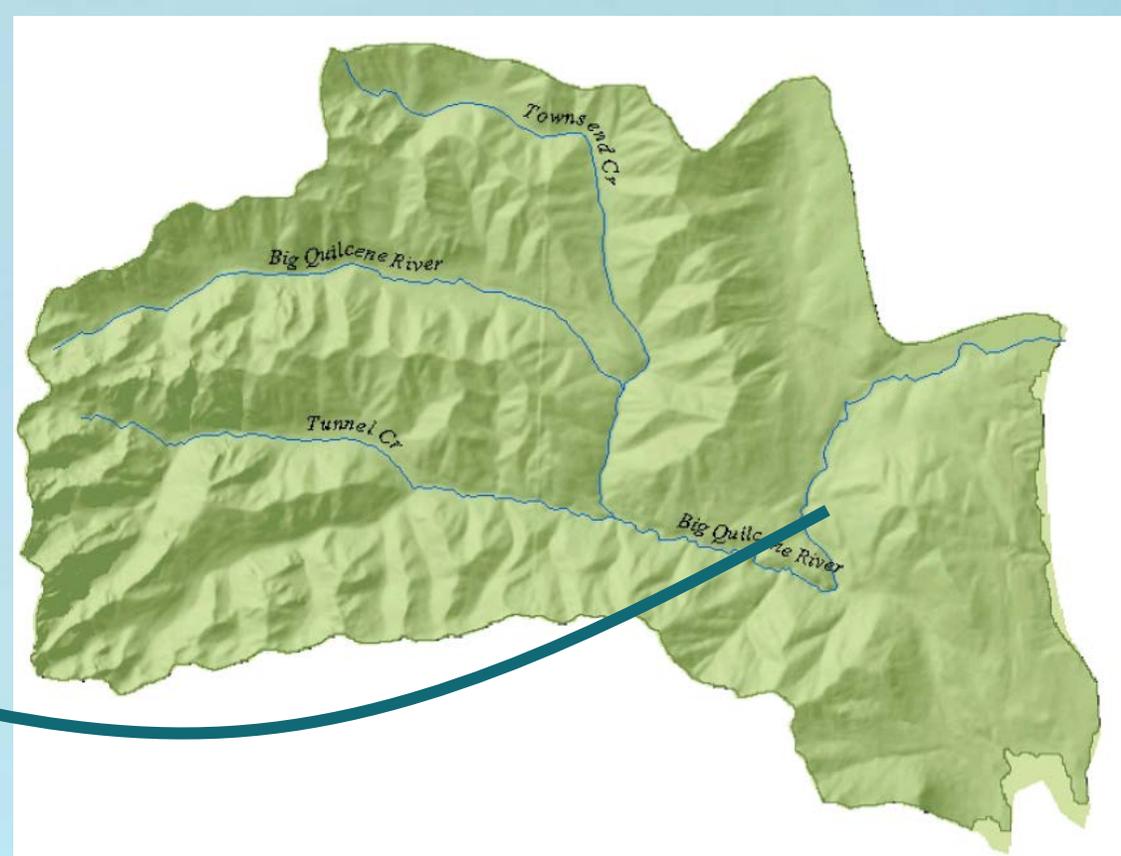
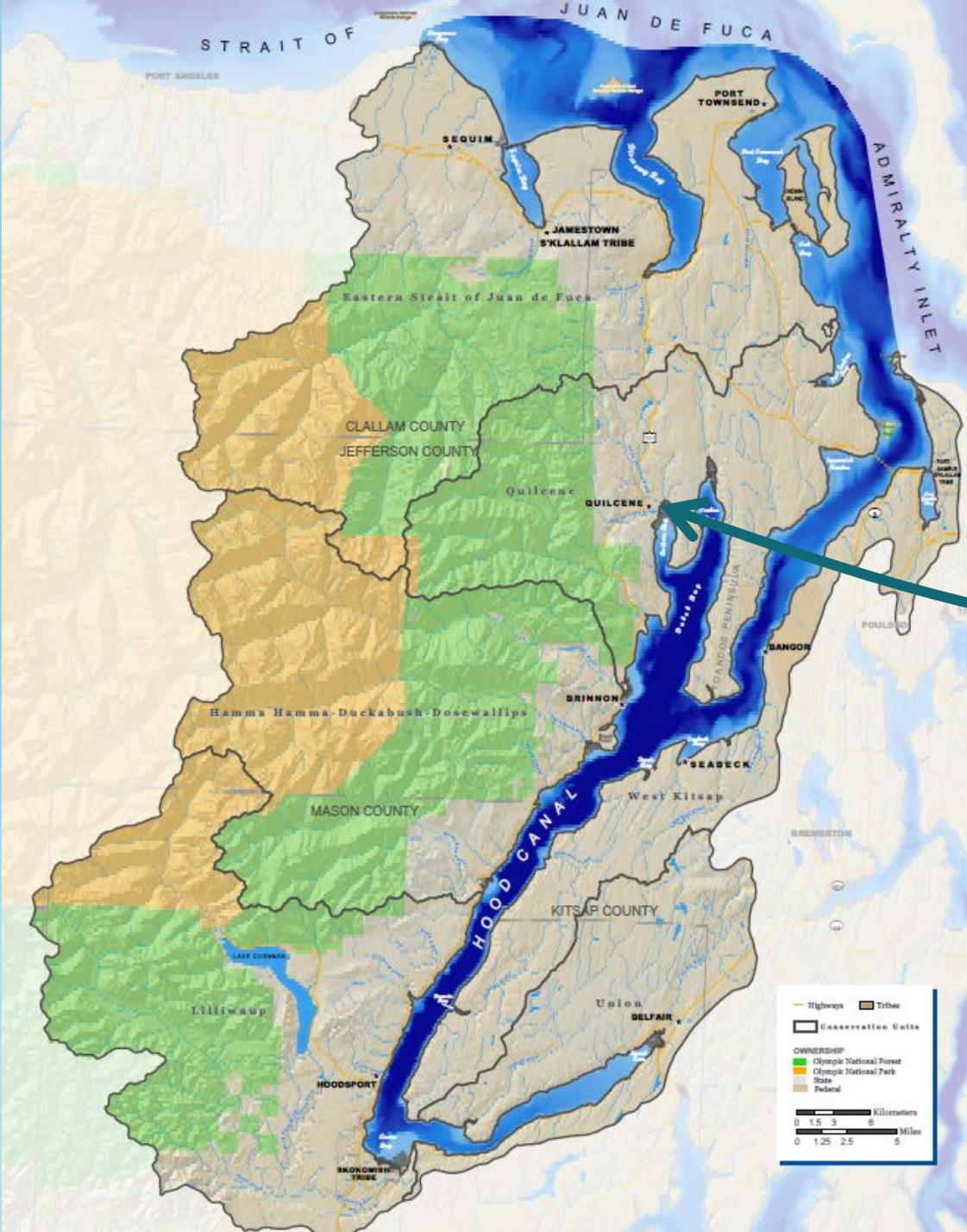




Snow Creek watershed

- Restore channel function by
- Restore and protect riparian
 - LWD
 - Restore channel complexity
 - Address sediment



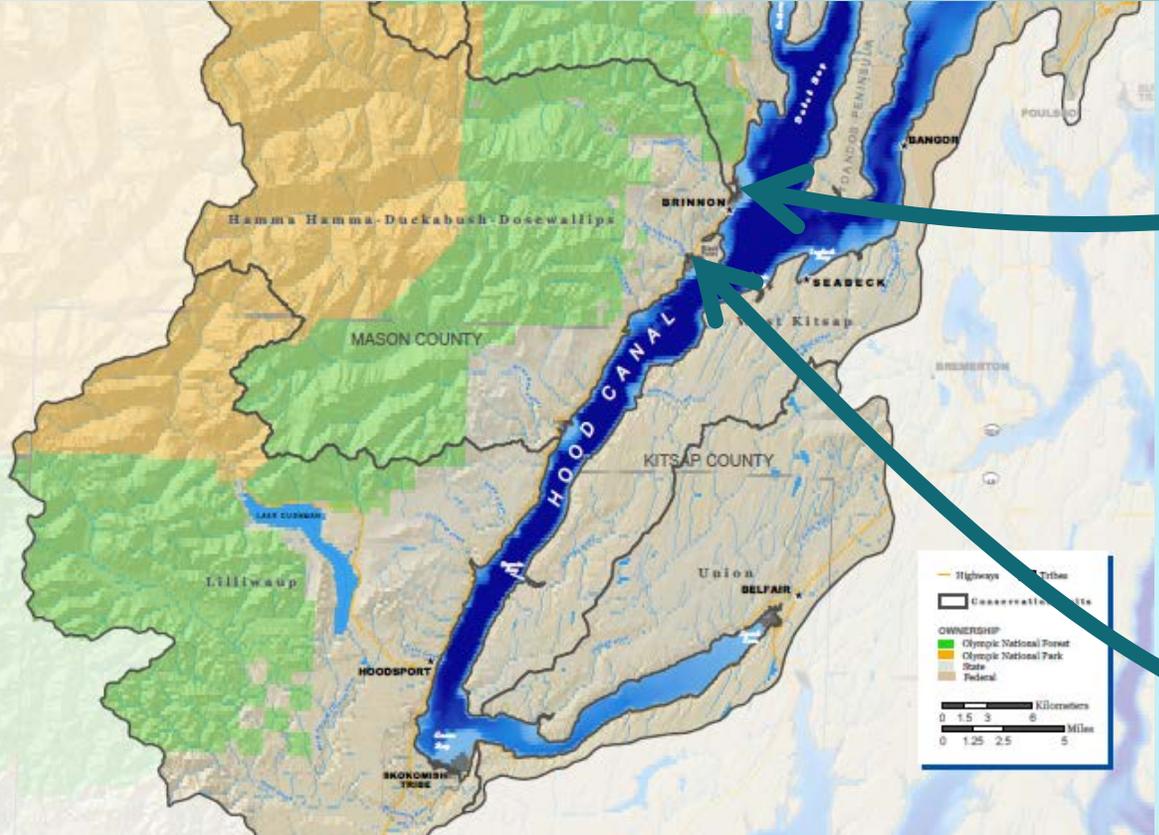


Lower Big Quilcene River

- Restore channel pattern
- Reconnect the floodplain
- Restore channel migration zone function

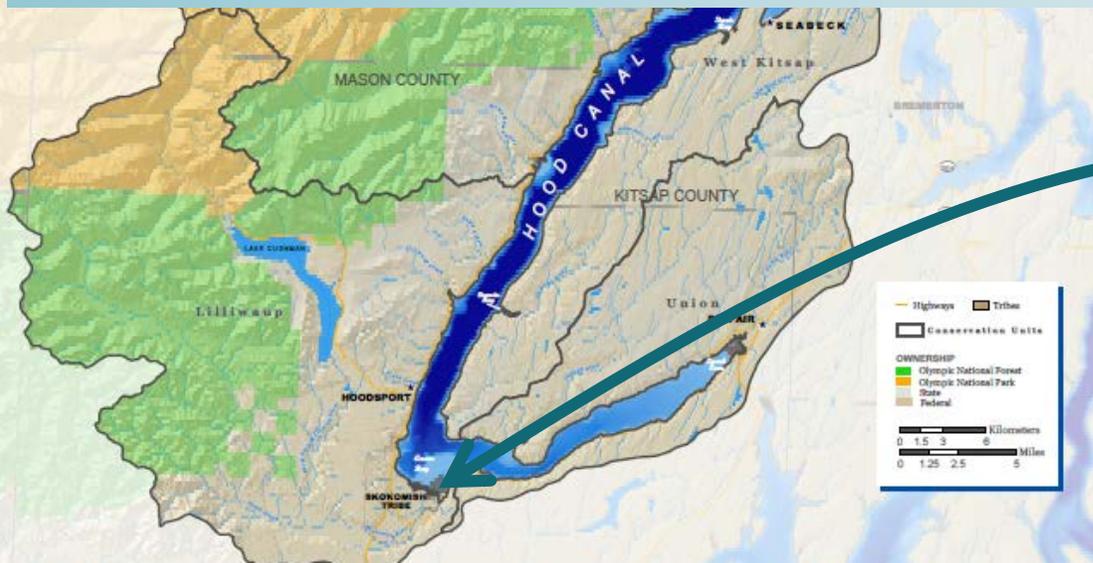
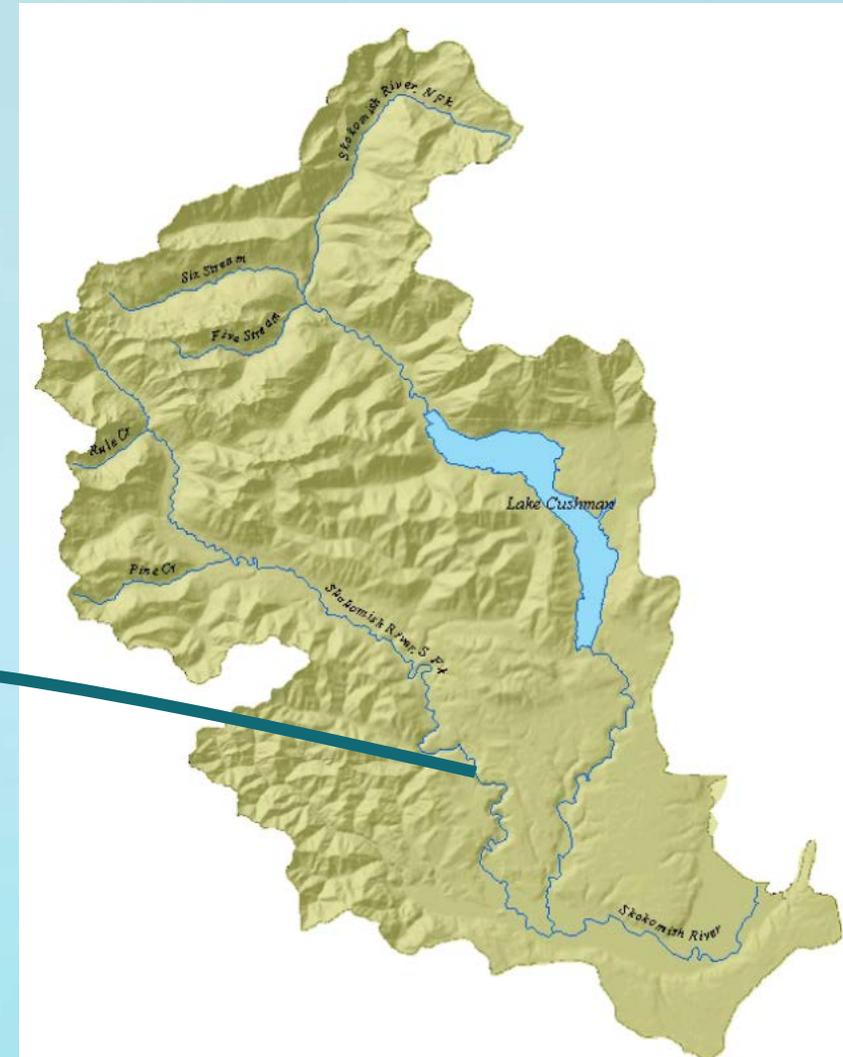
Restore channel and estuary function to the Duckabush and Dosewallips Rivers

- Improve floodplain connectivity
- Address shoreline armoring
- Restore the riparian corridor
- Address the 101 causeway infrastructure at the Duckabush River



- Sediment stabilization actions using LWD on the terraces along the Upper South Fork, slowing sediment movement to the lower river.
- Vance Creek: LWD, armored banks, riparian, remove impediments to meander, avulsion, & channel connectivity, restore channel complexity and sediment processes.
- Restore lower floodplains, channel migration zone, large wood and address sediment deposits. Support of the USACE restoration.

Skokomish River



Other Keystone Actions

- Assessment on summer chum habitat in the Tahuya River
- Nearshore synthesis: Juvenile salmonids use of the estuarine and nearshore areas of Hood Canal and the eastern SJDF
- Nearshore Habitat Prioritization
- Assess how the Hood Canal Bridge is negatively impacting ESA-listed juvenile steelhead and salmon survival and the overall health of the Hood Canal ecosystem

SRFB Site Visits

Sept. 15th Union River

Sept. 16th Skokomish River

Skokomish River Estuary





Skokomish River
Car Body Removal
and Riparian
Planting

Skokomish Valley





Union River Estuary

