

Downstream Barrier Identification Tool

Pilot Tool - NEP Funded

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Acknowledgements

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Habitat App Developer

Josh Greenberg

Dept of Ecology's NHD Data
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Manager

Rachel Bouchillon

Habitat IT Data
Management

Fish Passage Inventory &
Assessment



Habitat Strategic Initiative Lead (HSIL)

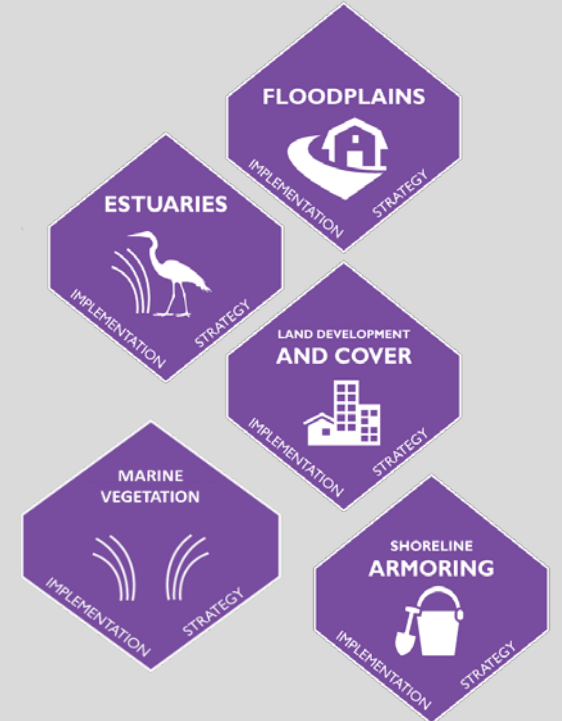
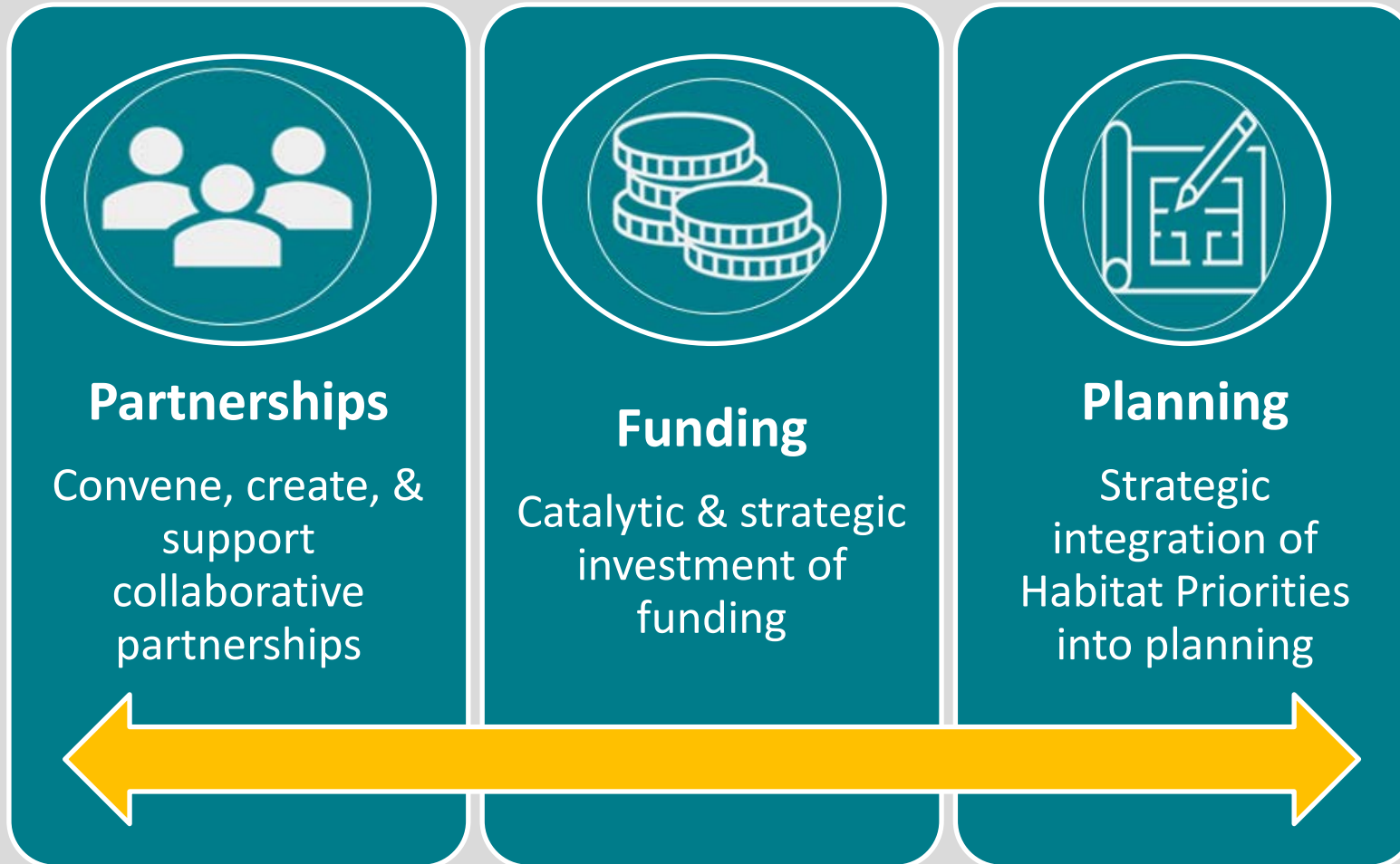
- State agency team at WDFW and DNR funded through EPA Cooperative Agreements under the National Estuary Program
- Mission is to enable and accelerate habitat protection and restoration through Implementation Strategy Programs for
 - Floodplains and Estuaries
 - Land Development and Cover
 - Marine Vegetation
 - Shoreline Armoring



Washington Department of
FISH and WILDLIFE



Habitat SIL in action



National Hydrography Dataset Update & Fish Barrier Prioritization (NTA 2018-0436)

- Project selected by the HSIL Advisory Team due to its important role in advancing the Chinook Vital Sign
- Contributes directly to recovery planning efforts by improving the tools and datasets that hinge on accurate stream locations



PUGET SOUND

National Estuary Program

Thank you!

Contacts for More Information:

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- **Habitat SI Grant Program**, nep.grants@dfw.wa.gov, pugetsoundestuary.wa.gov

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Tool Concept Development

- Overwhelming # of sites to prioritize → what additional tools would facilitate project ID?
- Goal was to create a tool that would:
 - Inform & visually educate – how many d/s barriers exist & understanding correction coordination
 - Support project identification and prioritization
 - Assist with application completion and data gathering.
- Needed WA's stream mapping (NHD) to be more accurate:
 - Corrected 3,000 miles of stream locations in the Puget Sound



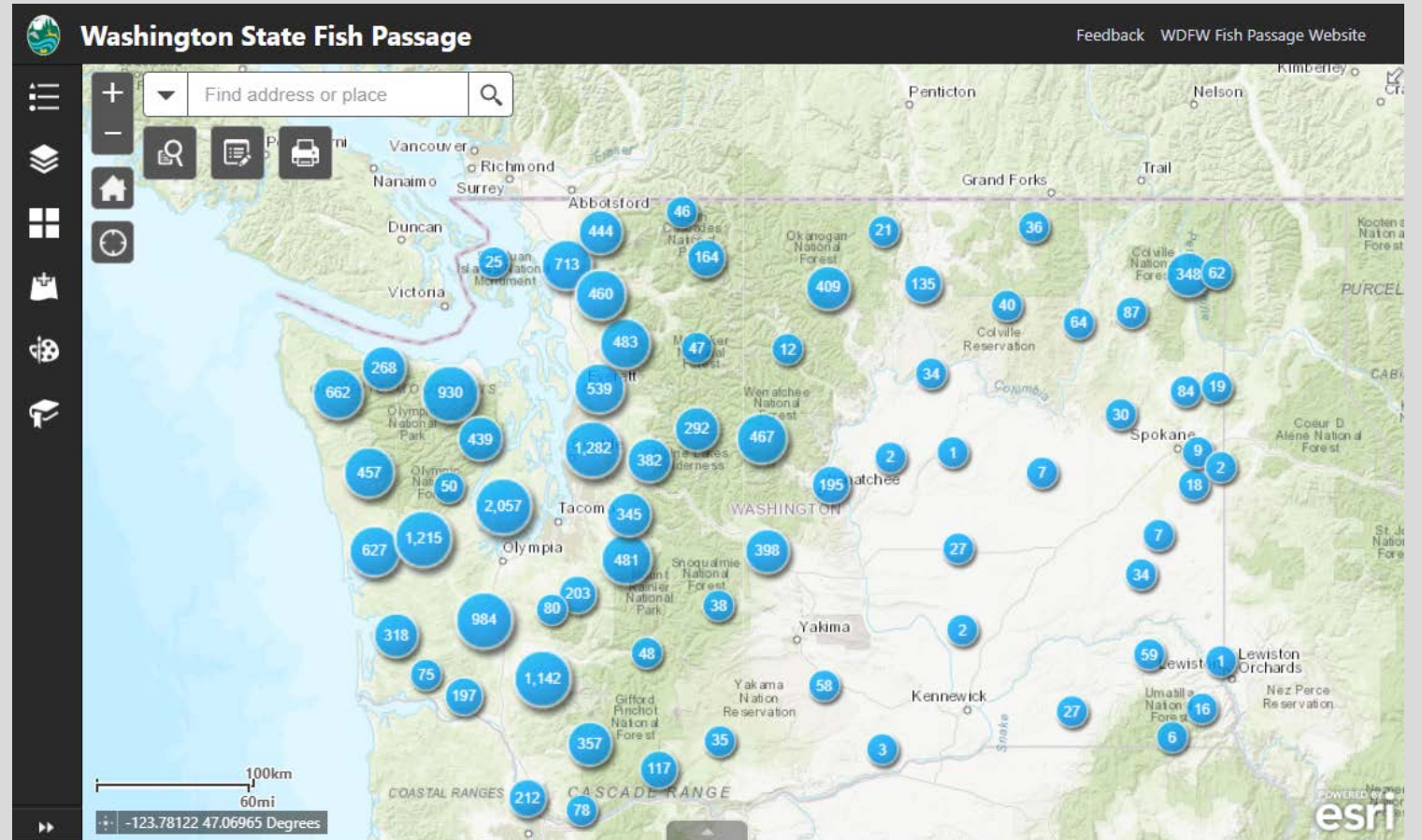
New **Pilot** Downstream Barrier Tool

- Funded for Puget Sound only (WRIAs 1-19), at this time.
- Click on site in Fish Passage Map App – display # of barriers located d/s
- Supports planning and prioritization:
 - It's a starting point, provides focus among high # of barriers on landscape
 - Layer with other tools & analyses, assists prioritization & decision-making
- Provides info for FBRB applications & info gathering



Fish Passage Web Application

- Barrier database
- Publicly available
- Updated weekly
- Identify Projects
- Compare relative benefit

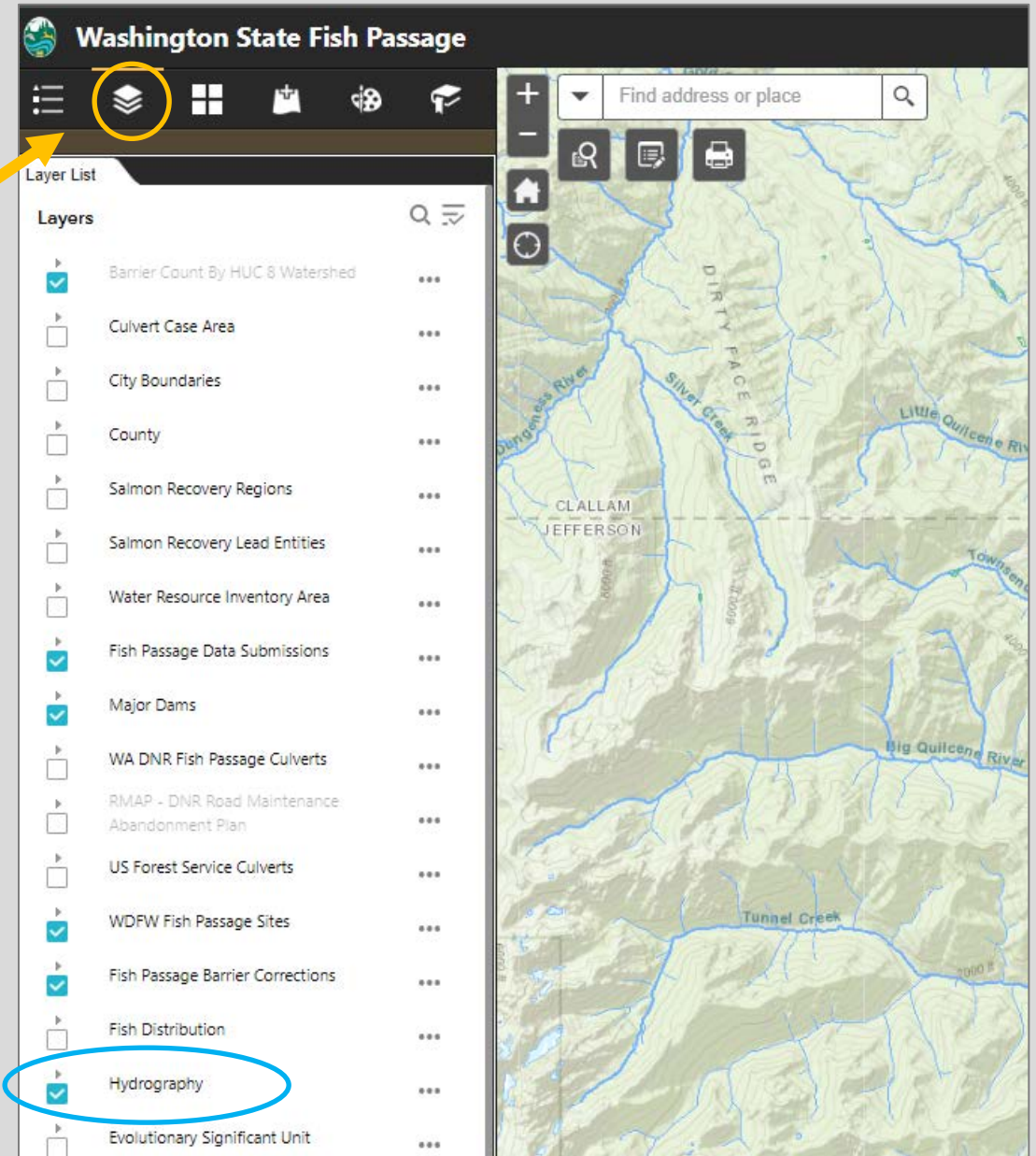


geodataservices.wdfw.wa.gov/hp/fishpassage



Downstream Barrier Tool

- Built using the National Hydrographic Dataset (NHD).
- In web app layer list the “Hydrology” layer must be turned on (see figure)
- As the accuracy of the stream layer improves, so will accuracy of data returned



Downstream Barrier Tool

- Navigate to area you want to explore or barriers of interest
- Click on a fish passage barrier or site
- “Find Downstream Barriers” tool link
- Note: If you searched for the site, the tool link will only show if symbol is clicked again

Washington State Fish Passage

994318

Show search results for 994318

Layer List

Layers

- Barrier Count By HUC & Watershed
- Culvert Case Area
- City Boundaries
- County
- Salmon Recovery Regions
- Salmon Recovery Lead Entities
- Water Resource Inventory Area
- Fish Passage Data Submissions
- Major Dams
- WA DNR Fish Passage Culverts
- RMAP - DNR Road Maintenance Abandonment Plan
- US Forest Service Culverts
- WDFW Fish Passage Sites
- Fish Passage Barrier Corrections
- Fish Distribution
- Hydrography

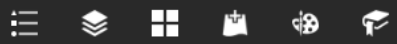
(2 of 3)

Site Id: 994318

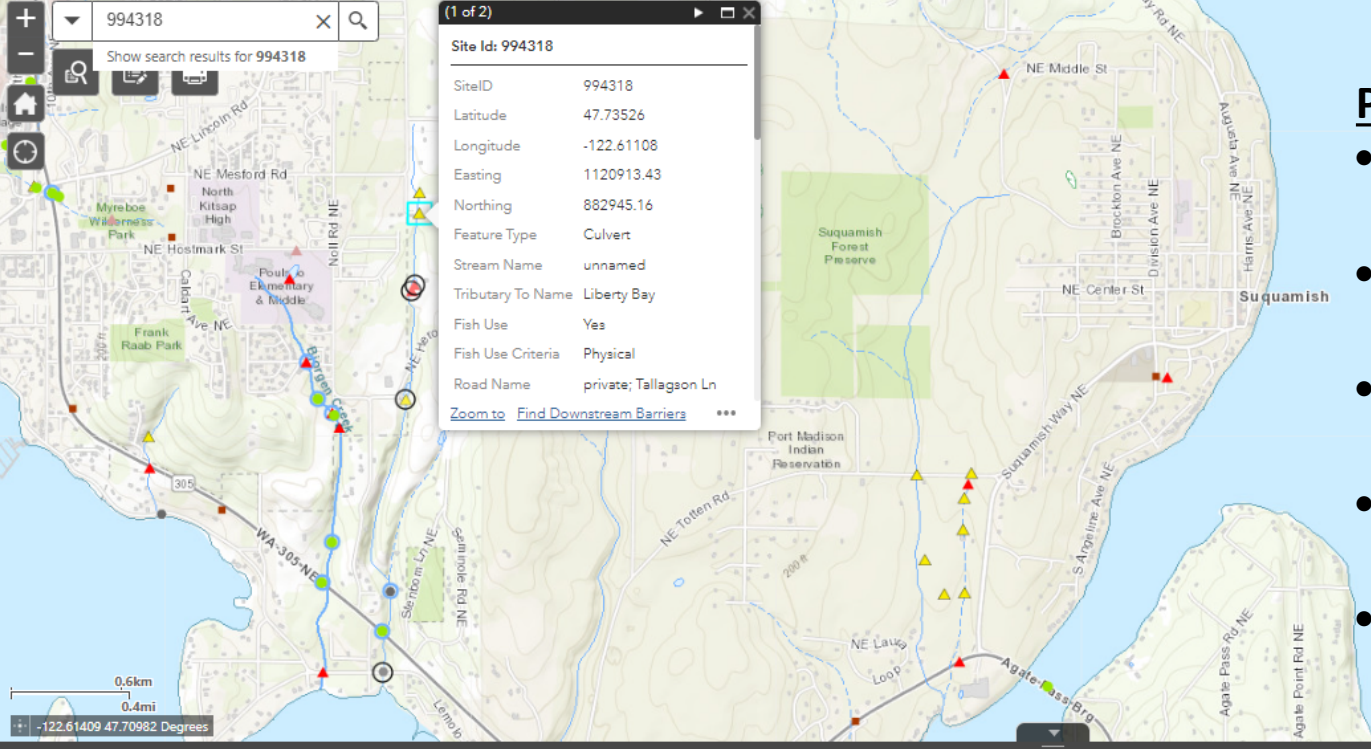
SiteID	994318
Latitude	47.73526
Longitude	-122.61108
Easting	1120913.43
Northing	882945.16
Feature Type	Culvert
Stream Name	unnamed
Tributary To Name	Liberty Bay
Fish Use	Yes
Fish Use Criteria	Physical
Road Name	private; Tallagson Ln

Zoom to [Find Downstream Barriers](#)





- Layer List
- Layers
- 994318 Downstream Barriers
 - Barrier Count by HUC 8 Watershed
 - Culvert Case Area
 - City Boundaries
 - County
 - Salmon Recovery Regions
 - Salmon Recovery Lead Entities
 - Water Resource Inventory Area
 - Fish Passage Data Submissions
 - Major Dams
 - WA DNR Fish Passage Culverts
 - RMAP - DNR Road Maintenance Abandonment Plan
 - US Forest Service Culverts
 - WDFW Fish Passage Sites
 - Fish Passage Barrier Corrections
 - Fish Distribution
 - Hydrography
 - Evolutionary Significant Unit
 - Washington HUC Watershed
 - Township Section



Pilot Tool Symbology

- Black circle @ barrier and unknown barrier status sites
- Corrected, passable, non-fish bearing sites not included
- Visually supports ID of downstream flowpath
- Clear which sites are included in list
- Supports quality control of list

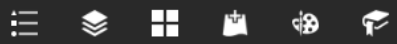
994318 Downstream Barriers

Options Filter by map extent Zoom to Clear selection Refresh

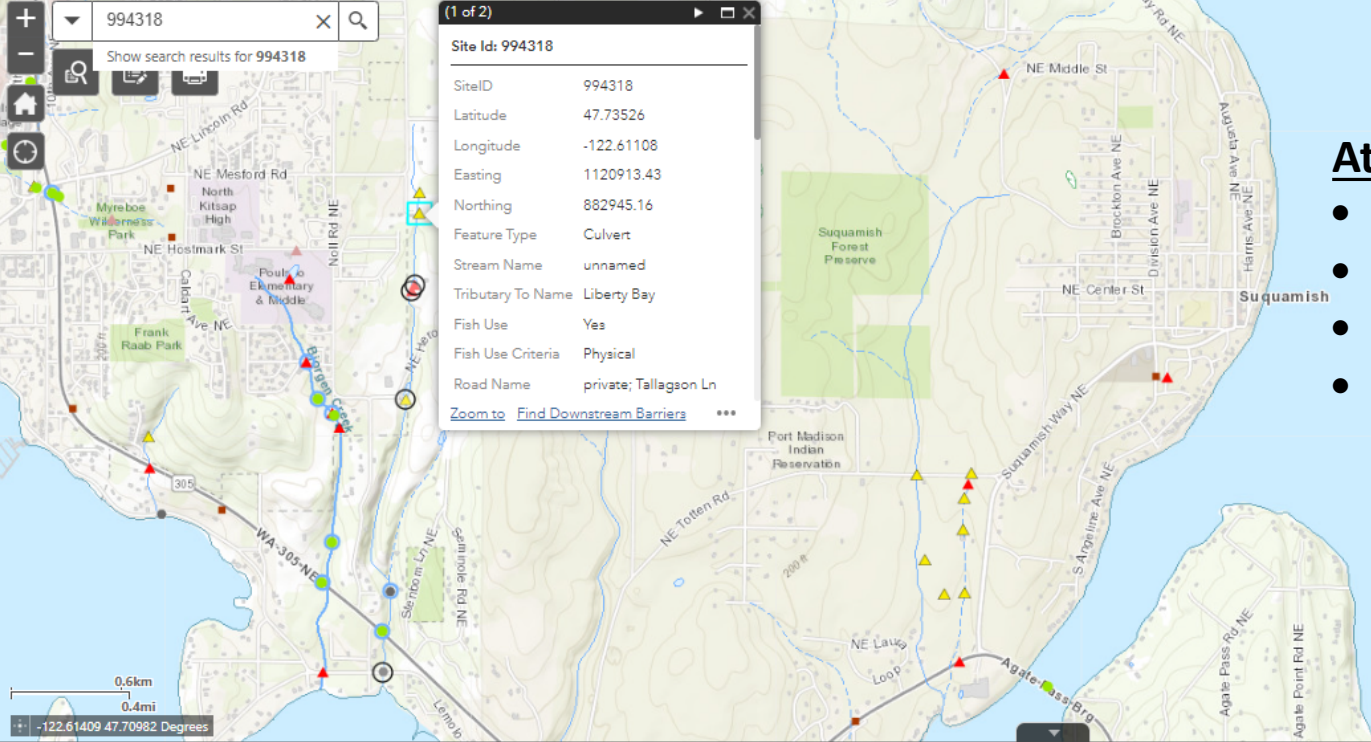
SiteID	Feature Type	Stream Name	Tributary To Name	Fish Use	Fish Use Criteria	Fish Passage Barrier ?	Barrier Reason	Percent Passable	SurveyDate	Report Link	Owner Type	Potential Species	Data Source
15.0291.002	Culvert	unnamed	Liberty Bay	Yes	Biological	Unknown	Insufficient Data	Unknown	07/24/1997	http://apps.wdfw.wa.g	County	Chum, Coho, SR Cutthroat, Resident Trout	Washington Department of Fish and Wildlife
994315	Culvert	unnamed	Liberty Bay	Yes	Biological	Yes	WS Drop	33	07/24/1997	http://apps.wdfw.wa.g	Private	Coho, SR Cutthroat, Resident Trout	Washington Department of Fish and Wildlife
994316	Dam	unnamed	Liberty Bay	Yes	Physical	Yes	WS Drop	0	07/24/1997	http://apps.wdfw.wa.g	Private	Coho, SR Cutthroat, Resident Trout	Washington Department of Fish and Wildlife
994317	Dam	unnamed	Liberty Bay	Yes	Physical	Yes	WS Drop	0	07/24/1997	http://apps.wdfw.wa.g	Private	Coho, SR Cutthroat	Washington

4 features 0 selected





- Layer List
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 - Fish Distribution
 - Hydrography
 - Evolutionary Significant Unit
 - Washington HUC Watershed
 - Township Section



Attribute Table:

- Barrier & Unknown barrier status
- All feature types
- Export the table as .csv
- Stream name and trib to, allows for quick QC
 - Sometimes sites on tributaries will be picked up as a downstream site due to buffer search widths

994318 Downstream Barriers

Options Filter by map extent Zoom to Clear selection Refresh

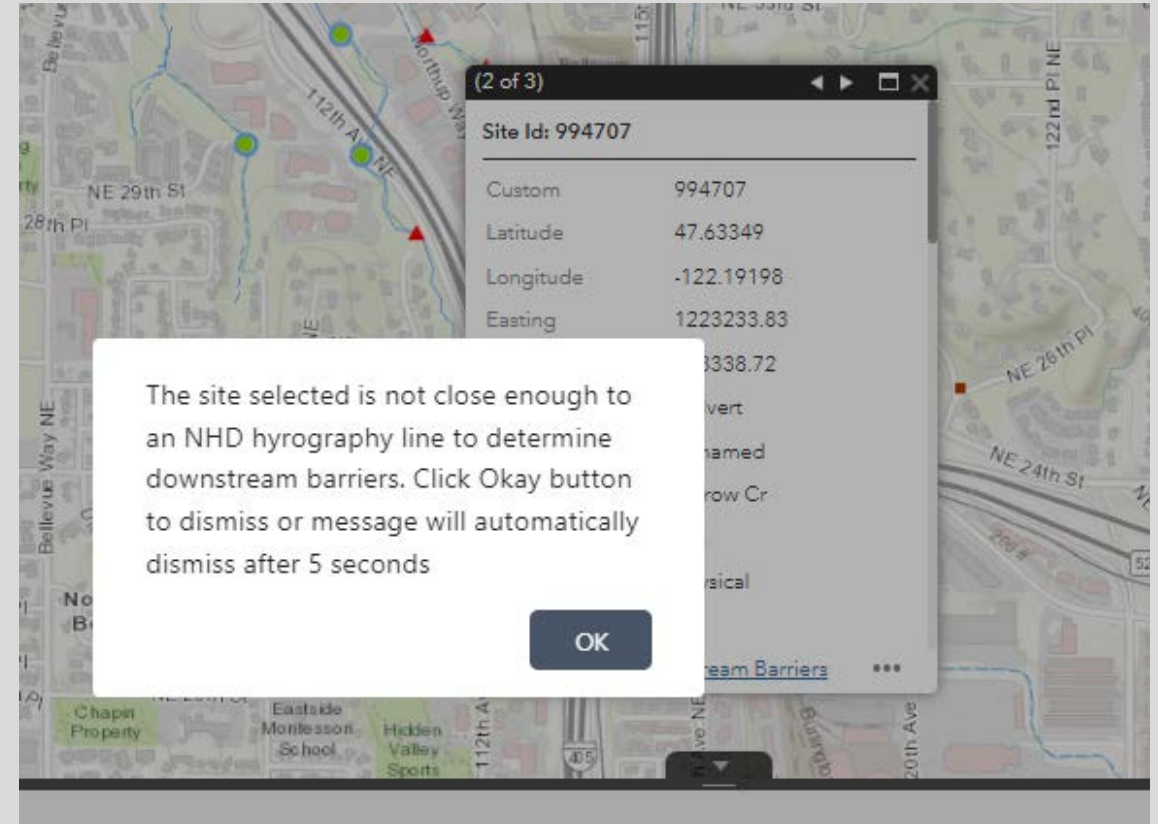
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994315	Culvert	unnamed	Liberty Bay	Yes	Biological	Yes	WS Drop	33	07/24/1997	http://apps.wdfw.wa.gov	Private	Coho, SR Cutthroat, Resident Trout	Washington Department of Fish and Wildlife
994316	Dam	unnamed	Liberty Bay	Yes	Physical	Yes	WS Drop	0	07/24/1997	http://apps.wdfw.wa.gov	Private	Coho, SR Cutthroat, Resident Trout	Washington Department of Fish and Wildlife
994317	Dam	unnamed	Liberty Bay	Yes	Physical	Yes	WS Drop	0	07/24/1997	http://apps.wdfw.wa.gov	Private	Coho, SR Cutthroat	Washington

4 features (0) selected



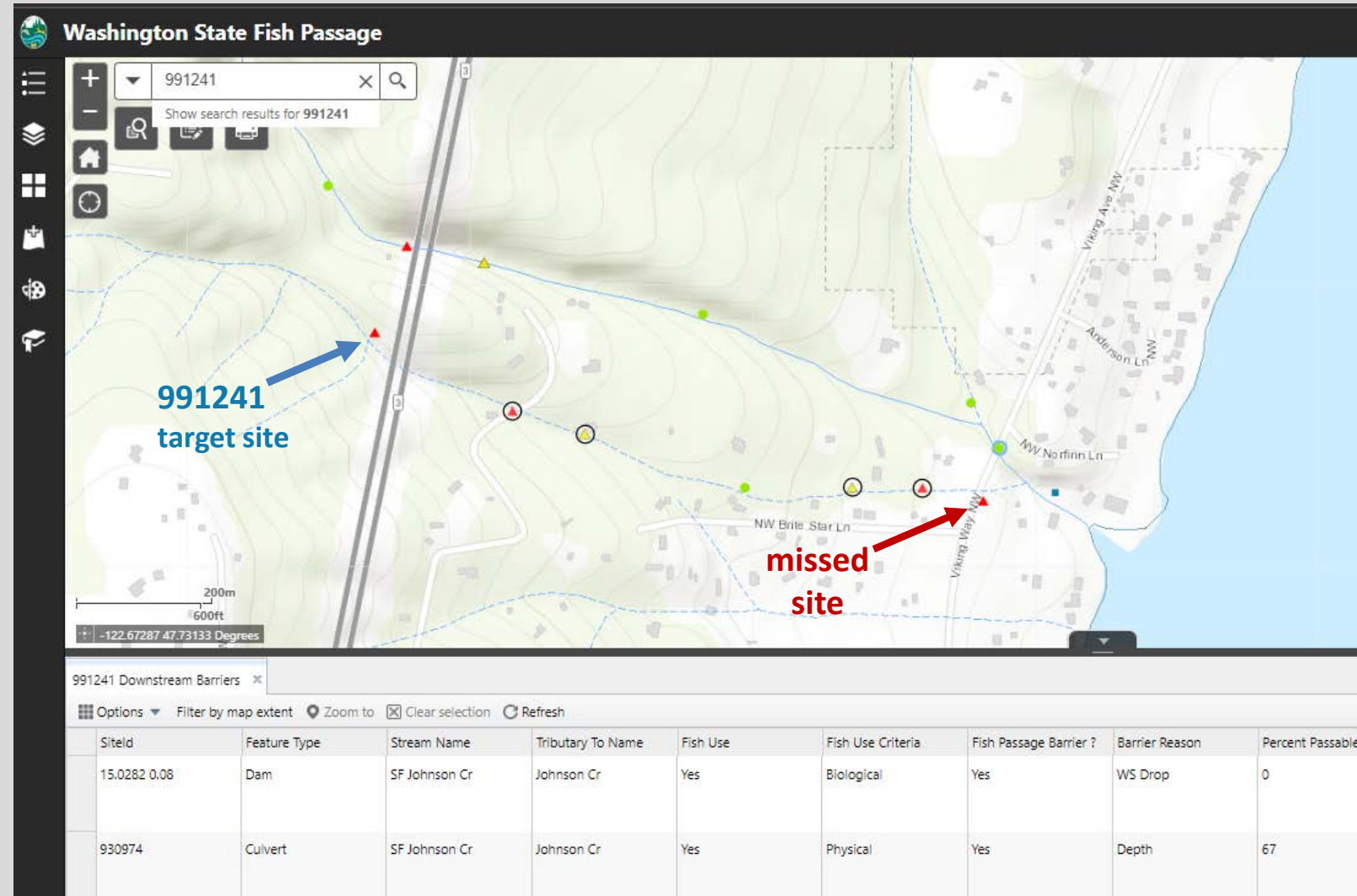
Quality Control (QC) of Results is Required

- If fish passage site isn't close enough to the NHD stream line
- As stream locations improve, tool will improve.
- Depending on geographic location, fish passage sites are typically more informative of stream locations.



Quality Control (QC) of Results is Required

- Tool identifies sites with black circle (those in attribute table).
- Easy to see if any sites were missed.
- Another check "Stream Name" and "Trib To" in attribute table: decipher d/s sites from tribs or other systems



Quality Control (QC) of Results is Required

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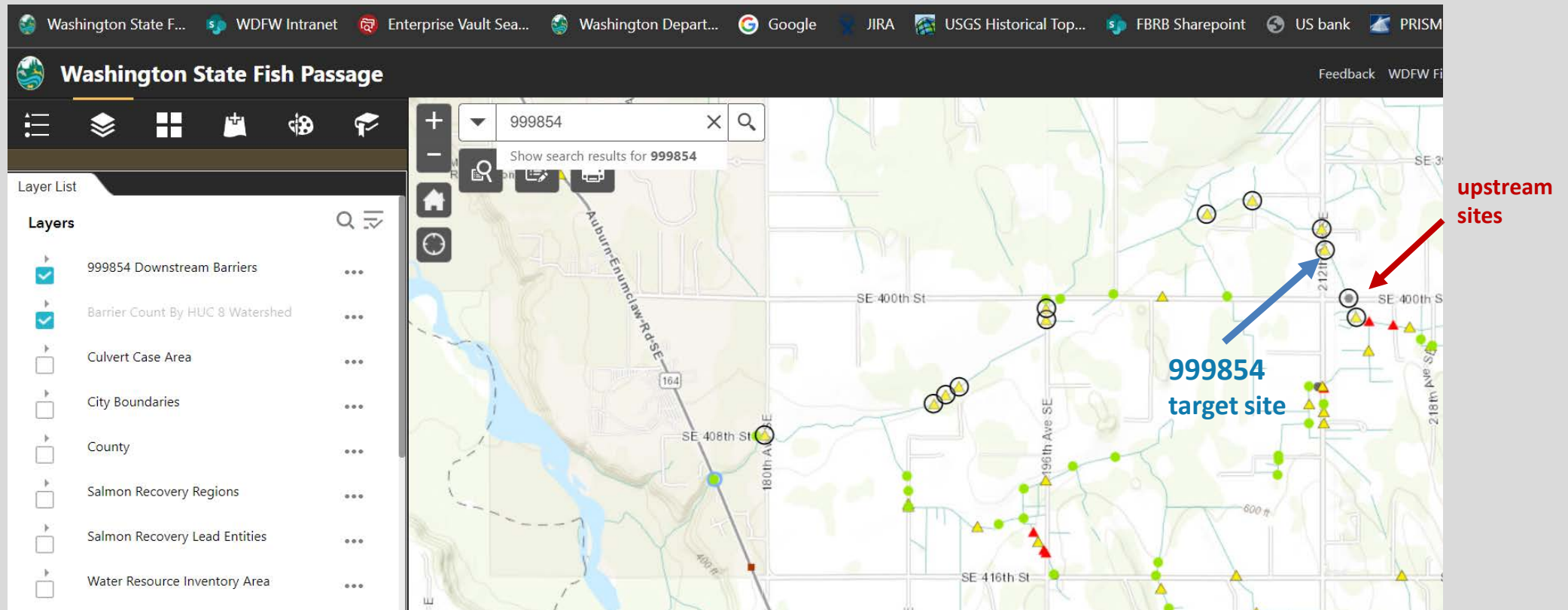
The screenshot displays a GIS interface with a map of a stream network. A search bar at the top left contains the text '991241'. A blue arrow points to a red triangle on the map labeled '991241 target site'. A pop-up window on the right shows details for 'Site Id: 15.0282 0.01', with 'Stream Name: SF Johnson Cr' and 'Tributary To: Johnson Cr' circled in red. Below the map is a table titled '991241 Downstream Barriers' with columns for SiteId, Feature Type, Stream Name, Tributary To Name, Fish Use, Fish Use Criteria, Fish Passage Barrier?, Barrier Reason, Percent Passable, and SurveyDate. The first row of data has 'SF Johnson Cr' and 'Johnson Cr' circled in red.

SiteId	Feature Type	Stream Name	Tributary To Name	Fish Use	Fish Use Criteria	Fish Passage Barrier ?	Barrier Reason	Percent Passable	SurveyDate
15.0282 0.08	Dam	SF Johnson Cr	Johnson Cr	Yes	Biological	Yes	WS Drop	0	02/09/2010
930974	Culvert	SF Johnson Cr	Johnson Cr	Yes	Physical	Yes	Depth	67	02/09/2010



Quality Control (QC) of Results is Required

- If NHD flow lines are incorrect, you may have upstream sites on your downstream list. Again, tool symbology supports QC



Quality Control (QC) of Results is Required

- Can look up multiple sites.
- Be sure looking at correct attribute table.
- Can also open attribute table from layer list.
- Attribute table can be exported as .csv

Washington State Fish Passage

Layer List

Layers

- 340709 Downstream Barriers
- 600317 Downstream Barriers
- Barrier Count
- Culvert Case
- City Boundary
- County
- Salmon Record
- Salmon Record
- Water Resource Inventory Area
- Fish Passage Data Submissions
- Major Dams
- WA DNR Fish Passage Culverts
- RMAP - DNR Road Maintenance Abandonment Plan

Map: 340709, Show search results for 340709

Attribute Table:

Siteld	Feature Type	Stream Name	Tributary To Name	Fish Use	Fish Use Criteria	Fish Passage Barrier ?
340709	Culvert	Woodland Cr	Henderson Inlet	Yes	Biological	Yes



Downstream Barrier Tool - Reminders

- It's a Pilot – limited, short-term funding to explore this tool.
- To improve or expand, funding and dedicated support required.
- Hot of the Presses- we are still working to understand and characterize when and why the tool does not perform as expected.
- Not perfectly effective everywhere all the time, but still can be informative.
- ***Complete and up to date barrier inventory and correct stream lines/locations will improve the tool.



Quick Live Tool Demonstration

WDFW Fish Passage Web app – public access to barrier database

<https://geodataservices.wdfw.wa.gov/hp/fishpassage/index.html>

User Manual Coming Soon!



Fish Passage Inventory & Assessment Team

Support confirming downstream barriers list

Kaylee Kautz – Crew Supervisor (current action Section Manager)

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Questions or Comments?

**This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement PC-01J22301 through the Washington Department of Fish and Wildlife. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency or the Washington Department of Fish and Wildlife, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.*



Brian Abbott Fish Barrier Removal Board

Draft Reference Table of Upcoming Federal Funding Opportunities

Funding Opportunity/ Grant Program:	USDOT’s Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) program	USDOT’s National Culvert Removal, Replacement, and Restoration Grants (Culvert AOP Program)	NOAA’s Restoring Fish Passage through Barrier Removal grant program
Informational Resource Links (Hyperlinked)	<ul style="list-style-type: none"> Federal Highway Administration Announcement USDOT’s PROTECT Program Fact Sheet WA Joint Transportation Committee’s 2022 Memo 	<ul style="list-style-type: none"> Culvert AOP Program Overview USDOT’s Culvert AOP Program Fact Sheet Grant.gov 2023 Application Portal 	<ul style="list-style-type: none"> NOAA’s 2022 Announcement Grants.gov 2022 Application Portal
Fiscal Sponsor	WSDOT Local Programs	WSDOT Local Programs	
Applicable Region	Washington State	National	National
Funding Cycle	<ul style="list-style-type: none"> One time for 2023 One time for FFYs 24-26 	Annually on a 5-year cycle	Annually on a 5-year cycle
Funds Available	<p>Total funds allocated for WA cities and counties: \$75m over four years.</p> <ul style="list-style-type: none"> \$25m available for 2023 <ul style="list-style-type: none"> Funds unallocated in 2023 will no longer be available for cities and counties. Instead, it will be sent to WSDOT for culvert case injunction corrections. \$50m for FFYs 24-26 <ul style="list-style-type: none"> Anticipated RFP to be released in spring 2023. <p>Total additional funds allocated to tribal resiliency projects: \$25m for FFYs 23-26</p>	<p>Total Annual Funds:</p> <ul style="list-style-type: none"> \$200m per fiscal year <ul style="list-style-type: none"> \$800m from additional congressional appropriations. No additional funds were appropriated in 2022. 	<p>Total Funds:</p> <ul style="list-style-type: none"> \$65m in 2022 \$12m of additional funds for Indian Tribes in 2022 <p>Future years anticipated to have similar funding levels.</p>

<p>Upcoming Deadlines</p>	<ul style="list-style-type: none"> • Eligible sponsors on FBRB 2023-2025 ranked project list who are interested in 2023 funds must submit a brief email proposal to FBRB Chair Thomas Jameson by Dec. 1, 2022. • 2023 funds must be obligated by Sept. 15, 2023. • Timeline for FFYs 24-26 likely to be the same: Sept. 15, 2024. 	<ul style="list-style-type: none"> • 2023 applications due on Feb. 6, 2023. 	<ul style="list-style-type: none"> • 2022 applications were due Aug. 15, 2022. • Subsequent years may follow the same timeline as 2022. <ul style="list-style-type: none"> ○ RFP posted Jun. 14, 2022 ○ Applications due Aug. 15, 2022
<p>Sponsor Eligibility</p>	<ul style="list-style-type: none"> • Cities and Counties: <ul style="list-style-type: none"> ○ Project must have a certified sponsor, have completed or will complete the National Environmental Policy Act (NEPA) process, and have or will certify proper right-of-way prior to the obligation date. ○ Sponsor must be capable of advertising the project for construction within six weeks of funds being obligated. 	<ul style="list-style-type: none"> • State governments/agencies • Local governments (cities and counties) • An Indian Tribe [§ 21203(a); 49 U.S.C. 6703(c)] 	<ul style="list-style-type: none"> • Institutions of higher education, • Non-profits • Commercial (for profit) organizations • Small businesses • U.S. territories • State governments/agencies • Local governments (cities and counties) • Native American tribal governments
<p>Additional Notes</p>	<ul style="list-style-type: none"> • WDFW and WSDOT have held two information webinars for eligible city and county sponsors on the 2023-2025 ranked project list to gauge their interest in accepting PROTECT funds. 	<ul style="list-style-type: none"> • The FBRB proposed they will not be advancing grant applications on behalf of project sponsors. • WSDOT applying for culvert case injunction corrections. 	<ul style="list-style-type: none"> • The FBRB developed a project bundle proposal to submit to the 2022 grant round. Due to an administrative error, the proposal did not advance.



Brian Abbott Fish Barrier Removal Board – Policy Subcommittee Meeting

Date: November 10, 2022

Time: 1:00 p.m. to 2:00 p.m.

Location: Virtual Meeting

Meeting Purpose: For the Policy Subcommittee to continue discussions regarding the Board’s role in ongoing federal funding opportunities.

Policy Subcommittee Members: Chair Thomas Jameson, Carl Schroeder, Susan Eugenis, and Jeannie Abbott
Staff: Christy Rains

Meeting Resources: See accompanying Federal Funding Opportunities Reference Table.

FBRB Policy Subcommittee Recommendations Discussed with Board on November 15, 2022:

Near-term Opportunity - Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) 2023 Funds:

- **Funding Amount and Dates:** \$25 million now available for obligation by September 15, 2023 to qualifying city and county projects. Any remaining 2023 funds not obligated to cities and counties will be used by WSDOT for culvert case injunction corrections.
- **Project Selection Approach:** City and county sponsors with project requests at or above \$1 million on the FBRB 2023-2025 ranked project list have been notified of this funding opportunity and have until Thursday, December 1, 2022 to submit a brief email proposal to FBRB Chair Thomas Jameson, WDFW, indicating their interest in pursuing PROTECT Funds.

Potential Discussion and Decisions for the Board (December 2022):

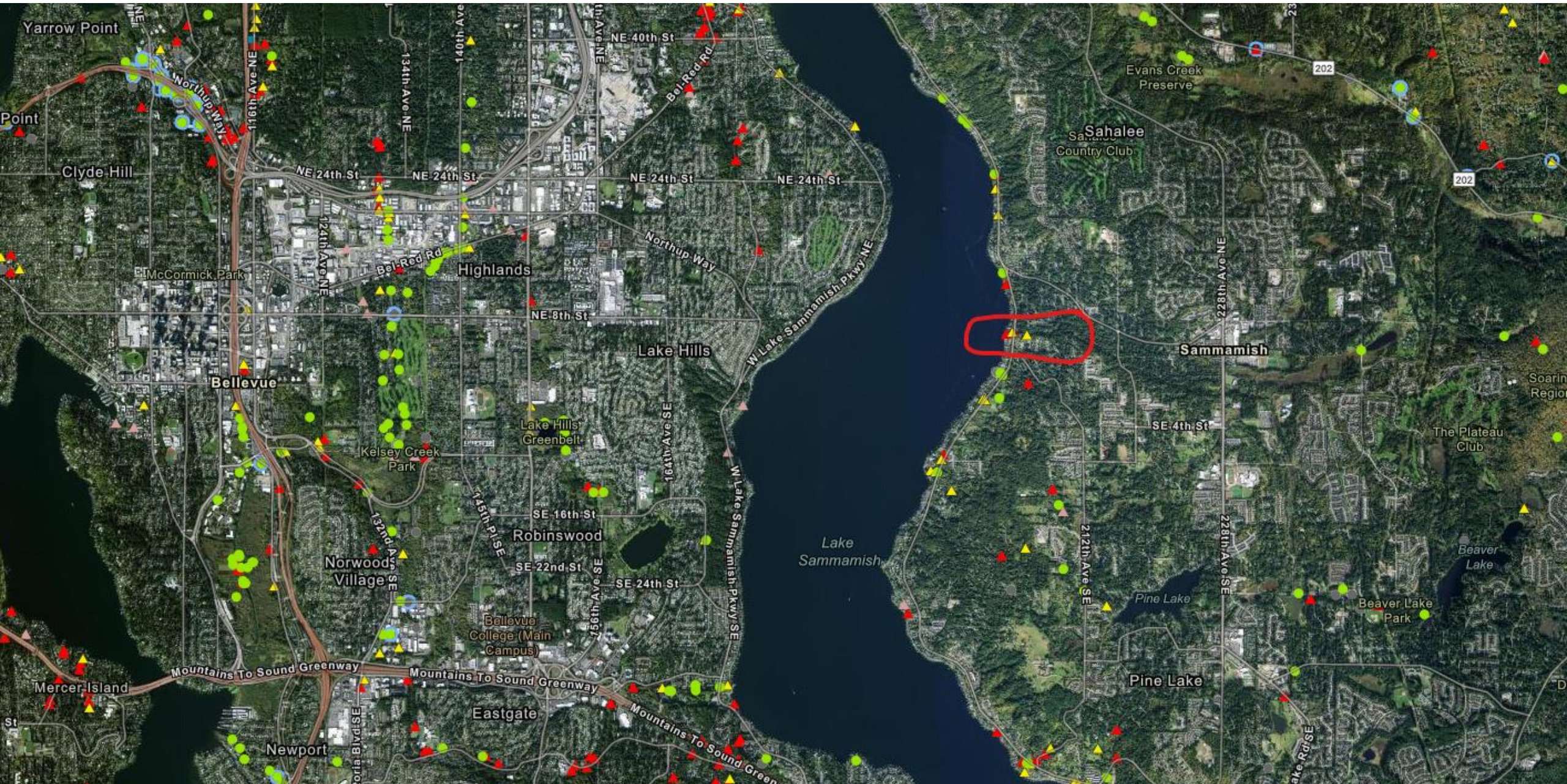
- **Subcommittee Recommendation:** If PROTECT funding requests from cities and counties are above \$25 million, the Board will vote on which projects receive PROTECT funds in 2023. The Subcommittee recommends selecting projects based on where they rank on the FBRB 2023-2025 ranked project list.
- If there is less than \$25 million of sponsor interest to use PROTECT funding, the Board can explore advancing smaller planning projects (typically under \$200 thousand versus those being considered at \$1 million and above).
- **Potential Board Decision (December):** A proposal was made at the November 15 FBRB meeting to remove projects advancing with PROTECT funds from the FBRB’s 2023-2025 Capital request.
 - This Board decision would come after sponsors submit their PROTECT proposal to WDFW on December 1, 2022, and after the Governor’s budget is released in mid-December 2022. This will enable sponsors to compare their rankings before deciding on which funding source they would like to proceed with.
 - Under this proposed path forward, projects agree to receive PROTECT funds would be removed from the FBRB’s 2023-2025 Capital request and the sponsor would then work directly with the WSDOT Local Programs, the state fiscal sponsor for the PROTECT program.

Longer-term Opportunity - PROTECT Funds for Federal Fiscal Years (FFY) 2024-2026 Funds:

- **Funding Amount and Dates:** \$50m is available to be obligated to qualifying cities and counties in FFYs 2024-2026.
 - ***Subcommittee Recommendation for Potential Board Discussion and Decision (December and beyond):*** The Board can release an RFP in spring 2023 (anticipated between February and April) for cities and counties to receive PROTECT funds from WSDOT Local Programs.
 - ***Discussion Topics for Board:***
 - Criteria for RFP and capacity for scoring.
 - Solicitation and review process for applicants in response to RFP.
 - ***Additional Suggestions for Board Consideration:***
 - Following release of Governor’s Budget (anticipated mid-December), the Board can consider advancing eligible alternates (i.e., projects below the funding line) to apply for PRTOECT funds through this RFP.
 - Encourage sponsors of design projects funded by the FBRB to apply to this RFP.

DRAFT

George Davis Creek Fish Passage Improvements



Current Fish Passage Barriers

920268- 67% passable
County crossing ▲

920017- 0% passable
Private crossing ▲

920111- 0% passable
City crossing ▲

920112- 33% passable
▲ County crossing- dam

E Lake Sammamish Shore Ln NE

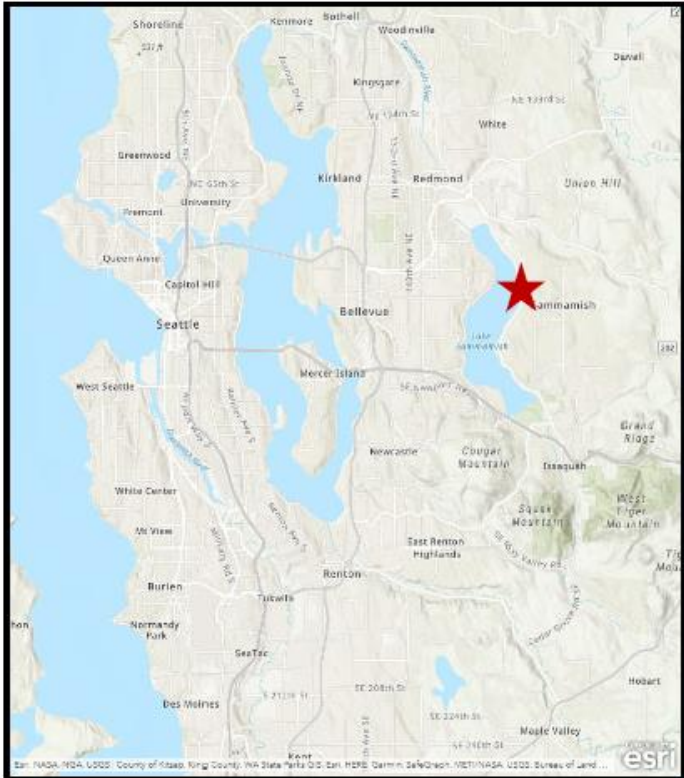
E Lake Sammamish Pkwy NE

E Lake Shore Pkwy NE

NE 7th Ct

NE 5th Ct

NE 4th Ct



Proposed realignment (at 0777100040)

Existing creek mouth (at Linde Property)

Existing high flow bypass (to be decommissioned)

Culvert Crossings (to be replaced)

Existing sedimentation basin (to be decommissioned)



920112- 33% passable- County diversion dam



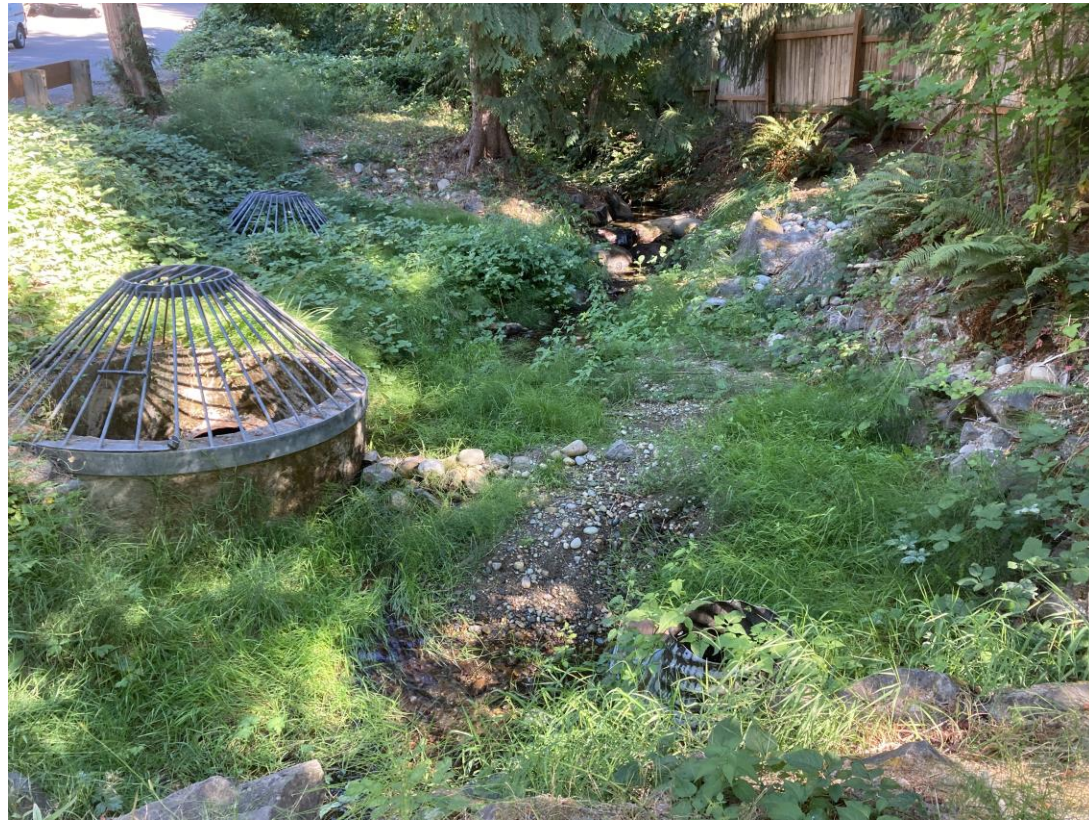
Stream along
residence at 520 ELSP



Upstream of
sediment ponds



September 2021



March 2022



Outlet of ELSP
crossing



Inlet of King Co Trail
crossing



Inlet ELS Shore Ln & outlet under residence





Proposed realignment (at 0777100040)

Existing creek mouth (at Linde Property)

Existing high flow bypass (to be decommissioned)

Culvert Crossings (to be replaced)

Existing sedimentation basin (to be decommissioned)

0 30 60ft





Brian Abbott Fish Barrier Removal Board – Upcoming Conferences v. November 2022

Association of Counties: County Leader Conference at Hyatt Regency Lake Washington in Renton, King County from November 14-16, 2022

- The County Leaders Conference hosted by the Washington State Association of Counties (WSAC) brings together over 300 elected/appointed officials, and department heads from all of Washington's 39 counties for a 3-day event focused on networking, skills development, and collaborative learning related to county government.
- Please use the following link to register and view the preliminary agenda: [County Leaders | Working Together](#)

Salmon Recovery Conference: April 18-19, 2023 in Vancouver, WA.

- The Call for Abstracts went out on September 5, 2022 and closed on **October 28, 2022**. The Board submitted an abstract for a session at this conference.
 - For this conference session, the FBRB, in partnership with project sponsors, will present information about the FBRB and then profile four significant fish passage projects funded through the grant program. The FBRB and project sponsors will provide an overview of the technical specifications for their projects, how those projects provide economic benefits, and advance us closer to a shared vision of healthy, abundant, and harvestable runs statewide. Additionally, they will review lessons learned to help inform future barrier removal projects aimed at making the state's waterways more passable for salmon and steelhead. Lastly, they will discuss current and future statewide planning and prioritization efforts.
- More information on the conference can be found here: [Salmon Recovery Conference - Recreation and Conservation Office \(wa.gov\)](#)