

Fish Barrier Removal Board (FBRB)

2017 IACC Conference - Protect Your
Assets

October 24th-26th, 2017, Wenatchee, WA



Death from:

- temperature changes
- disturbance of gravel
- pollution
- predators

Death from spawning

SPAWNING SALMON return to the stream of their birth to lay the eggs of the next generation before dying (1-2 return to spawn)

Death from:

- habitat destruction
- pollution
- predators

EGGS incubate in gravel (3,000 eggs)

Salmon Life Cycle

ALEVINS emerge from gravel (810 hatch)

STEELHEAD, CUTTHROAT, SOCKEYE, AND SOME CHINOOK LIVE IN FRESH WATER AS JUVENILES

FRY live and grow in freshwater streams

CHUM, PINK AND SOME CHINOOK MIGRATE DIRECTLY TO SALT WATER

SPAWNING MIGRATION

COURTSHIP

ADULT SALMON mature in the ocean from two to seven years (5-6 reach adulthood)

Death from:

- predators
- habitat destruction
- delays in downstream migration

SMOLTS adapt to salt water (81 make it to the ocean)

Death from:

- predators
- fishing
- delays in migration

ALEVINS emerge from gravel (810 hatch)

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FRY live and grow in freshwater streams

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Death from:

- predators
- habitat destruction
- delays in downstream migration

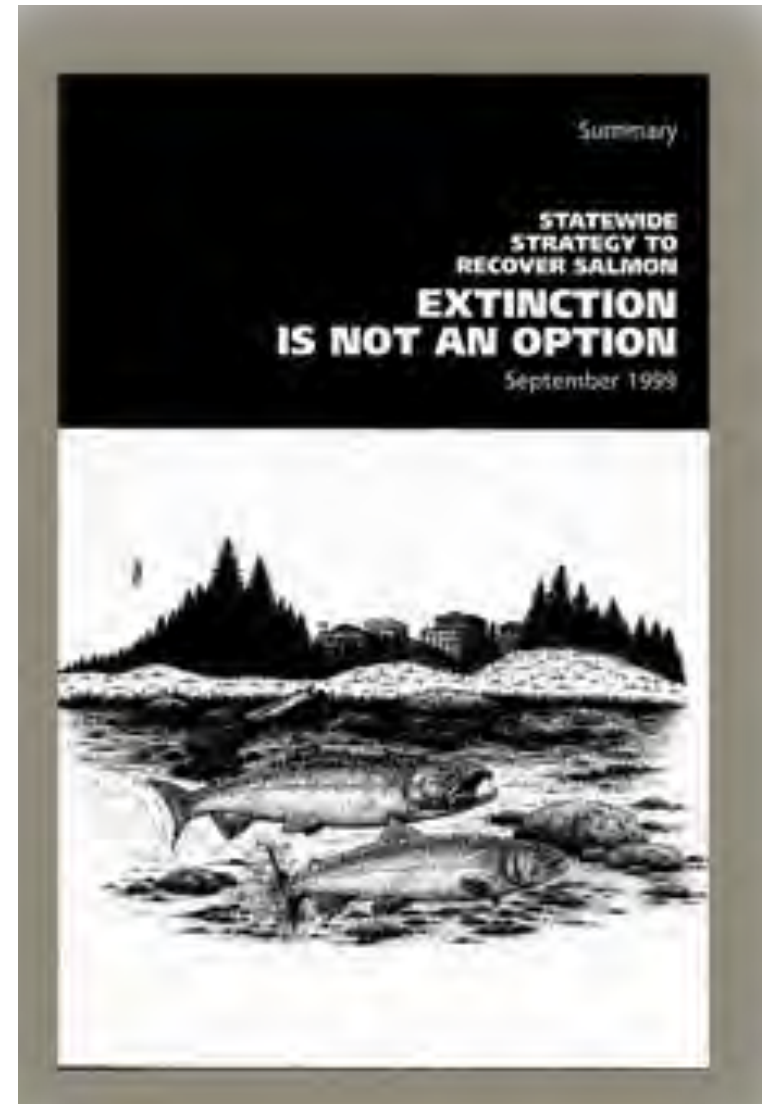
SMOLTS adapt to salt water (81 make it to the ocean)

Death from:

- predators
- fishing
- delays in migration

Elements of the WA State Salmon Recovery Strategy

- **Habitat**
 - Agriculture
 - Forest practices
 - Urbanization
 - In-stream flow
 - **Fish barriers**
- **Harvest**
- **Hatcheries**
- **Hydropower**



What is a “Fish Barrier”?



Excessive Water
Surface Drop



High Velocity



Shallow Water
Depth

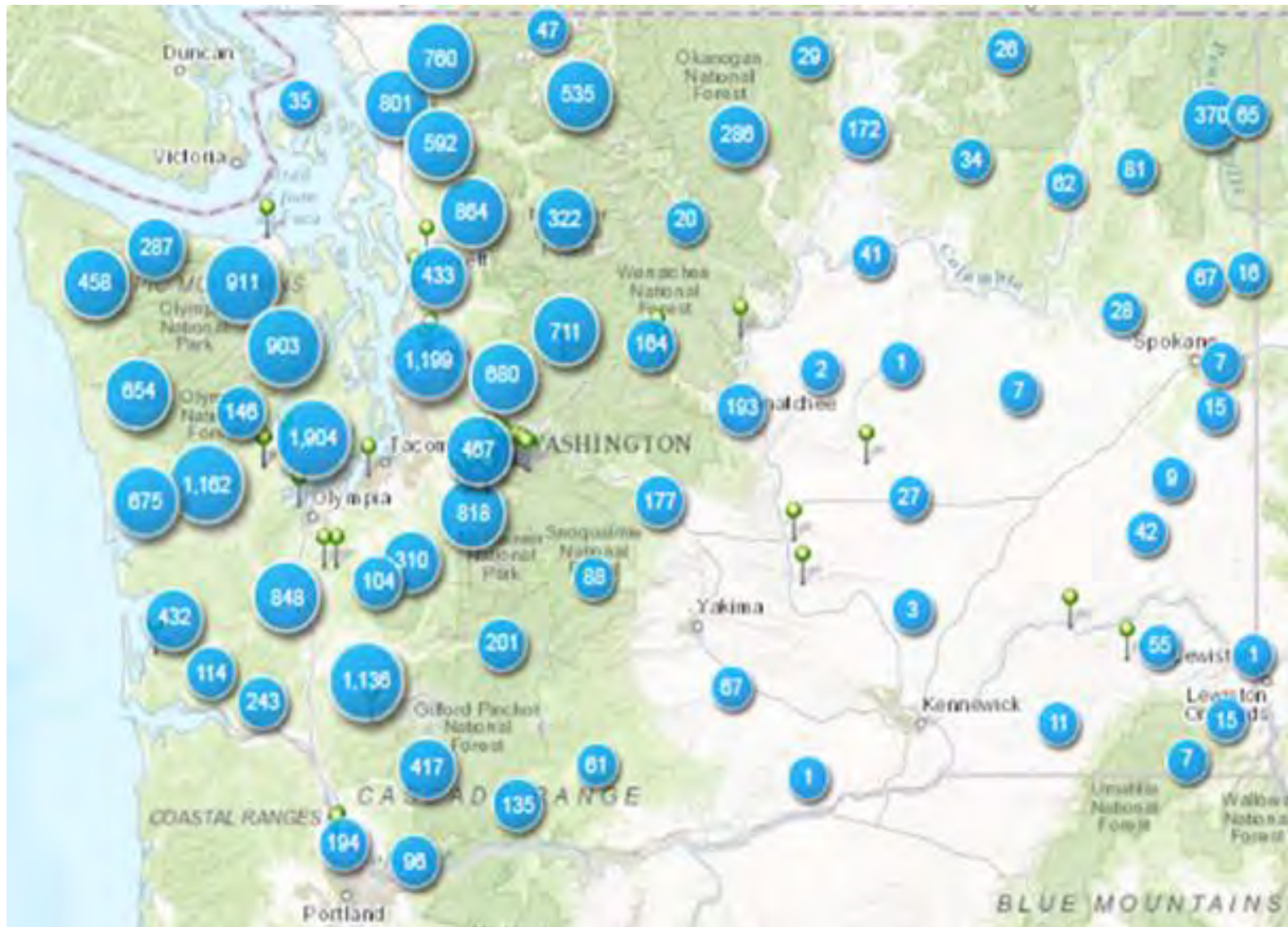


WHY IS FISH BARRIER REMOVAL SO IMPORTANT?

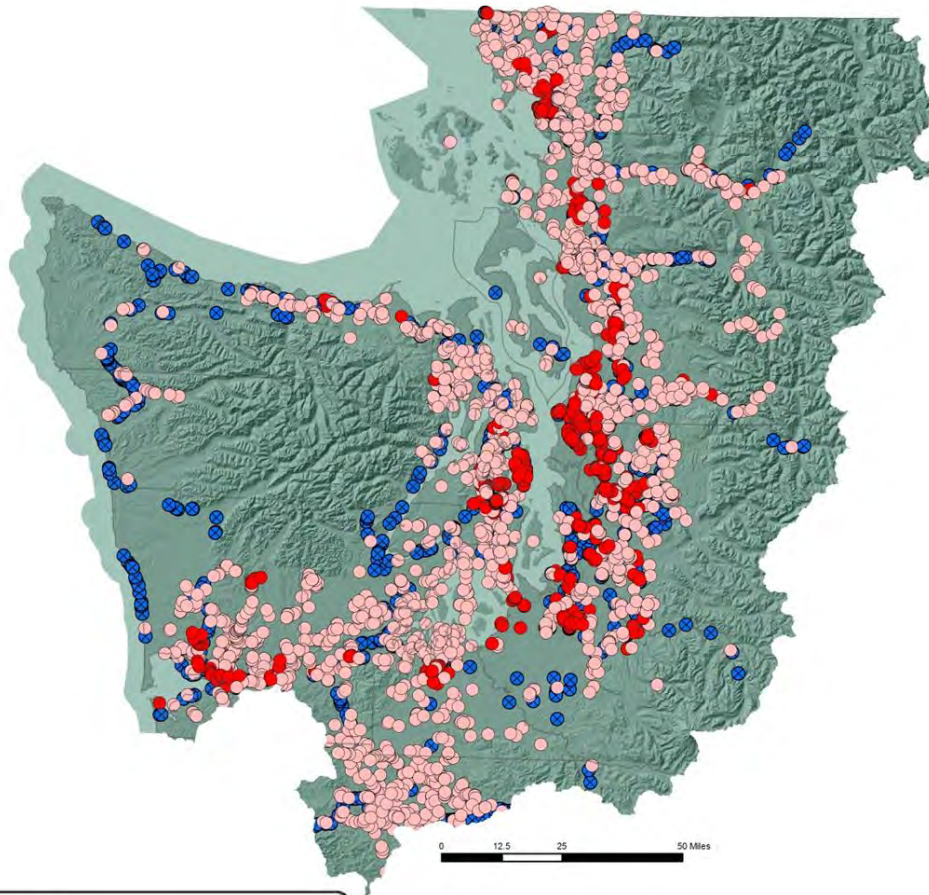
- Critical to wild salmon recovery
- Opens access to spawning and rearing habitat
- Maximizes salmon recovery investments
- Flood control benefits
- Increases fishing opportunities
- Provides local jobs



Extent of the Statewide Fish Passage Problem



State, County & City Fish Passage Problem – Injunction and Non-Injunction



Legend

- City Owned Barrier
- County Owned Barrier
- WSDOT Culvert Case Barriers

- **State:**
 - WSDOT - 996 injunction / 2,000 statewide
 - DNR, Parks and WDFW
- **County:** 3,121 in case area, 22,000 statewide
- **City:** 1090 barriers in case area, 1241 statewide

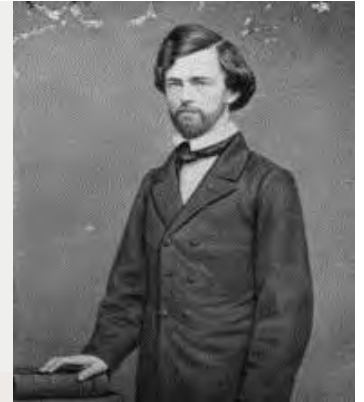
Note: Under the injunction the State is required to assess and identify culverts under state-owned roads in the Case Area that become partial or full barriers to salmon passage after the entry of the Injunction

Fish Passage Programs within the State



- Culvert Injunction
- Road Maintenance & Abandonment Plans
- Family Forest Fish Passage Program
- Chehalis Basin Aquatic Species Restoration Plan
- SFRB, NRCS, Counties and Cities
- Fish Barrier Removal Board

Litigation Leading to the U.S. vs. Washington Culvert Injunction



- **1854 - 1855 – Isaac Stevens signed treaties with 21 tribes in 1854-1855 provides title for white settlement while guaranteeing the tribes the right to take fish, at all usual and accustomed fishing grounds.**
- **1974 - Boldt decision allocated treaty tribes 50% of the annual catch**
- **2001 -Treaty tribes and Yakama Nation sued the state, compelling culvert repairs to uphold treaty rights**
- **2007 - Tribes win the case on summary judgment**
- **2013 - Tribes win in U.S. District Court**
- **2016 - WA State appeal 3 Judge Panel, Re-Appeal to 11 Judge Panel**
- **2017 – WA State Petition to U.S. Supreme Court**

Culvert Injunction



- Requires the state to remove state-owned culverts that block habitat for salmon and steelhead by 2030.
- Injunction Applies to: WSDOT, WDNR, WDFW, State Parks
 - WSDOT - 996
 - WDNR - 51
 - WDFW - 10
 - State Parks – 13
- Nearly all WDNR, WDFW and State Parks projects complete
- Injunction requires the state to maintain and monitor culverts for fish passage in perpetuity

Road Maintenance & Abandonment Plans



Why?

- Salmon Recovery Act (“Forests & Fish”)
- ESA compliance
- Clean Water Act compliance

How?

- Inventory, prioritize, execute and monitor
- “Worst first”
- Standard: 100-year flood + debris

Benefits

- Current road standards
- Reduced maintenance
- Eliminating roads no longer needed
- Sediment delivery/water quality
- Fish passage

Investment

- Private: \$300+ million
- DNR: \$70+ million

Statewide Road Maintenance and Abandonment Plan Accomplishments

- Number of approved RMAPS = *6/260
- Miles for forest assessed = *14,555/55,000
- Miles of road improved = 25,589
- Miles of road abandoned = *1677/3833
- Number of fish barriers ID'd = *2442/7357
- Number of fish barriers fixed = *1434/6086
- Miles of fish habitat opened = *717/3507

* DNR state lands accomplishments

Family Forest Fish Passage Program

Partners

- DNR
- RCO
- WDFW

Purpose

Assist small forest
landowners correct barriers



FFFPP Successes and Challenges



Accomplishments

- 368 barriers corrected since 2003
- 844 miles of habitat opened
- Spent \$36.5 million

Remaining Work

- Over 936 projects still on the waiting list
- Total inventory - unknown

Fish Passage Efforts Distinct but Complementary

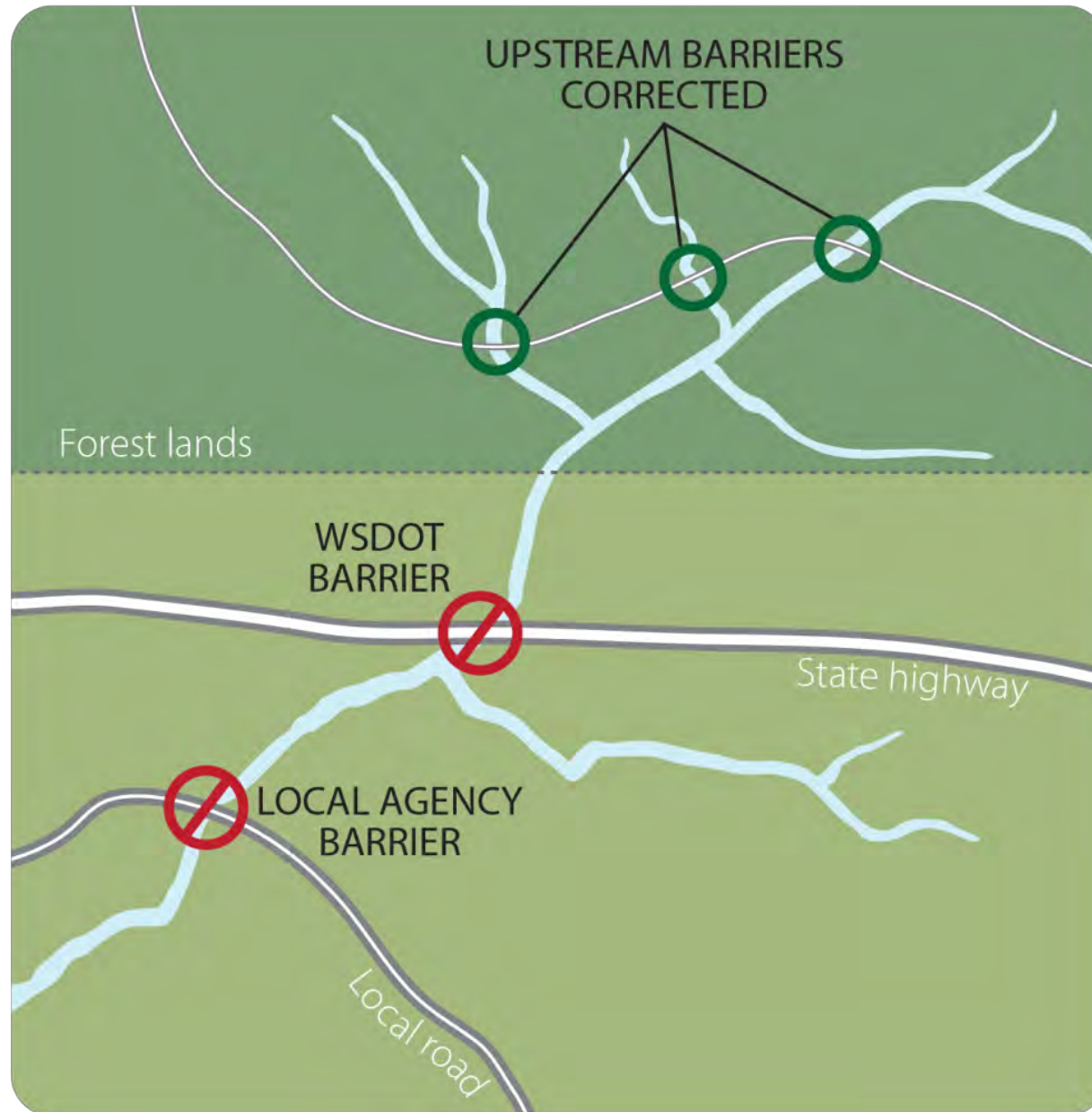
Program	Distinct	Complementary
Culvert Injunction	Corrections Required By Federal Injunction	Barriers on State Land only within the Culvert Case Area
Road Maintenance and Abandonment Plans (RMAPs)	Corrections Required by Forests and Fish Law	Barriers on State & Private Property of Large Forest Landowners, Typically High in the Watershed
Family Forest Fish Passage Program (FFFPP)	Corrections Required by Forests and Fish Law and Federal agreement	Barriers on Private Property of Small Forest Landowners, Typically on smaller tributaries dispersed throughout the state's forested watersheds
Chehalis Basin Aquatic Species Restoration Plan (ASRP)	State Strategy to Improve River Habitat and Reduce Flood Damage within the Chehalis Basin	Barriers in the Chehalis Basin. Coordinates with WSDOT Injunction Corrections & Corrections to be Funded through the FBRB and FFFPP in the Chehalis
Fish Barrier Removal Board (FBRB)	State Strategy to Correct Fish Barriers State-Wide for Salmon and Steelhead	Corrects Barriers Up and Downstream of other Passage Program Investments & Utilizes a Second, Whole Stream Approach that Benefits Entire Fish Populations in Prioritized Watersheds

Removing Barriers Restores Access for Fish

- WSDOT and State Parks Barriers Corrected at Potlach State Park, October 31st, 2016
 - Chum Salmon Migrating Up Channel, November 1st 2016

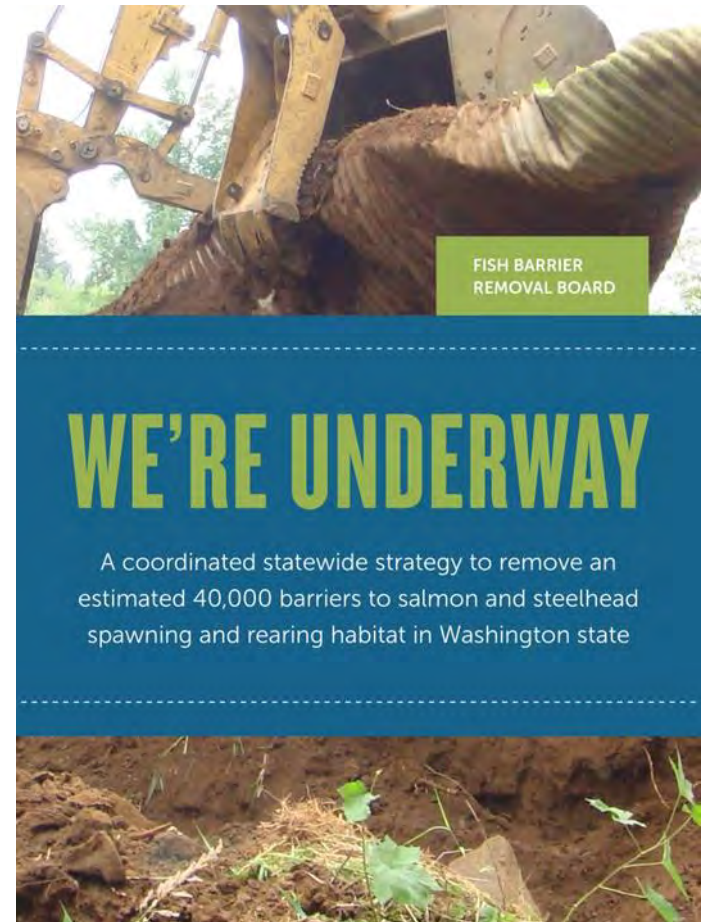


A Coordinated Approach is Necessary!



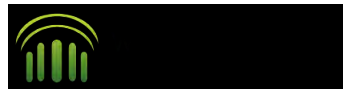
Fish Barrier Removal Board

- Established by legislature in 2014
- Chaired by WDFW
- Members: DOT, DNR, RCO, cities, counties, tribes, salmon recovery boards
- Mission: to develop a statewide strategy for correcting fish barriers
- 2017 Request: Funding for prioritized list of barriers for corrections



FBRB Voting Members

- Tom Jameson, Chair, WA Department of Fish and Wildlife
- **Steve Martin, Governor's** Salmon Recovery Office
- Casey Baldwin, Confederated Tribes of the Colville Reservation
- Jon Brand, Washington State Association of Counties
- Joe Shramek, WA Department of Natural Resources
- Carl Schroeder, Association of Washington Cities
- Jonalee Squeochs, Confederated Tribes and Bands of the Yakama Nation
- Paul Wagner, WA Department of Transportation
- Steve Manlow, Lower Columbia Fish Recovery Board



Two Barrier Removal Pathways

Coordinated Pathway

- Correct barriers in close proximity to other barrier repairs.
- Leverage investments of WSDOT, forest industry, and local governments.
- Local governments submitted nominations (September 2015).

Watershed Pathway

- Correct barriers that open whole stream reaches and sub-basins.
- Maximize benefits to salmon at a population scale.
- Lead Entity and Salmon Recovery Regions submitted priority watershed nominations (July 2015)

Coordinated Pathway



Coordinated Pathway Ranking Criteria

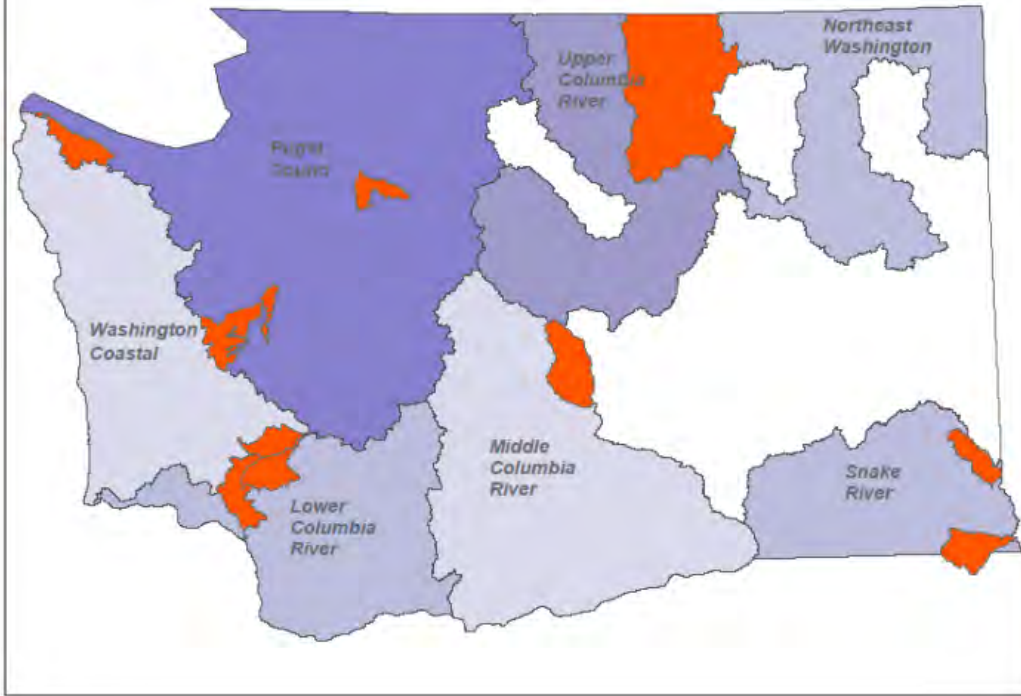
- No Downstream Barrier(s)
- **Habitat Quality**
- Cost per Linear Gain
- **Lowest Barrier in a Stream First**
- Linear Gain (net)
- Project Readiness
- **Barrier Status**
- Number of Anadromous Species/Stock
- **Stock Status**
- **Level of Coordination**



(As set forth by SSHB 2051)

Watershed Pathway

FBRB-Statewide Approved Watersheds
December 15th, 2015



Statewide

- Lower Columbia - Cowlitz
- Yakima Basin - Wilson/Cherry
- Upper Columbia - Okanogan
- Snake River
 - Snake River Tribs.
 - Grande Ronde Tribs.

Puget Sound

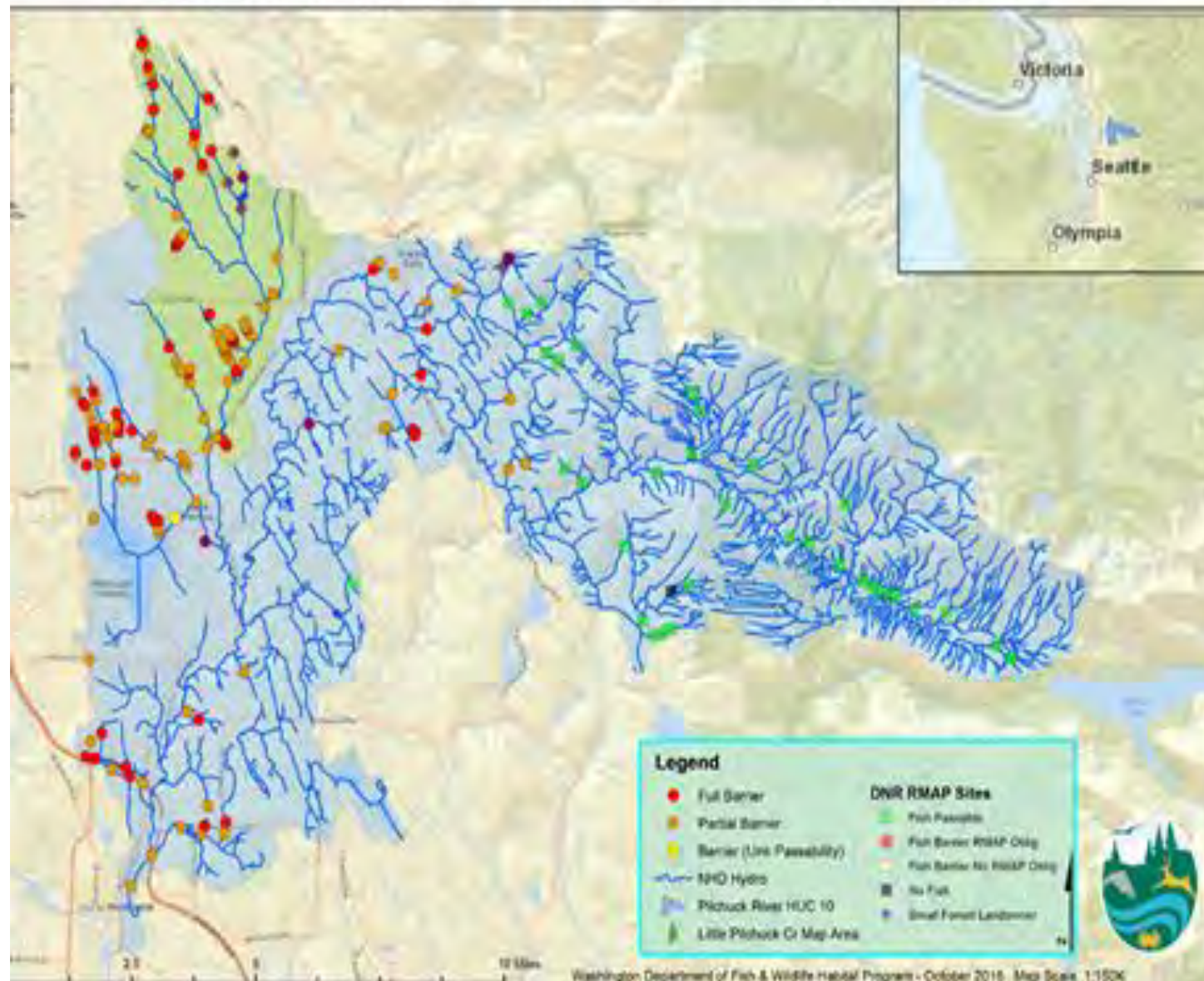
- Pysht River
- Pilchuck River
- Goldsborough Creek

Coast

- Newaukum River

Watershed Pathway Projects

Pilchuck River Basin Fish Passage Barriers



FBRB 17-19 Project List

79 Projects, 160 Miles of Habitat

\$51.4 M Funding Request

Puget Sound & Hood Canal

36 projects

91 miles

\$23.4M

Washington Coast

6 projects

10.6 miles

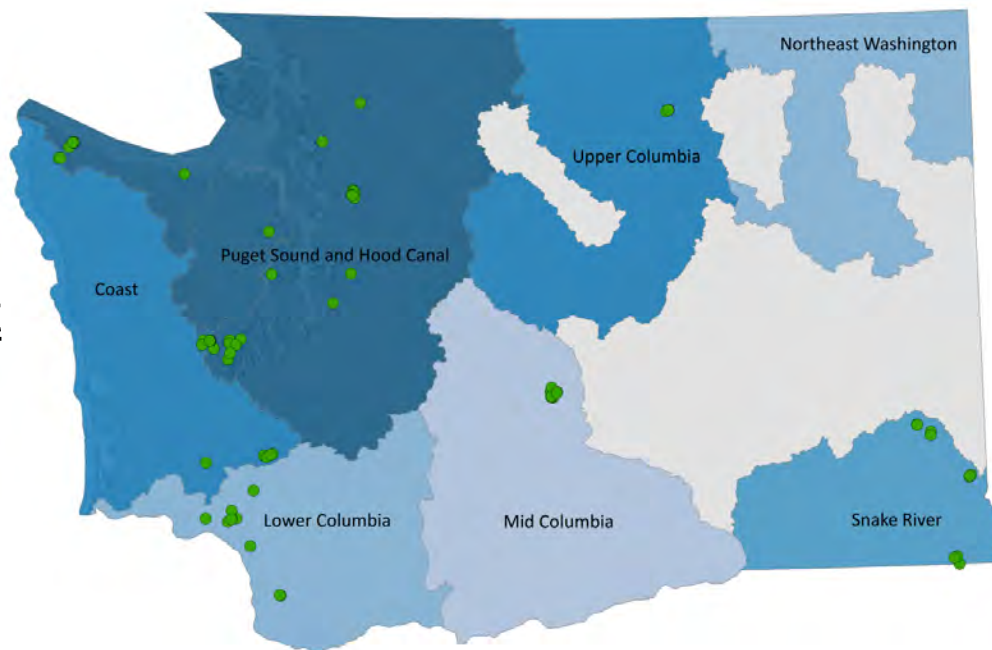
\$3.3M

Lower Columbia

10 projects

25.3 miles

\$8.3M



Upper Columbia

5 projects

1.6 miles

\$4.8M

Middle Columbia

8 projects

6.9 miles

\$3.6M

Snake River

11 projects

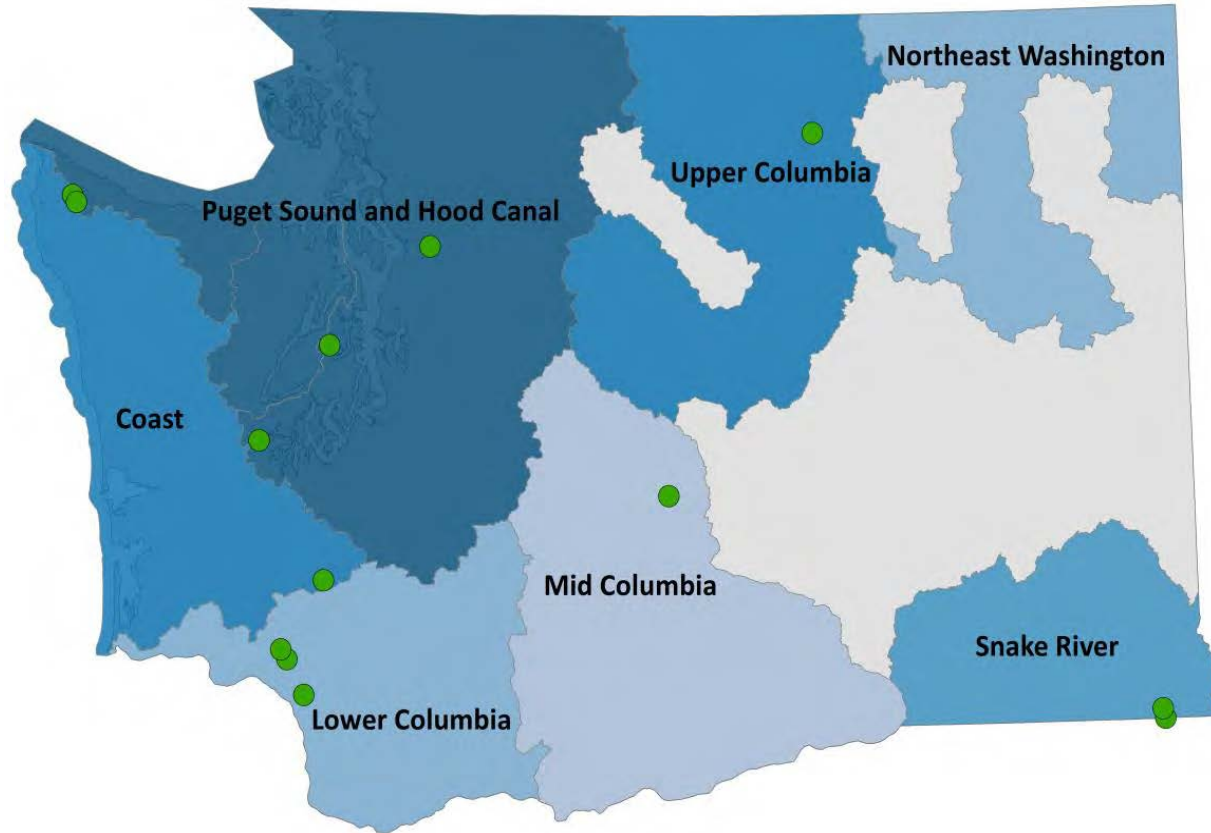
17.8 miles

\$8.0M

Project Ownership: 7 State, 47 County, 6 City, 19 Private

FBRB 17-19 Project List

13 Projects, 42.8 Miles of Habitat,
\$19.7M Funding in Governor's Budget



Project Ownership: 8 County, 2 City, 2 State, 1 Private

Brian Abbott Fish Passage Barrier Removal Board Funding



Office of Financial Management
Better information. Better decisions. Better government.



WASHINGTON STATE LEGISLATURE



Senate:

Capital Budget

- 19.7M – Listed by Project

Transportation

- \$250K – Fish Passage Inventory

House:

Capital Budget

- 19.7M – Listed by

Transportation

- \$250K – Fish Passage Inventory
- \$5M – Not Project Specific

FBRB Match

- Lower, 15%, initial match requirement
- Match requirements subject to change after 17/19 BN
- Match may include cash, bond funds, grants, in-kind labor, equipment and materials, other barrier corrections within same sub-watershed
- If project match qualifies as a hardship for the project sponsor, they may use a match certification credit to meet the spirit of providing matching resources and help increase coordination within a watershed (HUC 10 scale)
- Another barrier removal within the same watershed, by the same sponsor or another entity, may be used as match



Questions?



Contact

For more information about the
Fish Barrier Removal Board, please contact:

Tom Jameson, Division Manager,
Washington Department of Fish and Wildlife
(360) 902-2612,
thomas.jameson@dfw.wa.gov

Why Are the Replacement Structures So Big?

2012 Coulee Creek FFFPP Project, Spokane County



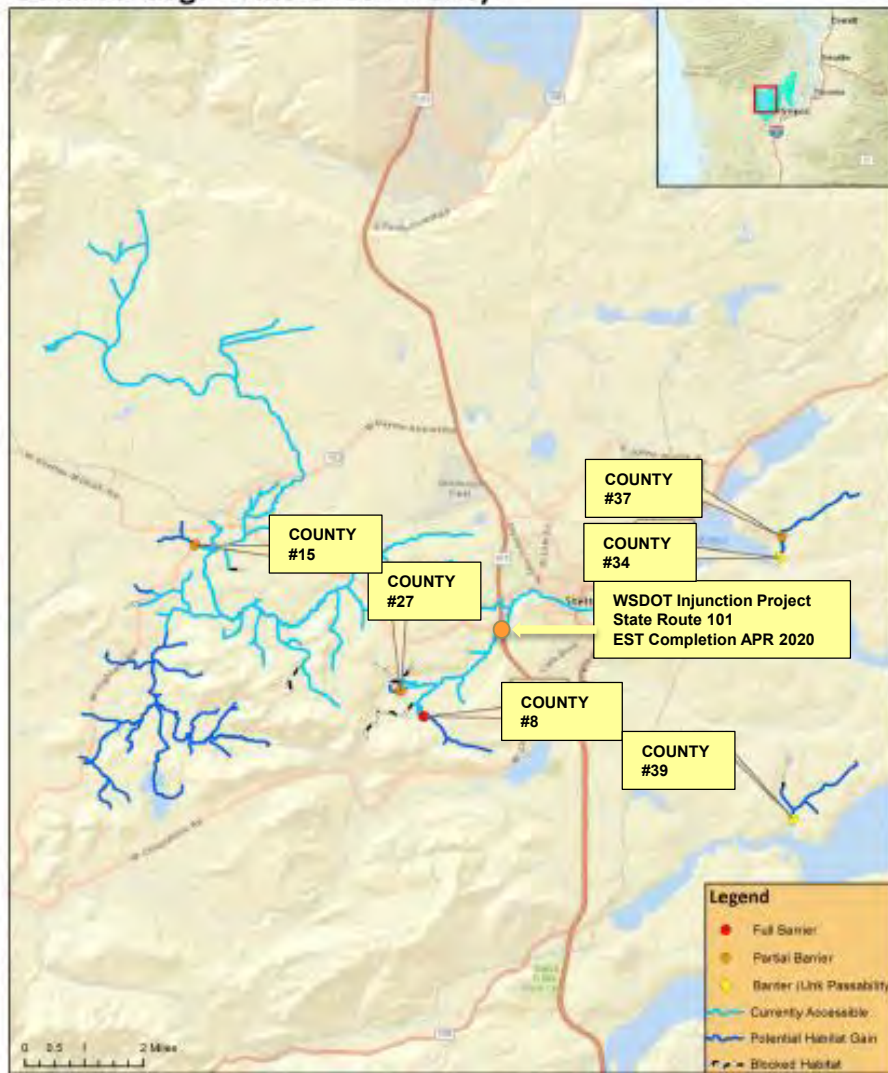
County & City Fish Passage Problem



- Ennis Creek is widely recognized as having the highest potential for restoration amongst the urbanized streams in Port Angeles. Its headwaters are protected in Olympic National Park.
- Downstream the abandoned Rayonier Mill site has been dismantled and will be cleaned under a three way agreement between Rayonier, DOE, and Lower Elwha Tribe
- High priority for the city, local tribes, and restoration practitioners. The only barrier upstream is a WSDOT culvert scheduled to be fixed in 2025
- Currently unfunded, #33 on the FBRB's project list

County Fish Passage Problem

Goldsborough Watershed Priority 1



WRIA 14 Salmon Habitat Recovery Committee Lead Entity

Fish Barrier
Removal Board
3/8/2017



- **Goldsborough Creek Watershed, Mason County, one of the FBRB's priority watersheds in Puget Sound.**
- **Barrier correction package of 6 county road barriers. If funded, would open 6 miles of habitat at a cost of \$12.7M**
- **WSDOT injunction barrier downstream, on SR101, slated to be made 100% passable by April of 2010**
- **Goldsborough Creek is home to Chum, Coho, Steelhead and Sea Run Cutthroat trout**
- **Currently only one of the crossings is on the Governor's list for funding in 2017-2019, #8 of the 13 projects**

Fish Barrier Removal Board
2017-2019 FUNDING PROPOSAL

Rank	Stream Name	Legislative District	County	Project Sponsor	Ownership	Budget Request	All Projects Running Total
1	Chico Creek	35	Kitsap	Suquamish Tribe	County	\$3,784,978	\$3,784,978
2	Johnson Creek	24	Clallam	North Olympic Salmon Coalition	Private	\$3,007,706	\$6,792,684
3	Buford Creek	9	Asotin	Nez Perce Tribe or Asotin C.D.	State	\$4,720,452	\$11,513,136
4	Middle Fork Newaukum	20	Lewis	Lewis County	County	\$572,325	\$12,085,461
5	Unnamed Tributary to Arkansas Creek	19	Cowlitz	Cowlitz County	County	\$284,527	\$12,369,989
6	Coleman Creek	12	Kittitas	Kittitas Conservation District	State	\$770,472	\$13,140,461
7	Catherine Creek	44	Snohomish	Sound Salmon Solutions	City	\$566,330	\$13,706,791
8	Coffee Creek	35	Mason	Mason County	County	\$327,043	\$14,033,834
9	Johnson Creek	7	Okanogan	Trout Unlimited/CCT	City	\$543,982	\$14,577,815
10	Baxter Creek	19	Cowlitz	Cowlitz County	County	\$2,181,377	\$16,759,192
11	Turner Creek	20	Cowlitz	Cowlitz County	County	\$1,090,144	\$17,849,336
12	Cottonwood Creek	9	Asotin	Asotin Conservation District	County	\$62,356 *	\$17,911,692
13	Unnamed Tributary to Johnson Creek	24	Clallam	Clallam County	County	\$1,834,712	\$19,746,404
14	Middle Fork Newaukum	20	Lewis	Lewis County	County	\$926,622	\$20,673,026
15	Dayton Creek	35	Mason	Mason County	County	\$501,466	\$21,174,492
16	Coleman Creek	12	Kittitas	Kittitas County Public Works	County	\$1,700,624	\$22,875,115
17	Catherine Creek	44	Snohomish	Snohomish C.D.	Private	\$436,057	\$23,311,173
18	Johnson Creek	7	Okanogan	Trout Unlimited/CCT	City	\$600,616	\$23,911,788
19	Thorndyke Creek	24	Jefferson	Jefferson County	County	\$190,775 *	\$24,102,564
20	Catherine Creek	44	Snohomish	Wild Fish Conservancy	Private	\$189,685	\$24,292,249
21	Johnson Creek	24	Clallam	Clallam County	County	\$852,710	\$25,144,959
22	Delameter Creek	19	Cowlitz	Cowlitz County	County	\$1,590,519	\$26,735,478
23	Cougar Creek	9	Asotin	Asotin Conservation District	County	\$63,555 *	\$26,799,033
24	Johnson Creek	7	Okanogan	Trout Unlimited/CCT	State	\$1,752,725	\$28,551,758
25	Johnson Creek	7	Okanogan	Trout Unlimited/CCT	State	\$1,752,725	\$30,304,483
26	Middle Fork Newaukum	20	Lewis	Lewis County Conservation District	Private	\$87,909	\$30,392,393
27	West Fork Coffee	35	Mason	Mason County	County	\$303,699	\$30,696,091
28	Caribou Creek	12	Kittitas	Kittitas Conservation District	Private	\$194,245	\$30,890,336
29	Little Pilchuck Creek	44	Snohomish	Tulalip Tribe	Private	\$223,915 *	\$31,114,252
30	Unnamed Tributary to Middle Fork Newaukum River	20	Lewis	Lewis County	County	\$699,055	\$31,813,306
31	Unnamed Tributary to Delemeter Creek	19	Cowlitz	Cowlitz Indian Tribe	Private	\$152,620	\$31,965,927
32	Caribou Creek	12	Kittitas	Kittitas Conservation District	Private	\$194,245	\$32,160,172
33	Ennis Creek	24	Clallam	Clallam County	City	\$1,090,144	\$33,250,315
34	Uncle Johns Creek	35	Mason	Mason County	County	\$272,536 *	\$33,522,851
35	Delameter Creek	19	Cowlitz	Cowlitz County	County	\$1,760,582	\$35,283,433
36	Unnamed Tributary to Mason Creek	18	Clark	Clark Conservation District	Private	\$227,840	\$35,511,273
37	Uncle Johns Creek	35	Mason	Mason County	County	\$361,061	\$35,872,334
38	Johnson Creek	7	Okanogan	Trout Unlimited/CCT	County	\$155,891 *	\$36,028,224
39	Deer Creek	35	Mason	Mason Conservation District	County	\$272,536 *	\$36,300,760
40	Mason Creek	18	Clark	Clark County	County	\$109,014 *	\$36,409,774
41	Red Cabin Creek	39	Skagit	Skagit County	County	\$359,747	\$36,769,522
42	Panther Creek	11	King	City of Renton	City	\$272,536 *	\$37,042,058
43	Kenny Creek	42	Whatcom	Whatcom County	County	\$468,762 *	\$37,510,819
44	Fisher Creek	10	Skagit	Skagit County	County	\$501,466 *	\$38,012,285
45	Lost Creek	20	Lewis	Lewis County Conservation District	Private	\$256,402	\$38,268,687
46	Lost Creek	20	Lewis	Lewis County	County	\$801,255	\$39,069,943
47	Erick Creek	19	Cowlitz	Cowlitz Indian Tribe	County	\$564,694	\$39,634,637
48	Ebright Creek	41	King	City of Sammamish	City	\$1,043,267	\$40,677,904
49	Little Salmon Creek	20	Lewis	Lewis County	County	\$93,262 *	\$40,771,166
50	South Fork Goldsborough Creek	35	Mason	Mason County	County	\$87,643 *	\$40,858,809
51	Lower Hoko Wetland Complex	24	Clallam	Clallam County	County	\$770,731	\$41,629,541
52	Little Penewawa Creek	9	Whitman	Whitman Conservation District	County	\$1,063,980	\$42,693,521
53	Unnamed Tributary to Little Pilchuck Creek	44	Snohomish	Snohomish Conservation District	Private	\$283,982	\$42,977,503
54	Cooke Creek	12	Kittitas	Kittitas Conservation District	Private	\$461,646	\$43,439,149
55	Cooke Creek	12	Kittitas	Kittitas Conservation District	Private	\$461,646	\$43,900,796

*Funding request for design only during 2017-2019 Biennium

Fish Barrier Removal Board
2017-2019 FUNDING PROPOSAL

Rank	Stream Name	Legislative District	County	Project Sponsor	Ownership	Budget Request	All Projects Running Total
56	Little Penewawa Creek	9	Whitman	Whitman Conservation District	Private	\$134,088	\$44,034,883
57	South Fork Goldsborough Creek	35	Mason	Mason County	County	\$236,969	\$44,271,852
58	Railroad Creek	24	Clallam	North Olympic Salmon Coalition	Private	\$140,629	\$44,412,481
59	Unnamed Tributary to Little Pilchuck Creek	44	Snohomish	Snohomish County	County	\$711,864	\$45,124,344
60	Pirate Creek	35	Mason	Mason County	County	\$182,360 *	\$45,306,705
61	Parke Creek	12	Kittitas	Kittitas Conservation District	Private	\$278,579	\$45,585,283
62	Unnamed Tributary to Little Pilchuck Creek	44	Snohomish	Snohomish County	County	\$1,215,510	\$46,800,793
63	Talbot Creek	24	Clallam	Clallam County	County	\$724,945	\$47,525,739
64	Little Almota Creek	9	Whitman	Nez Perce Tribe or Asotin C.D.	State	\$283,437 *	\$47,809,176
65	Snodgrass Creek	35	Mason	Mason County	County	\$272,536 *	\$48,081,712
66	Parke Creek	12	Kittitas	Kittitas Conservation District	Private	\$278,580	\$48,360,292
67	Little Almota Creek	9	Whitman	Palouse Conservation District	County	\$171,153 *	\$48,531,444
68	Unnamed Tributary to Little Pilchuck Creek	44	Snohomish	Sound Salmon Solutions	Private	\$207,127	\$48,738,571
69	Lower Hoko Wetland Complex	24	Clallam	North Olympic Salmon Coalition	State	\$113,266 *	\$48,851,837
70	Little Almota Creek	9	Whitman	Nez Perce Tribe or Asotin C.D.	State	\$325,728 *	\$49,177,566
71	Tributary to Puget Sound	35	Mason	Mason County	County	\$66,400 *	\$49,243,965
72	Gage Creek	24	Clallam	Clallam County	County	\$727,126	\$49,971,091
73	Steptoe Creek	9	Whitman	Palouse Conservation District	County	\$700,962	\$50,672,053
74	Tributary to Puget Sound	35	Mason	Mason County	County	\$175,662 *	\$50,847,716
75	Steptoe Creek	9	Whitman	Palouse Conservation District	County	\$212,578	\$51,060,294
76	Steptoe Creek	9	Whitman	Palouse Conservation District	Private	\$54,510 *	\$51,114,804
77	Delameter Creek	19	Cowlitz	Cowlitz County	County	\$54,500 *	\$51,169,304
78	Leckler Creek	19	Cowlitz	Cowlitz County	County	\$173,600 *	\$51,342,904
79	Leckler Creek	19	Cowlitz	Cowlitz County	County	\$57,100 *	\$51,400,004
Additional Investments for Consideration							
80	Unnamed Tributary to Hoko River	24	Clallam	Clallam County	County	\$758,800 *	\$52,158,804
81	Unnamed Tributary to Hoko River	24	Clallam	Clallam County	County	\$115,600 *	\$52,274,404
82	Unnamed Tributary to North Fork Newaukum River	20	Lewis	Lewis County	County	\$37,870 *	\$52,312,274
83	Unnamed Tributary to Middle Fork Newaukum River	20	Lewis	Lewis County	County	\$60,000 *	\$52,372,274
84	Gheer Creek	20	Lewis	Lewis County	County	\$75,600 *	\$52,447,874
85	Tributary to Gheer Creek	20	Lewis	Lewis County	County	\$37,800 *	\$52,485,674
86	Gheer Creek	20	Lewis	Lewis County	County	\$50,400 *	\$52,536,074

*Funding request for design only during 2017-2019 Biennium