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International Conference on Engineering and
Ecohydrology for Fish Passage 2017

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Washington State Department of Transportation Fish Passage Program

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Washington State Department of Transportation Fish Passage Program



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Fish Passage
Coordinator



Roger Millar
Secretary

Keith Metcalf
Deputy Secretary

**International Conference on
Engineering and Ecohydrology for Fish Passage
May 19, 2016**



The Challenge:

- WSDOT is responsible for –
 - 7,056-mile (11,356-kilometer) long highway system
- WSDOT recognizes –
 - Poorly designed/installed culverts can delay or block fish access to quality spawning and rearing habitat.
 - Culverts and fishways can fail over time and become fish barriers.



What makes a fish passage barrier?



WSDOT Fish Passage Program

Comprehensive Fish Passage Inventory 1991-Present

- Washington Department of Fish & Wildlife (WDFW) inventories fish passage barriers on WSDOT Highways.
- WDFW conducts Habitat Assessments to help prioritize barrier correction efforts.

Fish Passage Inventory Database

- WDFW maintains statewide fish passage database, containing GIS, fish use, and habitat information resulting from inventories.
- Locate, prioritize, select, implement, and monitor fish passage projects.
- <http://apps.wdfw.wa.gov/fishpassage/>

Dedicated Fish Passage Barrier Removal Program

- Stand-alone Projects (Dedicated Funding)
- Chronic Environmental Deficiency (CED)
- Major Drainage (failing culverts)
- Larger Transportation Projects (road widening)
- Other Partnerships and Grant Funding

WSDOT Fish Passage Program

Partnership with WDFW since early 1990's
Fish barrier inventory & prioritization

Statewide:

- 7,218 WSDOT culverts evaluated
- 3,623 culverts in fish bearing waters
- 1,989 fish passage barriers identified

Correction of barriers:

- 319 corrections to date
- Opened 1,032 miles (1,661 kilometers)
stream habitat



**Fish Passage Barrier and Surface
Water Diversion Screening
Assessment and Prioritization
Manual**

2009



WASHINGTON DEPARTMENT OF
FISH & WILDLIFE

HABITAT PROGRAM

Technical Applications (TAPPS) Division



• Fish Passage Features

- Road Crossings
- Dams
- Fishways
- Natural Barriers

• Surface Water Diversions

• Habitat Assessment

• Prioritization



<http://wdfw.wa.gov/publications/pub.php?id=00061>

Prioritizing Culverts for Correction

Factors include:

- **Habitat Gain**
- **Severity of the barrier**
- **Species presence**
- **Endangered Species Act**
- **Cost & Complexity**
- **Coordination**
- **Partnerships**



Culvert Case **US v WA Background**

- **1850's Stevens Treaties:** Tribes ceded lands; reserved fishing rights.
- **1974 Boldt Decision:** Treaties entitle Tribes to a fair share of fish, while ensuring habitat that supports fish.
- In **2001**, Twenty-one Western WA Tribes filed **suit against the State** claiming culverts were blocking substantial amounts of salmon habitat, thus reducing the salmon available for harvest.
- In **2007**, Federal District Court **Judge Martinez agreed to the claim** and said the State was in breach of the Tribes' treaty rights.
- In **October 2009**, the **court convened a trial** to determine what the remedy should be.
- On **March 29, 2013**, **Judge Martinez issued a permanent injunction** for the State to accelerate barrier correction within the case area.

US v. WA Culvert Injunction March 2013

Who? State of Washington

WSDOT, WDNR, WDFW, Parks

Where? Case area

Salmon & Steelhead streams

Western Washington



Area subject to culvert injunction.

How many WSDOT barrier culverts?

About 1,023 total including (as of June 2017)

About 806 with Significant Habitat (>200 m upstream)

** Corrected 43 injunction barriers since 2013*

Injunction Barrier Correction Standards

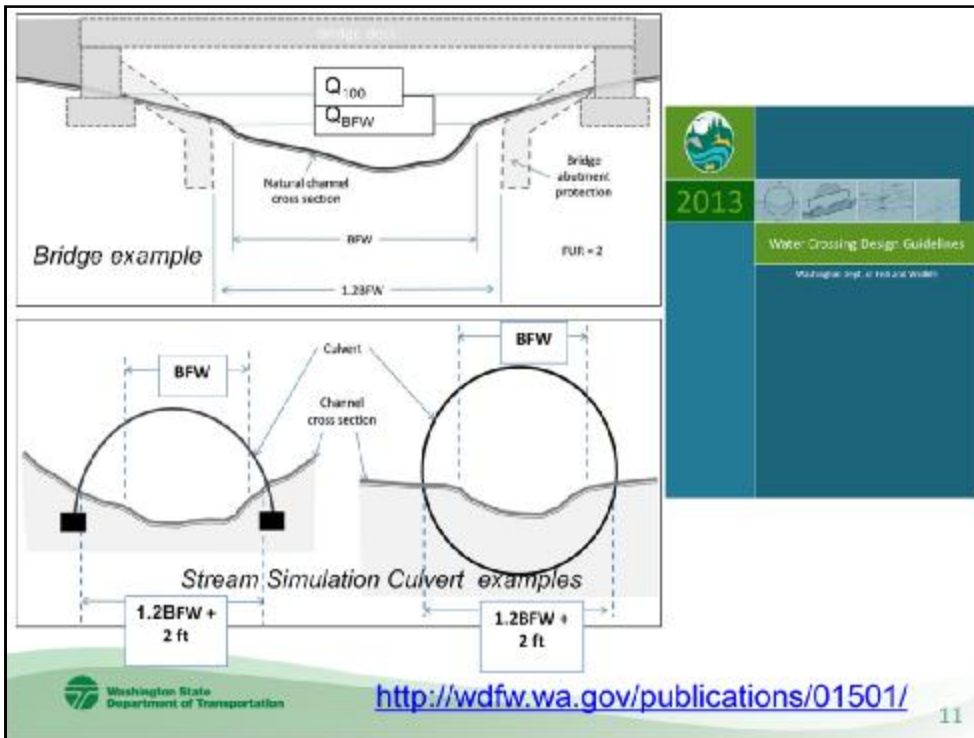
- **Bridges** – full channel spanning bridges facilitate habitat connection for fish and wildlife
- **Stream Simulation** – mimics natural stream channel processes throughout the culvert



Bridge



Stream Simulation Culvert



Corrections as part of SR 520 transportation project



Before

Stand-alone Barrier Correction Project SR 99 WF Hylebos Creek



6 ft box with deficient fishway

- \$2.6 M cost
- 2 miles habitat gain
- Chum, coho, steelhead, coastal cutthroat, & resident trout



During



After

New 20 foot (6.1 meter) wide structure

Evolution of a fish passage project

Crossings must mimic natural stream conditions



BEFORE: Previous culvert had excessive velocities and outfall drop.



AFTER: New 20-foot wide stream crossing constructed 2015. *Photo taken 1 month after construction.*



AFTER: New 20-foot wide stream crossing constructed 2015. *Photo taken 1 year after construction.*

IT'S NOT A SIMPLE FIX...



Before – undersized culvert



After: Chum salmon spawning upstream

Cost & Complexity Drivers

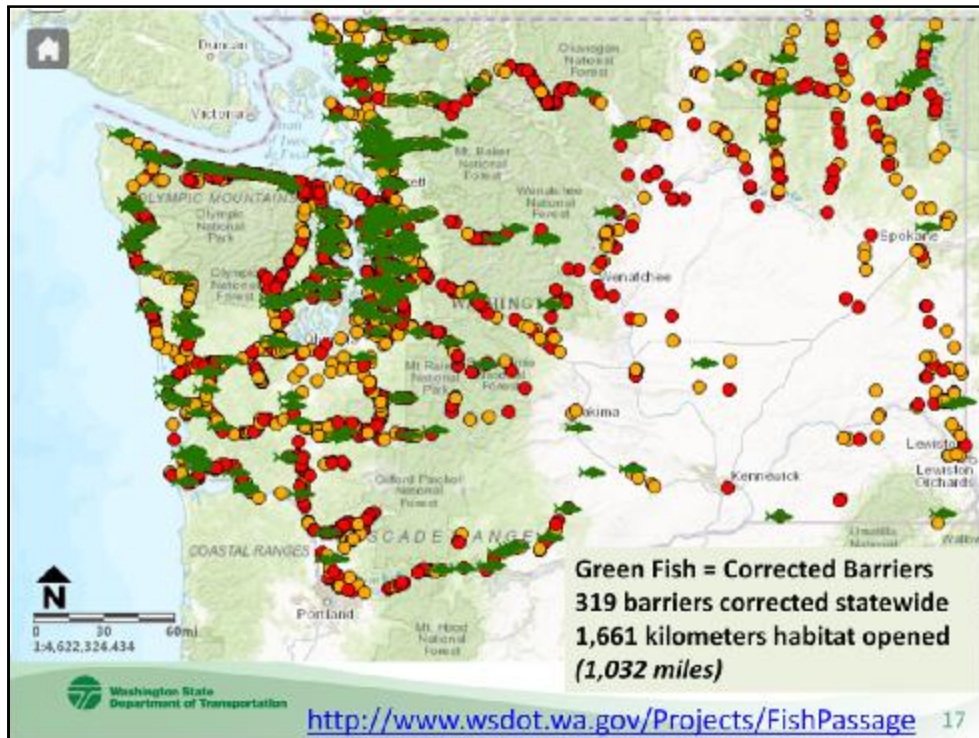
- Traffic Control
- Site characteristics
- Right of Way
- Utilities
- Additional Structures/ Headwalls
- In-Water Work Timing Limitations
- Coordination with Other Parties

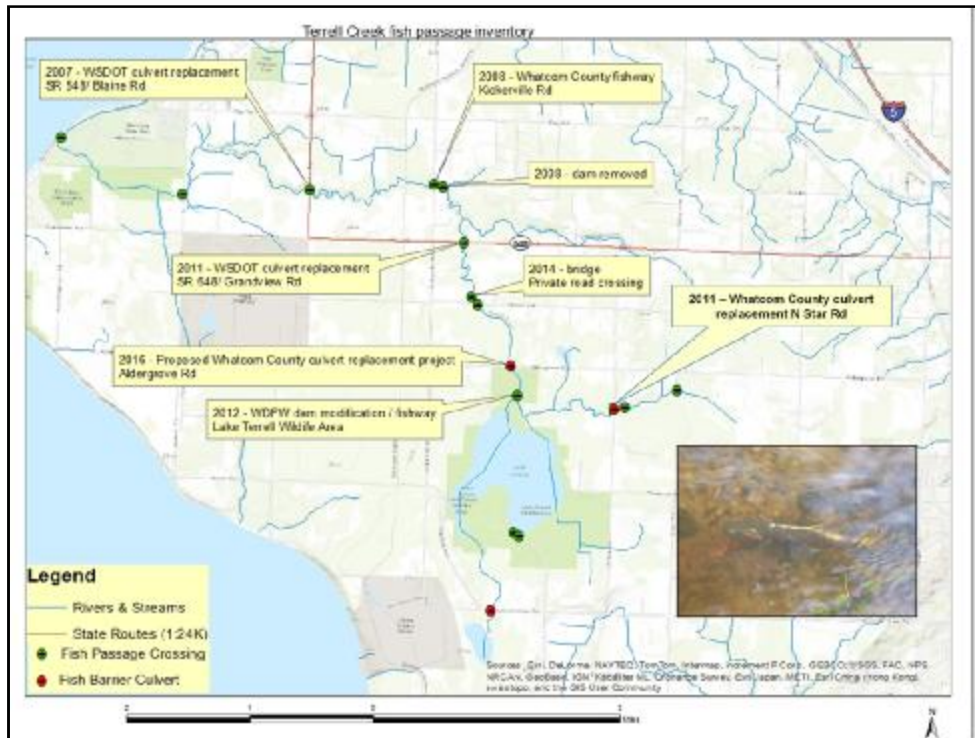


After – new 20 foot (6.1 meter) box culvert

Fish Passage Monitoring







Fish Passage Barrier Removal Board

- In 2014, the Washington State Legislature created the Fish Barrier Removal Board.
- Chaired by WDFW; WSDOT has a seat on the board.
- Board members working collaboratively with tribes, local government, private landowners, and regional salmon recovery groups to coordinate fish passage barrier correction across the State.
- New grant program starting in 2017, will fund and correct 13 high priority barriers across Washington state.

Wildlife Passage – an added benefit



Deer



Coyote



Black Bear



Moose



Cougar



Raccoon

Fish Passage

Home

Habitat Restoration
Partnerships

Problem and solution

Why are we fixing
barriers?

Federal Court Injunction

Public Involvement

Six Year Project Plan

Contact us

Fish Passage

State highways cross streams and rivers in thousands of places in Washington State, which can impede fish migration. WSDOT has worked for more than two decades to improve fish passage and reconnect streams to help keep our waterways healthy. WSDOT Fish Barrier Correction is a priority.

Find Fish Passage Projects



Before Photo



SR 99 concrete box culvert that blocked fish passage at West Fork Hyalison Creek near Tacoma.

After Photo



SR 99 at West Fork Hyalison Creek after the old culvert was replaced in 2015, restoring access to over 2 miles of upstream habitat for dunn and coho salmon, steelhead, sea-run cutthroat, and resident trout.

Questions or Comments?



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