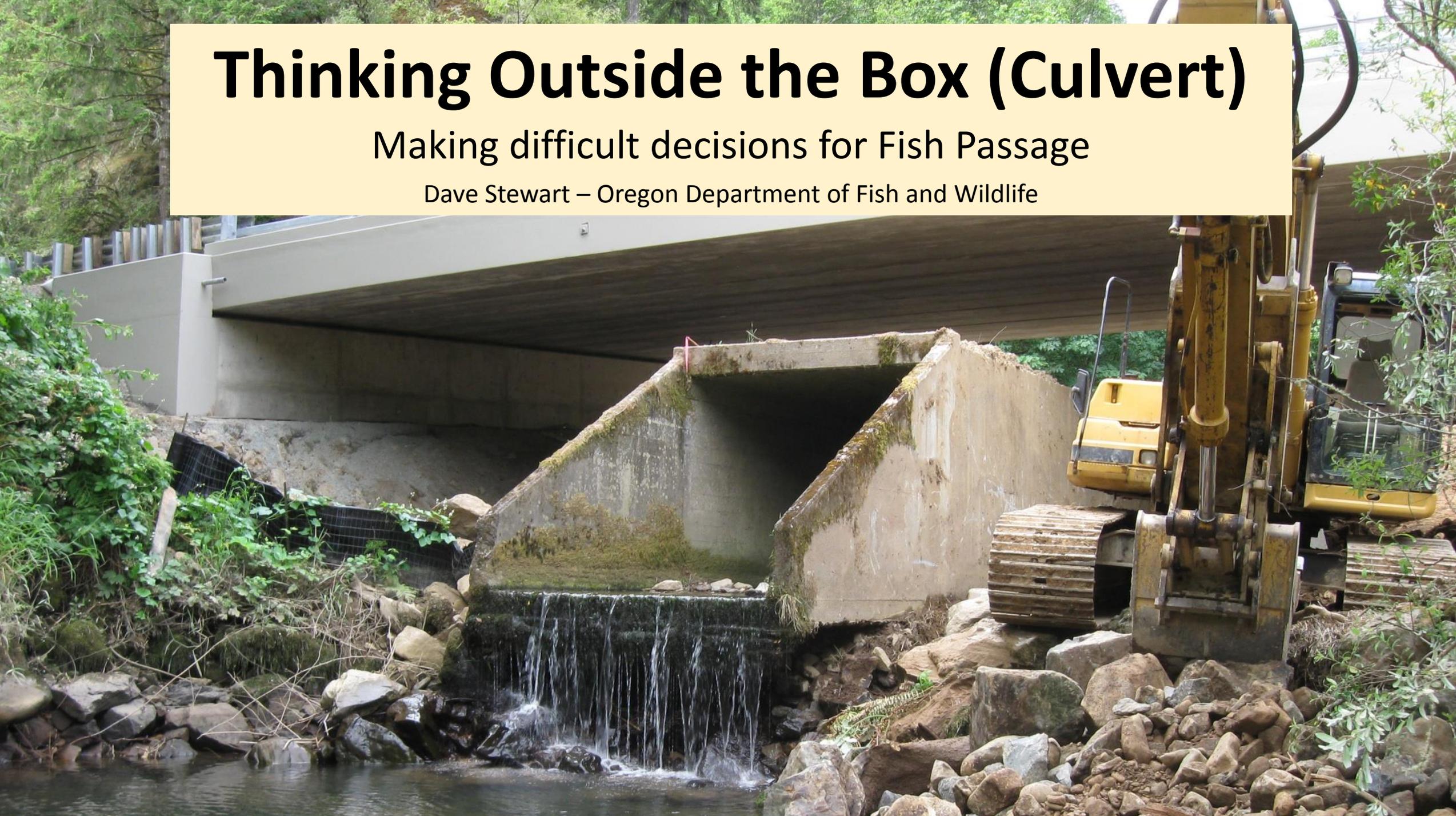


Thinking Outside the Box (Culvert)

Making difficult decisions for Fish Passage

Dave Stewart – Oregon Department of Fish and Wildlife





Overview

Fish Passage History – Fast Version

Where are we at Now

Approval Process

ODOT and Passage

The Johnson Creek Challenge

What you can do today

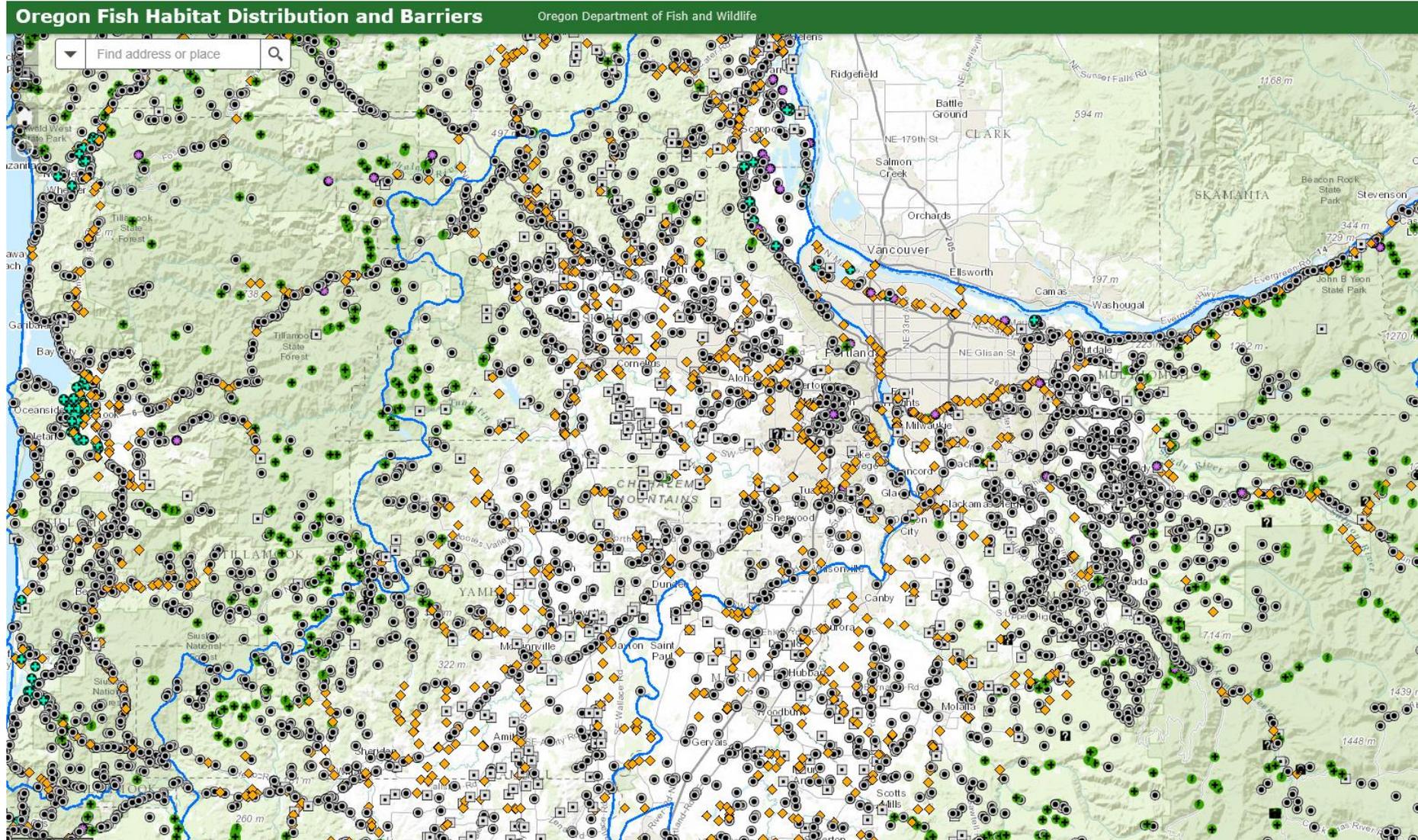


HISTORY

- **First fish passage laws were prior to statehood (1859)**
 - **1848: Oregon Territorial Constitution, Section 12:**

"The rivers and streams of water in said territory of Oregon in which salmon are found or to which they resort shall not be obstructed by dam or otherwise, unless such dams or obstructions are so constructed as to allow salmon to pass freely up and down such rivers and streams."
- **Former statutes required passage, did not allow waivers, and were not followed (leaving many outside law)**

Current Status



https://nrimp2.dfw.state.or.us/FHD_FPB_Viewer/index.html

SCOPE OF PROBLEM IN OREGON

- road-stream crossings: 10,000s
- dams: 1,000s
- tide gates: 1,000s
- dikes, etc.: ?



Upstream and Downstream Fish Migration has been Bisected Throughout Oregon

PRIMARY CAUSES OF PROBLEMS

- Water velocities exceed swimming capabilities of fish
- Water surface to water surface drop/jump heights
- Structural supports blocking channels (dams, bridge piers, culverts, dikes, levees, tide gates)
- Shallow water depths in receiving pools
- Abandoned structures
- Excessive culvert lengths
- Shallow water depths in culverts
- Water over-allocation “no water in stream”
- Poor water quality
- Attraction flows at fishway entrances
- Combination of multiple factors

ODFW Fish Passage Plan for a Road Stream Crossing

	OREGON DEPARTMENT OF FISH AND WILDLIFE Fish Passage Plan for a Road-Stream Crossing
---	---

• If you unlock and re-lock this Form, information already entered may be lost in certain versions of MS Word.
 • If your project includes multiple crossings, please complete this form for each crossing.

APPLICANT INFORMATION

APPLICANT: ORGANIZATION: ADDRESS: CITY: PHONE: FAX: E-MAIL ADDRESS:	TITLE: STATE: ZIP:
SIGNATURE: _____ DATE: _____	
AUTHORIZED AGENT (if any): ORGANIZATION: ADDRESS: CITY: PHONE: FAX: E-MAIL ADDRESS:	TITLE: STATE: ZIP:
SIGNATURE: _____ DATE: _____	
OWNER (if different than Applicant): ORGANIZATION: ADDRESS: CITY: PHONE: FAX: E-MAIL ADDRESS:	TITLE: STATE: ZIP:
SIGNATURE: _____ DATE: _____	

LOCATION

• COUNTY			
• ROAD			
• RIVER/STREAM			
• TRIBUTARY OF			
• BASIN			
• COORDINATES ^a	Longitude: °W	Latitude: °N	
• LEGAL DESCRIPTION	1/4 / 1/4:		
	Section: Tax Map #:		
	Township: Tax Lot #:		
	Range:		

^a geographic projection using NAD_83 and formatted as decimal degrees to at least 4 places

Stream Simulation Design Method Approach:

- new structure width is at least \geq active channel width**
- slope and elevation continuous**
- bed material:**
 - Similar to surrounding natural stream**
 - is stable and remains in place**
 - natural or supplemented**
 - over-sized rock if >40' long**
 - placed during construction**
 - maintains water depth and velocity**

“Natural/Nature Like” Solutions

- Rock Weirs
 - Large channel spanning rock
 - Effectively backwaters obstruction/provides adequate water surface elevation for passage and diversion
 - Water differentials meet needs of NMF present
- Roughened Channels
 - “Over steepened” sections
 - Provides depths and velocities that meet the needs of NMF present
- Stream simulation Channels
 - Channel reflects conditions in the natural stream- gradient, velocities, depths, etc.





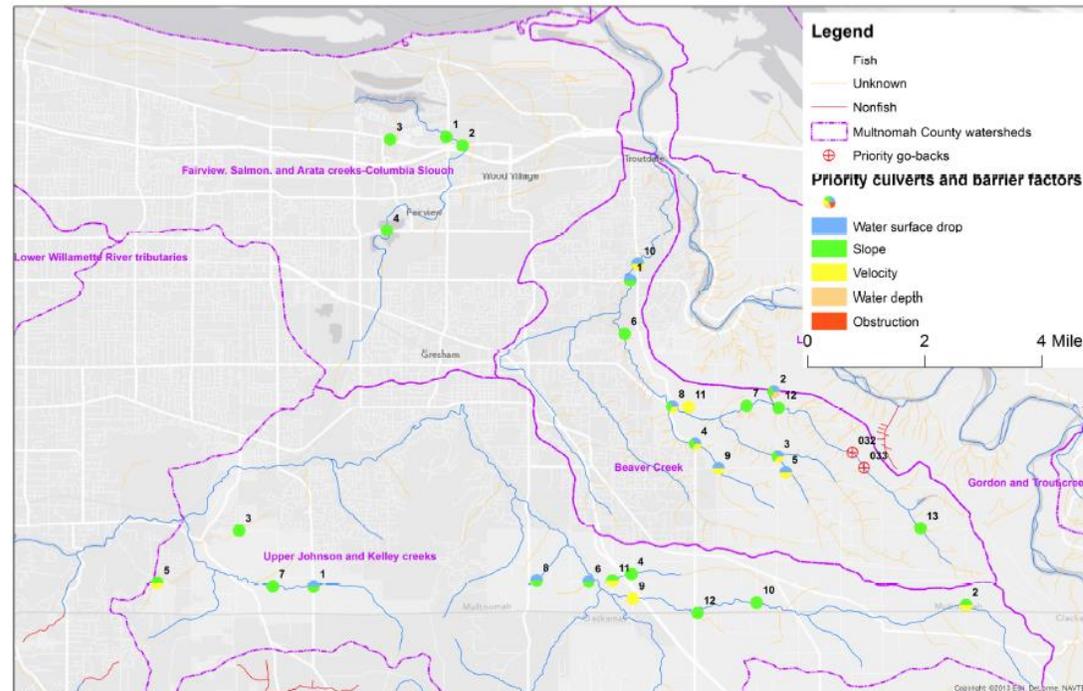
“Of the 273 stream crossings assessed for fish passage, we found 202 or 74% of them to be fish passage barriers.”

-Johnson Creek Watershed Council 2015 to 2025 Action plan
(http://jcwc.org/wp-content/uploads/2015/06/JCWC-Action-Plan-10.4_small.pdf)

List of projects completed in Johnson Creek

- New Data
- Prioritization
- Implementation
- Crystal Springs Example
- Ongoing projects

Appendix Figure E. Fish passage barriers prioritized by watershed based on relative importance to fish recovery in Fairview-Salmon-Arata, Upper Johnson-Kelley, and Beaver Creek watersheds. Private crossings with the potential to block >2 km of upstream habitat that need follow up are also highlighted in red.



ODFW and ODOT team up to address a big issue



Fish Passage Mitigation Banking

Oregon Department of Fish and Wildlife

Mobile

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FISH DIVISION
Regulating harvest, protection, and enhancement of fish populations

Fish Passage Mitigation Bank

The Oregon Department of Fish and Wildlife (ODFW) Fish Passage Program has developed a plan to test an approach to Fish Passage Mitigation Banking in Oregon's North Coast. In 2012, with support from ODFW staff, the Oregon Department of Transportation (ODOT), Willamette Partnership and The Nature Conservancy began work on a package of tools that would support a pilot fish passage banking program.

Fish passage banking will allow ODFW to steer mitigation from multiple waivers toward fish passage **banks** – locations where high priority barriers are removed and significant benefits for fish are created. Banking will also provide ODFW, waiver applicants, and other stakeholders with a more standardized and transparent process to evaluate whether mitigation is appropriate, adequate and sustainable in terms of meeting conservation goals for native migratory fish habitat in Oregon.

[A more complete overview of the Fish Passage Mitigation Banking Pilot \(pdf\)](#)

Three Pilot Project Objectives

Objective A: rigorously test and refine the Net Benefit Analysis (NBA) Tool

In order to use the NBA Tool in programmatic permitting decisions, it needs to produce credible results. The Net Benefit Analysis Tool includes a Fish Passage Credit Calculator (Calculator) that quantifies the impact of permitted actions (debits) to fish passage and the benefits of mitigation (credits). In order to evaluate its suitability for use in a regulatory program, the Calculator will be tested in field conditions to determine its accuracy, repeatability, sensitivity and usability.

Objective B: Conduct a limited number of mitigation banking transactions

As the chief sponsor ODOT, in conjunction with ODFW, will develop a mitigation bank site by removing a high priority barrier and will use the Net Benefit Analysis Tool to estimate the number of fish passage credits generated at the site. In order to account for any risk or uncertainty associated with the calculation of credits/debits, and to ensure a net benefit for native migratory fish as a result of these transactions, ODFW and ODOT have agreed to a set of terms or conditions.

Pilot Conditions:

- Each waiver site will use a 3:1 ratio of credits to debits; in other words, every debit will require three credits to meet mitigation obligations under the fish passage banking program.
- ODOT will limit the number of waivers brought against the bank to 12.
- Each waiver site will be no more than 0.5 miles in length.

Objective C: Evaluate the potential for statewide implementation of a fish passage banking program

Sign up for E-mail or text message updates



<http://www.dfw.state.or.us/fish/passage/mitigation.asp>

Passage Repair Pilot



Highway - Geo-Environmental Section



Department ▾

Culvert Repair Pilot Project

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- Air Quality, Noise & Energy
- Biology
- Cultural Resources
- Drafting
- Erosion and Sediment Control
- Geo-Environmental Section Share Site (Internal Only)
- Geology/Geotechnical
- Hazardous Materials
- Hydraulics
- NEPA Coordination
- Retaining Walls
- Roadside Development
- Water Resources
- Wetlands

The Oregon Department of Transportation (ODOT) and the Oregon Department of Fish and Wildlife (ODFW) have negotiated a [programmatic agreement](#) to implement a three-year pilot program that will allow ODOT to make specific short-term repairs to culverts in western Oregon without having to meet full fish passage criteria under the Oregon fish passage rules (OAR 635-412-0020).

This agreement was approved by the ODFW Commission on October 10th 2014. The programmatic agreement includes several key conditions for ODOT to conduct the culvert repair pilot program:

- Culvert repairs are considered temporary and are intended to last approximately 25 years or less
- ODOT will improve fish passage at each repair site, and
- High priority fish passage barriers are not eligible for this pilot project.

In addition, ODOT has agreed to pay \$1.8 million into an ODFW-managed account that would fund high priority fish passage projects off the State system to offset delayed passage at repair locations. Finally, ODOT will fund a new transportation liaison position within ODFW, to coordinate implementation of the agreement. Both ODOT and ODFW staff have characterized the pilot project as a "win-win" that allows ODOT to make critical culvert repairs at a lower cost while protecting public safety, fish passage and watershed health. In addition, ODOT has agreed to pay \$1.8 million into an ODFW-managed account that would fund high priority fish passage projects off the State system to offset delayed passage at repair locations. Finally, ODOT will fund a new transportation liaison position within ODFW, to coordinate implementation of the agreement. Both ODOT and ODFW staff have characterized the pilot project as a "win-win" that allows ODOT to make critical culvert repairs at a lower cost while protecting public safety, fish passage and watershed health.

- [ODOT Culvert Repair Fish Passage Pilot Programmatic Agreement](#)
- [Culvert Repair Programmatic Agreement Pilot Project Implementation Process](#)
- [ODOT-ODFW Culvert Repair Pilot Project Initiation & Tracking Form](#)

For more information contact:

[Bill Warncke](#)

Aquatic Biology & Fish Passage Program Coordinator

503.986.3459

Would these programs be a good fit for Johnson Creek?

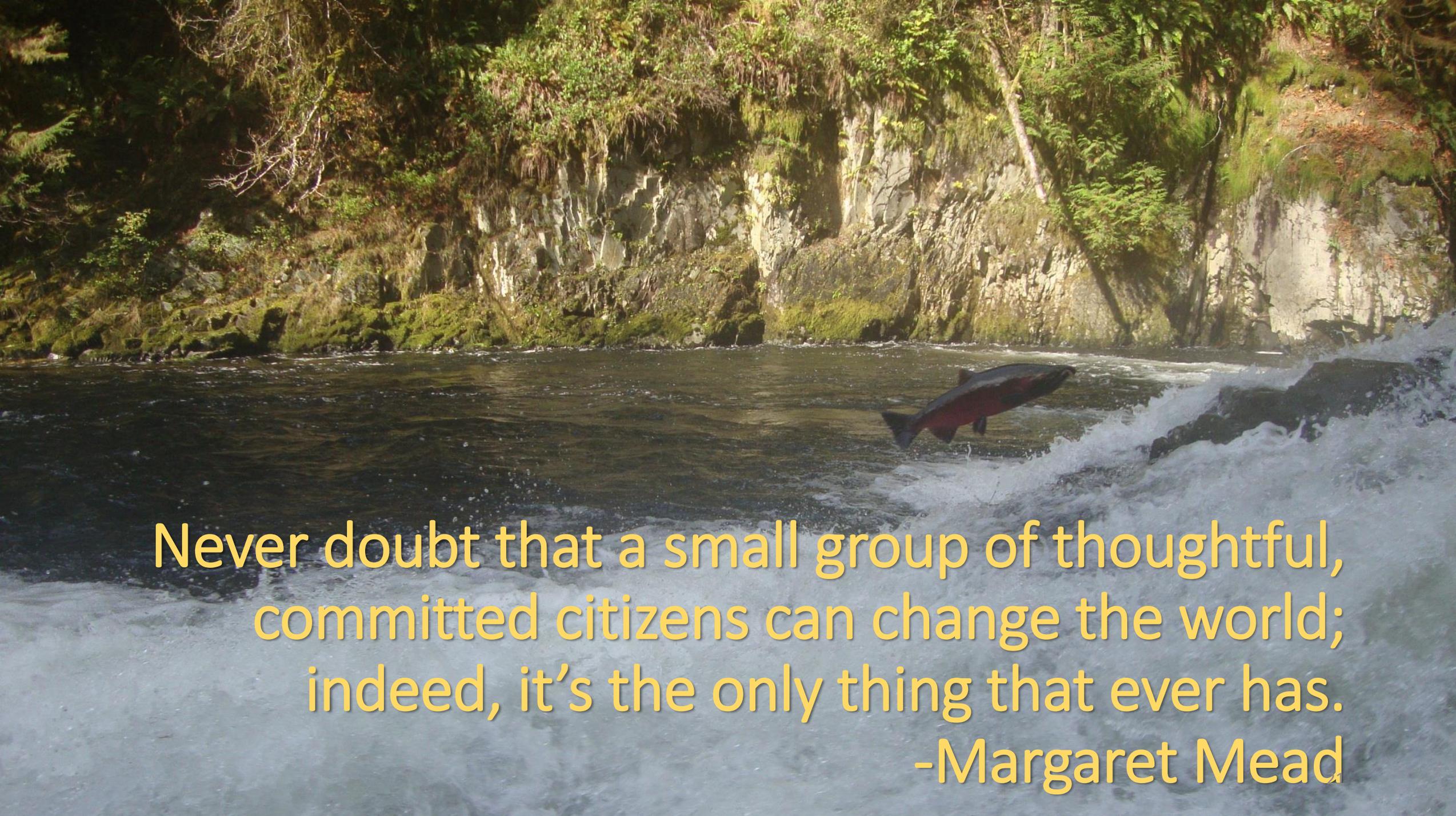
- Is there one high priority site that would provide a 10X benefit to fish if we spent the money there, and didn't provide passage at another location?
- Are there other ideas for addressing some of the other questionable passage sites?

Completed and Upcoming.....



The One Thing





Never doubt that a small group of thoughtful,
committed citizens can change the world;
indeed, it's the only thing that ever has.

-Margaret Mead

Your time is limited, so don't waste it living someone else's life. Don't be trapped by dogma -- which is living with the results of other people's thinking. Don't let the noise of other's opinions drown out your own inner voice. And most important, have the courage to follow your heart and intuition. They somehow already know what you truly want. Everything else is secondary.

-Steve Jobs