Correcting fish passage barriers is an important part of the state's effort to protect and restore salmon runs and meet legal responsibilities. There are about 1,995 barriers to fish passage in the highway system statewide and 1,521 have significant habitat (200 meters or about 1/10 of a mile upstream). WSDOT has been correcting fish passage barriers since the early 1990s.

We’re making good progress!

WSDOT has made a lot of progress and invested substantial funding in fish passage. As of July 2018, WSDOT:

• Completed a total of 330 fish passage projects statewide.
• Improved access to about 1,042 miles of potential habitat upstream.
• In 2018, WSDOT is correcting an additional 15 barriers statewide opening up approximately 103 miles of stream habitat.

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WSDOT is increasing investments in fish passage

Over the last three biennia, funding for stand-alone fish passage projects has more than tripled. However, additional funding is needed.

• In 2013-15, WSDOT invested approximately $27 million correcting fish passage barriers.
• In 2015-17, WSDOT invested approximately $70 million to correct stand-alone barriers.
• In 2017-19, WSDOT plans to spend $109 million on stand-alone fish passage projects.
• For the 2019-2021 biennium, the Governor’s budget includes $275 million to correct fish passage barriers.
• WSDOT’s current estimate to comply with the injunction by 2030 is an additional $3.1 billion.

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19-01-0037

In 2016, two 6-foot diameter culverts on Jansen Creek were replaced with a bridge on State Route 112, for $2.6 million. This project, located in rural Clallam County, provides access to 3.5 miles of habitat for coho salmon, steelhead and resident trout.

In 2016, WSDOT replaced the lowest barrier culvert in the watershed on Little Skookum Creek, providing access to 3.4 miles of potential habitat that is especially productive for chum. One year after construction, WDFW documented nearly 500 chum salmon spawning upstream of State Route 108 in a single day.

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WSDOT culverts in the federal case area

Per a 2013 federal injunction, WSDOT needs to correct approximately 415 culverts to open 90 percent of the blocked habitat, which is about 1.012 miles of habitat. WSDOT is required to complete this work by 2030. Overall, there are 992 barrier culverts under state highways that are subject to the injunction. WSDOT has corrected 55 injunction barriers since 2013 and is correcting another 11 injunction barriers in 2018.

After the 2018 construction season, WSDOT will have opened 312 miles of habitat within the culvert case area, since 2013.

MORE INFORMATION

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Part of a larger restoration effort

WSDOT’s efforts to correct fish passage barriers are part of a larger restoration effort, making an important contribution to salmon and steelhead recovery in Washington. WSDOT is working with project sponsors and the Brian Abbott Fish Barrier Removal Board (Barrier Removal Board) to leverage WSDOT investments in fish passage projects with other fish barrier corrections in the same watersheds. The map below shows where the board is making investments in watersheds where WSDOT is correcting barriers.

Mobility for adult and juvenile fish

Young fish need passage as well as returning adults. Juvenile salmonids can spend up to two years rearing in freshwater before they migrate to the sea. During this time, they need access to smaller stream and wetland areas where they can grow and evade predators.

Many culverts that are now barriers were built under former methods that did not reflect the current understanding of juvenile fish migration needs. Due to their smaller size, juvenile fish require more gentle conditions for migration than adult fish returning to spawn.

Bridges and “stream simulation” culverts allow for more natural channel conditions and better accommodate the needs of juvenile fish. Stream simulation refers to the design requirements intended to mimic natural conditions.

Cost drivers in fish barrier correction projects

Replacing culverts under state highways comes at a higher cost than barrier correction under smaller roads. Costs associated with meeting the injunction requirements may include:

- Extensive excavation and grading of the channel to remove fill and mimic a natural streambed.
- Construction staging to keep traffic moving with minimal disruption; projects cost more when roads are kept open during construction.
- Right of way agreements for access to adjacent property that are often required for construction.
- Bridge design elements to meet standards for traffic load and seismic resiliency.
- Limited construction periods to adhere to in-water work restrictions.
- Public safety features including guardrail, barrier, striping and signing.

WSDOT restored fish passage on Fisher Creek in 2017, however, as you can see in the photo, there is another fish barrier located immediately upstream. The county is seeking Barrier Removal Board funds to correct this barrier in the 19-21 biennium.

Efficiencies in fish barrier project design

WSDOT continuously works to reduce costs in design, contracting processes and construction duration, and to limit the effects on highway users. Some of our methods include:

- Utilizing designated fish passage design teams to bring specialized expertise to these projects.
- Working with permitting agencies to streamline the permit process. For instance, WSDOT and resource agencies developed a streamlined Endangered Species Act Consultation that reduces approval time.
- Achieving efficiencies through structure design, bundling multiple projects in close proximity.
- Coordinating traffic management strategies with stakeholders to minimize impacts to local communities and the traveling public during construction.

How do we know it’s working?

- WSDOT conducts post-project monitoring to ensure the new water crossing structures are fish passable.
- Washington State Dept of Fish & Wildlife Biologists conduct field surveys upstream of newly constructed fish passage projects to look for increased adult salmon and steelhead use.
- WDFW observed fish spawning upstream at more than half of the WSDOT fish passage projects constructed in the past two years.