

EXECUTIVE SUMMARY

The Willamette Falls Fishway is located along the west side of the Willamette River in West Linn, Oregon approximately 26 miles upstream from the confluence with the Columbia River. Before development of the Fishway, Willamette Falls presented a natural seasonal barrier to migrating fish. Spring Chinook salmon and winter steelhead were the only two species that could ascend the falls in later winter and early spring, when flows were sufficiently high. Late 19th century industrialization of the area led to diminishing salmon and steelhead runs, which prompted the construction of Willamette Falls' first fish ladder in 1885. Carved out of solid rock, the original primitive fish ladder did make it easier for salmon to ascend to the upper river. A modern, technologically advanced fish ladder system was completed in 1971 and is operated by the Oregon Department of Fish and Wildlife (ODFW).

Willamette Falls Fishway's facilities include a system of fish ladders that provide for upstream migration of anadromous fish in the Willamette River Basin. Of these, Fishway No. 1 is the most complex of the ladders, encompassing a series of monolithic concrete structures combined with elevated concrete bridge flumes which direct fish passage to spawning grounds upriver from Willamette Falls. Of the 3 fishways in the system, Fishway No. 1 carries the highest percentage of fish past the falls and is therefore the most critical part of the system. PSE's involvement dates back to 1991 and includes many fishway upgrade projects, including evaluations, design phases I through IV, and flood damage repairs. Our participation with ODFW in these projects brought us in contact with every aspect of the fishway operation.

In 2009 it was identified that Fishway No. 1 was showing evidence of instability, foundation undermining and damage which threatened the continued operation of this element. Failure in passage over the Willamette Falls would be catastrophic to all anadromous fishes (hatchery and wild) in the Willamette Valley basin – particularly threatened species.

“Our biggest concern was a catastrophic failure of the fish ladder that would keep any fish from using the ladder, particularly threatened upper Willamette winter steelhead and spring Chinook. This would keep fish from migrating upstream for years and would significantly threaten these already fragile populations, so it's critical we take steps now to fix the fish ladder.” Ryan McCormick, ODFW Chief Engineer.

PSE's solution combined a series of foundation support elements plus thermal force return tension rods to stabilize the structure and arrest the thermal actions causing damage to the structure. Completed in November 2020, these repairs ensure the continued operations of the Willamette Falls Fishway, a key contributor to ODFW's mission: to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations.