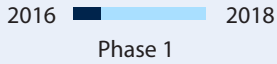


Hood Canal Bridge Assessment

Is a Floating Bridge Impacting the Hood Canal Ecosystem?



Project Duration



Phase 1



Estimated Total Project Cost

\$2.4 Million



Funds Raised To Date

\$800,000



Project Status

Research Underway



Project Partners

- Hood Canal Coordinating Council
- Port Gamble S'Klallam Tribe
- Washington Department of Fish and Wildlife
- National Oceanic and Atmospheric Administration
- Pacific Northwest National Laboratory
- Washington State Dept of Transportation
- U.S. Navy



Species Impacted

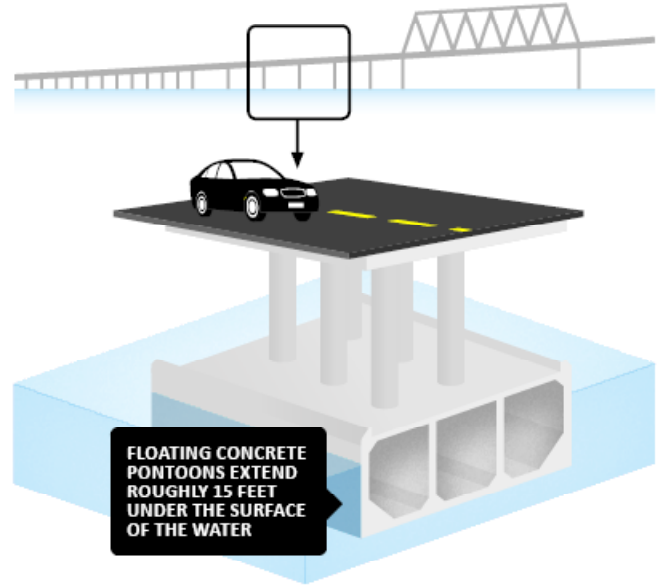
- Salmon and steelhead
- Forage fish
- Groundfish (rockfish)
- Shellfish, crab, and shrimp
- Harbor seals, bald eagles, and killer whales

Purpose:

The Hood Canal Bridge Ecosystem Impact Assessment will pinpoint the causes of high fish mortality at the bridge and determine whether the bridge is lowering water quality in a priority water body of Washington State. Solutions that do not substantially impact the bridge will then be identified and tested.

Context:

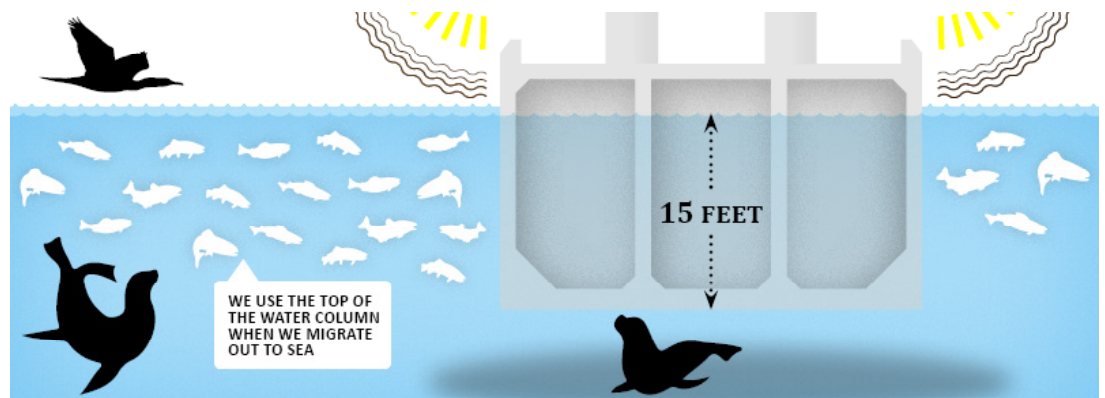
Coined “the wild side of Washington”, many tourists and locals go to Hood Canal to experience nature. However, vital elements of Hood Canal’s natural ecosystem are at risk. Wild salmon — including Chinook, chum, and steelhead — are listed as threatened under the Endangered Species Act. Low dissolved oxygen events periodically kill fish and ocean acidification threatens commercially important shellfish beds.



The Hood Canal Bridge carries State Route 104 across the northern outlet of Hood Canal, connecting the Olympic and Kitsap peninsulas. As a floating bridge, its pontoons span 83% of the width of Hood Canal and extend 15 feet into the upper water layer. Recent studies show higher mortality of juvenile steelhead as they migrate past the bridge. Research also suggests that the bridge may disrupt water circulation for all of Hood Canal, potentially increasing water temperatures, lowering dissolved oxygen levels and exacerbating the effects of ocean acidification and climate change. This dual threat to migrating fish and their local marine ecosystem may be limiting the effectiveness of millions already spent recovering steelhead, salmon and their habitat in Hood Canal.

How does the bridge increase juvenile fish mortality?

We will assess whether the bridge pontoons slow steelhead migration, heighten fish densities, and increase the susceptibility of steelhead to predation. Light, shade, and noise impacts from the bridge may also affect fish and/or predator behavior. Finally, structural voids in the bridge may aggregate plankton, attracting salmon, and increasing their susceptibility to predation.

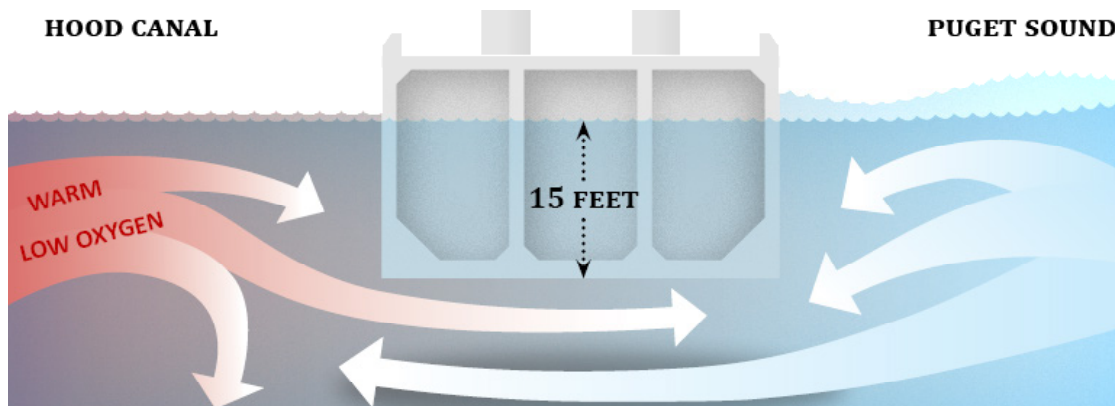


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How does the bridge impact water quality and circulation?

We will determine whether the bridge impacts circulation and water quality locally — including dissolved oxygen, temperature, acidity, and nutrient dynamics. If local impacts are identified, later work will model the extent of bridge impacts throughout the entire Hood Canal.



Approach:

The Hood Canal Bridge Assessment Team – a collaboration of federal, state, tribal, and non-profit partners coordinated by Long Live the Kings – is working to pinpoint the causes of increased fish mortality at the bridge and determine whether the bridge is lowering water quality. As the assessment progresses, the Team will work with federal, state, and county governments to develop, test, refine, and ultimately implement a suite of potential management actions to address adverse impacts of the Bridge without affecting the function of the bridge as a major transportation corridor.

Measures of Success:

- Identifies impacts of the bridge on steelhead survival, salmon and forage fish distribution, and impacts to water quality in the Hood Canal ecosystem.
- Develops, simulates, and field-tests potential management actions based on assessment results.
- Implements data-driven management solutions that minimize or mitigate impacts to salmon and the ecosystem.

Phase 1 Funding: \$2.4 million (2016-2018)

Source	Amount	Status
Washington State Salmon Recovery Board	\$688,000	Secured
Port Gamble S'Klallam Tribe	\$112,000	Secured
Washington State 2017-2019 Budget	\$800,000	Seeking
Federal Funds	\$800,000	Seeking

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For more information, please contact Lucas Hall at (206) 382-9555 x30 or lhall@lltk.org.

