



Tongass National Forest Fish Passage at Road-Stream Crossings Status

Issue Summary

Fragmentation of aquatic habitat from road-stream crossings has a well-documented impact on salmon and other aquatic species. Undersized and poorly configured crossings on fish-bearing streams increases the risk of failure during flood events, with potential profound effects on fish and aquatic life due to higher water flows and increased sedimentation. The Tongass National Forest recognized the issue across its approximate 5,000 mile network of roads (including non-system decommissioned roads) in the early 1990's, and the USFS and other agency technical experts convened fisheries biologists, hydrologists and road engineers who developed and refined an assessment protocol used to survey and categorize fish stream crossings across the Tongass. The Forest has been a leader in Aquatic Organism Passage for more than 30 years.

Background

Inventory

To date, 3,652 total fish stream crossings have been surveyed and assessed within the bounds of the Tongass, of which 1,363 are on anadromous streams, with another 2,289 on resident fish streams. Not included are 33 stream crossings which had been in the forest inventory but are now under state jurisdiction.

As of 2020, the Tongass has documented a total of 1,136 crossings (32%) which do not meet current fish passage standards, otherwise known as RED crossings, as established by ADF&G and USFS. Crossings are denoted as RED for any of the following reasons:

- ➔ **Culvert gradient** is too steep resulting in bedload loss and excessive water velocities within the culvert and can cause head cutting upstream

- ➔ Stream is **constricted** by undersized culvert creating excessive water velocities within the culvert and bedload deposition or rapid change in water surface profile at the inlet
- ➔ Culvert is **perched** at the outlet creating a vertical barrier fish may not be able to navigate
- ➔ Culvert is **blocked** by debris restricting upstream migration

Of the total RED crossings, 182 (16%) are on anadromous streams and 954 (84%) occur on resident fish streams.

Fragmented habitat upstream of RED crossings is estimated to equal about 0.4 percent (64 miles) and 2 percent (182 miles) of all mapped anadromous and resident fish stream miles on the Forest, respectively.

Remediation

Between 1998 and 2020, the Tongass has replaced, retrofitted, or removed approximately 648 crossings that were not previously meeting passage standards. Replaced crossings follow a stream simulation design by mimicking the natural channel. The estimated cost of 1998-2020 remediation adjusted to 2020 dollars is \$25.4 million. The Forest has been working with partners in replacement prioritization efforts. RED crossings are prioritized for replacement based on:

- ➔ Extent to which the crossing is affecting passage and the quantity and quality of upstream habitat
- ➔ Location of the site to Priority watersheds
- ➔ Other projects occurring in the area with equipment mobilized
- ➔ Failing structure due to service life being met

Culvert surveys on the Tongass occur in concert with timber sale planning, watershed restoration planning, mining projects, and road maintenance projects. Additional RED crossings are identified and added to the database as these surveys occur.

Upcoming work

- ➔ There are 8 RED crossings funded through FY21 Great American Outdoors Act and Joint Chiefs Prince of Wales Landscape Restoration Partnership that will be replaced on Prince of Wales and Wrangell Islands.
- ➔ One failing anadromous crossing on Crystal Creek is planned for replacement in addition to an upstream dam removal in the Dredge Lakes area in Juneau.
- ➔ There are 3 RED crossings, backed by Federal Lands Access Program funding, that will be designed and replaced within the Situk drainage in Yakutat beginning in 2022.
- ➔ Four non-functional fish stream crossings will be replaced as part of Starrigavan Creek watershed-scale actions in FY22. One failing anadromous log bridge crossing in Starrigavan Creek watershed is also planned for replacement in FY22.



Steelhead Creek RD 2000440 MP 0.130 pre-replacement



Steelhead Creek RD 2000440 MP 0.130 post-replacement

Recommendations

- ➔ Continue to prioritize, implement, and evaluate efficacy of the Aquatic Organism Passage remediation program of work on the Tongass National Forest; if additional funding is made available, increase accomplishments.
- ➔ Continue to engage and collaborate with stakeholders, partners, and agencies to leverage resources, prioritize remediation, and ensure successful implementation.