

Climate Change & Habitat Surveys on Wreck Creek



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Background

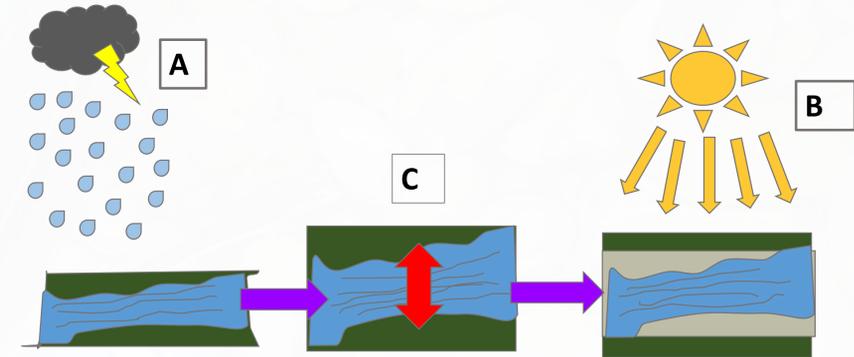
- Wreck Creek and associated tributaries are located within the Quinault Indian Reservation, 5 miles south of Taholah
- Tribal members historically followed a trail along the creek to one of the region's prairies
- Coho salmon (*Oncorhynchus kisutch*) have been observed in this stream
- This is the pilot year of the monitoring program; past assessments of physical/ecological data for QIN watersheds have relied only on scientific literature rather than region-specific surveys

"Who cares about Wreck Creek?"

Dave Bingaman (Director of QIN Dept. of Natural Resources)

With predicted future changes of larger main stem streams, smaller streams such as Wreck Creek might become more important primary habitats for culturally important fish

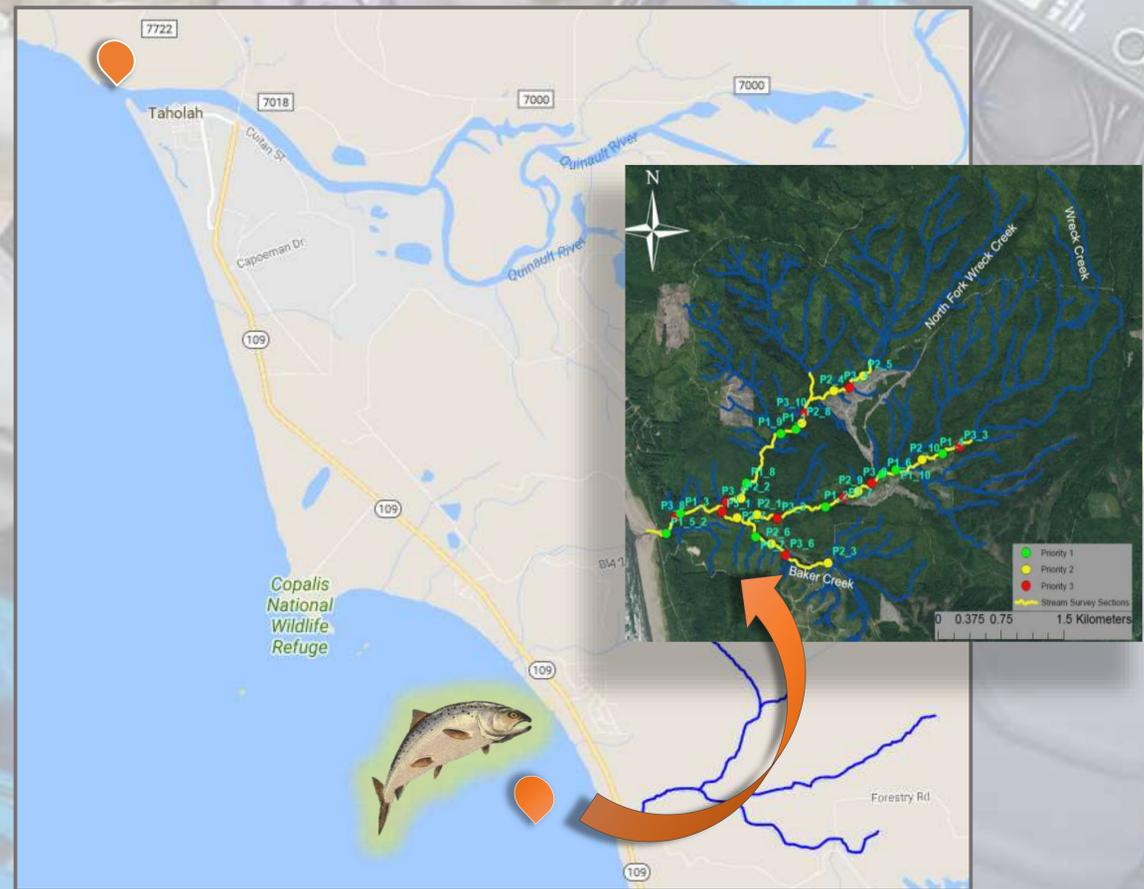
This 10-year study will provide a region-specific baseline model with which to compare other streams' habitat quality and assess future changes caused by climate change and industrial activities



Possible changes to Wreck Creek caused by climate change include: increased rate of erosion or widening of the stream (C). This happens when increased winter rains flow through the streams (A) and increased surface area allows the stream to heat up faster (B). Data collected could affect decisions on protection of buffers (strips of vegetation) along the stream to prevent this from happening.

Methods

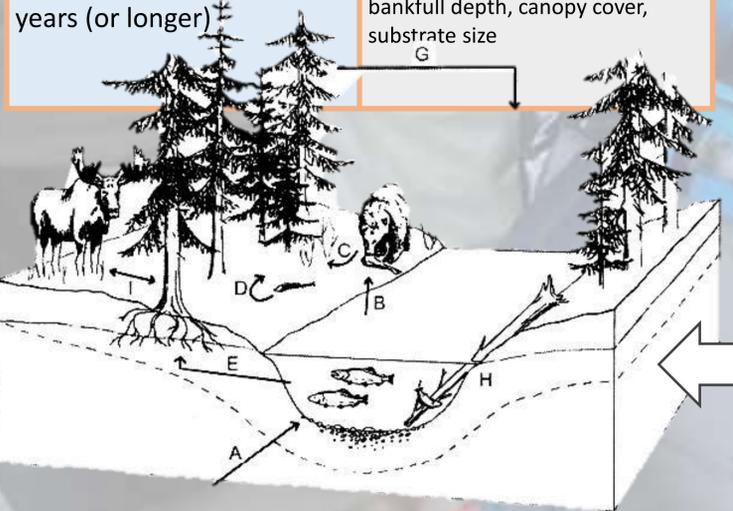
Location	Measurements
Randomly generated sites in the Wreck Creek drainage	Thermistors record temperature data over 3-month period
Perennial streams only (those with water flowing through them all year round)	Active data collection by survey crews at: transect site, 20 m upstream, 20 m downstream
At least 20 sites surveyed every summer for next 10 years (or longer)	12 total categories of data ex: ordinary high water mark, bankfull depth, canopy cover, substrate size



Study Implications

What can we do with Wreck Creek data?

- ❖ Provide information for future tribal management plans
- ❖ Track changes in habitat quality for culturally & economically important salmonids
- ❖ Document changes in stream morphology due to climate change
- ❖ Monitor impacts of activities such as: logging, fishing, presence of pollutants/chemicals
- ❖ Can be used as baseline comparison for other stream conditions
- ❖ Observed changes can be used to provide cases against industrial activity that threatens salmon or water quality



- A: Returning salmon bring marine nutrients to streams.
- B: Bears kill salmon and (C) deposit carcasses near streambank.
- D: Decomposition of carcass distributes marine nutrients in riparian zone.
- E: Marine nutrients moves through hyporheic zone to vegetation.
- F: Foliage is enhanced by marine nutrients.
- G: Riparian trees improve habitat.
- H: Woody debris retains carcasses and provides habitat for fry.
- I: Enhanced riparian foliage alters species composition.

Acknowledgements

We would like to thank the Quinault Indian Nation for hosting us and especially the staff of Quinault Dept. Of Natural Resources for their time, cultural and scientific knowledge, and commitment to sparing us a broken leg; Ben Majsterek, Justine James, Cavin Park, Daniel Ravenel. Many thanks to the people of DDCSP who have guided us and made this experience possible; Martha Groom, Adrienne Hampton, Brett Ramey, Melissa Watkinson, Clint Robins.

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