

# Hetta and Eek Lake Habitat Mapping

## ... The Project ...

In 2012, partners in this project set out to map baseline salmon distribution and habitat conditions in Hetta and Eek Lake watersheds in Southeast, Alaska.

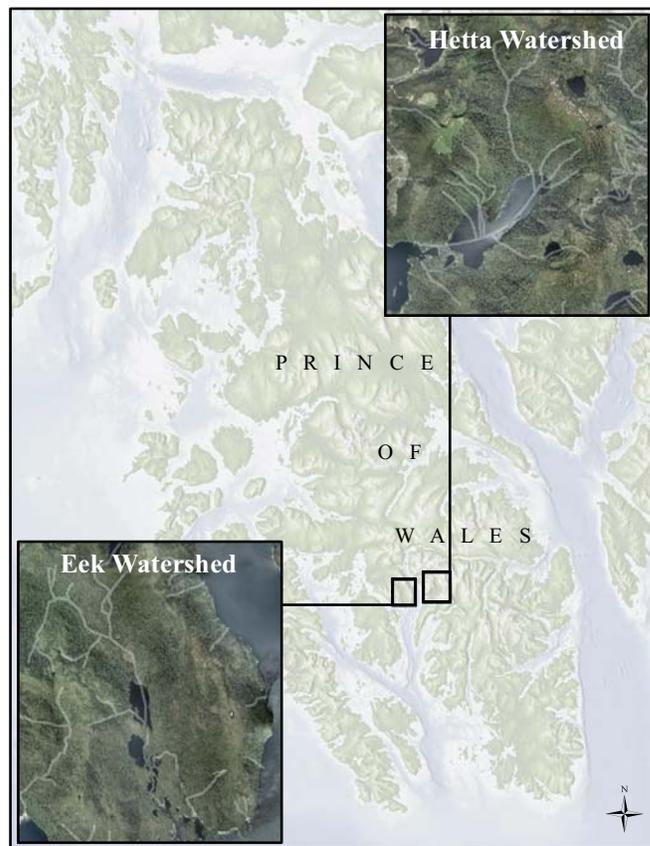
These productive sockeye salmon systems are the primary subsistence fishery for the community of Hydaburg, and are under consideration for timber development in the near future. The objectives were to:

- 1) Document the full extent of anadromous water bodies in each watershed,
- 2) Map salmon habitat characteristics and spawning activity, and
- 3) Document baseline water quality and flow.

This project also enabled local residents to explore and participate in the management of their fishery through employment opportunities.

## ... Final Results ...

- 1 kilometer of stream nominated for addition into the Anadromous Waters Catalog (AWC)
- 14 fish observation locations nominated for addition into the AWC
- Mapping of salmon habitat characteristics for all water bodies surveyed
- Local participation and employment
- Documentation of baseline water temperature and stream flow in both watersheds
- Complete GIS database assembled for public sharing through the Southeast Alaska GIS library
- Updates submitted for public-use SEAK Hydro streams GIS database



## ... The Partners ...

The Nature Conservancy (TNC) and the Hydaburg Cooperative Association (HCA) partnered on this project under a grant awarded by NOAA and administered by the Alaska Sustainable Salmon Fund. Residents of Hydaburg are concerned about the long-term sustainability of their subsistence fishery and lifestyle. This project provided HCA with the technical knowledge necessary to document fish presence and habitat quality. Ultimately, this project and a similar project planned for 2013 will allow the community to improve the overall management and protection of their local, traditional resources.

# Hetta Watershed

## Background

The Hetta watershed is a primary subsistence use area for the residents of Hydaburg, mainly for the harvest of sockeye salmon.

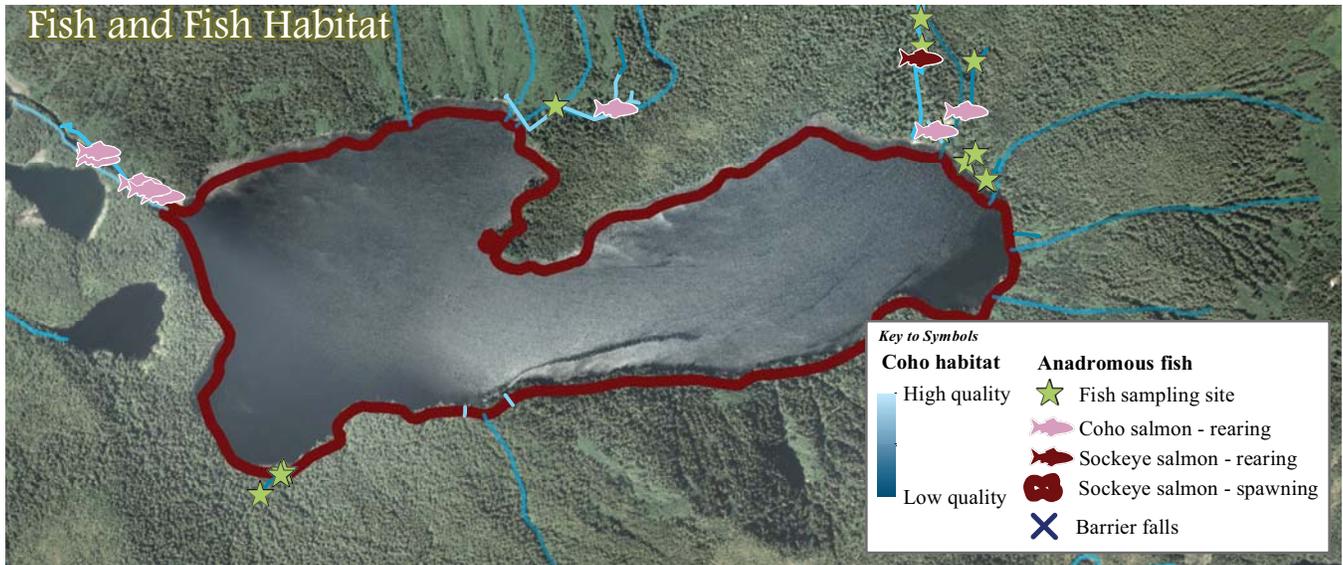
The watershed also supports pink, chum, and coho salmon, as well as Dolly Varden char, steelhead, rainbow trout and cutthroat trout.

Up to 70% of forested areas in the watershed are under consideration for timber development, and the community is concerned about the impacts of logging activities on their subsistence fishery.



Photo: Hetta weir © The Nature Conservancy

## Fish and Fish Habitat



## Fish Presence

In order to document fish presence in the Hetta watershed, minnow trapping was used in 10 locations. Eight new locations were documented in the AWC for rearing coho salmon and one for rearing sockeye salmon. In addition, adult sockeye salmon were visually observed using Hetta Lake for spawning. Other species found include Dolly Varden Char, rainbow trout, and cutthroat trout.

The Hetta watershed features many tributaries feeding into Hetta Lake. Based on geomorphology alone, the lower portions of most of these tributaries have high potential as coho spawning and rearing areas, pink and chum spawning areas, and steelhead spawning and rearing habitats. Many of the tributaries quickly become higher gradient streams, where they have high potential for Dolly Varden spawning and rearing, but less so for other fish species.



## ... Habitat Mapping and Water Quality ...

3.3 km of freshwater habitat were mapped. To determine quality of habitat, the partners mapped:

- large wood
- pool density
- substrate size
- riparian vegetation
- geomorphology
- disturbance areas

Although many areas of the watershed had high potential for rearing and spawning salmonids, many

of the streams had less wood than other non-logged streams in Southeast Alaska.

Baseline data on water quality and quantity included:

- Monitoring discharges in 6 locations; base flows at Hetta lake averaged 252 ft<sup>3</sup>/s.
- Monitoring water temps in 5 locations; water temps ranged from 40°F - 43°F with a mean of 41°F.



Photo: Survey crew © The Nature Conservancy

Fish habitat quality of all reaches in the Hetta watershed as compared to other SEAK unlogged streams:

	% Poor	% Fair	% Good
Pool density	42%	16%	42%
Wood density	68%	5%	27%
Key wood density	32%	32%	36%

Up to 70% of forested areas are under consideration for timber development



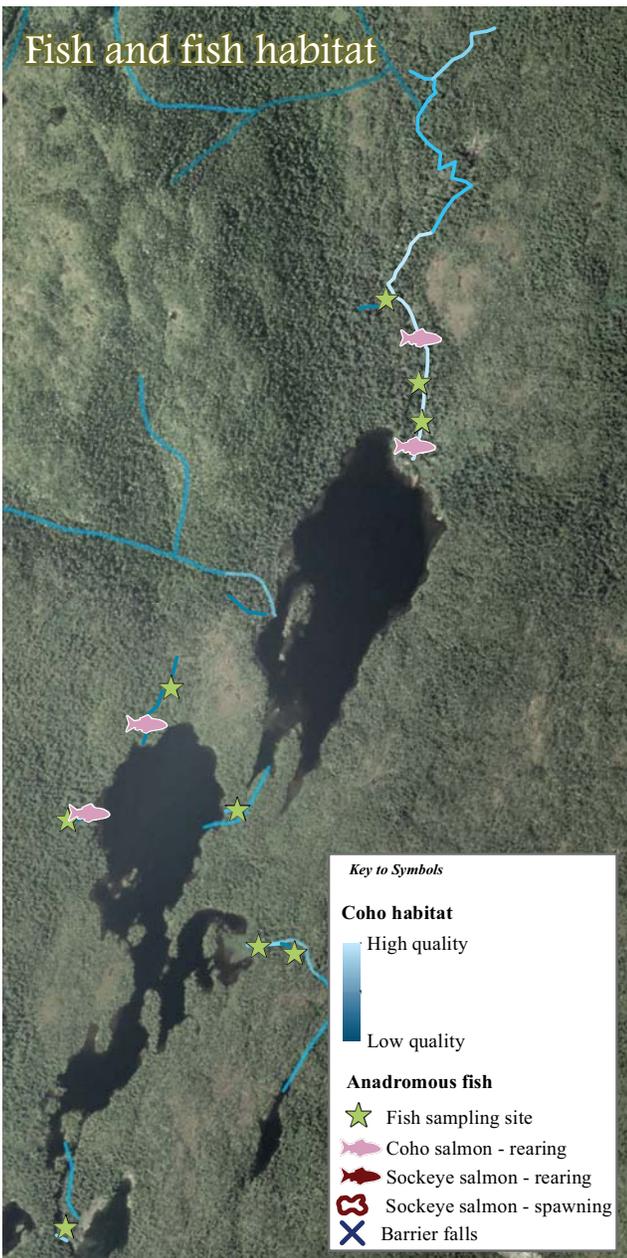
# EEK Watershed

## Background

The Eek watershed has become increasingly important to the Hydaburg community for subsistence and sockeye salmon harvest as Hetta Lake watershed runs have often returned small or late. In addition to sockeye, this watershed supports pink, chum, and coho salmon, as well as Dolly Varden char, steelhead, rainbow trout and cutthroat trout.



Photo: Eek Lake in the sun © The Nature Conservancy



## Fish Presence

In order to document fish presence in the Eek watershed, minnow trapping was used in 8 locations. Four new locations were documented in the AWC for rearing coho salmon. Other species found include Dolly Varden Char, rainbow trout, and cutthroat trout.

The Eek watershed features several small tributaries feeding into lower Eek Lake, and a longer tributary feeding into upper Eek Lake. Based on geomorphology alone, the lower portions of most of these tributaries and a large stretch of the long tributary have high potential as coho spawning and rearing areas, pink and chum spawning areas, and steelhead spawning and rearing habitats.

Many of the smaller tributaries quickly become higher gradient streams, where they have high potential for Dolly Varden spawning and rearing, but less so for other fish species.

**E**ek watershed has become increasingly important to the Hydaburg community



# Eek Watershed

## ◦◦ Habitat Mapping and Water Quality ◦◦

3.3 km of freshwater habitat were mapped. To determine quality of habitat, the partners mapped:

- large wood
- pool density
- substrate size
- riparian vegetation
- geomorphology
- disturbance areas

Although many areas of the watershed had high potential for rearing and spawning salmonids, many of the streams had less wood than other non-logged streams in Southeast Alaska.

Baseline data on water quality and quantity included:

- Monitoring discharges in 6 locations; base flows at Eek Lake averaged 83 ft<sup>3</sup>/s.
- Monitoring water temps in 5 locations; water temps ranged from 37°F - 58°F with a mean of 53°F.



Photo: Eek stream survey © The Nature Conservancy

Four new locations were documented in the AWC for rearing coho salmon

