Klawock Lake Sockeye Salmon Stakeholder Meeting

Lake Ecology Workgroup Synthesis

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Current information needs:

Watershed history, condition and impacts on lake ecology

* Lakeshore habitat change, including lakeshore spawning areas
* Land use and changes in sedimentation inputs
* Land use and changes in hydrological inputs
* Historical users of the lake
* History of fertilization or enhancement

Lake habitat / water quality

* Bathymetry
* Water temp, DO, turbidity
* Nutrients and water chemistry
* History of fertilization?
* Ice regimes and timing
* Local weather patterns

Species composition / predators / prey

* History of enhancement?
* What are the native fish?
* What are the introduced fish?
* What does the prey base look like? Zooplankton AND terrestrial insects

Juvenile sockeye abundance and condition

* History of enhancement?
* Juvenile sockeye abundance or condition info
* Smolt abundance or condition info
* Lake residence time
* Juvenile survival rates
* Smolt timing

Current information:

Watershed history, condition and impacts on lake ecology

* Reviewed in Retrospective and Klawock Watershed assessment
* History of logging on many of the inlet streams
* Past watershed condition surveys indicate degraded habitat on inlet streams, likely increased sedimentation rates and altered hydrology
* Minimal current “shoreline” development, but major highway close to shore. Development in alluvial fan of 3 mile creek near mouth
* Existence of allotments along Southern shore for potential development.
* De-watering on ½ mile creek
* Previous sediment core work demonstrates major changes in sediment loading

Lake habitat / water quality

* Reviewed in retrospective analysis and ADFG subsistence reports from the 200s
* Profiles of water temp, DO, turbidity, and other chemical and nutrient parameters taken periodically in consistent locations between 90s and 2000s.
* Water temperature and river height monitored by hatchery continually since 2012
* KCA has funding to do water temperature monitoring for next 3-4 years
* ADEC collecting lake profiles for many lakes in SE Alaska, including Klawock, in 2017 -m **Can we get this data or find out what was taken from where?**

Species composition / predators / prey

* Predation studies by KCA and ADFG have preliminary data on predators
* ADFG studies have summary info about zooplankton and phytoplankton
* ADFG core samples have historical data on zooplankton

Juvenile sockeye abundance and condition

* ADFG took population estimates of sockeye in the lake but numbers were unreliable / difficult
* Some years of measuring smolt condition / age / size but not many

Information and speakers/presentation for meeting:

* Need for an “overview” of sockeye salmon life history in systems similar to Klawock – include tie in to ocean conditions, freshwater, estuary, lake, etc
* Need for something “easy” when it comes to lake dynamics – quick list of what has been done, visual about how complex it is / what things to think about

Potential “next steps”

* Better understand how de-watering of ½ mile creek impacts spawning habitat, inputs into lake
* Better understand development options on lakeshore properties
* Hatchery interested in working with KCA to put in smolt traps to understand smolt timing
* Where should KCA monitor lake temperature with their funding?
* Better understand Klawock lake in relation to other SE Lakes after ADEC study
* Consulting with a limnologist on what long-term protocols are best