

Matanuska-Susitna Basin Salmon Habitat Partnership

Site Tour, August 24, 2015

Part 1 of Tour – Big Lake watershed

Fish Science - Big Lake Coho Salmon Migration and Habitat Use **Fish Creek**

Presenter: Jon Gerken (U.S. Fish & Wildlife Service)

Project Description: The U.S. Fish and Wildlife Service began work in the Big Lake watershed investigating Coho Salmon movement in 2009. The overarching goal of the project was to make better fiscal decisions on culvert replacement, restoration, and conservation easements by understanding Coho Salmon life history requirements. Coho Salmon life history is composed of



Tagging juvenile salmon to track their movement

work will be used and have been used by U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, Mat-Su Borough, and Great Land Trust to direct restoration efforts within the watershed.

specific habitat needs within freshwater such as spawning areas, juvenile summer rearing, and juvenile overwintering. Maintaining access to these specific habitat types is important for conservation of salmon populations within the Big Lake watershed. The project identified spawning areas using radio-telemetry on adult Coho Salmon in 2009-2010 and identified juvenile summer rearing and juvenile overwintering areas in 2011-2015. Results of the

Presenters: Bruce Lee (Big Lake Sailing Club) & Tracy Smith (Alaska Department of Fish & Game)

Project Description: This was a multi-year project to restore and enhance the shoreline of property owned by the Alaska Sailing Club to decrease bank erosion and improve fish habitat. The club, founded in 1967, owns 340 feet of shoreline in its own cove on Big Lake. As the club developed their docks and sailing facilities, they removed the native vegetation along the shore, and as a result, experienced substantial erosion.



West shoreline before restoration

The project started in 2012 with the restoration of a 90 foot section of bank on the east end of the dock area. This included the removal of rock along with woody debris and the installation of coir logs, trenched willows, and 300 sq. ft. of native vegetated materials. Volunteers with the sailing club, local residents and participants in the Alaska Department of Fish and Game Shoreline Restoration workshop contributed their time and labor. In 2013, the club restored the opposite bank using similar restoration techniques. This included the removal of 90 feet of gabions, approximately 2100 tires and numerous 55 gallon drums. The shoreline was revegetated utilizing coir logs, brush layers, trench willows and 360 sq. ft. of native vegetated materials. In addition the dock was moved away from shoreline to decrease trampling on the shoreline edge and increase sunlight for the new vegetation. The final 150



West shoreline after restoration

foot center section was completed in July 2015. Overall, 330 feet of detrimental structures were removed and the shoreline was stabilized to provide fish habitat.

Fish Passage- Beaver Lake Road Culvert Replacement

Meadow Creek

Presenters: Jim Jenson (Mat-Su Borough) & Franklin Dekker (U.S. Fish & Wildlife Service)



Construction on Meadow Creek, summer 2015

Project Description: This project replaced an undersized culvert identified by the Alaska Department of Fish and Game as a barrier to juvenile salmon. The crossing is located on Beaver Lake Road where it passes over Meadow Creek - a major tributary to Big Lake.

Installing the new larger culvert opened up approximately 9 upstream miles and an estimated 128 acres of lakehabitat to juvenile salmon. Juvenile salmon can spend years in fresh water which means that they must be able to move upstream and

downstream to access favorable habitat. Ensuring that juvenile fish have the best chance of accessing preferred habitats is an important step to protect fish populations.

Fish passage has been a long term focus for restoration activities in the Mat-Su Borough for over 15 years. To date over 80 culverts impeding fish passage have been replaced through the program, mostly on Borough owned roads. The floods of 2012 showed that these fish friendly culverts are also well suited to withstand flood events.

Habitat Conservation

Big Lake North Recreation Site

Presenters: Phil Shephard & Kim Sollien (Great Land Trust)



Important estuarine habitat for salmon in Knik Arm

Great Land Trust, (GLT) was founded in 1995 by Alaskans to work with willing landowners, agencies, communities, local governments, and other partners to conserve Southcentral Alaska's special lands and waterways. GLT is a private, nonpartisan non-profit organization dedicated to conserving lands and waters essential to the quality of life and the economic health of our communities. GLT works throughout Southcentral Alaska with a focus on the Municipality of Anchorage, the Mat-Su Borough, Prince William Sound and

Kodiak. Over the past 20 years GLT has conserved over 11,000 acres of land including 8000 acres of wetlands, 45 miles of salmon habitat, 3 farms, 5 homesteads, 6 new public access points, 5 public trails and 7 city parks.

Part 2 of Tour – Remote area west of Susitna River

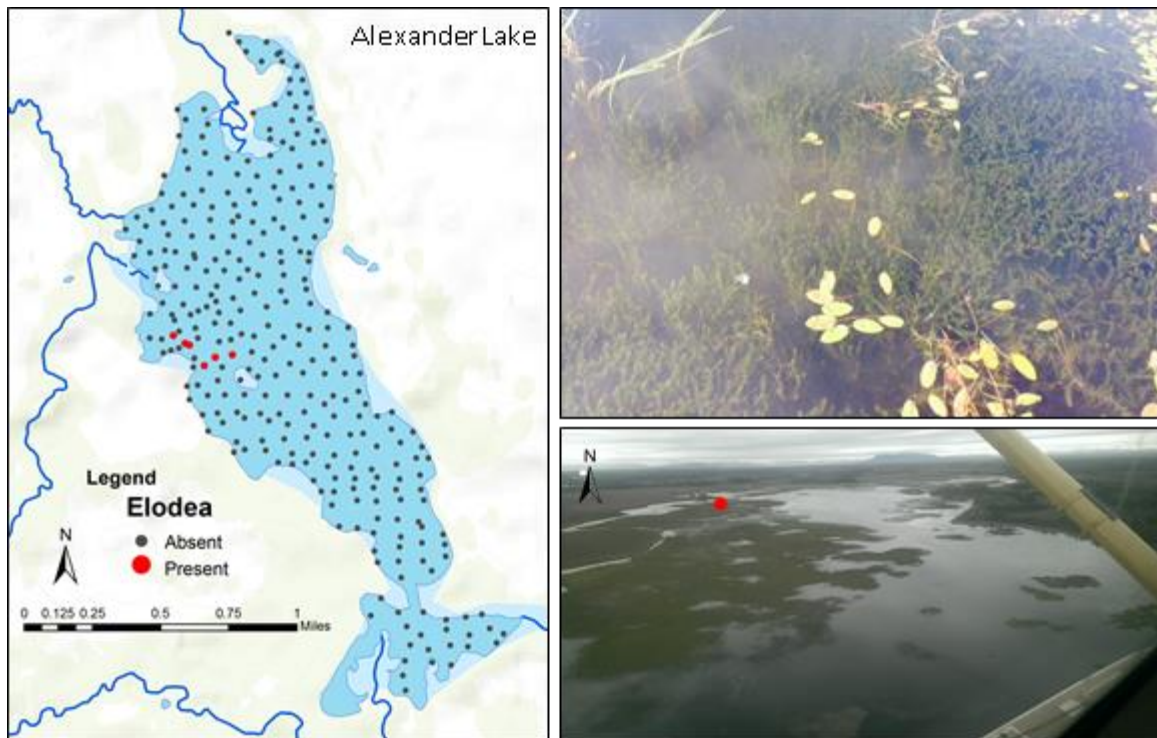
Aquatic Invasive Plants – Elodea Eradication Project

Alexander Lake

Presenter: Heather Stewart (Alaska Department of Natural Resources)

Project Description: Elodea, the first submerged freshwater invasive plant to become established in Alaska, was documented for the first time in the Mat-Su basin in Alexander Lake in August 2014. Alexander Lake is a popular destination for float planes and this source population of Elodea could easily spread throughout the Mat-Su Basin and threaten salmon resources.

The goal of this project is to implement a rapid response management effort to eradicate elodea in Alexander Lake over the next three years before it has the opportunity to become well-established. This effort would include the implementation of treatment efforts, surveying of high-risk habitat adjacent to Alexander Lake, and assessing existing pathways for Elodea in the Mat-Su Basin to prioritize and target high-risk user groups and pathways for monitoring and outreach.



From left clockwise: locations of detected Elodea on Alexander Lk., Elodea in Alexander Lake, aerial view of infestation site on Alexander Lake.

Presenter: Samantha Oslund (Alaska Department of Fish & Game)

Project Description: Alaska Department of Fish & Game (ADF&G) has completed the fourth year of a long-term and large scale annual gillnetting project to control northern pike on Alexander Creek. The intent is to replenish depleted anadromous and resident fish populations and restoring



ADF&G staff gillnet Alexander Creek pike.

sport fishing opportunities to this once very popular and productive system.

Funding extends from 2011 – 2016. As part of the project ADF&G also conducted a radio telemetry study to investigate movement patterns between Alexander Lake and the mainstem of the creek, is looking at diet, and testing effective control and detection methods such as eDNA.

Directed by the Management Plan for Invasive Northern Pike and prioritized through a strategic planning process, the northern pike suppression project

in Alexander Creek is the largest of its kind ever attempted in Alaska, and preliminary findings from the first four years of this project are encouraging.

Project goals are to create an annual, large scale pike removal protocol on side channel sloughs to remove 80% of pike, track spatial and temporal movement trends of pike to and from Alexander Lake, and measure success, monitor adult salmon returns, resident fish production and juvenile production and movement.

As of spring 2015, results have been very successful. With each year of pike suppression, Chinook fry are found further up the creek system. Chinook salmon returns the last two years have been highest in a decade.

Presenter: Gary Fandrei (Cook Inlet Aquaculture Association)



CIAA biologist Andy Wizik with Shell Lake pike

Project Description: Shell Lake in the Susitna River Watershed was once a significant contributor to the sockeye production in the Susitna River Watershed. Beginning in the mid-2000s, monitoring by Cook Inlet Aquaculture Association (CIAA) of the sockeye salmon smolt migration and the adult sockeye returns showed a steady decline in numbers. It was determined that invasive northern pike, a disease caused by the microsporidian *Loma salmonidae*, and another parasite known to cause Proliferative Kidney Disease were all having a negative effect on the sockeye salmon. To circumvent the loss of sockeye fry by the pike and to break the disease cycle, CIAA began a rehabilitation program in 2012, which included salmon stocking, northern pike harvesting, and disease monitoring. In 2012, 91,300 eggs were collected from 34 spawning pairs of sockeye salmon. The resulting progeny were stocked into Shell Lake as smolt (80,000) in 2014. In 2014, CIAA counted 21,202 sockeye salmon smolt, which was attributed to the smolt release. The restoration of the Shell Lake salmon population to a sustainable level is CIAA's goal. This project is funded by CIAA and addresses goals in the *Mat-Su Basin Salmon Habitat Partnership Strategic Action Plan* related to salmon conservation and aquatic invasive species threats. Staff from CIAA will provide an update on the restoration efforts.