**Tanana Valley Watershed Association**

2012 Annual Report of Piledriver Slough

Stream Activities

In fulfillment of Mitigation Measure 56 of the Service Transportation Board Which states: “Prior to construction of Salcha Alternative Segment 1, ARRC shall develop appropriate mitigation in consultation with ADF&G to prevent blockage of Piledriver and Twentythreemile Sloughs by beaver dams (as a result of flushing flows caused by ARRC-proposed channel plugs). Mitigation may include monitoring conducted by ARRC at a frequency agreed to by ADF&G.”

Tanana Valley Watershed Association (TVWA) in consultation with The Alaska Department of Fish and Game (AKDFG) through a Memorandum of Agreement implemented fish monitoring within the Piledriver Slough in the city of Salcha. TVWA will manage this program through 2022 and submit an annual report to AKDF&G, the Alaska Rail Road (AKRR) outlining tasks and accomplishments achieved during the past year. Full detailed report is available at AGF&F division of habitat.

**Scope of Work:**

* Sampling was conducted on the upper Piledriver section three times, in spring May l1th, summer June 13th and fall September 7th. The lower section was sampled twice in spring May 25th and fall September 21st.
* The section of Piledriver Slough from the levee site to the Baily Bridge was surveyed to find dams twice during both spring and fall.
* Fish distribution, size and species type were recorded.

The Piledriver Slough Mitigation Plan was created to assess impacts of the Northern Rail Extension Project-Phase 1. Due to construction of the new rail extension a levee was put in place that blocks flushing flows into the Piledriver Slough from the Tanana River. The flowrate changes may cause ice and log jams that would hinder fish passage as well as beaver dams, which will no longer be naturally knocked out by flushing spring flows.

**Reporting:**

The Piledriver project consists of monitoring and reporting over ten years (2012-2022) any changes that the Piledriver slough may experience. Several aspects of the report will include:

* Beaver dam activity
* Riparian Changes
* Invasive Species of Concern
* Hydrology Monitoring
* Fish Monitoring

Beaver Dam activity was surveyed during the spring and fall; all locations of activity were marked with a GPS location. Beaver dam activity was classified as active or inactive and labeled as a dam, secondary dam or lodge see Attachment A: Piledriver Slough Beaver Activity Survey Report 2012. Riparian changes were recorded through a habitat assessment. No Invasive species of concern were observed. In 2012, TVWA conducted job shadowing of HDR on hydrology monitoring. Alaska Department of Fish and Game issued TVWA a Fish Resource Permit that can be viewed in Attachment B: Fish Resource Permit and Attachment C: Fish Resource Permit Amendment #1. Once sampling was completed TVWA submitted the annual collection of data report on fish species, type, size and location. The collections report can be viewed in Attachment D: Collection of Data Report. TVWA will continue to promote this project at various events throughout the Tanana Valley. A formal PowerPoint Presentation is included in Attachment E: Piledriver Slough Project 2012.

Implementation of the project is achieved in two parts, both with the use of minnow traps baited with salmon roe. Part One: the lower five miles of Piledriver slough was sampled by TVWA staff via canoe. TVWA report all beaver activity seen while setting and checking minnow traps to monitor fish species, location and size. Part Two: the upper five miles of Piledriver Sough, monitored with cooperation from the students and staff of Salcha Elementary School. This project enabled children to connect with nature, learn hands on science and become stewards within their community. TVWA has created youth education in the fields of habitat, invasive species, fish species monitoring, and water quality as well as incorporating healthy streams healthy bugs from the U.S. Department Fish and Wildlife Fairbanks field office.

Piledriver Slough was found to have a diverse fish population. A total of 101 fish were captured and released at 18 locations, with no fatalities, these are all listed in Attachment A. Of the fish caught there were five different species, Chinook Salmon, Lake Chub, Burbot, Longnose Sucker, and Slimy Sculpin. There were several sighting of fish that were viewed but not captured. Stringer at Xantheus (N64.59286 W-147.07347) a group of 6-10 grayling was viewed in the fall sampling. One Artic Lamprie was seen in the spring sampling. A group of 6 lake chub and a burbot were seen under the Ingrid drive bridge. 10-12 Chinook Salmon were spotted in the fall at dam Site G. The graph below shows a comparison of fish caught by sampling season.

Successful implementation of the Piledriver Sough Project 2012 includes the following activities:

* TVWA hosted a training day at the Salcha Elementary School held on May 10th. Presentation for staff and students included, water safety, fish ID, fish handling, water quality, invasive species, and habitat assessment. A second training day educated the school’s staff on June 6th to review materials and finalize planning. A third training day was held for the entire Elementary School on September 6th the beginning of a new school year. The training refreshed experienced students and staff while introducing the project components to new attendees and volunteers.
* TVWA created youth science education curriculum connecting nature and education in an outdoor setting. The curriculum included how to conduct water quality, fish identification, habitat assessment, and healthy bugs. Each child was equipped with a tool kit containing supplies and safety gear to be a true scientist in the field.
* Sampling took place in spring, summer, and fall to ensure that a full scope of the stream was examined. All equipment was inventoried, cleaned, and serviced before and after the sampling season.
* As part of our project outreach a presentation was on display for community awareness during the 2012 Riverwalk event held on June 9th.
* TVWA attended the AKRR open house held at the Salcha Fair Grounds on August 26th. A display provided information to the public that outlined the full scope of the Piledriver Project and highlighted the Salcha Elementary School children’s stewardship accomplishments.
* The Piledriver project maintained strong community involvement: 22 members of the Salcha Elementary School staff, 32 community and parent volunteers, 86 children attending Salcha Elementary School, TVWA staff, the Department of Fish and Game, U.S. Department of Fish and Wildlife, Fairbanks Soil and Water Conservation District, Eielson Natural Resources, Kewtt and HDR participated and contributed to the Piledriver Projects success.

Attachment A:

Piledriver Slough Beaver Activity Survey Report 2012

Tanana Valley Watershed Association

November 14, 2012

The Piledriver slough mitigation plan monitors changes to the Piledriver slough that may be caused by beaver activity. Due to construction of the new rail extension a levee was put in place that blocks flushing flows into the Piledriver Slough from the Tanana River. The flowrate changes may cause ice and log jams that would hinder fish passage. Beaver dams may no longer be knocked out by flushing spring flows and could cause further fish passage issues. Beavers are a very natural part of the local environment and can help or hinder the other wildlife in the area. In the case of Piledriver Slough monitoring will be conducted to evaluate the beaver dams and determine if they need to be removed to aid fish passage through the slough.

The ten mile section of Piledriver from the levee site to the Bailey Bridge was monitored on May 11th and 25th and September 7th and 21st by the Tanana Valley Watershed Association (TVWA). Identification of dam, and lodges were marked with GPS Locations. Pictures and videos were taken for further comparison and review. Fish monitoring was conducted at 18 sites, with a total of 101 fish caught and released. Beaver dam activity was classified as active or inactive and labeled as a dam, secondary dam and lodge.

A total of seven beaver dams were surveyed, Identifying sites A and G as primary dams. The largest dam of concern is site G. It is recommend that site G be breached in the spring to allow for fish passage. Follow up with site A in the spring to determine if a breach is needed. The Dam at site H is considered a secondary dam, it is large and dead fish were discovered. It is recommended that site H be monitored and determined if a breach is needed in the spring. Sites B, C, I and J were all active secondary dams with little concern for fish passage. Dam J appeared to be an old dam with full water flow around it. All dams can be referenced below on page two.

Dams of concern should be breached to allow fish passage each year at the end of the open water season, and at midsummer if necessary.

**Dam Reference:**

**Site A**: Beaver dam active possible primary dam. Recommended review in the spring and possible breach needed for fish passage.

N 64.58597 W 147.06924

**Site B**: Beaver Dam active Split braded area, flowing open areas, secondary dam.

N 64.58698 W 147.07030

**Site C**: Beaver dam about 4 feet across was removed when checked in the fall.

64.88828 W 147.07118

**Site D**: Beaver lodge very active deep pools.

N 64.59647 W 147.08452

**Site E**: Beaver Lodge Very Active.

N 64.60268 W 147.08339

**Site F**: Very active beaver lodge, deep pools.

N 64.60268 W 147.08339

**Site G**: Full beaver dam across the water, primary dam. Large trees in use felled. Dam height of 4 ½ feet, recommended to be breached.

N64.60328 W 147.08560

**Site H**: Full beaver dam with a small opening about 2 ½ 3 feet wide. Spawned out adult chum salmon, on and around the dam, area had very strong fish odor. Secondary dam.

N 64.60441 W 147.08794

**Site I:** Partial dam, sporadic, like it may have been broken up some. More spawned out chum salmon on dam, very strong fish odors. Secondary Dam.

N64.60561 W147.08676

**Site J**: Old beaver dam with major silt build up. No new activity seen.

N 64.60847 W 147.08932

**Site K**: Old beaver lodge no new activity seen

N64.61459 W147.08888