

How it Works: Sedimentation Ponds

Mud Creek sediment ponds are temporary basins built on the bottom of an eroded slope side to capture disturbed soils and silt that is washed downward during rain events. This design is put in place to protect the water quality of nearby rivers, streams or lakes, in this case the South Alouette River, and subsequent impacts of multiple species spawning and rearing habitat. At the base of last sediment pond, before entering the South Alouette River, there is a weir which acts as a dam, pooling water behind it while also allowing water to flow steadily over the top. Mud Creek sediment ponds have been maintained for over 20 years. However because the ponds are constantly filtering and being filled with sediment they must be excavated every six to seven years. In June of 2015 there was a total of 2350 cubic meters of sediment removed from the site as shown in the before and after pictures.

Water Quality Monitoring: Alouette River

Water quality was taken during the excavation process in 2015. Each of the days surveyed were tested directly off of the slope where the excavation took place. This location has a high canopy coverage and therefore the temperatures on both dates have remained fairly consistent, noting the consistency of the time of day as well. Dissolved oxygen levels show a stable and healthy condition to support diverse aquatic life. Conductivity was recorded at 10.3µs/cm which is low however is consistent throughout the Alouette River as the dam holds back much of the sediment that travels down from the head waters. pH is at a prime level and turbidity is low, which is great, but did slightly increase after the excavation process.

SOUTH ALOUETTE RIVER



Water Quality Monitoring Location:
Alouette River

Water Quality: Before and After

DATE	Time	Water Temp (°C)	Dissolved Oxygen %	pH	Turbidity (NTU)
May 27, 2015	14:00	16.1	97.0	7.25	0.15
June 22, 2015	13:30	16.7	97.8	6.89	0.26



BEFORE: MAY 2015



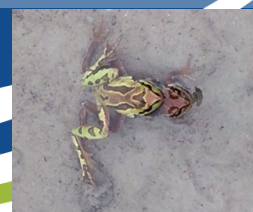
AFTER: JUNE 2015

Species at Risk: In the Area

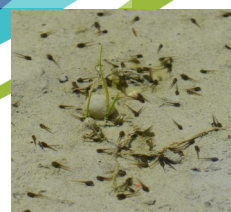
The *Western Chorus frog* is a part of the tree frog family and its various species are found across Canada. They predominantly inhabit woodland ponds, similar to that of Mud Creek. The average length of an adult is 2.5cm and weighs approximately 1gram. The *Pacific Tailed frog* is unique to British Columbia. The most remarkable feature of this frog is the “tail” which is actually a copulatory organ used to fertilize the eggs the female internally.



The *Pacific Water Shrew* is found along the Pacific coast from Northern California to Southern British Columbia. They are in fact, only found in the lower Fraser Valley in BC and are a threatened species in British Columbia due to habitat destruction. This makes them one of the rarest small mammals and have probably always been uncommon. They have been classified as a threatened species since 1994, in Canada.



Chorus Frogs Mating



Chorus Frog Tadpoles



Pacific Tailed Frog Tadpole



Western Chorus Frog

Mud Creek Sediment Ponds



Mud Creek's Future:

Bioengineering can be defined as the use of living plant materials to perform engineering functions, from simple erosion control with grass and legume seeding to more complex slope stabilization with willows and other plants. Soil bioengineering techniques can be used to revegetate steep slopes, to treat seepage zones, to control surface erosion, and to mitigate riverbank erosion. For many restoration practitioners, this is a welcome change to the typical rip rap, and hard-engineered solutions we see. This slope is a pilot project, where we are investigating the use of vegetation to reduce sediment and erosion issues in Mud Creek. It is our hope that the willow stakes will grow into established shrubs over time, thus binding the soil and halting slope erosion processes.

Support & Funding Provided by:

Alouette River Management Society
BC Corrections
Fish Wildlife Compensation Project
BC Hydro
Department of Fisheries and Oceans Canada
Province of British Columbia
Pacific Salmon Foundation



FISH AND WILDLIFE
COMPENSATION PROGRAM

The FWCP is a partnership of:

