SOUTHERN LAKES
ENHANCED STORAGE
CONCEPT

Fish and their habitat

May, 2015

YUKON
ENERGY

In March we sent you a pamphlet that talked about our research into increasing water storage in some of the lakes south of Whitehorse. The concept would see us holding more water in Marsh, Tagish and Bennett lakes in the fall, so it could be used later in the winter for power generation.

Since then, we have been providing further information on some of the topics of concern to Southern Lakes residents. Last month we looked at wildlife, waterfowl and wetlands. This month we focus on the effects this storage concept might have on fish.

Chinook Salmon

- If this concept moves ahead, the rate that water flows from the Southern Lakes to the Yukon River would be reduced by about 12 percent in the fall, when the salmon spawn. This would bring the average flows closer to what is considered ideal for the spawning salmon.
- In the winter and early spring, flows would increase between 4 and 34 percent depending on the year. Having more water flowing over/around incubating eggs and juvenile salmon provides them with a better winter habitat.

Lake Trout

- Several lake trout studies have been done to find out how the project may affect spawning and egg incubation. These studies have shown that the majority of lake trout spawn in water that is more than 2 metres deep. That means they should not be affected by the slightly lower water levels you would see in the spring as a result of this concept.
- Higher water levels during the fall are not expected to cause lake trout to spawn in shallower water. However, Yukon Energy will monitor this closely.

Photos: YE and YG

In researching this potential project, we found the concept would either have a positive, neutral, or minimal negative effect on fish.

Northern Pike/young fish of various species

- Shallow water areas adjacent to the Southern Lakes (i.e. wetlands) provide important habitat for fish as the water warms faster than in the large lakes or the Yukon River. Northern pike need access to the wetlands during the spring for spawning, and juvenile fish of other species access the wetlands to feed and grow.
- With the concept, access to wetlands should only be delayed for a day or two in most years, so is not expected to cause any significant problems for the fish.

Yukon Energy would do careful monitoring of the various fish species to ensure they continue to do well under the new water range.

Adaptive Management

Before the project could go ahead, limits of acceptable/unacceptable change would be set and would be written into our water licence.

Photo: YG, D. Crowe

Coming Soon

In June, watch for the next pamphlet in this series that will focus on erosion.

Be informed

Click on the "Southern Lakes Enhanced Storage" button on **yukonenergy.ca** to find the studies and read all the reports that have been done on this concept.

SOUTHERN LAKES ENHANCED STORAGE >

Baseline Studies
- Southern Lakes Wind Analysis
- Baseline Report 2010 GEOMORPHOLOGY
- Baseline Report 2011 GEOMORPHOLOGY
- Baseline Report AMPHIBIANS
- Baseline Report AQUATIC AND WETLAND BIRDS
- Baseline Report HYDROLOGY
- Baseline Report RARE PLANTS
- Baseline Report TERRESTRIAL AND AQUATIC MAMMALS
- Baseline Report WETLAND ECOSYSTEMS
- KGS Hydraulic Modelling of Yukon R FNL2010
- Overview of Baseline Studies

Preliminary Effects Assessments
- AQUATIC ECOSYSTEMS
- MARSH WAVE RUN UP
- TAGISH RIVER EROSION
- TAGISH WAVE RUN UP
- TERRESTRIAL ECOSYSTEMS
- YUKON RIVER CHINOOK REARING AND MIGRATION
- YUKON RIVER CHINOOK SPAWNING AND PASSAGE
- YUKON RIVER WETLANDS

Workshop Reports
- Aquatic Terrestrial Workshop Report
- Erosion Workshop Report
- Groundwater Workshop Report

Mitigation
- Groundwater Mitigation Approach and Concepts for Discussion
- Erosion Mitigation Approach and Concepts for Discussion

Fact Sheet
- Marsh Lake Storage Project – Fact Sheet

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