Mayo Project Updates

June 2011

Mayo B Update

Work on the Mayo B project is proceeding on time and budget. Over the winter, the powerhouse building was constructed and a trench dug for the penstock, the pipe needed to carry water between Wareham Lake and the new powerhouse. There was also work done on the tunnel that will connect the penstock with the lake's intake.

Now crews have begun to lay the more than 200 pieces of penstock needed for this project. Each piece of pipe is more than 18 metres (60 feet) long and more than three metres (10.5 feet) in diameter. The penstock was fabricated in China, shipped to Vancouver, and then trucked piece by piece to the Mayo site.

Other tasks scheduled for this spring and summer include the building of local transmission lines, installing the turbines and generators, and excavating the tailrace, the structure that returns the water to the river once it has passed through the turbines.

Mayo B is to be in service by the end of this year.

(Top to bottom): exterior of power-house; interior of powerhouse; placing and assembling penstock.

(Left): tunnel

Mayo Lake Enhanced Storage Project

Yukon Energy's job is to provide Yukoners with enough electricity to keep the lights on and businesses thriving. Power from any future projects must be reliable, affordable, environmentally responsible, and flexible enough to meet the changing needs of Yukon.

Projects that enhance our existing hydro facilities reflect these principles, since they displace non-renewable energy sources such as diesel without requiring as large a footprint as initiatives such as new dams. That's why we are considering the Mayo Lake Enhanced Storage Project.

The Proposal

The original reservoir at Mayo Lake was developed in the 1950s when Mayo A was built. The lake level was raised about five metres and the current operating regime of 2.59 metres was established.

Yukon Energy is proposing to enhance the storage at Mayo Lake by lowering the current licensed minimum level for the lake by up to one metre. This would give us additional water that we would use to displace diesel generation.

We would draw down the water in the wintertime as we do now, but at times there would be a lower level in spring than is currently allowed under our water license. The increased operating range would allow us to take advantage of occasional high flow years where otherwise the excess water would just spill over the Mayo Lake control structure in the late summer and fall and be unusable for energy production in the winter. No construction of any structures would be required for this enhancement project.

This idea was first suggested as one of two components of the 2009 Mayo Enhancement Project Proposal, Mayo B being the other one. However this component was withdrawn in July 2009 due to the Yukon Environmental and Socio-economic Assessment Board's (YESAB) request for an additional season of fieldwork and Yukon Energy's need to meet strict federal funding deadlines for Mayo B.

The additional field studies have now been completed. Re-engagement with governments, the NND, the community of Mayo, and other interested organizations and individuals is underway. One part of that engagement will be a community dinner and open house at the Mayo curling rink lounge on June 22nd.

No decisions have been made yet about whether to proceed with this proposal.

Mayo Lake Control Structure

The Benefits

If developed, the Mayo Lake Project will offset greenhouse gas emissions by up to 2,800 tonnes a year. It will also offset diesel generation, saving on average about $1 million per year (in 2012 dollars). In some years, the savings will be much higher.

Regulatory Process and Approvals

Before the Mayo Lake Project can move ahead, an environmental and socio-economic assessment is required under the *Yukon Environmental and Socio-Economic Assessment Act*. This assessment will be done by the YESAB office in Mayo. As well, the project will need a water use license amendment from the Yukon Water Board and a Federal *Fisheries Act* authorization.

Mayo Lake Enhanced Storage Project—Key Studies to Date

Many of the field studies on the local environment (water, land, wildlife and heritage resources) were completed in 2008 as part of the work for the Mayo B project filing in February 2009.

Since then, additional fieldwork was done in 2009 and 2010 to address YESAB's request for more information related to fisheries (lake trout and lake whitefish) and wetlands (at Roop Lake). We believe we have a thorough knowledge of key fish habitats in Mayo Lake and how water level fluctuations affect these habitats.

Key studies during 2009 and 2010 include:

- Lake trout and lake whitefish spawning assessments and egg studies (2009/10)
- Juvenile fish sampling (2009/10)
- Index netting (2010)
- Ice studies (2010)
- Roop Lakes wetland health assessment and aquatic inventory (2009/10)

Lake trout

Roop Lake Wetlands

Addressing Potential Effects

Yukon Energy believes any adverse effects of this proposed project can be minimized. Potential effects from drawing down Mayo Lake by up to one metre in the spring include:

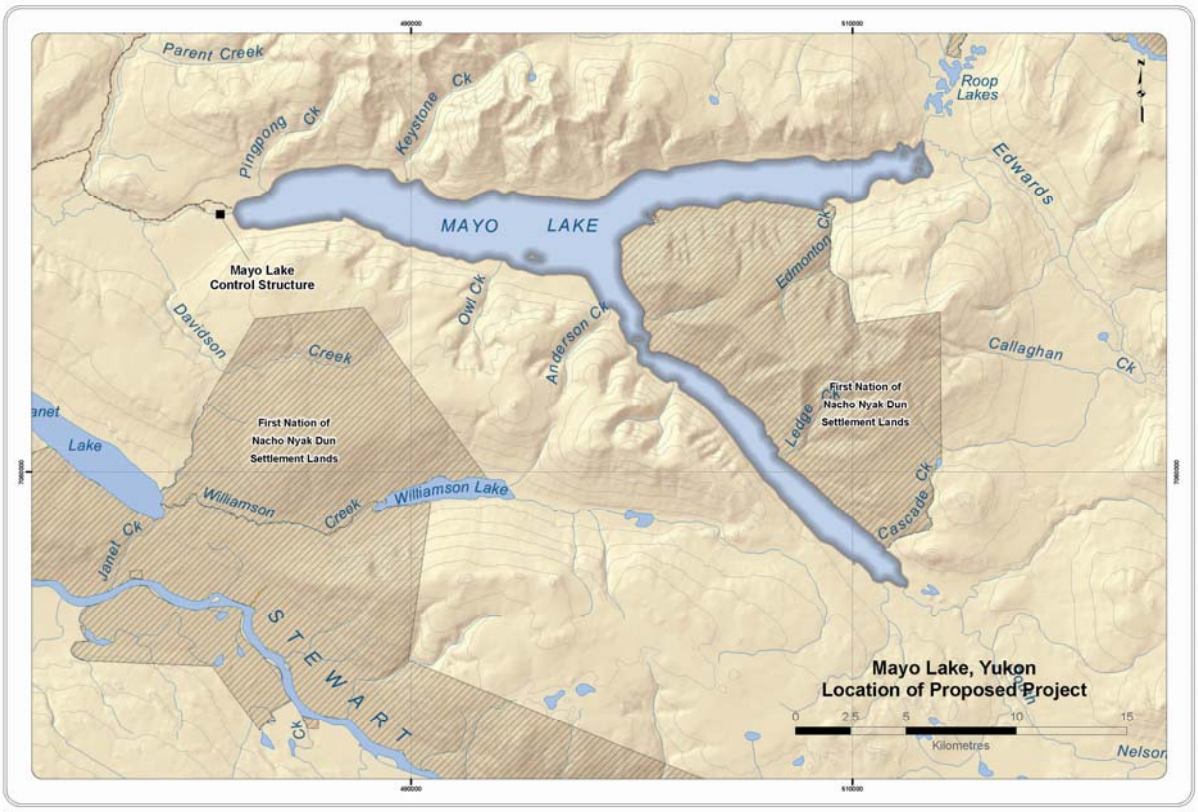
- Effects to lake trout spawning/incubation—some eggs may be above water during the incubation period
- Effects on juvenile lake whitefish survival—although shallow water habitat in spring near spawning locations is unaffected or enhanced in Roop Lakes/Roop Arm, this habitat area would be partially reduced in Nelson Arm.

There are several proven methods that can be used to detect changes associated with the project and address any effects. Such methods will be incorporated into a detailed monitoring plan for the lake. Mitigation would include:

- One-in-three year 'rest' period. This is a water management measure—if the winter drawdown (between Sept. 15 and May 31) exceeds 2.59 metres for two years in a row, the third subsequent year's winter drawdown will be equal to or less than 2.59 metres. This will allow fish populations to have more potential for productivity.
- Lake trout spawning habitat rehabilitation at Gull Island. Studies show that there are lake trout spawning beds located below the new proposed drawdown limit. These areas are only used by a small number of lake trout for spawning because of sediment build-up (lake trout prefer wave-washed or cleaned habitat). It's thought that if these areas are cleaned, they will be used more often for spawning. A trial done in 2010 resulted in a high rate of use by lake trout in the cleaned spawning areas.

Spawning area—uncleaned on left; cleaned on right

Mayo Lake Enhanced Storage Project



We Want to Hear From You

It's important that we hear from you on this proposal. Your input will help Yukon Energy plan and shape the Mayo Lake project and will allow YESAB to do a thorough assessment of the project's potential effects.

Yukon Energy first started discussing this proposal with key stakeholders during the Mayo Hydro Enhancement Project consultation process in 2008. Engagement started again in February of this year through a workshop with representatives of the First Nation of Na-cho Nyak Dun. In April of this year, a meeting took place between Yukon Energy and NND Chief and Council. Yukon Energy has also begun to engage the various regulatory and resources management agencies interested in this potential project.

We are interested in hearing from the broader Mayo community. This newsletter is one way of sharing with you the latest information regarding this proposal. Before filing with YESAB, Yukon Energy will consult with Mayo's Mayor and Council, the Mayo Renewable Resources Council, and other stakeholders in Mayo and Whitehorse. If you have specific issues that you would like to discuss with us, please contact us:

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