

Mitigating Environmental Impacts

Q: How will the Project impact water levels, fish, and habitat?

The Project will result in an increase to the Full Supply Level on Surprise Lake of 0.7 m. This will allow power generation to be maintained throughout the winter months.

To store more water in Surprise Lake, less water must be released to Pine Creek throughout the year. A minimum environmental flow will always be released from Surprise Lake, plus extra water from tributaries (e.g., Snake Creek, Spring Creek, Birch Creek, and Spruce Creek) will continue to flow into Pine Creek.

Baseline monitoring has been completed to understand the existing conditions on the lake for a variety of receptors like fish, birds, and wildlife. We have consulted Qualified Environmental Professionals specializing in these receptors to develop mitigation measures and monitoring plans to prevent or reduce impacts. Based on assessments completed to date, no significant negative effects to species around Surprise Lake are expected because of the new water levels.

Planning for the Project has taken all water licenses in the area into consideration, to make sure sufficient water will be available to supply all users (e.g., existing hydro facility, placer miners, and other private water users), even with more water being diverted for power generation.

The Project will involve construction in upper Pine Creek and at the outlet of Surprise Lake. Based on planning and assessments completed to date, no significant negative effects are expected to the environment because of in-water works in Pine Creek or Surprise Lake.

In addition to environmental considerations, the effects of changing Pine Creek flows on recreational values were assessed, including Pine Creek Falls. Pine Creek Falls is noted as an important viewpoint located on Surprise Lake Road,

which coincides with the terminus of the Crocus Trail, making it both a tourist attraction and one visited by residents.

Visually, there will be a reduction in flow that will alter the appearance of the falls during the winter when the Project will operate. However, the falls will maintain their visual quality, due to the cascading geometry of the bedrock and canyon, which will continue to funnel water over the falls.

Q: How will the Project mitigate impacts on water levels, fish, and habitat?

During Construction

To reduce impacts to aquatic habitat during construction in upper Pine Creek and at the outlet of Surprise Lake, several controls will be applied. These include:

- Isolating the future intake, fishway and low-level outlet so that the work can be done in dry conditions.
- Working during low water levels to raise the height of the dam.
- Monitoring downstream water quality during all in-water work to confirm turbidity levels remain below the allowable environmental threshold and prevent harm to fish and aquatic life.
- Completing all in-water work under the supervision of a Qualified Environmental Professional. This will ensure measures are in place to protect fish, control sediment, monitor water quality, and minimize the overall impact of this work on the surrounding environment.

Where the transmission line and penstock (pipe) cross watercourses, measures to protect the watercourse will be applied. These are prescribed in the Construction Environmental Management Plan (CEMP), that will be implemented during construction. Activities to protect fish and waterways include but are not limited to:

- Hand clearing of vegetation to ground level in riparian areas.
- Installing and maintaining sediment and erosion control measures.
- Avoiding placement of infrastructure near watercourses where possible (e.g., transmission lines poles and anchors).
- Restoring and seeding all temporary disturbed areas.

Post-construction

Once construction work is done, we will revegetate temporary disturbances to restore any remaining impact from construction or heavy equipment.

In addition, monitoring programs will be in place post-construction to confirm if the Project had or is having impacts on the environment. These include:

- **Fish:** Monitoring of creeks on Surprise Lake where spring spawning occurs to confirm that new lake levels don't impact access to these habitats.
- **Birds:** Monitoring of nesting areas around Surprise Lake to confirm that waterfowl and shorebird species can successfully nest with new lake levels.
- **Wildlife:** Monitoring lakeshore travel routes (particularly at Pine Cup Creek) used by caribou and other wildlife to confirm that migration is still possible with new lake levels.
- **Vegetation:** Monitoring to assess changes in shoreline vegetation and confirm that any changes do not cause significant impacts on wildlife habitat.

Q: How does the Project interact with mining in the area?

Several creeks in the Atlin area, including Pine Creek and Otter Creek, have been and remain disturbed because of historical placer mining operations. Regulations have improved since the time of this historical mining, so new placer operations don't cause the same damage as historical ones. Except for areas directly under Project infrastructure, the Project will not change the ability of present or future placer miners to operate in the area.

Consideration of historical placer mining has been integrated into Project planning in several ways:

- To reduce the new footprint of impacts, proposed Project infrastructure locations have intentionally overlapped with existing historical disturbances wherever feasible. This includes overlapping the penstock with a historical mining ditch and areas of placer impact along Pine Creek.
- As part of environmental offsetting work for the Project, THEL will contribute to the ongoing remediation work at Otter Creek in

collaboration with TRTFN, to restore habitat impacted by historical placer mining in this area.

- In general, the Project will greatly increase the available data on fish and wildlife habitat, stream flow, and water quality in the Atlin area through baseline environmental studies during Project planning and future environmental monitoring programs planned during the construction and operations stages.