Keewaytinook Okimakanak (KO) Marine Fibre Optic Project

Marine Survey Phase

Impacts and Mitigation Supporting Documentation

Some negative mitigatable environmental impacts are anticipated caused by the project to lands, waters, or natural resources, including wildlife.

1. Underwater noise: Noise from engines
   Engines and mufflers will be maintained in good working order to reduce underwater noise. Bathymetric equipment emits acoustic pulses (up to 221dB) that are temporary during the period of the survey and localized to an area surrounding the vessel as it travels along the survey route. Survey equipment will be turned off if mammals are observed and powered back up gradually after mammals are clear of the survey area.

2. Displacement of soil/sediment disturbance: Seabed sampling
   One 3m long, 3” diameter cylindrical vibracore sample is the maximum expected recovery at any one site. One 12L grab sample is the maximum expected recovery at any one site. The total sea bottom sampling is up to a total 11meters squared at up to a total of 11 sites.

3. Surface/bedrock geology: Seabed sampling
   The bathymetric survey does not impact the geology. The seabed samples will affect a total of less than 1m squared at any one site.

4. Sediment and soil quality: Seabed sampling
   The seabed samples will affect a total of less than 1m squared at any one site. Sediment will settle following the sampling. Sediment and soil quality will not be impacted by the sampling process. No oils / drilling muds or other fluids will be released into the water column or soils during the sampling process.

5. Water quality: Seabed sampling
   The seabed samples will affect a total of less than 1m squared at any one site and surrounding water quality. Sediment will settle following the sampling. No oils / drilling muds or other fluids will be released into the water column or soils during the sampling process Water quality will be affected by the passing ship temporarily. All procedures will be adhered to ensuring minimal disturbance with spill response enacted.

6. Benthic fauna: Seabed sampling
   The seabed samples will affect a total of less than 1m squared at any one site. Benthic fauna will be harmed with the removal of seabed samples. Sediment will settle following the sampling. The total sea bottom sampling is up to a total 11meters squared at up to a total of 11 sites. If any known sensitive sites are within the route, a route deviation will be made.

7. Marine mammal disturbance: Bathymetric survey

   DFO has provided a letter of advice listing the following, which will be adhered to: While sailing, cetacean monitoring will be completed by visual observation post. Mitigation of aquatic life disturbance is included in the above mitigations. The bathymetric survey will be operating 24/7 and equipment will be operating at power levels required to achieve suitable survey data, which will not necessarily be the maximum power level the systems are capable of.

   If marine mammals/aquatic life are observed and survey operations are required to stop, upon resuming survey operations the survey equipment will turned on at the lowest possible power setting (noise level) and be incrementally enabled (ramped up) to the higher power settings required to obtain quality survey data. The ramp up to higher power and acoustic output levels is over a period of 30 minutes to ensure aquatic life has time to leave the survey area.

Bathymetric Survey Equipment Operating Frequencies and Sound Levels

System	Freq.	Sound Level
Swath Bathymetry R2Sonic 2024/2026	200-400kHz	191dB - 221dB
Sub-bottom Profiler Knudsen 3260	3.5kHz	206dB
Sidescan Sonar Edgetech 4205	230, 540 or 850kHz	205dB
IXBlue GAPS USBL	22 – 30kHz	191dB

The marine survey will not capture, handle or dispose of any wildlife species. The survey team will report any incidents resulting in wildlife being killed. At no point will the marine survey disrupt the traditional practices of the people.

Based on best practices of the Eastern Arctic Undersea Fibre Optic Network (EAUFON) project in Nunavik, and the DFO July 4, 2023 Letter of Advice, the following will be implemented during the marine survey.

1. The use of minimum gear power level to achieve the survey objectives will be used to reduce the impact on aquatic life.

2. Ramp up procedure will be completed with gradual increase in power of survey equipment to reduce impact on aquatic life.

3. Cetacean monitoring by visual observation post will be completed. The survey will begin only if cetaceans are absent from the survey zone and stop survey if cetaceans are present. A summary cetacean sightings report will be provided to appropriate agencies following the survey completion.

4. Plan in-water works, undertakings and activities to respect timing windows to protect fish and fish habitat.

5. Plan in-water works, undertakings and activities to respect timing windows, or as stipulated by the Ministry of Natural Resources and Forestry (MNRF), to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed and migrate.

6. Develop and implement a response plan to prevent a spill of deleterious substances from entering a waterbody.

7. The marine survey will not capture, handle or dispose of any wildlife species. The survey team will report any incidents resulting in wildlife being harmed or killed.

8. The marine survey will not enter any rivers.