EIRB Public Hearing

DoT, Town of Inuvik, Hamlet of Tuktoyaktuk
Inuvik to Tuktoyaktuk Highway

Fisheries and Oceans Canada
Sept. 18, 19
Inuvik, NWT

DFO Mandate

DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters.

Relevant Sections of the *Fisheries Act*

Section 22 – Sufficient water flow for the passage of fish

Section 30 - Fish guards and screens
- E.g. water withdrawals for winter road construction

Section 32 - Destruction of fish by means other than fishing

Section 35 – Harmful alteration, disruption or destruction (HADD) of fish habitat

Section 36 - Prohibits the deposit of deleterious substance into fish bearing waters (**administered by Environment Canada**)

Water Crossings – *Summer Installation*

- Construction in the open water season requires focused mitigation such as site isolation, stream diversion, and other techniques.

- DFO will require details for all summer installation, including type of crossing, mitigations, and impact assessment on fish and fish habitat.

Water Crossings – *Access Roads*

- Only winter roads will be used to access aggregate sources.

- The Developer has commitment to using DFO's Operational Statement for Ice Bridges and Snow Fills

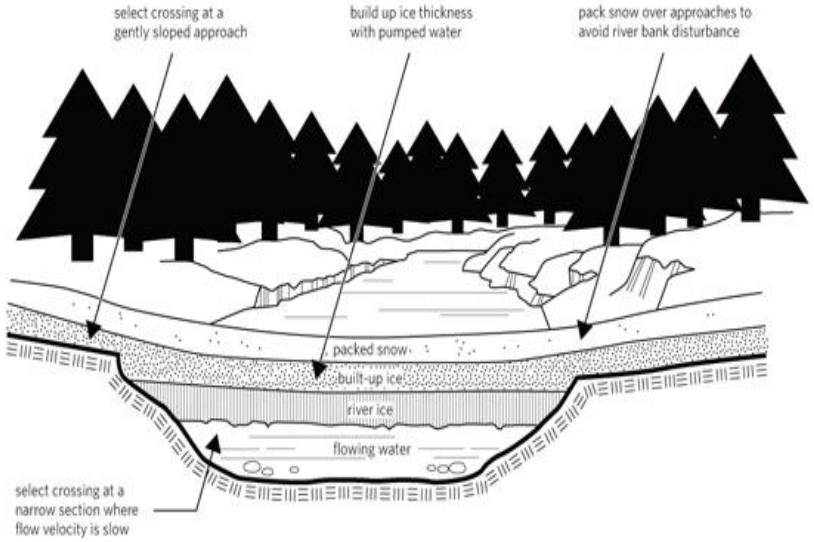


FIGURE 36. Typical ice bridge location and construction. (modified from Deparment of Transportation, Government of the Northwest Territories, 1993)

Water Crossings – *Crossing Type Selection*

- The Developer has stated that they "*will consider, at a minimum, stream category when determining the type of structure to be placed at stream crossings*."

- The Developer has also stated that they will develop and implement a fish and fish habitat protection plan in cooperation with DFO, Fisheries Joint Management Committee (FJMC) and the Tuktoyaktuk-Inuvik Working Group that will include designing appropriate crossing structures based on site conditions.

Water Crossings – *Crossing Type Selection (con't)*

- DFO expects the Developer to include community input and biological data into crossing selection criteria.

- DFO will require final designs of all crossings in the regulatory phase. DFO has requested that general mitigation measures be described for each type of crossing for the road.

Water Crossings – *Overwintering*

- DFO expects that construction methods and crossing designs will avoid overwintering fish and fish habitat.

- DFO recommends that a survey of winter habitat be completed on crossings that have potential for overwintering habitat and are scheduled to be a culvert crossing.

Water Crossings – *Additional Comments*

- Lessons Learned from Tuk-177
- Complete the fish habitat assessment and associated impact assessment prior to finalizing the designs.
- Regulatory phase information should be provided as soon as possible.

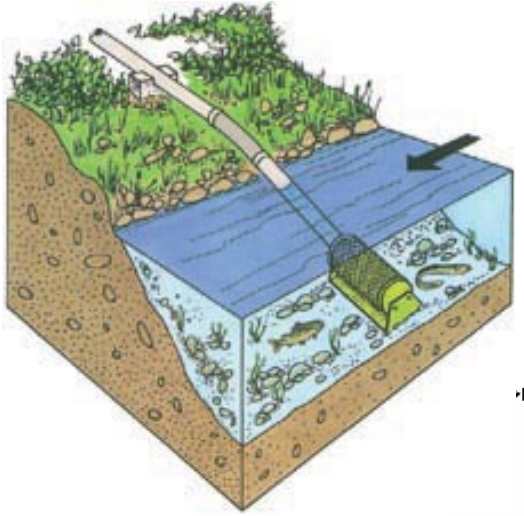
Sediment and Erosion Control

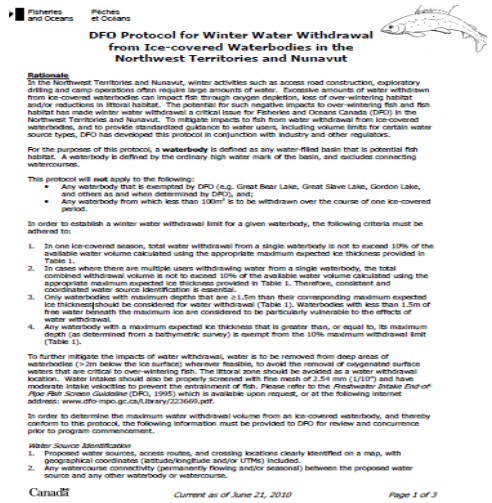
- The Developer has committed to developing an Erosion and Sediment Control Plan as well as a Fish and Fish Habitat Protection Plan as part of the Environmental Management Plan.

- Prior to construction, the Developer will be required to provide a draft sediment and erosion control plan to regulators and other interested parties.

Water Withdrawal

- The Developer committed to using:
  - DFO protocol for winter water withdrawal from ice-covered waterbodies, and
  - DFO Freshwater intake end-of-pipe fish screen guidelines





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DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut

Rationale

In the Northwest Territories and Nunavut, winter activities such as access road construction, exploratory drilling and camp operations often require large amounts of water. Excessive amounts of water withdrawn from ice-covered waterbodies can impact fish through oxygen depletion, loss of over-wintering habitat and/or reductions in littoral habitat. The potential for such negative impacts to over-wintering fish and fish habitat has made winter water withdrawal a critical issue for Fisheries and Oceans Canada (DFO) in the Northwest Territories and Nunavut. To mitigate impacts to fish from water withdrawal from ice-covered waterbodies, and to provide standardized guidance to water users, including volume limits for certain water source types, DFO has developed this protocol in conjunction with industry and other regulators.

For the purposes of this protocol, a **waterbody** is defined as any water-filled basin that is potential fish habitat. A waterbody is defined by the ordinary high water mark of the basin, and excludes connecting watercourses.

This protocol will **not** apply to the following:

- Any waterbody that is exempted by DFO (e.g. Great Bear Lake, Great Slave Lake, Gordon Lake, and others as and when determined by DFO), and;
- Any waterbody from which less than 100m³ is to be withdrawn over the course of one ice-covered period.

In order to establish a winter water withdrawal limit for a given waterbody, the following criteria must be adhered to:

1. In one ice-covered season, total water withdrawal from a single waterbody is not to exceed 10% of the available water volume calculated using the appropriate maximum expected ice thickness provided in Table 1.
2. In cases where there are multiple users withdrawing water from a single waterbody, the total combined withdrawal volume is not to exceed 10% of the available water volume calculated using the appropriate maximum expected ice thickness provided in Table 1. Therefore, consistent and coordinated water source identification is essential.
3. Only waterbodies with maximum depths that are ≥1.5m than their corresponding maximum expected ice thickness should be considered for water withdrawal (Table 1). Waterbodies with less than 1.5m of free water beneath the maximum ice are considered to be particularly vulnerable to the effects of water withdrawal.
4. Any waterbody with a maximum expected ice thickness that is greater than, or equal to, its maximum depth (as determined from a bathymetric survey) is exempt from the 10% maximum withdrawal limit (Table 1).

To further mitigate the impacts of water withdrawal, water is to be removed from deep areas of waterbodies (>2m below the ice surface) wherever feasible, to avoid the removal of oxygenated surface waters that are critical to over-wintering fish. The littoral zone should be avoided as a water withdrawal location. Water intakes should also be properly screened with fine mesh of 2.54 mm (1/10") and have moderate intake velocities to prevent the entrainment of fish. Please refer to the *Freshwater Intake End-of-Pipe Fish Screen Guideline* (DFO, 1995) which is available upon request, or at the following internet address: www.dfo-mpo.gc.ca/Library/223668.pdf.

In order to determine the maximum water withdrawal volume from an ice-covered waterbody, and thereby conform to this protocol, the following information must be provided to DFO for review and concurrence prior to program commencement.

Water Source Identification

1. Proposed water sources, access routes, and crossing locations clearly identified on a map, with geographical coordinates (latitude/longitude and/or UTMs) included.
2. Any watercourse connectivity (permanently flowing and/or seasonal) between the proposed water source and any other waterbody or watercourse.

Canada

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Fisheries Impact Assessment

- It is the responsibility of DFO and its co-management partners (FJMC, HTCs) to manage fisheries resources along the highway corridor.

- The Developer has committed to working in cooperation with users to assist in the management of fisheries, particularly in terms of signage and ensuring the highway is designed to prevent or discourage overfishing.

Borrow Sites

- The Developer has indicated that "*borrow sites will not be developed within 50m of any watercourses and 1km of the Husky lakes.* DFO will need clarification that the 50m setback includes water bodies.

- The Developer has committed to developing a Sediment and Erosion control plan for the project, which should include the borrow sites.

Monitoring

- The Developer has committed to monitoring culverts in fish bearing streams annually for three years to verify that fish passage is maintained, particularly during migration periods.

- Long term monitoring may also be required depending on the crossing type and fish use.

- DFO may also require monitoring as part of our *Fisheries Act* authorizations.

Blasting

- DFO is confident that the use of standard mitigation and monitoring measures as described in our guidelines as well as a lower threshold value for blasting can be effectively mitigate any blasting impacts on fish.

- DFO will require complete information in this regard in order to assess our regulatory requirements under the *Fisheries Act*

No Net Loss Plan

- DFO will need information in respect to crossing design details, fish habitat classification, **fish habitat no net loss plan**, mitigation measures and monitoring to address the information requirements necessary to make a regulatory decision and issue Authorizations under ss.35(2) of the *Fisheries Act*.

- DFO will not be able to issue a *Fisheries Act* Authorization until such time as all information requirements are satisfactorily met.

Cumulative Effects Assessment

- The cumulative effects assessment does not provide a quantitative analysis of the cumulative impacts to fish, fisheries, and fish habitat.

- DFO recommends completing the cumulative effects assessment, including a quantitative analysis of the impacts to fisheries, fish, and fish habitat. It should be shown how the cumulative effects assessment was completed, what methods were used and what VECs were assessed and how conclusions were arrived at.

Concluding Remarks

Provided that the appropriate mitigation and monitoring plans are developed and adhered to, and applicable DFO guidance is followed, DFO is of the opinion that impacts to fish and fish habitat from the Inuvik to Tuktoyaktuk road can be effectively managed.

Thank you