

**POTENTIAL IMPACTS OF THE PROJECT ON THE ENVIRONMENT AND PROPOSED MITIGATION MEASURES  
IMPACT-MITIGATION TABLE**

**Preliminary Screening Determination and Reasons for Decision**

Issued pursuant to section 121 of the *Mackenzie Valley Resource Management Act (MVRMA)*

<b>Water Licence Application Preliminary Screening</b>	
<b>Preliminary Screener</b>	MVLWB
<b>Reference/File Number</b>	MV2021L8-0007
<b>Company</b>	Northwest Territories Power Corporation
<b>Project</b>	Bluefish Habitat Construction
<b>Date of Decision</b>	May 27, 2021

These Reasons for Decision set out the Mackenzie Valley Land and Water Board’s (the Board or MVLWB) decision on the preliminary screening of a Type B Water Licence Application made by Northwest Territories Power Corporation (NTPC) to the Board on May 27, 2021 for Water Licence (Licence) MV2021L8-0007

**1.0 Project Summary**

On April 19, 2021, Northwest Territories Power Corporation (NTPC), submitted an Application for a Type Be Water Licence to construction fish habitat on the Yellowknife River within the vicinity of the Bluefish Hydro Electric Facility.

The Project consists of a habitat enhancement at the Bluefish Hydroelectric Facility (the Bluefish Facility), more specifically, the placement of 400m<sup>2</sup> of suitable spawning substrate in the Yellowknife River downstream of the Generators, in the Tailrace Area. After completing a detailed assessment of all potential mitigation and offsetting measures as part of the application for the Fisheries Act Authorization the Bluefish Habitat Enhancement project was proposed by NTPC as it has a high probability of success and large potential positive impact to local fisheries as it was based off of habitat installation principles proven in a pilot study at Bluefish. This habitat will modify the bed of the Yellowknife River in the Tailrace Area in order to provide spawning opportunities for Lake Trout, Lake Whitefish and/or Cisco. This Project is required under the Fisheries Act Authorizations 18-HCAA-01487 and will be undertaken within Territorial Land Lease 085J09017.

Water quality will be monitored as outlined in the Bluefish Habitat Enhancement Project - Erosion and Sediment Control Plan.

Steps involved in the water quality monitoring program are as follows:

- Monitor turbidity (nephelometric turbidity units [NTU]) and total suspended solids (TSS) during instream works, unplanned events, and precipitation events that may result in elevated turbidity/TSS levels in waters downstream of the work area.
- Determine the naturally occurring linear relationship between TSS and turbidity in the river for the conversion of NTU into TSS (mg/L).
- Compare turbidity levels and TSS concentrations during instream work with Action Levels
- Provide construction personnel and NTPC representatives with timely notification, should turbidity or TSS concentrations become elevated and/or exceed the Action Levels.

The primary controls for minimizing erosion and sediment potential include installation of a turbidity curtain around the instream work area and silt fence around stockpiled materials. Regular inspections of erosion and sediment controls will occur during construction to ensure potential issues are addressed. Damaged or ineffective erosion and sediment control devices will be immediately repaired or replaced with effective controls

The construction process, detailed design plan and profile and erosion and sediment control drawings are provided in Appendix A and are summarized as follows:

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1. Shutdown generating station G1. Generating station G2 will remain operational during construction.
2. Construct site access including removal of fence and large rocks. Cut off fence posts at base, cap, and bury base during construction. Remove fence posts to allow for local stockpile. Remove large rocks along top of bank to temporary stockpile.
3. Install turbidity curtain in a manner that limits fish entrapment within the isolated work area. Place large rocks from along top of bank on shoreline to serve as turbidity curtain anchorage points.
4. Complete a sweep of the isolated work area to remove any remaining fish and relocate them downstream.
5. Install continuous sandbag berm to direct surface runoff into the isolated work area contained by the turbidity curtain.
6. Construct local temporary stockpiles for aggregate materials (i.e. Spawning Bed Gravel and Riprap with Voids Filled) at the shoreline with drainage to the isolated area. Haul and dump aggregate materials as required during construction.
7. Incrementally construct the Raised Perimeter Embankment (to a top of Raised Perimeter Embankment Elevation of 152.30 masl) and the Temporary Gravel Cap (to a top of Temporary Gravel Cap elevation of 153.30 masl) to provide above water access the terminus of the Temporary Gravel Cap.
8. Construct the eastern perimeter embankment from the terminus of the Temporary Gravel Cap to a finished top of Raised Perimeter Embankment Elevation of 152.30 masl.
9. Incrementally remove the southern temporary gravel cap and re-place material in the Lower Spawning Bed to a finished top of Lower Spawning Bed elevation of 152.15 masl. Place excess material on the external perimeter embankment slopes to fill any surface voids that may have formed during placement.
10. Incrementally remove the remaining Temporary Gravel Cap down to a finished top of Raised Perimeter Embankment Elevation of 152.30 masl and re-place spawning gravel on the upstream face of the perimeter embankment slope to fill surface voids formed during placement and to reduce the grade of the upstream slope.
11. Remove turbidity curtain in a manner that contains accumulated sediment. Note that turbidity curtain removal takes place after sufficient settling in the isolated area to reduce turbidity of the isolated water column.
12. Remove continuous sandbag berm.
13. Replace large rocks along top of bank from temporary stockpile and reinstate fencing using bracket to connect fence posts to base.
14. Restart generating station G1 following construction.

**2.0 Scope of Preliminary Screening**

**2.1 Scope**

- Construction, operation, and maintenance of spawning bed of 400m<sup>2</sup> in Yellowknife River, downstream of Bluefish Hydroelectric Facility; and
- Deposit of Waste

**2.2 Principal Activities**

- Miscellaneous

**2.3 Principal Development Components**

- Construction
- Installation
- Automobile, Aircraft or Vessel Movement
- In stream works
- Waste Management
  - Disposal of Hazardous Waste

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**2.4**    **NTS topographic map sheet number**  
085J

**2.5**    **Latitude / longitude and UTM system**  
Latitude – 62°39’14” – 62°43’15” N  
Longitude – 114°17’6 – 114°13’09” W

**2.6**    **Nearest community and water body**  
Yellowknife NT, Yellowknife River

**2.7**    **Land Status**  
Territorial Land

**2.8**    **Transboundary/Transregional Implications**  
None

**3.0**    **Public Review**

- April 19, 2021 – Application received;
- April 20, 2021 – Application deemed complete and review commenced;
- May 13, 2021 – Comment and recommendation due and received;
- May 20, 2021 – Responses due and received; and
- May 27, 2021 – Board Decision.

**4.0**    **Preliminary Screener / Referring Body Information**

The Type B Water Licence Application was distributed to the Distribution List for public review on the Board’s Online Review System (ORS). As part of the public review, comments and recommendations to assist with the Board’s preliminary screening determination were requested.

**4.1**    **Potential Impacts and Mitigations Table**

ABIOTIC COMPONENTS			
Land			
Potential Impacts	Activity <i>Use an “x” to indicate which apply</i>	X	Potential Project Impacts and Proposed Mitigations <i>Using the list at left, describe the potential impact(s) of each identified Project activity and the proposed measure(s) to reduce each of these impacts.</i>
<ul style="list-style-type: none"> <li>• Soil contamination</li> <li>• Soil compaction</li> <li>• Destabilization/erosion</li> </ul>	On-site storage or disposal of wastes (domestic garbage, sewage, waste petroleum products, drilling waste and hydraulic flowback fluids, hazardous wastes, etc.)	X	Adhere to the approved Spill Contingency Plan
	Use of motorized and heavy equipment	X	Vehicles and equipment will be restricted to existing roads and developed areas while travelling across the

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			Bluefish Facility.
	Other		Turbidity curtains will be used to mitigate the potential impacts of soil erosion. Please refer to the Erosion and Sediments Control Plan included in this application for mitigation related to sediment stabilisation and release on land and water
<b>Water</b>			
<b>Groundwater</b>			
<b>Permafrost</b>			
<b>Surface Water</b>			
<b>Potential Impacts</b>	<b>Activity</b>		<b>Potential Project Impacts and Proposed Mitigations</b>
<ul style="list-style-type: none"> <li>Water flow or level changes (permanent, temporary, seasonal)</li> <li>Changes in water quality</li> <li>Changes to aquatic habitat (see Biotic section below)</li> </ul>	Retaining, storing, or diverting water	X	The Project is intended to permanently alter water depth and riverbed structure to improve spawning conditions for fish in the Tailrace Area.
	Construction of dams and impoundments	X	No water will be withdrawn and no effluent will be released. Adherence to the Spill Contingency Plan will reduce the possibility of contaminants entering water. Storage of contaminants, vehicles and operation of camps will be at a safe distance from waterbodies and watercourses as per conditions. The Erosion and Sediment Control Plan describes actions to stabilize the shoreline stabilisation, isolate the construction area and contain fines during placement of granular material in the river during construction of the habitat enhancement. The Erosion and Sediment Control Plan includes methods to monitor turbidity downstream from the Project, before during and following the construction activities. Construction material has been tested for acid generating potential and is considered safe to use. Action thresholds will be set to implement work stoppages or additional mitigation if thresholds are exceeded. Operation of the Bluefish Hydro system will continue within the existing water licence limits, limiting effects to water quality and fish habitat.
	Direct or indirect disposal of waste into water	X	Sediment and Erosion Control Plan will be implemented on site.
	Other	X	Improvements to the aquatic habitat are required by the Fisheries Act Authorization and will be done accordingly with the Authorization. Monitoring of fish use of the habitat enhancement following construction will confirm the habitat efficiency
<b>Air</b>			
<b>Potential Impacts</b>	<b>Activity</b>		<b>Potential Project Impacts and Proposed Mitigations</b>
<ul style="list-style-type: none"> <li>Increased greenhouse gases</li> </ul>	Mobilization and operation of equipment for construction	X	Greenhouses gases will be generated from the hauling of granular material to the Bluefish Facility and use of heavy equipment during construction.

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	and operational activities		
<b>BIOTIC COMPONENTS</b>			
<b>Vegetation</b>			
<b>Potential Impacts</b>	<b>Activity</b>		<b>Potential Project Impacts and Proposed Mitigations</b>
<ul style="list-style-type: none"> <li>• Direct loss of vegetation</li> <li>• Loss of Species at Risk or may-be-at-risk plants</li> <li>• Change in species composition</li> <li>• Introduction of non-native (invasive) species</li> <li>• Compaction of vegetation</li> </ul>	Clearing of timber, brush, or vegetation mat	X	No plant species at risk are present, according to the NWT Species at Risk website.
	Construction (development or alteration: widening, straightening, detours), maintenance, and operation of lines, trail, or rights-of-way	X	Vehicles and equipment will be restricted to existing roads and developed areas while travelling across the Bluefish Facility.
	Construction of structures (buildings, water or waste management facilities, etc.)	X	Some changes to aquatic vegetation within the footprint of the habitat enhancement are expected by the construction of the habitat.
	Use of motorized and heavy equipment	X	Any heavy equipment brought to site will be washed prior to mobilization.
<b>Terrestrial Wildlife Habitat</b>			
<b>Potential Impacts</b>	<b>Activity</b>		<b>Potential Project Impacts and Proposed Mitigations</b>
<ul style="list-style-type: none"> <li>• Disturbances to key lifecycle stages: breeding, feeding, nesting, staging</li> </ul>	Other	X	Stationary mobile equipment will be inspected for nests prior to use.
<b>Aquatic Habitat</b>			
<b>Potential Impacts</b>	<b>Activity</b>		<b>Potential Project Impacts and Proposed Mitigations</b>
<ul style="list-style-type: none"> <li>• Breeding disturbances</li> <li>• Effects on health (toxins, metals, sediment, etc.)</li> <li>• Effects on population abundance</li> <li>• Change in species diversity</li> </ul>	Clearing of timber, brush, or vegetation mat near a watercourse	X	The Erosion and Sediment Control Plan will be adhered to. The geochemical properties of the construction rock will be documented.
	Watercourse alteration (ditch construction, channelling,	X	The Project is intended to improve fish spawning conditions for Lake Whitefish, Lake Trout and Cisco from Prosperous Lake, Yellowknife River and Great Slave Lake which spawn in great densities in the project area.

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	training, installation of culvert)		Timing of any in-water construction will consider Fisheries and Oceans Canada's Northwest Territories Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat
	Other	X	The Project is intended to improve fish spawning conditions for Lake Whitefish, Lake Trout and Cisco from Prosperous Lake, Yellowknife River and Great Slave Lake which spawn in great densities in the Project area. It is expected to have a positive effect on the population abundance for these 3 species which travel from the Prosperous Lake, Yellowknife River and Great Slave Lake to spawn in the area.  Fishing activities by construction personnel during construction will be banned on site. A fish biologist will complete a fish rescue for any areas that require isolation for in-water work. Downstream water flows will not be affected.
<b>CULTURAL COMPONENTS</b>			
<b>Wildlife Harvesting</b>			
Are harvesting areas present? If so, indicate type(s): Community Harvesting Areas, Special Harvesting Areas, Group Trapping Areas, etc.			
Extent of overlap of Project area with harvesting areas identified above (fish lakes, trapping or hunting areas) (m <sup>3</sup> or ha)			
<b>Potential Impacts</b>	<b>Activity</b>		<b>Potential Project Impacts and Proposed Mitigations</b>
<ul style="list-style-type: none"> <li>Effects on traditional land use, subsistence, and harvesting rights</li> </ul>	Other	X	The Project is intended to improve spawning conditions for fish in the Yellowknife River which is expected to have a positive effect on Lake Whitefish, Lake Trout and Cisco which travel from Prosperous Lake, Yellowknife River and Great Slave Lake to spawn in the area and could have a positive effect on traditional subsistence and harvesting the area of these species. Traditional knowledge is outlined in the preconditions report.
<b>Cultural Integrity and Heritage Resources</b>			
<b>Social and Economic Well-being</b>			
<b>Potential Impacts</b>	<b>Activity</b>	X	<b>Potential Project Impacts and Proposed Mitigations</b>
<ul style="list-style-type: none"> <li>Economic opportunities or losses (employment, training)</li> <li>Changes to the use of the area by other non-Indigenous people (e.g. trappers, outfitters, residents, hunters, forest harvesters, other</li> </ul>	Other		NWT employees and contractors will be used for the habitat enhancement construction and monitoring which will provide economic opportunities for local businesses and employees.  The Project is intended to improve spawning conditions for fish in the Yellowknife River which

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		is expected to have a positive effect on Lake Whitefish, Lake Trout and Cisco which travel from Prosperous Lake, Yellowknife River and Great Slave Lake to spawn in the area and could have a positive effect on sport fishing for these species in these areas.
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**5.0 Preliminary Screening Decision**

The Board is satisfied that the preliminary screening of NTPC’s Application for Type B Water Licence MV2021L8-0007 for the Habitat Replacement Project has been completed in accordance with section 125 of the *Mackenzie Valley Resource Management Act* (MVRMA).

The Board determined that written notice was given and that a reasonable period of time was allowed to make representations with respect to the Application. The Board is satisfied that communities and First Nations affected by the Application have been notified and provided adequate time to provide comment on the Application as required by land claim and self-government agreements, the MVRMA, policy directions relating to Interim Measures Agreements, specifically, Schedule 4.1 of the **Northwest Territory Métis Nation** (NWTMN) Interim Measures Agreement and subsection 1.6, paragraphs (a) and (b) of the **Akaiicho Territory Dene First Nations** (ATDFN) Interim Measures Agreement, and any other applicable legislation and agreements.

Having reviewed all relevant evidence on the Public Registry, including the submissions of the Applicant, the written comments received by the Board and any Staff Reports prepared for the Board, the Board has decided that in its opinion:

- The proposed development will not have a significant adverse impact on the environment; and
- The proposed development is not a cause of public concern.

The Board is also of the opinion that any impacts of the development on the environment can be mitigated through the imposition of the terms and conditions in the Water Licence approved by the Board.

**6.0 Conclusion**

Water Licence MV2021L8-0007 contains provisions that the Board deems necessary to ensure and monitor compliance with the MVRMA and the Regulations made thereunder, and to provide appropriate safeguards in respect of NTPC deposit of waste affected by the Licence.

SIGNATURE

Mackenzie Valley Land and Water Board

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Mavis Cli-Michaud, Chair

May 28, 2021

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Date