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# FISHERIES AND OCEANS CANADA

## Final Closing Statements

Baffinland Iron Mines Corporation  
Mary River “Phase 2 Development” Project Proposal

**Submitted to:** Nunavut Impact Review Board

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# 1 Introduction

Fisheries and Oceans Canada (DFO) is responsible for the management, protection and conservation of fish, which includes marine mammals as defined by the *Fisheries Act* (2019), and their habitats. DFO's Fish and Fish Habitat Protection Program (FFHPP) undertakes the review of projects in or near water by providing advice during impact assessment processes to the appropriate Boards or Panels, and subsequently through a regulatory lens. Our goal is to ensure that works, undertakings, and activities are conducted in a manner such that the continued sustainability of Canada's fisheries resources are maintained for future generations. Under the *Fisheries Act* (2019), the death of fish and the harmful alteration, disruption, and destruction (HADD) of fish habitat are prohibited unless authorized by the Minister of Fisheries and Oceans. Authorizations issued by the Minister include conditions to minimize project-related impacts, as well as to offset for any residual impacts to fish and fish habitat. The Department consults Indigenous communities on proposed projects and associated offsetting options prior to the issuance of any *Fisheries Act* authorizations in order to avoid or mitigate potential adverse impacts to rights and interests.

DFO has actively participated in all phases of Baffinland Iron Mines Corporation's (Baffinland) Mary River Project's review, providing scientific expert advice to the Nunavut Impact Review Board (NIRB) and Baffinland on potential project impacts to fish, marine mammals, and their habitats, and recommended measures to reduce and monitor for impacts. For the Phase 2 Development Proposal, Baffinland has proposed to construct a railway from the Mine site to Milne Port, construct a second ore dock at Milne Port capable of berthing cape-size vessels, and increase the number of Project-related vessels required to accommodate shipment of up to 14.4 million tonnes per annum of iron ore through Eclipse Sound.

Throughout the NIRB's impact assessment process for the Phase 2 Development Proposal, DFO has been, and continues to be, concerned about potential impacts to marine mammals, the marine environment, and the freshwater environment arising from increased production, transport, and shipment of iron ore. Through these proceedings, DFO has heard the concerns about impacts to the marine and freshwater environment brought forward by community members and Inuit organizations, and we share many of these concerns. The Department has worked extensively with Baffinland, other federal departments, and the Qikiqtani Inuit Association to understand potential impacts. DFO worked collaboratively with these parties in the development of commitments to minimize potential impacts through the application of mitigation measures and monitoring programs, in the event the Project is approved. It should be noted, that even with these commitments there remains uncertainty in the extent of potential Project impacts, the effectiveness of existing and proposed mitigation measures, and in the ability to adaptively manage. Therefore, it is essential that Baffinland develops and implements an adaptive management plan in advance of potential Phase 2 operations, if approved. This is necessary to ensure that impacts to fish, marine mammals, and their habitats, predicted and accounted for by Baffinland, are effectively managed and monitored. It is also necessary to ensure that unanticipated impacts are detected early, such that effective responses can be developed and implemented with Inuit, federal and territorial agencies, and other relevant experts.

DFO is providing the following Final Closing Statements on potential impacts to marine mammals, freshwater habitat, and potential impacts from aquatic invasive species. They are provided to the NIRB for their consideration on the Phase 2 Development Proposal. These Final Closing Statements reiterate measures that, in DFO's opinion, Baffinland must undertake to minimize potential impacts to marine and freshwater environments within the vicinity of the Project. Further, we identify important information gaps in Baffinland's proposal.

## 2 Final Closing Statements – English

### 2.1 Impacts to Marine Mammals

<b>Relevant Technical Comments</b>	<ul style="list-style-type: none"> <li>• Marine Vessel Traffic: DFO 3.1 NEW (3.1.1 NEW, 3.1.2 NEW)</li> <li>• Shipping Season: DFO 3.2 NEW (3.2.1 NEW, 3.2.2 NEW)</li> <li>• Marine Acoustic Modelling and Disturbances: DFO 3.3 NEW (3.3.1 NEW, 3.3.2 NEW, 3.3.3 NEW)</li> <li>• Shoulder Season Shipping and Icebreaking: DFO 3.4 NEW (3.4.1 NEW, 3.4.2 NEW, 3.4.3 NEW, 3.4.4 NEW)</li> <li>• Marine Mammal Observation: DFO 3.5 NEW</li> <li>• Marine Cumulative Effects: DFO 3.7 NEW</li> </ul>
<b>Importance of issue to the impact assessment process</b>	Increased shipping activities during the open water season and icebreaking during the shoulder seasons have the potential to cause negative impacts to marine mammals within Eclipse Sound and Milne Inlet.
<b>Final Closing Statement</b>	<p>Throughout the impact assessment process for Baffinland's Mary River Project Phase 2 Development Proposal, DFO has remained concerned about potential impacts to marine mammals from increased shipping during the open water season, as well as icebreaking activities during the spring and fall shoulder seasons. These activities will increase the potential for underwater noise disturbance, ship strikes, and ice entrapments. There is currently insufficient information to fully understand and predict the scale of potential project impacts to marine mammals, either due to limited research and literature, or gaps in Baffinland's existing monitoring programs for their current operations. Further, cumulative and combined impacts to marine mammals arising from the Proposal remain inadequately characterized and assessed, including potential transboundary impacts.</p> <p>In order to ensure the Board is fully informed in its consideration of the Phase 2 Development Proposal, we have worked with Baffinland to develop commitments. These commitments are based on expert advice provided by DFO scientists from a variety of scientific disciplines to reduce uncertainties in Project impact predictions. These commitments also attempt to ensure that any residual impacts are effectively detected through the establishment of additional and enhanced existing monitoring programs. This should also help to improve what is currently a limited</p>

	<p>understanding of shipping impacts on marine mammals. These additional and enhanced monitoring programs are also of critical importance in the development and implementation of an effective adaptive management plan. These mitigations and monitoring programs include:</p> <ul style="list-style-type: none"> <li>• Summaries of monitoring provided in preliminary field reports within 35 days of the commencement of spring shoulder season shipping, and within 30 days of fall shoulder shipping activities ending;</li> <li>• Collection of additional acoustic data in the Regional Study Area and along the floe edge using underwater acoustic recording devices throughout construction and operation of Phase 2;</li> <li>• Updates to the Marine Monitoring Plan to include a section dedicated to icebreaking and shoulder season activities;</li> <li>• End-of-season annual aerial clearance surveys and the development of a response plan in the event of narwhal ice entrapments;</li> <li>• Collection of Geographic Information System (GIS) coordinates, narwhal group sizes, and ice conditions along the aerial survey tracks at the end of the shipping season to provide information on potential ice conditions and areas that present greater risk of ice entrapments;</li> <li>• Fall transit restrictions based on sea ice thickness;</li> <li>• Updated noise exposure calculations based on 2019 data to inform Baffinland's use of half-transits, which will be discontinued if the calculations indicate half-transits exceed established thresholds for duration of marine mammal exposure to noise disturbance.</li> <li>• Implementation of a pilot program using remote technology during the shoulder seasons and open water season to detect and monitor for ship strikes with marine mammals during shipping and icebreaking activities;</li> <li>• Improvements to existing monitoring and reporting for Baffinland's existing Early Warning Indicator for noise impacts to narwhal, as well as the selection of additional Early Warning Indicators, where needed.</li> </ul> <p>It is our expert opinion that the selection of additional Early Warning Indicators is vital to ensure that the full suite of potential impacts to narwhal (impacts to local abundance, health, distribution, etc.) are captured. It is necessary to monitor multiple indicators as any single indicator, including the current indicator, may fail to detect impacts due to inter-annual (or other periodic) variations. Further, a functional and effective adaptive management plan, developed in consultation with relevant agencies, stakeholders, and Inuit, is critical to ensure unanticipated impacts are fully managed and mitigated. It is essential that an adaptive management plan is finalized with parties and implemented in advance of Phase 2 operations, if approved.</p> <p>DFO reiterates that Baffinland has a responsibility to monitor for Project-related impacts to marine mammals within the Regional Study Area, which should include monitoring of combined and cumulative impacts that occur within this area. Further, if Project-related impacts can be anticipated to manifest outside of the Regional Study Area, such as displacement of</p>
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	<p>marine mammals to other areas, Baffinland has a responsibility to undertake monitoring to verify their prediction that this does not occur. DFO is willing to share relevant data and guidance with Baffinland when able, and to collaborate when research and monitoring priorities align.</p> <p>DFO has heard concerns from Inuit on potential impacts to marine mammals if Phase 2 is approved to proceed, including testimony from Inuit representatives on impacts to marine mammals from current operations and their ability to harvest marine mammals. DFO is committed to working with Inuit, Baffinland, and other relevant parties to ensure marine mammals are protected, if Phase 2 is approved to proceed. DFO will also continue working with our Nunavut wildlife co-management partners, which include the Nunavut Wildlife Management Board, Nunavut Tunngavik Inc., and Regional Wildlife Organizations, responsible for harvest management in Nunavut per the <i>Nunavut Agreement</i>, to ensure marine mammal stocks continue to provide for sustainable future harvests.</p> <p>It is imperative that Inuit are involved in discussions on the protection of marine mammals and the marine environment, and the management of potential Project-related impacts. Therefore, DFO is supportive of including impacted Inuit communities in the Marine Environmental Working Group (MEWG) to encourage inclusive discussion and the sharing of a variety of knowledge and expertise.</p> <p>Many of the commitments that have been developed between DFO and Baffinland through the Phase 2 impact assessment process require that Baffinland engage with the MEWG for review and recommendations for the development and improvement of marine mammal monitoring programs. DFO has indicated in previous submissions, such as our January 2021 Updated Final Written Submission and our 2020 Annual Report Comments, that the MEWG is not functioning in a way that allows for timely and effective protection of the marine environment. If the Phase 2 Development Proposal is approved, it is crucial that the MEWG is functional and effective, and that recommendations are implemented. Although the MEWG is an advisory body and does not have decision-making powers, in our experience considerable time and expertise is incorporated in the recommendations that have been provided to Baffinland. In our opinion, they should be incorporated as part of a precautionary approach and implemented through the Adaptive Management Plan. DFO is hopeful that committees established as part of the Inuit Certainty Agreement will help to encourage greater implementation of MEWG recommendations.</p>
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## 2.2 Aquatic Invasive Species

<b>Relevant Technical Comments</b>	<ul style="list-style-type: none"> <li>• Marine Vessel Traffic: DFO 3.1 NEW (3.1.1 NEW, 3.1.2 NEW)</li> <li>• Ballast Water and Non-indigenous Species: DFO 3.6 NEW (3.6.1 NEW, 3.6.2 NEW, 3.6.3 NEW, 3.6.4 NEW, 3.6.5 NEW, 3.6.6 NEW, 3.6.7 NEW, 3.6.8 NEW, 3.6.9 NEW, 3.6.10 NEW)</li> </ul>
<b>Importance of issue to the impact assessment process</b>	<p>Introduction of aquatic invasive species or non-indigenous species may result in high-risk negative impacts to the natural environment, including fish, marine mammals, and their habitats, and are difficult to eradicate and manage once established.</p>
<b>Final Closing Statement</b>	<p>DFO remains concerned that an increase in shipping activities also increases the risk of potential aquatic invasive species (AIS) establishment and spread in Milne Inlet. The primary vectors for aquatic invasive species introduction are through ballast water release and hull biofouling. An increase in shipping results in increases to ballast water release volume and the total hull surface areas present, and in turn increase the risk of aquatic invasive species introductions. Further, DFO is concerned about Baffinland's ability to effectively monitor, detect, identify, and respond to potential aquatic invasive species in a timely manner. Effective and robust monitoring is necessary to ensure early detection of potential aquatic invasive species, such that a response plan can be developed prior to further establishment and spread. Once established, aquatic invasive species can cause substantial disruption and harm to ecosystems. Given the relatively pristine nature of the Arctic and the Regional Study Area, a precautionary approach should be adopted for the management of aquatic invasive species.</p> <p>Based on DFO's scientific expert advice, we have worked with Baffinland to develop commitments intended to reduce the potential for aquatic invasive species introduction and establishment. These commitments include measures for prevention, robust measures for monitoring and detection, as well as response measures. These mitigations and monitoring programs include:</p> <ul style="list-style-type: none"> <li>• Provision of ballast water testing forms, which will include anchorage locations and coordinates where ballast water discharge occurs;</li> <li>• Requirement for all vessels that treat ballast water under the D2 standard to conduct ballast water exchange prior to treatment of ballast water;</li> <li>• Requirement for ships unable to conduct exchange as per the Canadian Ballast Water Regulations to conduct exchange in the specified Alternative Ballast Water Exchange Zones identified for the Eastern Arctic;</li> <li>• Updates to the Ballast Water Dispersion Model if Baffinland requests to discontinue exchange plus treatment of ballast water, subject to consultation with DFO and Transport Canada;</li> </ul>

	<ul style="list-style-type: none"> <li>• Development of a ballast water sampling program, which will include salinity testing and biological sampling. The program will be developed in consultation with DFO and Transport Canada, based on a risk-based sampling methodology developed by DFO through preliminary ballast water sampling on vessels;</li> <li>• Requirement for all Project-vessels to adhere to the International Maritime Organization's Guidelines for Biofouling Management, which will include reporting on these measures by Baffinland;</li> <li>• Development of a robust ROV-sampling program to evaluate the extent of biofouling on vessels arriving in Milne Port, with a sampling design intended to evaluate differences in biofouling across vessels with different biofouling management measures and histories to create a risk-based sampling program;</li> <li>• A report on methodologies and technologies that exist to conduct biological sampling of biofouling on vessels, which will result in the development of a pilot program to conduct this monitoring, to eventually be included as a permanent component of the Marine Monitoring Plan;</li> <li>• Updates to the Marine Monitoring Plan that will include improvements to the sampling design for the Marine Environmental Effects Monitoring Program. The improvements will include greater seasonal and spatial coverage as well as increased sampling effort and sample sizes to achieve statistical power for detection of project effects;</li> <li>• Development of a trigger list of species and associated response plans;</li> <li>• Requirement that Baffinland will follow DFO's recommended Rapid Response Framework (Locke et al., 2011) in the event potential aquatic invasive species become established;</li> <li>• Development of species-specific Rapid Response Plans for species identified as high-risk.</li> </ul> <p>It is our opinion that all of the above measures are necessary to reduce potential impacts to the marine environment arising from increased risk of aquatic invasive species introduction. To ensure these measures are as effective as possible, DFO stresses the importance of a preventative and proactive approach for the monitoring and management of potential aquatic invasive species, and the importance of having all experts, including DFO taxonomic experts, involved in all future discussions on the identification and management of potential aquatic invasive species collected in the area. A detailed rapid response plan, developed with and reviewed by DFO and other relevant experts, is vital to ensure early detection and management of potential aquatic invasive species both before and after they are established. Further, it is critical that expert advice is implemented in a timely manner to prevent further establishment and spread of potential aquatic invasive species. As noted in our Final Closing Statements on Impacts to Marine Mammals above, expert advice must be incorporated as part of a precautionary approach and implemented through the Adaptive Management Plan.</p>
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## 2.3 Freshwater Impacts

<b>Relevant Technical Comments</b>	<ul style="list-style-type: none"> <li>• Freshwater Watercourse Crossings: DFO 3.8 NEW</li> <li>• Freshwater Fish Passage: DFO 3.9 NEW (3.9.1 NEW and 3.9.2 NEW)</li> <li>• Freshwater Water Withdrawal: DFO 3.10 NEW (3.10.1 NEW, 3.10.2 NEW, 3.10.3 NEW)</li> </ul>
<b>Importance of issue to the impact assessment process</b>	Increased freshwater withdrawals for water use and the installation of additional water crossings to accommodate the railway may result in harmful alterations, disruptions, and destructions of fish habitat, as well as death of fish and impacts to fish passage that will need to be avoided, mitigated, and offset, where required.
<b>Final Closing Statement</b>	<p>Throughout the impact assessment process for Baffinland’s Mary River Project Phase 2 Development Proposal, DFO has indicated that a <i>Fisheries Act</i> Authorization will be required for construction and operation of the railway and a Request for Review may be required for freshwater withdrawal activities, if the proposal is approved. Baffinland has committed to provide additional information to DFO through either an application to DFO for these activities, or through the Nunavut Water Board Water Licencing process.</p> <p>Overall, DFO is concerned that there is risk for cumulative impacts to fish habitat and fish passage associated with watercourse crossings for both the existing Tote Road and the proposed railway, as well as potential impacts to fish and fish habitat arising from water withdrawal activities in various watercourses and waterbodies. However, these impacts can be effectively managed through <i>Fisheries Act</i> Authorizations and required monitoring and offsetting. If the Phase 2 Development Proposal is approved, DFO will be required to engage with impacted Inuit communities on impacts associated with the railway and water withdrawals, as well as on any associated offsetting required.</p>

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