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# **FISHERIES AND OCEANS CANADA**

## **Baffinland Iron Mines Corporation Mary River “Production Increase” Proposal**

### **Technical Comments**

**Submitted to:** Nunavut Impact Review Board

August 11, 2022

DFO File No.: 07-HCAA-CA7-00050

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## Introduction

This technical review submission summarizes Fisheries and Oceans Canada (DFO) – Fish and Fish Habitat Protection Program’s (FFHPP) assessment and recommendations concerning the Baffinland Iron Mines Corporation’s request for further modifications of condition 179(a) and 179(b) of Mary River Project Certificate 005 (the Project). The purpose of these interventions is to provide expert advice to the Nunavut Impact Review Board (NIRB) regarding Baffinland’s proposed modifications and identify potential impacts to fish and fish habitat associated with the project changes.

This submission focuses on a technical assessment of the Project. The objective is to analyze the updated plans and/or revised information presented by Baffinland Iron Mine Corporation in support of the proposed modifications, and reflecting DFO-FFHPP’s mandate.

## Mandate, Relevant Legislation and Policy

DFO’s Fish and Fish Habitat Protection Program (FFHPP) undertakes the review of project proposals in and around fisheries waters. The FFHPP ensures that works, activities and undertakings are conducted in such a way that the proponents are in compliance with the applicable provisions of the *Fisheries Act* (see below). The FFHPP also serves as the lead and coordinates all of DFO’s participation in environmental assessments conducted under the various enabling legislation throughout Canada, including the *Nunavut Planning and Project Assessment Act*.

Additionally, DFO, in partnership with Inuit, Parks Canada, Transport Canada, and the Government of Nunavut is, under Schedule 1 of the *Canada National Marine Conservation Areas Act* (the Act), in the process of establishing Tallurutiup Imanga National Marine Conservation Area (Tallurutiup Imanga NMCA) in Lancaster Sound; the Act, and the Tallurutiup Imanga Inuit Impact and Benefit Agreement, provide the foundation for the framework under which Tallurutiup Imanga NMCA will be managed and add weight to the precautionary recommendations provided by DFO in this submission.

## Fisheries and Ocean’s Canada Technical Comments: Marine Environment

Review Comment:	1
Subject/ Topic	Marine Environment: Early Warning Indicator
Reference to doc:	Narwhal Adaptive Management Plan, PIP Supplemental info Package part D. section vi: Project effects & adaptive management plan

<p>Summary:</p>	<p>The objective of term and condition 179 (a) is to limit and manage likely project effects, while balancing the need for operational flexibility.</p> <p>As noted in the PIP Supplemental Information Package, the Eclipse Sound Narwhal stock has decreased by 73 % in Eclipse Sound since 2019, during the period of PIP. This is a significant decline and a negative impact to Narwhal has been realized, however questions remain on the adequacy of mitigations and monitoring to react possible project effects.</p> <p>Throughout the differing review processes, DFO has reiterated the need for the use of a suite of early warning indicators (EWI) to be used to monitor and identify impacts to Narwhal (DFO 2020/018), This suite of EWIs would be used, in addition to the single EWI (i.e., stock abundance) that the proponent currently uses to track project effects on Narwhal. The current project EWI for Narwhal documents a change in the stock abundance at a given time, however it is not responsive enough to detect a decline in overall abundance/distribution of Narwhal in Eclipse Sound until after the impact has occurred, and is highly subject to annual inter-variability.</p> <p>The effectiveness of the EWI and associated action triggers for action levels, are directly tied to the proponents ability to balance project effects. However BIM, indicates throughout the information package and adaptive management plan that a change in abundance alone should not be considered a project effect.</p> <p>In the Hemmera memorandum<sup>1</sup> to BIM (October 15, 2019) the consultant indicates that it is “unknown whether continued exposure to shipping and icebreaking operations over time will result in habituation (i.e., a decrease in response to stimuli despite continual exposure) or whether narwhal will experience increased stress levels (because they are unwilling to abandon the area), with potential fitness consequences”. For this reason, long-term</p>
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<sup>1</sup> Review of Mary River Phase 2 Assessment Conclusions on the Effects of Icebreaking to Narwhal. October 15, 2019

	<p>monitoring of Narwhal and their stress levels is also recommended as part of the suite of EWIs and the use of multiple lines of evidence (e.g., acoustic, aerial surveys, satellite tagging, and landbased observations) should be used to assess the effects of shipping<sup>2</sup>.</p> <p>2022 Draft Narwhal Adaptive Management plan: Adaptive Management Response</p> <p><i>“Baffinland has used the draft MMP TARP to guide its subsequent investigation. To be clear, however, <b>low narwhal abundance alone is not a moderate or high risk threshold</b>, and Baffinland’s implementation of moderate and high risk responses (suspending icebreaking, convoying) has been driven by an abundance of precaution rather than the establishment of a direct link between the observed effects and project shipping. Baffinland’s actions also recognize the value of the Eclipse Sound summer narwhal stock to the residents of Pond Inlet, and that there are a number of anthropogenic and natural factors outside of Baffinland’s control that may continue to affect narwhal abundance in Eclipse Sound in 2022.”</i></p> <p>BIM’s shipping of ore through Eclipse Sound over the past decade of operation has been biggest single industrial project change within the region. The global restrictions on cruise ships due to the pandemic and other projects (small craft harbor completed June 2020 (open water pile driving)) have greatly reduced other industrial activities during the PIP years. BIM’s 2021 annual report indicated 24% change of calf/ cow, however the proponent indicates that this should not be considered a trigger for an action response, due to a small sample size<sup>3</sup>.</p>
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<sup>2</sup> [Science Review of Additional Documents submitted October 8, 2019 – January 8, 2020 for the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2 \(dfo-mpo.gc.ca\)](#)

<sup>3</sup> 2021 NIRB Annual Report Mary River Project (pg 368).

	<p>Overall abundance of whales in Milne Inlet, even if displacement to Admiralty Inlet is occurring, should be tied to adaptive management action levels. Local displacement and the absence of Narwhals from traditional habitat is an effect, that may have long-term impacts on ecosystem structure and function within the region (i.e., predator-prey shifts). The proponent needs to recognize their significant role even if cumulative effects from other impacts exist.</p> <p>The EWI indicators and choice of reference year have to be responsive enough to determine effects at an individual and population scale. The use of multiple indicators benefits all parties in understanding effects, including helping the proponent to determine that the project is limiting impact. Multiple indicators provide opportunities to corroborate monitoring results and act in timely manner.</p>
Detailed Review Comment	<ul style="list-style-type: none"> <li>• Gap: Early Warning Indicators for adaptive management response</li> <li>• Single early warning indicator is insufficient</li> <li>• Requiring multiple indicators to reach thresholds, such as abundance, and trigger for action levels inappropriate. Proponent presents multiple metrics but all are tied to Calf/Cow ratio. Further, there is no acoustic monitoring planned for this year, eliminating the viability of one of proposed metric.</li> <li>• As currently proposed, the AMRs ability to determine a project effect has been limited and does not balance the objective for TC 179 (a) or create effective thresholds to implement mitigations TC 111 in a precautionary manner as the NIRB indicated was required<sup>4</sup>.</li> </ul>
Recommendation Request	<p>The proponent should continue with the existing monitoring programs and expand to a broader suite of indicators that are reported and assessed</p>

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• <sup>4</sup> Highlight Document for the Mary River Phase 2 Development Proposal Report (pg. 16)

	<p>on an annual basis as a suite of indicator analysis that provide information to the adaptive management process with interested parties. DFO Recommends the following EWI in addition to the current EWI:</p> <ul style="list-style-type: none"> <li>• Reproductive hormonal change in females</li> <li>• Glucocorticoid Stress Level Hormones</li> </ul> <p>Continue working with DFO and the Marine Effects Working Group for the development and implementation of effective EWIs.</p>

Review Comment Number	2
Subject/ Topic:	PIP Supplemental Information Package: Aquatic Invasive Species Monitoring,
Reference to doc:	PIP Supplemental Information Package, Phase 2 Process
Summary:	<p>The summary of aquatic invasive species monitoring provide is framed as an update on <i>Marenzelleria spp.</i>, and does not outline further monitoring for AIS.</p> <p>During the past reviews, DFO, TC and BIM came to resolution on several different topics surrounding AIS monitoring.</p> <p>Advanced monitoring and reporting of AIS is key to developing appropriate response levels for the region.</p>
Detailed Review Comment	<ol style="list-style-type: none"> <li>1. Provide updated AIS Monitoring plan to include <ol style="list-style-type: none"> <li>a. Commitments from previous reviews in regards to AIS and ballast water treatment</li> </ol> </li> </ol>

	<p>b. Include an updated plan for methodology to assess hull bio fouling, DFO views settlement plates as being inadequate</p> <p>2. DFO is unable to confirm BIMs assessment that specimen's collected from possible invasive species of the are not invasive or non-indigenous to the Milne Port area. DFO would require results from further targeted sampling, genetic barcoding and population genetic analysis by Baffinland confirming the origin of specimens found in the Milne Port area, to make this assessment.</p>
Recommendation Request	<p>We recognizes that due to the length time period of the current shipping activities proposed under the PIP Renewal (shipping season will cease much before December 2022) and with the current shipping season underway, implementation of the commitments may present a challenge. However, we recommend continued engagement with DFO and other parties on the development and implementation of AIS commitments to ensure continued protection of the Arctic aquatic environment.</p> <p>Radashevsky et al. 2022 paper is not attached as part of the supplemental info, please provide.</p> <p>Continue to work with DFO on the identification of Marenzelleria Wireni and Arctia, to determine source of origin.</p>

Review Comment Number	3
Subject/ Topic:	Marine mammal monitoring and mitigation measures
Reference to doc:	PIP Supplemental Information Package



<p>Summary:</p>	<p>DFO understands the following mitigation measures are being proposed by BIM for the 2022 shipping season:</p> <ul style="list-style-type: none"> <li>• <i>Maintain constant speed and course when possible.</i> <ul style="list-style-type: none"> <li>• <i>Reduce vessel speed to 9 knots.</i></li> <li>• <i>Reduce vessel idling</i></li> </ul> </li> <li>• <i>No more than 3 ore carriers anchoring at Ragged Island and/or drifting in Eclipse Sound. Drifting to be avoided unless warranted for safety reasons.</i></li> <li>• <i>No icebreaking to commence the 2022 shipping season. Ore carriers will not begin their transit to Milne Port until 3/10ths or less ice is present along the entire shipping route through the Nunavut Settlement Area (NSA) from the entrance of Eclipse Sound and Milne Port.</i></li> <li>• <i>No breaking of landfast ice will occur in the spring or fall shoulder season.</i></li> <li>• <i>When marine mammals appear to be trapped or disturbed by Project vessel movements, the vessel will implement appropriate measures to mitigate disturbance, including stoppage of movement until wildlife move away from the immediate area (as safe navigation allows).</i></li> <li>• <i>All Project vessels will be provided with standard instructions to operate their vessel in a manner that avoids separating an individual member(s) of a group of marine mammals from other members of the group;</i></li> <li>• <i>All Project vessels will be provided with standard instructions to not approach within 300 m of a walrus or polar bear observed on sea ice;</i></li> <li>• <i>Vessels awaiting instructions from the Port Captain to enter the RSA will be instructed to wait in Baffin Bay at least 40 km east of the Nunavut Settlement Area.</i></li> <li>• <i>No more than 80 ore carriers will be chartered during the 2022 season to transport up to 6 mtpa, pending approval. This is six (6) ore carriers less than the maximum anticipated and</i></li> </ul>
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	<p><i>approved in the previous Production Increase Proposal and Extension Request.</i></p> <ul style="list-style-type: none"> <li><i>• Use of convoys throughout the 2022 season to further reduce total sound exposure. Acoustic monitoring data indicates that if ore carriers transit in convoys with inter-vessel separation less than 10 km, there is an overall reduction of the total sound exposure in the Regional Study Area compared to multiple individual transits of an equivalent number of vessels. Slight increases of instantaneous sound levels in the regions between the vessels are compensated for by shorter exposure duration, resulting in a net decrease of noise</i></li> <li><i>• Baffinland proposes to target a 15% reduction in overall independent one way transits by implementing convoys, which effectively combines individual transits into single 'effective transits'.</i></li> </ul> <p><b>2022 Narwhal Adaptive Management Response Mitigations:</b></p> <ul style="list-style-type: none"> <li><i>• Use of convoys throughout the 2022 season to further reduce total sound exposure. Acoustic monitoring data indicates that if ore carriers transit in convoys with inter-vessel separation less than 10 km, there is an overall reduction of the total sound exposure in the Regional Study Area compared to multiple individual transits of an equivalent number of vessels. Slight increases of instantaneous sound levels in the regions between the vessels are compensated for by shorter exposure duration, resulting in a net decrease of noise exposure. Baffinland proposes to target a 15% reduction in overall independent one way transits by implementing convoys, which effectively combines individual transits into single 'effective transits'.</i></li> </ul> <p>DFO understands Baffinland and the MHTO are in discussions to examine possible approaches to acoustic monitoring. In respect to these discussions, DFO strongly recommends the use of temporary acoustic monitoring (i.e., boat-based) or the addition of further listening stations to</p>
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	<p>assess noise levels and quiet periods associated with the convoys. If only one is being placed at Bruce Head DFO would like to be aware of and make recommendations on placement.</p>
Detailed Review Comment/ Recommendation Request	<ol style="list-style-type: none"> <li>a. Effective acoustic monitoring must be conducted to confirm predictions that underwater noise from convoys will reduce impacts to narwhal.</li> <li>b. If stationary passive hydro acoustic monitoring stations are not possible, acoustic monitoring from small vessels should be utilized, or an equally effective alternative.</li> <li>c. Inform DFO of location acoustic monitors prior to implementation.</li> </ol>

### Summary of Recommendations and Conclusion

The protection of marine mammals is a key part of DFO's mandate. DFO has reviewed this PIP extension focusing on the implications of changes to terms and conditions 179 a and b, assuming that other terms and conditions present in the previous PIP extensions will be carried forward. The decline of Narwhal in Eclipse Sound is of significant concern to the Department. The inability of the current EWI to respond to such decline, demonstrates the need for additional and more reactive mitigation thresholds. DFO views the decline as a requiring high degree of action, mitigation and monitoring by the proponent. The current mitigations proposed by the proponent for this reconsideration are the minimum. Recovery of Narwhal populations within Eclipse Sound is the focus for DFO, and any advice for future processes will be built upon that foundation.

#### Key Recommendations:

- Use of multiple early warning indicators
- Work with DFO and other parties to continue to develop and implement aquatic invasive species protections
- Effective monitoring required for mitigations, including passive acoustic monitoring