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## **Oceans North Technical Review Comments for Baffinland's Sustaining Operations Proposal**

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**Mark Ings**  
**A/Executive Director**  
**Nunavut Impact Review Board Cambridge Bay, NU**  
**[info@nirb.ca](mailto:info@nirb.ca)**

Dear Mr. Ings,

Thank you for the opportunity to provide technical comment on the Baffinland Iron Mines Limited's "Sustaining Operations" Project Proposal (SOP) for the Mary River Project. Attached we provide general comments as well as specific questions responding to Baffinland's SOP FEIS and associated documents.

Our comments focus on the potential effects of this proposal on the marine environment, the inadequate justification for the Proponent's conclusions drawn from its own research and the resulting lack of confidence in our collective ability to fairly assess impacts and benefits through this environmental impact assessment process.

Taking into account the recent decline of the Eclipse Sound narwhal population, the Association of Arctic Expedition Cruise Ship Operators (AECO) has indicated its members will not be transiting Eclipse Sound or the surrounding fjords this year. AECO responded to the need to reduce underwater acoustic disturbance to narwhal and are engaging in real time adaptive management. We urge the NIRB to consider the cumulative impacts of all vessels and sound to the marine environment.

Sincerely,

Chris Debicki  
Vice President, Policy Development and Counsel  
Oceans North  
Encl. Appendix A: Oceans North Technical Review Comments - Baffinland SOP

## APPENDIX A: Oceans North Technical Review Comments - Baffinland SOP

### 1. Executive summary

The last thorough project assessment established a limit of 3.5mtpa with operational flexibility of 4.2mtpa, and project reviews since this assessment have been subject to limited timelines and processes. Much subsequent assessment energy was, in our opinion, expended on the proposed Phase 2 expansion without sufficient regard for the successive expansions of the so-called Early Revenue Phase. We are concerned with the use of these assessments as a base for the SOP assessment. Our comments center around the assessment of impacts on narwhal, including the assessment of cumulative effects.

Given the small number of operating years at or near 3.5mtpa, we do not have a sufficient understanding of impacts based on the volumes contemplated in the last full review of this project. Oceans North recommends that adaptive management and impact mitigation at this time necessitates a marked reduction in shipping intensity from current volumes. At the same time, there appears to be a disagreement between the proponent on one side and harvesters and much of the scientific community on the other regarding causation between the rise in mine-related shipping and the decline of narwhal in Milne Inlet. Given this disagreement and given the seriousness of the impacts at issue, Oceans North recommends a fulsome review of cumulative effects prior to a decision on the SOP.

Oceans North is submitting our comments in light of the significant narwhal decline, broadly observed and reported in the recent North Atlantic Marine Mammal Commission (NAMMCO) report. This report details the impacts of vessels and the resulting high probability of extirpation of narwhal from Eclipse Sound should no change occur to current disturbance levels.

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### 3. Introduction

Oceans North advocates for scientifically-sound policies consistent with Indigenous land claims and traditional practices. Over the past decade, we have supported regional voices in their desire to ensure adequate protection for the Lancaster Sound marine region. Oceans North recognizes that the high productivity in this area has sustained humans in this region for millennia. We support the efforts of the Qikiqtani Inuit Association and Parks Canada in their establishment of the Tallurutiup Imanga National Marine Conservation Area.

Oceans North has both led and participated in numerous research projects since 2014 in Eclipse Sound related to the emergence of industrial shipping in this region during Baffinland's "Early Revenue Phase." Examples of this include a study of the structural dynamics and resiliency of the floe edge at the eastern entrance to Eclipse Sound, a study of potential seal mortality associated with hypothetical spring icebreaking in Eclipse Sound, and ongoing acoustic monitoring to assess impacts of shipping on narwhal distribution and behaviour.

Using passive acoustic monitoring, our research records and measures underwater noise from ships, observes the seasonal presence of marine mammal sounds and their vocal behaviour, and investigates the effects of vessel traffic on narwhal. We are in our tenth year of monitoring (2014-current day); this project is increasingly important given the observed changes to the Eclipse Sound narwhal population in the region.

## 4.0 Technical Review Comments

<b>Review Comment Number</b>	<b>ON-01</b>
Subject/Topic	Narwhal Population Estimates
References to NIRB revised EIS Guidelines (if applicable), Main Addendum and supporting document (i.e., document section/sub-section, page number, etc.)	SOP FEIS 6.5.3.1 Potential Effects of Shipping on Narwhal P 180-183
Summary (include Baffinland's conclusion if relevant and conclusions of commenting party)	Using a combination of Eclipse Sound and Admiralty Inlet narwhal estimates
Importance of issue to impact assessment	Proper assessment of the VEC
Detailed Review Comment	<p><b>1. Gap/Issue:</b> Using a combination of Eclipse Sound and Admiralty Inlet narwhal estimates to draw conclusions about the Eclipse Sound population</p> <p><b>2. Disagreement with Addendum conclusion:</b> Eclipse Sound population is in question</p> <p><b>3. Reasons for disagreement with Addendum conclusion:</b> a) If narwhal all left Eclipse Sound but could be found elsewhere would that be acceptable? The VEC in question is the narwhal summering in Eclipse Sound to which "Effects were predicted to be limited to temporary, localized avoidance responses at close distances to the ship with animals returning to their normal behaviour shortly after the exposure event." (p.180) b) The combined estimate is irrelevant in relation to the above in addition that there is no evidence to suggest that narwhal from Eclipse moved to Admiralty (animals from other locations may account for increase in Admiralty as well)</p>
Recommendation/Request	The assessment should only be looking at Eclipse Sound narwhal population estimates to correspond with the stated VEC impacts.

<b>Review Comment Number</b>	<b>ON-02</b>
Subject/Topic	Assessment of Shipping Impacts on Narwhal
References to NIRB revised EIS Guidelines (if applicable), Main Addendum and supporting document (i.e., document section/sub-section, page number, etc.)	Sustaining Operations Proposal (p. 182)
Summary (include Baffinland’s conclusion if relevant and conclusions of commenting party)	Baffinland states: “Open-water shipping in the RSA is not considered the likely cause of the observed decline in 2021...”
Importance of issue to impact assessment	There is a high risk of impacts to VECs over the next two years if cumulative effects are not assessed properly - proper cumulative assessment of marine shipping is critical.
Detailed Review Comment	<p><b>1. Gap/Issue:</b> A lack of consideration of possible cumulative impacts over multiple seasons.</p> <p><b>2. Disagreement with Addendum conclusion:</b> As BIMC has not assessed cumulative impacts to narwhal behaviour over multiple seasons (due to their assumption that behavioural impacts are temporary and local), there is no consideration that shipping may be impacting the use of Eclipse Sound over time.</p> <p><b>3. Reasons for disagreement with Addendum conclusion:</b> There is no evidence for an alternative reason for the decline. Both the predator and climate change hypotheses proposed by the proponent for the displacement of narwhal are not supported by data (NAMMCO, 2022)</p>
Recommendation/Request	Temporally extend the cumulative effects assessment to include multiple seasons of shipping, considering the possibility of large-scale displacement over time.

<b>Review Comment Number</b>	<b>ON-03</b>
Subject/Topic	Ice breaking and impacts of shipping on narwhal
References to NIRB revised EIS Guidelines (if applicable), Main Addendum and supporting document (i.e., document section/sub-section, page number, etc.)	SOP FEIS 6.5.3.1 Potential Effects of Shipping on Narwhal P 180-183
Summary (include Baffinland’s conclusion if relevant and conclusions of commenting party)	“Suspending icebreaking in 2021 eliminated the possibility of acoustic disturbance to narwhal from icebreaking during the timing of narwhal migration into Eclipse Sound in 2021....despite the suspension of icebreaking in that year, narwhal numbers in the RSA did not increase in 2021. Narwhal disturbance from icebreaking was therefore not considered to be an influencing factor on the observed decline in narwhal abundance in Eclipse Sound during the 2021 season. It also provided additional confidence that the observed decline in 2020 was likely not a result of early shoulder season icebreaking in 2020.”
Importance of issue to impact assessment	VEC, Narwhal, decline in RSA
Detailed Review Comment	<p><b>1. Gap/Issue:</b> There is no evidence to support this argument. Further, a lag in response to disturbance is not unlikely. Low numbers in 2021 may be a direct result of ice breaking disturbances in 2020.</p> <p><b>2. Disagreement with Addendum conclusion:</b> A lack of icebreaking in 2021, and a lack of population bounce back in 2021 does not mean that ice breaking was not a factor in years prior</p> <p><b>3. Reasons for disagreement with Addendum conclusion:</b></p> <ul style="list-style-type: none"> <li>a. Biological impacts from disturbance may be seen years into the future. A</li> </ul>

	<p>lag in response to disturbance is not unlikely.</p> <p>b. The ice breaker <i>Botnica</i> generates a substantial amount of noise even when not breaking ice and this vessel was present in 2021</p>
Recommendation/Request	Assess the multi-year impacts of ice-breaking on narwhal presence in Eclipse Sound.

<b>Review Comment Number</b>	<b>ON-04</b>
Subject/Topic	Early Warning Indicators (EWI) and immature narwhal
References to NIRB revised EIS Guidelines (if applicable), Main Addendum and supporting document (i.e., document section/sub-section, page number, etc.)	SOP FEIS 4.5.2 Adaptive Management p.180
Summary (include Baffinland's conclusion if relevant and conclusions of commenting party)	"The observed decline in this EWI, as reported in the 2021 Bruce Head Program, triggered adaptive management in the form of the additional analysis of the 2021 aerial survey data for specific evaluation of the EWI metric (using dedicated 1,000 ft survey data) to evaluate if the decline observed at Bruce Head was a reflection of the low samples size encountered during the 2021 program and not an actual pattern of decreasing proportion of immature narwhal in the RSA."
Importance of issue to impact assessment	EWI's are still not in fully in place (agreement of April 2024 if SOP moves forward) years into this development project. Additional analysis is not adaptive management. The response to EWI of a lower calf rate is not EWI's are critical
Detailed Review Comment	<b>1. Gap/Issue:</b> This project is still in a place without functional EWI's and adaptive management in response. Adaptive management in the face of a declining calf rate is not analysis of a separate data set.

	<p><b>2. Disagreement with Addendum conclusion:</b> Analysis of data and re-evaluation of an EWI is not adaptive management.</p> <p><b>3. Reasons for disagreement with Addendum conclusion:</b> Localized data showed a decline, Inuit have noted a decline in decline in immature narwhal as well. Assessing a different data set is not a response. The precautionary approach should be taken - especially if two data sets tell a different story.</p>
Recommendation/Request	<p>ON recommends that EWI's are in place before further production is approved, and that appropriate adaptive management be developed for each EWI.</p> <p>Were all years of observational data compared to the regional 1,000 ft survey? Are equals compared? Was this comparison planned in advance with DFO involvement?</p>

<b>Review Comment Number</b>	<b>ON-05</b>
Subject/Topic	Disturbance level estimates
References to NIRB revised EIS Guidelines (if applicable), Main Addendum and supporting document (i.e., document section/sub-section, page number, etc.)	Appendix 12 - Vessel Convoy Analysis. Section 3 (pg. 5). Pg. 181 of Sustaining Operations Proposal.
Summary (include Baffinland's conclusion if relevant and conclusions of commenting party)	Baffinland uses 120dB as the "established acoustic disturbance threshold for marine mammals".
Importance of issue to impact assessment	Long term displacement of narwhal may continue without proper assessment of disturbance and appropriate mitigation. Mitigation planning cannot occur without an accurate picture of the daily disturbance.
Detailed Review Comment	<b>1. Gap/Issue:</b> Proper assessment of

	<p>behavioural impacts to narwhal and the subsequent need for a fulsome cumulative effects assessment.</p> <p><b>2. Disagreement with Addendum conclusion:</b> The threshold for disturbance for narwhal sits at a lower sound level than 120dB. This assumption and lack of incorporation of updated evidence affects the accuracy of the impact assessment on narwhal, including the cumulative assessment. Baffinland uses data that is not species specific (Richardson et al. 2013; Southall et al. 2007, 2021), as opposed to their own narwhal behavioural data in combination with acoustic data. The entire point of marine monitoring and mitigation - study and adapt - is not being used in this case.</p> <p><b>3. Reasons for disagreement with Addendum conclusion:</b> UCSD/Oceans North research (Jones, 2020) shows that narwhal significantly change their behaviour at lower measured underwater noise levels and farther distances from ships than BIMC initially predicted. This research strongly suggests that narwhals are more sensitive to underwater noise than predicted prior to recent studies in the Eclipse Sound region.</p> <p>In Eclipse Sound, narwhal behaviour, such as bottom dives for feeding, changes between 105 and 115 dB. Avoidance of vessels occurs at 115-120 dB. Data from Greenland also shows that narwhal exhibit behavioural disturbance at received levels less than 120 dB (Tervo et al., 2021; Heide-Jørgensen et al., 2021; Williams et al., 2022).</p>
<p>Recommendation/Request</p>	<p>Reassess shipping impacts to narwhal using the current known thresholds for narwhal specifically.</p>

<b>Review Comment Number</b>	<b>ON-06</b>
Subject/Topic	Cumulative Effects of Marine Shipping Activities - Vessel Noise
References to NIRB revised EIS Guidelines (if applicable), Main Addendum and supporting document (i.e., document section/sub-section, page number, etc.)	Section 2.3 and Table 2.2, Section 6.9 of the Sustaining Operations Proposal Appendix 12 - Vessel Convoy Analysis Appendix 14 - Underwater Noise Modelling QIA April 6, 2023 submission to the SOP process, including Schedule A.
Summary (include Baffinland’s conclusion if relevant and conclusions of commenting party)	Baffinland concludes there is no change to shipping impacts. Due to changes to the project scope (the use of convoys, the potential introduction of much larger ships, and the potential for shipping over 6 mtpa in one season), a more fulsome cumulative assessment of marine shipping is required.
Importance of issue to impact assessment	There is a high risk of impacts to VECs over the next two years if cumulative effects are not assessed properly - proper cumulative assessment of marine shipping is critical.
Detailed Review Comment	<p><b>1. Gap/Issue:</b> Baffinland stated (pg. 246) that “the methods used to assess the cumulative effects of the ERP in the ERP FEIS Addendum (Baffinland 2013) was generally applied for this CEA.” It also states “...this CEA assumes potential temporal overlap with construction and operation with the previously approved southern railway and Steensby Port.” The Steensby Port project is not included in the projects assessed as “Foreseeable” in Table 6.33, and it is only briefly mentioned in the cumulative effects assessment in Table 6.34 (p. 260) and not mentioned at all in the assessment to terrestrial wildlife. This is a very large gap if assessing cumulative effects of constructing a railroad and another port (p. 258).</p> <p><b>2. Disagreement with Addendum conclusion:</b> The cumulative effects assessment is based on a flawed assessment from 2012 and 2013. It requires a thorough</p>

	<p>update based on accurate disturbance thresholds and more detailed vessel sound profiles.</p> <p>There is a lack of temporal assessment in the cumulative effects section as Baffinland has assessed its impacts as temporary. Subsequently, there is no assessment of the impacts across shipping seasons.</p> <p><b>3. Reasons for disagreement with Addendum conclusion:</b></p> <p>The impact of sound on the underwater marine environment is significant. UCSD/Oceans North research (Jones, 2020) shows that, even within vessel classes (bulk carrier, tanker, general cargo) individual ships emit different levels of underwater noise. Some ships are noisier than others, with sound lasting from a few minutes to several hours. Some emit noise across a broader range of frequencies as well ranging from 20 Hz to &gt;20 kHz . Some ships generate noise that can be detected from more than 50 km away. Ships cause underwater noise levels to be elevated for hours everywhere in Eclipse Sound and Milne Inlet with each transit through the region. Certain ships, such as the icebreaker <i>Botnica</i> or the tanker <i>Sarah Desgagnes</i>, are significantly noisier than all the others.</p>
<p>Recommendation/Request</p>	<p>Complete a thorough cumulative effects assessment of changes to shipping as described above. Model the vessel profiles to the known disturbance levels for narwhal (see ON-04).</p> <p>It is unclear if shipping mitigations have been assessed with both inbound (empty) or outbound (full) ore carriers. The analyses of Appendix 14 and Appendix 12 are thorough however it is unclear how they were included in the assessment. In addition, the assessment does not analyze the use of convoys as much as say their impact will be</p>

	less than previous years of 6mtpa. As there have been clear impacts over the years at this production level, the conclusions re convoys and a limit of 84 vessels per season need to be assessed on their own merits.
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## 5.0 Summary of Recommendations

Overall, Oceans North does not agree with the SOP conclusions of not significant impacts, particularly in the context of the Eclipse Sound narwhal population and the application of the stringent precautionary principle. Our comments above outline our reasoning and, where applicable, the evidence supporting our statements.

As we have previously stated, cumulative effects assessment monitoring has not yet been developed for any of the projects or proposals for the Mary River Mine. The root of this problem is the conclusion of non-significant cumulative effects and the subsequent lack of assessment of multi-year effects on VECs based on that assumption.

To correct the cumulative effects assessment, we recommend the following:

1. Reassess shipping impacts to narwhal using the current, known thresholds for narwhal disturbance.
2. Assess impacts to the Eclipse Sound narwhal population estimates to correspond with the stated VEC impacts.
3. Model the vessel profiles to the known disturbance levels for narwhal (see ON-05).
4. Assess the new shipping mitigations on their own merits as opposed to comparison with previous shipping impacts.
5. Temporally extend the cumulative effects assessment to include multiple seasons of shipping, considering the possibility of large-scale displacement over time.
6. Create a cumulative effects monitoring plan, ensuring that Early Warning Indicators are in place before further production is approved and that appropriate adaptive management is developed for each EWI.