



Canadian Northern Economic
Development Agency

Agence canadienne de
développement économique du Nord

5019 52nd Street
Yellowknife, NWT X1A 2R3

August 11, 2022

Kavik Kaluraq
Chairperson
Nunavut Impact Review Board
PO Box 1360
Cambridge Bay, NU X0B 0C0

Via email: kkaluraq@nirb.ca; info@nirb.ca

RE : Government of Canada's technical comments on Baffinland Iron Mines Corporation's (Baffinland) Production Increase Proposal Renewal Project Proposal, Mary River Project Certificate No. 005 [NIRB File 08MN053]

Dear Ms. Kaluraq:

Thank you for providing the opportunity to submit comments on Baffinland's Production Increase Proposal Renewal.

All participating federal departments have reviewed the documents provided by Baffinland pertaining to its request to continue the production and shipping of 6 million tonnes of iron ore from the Mary River Mine through Milne Inlet until December 31, 2022. Please accept the appended submissions from the following departments: Fisheries and Oceans Canada, Environment and Climate Change Canada, and Parks Canada. Natural Resources Canada, Transport Canada and Health Canada have no comment related to the Production Increase Proposal Renewal.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has not appended a separate submission, however CIRNAC wishes to indicate that it does not have outstanding concerns related to the assessment of biophysical and socio-economic effects for the Production Increase Proposal Renewal that require reconsideration of the terms and conditions of Project Certificate No. 005. CIRNAC would like to confirm that its previous interventions for the review of the Baffinland's Mary River project continue to apply.

CIRNAC's previous concerns, as noted in its earlier interventions, can be addressed through ongoing discussions with Baffinland regarding the implementation of management decisions based on the assessment of monitoring program results. CIRNAC expects continued implementation of management plans to prevent, mitigate and monitor potential project-related impacts to the surrounding ecosystemic and socio-economic environments. CIRNAC

will listen to the comments provided by Nunavut Inuit, including the residents of the North Baffin communities, to support its understanding of the project proposal.

The Government of Canada looks forward to continued participation in the Nunavut Impact Review Board's process for this assessment. If you have any questions please contact Natalie O'Grady, Senior Project Manager, Northern Projects Management Office at natalie.ogrady@canada.ca or 867-222-4862.

Sincerely,

**Paradis,
Adrian**

Digitally signed by
Paradis, Adrian
Date: 2022.08.11
11:53:11 -06'00'

for

Lisa Dyer
Director General
Northern Projects Management Office

Encl.

c.c. Terry Audla, Regional Director General, Nunavut, Crown-Indigenous Relations and Northern Affairs Canada

Tom Hoggarth, Director General, Ecosystems Management Fisheries and Oceans Canada, Central and Arctic Region

Joanna Ankersmit, Director General, Natural Resources and Environment, Crown-Indigenous Relations and Northern Affairs Canada

Mary Taylor, Director General, Environmental Protection Operations Directorate, Environment and Climate Change Canada

Rinaldo Jeanty, Director General, Explosives Safety and Security Branch, Natural Resources Canada

Shari Currie, Regional Director General, Prairie and Northern Region, Transport Canada

Greg Carreau, Director General, Safe Environments Directorate, Health Canada

Brenna MacNeil, Director General, External Relations and Strategic Policy Sector, Impact Assessment Agency of Canada

Canada 

Jenna Boon, Field Unit Superintendent, Nunavut, Parks Canada

Jarred Picher, Director, Natural Resources Branch, Parks Canada

Environmental Protection Operations Directorate
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Yellowknife, NT X1A 2P7

ECCC File: 6100 000 011/001
NIRB File: 08MN053



August 11, 2022

via email at: info@nirb.ca

Karen Costello
Executive Director
Nunavut Impact Review Board
29 Mitik Street
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Karen Costello:

RE: 08MN053 – Baffinland Iron Mines Corporation – Mary River Project – Production Increase Proposal Renewal Application

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) regarding the above-mentioned Production Increase Proposal Renewal application. You will find our technical comments attached.

ECCC is providing technical, science-based information and knowledge based on our mandate pursuant to the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*. These comments are intended to inform the assessment of this project's potential effects in the receiving environment and on valued ecosystem components. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

If you need more information, please contact Melissa Pinto at (867) 445-5384 or Melissa.Pinto@ec.gc.ca.

Sincerely,

Margaret Fairbairn
A/Regional Director, EPOD-PNR

Attachment(s): ECCC's Technical Comments Submission Re: Mary River Project PIP Renewal

cc: Jody Small, Acting Head, Environmental Assessment North (NT and NU)





ENVIRONMENT AND CLIMATE CHANGE CANADA'S TECHNICAL COMMENTS SUBMISSION TO THE NUNAVUT IMPACT REVIEW BOARD

RESPECTING THE PRODUCTION INCREASE PROPOSAL RENEWAL APPLICATION FOR THE MARY RIVER PROJECT PROPOSED BY BAFFINLAND IRON MINES CORP.

AUGUST 11, 2022



**Baffinland's Mary River Production Increase Proposal Renewal
Environment and Climate Change Canada
Technical Comments Submission to the Nunavut Impact Review Board**

Executive Summary

Baffinland Iron Mines Corporation (the Proponent) is proposing to renew the Production Increase Proposal (PIP) for the approved Mary River Iron Mine Project until the end of 2022. The Mary River Project is an open pit iron ore mine located on Baffin Island in Nunavut, approximately 160 km from Pond Inlet. The PIP was originally approved in 2018 to allow the Proponent to extract, transport and ship up to 6 million tonnes per year of iron ore to bridge the gap between the approved Early Revenue Phase and Phase 2. The PIP was extended in 2020 to December 31, 2021 to accommodate the ongoing Phase 2 assessment, which is currently with Responsible Ministers for decision.

The Proponent submitted their PIP Renewal online screening application to the Nunavut Impact Review Board (NIRB) on May 30, 2022 and provided additional information on June 15. On July 9, NIRB outlined the reconsideration process and requested any technical comments by August 11. The NIRB also noted it would be conducting a Community Roundtable in Pond Inlet on August 16.

In Nunavut, Environment and Climate Change Canada (ECCC) provides specialist expert information or knowledge to the NIRB in accordance with the expertise that ECCC has available, and as required under Article 12 of the Nunavut Agreement and Section 197 of the *Nunavut Planning and Project Assessment Act*.

This technical comments submission provides ECCC's expert advice on the Proponent's assessment of the environmental effects and proposed mitigations, and identifies outstanding concerns and recommendations for consideration by NIRB.

ECCC is providing technical, science-based information and knowledge based on our mandate pursuant to the *Canadian Environmental Protection Act*, the *Species at Risk Act*, the *Migratory Birds Convention Act* and the pollution prevention provisions of the *Fisheries Act*. These comments are intended to inform the assessment of this project's potential effects in the receiving environment and on valued ecosystem components. Any comments received from ECCC in this context does not relieve the Proponent of its obligations to respect all applicable federal legislation.

ECCC's comment and recommendation are with respect to the proposed use of shipping convoys to reduce impacts to marine animals and the associated potential impacts to short-term air quality.

[illegible]

List of Acronyms

CEPA	<i>Canadian Environmental Protection Act</i>
ECCC	Environment and Climate Change Canada
MBCA	<i>Migratory Birds Convention Act</i>
Mtpa	million tonnes per annum
NIRB	Nunavut Impact Review Board
PIP	Production Increase Proposal
SARA	<i>Species at Risk Act</i>

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1.0 Introduction

Baffinland Iron Mines Corporation (the Proponent) is proposing to renew the Production Increase Proposal (PIP) for the Mary River Iron Mine Project until the end of the 2022 calendar year. The Mary River Project is an open pit iron ore mine located on Baffin Island in the Qikiqtani Region of Nunavut, approximately 160 km from Pond Inlet. The Project was approved in 2012 with authorization to transport and ship 18 million tonnes per annum (mtpa) of iron ore via a southern railway to Steensby Port.

The PIP was originally proposed and approved in 2018 to allow the Proponent to extract, transport and ship up to 6 mtpa to bridge the gap between the approved Early Revenue Phase, which allows extraction, transport and shipping of 4.2 mtpa along the tote road, north to Milne Port, and Phase 2, which proposes to build a railway from the mine site to Milne Port to allow transportation and shipping of 12 mtpa of iron ore. The PIP was extended in 2020 to December 31, 2021 to accommodate the ongoing Phase 2 assessment. Phase 2 is currently with the Responsible Ministers for decision since the Reconsideration Report and Recommendations were released by the Nunavut Impact Review Board (NIRB) in May 2022.

The Proponent submitted their PIP Renewal online screening application to NIRB on May 30, 2022 and provided additional information on June 15 to supplement their application. On July 9, NIRB released correspondence outlining the reconsideration process and requested any technical comments from parties by noon Mountain Standard Time on August 11. The NIRB also noted it would be conducting a Community Roundtable in Pond Inlet on August 16 to provide an opportunity for community members to voice their concerns directly to NIRB.

The comments and recommendations provided are based on ECCC's mandate in the context of the *Canadian Environmental Protection Act* (CEPA), the pollution prevention provisions of the *Fisheries Act*, the *Species at Risk Act* (SARA) and the *Migratory Birds Convention Act* (MBCA).

In Nunavut, ECCC provides specialist expert information or knowledge to the NIRB in accordance with the expertise that ECCC has available, and as required under Article 12 of the Nunavut Agreement and Section 197 of the *Nunavut Planning and Project Assessment Act*. ECCC is participating in the reconsideration process through the submission of these technical comments to the NIRB for consideration.

A summary of ECCC's mandate and legislation is provided in Section 2.0. ECCC's technical review comments and recommendations are provided in Section 3.0 and Acknowledgments are provided in Section 4.0.

ECCC's comment and recommendation for the outstanding issue is provided with respect to the Proponent's proposed use of shipping convoys to address impacts to marine animals. It is not clear whether the Proponent considered and assessed the impacts to short-term air quality from shipping convoys.

2.0 Environment and Climate Change Canada's Mandate, Roles, and Responsibilities

The mandate of ECCC is determined by the statutes and regulations under the responsibility of the Minister of Environment and Climate Change. ECCC's mandate covers matters such as the preservation and enhancement of the quality of the natural environment (including water, air and soil quality, and the coordination of the relevant policies and programs of the Government of Canada), renewable resources (including migratory birds and other non-domestic flora and fauna), meteorology, and the enforcement of rules and regulations. ECCC's specialist advice is provided in the context of the CEPA, the pollution prevention provisions of the *Fisheries Act*, SARA, and the MBCA.

ECCC administers the pollution prevention provisions of the *Fisheries Act*, which prohibits the deposit of a deleterious substance into fish-bearing waters. ECCC also participates in the regulation of toxic chemicals and the development and implementation of environmental quality guidelines pursuant to CEPA.

ECCC is responsible for protecting and conserving migratory bird populations and individuals under the MBCA. ECCC also administers SARA in cooperation with Fisheries and Oceans Canada, and the Parks Canada Agency to prevent wildlife species from becoming extirpated or extinct, provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming threatened, endangered or extirpated.

Additional information on ECCC's mandate can be found at: <https://www.canada.ca/en/environment-climate-change/corporate/mandate.html>.

3.0 Environment and Climate Change Canada's Technical Review Comments

This technical comments submission summarizes the results of ECCC's technical review of the information provided by the Proponent for the Mary River Production Increase Proposal (PIP) Renewal. ECCC previously provided comments and recommendations on the original PIP and PIP Extension regarding greenhouse gas, NO₂, SO₂ and dust emissions from the increased transportation and shipping of ore at 6 mtpa. These recommendations were addressed through updates to the relevant management plans, and continue to apply to the PIP Renewal.

Subsection 36(3) of the federal *Fisheries Act*, administered by ECCC prohibits the discharge of deleterious substances to waters frequented by fish, or to a place where those substances might enter such waters.

ECCC has reviewed the information provided in this technical comments submission and is providing a comment and recommendation in areas related to its mandate.

3.1 ECCC# 1 – Convoy Shipping Emissions

References

Baffinland Memo: Production Increase Proposal Renewal, dated June 15, 2022; Section B Description of 2022 Activities and Mitigations

2022-07-20 Baffinland – Operational Guide for Ore Carrier Convoys

Proponent's Conclusion

On PDF page 5 of the Baffinland Memo the Proponent proposes the use of convoys throughout the 2022 season with the intent to reduce total sound exposure to marine animals, with inter-vessel separation less than 10 km. Section 5.1.2 of the Operational Guide states that three designated anchorage points exist for Milne Port, "...however, two of the three anchorages at Milne Port are relatively deep, which can cause safety concerns in bad weather as vessels can drift even at anchor. As a result, the 3rd anchorage is only ever occupied on an emergency basis."

ECCC's Conclusion

ECCC expects the total air emissions from marine shipping, and hence annual averages of air contaminant concentrations, to remain the same. However, ECCC expects an increase in short-term impacts to air quality at Milne Port when marine vessels concurrently assemble at the dock and at one to three anchorages, as there will be coincident emissions from two to four ships. This would result in a greater potential for exceedances of 1-hour NO₂ air quality standards to occur.

The statements in the Operational Guide regarding the use of anchorage sites are not clear. For instance the Operational Guide states that two of the three anchorages are deemed not suitable in bad weather

yet the 3rd anchorage is only ever occupied on an emergency basis. The first part of this statement implies that both the 2nd as well as the 3rd anchorages would only be used on an emergency basis. Further, it is not evident from Figure 5.1 of the Operational Guide which of the three anchorages is in relatively shallow water.

ECCC Recommendation(s):

ECCC recommends that the Proponent assess and discuss the impacts of marine shipping convoys on air quality at Milne Port for acute (1-hour) time scales.

ECCC recommends that the Proponent indicate which of the three anchorages is in relatively shallow water, hence most likely to be used, and also that the Proponent clarifies whether one or two anchorages would only be used on an emergency basis. Further, ECCC recommends that the Proponent indicate the incremental air quality impacts from having one or two ships at anchorages as compared to having just a docked ship in port.

4.0 Acknowledgements

ECCC acknowledges and appreciates the effort that the Proponent has taken to provide information and to address concerns brought forward by parties through previous Mary River review processes. ECCC would like to thank the Nunavut Impact Review Board for this opportunity to provide input to the Mary River Production Increase Proposal Renewal reconsideration review and looks forward to continuing its participation in this process.

ECCC's technical review comments and recommendations are not to be interpreted as any type of acknowledgement, compliance, permission, approval, authorization, or release of liability related to any requirements to comply with federal or territorial statutes and regulations.



Parks
Canada

Parcs
Canada



**PARKS CANADA'S WRITTEN SUBMISSION
TO THE NUNAVUT IMPACT REVIEW BOARD
RESPECTING:**

**BAFFINLAND IRON MINES CORPORATION'S
Production Increase Proposal Renewal Project**

NIRB File # o8MNo53

August 9th, 2022

Executive Summary

The shipping component of the PIPR project proposal is located beside Sirmilik National Park and within the proposed Tallurutiup Imanga National Marine Conservation Area (TINMCA).

Parks Canada, in partnership with Inuit, Fisheries and Oceans Canada, Transport Canada, and the Government of Nunavut, is in the process of establishing Tallurutiup Imanga National Marine Conservation Area (Tallurutiup Imanga NMCA) in Lancaster Sound under the Canada National Marine Conservation Area Act (CNMCAA).

The purpose of TI NMCA is the protection and conservation of this representative marine area and the preservation of Inuit cultural practices, expression and customs and to secure socio-economic benefits for Inuit.

The Tallurutiup Imanga IIBA was signed by the (QIA) and the Government of Canada, as represented by Parks Canada, the Department of Fisheries and Oceans, and Transport Canada on August 1, 2019. One of the overarching themes of the Tallurutiup Imanga IIBA is that of Inuit relationship with the environment. The IIBA highlights the importance of ecosystem health and biodiversity, and the preservation of Inuit cultural practices.

Parks Canada does not agree with the conclusions presented by BIM regarding the reasons for decline in narwhal abundance in Eclipse Sound and Milne Inlet. BIM indicates that the “2020 and 2021 observations of potential lower narwhal abundance in Eclipse Sound as compared to previous aerial surveys ... are more likely the product of natural exchange of the species between Eclipse Sound and Admiralty Inlet”. Parks Canada notes that the exchange of narwhal between putative summer stocks for the Baffin Bay narwhal population is presented without clarifying the current observed magnitude of exchange is much higher compared to the level of exchange identified by the best available science in past studies and Inuit Qaujimajatuqangit. Narwhal in Eclipse Sound play a significant role in the marine ecosystem of TI NMCA and the continuation of Inuit cultural practices, so a significant decrease in the narwhal in Eclipse Sound is not compatible with the purpose of TI NMCA.

Parks Canada believes there are information gaps in the current project monitoring program and as a result, uncertainty in conclusions related to the potential impacts of the PIPR project proposal on the marine environment. Parks Canada does not have specific recommendations to mitigate the decrease in the Eclipse Sound narwhal stock

however, we recommend that NIRB consider the precautionary principle and the protected area context when making any further decisions and recommendations related to the PIPR project proposal.

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1.0 Introduction

The following submission outlines Parks Canada's assessment and recommendations regarding Baffinland Iron Mines Corporation's (BIMs) "Production Increase Proposal Renewal" Project Proposal (PIPR).

1.1 Reason for Parks Canada's Involvement in the Review

As outlined in Parks Canada's final submission and final hearing presentation for NIRBs review of BIM's Phase 2 Project Proposal, the shipping component of the PIPR project proposal is located beside Sirmilik National Park and within the proposed Tallurutiup Imanga National Marine Conservation Area (TINMCA).

As described in the Tallurutiup Imanga IIBA, the NMCA is approximately 108,000 km² in size and includes most of the waters traversed by Baffinland's shipping route through Eclipse Sound and Milne Inlet. Once Tallurutiup Imanga NMCA is established under the CNMCAA, Parks Canada will have a regulatory role. For these reasons, Parks Canada's submission focuses primarily on items related to Tallurutiup Imanga NMCA.

1.2 Parks Canada Agency Mandate and Management of Protected Areas

Parks Canada's mandate outlines that:

"On behalf of the people of Canada, we protect and present nationally significant examples of Canada's natural and cultural heritage and foster public understanding, appreciation and enjoyment in ways that ensure their ecological and commemorative integrity for present and future generations"

Parks Canada's mandate, pursuant to the *Canada National Parks Act* (CNPA), along with the *Canada National Marine Conservation Areas Act* (CNMCAA), and Inuit Impact Benefit Agreements provide the foundation for the management framework for TI NMCA and Sirmilik National Park.

Tallurutiup Imanga National Marine Conservation Area

Tallurutiup Imanga NMCA is an area that has been used for generations by the Inuit. It represents a natural and cultural seascape that is one of the most significant ecological areas in the world. For Inuit living in the communities of Tallurutiup Imanga, it is a home, rich in culture and wildlife.

Parks Canada, in partnership with Inuit, Fisheries and Oceans Canada, Transport Canada, and the Government of Nunavut, is in the process of establishing TINMCA in Lancaster Sound under the CNMCAA.

The purpose of TINMCA is the protection and conservation of this representative marine area and the preservation of Inuit cultural practices, expression and customs and to secure socio-economic benefits for Inuit

Article 8 of the Nunavut Agreement requires that an Inuit Impact and Benefit Agreement (IIBA) be negotiated and concluded before a park or conservation area is established in Nunavut. The Tallurutiup Imanga IIBA was signed by the Qikiqtani Inuit Association (QIA) and the Government of Canada, as represented by Parks Canada, the Department of Fisheries and Oceans, and Transport Canada on August 1, 2019. It secures important social, cultural and economic benefits for Inuit and establishes how Inuit and government will work together to realize these benefits and manage Tallurutiup Imanga NMCA.

One of the overarching themes of the Tallurutiup Imanga IIBA is that of Inuit relationship with the environment. It indicates that the cultural values and identities of Inuit of Tallurutiup Imanga and the Qikiqtani Region are intrinsically connected with the Arctic marine environment and wildlife. The TI IIBA highlights the importance of ecosystem health and biodiversity, and the preservation of Inuit cultural practices. The TI IIBA states that Inuit understanding of how they fit into the world is based on their close relationship with the land, sea, ice, and environment; they are a part of the land and the sea.

Key elements of the CNMCAA and the TI IIBA include:

- Tallurutiup Imanga NMCA must be "protected and conserved" (s. 4(1), CNMCAA; p. 4, IIBA);
- Tallurutiup Imanga NMCA must be "managed and used in a sustainable manner that meets the needs of present and future generations without compromising the structure and function of the ecosystems" (s. 4(3), CNMCAA; p.4 IIBA);
- the "principles of ecosystem management and the precautionary principle" will be a primary consideration (s. 9(3), CNMCAA; p. 4, IIBA), and;
- the ecologically sustainable use of marine resources in the NMCA is for the lasting benefit of coastal communities (preamble, CNMCAA; p.4, IIBA).

Parks Canada would like to note that Term and Condition 179(a) and 179(b) were originally added to Project Certificate No. 005 in October 2018, prior to the signing of the TI IIBA. As a result, the context of the TI IIBA would not have been taken into consideration in the original analysis of the PIP.

2.0 Parks Canada Comments

Review Comment Number	PCA-01
Subject/Topic	Decline in Eclipse Sound Narwhal Stock
References to the PIP Renewal, Supplemental Information Package or relevant excerpt from previously filed information in respect of the Mary River Project	<p>PIP Renewal Supplementary Information Package-Section D (i) Narwhal Abundance in Eclipse Sound and Milne Inlet (Pages 8-10 of PDF).</p> <p>Parks Canada comments on 2021 Annual Report filed with NIRB on June 30th, 2022.</p> <p>DFO (2020). Information Related to the Delineation of the Eclipse Sound and Admiralty Inlet Narwhal Stocks. Canadian Science Advisory Secretariat, Science Advisory Report 2020/048.</p>
Summary (include Proponent's conclusion if relevant and conclusions of commenting party)	<p>Parks Canada does not agree with the conclusions presented by BIM regarding reasons for the decline in narwhal abundance in Eclipse Sound and Milne Inlet. Parks Canada believes there are gaps in information and as a result, uncertainty in conclusions, related to the impacts of shipping of the current operations on the Eclipse Sound narwhal stock.</p>
Importance of issue to the impact assessment process	<p>The <i>Nunavut Planning and Project Assessment Act</i>, section 90, indicates that the Nunavut Impact Review Board (NIRB) must take into account numerous factors, including item "(j) any other factor that the Board considers relevant to the significance of impacts". Often when determining significance, the "context" of the impacts is another factor that is considered. Parks Canada recommends the Board consider the context of the Tallurutiup Imanga NMCA in making its decision.</p>
Detailed Review Comments	<p>As outlined in BIMs PIP Renewal Supplementary Information Package-Section D (i) Narwhal Abundance in Eclipse Sound and Milne Inlet (Page 8-10 of PDF), results from their marine monitoring program indicate that there has been a decline in narwhal abundance in Eclipse Sound and Milne Inlet. BIM indicates that "2020 and 2021 observations of potential lower narwhal abundance in Eclipse Sound as compared to previous aerial surveys do not reflect an overall reduction of the regional narwhal population and do not appear to be a result of the Project. These</p>

observations are more likely the product of natural exchange of the species between Eclipse Sound and Admiralty Inlet, other more global factors that are affecting the Arctic marine area due to climate change i.e. predation, forage availability, ice conditions, etc., and other activities in the area such as construction of the Pond Inlet small craft harbour.”

Parks Canada does not agree with the conclusions presented by BIM regarding the reasons for decline in narwhal abundance in Eclipse Sound and Milne Inlet. As outlined in Parks Canada’s comments on BIMs 2021 Annual Report submitted to NIRB on June 30th, 2022, the exchange of narwhal between putative summer stocks for the Baffin Bay narwhal population is unlikely to be a “natural exchange” given best available science in past studies and Inuit Qaujimajatuqangit. Although both western science and Inuit Qaujimajatuqangit have identified that there is a natural exchange of narwhal between putative summer stocks for the Baffin Bay narwhal population (i.e., between summer stock areas such as Eclipse Sound and Admiralty Inlet), the current magnitude of exchange on an annual basis and resulting large-scale distribution shift has not been observed to date with satellite tag data or aerial survey abundance estimates and to our knowledge has not been identified by Inuit Qaujimajatuqangit. For example, science evidence from Fisheries and Oceans Canada identified 16% of narwhal tagged in 2012, and from 2016-2018 visited other summer management areas during July 25-August 24 (i.e., the period corresponding to when aerial surveys typically take place) and 33% of narwhal travelled to one or more summer management areas during the typical open water season (DFO, 2020). Based on point estimates of abundance in Eclipse Sound from 2019 to 2021 the approximate decline on an annual basis from 2019-2021 ranges from 50-52% during the typical aerial survey period compared to 16% of narwhal tagged in 2012, and from 2016-2018.

As noted above, one of the principles of the TI IIBA is the importance of ecosystem health and the preservation of Inuit Cultural Practices. The purpose of an NMCA is to protect marine biodiversity and representative marine ecosystems. Protection of marine mammals, being a key component of marine biodiversity, is a priority outlined in both the *CNMCA Act* and the TI IIBA. Narwhal in Eclipse Sound play a significant role in the marine ecosystem of TI NMCA and the continuation of Inuit

	cultural practices, so a significant decrease in the narwhal in Eclipse Sound is not compatible with the purpose of TI NMCA.
Recommendation/Request	Parks Canada believes there are information gaps in the current project monitoring program and as a result, uncertainty in conclusions related to the potential impacts of the PIPR project proposal on the marine environment. Parks Canada does not have specific recommendations to mitigate the decrease in the Eclipse Sound narwhal stock however, we recommend that NIRB consider the precautionary principle and the protected area context when making any further decisions and recommendations related to the PIPR project proposal.

3.0 Summary of Recommendations

Parks Canada's recommendations are consistent with the Agency's mandate and the Inuit Impact and Benefit Agreement for Tallurutiup Imanga National Marine Conservation Area which recognizes that the ecosystem health and biodiversity of the Tallurutiup Imanga NMCA are of fundamental importance to the preservation of Inuit cultural practices.

As a Federal Agency we are working closely with DFO and relying on their marine expertise to understand the potential impacts of Baffinland's PIPR project proposal on the marine ecosystem and to understand if the proposed mitigations are sufficient. As a result, Parks Canada supports the recommendations and conclusions provided by DFO to the NIRB for this review.

At this time the key concern that we are focusing on is related to impacts of the project proposal on marine mammals and the marine environment specifically related to shipping. It is clear that uncertainties remain regarding these impacts and their extent cannot be defined. As a result, Parks Canada recommends NIRB consider the precautionary principle and the protected area context when making its decision on the significance of impacts.



Fisheries and Oceans Pêches et Océans
Canada Canada

Central and Arctic Region
Fish and Fish Habitat Protection Program
867 Lakeshore Road
Burlington, Ontario
L7S 1A1

August 9, 2022

NIRB File : 08MN053
DFO File : 07-HCAA-CA7-00050

Nunavut Impact Review Board
Attention: Kaviq Kaluraq, Chairperson
P.O. Box 1360
Cambridge Bay, NU
X0B 0C0

Dear Kaviq Kaluraq,

Subject: Baffinland Iron Mines Corporation (Baffinland) Mary River request for further modifications of condition 179(a) and 179(b) of Mary River Project Certificate 005 (NIRB File No: 08MN053) – Final Submission

Fisheries and Oceans Canada - Fish and Fish Habitat Protection Program (DFO-FFHPP) has conducted a technical assessment of Baffinland Iron Mines Corporation's application and supporting documentation related to their request to further modify conditions 179(a) and 179(b) or Project Certificate 005 for the Mary River Project, which would allow for an extension to their previously approved production increase from 4.2 Mtpa to 6 Mtpa. DFO-FFHPP is providing a comments as directed by the Nunavut Impact Review Board's (NIRB) letter dated July 19th, 2022.

DFO-FFHPP's assessment and recommendations are based on our departmental mandate under the *Fisheries Act*, specifically the management and protection of fish and their habitat in both the freshwater and marine environments.

If you or any other parties have any questions, please contact Edyta Ratajczyk by email at edyta.ratajczyk@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

Thomas Hoggarth
Regional Director
Fisheries and Oceans Canada

Cc: Dan Coombs- Senior Fisheries Biologist
Alasdair Beattie – Team Lead, DFO



Fisheries and Oceans Pêches et Océans
Canada Canada

Stephanie Martens – Regional Manager, DFO

Martyn Curtis – Director, Fish and Fish Habitat Protection and Species at Risk



Fisheries and Oceans
Canada

Pêches et Océans
Canada



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

NIRB File No.: 08MN053

Canada 

Executive Summary

DFO-FFHPP is providing the following submission in response to the Nunavut Impact Review Board's (NIRB) correspondence dated July 19th, 2022 which invites parties to provide comments to the Board by August 11th, 2022. The technical comments in this submission are categorized under the general topic of the Marine Environment.

The proposed extension of increased shipping as part of *'Baffinland Iron Mines Corporation's request for further modifications of condition 179(a) and 179(b) of Mary River Project Certificate 005'* has the potential to cause additional negative impacts to the marine environment including behavioural changes resulting from increased frequency of noise, displacement of significant proportion of the Eclipse Sound summer stock to other summer areas, potential increased mortality to marine mammals and further introductions of aquatic invasive species and non-indigenous species.

Of significant concern to DFO, is the continued decline of Narwhal in Eclipse Sound. In 2016 DFO estimated the population of Narwhal with the sound to be 12,039, current (2021) BIM reporting of population estimates the population to be 2,595. This is a significant decline of the Narwhal population. Any adaptive management plans and action must take into consideration that the population is at a critical level within Eclipse Sound.

DFO does not agree with BIM's conclusions for the potential causes of the decline of the Eclipse Sound summer stock of narwhal. BIMs assertion that natural exchange between Admiralty Inlet is the cause for the decline, DFO studies have indicated an exchange rate of no more than 30%, which agrees with our understanding of Inuit Qaujimajatuqangit for the Eclipse Sound summer stock. This does not represent the decline being seen currently. Other factors cited are not specific to Eclipse Sound, for instance Narwhal and Orcas are concurrent in Admiralty Inlet where Narwhal populations may be increasing, climate change would impact either area similarly, and the Pond Inlet small craft harbor pile driving was completed prior to breakup in 2021. Furthermore, the global pandemic resulted in an almost total reduction of shipping traffic in Eclipse Sound, other than project related traffic, and this period of reduced traffic overlaps with the observed narwhal displacement. DFO supports the mitigation measures put in place by the company, however robust monitoring of the measures is key to understanding their effectiveness.

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 memorandum¹ 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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¹ 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 shipping².</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, low narwhal abundance alone is not a moderate or high risk threshold, 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 size³.</p>
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² [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 \(dfo-mpo.gc.ca\)](#)

³ 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"> • Gap: Early Warning Indicators for adaptive management response • Single early warning indicator is insufficient • 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. • 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 required⁴.
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>

• ⁴ 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"> • Reproductive hormonal change in females • Glucocorticoid Stress Level Hormones <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"> 1. Provide updated AIS Monitoring plan to include <ol style="list-style-type: none"> a. Commitments from previous reviews in regards to AIS and ballast water treatment

	<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"> • <i>Maintain constant speed and course when possible.</i> <ul style="list-style-type: none"> • <i>Reduce vessel speed to 9 knots.</i> • <i>Reduce vessel idling</i> • <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> • <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> • <i>No breaking of landfast ice will occur in the spring or fall shoulder season.</i> • <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> • <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> • <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> • <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> • <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>
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	<p><i>approved in the previous Production Increase Proposal and Extension Request.</i></p> <ul style="list-style-type: none"> <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> <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> <p>2022 Narwhal Adaptive Management Response Mitigations:</p> <ul style="list-style-type: none"> <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> <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	<ul style="list-style-type: none"> a. Effective acoustic monitoring must be conducted to confirm predictions that underwater noise from convoys will reduce impacts to narwhal. b. If stationary passive hydro acoustic monitoring stations are not possible, acoustic monitoring from small vessels should be utilized, or an equally effective alternative. c. Inform DFO of location acoustic monitors prior to implementation.

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