



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

**BAFFINLAND IRON MINES CORPORATION'S
MARY RIVER PROJECT
PHASE 2 PROPOSAL**

NIRB File # 08MN053

September 23, 2019

Executive Summary

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; the NMCA will be gazetted under Schedule 1 of the *Canada National Marine Conservation Areas Act*. This Act, and the Tallurutiup Imanga Inuit Impact and Benefit Agreement, provide the foundation for the framework under which Tallurutiup Imanga NMCA will be managed. Key elements 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), and the "principles of ecosystem management and the precautionary principle" will be a primary consideration (s. 9(3), CNMCAA; p.4, IIBA). Tallurutiup Imanga NMCA is approximately 108,000 km² in size and includes the waters of Eclipse Sound, Milne Inlet, Navy Board Inlet, and Pond Inlet. Parks Canada, Qikiqtani Inuit Association, Fisheries and Oceans/Canadian Coast Guard, Transport Canada, and Environment and Climate Change Canada and other partners will continue to work together to achieve the purpose and management objectives of Tallurutiup Imanga NMCA.

Pursuant to the *Canada National Parks Act*, the *Nunavut Agreement*, and the *Inuit Impact and Benefit Agreement for Auyuittuq, Quttinirpaaq and Sirmilik National Parks*, Parks Canada also has a broad mandate for ecological integrity, cultural resource management and traditional use, and visitor experience within Sirmilik National Park.

Parks Canada supports the recommendations, related to areas of shared mandate, of the Department of Fisheries and Oceans (including the Canadian Coast Guard), Transport Canada, and Environment and Climate Change Canada.

For Baffinland's proposed "Phase 2 Development" project, Parks Canada is making recommendations in areas related to the sustainability of the marine environment. Since Tallurutiup Imanga NMCA is not yet established, Parks Canada provides expert advice and recommendations to federal regulators and decision makers; it does not currently approve or issue licenses or permits. Below is a summary of Parks Canada's recommendations on the proposed "Phase 2 Development":

Parks Canada Recommendation 1

Parks Canada recommends that:

- The Proponent identify whether they intend to ship through Navy Board Inlet and/or the Northwest Passage and if so, under what circumstances.
- Should the intention of the Proponent be to use this route, the project assessment should be informed by a review of potential impacts including:
 - Consultation with affected communities,
 - Description of circumstances under which the route will be used,
 - Identification of potential effects, mitigations, and significance of residual impacts,
 - Gathering and incorporation of Inuit Qaujimanituqangit relevant to use of the route, and
 - Identification of cumulative effects.

Parks Canada Recommendation 2

Parks Canada recommends that:

- DFO Science be given opportunity to review and provide expert advice regarding marine (and freshwater) monitoring plans from the Proponent, independent of the Marine Environmental Working Group (MEWG) (as per *DFO Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2*", p. 51) in preparation for the submission of these plans to the MEWG, and
- The updated Terms of Reference for the MEWG be finalized and approved by all members, including the NIRB.

Parks Canada Recommendation 3

Parks Canada recommends that:

- Recommendations presented by DFO in the "*Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2*" regarding AIS (pp 31-48) be implemented, for example:
 - All project vessels use a treatment plus exchange strategy, and
 - The Proponent develop a coordinated early detection and rapid response plan for invasive species in Milne Inlet/Eclipse Sound with applicable regulators, communities, and other potential partners

- The ballast water dispersion model and analyses be completed prior to issuance of the project certificate and issuance of authorizations.

Parks Canada Recommendation 4

Parks Canada believes there are significant gaps in information and as a result, uncertainty in conclusions, related to the impacts of shipping on the marine environment. The Government of Canada supports the establishment of Tallurutiup Imanga NMCA and as a result, Parks Canada recommends that the precautionary principle, as described by section 9(3) of the CNMCAA and the Tallurutiup Imanga IIBA, be followed when considering any decisions and recommendations regarding shipping.

Parks Canada recommends that:

- If the project were to proceed, the Proponent work with DFO and incorporate Inuit Qaujimanituqangit, to address uncertainties and gaps in the Proponent's information and conclusions as described by the existing and pending DFO Science Canadian Science Advisory Secretariat Science Responses and that this occur prior to any increase in levels of shipping (for the total number of proposed project vessels: ore carriers, resupply vessels, tugs, and icebreakers).
- Shipping only occur during a clearly defined open water season. As described by Transport Canada, the Proponent could consider the definition of 'open water' as found in the Polar Code: "Open water means a large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present."
- If shipping, and associated icebreaking activities/ice management activities (as defined by the Proponent in Appendix 12, Information Responses, March 2018), were to occur outside of a clearly defined non-open water season, work with DFO and incorporate Inuit Qaujimanituqangit, to identify conditions under which these activities could occur.
- The Proponent consider additional options regarding the feasibility of shipping through Steensby Port.

French and Inuktitut translations will be provided shortly.

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1.0 Introduction

This submission summarizes Parks Canada's assessment and recommendations concerning the Baffinland Iron Mines Corporation's (Baffinland) Mary River Project Phase 2 Development Proposal (the Project). The introduction describes Parks Canada's mandate, the reason for Parks Canada's involvement in the project, and the linkages between the Project and protected areas administered by Parks Canada.

1.1 Parks Canada Agency Mandate and Management of Protected Areas

"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 mandate).

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 Tallurutiup Imanga National Marine Conservation Area (Tallurutiup Imanga 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, providing important habitat for species such as the polar bear, bowhead whale, narwhal, and beluga whale. 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 Tallurutiup Imanga National Marine Conservation Area (Tallurutiup Imanga NMCA) in Lancaster Sound. Key elements of the CNMNCAA 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).

A 2017 memorandum of understanding between Parks Canada, the Government of Nunavut, and the Qikiqtani Inuit Association formed a Planning Committee to oversee development of a draft Interim Management Plan to identify management objectives and interim zoning that will be in effect when Tallurutiup Imanga NMCA is gazetted under the CNMCAA and until the next management plan is approved and tabled in Parliament. The Planning Committee has been consulting with rightholders (Appendix 1) and stakeholders, including industry and environmental organizations; it will also be consulting with the public to ensure that their interests are taken into consideration in the management of the NMCA.

A NMCA's interim and subsequent management plans are key documents that help guide decision-making. Every NMCA management plan is tabled in Parliament and needs to be reviewed and amended every 10 years in accordance with the CNMCAA. Parks Canada leads, works with, and coordinates the efforts of other parties to fulfill the purpose of NMCAs. The legislation that protects marine environments is complex and requires collaboration across many jurisdictions that share authority and responsibility for NMCAs. The CNMCAA states that the Minister of Fisheries Oceans (DFO) and the Canadian Coast Guard (CCG) and the Minister of Transport (TC) must agree to the management plan when it affects their areas of responsibility (i.e. fishing, aquaculture and fisheries management, and marine navigation and marine safety) (ss. 4, 4(1), CNMCAA). The draft Interim Management Plan for Tallurutiup Imanga NMCA is being developed in coordination with these departments; they will work along with Environment and Climate Change Canada (ECCC) to achieve the management plan objectives that relate to their areas of responsibility within the NMCA. Parks Canada will be responsible for the *Species at Risk Act* in NMCA waters and lands.

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 (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.

The Tallurutiup Imanga IIBA supports the objective of Inuit stewardship through both governance and programing. To address governance, the IIBA prescribes a new cooperative management approach, requiring the QIA and Government to work closely to make reasonable efforts to reach consensus on how Tallurutiup Imanga NMCA will be managed and operated. Stewardship programs will enable activities such as environmental monitoring, research, and harvesting. A broad objective of the IIBA is to support a conservation economy through the exploration of opportunities including sustainable fisheries, greater Inuit presence in the marine environment, and Inuit involvement in the management of marine navigation.

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 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.

Sirmilik National Park

The CNPA states that national parks of Canada are dedicated to the People of Canada for their benefit, education, and enjoyment and that they shall be maintained and made use of so as to leave them unimpaired for the enjoyment of future generations. In support of this mandate, subsection 8(2) of the CNPA, states that “the maintenance or restoration of Ecological Integrity, through the protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of the parks”. Additionally, national parks tell visitors the stories of Canada's natural beginnings - mountains forming, lakes emerging, rivers running, glaciers moving. They provide opportunities to connect with nature, the people, and the events that define Canada. As such, ensuring good and memorable visitor experience is a key aspect of PCA’s mandate.

Sirmilik National Park is cooperatively managed by Inuit and Parks Canada in accordance with the *Nunavut Agreement*, the *Inuit Impact and Benefit Agreement of Auyuittuq, Quttinirpaaq, and Sirmilik National Parks*, and the *Canada National Parks*

Act. The purpose of the park is identified in the *Inuit Impact and Benefit Agreement of Auyuittuq, Quttinirpaaq, and Sirmilik National Parks* as follows:

- 1) to protect for all time a representative natural area of Canadian significance in the Eastern Arctic Lowlands Natural Region;
- 2) to respect the special relationship between Inuit and the area;
- 3) to ensure the long-term protection of the migratory bird populations and their habitats in the Park; and
- 4) to encourage public understanding, appreciation and enjoyment of the Park, including the special relationship of Inuit to this area, so as to leave the Park unimpaired for future generations.

Similarly, the *Inuit Impact and Benefit Agreement of Auyuittuq, Quttinirpaaq, and Sirmilik National Parks* directs Parks Canada to manage archaeological sites and sites of religious or cultural significance (which are often found along the shoreline, including in Oliver Sound) in a manner that:

- 1) protects and promotes the cultural, historical, and ethnographic heritage of Inuit society, which includes Inuit traditional knowledge and oral history related to these sites; and
- 2) respects and is compatible with the role and significance of these sites in Inuit culture.

1.2 Reason for Parks Canada's Involvement in the Review

Parks Canada Agency (PCA) is a federal minister in the review of the Baffinland Mary River Project Phase 2 Development proposal. This proposal presents a significant increase in shipping, including ice breaking and ice management, through Tallurutiup Imanga NMCA. As described in the Tallurutiup Imanga IIBA, the NMCA is approximately 108,000 km² in size (Figure 1). It includes most of the waters traversed by Baffinland's Northern Shipping Route through Eclipse Sound and Milne Inlet and much of the waters of Baffinland's proposed alternate shipping route through Navy Board Inlet and the Northwest Passage. 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.

PCA is also involved because the project is located near Sirmilik National Park of Canada (hereafter Sirmilik National Park). Sirmilik National Park is located in the North of Baffin Island, near the communities of Pond Inlet (Mittimatalik) and Arctic

Bay (Ikpiarjuk). The park is divided into four separate parcels: Bylot Island, Borden Peninsula, Baillarge Bay, and Oliver Sound. At 22,200 km², Sirmilik National Park is one of the largest national parks in Canada and includes 222 km² of marine areas. It also has 800 km of dynamic coastal/marine ecosystem interface, which is integral to the ecological and cultural integrity of the park. The Bylot Island Migratory Bird Sanctuary covers the whole of Bylot Island and all waters and islands, or parts of islands, within two miles of the seaward ordinary high water mark of the island.

1.3 Assessing linkages between Parks Canada protected areas and the Project

The principal linkages between Tallurutiup Imanga NMCA/Sirmilik National Park and the Project are those related to impacts from shipping. Parks Canada is relying on other expert authorities to conduct the analysis for some of these impacts, rather than repeating their analysis in this submission. Potential impacts to the following are of relevance to Tallurutiup Imanga NMCA and Sirmilik National Park (Intervenor in brackets):

- Polar bear and caribou. For caribou: potential impacts to sea ice migration routes across Eclipse Sound and other areas within boundaries of the NMCA and Sirmilik National Park (Government of Nunavut)
- Air quality (Criteria Air Contaminants, greenhouse gas, and black carbon emissions) and dust blowing into the marine environment, including when snow covered in winter, at Milne Port/Inlet (ECCC)
- Water quality and wildlife health: potential impacts from fuel spills (TC, ECCC)
- Marine fish and mammals and aquatic environment (DFO)
- Oceanography and aquatic invasive species: potential impacts from ballast water (DFO, TC)

This submission focuses on:

- Process and governance issues
- Impacts of ballast water
- Impacts to marine mammals and from ice-breaking

1.4 Determining Significance

The *Nunavut Planning and Project Assessment Act*, 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. For example, for determining the significance of the effects under the *Canadian Environmental Assessment Act, 2012*, the *Operational Policy Statement Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the CEAA, 2012*¹ indicates that the ecological and social context of potential environmental effects should be considered. Parks Canada recommends the Board consider two factors relevant to the context for determining significance of impacts in Tallurutiup Imanga NMCA:

- i. Tallurutiup Imanga NMCA will be established and managed under the CNMCAA, which sets out the purpose of national marine conservation areas. These areas "are established...for the purpose of protecting and conserving representative marine areas for the benefit, education, and enjoyment of the people of Canada and the world."
- ii. The Act also indicates that "Marine conservation areas shall 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, including the submerged lands and water column, with which they are associated".

With respect to section 2.1.i, the protection and conservation of representative marine areas, Tallurutiup Imanga NMCA was selected by a Steering Committee (composed of Parks Canada, the Government of Nunavut and the Qikiqtani Inuit Association) to represent the diversity of the Lancaster Sound marine region; "to protect the natural and cultural values of the area as an intact ecosystem, and to respond to the views and aspirations of Inuit communities who depend on this ecosystem." Key natural and cultural values represented by this area include:

- a highly interconnected ecosystem that includes important migratory, feeding, nursery and breeding areas for a variety of species;
- polynyas, which are depended on by wildlife for survival and by Inuit for harvesting;
- various sites that support Inuit traditional land use and Inuit way of life;
- essential migratory habitat for the majority of the world's narwhal population;
- narwhal, beluga and bowhead whale aggregations;
- the largest polar bear subpopulation in the Arctic; and

¹ <https://www.ceaa.gc.ca/default.asp?lang=En&n=363DF0E1-1&pedisable=true>

- Inuit cultural sites, as well as heritage sites associated with the history of the search for the Northwest Passage.
(from the *Feasibility Assessment Report*, submitted by the Lancaster Sound National Marine Conservation Area Feasibility Assessment Steering Committee, February 2017)

1.5 The Precautionary Principle

The precautionary principle, as prescribed by the CNMCAA, states: "where there are threats of environmental damage, lack of scientific certainty is not used as a reason for postponing preventive measures" (preamble, p. 1). Additionally, the Tallurutiup Imanga IIBA states that "the primary considerations in the development and modification of management plans and the interim management plan for Tallurutiup Imanga NMCA will be the precautionary principle and principles of ecosystem management" (p. 4). The precautionary principle definition includes three elements: environmental damage, a threat or probability of environmental damage and scientific uncertainty. Based on the science expertise of other expert authorities, Parks Canada has applied the definition of the precautionary principle to the analysis of ice-breaking and marine mammals below.

2.0 Parks Canada Comments

Review Comment Number	1
Subject/Topic	Proposed alternate shipping route through the Northwest Passage
References	<ul style="list-style-type: none"> • Mary River Project: Environmental Review of Shipping through the Northwest Passage, Final Report. Parts 1 and 2 (July 12, 2019). • Carter, N.A., J. Dawson, J. Joyce, A. Ogilvie, and M. Weber. 2018. <i>Arctic Corridors and Northern Voices; governing marine transportation in the Canadian Arctic (Pond Inlet, Nunavut community report)</i>. Ottawa: University of Ottawa. http://ruor.uottawa.ca/handle/10393/37271
Summary	More information is required before a determination on potential effects, and their significance, from use of the alternate shipping route through the Northwest Passage can be made.
Importance of issue to impact assessment process	Potential risk from marine shipping to Tallurutiup Imanga's ability to protect and conserve the representative marine ecosystems for which it was selected.
Detailed Review Comment	<ul style="list-style-type: none"> • The "Environmental Review of Shipping through the Northwest Passage" provides a description of baseline conditions along this proposed alternate shipping route however, as noted on page 9 of that review, it is not an environmental assessment. There are sensitive areas throughout the NMCA that could be impacted by shipping through the Northwest Passage, such as walrus haul-outs in Navy Board Inlet, important bird habitat at Cape Liddon and Hobhouse Inlet, and the Prince Leopold Island Migratory Bird Sanctuary (see Figure 1). Additionally, there potential for impacts to the Admiralty Inlet and Somerset Island narwhal stocks. • Page 3 indicates that some ore carriers may proceed through Navy Board Inlet, and presumably westward through the Northwest Passage under several "specific circumstances". However, these circumstances are not described.

	<ul style="list-style-type: none"> The Proponent has presented a map from Carter et al. (2018) of "low impact shipping corridors" on page 21 of the Environmental Review of Shipping through the Northwest Passage as part of the background information for selection of proposed alternate shipping routes. Parks Canada notes that on page 31 of Carter et al. (2018), the entirety of Milne Inlet is presented as an area of "highest importance for ships to avoid".
Recommendation /Request	<p>Parks Canada recommends that:</p> <ul style="list-style-type: none"> The Proponent identify whether they intend to ship through Navy Board Inlet and/or the Northwest Passage and if so, under what circumstances. Should the intention of the Proponent be to use this route, the project assessment should be informed by a review of potential impacts including: <ul style="list-style-type: none"> Consultation with affected communities, Description of circumstances under which the route will be used, Identification of potential effects, mitigations, and significance of residual impacts, Gathering and incorporation of Inuit Qaujimanituqangit relevant to use of the route, and Identification of cumulative effects.

Review Comment Number	2
Subject/Topic	Functioning of the Marine Environment Working Group (MEWG)
References	<ul style="list-style-type: none"> <i>Draft Revised Project Certificate No. 005 for Phase 2</i>. Submitted by Baffinland on August 23, 2019 DFO. 2019a. Science Review of the Phase 2 Addendum to the Final Environmental Impact Statement for the Baffinland Mary River Project. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/015. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2019/2019_015-eng.html DFO. 2019b. <i>Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2</i>. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/031. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2019/2019_031-eng.html

Summary	There is currently no mechanism and accountability for the implementation of recommendations provided by both the MEWG and DFO Science. The updated Terms of Reference (TOR) for the MEWG should be finalized prior to any shipping associated with the Phase 2 proposal and DFO Science should be given meaningful opportunity to review marine (and freshwater) related monitoring plans from the Proponent.
Importance of issue to impact assessment process	Potential risk from marine shipping to the Tallurutiup Imanga's ability to protect and conserve the representative marine ecosystems for which it was selected.
Detailed Review Comment	<ul style="list-style-type: none"> • As per Project Condition (PC) No. 77, "A Marine Environment Working Group ("MEWG") shall be established to serve as an advisory group in connection with mitigation measures for the protection of the marine environment, and in connection with the Project Environmental Effects Monitoring program, as it pertains to the marine environment". • However, under the existing TOR for the MEWG, there is currently no mechanism and accountability for the implementation of recommendations provided by both the MEWG and DFO Science. It is currently being revised but a final copy has not yet been approved. Parks Canada recommends that key principles of the TOR include: <ul style="list-style-type: none"> ○ Operating and rendering advice by consensus, ○ Adherence of Baffinland to advice rendered by the MEWG, and ○ Considering the context of Tallurutiup Imanga NMCA when providing advice and making decisions. • "There is a lack of a scientifically rigorous approach to the collection of baseline and monitoring data for impact assessment of many of the project activities (DFO, 2019a). For example, DFO's review of the power analysis identified insufficient power within the current sampling design for a number of Marine Environmental Effect Monitoring Sampling Program (MEEMP) activities (e.g., benthic communities). These need to be re-evaluated and redesigned to ensure that change can be detected, and the potential project impacts can be scientifically assessed" (p.51, DFO, 2019b). • To ensure scientific rigor, DFO Science should be given the opportunity to review marine (and freshwater) related monitoring plans from the Proponent, independent of the MEWG, to

	ensure that the Proponent's monitoring plans will produce results that are relevant to the monitoring objectives (DFO, 2019b).
Recommendation /Request	<p>Parks Canada recommends that:</p> <ul style="list-style-type: none"> • DFO Science review and provide expert advice regarding marine (and freshwater) monitoring plans from the Proponent, independent of the MEWG (as per DFO Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2", p. 51) in preparation for the submission of these plans to the MEWG, and • The updated Terms of Reference for the MEWG be finalized and approved by all members, including the NIRB.

Review Comment Number	3
Subject/Topic	Ballast water and risk of introduction of Alien Invasive Species (AIS)
References	<ul style="list-style-type: none"> • DFO. 2019. <i>Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2</i>. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/031. • Lancaster Sound National Marine Conservation Area (LSNMCA) Feasibility Assessment Steering Committee. <i>A National Marine Conservation Area Proposal for Lancaster Sound Feasibility Assessment Report</i>. February 2017. • <i>TSD 21 - Risk Assessment for Introduction of Aquatic Invasive Species from Ballast Water</i>. Submitted by Baffinland in August 2018.
Summary	The projected increase in project shipping for Phase 2 will make Milne Port the fourth largest port in Canada in terms of ballast water discharge volumes. This increases the already high degree of risk and potential impact from volumes of ballast water release and introduction of Aquatic Invasive Species.
Importance of issue to impact	Potential risk from marine shipping to Tallurutiup Imanga's ability to protect and conserve the representative marine ecosystems for which it was selected.

assessment process	
Detailed Review Comment	<p>As a NMCA, Tallurutiup Imanga, has received national recognition of its ecological importance. It has been called the “ecological engine” for much of the Eastern Arctic and is known to provide important migratory, feeding, nursery and breeding habitat for migratory birds and marine mammals such as polar bear, bowhead whale, narwhal, beluga whale, walrus, and various seal species (LSNMCA Feasibility Assessment Steering Committee, 2017).</p> <p>The scale of ballast water discharge is large; this project would make Milne Port the fourth largest port in Canada in terms of ballast water discharge volumes (DFO, 2019, p.32). The magnitude of impacts associated with the increase in Phase 2 shipping to the structure and function of the marine ecosystem in Milne Inlet/Eclipse Sound through potential changes in oceanographic conditions or introduction of AIS will be difficult to assess until the revised ballast water release model and accompanying analysis is provided (It is currently scheduled for submission by the Proponent for after the submission date for Final Written Submissions from Interveners). It is also difficult to determine the magnitude of impacts associated with AIS as some species may have few effects while other species could transform ecosystems, including their structure and function. AIS have the potential to spread through and impact the entire NMCA.</p> <p>The reversibility of the introduction of AIS is likely low due to their survivability. As noted by the Proponent, the probability of their survival, if introduced, would be rated as very high (TSD 21, sections 3-4).</p> <p>The proponent states that the risks of AIS arrival are high (TSD 21, section 3-4). Given that prevention (open ocean ballast water exchange) is already included in the risk assessment, and the effectiveness of treatment is not yet known (and likely not 100% effective), the risks associated with AIS will likely remain high throughout Phase 2 (DFO, 2019, p. 39).</p> <p>The high probability, limited reversibility, and potentially high magnitude effects in an NMCA mean the impacts from ballast water are potentially significant.</p>
Recommendation /Request	Parks Canada recommends that:

	<ul style="list-style-type: none"> • Recommendations presented by DFO in the "<i>Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2</i>" regarding AIS (pp 31-48) be implemented, for example: <ul style="list-style-type: none"> ○ All project vessels use a treatment plus exchange strategy, and ○ The Proponent be required to develop a coordinated early detection and rapid response plan for invasive species in Milne Inlet/Eclipse Sound with applicable regulators, communities, and other potential partners. • The ballast water dispersion model and analyses be completed prior to issuance of the project certificate and issuance of authorizations.
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Review Comment Number	4
Subject/Topic	Effects to marine mammals and effects from ice-breaking
References	<ul style="list-style-type: none"> • <i>Community Information Tour Report, Phase 2 Proposal - Mary River Project</i>. Submitted by Baffinland on August 23, 2019) • <i>Draft Revised Project Certificate No. 005 for Phase 2</i>. Submitted by Baffinland on August 23, 2019 • DFO. 2010. <i>Stock definition of belugas and narwhals in Nunavut</i>. Canadian Science Advisory Secretariat. Research Document 2010/022 • DFO. 2019a. <i>Science Review of the Phase 2 Addendum to the Final Environmental Impact Statement for the Baffinland Mary River Project</i>. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/015. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2019/2019_015-eng.html • DFO. 2019b. <i>Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2</i>. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/031. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2019/2019_031-eng.html • <i>FEIS - Volume 3: Project Description (section 6)</i>. Submitted by Baffinland in 2012.

	<ul style="list-style-type: none"> • Golder Associates Ltd. <i>Assessment of Icebreaking Operations during Shipping Shoulder Seasons on Marine Biophysical Valued Ecosystem Components (VECs)</i>. 17 May 2019. • <i>Information Request (IR) Responses Phase 2 Proposal – Mary River Project</i>. Submitted by Baffinland in March 2018. • Jasco. <i>Memorandum: Listening Space Reduction Analysis at 1kHz for 2018 Acoustic Monitoring Data</i>. May 10, 2019 • Knight Piésold Ltd (a). <i>Socio-economic Assessment of Icebreaking Operations during Shipping Shoulder Seasons</i>. 17 May 2019. • Knight Piésold Ltd (b). <i>Mary River Project – Phase - Supplement to Technical Supporting Document 27 - Cumulative Effects Assessment</i>. 16 May 2019. • Lancaster Sound National Marine Conservation Area (LSNMCA) Feasibility Assessment Steering Committee. <i>A National Marine Conservation Area Proposal for Lancaster Sound Feasibility Assessment Report</i>. February 2017. • TSD 01- <i>Alternative Analysis</i>. Submitted by Baffinland in August 2018. • <i>TSD 21 - Risk Assessment for Introduction of Aquatic Invasive Species from Ballast Water</i>. Submitted by Baffinland in August 2018. • <i>TSD 27 - Cumulative and Transboundary Effects Assessment</i>. Submitted by Baffinland in August 2018.
Summary	The projected increase in project shipping for Phase 2, including ice breaking, increases the potential environmental damage, threat or probability of damage, and uncertainty associated with impacts to marine mammals. Further information is required before a proper assessment can be made.
Importance of issue to impact assessment process	Potential risk from marine shipping to Tallurutiup Imanga's ability to protect and conserve the representative marine ecosystems for which it was selected.
Detailed Review Comment	For Project Certificate (PC) Condition No. 179a, the Proponent proposes the following revision: "Unless otherwise approved by the NIRB, in any given calendar year, the total number of ore carriers calling on Milne Port should not exceed 176."

Parks Canada provides some technical notes:

- The Proponent indicates that approximately 30 freight/fuel trips to Milne Port per year will be required for Phase 2 (slide 22, Community Information Tour Summary Report). This means that total vessel voyages to Milne Port will exceed 206/year (412 transits/year) when including ore, freight/fuel, icebreaker, and tugs. This Project Certificate should be considered according to the total number of project vessels.

Applying the Precautionary Principle

In analysing the impacts of the project to the ecosystem structure and function of Tallurutiup Imanga NMCA, Parks Canada applied the precautionary principle (CNMCAA, preamble, p.1) in three steps: potential environmental damage, threat or probability of damage, and uncertainty.

Potential Environmental Damage

Section 90 (factors a-h, and j, for determining the significance of residual impacts) of the *Nunavut Planning and Protection Assessment Act* provides appropriate criteria for assessing potential environmental damage.

(a) the size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts:

The following examples illustrate the geographic scope within and adjacent to the NMCA:

- As noted in Parks Canada comment 1, the Proponent has indicated that shipping may take place along an alternate route through the Northwest Passage. No environmental assessment has taken place to assess potential risks and impacts to this area. Alternate routes through Navy Board Inlet and Lancaster Sound will have a greater chance to impact other narwhal stocks (Admiralty Inlet and Somerset Island) and walrus haulout sites on the northwestern tip of Bylot Island. Furthermore, transit times will be greater using the alternate route which may have greater influence/impact on narwhal distribution (DFO. 2019b. p.7). If both routes are used, the geographical scale of potential impacts within Tallurutiup Imanga are at the scale of the entire NMCA.
- Given the vessel traffic through the narwhal overwintering area in Baffin Bay and vessel traffic/drifted at the mouth of Eclipse Sound where narwhal will be waiting for ice to recede prior to entering the Sound, as well as vessel traffic through calving and migratory areas in

Milne Inlet/Eclipse Sound, a large portion of their habitat, at all stages of their lifecycle, may be impacted both inside and outside the Regional Study Area (DFO, 2019b, p.4).

(b) the ecosystemic sensitivity of that area:

As a NMCA, Tallurutiup Imanga, has received national recognition of its ecological importance. It has been called the “ecological engine” for much of the Eastern Arctic and is known to provide important migratory, feeding, nursery and breeding habitat for migratory birds and marine mammals such as polar bear, bowhead whale, narwhal, beluga whale, walrus, and various seal species (LSNMCA Feasibility Assessment Steering Committee, 2017). In particular, narwhal concentrations are very important in Eclipse Sound/Milne Inlet; they are relatively naïve to any shipping traffic and their interactions with shipping could be different from other species that are found in areas where shipping occurs (DFO, 2019a, p. 19).

(c) the historical, cultural and archaeological significance of that area:

The Tallurutiup Imanga IIBA indicates that cultural values and identities of Inuit of Tallurutiup Imanga and the Qikiqtani Region are intrinsically connected with the Arctic marine environment and wildlife; they are a part of the land and the sea. As such, Parks Canada defers the assessment of impacts to historical, cultural, and archaeological aspects of the NMCA to the Qikiqtani Inuit Association and affected Inuit communities. Parks Canada supports their submissions related to these components.

(d) the size of the human and the animal populations likely to be affected by the impacts:

Tallurutiup Imanga NMCA provides essential migratory habitat for the majority (up to 75% of global population) of the world’s narwhal population, as well as summering aggregations for over 40% of the population, and a nursery area in Eclipse Sound. In addition, no assessment of vessel traffic through ecologically sensitive areas for marine mammals outside of the Regional Study Area has been conducted (DFO, 2019b, p. 4). The appropriate scale for assessing impacts to narwhal populations is the stock scale (DFO, 2010); DFO provides information on the appropriate numbers to use for assessing the size of the Eclipse Sound stock (DFO, 2019b, p11). A conservation economy in Tallurutiup Imanga NMCA would mean the narwhal stock in the NMCA is maintained such that traditional harvesting can be maintained. Since harvesting is managed at the stock level, this is the appropriate scale to be evaluating impacts to the Narwhal from the project.

(e) the nature, magnitude and complexity of the impacts:

Project related shipping is complex because it has the potential to impact the marine ecosystem through numerous pathways; acoustic effects from both open water shipping and icebreaking (reduction of communication space/masking), the introduction of AIS, pollution from spills, changes in air quality due to ship emissions, ship strikes or entrapment, and changes to the structure (e.g.; ice as a mating, birthing, moulting, and hunting platform and as cover) and function (e.g.: impacts to primary productivity from changes in salinity and temperature for ballast water release) of the ecosystem. The remote nature of the project, the lack of baseline information and studies on comparable projects and their effects adds to the complexity in assessing effects.

The magnitude of effects could range between mortality of hundreds to thousands of individuals through a single entrapment (DFO, 2019b, p. 16) to the diminished overall productivity over time of a stock and possibly population due to acoustic interference.

(g) the frequency and duration of the impacts:

Given that shipping is the source of potential impacts on ecosystem structure and function, impacts are expected throughout the life of the project. The proposed project will have daily direct effects (e.g.: ship noise and ballast water release) on the marine ecosystem for up to 4.5 months/year.

(h) the reversibility or irreversibility of the impacts:

The Proponent concludes that the predicted residual environmental effects of disturbance on narwhal from icebreaking activities and cumulative under water noise will be fully reversible (Level I) (Assessment of Icebreaking Operations, p. 55, TSD 27, pp 20-23). However, data and literature, as well as justification to support their conclusions is lacking (DFP, 2019b, p. 28). For example, the Proponent has not fully explained why impacts would be confined to the Local Study Area when ships will, in fact, be transiting Baffin Bay (DFP, 2019b, p. 28) and noise propagation modelling has not been conducted to include the cumulative noise of two cape-size carriers (DFO. 2019b. pp. 48). If shipping stopped or changed after a period of impacting narwhal, it is unknown whether they would return to behaviours prior to shipping.

(j) *NMCA context:*

As a NMCA, Tallurutiup Imanga is being recognized as having national value, in addition to the regional and local value. Narwhal, in particular, are a feature that is representative of the Lancaster Sound region and, as a result, are important features to be maintained in Tallurutiup Imanga NMCA. In addition, a conservation economy and support for coastal communities is part of the NMCA. As a result, harvesting of narwhal and seals should be maintained, if at all possible.

Threat or Probability of Damage

In applying the precautionary principle, secondly, threat was assessed. Is there sufficient evidence that there might be a threat of that environmental damage occurring; in other words, what is the probability of the impacts occurring? Much of the probability of the impacts occurring remains unknown; however, there have been recent incidents documented that point towards a high probability of effects. First, an entrapment of at least 250 whales in 2015 may have been the result of shipping activity in Eclipse Sound, which may have interfered with the narwhal's typical fall migration pattern (DFO, 2019b, p. 16). Second, based on Inuit Qaujimanituqangit, narwhals were present in very low numbers in the RSA in 2018 and one hypothesis is that they were displaced because of icebreaking in the spring (DFO, 2019b, p. 14).

Lack of Scientific Certainty

In applying the precautionary principle, finally, the scientific uncertainty was characterized.

• Project activities:

Gaps in understanding of project activities add uncertainty.

- a. The Proponent assesses a maximum-case icebreaker transit scenario of 2 icebreakers escorting 2 capesize carriers (Assessment of Icebreaking Operations, p. 49). However, they also note that tugs will be used during icebreaker escorts (Assessment of Icebreaking Operations, p. 5). The effects to narwhal from vessel traffic cannot be properly assessed until a full maximum case assessment is provided (DFO. 2019b. p. 7).
- b. As a Shipping Mitigation Measure, the Proponent states "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” (Knight Piésold Ltd (a), p. 14). The effects to marine mammals from icebreaking transits cannot be properly assessed until the Proponent supplies these instructions for review (DFO. 2019b. p. 24).

- Methodological:

Issues associated with the methods for the effects assessment add uncertainty.

- a. The Proponent states that about 5–14% of the Eclipse Sound narwhal stock and that 1 % of the Eastern Canada-West Greenland (EC-WG) population of bowhead will exhibit avoidance of the icebreaking noise source per icebreaker transit through Milne Inlet and Eclipse Sound (Assessment of Icebreaking Operations, p. 50 & 68). However, the most recent narwhal stock size has not been used, there are discrepancies in calculations of numbers of narwhals predicted to occur in avoidance zones, and, for bowhead, it is not clear how the Proponent has arrived at 1% as an estimate of the bowhead population in Milne Inlet/Eclipse Sound. (DFO. 2019b. p. 12).
- b. The Proponent states that “N is the geometric spreading coefficient for the acoustic propagation environment, here set to the nominal value of N=15” (Jasco. 2019. p. 1). The effects to narwhal from listening space reduction (LSR) cannot be properly assessed until the Proponent provides justification or references as to why N = 15 was chosen. This value will ultimately influence the calculation of the LSR (DFO. 2019b. p. 29).
- c. The Proponent presents information on the cumulative effects to marine mammals (TSD 27, p p. 19–23 and Knight Piésold (b), pp. 35-37). However, there is limited analysis of combined overall potential impacts from all project and other activities (e.g.: impacts by noise from shipping and from project construction, by icebreaking, by potential oil spills not only in the Regional Project Area but also outside the Regional Project Area). The effects to marine mammals from cumulative effects cannot be properly assessed until the Proponent provides this analysis (DFO. 2019b. p. 49).

- Baseline

Lack of baseline information adds uncertainty.

- a. The Proponent states that LSR “was computed for underwater sound levels recorded during the 2018 shipping season at a typical recording location (AMAR–1) as well as the quietest location (AMAR–3) in Koluktoo Bay” (Jasco, 2019, p1). Additionally, this LSR calculation is based on current (2018), not proposed, vessel traffic for Phase 2. The effects

to narwhal from listening space reduction (LSR) cannot be properly assessed until the Proponent conducts similar modelling in other parts of the Regional Study Area including Milne Inlet and Eclipse Sound. Additionally, a modelling exercise to calculate the LSR associated with the full extent of the proposed Phase 2 vessel traffic in all the areas of the Regional Study Area should be conducted (DFO. 2019b. p. 30).

- b. The Proponent states: "For icebreaking operations, if it is assumed that approximately 70 to 200 ringed seal in Milne Inlet and Eclipse Sound will exhibit avoidance of the icebreaking noise source per icebreaker transit, this represents <1 % of the population of ringed seals in the Canadian Arctic" (Assessment of Icebreaking Operations, p. 77). However, an estimate of how many ringed seals are in Eclipse Sound is required. It is inappropriate to use a percentage of the entire Canadian Arctic population when region and water-body specific abundance estimates exist. The effects to ringed seal from icebreaking transits cannot be properly assessed until this information is provided (DFO. 2019b. p. 12).
- c. The Proponent states: "The habitat change [for ringed seal] was estimated at 4% to 6% of the available landfast ice in Section 1.4.14.2, which is less than the 10% threshold applied in the ringed seal habitat loss assessment in the FEIS (Volume 8, Section 5.6.2.1)" (TSD27, p. 20-21). However, if the habitat change only impacts 6% of the ice, but happens to be in an area of high use such as eastern and western Eclipse Sound and Milne Inlet, this will likely have a disproportionately larger impact. Clarification on ringed seal distribution on ice at this time of year is required. The effects to ringed seal from icebreaking transits cannot be properly assessed until this information is provided (DFO. 2019b. p. 19).

- Ecological:

Ice-breaking in the presence of whales on a frequency and scale proposed is a new situation and as a result, there are a lot of scientific uncertainties related to ecological responses. For example, the Proponent notes that the "most comprehensive studies of narwhal (and beluga) behavioural responses to icebreaking activities were undertaken during June 1982, 1983 and 1984 in Lancaster Sound" (Assessment of Icebreaking Operations, p.44). These studies are limited and long ago. The following identifies additional ecological uncertainties.

- a. The Proponent acknowledges sensitivities to narwhal when congregating at the floe edge but indicates that mitigation measures summarized in the Socio-Economic Assessment of

Icebreaking Operations will prevent narwhal from abandoning the area (pp 46-50). They also acknowledge uncertainty related to effects to narwhal from icebreaking transits (Assessment of Icebreaking Operations, p.50). The effects to narwhal from icebreaking transits cannot be properly assessed until further information and supporting data related to mitigation measures is provided (DFO. 2019b. p. 7).

- b. The Proponent states "bowheads and narwhal will tolerate and habituate to noise disturbance" (TSD 27, pp 44-45). The effects to narwhal and bowhead from vessel noise cannot be properly assessed until the Proponent reference the literature and provides monitoring results supporting their conclusions (DFO. 2019b. p. 27).
- c. The Proponent states: "Ringed seal that have not fully completed their moult by the time icebreaking operations commence may incur a slight energetic cost as a result of entering the water when their skin temperatures are elevated due to basking, but this would be temporary, and well within their ability to adapt" (Assessment of Icebreaking Operations, p. 75). However, data and/or literature are required to support this statement. The effects to ringed seal from icebreaking transits cannot be properly assessed until this information is provided (DFO. 2019b. p. 19).
- d. The Proponent states "Based on available evidence, ringed seals seem tolerant of industrial activity, and disturbance effects are expected to be localized and temporary. Based on the above, effects of icebreaking on ringed seal from icebreaking associated with the potential future development scenario are predicted to be not significant" (Knight Piésold (b), p. 21). The effects to ringed seal from icebreaking transits cannot be properly assessed until the Proponent considers recent literature and reassesses the potential impacts of icebreaking on seals during critical life history periods, including pupping during shoulder periods (DFO. 2019b. p. 22).

Based on analysis of the information above, Parks Canada is of the view that the high degree of uncertainty combined with the degree of environmental damage that is possible means that the precautionary principle should be robustly applied as per the requirement of the CNMCAA. Consideration of alternatives is one aspect of applying the precautionary principle.

In the 2012 Final Environmental Impact Statement (EIS) for Phase 1 (see Appendix 2 for easy reference), the proponent stated:

- The selection of the Steensby Port was preferred because:

- Favourable ice conditions in the Foxe basin that ensure reliable, year round shipping conditions;
- Favourable bathymetry at Steensby port; and
- Shortest distance from the Mine Site to the Port location which maximizes safety and minimizes environmental interactions, capital costs and operating costs associated with the railway operation.
- Milne Inlet (and other sites) were not viable alternative locations because:
 - No uninterrupted year round access to the port,
 - Navigability in the narrow fjord by the large ore carriers, and
 - Environmental and safety concerns related to access to the port sites through the dense ice pack and ice ridging at certain times of the year.

In the Proponent's recent Phase 2 Proposal (TSD 01, p. 3.5) their rationale for reversing their conclusions stated in the original Final EIS is vague, lacking detail and evidence for the following assertion:

- The Early Revenue Phase has provided Baffinland with operating experience in the Arctic, a customer base, and operating relationships with shipping companies that contribute to attenuate the perceived operational risks associated with year-round shipping via Milne Port.

The analysis of alternatives also highlights the issue of winter shipping. In the Final EIS for Phase 1 (FEIS, Volume 3, p.129), the proponent stated:

- Due to the large capital investment required for the construction of a railway in the arctic (approximately \$15 million per km), a railway must operate on continuous basis to be economically viable. Such a large capital investment cannot be justified on the basis of seasonal shipping.

In the Proponent's recent Phase 2 Proposal (TSD 01, p. 3.3) they stated:

- Baffinland decided to not pursue [8.5 month a year shipping] at this time considering public concern. In addition, there are greater technical challenges related to ice breaking and ice management, trans-shipping activities and facilities, and required seasonal fuel storage at sea.

Given the Proponent's statements about the costs of the railway and port upgrades and the Proponent's previous desire for winter shipping (8.5 months) through the Northern Shipping

	Route, approval of this proposed project could potentially support a future application for expanded shipping from Milne Port into the winter months. However, the Proponent previously indicated that shipping through Steensby Port was a better approach.
Recommendation /Request	<p>Parks Canada believes there are significant gaps in information and as a result, uncertainty in conclusions, related to the impacts of shipping on the marine environment. The Government of Canada supports the establishment of Tallurutiup Imanga NMCA and as a result, Parks Canada recommends that the precautionary principle, as described by section 9(3) of the CNMCAA and the Tallurutiup Imanga IIBA, be followed when considering any decisions and recommendations regarding shipping.</p> <p>Parks Canada recommends that:</p> <ul style="list-style-type: none"> • If the project were to proceed, the Proponent work with DFO and incorporate Inuit Qaujimanituqangit, to address uncertainties and gaps in the Proponent's information and conclusions as described by the existing and pending DFO Science Canadian Science Advisory Secretariat Science Responses and that this occur prior to any increase in levels of shipping (for the total number of proposed project vessels: ore carriers, resupply vessels, tugs, and icebreakers). • Shipping only occur during a clearly defined open water season. As described by Transport Canada, the Proponent could consider the definition of 'open water' as found in the Polar Code: "Open water means a large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present." • If shipping, and associated icebreaking activities/ice management activities (as defined by the Proponent in Appendix 12, Information Responses, March 2018), were to occur outside of a clearly defined non-open water season, work with DFO and incorporate Inuit Qaujimanituqangit, to identify conditions under which these activities could occur. • The Proponent consider additional options regarding the feasibility of shipping through Steensby Port.

Parks Canada emphasizes that it has worked closely with fellow Intervenors throughout the Mary River Project Phase 2 EA. This includes contributing to all of the science reports produced by the Department of Fisheries and Oceans (DFO) (see references and links, Section 4 of this submission), collaboratively reviewing documents submitted by Baffinland, and

ensuring that, in areas of shared mandate or interest, Parks Canada's concerns are represented by final submissions from DFO, TC, and ECCC.

3.0 Summary of Recommendations

Parks Canada promotes a precautionary approach, including monitoring to verify modeling predictions and the development of additional mitigations to protect the marine ecosystem. The following are Parks Canada's recommendations:

Parks Canada Recommendation 1

Parks Canada recommends that:

- The Proponent identify whether they intend to ship through Navy Board Inlet and/or the Northwest Passage and if so, under what circumstances.
- Should the intention of the Proponent be to use this route, the project assessment should be informed by a review of potential impacts including:
 - Consultation with affected communities,
 - Description of circumstances under which the route will be used,
 - Identification of potential effects, mitigations, and significance of residual impacts,
 - Gathering and incorporation of Inuit Qaujimanituqangit relevant to use of the route, and
 - Identification of cumulative effects.

Parks Canada Recommendation 2

Parks Canada recommends that:

- DFO Science be given opportunity to review and provide expert advice regarding marine (and freshwater) monitoring plans from the Proponent, independent of the Marine Environmental Working Group (MEWG) (as per *DFO Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2*", p. 51) in preparation for the submission of these plans to the MEWG, and
- The updated Terms of Reference for the MEWG be finalized and approved by all members, including the NIRB.

Parks Canada Recommendation 3

Parks Canada recommends that:

- Recommendations presented by DFO in the "*Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of*

the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2" regarding AIS (pp 31-48) be implemented, for example:

- All project vessels use a treatment plus exchange strategy, and
- The Proponent develop a coordinated early detection and rapid response plan for invasive species in Milne Inlet/Eclipse Sound with applicable regulators, communities, and other potential partners
- The ballast water dispersion model and analyses be completed prior to issuance of the project certificate and issuance of authorizations.

Parks Canada Recommendation 4

Parks Canada believes there are significant gaps in information and as a result, uncertainty in conclusions, related to the impacts of shipping on the marine environment. The Government of Canada supports the establishment of Tallurutiup Imanga NMCA and as a result, Parks Canada recommends that the precautionary principle, as described by section 9(3) of the CNMCAA and the Tallurutiup Imanga IIBA, be followed when considering any decisions and recommendations regarding shipping.

Parks Canada recommends that:

- If the project were to proceed, the Proponent work with DFO and incorporate Inuit Qaujimanituqangit, to address uncertainties and gaps in the Proponent's information and conclusions as described by the existing and pending DFO Science Canadian Science Advisory Secretariat Science Responses and that this occur prior to any increase in levels of shipping (for the total number of proposed project vessels: ore carriers, resupply vessels, tugs, and icebreakers).
- Shipping only occur during a clearly defined open water season. As described by Transport Canada, the Proponent could consider the definition of 'open water' as found in the Polar Code: "Open water means a large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present."
- If shipping, and associated icebreaking activities/ice management activities (as defined by the Proponent in Appendix 12, Information Responses, March 2018), were to occur outside of a clearly defined non-open water season, work with DFO and incorporate Inuit Qaujimanituqangit, to identify conditions under which these activities could occur.

- The Proponent consider additional options regarding the feasibility of shipping through Steensby Port.

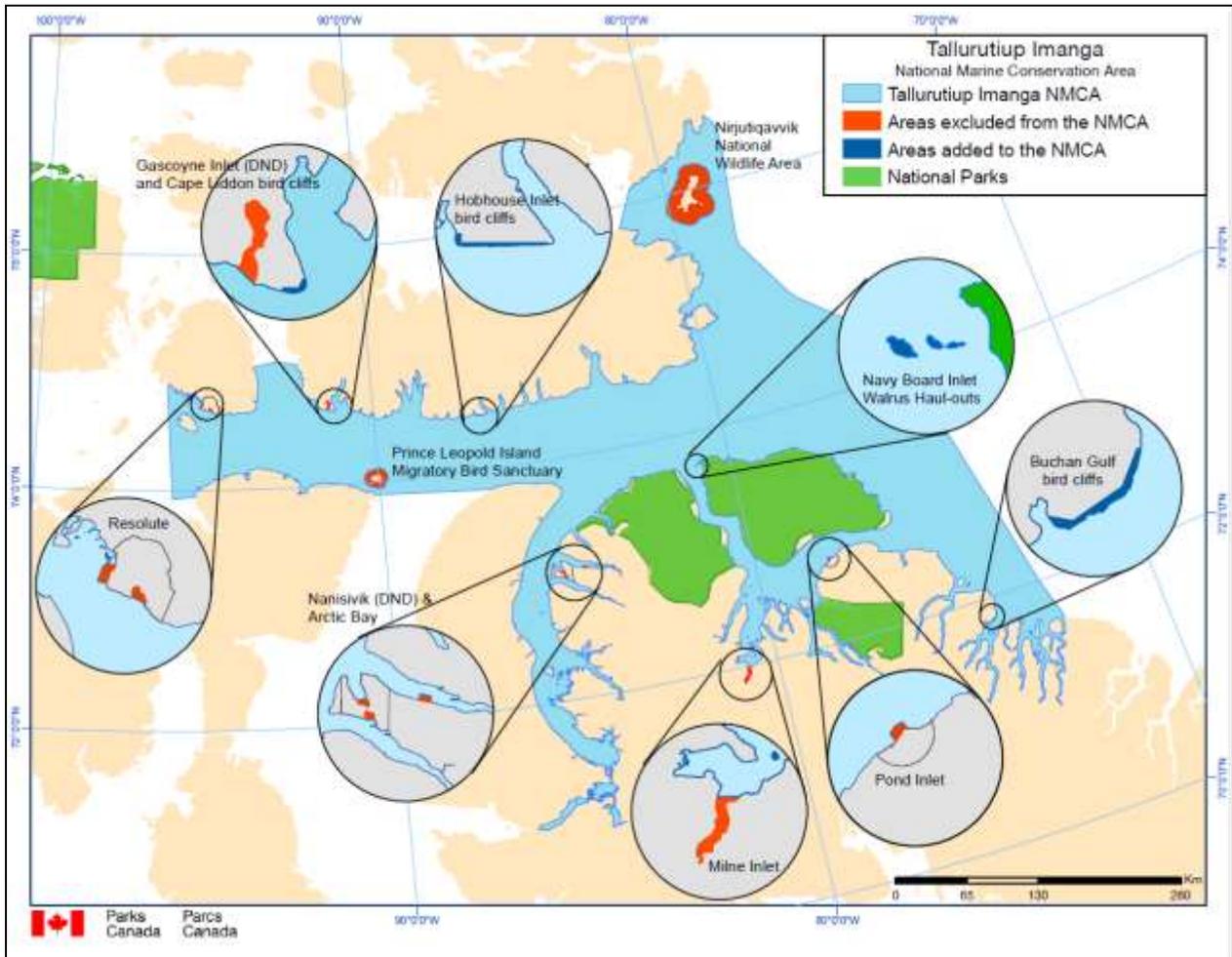
Parks Canada supports the recommendations, related to areas of shared mandate, of the Department of Fisheries and Oceans (including the Canadian Coast Guard), Transport Canada, and Environment and Climate Change Canada.

4.0 References and Links

- *Tallurutiup Imanga Inuit Impact and Benefit Agreement*. August 1, 2019. <https://www.qia.ca/documents/>
- Tallurutiup Imanga ministerial news release. August 14, 2017: https://www.canada.ca/en/parks-canada/news/2017/08/tallurutiup_imangalancastersoundinhigharctictobecanad aslargestpr.html
- Tallurutiup Imanga ministerial news release. August 1, 2019: <https://pm.gc.ca/en/news/news-releases/2019/08/01/new-protections-high-arctic-boost-climate-change-resiliency-and>
- Carter, N.A., J. Dawson, J. Joyce, A. Ogilvie, and M. Weber. 2018. *Arctic Corridors and Northern Voices; governing marine transportation in the Canadian Arctic (Pond Inlet, Nunavut community report)*. Ottawa: University of Ottawa. <http://ruor.uottawa.ca/handle/10393/37271>
- DFO. 2019a. *Science Review of the Phase 2 Addendum to the Final Environmental Impact Statement for the Baffinland Mary River Project*. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/015. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2019/2019_015-eng.html
- DFO. 2019b. *Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2*. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/031. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2019/2019_031-eng.html
- Lancaster Sound National Marine Conservation Area (LSNMCA) Feasibility Assessment Steering Committee. *A National Marine Conservation Area Proposal for Lancaster Sound Feasibility Assessment Report*. February 2017. <https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnnmca/tallurutiup-imanga/rapport-report>

Figure 1.

Map of Tallurutiup Imanga National Marine Conservation Area and Sirmilik National Park



5.0 Appendix 1

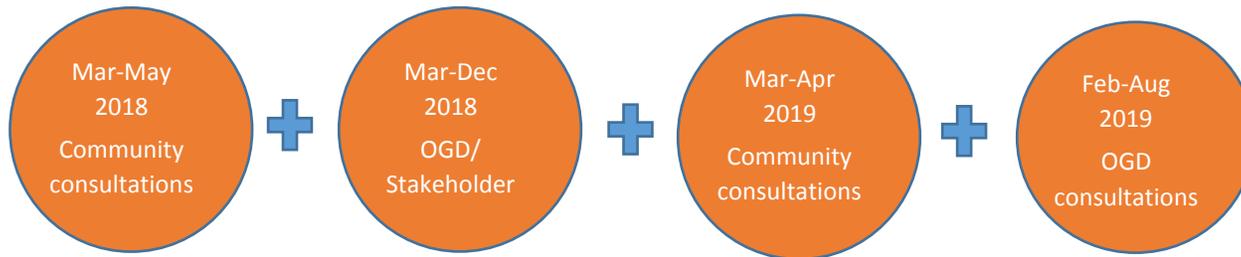
See following: "What We Heard" community consultation report

What We Heard

Tallurutiup Imanga National Marine Conservation Area Interim Management Plan – Community Consultations

The following are summarized comments from the community consultation processes held within the five communities of Grise Fiord, Resolute Bay, Arctic Bay, Pond Inlet and Clyde River related to key issues such as shipping and ice breaking.

The following consultation events took place in 2018 and 2019 during the initial development phase of the TINMCA Interim Management Plan process:



Key Issues – 2018 and 2019 Community Consultations

- | | |
|---|--|
| <ul style="list-style-type: none">• Wildlife and ecosystems protection/conservation• Management of marine shipping/increased vessel and pleasure craft traffic• Ice breaking and sea ice protection• Inuit Qaujimajatuqangit in management/decision making• Management of cruise tourism• Increased understanding of Tallurutiup Imanga needed | <ul style="list-style-type: none">• Coordination of emergency response• Improved communications with local communities• Research priorities• Climate change• Enforcement / pollution control |
|---|--|

Wildlife and Ecosystems Protection/ Conservation

Numerous discussions with Pond Inlet community members highlighted the importance of Tremblay Sound, Koluktoo Bay, Navy Board Inlet and Milne Inlet as having high conservation value for narwhal calving grounds, post-calving and harvesting areas and a desire to see no shipping in these areas. Communities expressed a desire to maintain wildlife population numbers and return them to previous levels as remembered. There were concerned comments related to the effects that climate change was having on habitat and wildlife populations.



A number of comments were heard to support actions to reduce any impacts on mammal migration routes, to prevent chasing/harassment of wildlife and intrusion into breeding areas. Intrusive research was also identified as having an impact on wildlife populations, as communities felt that studies tend to scare away wildlife and that these activities will impact both wildlife and hunting activities. There was a direct correlation seen between the protection of wildlife and protection of the Inuit way of life. Food security was an important issue for communities as well as access to healthy meat for consumption and ensuring that wildlife keep returning and do not get diverted beyond community hunting grounds. They want to see better protection for walrus specifically and other marine mammals which they depend on for their livelihood.

There was a concern over the noise created by marine vessels and suggested that sonar devices in the ocean tend to scare off wildlife. These impacts could be seen with the changing population levels especially within seal populations. Many of the communities are not seeing as many seals on the ice as they once did.

Marine mammals in the Resolute Bay area share routes with Pond Inlet and other communities however, these wildlife routes share the same pathway as shipping routes. A need was identified for more research pertaining to wildlife populations in the NMCA, marine mammal migration, timing of migration and associated changes over time and calving corridors. Community members warned against using historical data to describe current conditions since both physical and biological environments have changed.

Community members suggested using temporary/seasonal closures for portions of the year to protect seasonally important habitats (or to protect wildlife at critical life stages). Marine setbacks for ships to Coastal Migratory Birds (including seabirds and seaducks) were also recommended.

Management of Marine Shipping / Increased Vessel Traffic

Communities saw ship activities as a disturbance to the peaceful mind of the hunter and the natural activities of the marine animals. Concern was expressed during consultations over the opening of the Northwest Passage to increased national and international shipping traffic and recommended improving monitoring, speed restrictions, ice-breaking limitations and other preventative measures. Communities were uncertain how to manage shipping traffic and wanted to ensure that a good plan is developed for shipping before these conditions increases even more.

Communities expressed strong concern over potential spills, ballast water release and dumping of grey and black water both inside and outside of NMCA boundary as well as the proposed increase to the number of iron ore ships that would be transiting between the Milne Port and Pond Inlet. There is already a recognition that there is currently a large number of vessels transporting iron ore through adjacent waters to their communities and worry over the increased number of vessels proposed in Phase 2 of the Baffinland project.

The communities saw a need for greater management of small boats (sailboats/yachts and zodiacs) and a desire to see ships relegated to corridors to help reduce the negative impacts on marine mammals from vessel sounds. Other concern included the production of wakes created by fast moving vessels that are dangerous to hunters.



Conditions and marine life in Oliver Sound have changed due to shipping traffic and there is fear that the same thing will happen in Arctic Bay (especially cod and marine mammals). Community participants suggested that camera-based monitoring should increase to monitor vessel traffic.

The Grise Fiord community has observed more whales in their area and this is perceived as being an altered route for whales as a result of ship traffic due to Baffinland activities.

Ice breaking/ Sea Ice protection

Pond Inlet community expressed that their area is suffering the most impacts from shipping activities and as a result is extremely concerned with ice breaking activities and associated impacts. Inuit use the ice from freeze-up to break-up of ice. Ice breaking is viewed by the community to interfere with ice-related activities (due to loss of ice) and decreased opportunities for and the length of available time to utilize the ice for seasonal outings, on-ice transportation routes/travel between communities, hunting, etc.

Navy Board Inlet was identified as an area for which a seasonal zone restricting ice breakers is desired. Some even suggested not allowing any ice breakers within the NMCA to protect and maintain floe edges.

Concern was expressed related to the floe edge, that marine mammals are prevented from going west because of ice (seasonal). Marine mammals are not going west, but are staying on the eastern side because the ice blocks their movements. The community would like to prevent ships from going through these iced areas as ice breaking could allow the animals to continue west rather than stay in the area. May and June is the time communities suggest restricting ships from going through/ice breaking in the area.

Management of Cruise Tourism

Concern over increased tourism and zodiac traffic associated with the cruise industry. Communities have found that many cruise ships do not follow speed limits and often chase/harass wildlife and interfere with hunting activities.

Members indicated that recently there has been a lot of cruise ship activity in the fiords along the southern Eclipse Sound fiords. The community is concerned about the increasing tourism activities. Members would like to see cruise ships excluded from these areas throughout the summer months.

Tourists/vessels are allowed to approach nesting birds (Murre). The community prefers not to see tourists in the area at all during nesting season. Cape Hay and Croker Bay were identified as areas where cruise ships visit, and as a result, the community is concerned about potential impacts.



It was emphasized that the community will not go to an area if it has been disturbed by a cruise ship passing by because they know that all of the whales will be gone as a result of the disturbance. The Hamlet is currently being pro-active with regard to cruise ships by working with the regional office in Pond Inlet to raise issues with cruise ships. It was also noted that walrus haul-out sites have also been lost due to cruise ship activities.

Coordination of Emergency Response

Communities were unsure of what to do if there is an incident with a ship, oil spill or leak, or cargo ship punctured open. They identified a need for better spill response planning and training and community emergency management plans. An interest was expressed by communities to being involved in emergency responses near their communities especially as they are often seen as first responders due to their proximity. They felt that better delineation of responsibilities could help with improved emergency response.

Improved communications with local communities

Community members felt that they are not made aware of vessels coming into their area and is an ongoing concern. Improved communications was recommended between communities and users of the marine environment. Cruise ships and small vessels/sail boats often appear unannounced and usually provide no information prior to their arrival—the community only knows that they are there when their vessels are spotted or unless they get into trouble and need assistance.

Permitting was another concern, as communities often do not know who has permits, or who does not, nor do they even know what people need permits for. Communities were keen to see organizations cooperate.

Concerns were expressed regarding lack of community input for the exclusion of Milne Inlet for Baffinland activities.

Enforcement / pollution control

Communities are concerned that regulations for the NMCA will not be enforceable and that infractions will go unnoticed (i.e., no consequences for people who do not follow regulations). They felt different regulations govern different parties with respect to transiting, such as within Navy Board Inlet/Baffin Bay. Though Transport Canada regulations exist, the application of these rules are different for different vessel groups (e.g., ships associated with industry/mining companies). Often research vessels are able to transit with no issues, while local search and rescue vessels are not allowed (or appear to not be allowed) in some areas. A number of community members commented on seeing activities that should not be occurring and commented that all vessels need to follow the rules – no one is exempt.



Communities were very concerned over the enforcement of spills, ballast water, dumping. They felt that by introducing local monitors and observation posts in local communities it would be beneficial to enforcement goals.

Also noted was that many ships are coming into Canadian waters recently. Foreign sailboats have been observed fishing in Arctic Bay and in community fishing areas in Admiralty Inlet. These activities are a major concern for the community, particularly since it appears to the communities that there is no regulation/enforcement or permitting involved.

Vessels have anchored and tend to engage in any activities they want with no consequences and as a result, the community has recognized the need for monitoring and photo evidence of infractions/suspicious activity.



6.0 Appendix 2

From FEIS (2012) Volume 3-Part 7: Project Description – Section 6.4.1 East and North Coast of Baffin Island (p. 118):

The Northern and Eastern Baffin Island locations do not meet the criteria of “technical feasibility” with respect to:

- Uninterrupted year round access to the port,
- Navigability in the narrow fjord by the large ore carriers, and
- Environmental and safety concerns related to access to the port sites through the dense ice pack and ice ridging at certain times of the year.

Shipping on north or eastern Baffin Island is not a viable option for the Project and therefore is not considered further

From FEIS (2012) Volume 3 - Part 7: Project Description – Section 6.5.4 Conclusions Related to Overland Transportation Corridor and Port Site (p. 124):

For the Mary River Project to be commercially viable, marine shipment of ore to customers in Europe will be required 12 months of the year. Economic viability requires efficient transportation of iron ore by railway from the Mine Site to the Port location.

Based on these project fundamentals, a thorough assessment of port and land transportation alternatives indicate that a Port at Steensby Inlet is the only economically viable alternative for the location of the Project port facilities.

The key determinants for the selection of Steensby Port are:

- Favourable ice conditions in the Foxe basin that ensure reliable, year round shipping conditions;
- Favourable bathymetry at Steensby port; and
- Shortest distance from the Mine Site to the Port location which maximizes safety and minimizes environmental interactions, capital costs and operating costs associated with the railway operation.

From FEIS (2012) Volume 3- Part 7: Project Description – Section 6.7.2 Trucking of 3 Mt/a via Milne Inlet (p. 129):

During Q3-Q4 2010, trucking of 3 Mt/a was considered as a means of generating an early cash flow from the Mary River Project that would enable the Company to proceed with the development of the larger scale 18 Mt/a Project.

In the original version the Draft Environmental Impact Statement (DEIS) dated December 2010 (issued in January 2011), the “Project” described was a 21 Mt/a iron ore mine. 18 Mt/a of iron ore was to be transported by railway to Steensby Port with year

round shipping from Steensby Port to markets, along with a 3 Mt/a “road haulage” operation comprised of haulage of ore by truck from the Mine Site to Milne Port and shipping of ore to markets from Milne Port during open water only. Although trucking of 18 or 21 Mt/a to Steensby Port is not a feasible alternative, trucking of a smaller tonnage (3 Mt/a) to Milne Port could be feasible during open-water season. A trucking option to Milne Port with use of the upgraded existing road corridor was evaluated in the last quarter of 2010 in a feasibility study undertaken by Baffinland, as an option to supplement the transport of ore to Steensby Port. The upgrade of the Milne Inlet Tote Road coupled with buoyant iron ore prices makes this option feasible at least in the short term.

However, Baffinland became majority-owned (70 %) by ArcelorMittal, the world’s largest steelmaker and a major iron ore miner, on March 25, 2011. The remaining 30 % ownership is held by Iron Ore Holding LP.

With a controlling interest in Baffinland, the Mary River Project now forms part of ArcelorMittal’s strategic business planning. Therefore, a decision not to proceed with the road haulage option was announced by Baffinland in its April 15, 2011 letter to NIRB (Baffinland, 2011). The decision not to pursue the road haulage operation was made considering the results of the feasibility study, the implications to the Project’s development schedule, and ArcelorMittal’s corporate objectives and business planning.

From FEIS (2012) Volume 3- Part 7: Project Description – Section 6.7.3 Rail Transport to Milne Port (p. 129):

As discussed in Section 6.6.1, with the use of large tonnage ore carriers and difficult ice conditions on the East coast of Baffin Island, there is uncertainty related to the capability of Milne Port to support year-round shipping activity.

Due to the large capital investment required for the construction of a railway in the arctic (approximately \$15 million per km), a railway must operate on continuous basis to be economically viable. Such a large capital investment cannot be justified on the basis of seasonal shipping.