

that several concerns remain outstanding and have been carried over from our previous comments on the 2017² and 2018³ reports.

In summary, some of QIA's ongoing concerns include:

- Gaps in Adaptive Management and Monitoring
- Efficacy of Working Groups
- Gaps in Trend-Over-Time Reporting
- Timeline of Baffinland Activities and Initiatives
- Marine and Aquatic Effects Monitoring and Management
- Monitoring of Inuit Culture, Resources and Land Use (CRLU)

QIA's comments include multiple requests for increased data collection, analysis, Inuit and other monitoring, and refining of management plans for the Project. We do not consider these requests refusable advice; they are by and large critical for environmental management and decision-making moving forward. They also, in many cases, are required to put the Proponent in compliance with specific Project Certificate Conditions.

Adaptive Management and Monitoring

The 2019 Annual Monitoring Report has not demonstrated Baffinland's ability to plan or incorporate lessons learned to reduce risks and prevent future failures related to adaptive management. Issues with the role of the Marine Environmental Working Group (MEWG) and Terrestrial Environmental Working Group (TEWG) in supporting adaptive management are discussed below. In general, adaptive management responses related to the effects of monitoring are not clearly visible in the Annual Report and need to be discussed both in the context of biological studies as well as research into impacts to Inuit harvesting. As QIA has secured authority for the inclusion of satisfactory adaptive management in management plans through the recently signed Inuit Certainty Agreement (ICA), this concern may be in the process of being reduced or removed. However, the ICA depends on meaningful planning and implementation steps that have yet to be completed; thus, QIA feels obliged to raise issues with the Project as currently managed rather than how it may be managed in the future, in the hopes that the identification of these gaps helps them to be filled.

The 2019 Annual Report repeats many of the gaps, assumptions, and conclusions made in previous years' reports. Generally, the text overstates the certainty that there are no or limited project related effects on many Valued Components, despite contradictory evidence

² QIA (2018). Comment Request for Baffinland Iron Mines Corp.'s Mary River Project, 2017 Annual Monitoring Report. Letter sent May 14, 2018.

³ QIA (2019). Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN054) 2018 Annual Monitoring Report. Letter sent June 7, 2019.

and observations made by Inuit parties. For example, there are many shortcomings in monitoring design related mostly to small sample sizes and not sampling sites most likely to be impacted—for example, sites known to receive the most dustfall.

QIA monitoring concerns include but are not limited to the following:

- Monitoring is not designed to understand cumulative dust effects on vegetation (particularly lichen and how that may affect caribou).
- Monitoring for invasive species is not rigorous enough to detect plants until they are established.
- QIA is concerned that progressive revegetation may not be feasible in the northern environment and there is uncertainty regarding the potential for caribou foraging habitat to effectively re-establish. Transparency in revegetation pilot programs is therefore a requirement as is involvement of Inuit in the development and implementation of these programs.
- The survey and monitoring methods for caribou are currently not adequate to determine if the Project is having an effect on caribou use of the Project-affected area.
- Bird monitoring including shoreline, staging waterfowl, and waterbird surveys should be undertaken on a more frequent basis.
- QIA lacks confidence in the techniques used to monitor changes in Resource and Land Use. Revisions should involve Inuit-designed indicators of changing harvesting patterns and behaviours and should be designed to identify changes as well as reasons.
- The present inability to identify hull biofouling species is an important weakness of the hull fouling surveys.
- QIA is concerned with the narrow focus on emissions for climate effects monitoring and lack of identification of indicators sensitive enough to identify climate changes impacting the Project-affected area.

The ICA includes a prospective key improvement to Project monitoring through the fledgling Culture, Resources and Land Use (CRLU) Monitoring Program of the Inuit Stewardship Plan, which will see extensive Inuit-led and IQ-enriched monitoring built into the Project monitoring system. As the CRLU Monitoring Program is developed, we will keep the NIRB apprised and where it has relevance to Baffinland's Annual Report, this will be noted for the 2020 Annual Report. In the interim, each of the above-noted concerns remains outstanding at this time.

The novel coronavirus pandemic and associated public health restrictions have had a significant influence on the planned activities of the Proponent and all other review parties,

including Federal agencies that conduct research in Nunavut. Adapting to the current situation necessitates flexibility, and the Proponent has made considerable efforts to adjust monitoring plans as required. The Annual Report provides information on the status of 2020 marine monitoring activities current to the time it was prepared, but recent discussions through the MEWG have indicated that some changes are now in place, reflecting adaptation to health-related limitations. For example, the Proponent is now planning to conduct aerial surveys in 2020, since DFO has been forced to cancel their planned survey. The Annual Report also noted that passive acoustic monitoring was not deemed necessary in 2020, but it is QIA's understanding that an acoustic monitoring device will be deployed near Bruce Head. These changes will help ensure that important monitoring data are being collected in 2020. A summary of how monitoring plans have changed from the time of Annual Report submission to the initiation of monitoring activities would be of use to review parties.

Efficacy of NIRB Working Groups

QIA continues to have serious concerns regarding the efficacy of the TEWG and MEWG and how comments and recommendations from those Working Groups are acted upon by BIMC. Much of the monitoring, reporting and feedback conducted to date within those Working Groups continues to give the impression it is a "check-box" exercise, without any meaningful opportunity for adapting or changing practices based on the results.

The format of Working Group meetings themselves is often problematic. Sufficient opportunities to provide input on monitoring program design and implementation has not been provided. This includes the timing of submission of draft monitoring reports and meeting materials. If materials are not provided with enough advance notice, parties are unable to prepare in advance, which limits the opportunity to provide effective input at the meetings. QIA notes that on-going efforts to revise the Working Group Terms of Reference (ToR) may help address these concerns. QIA requests that the Proponent commit to a schedule whereby meeting materials are provided with enough advance time to allow participants to be adequately prepared to discuss monitoring and mitigation activities. QIA further requests that the Proponent provide an update to the NIRB and other parties on the status of the Terms of Reference revisions.

QIA has reviewed the recommended changes to the Terms of Reference for the TEWG and the MEWG and is concerned that insufficient consideration has been given to the dispute resolution process for technical matters. We welcome the opportunity to look more closely at best practices for resolving the types of disputes that happen at the technical level within the TEWG and MEWG, including consideration of an independent technical body for reviewing and making recommendations about proposed changes that are not met with consensus.

Draft monitoring reports (various marine reports in addition to the TEEMP report) were submitted to the Working Groups for review prior to and during the early stages of the Annual Report review period. Comments submitted by QIA (and other parties) on the draft reports are relevant to the Annual Report review, as all of these draft reports have been included as appendices to the Annual Report. It is QIA's understanding (from a July 2020 MEWG conference call) that the Proponent will provide responses by mid-August. The extensive comments provided by QIA and other review parties are not reflected in the draft reports appended to the Annual Report, or in the Annual Report. The disconnect between the timing of submission of MEWG and TEWG comments and submission of the Annual Report leads to limitations in the information provided in the Annual Reporting to NIRB.

Gaps in Trend-Over-Time Reporting

QIA has previously highlighted the importance of documenting trends over time in our comments on the 2017 and 2018 Annual Reports. The Proponent has not yet adequately resolved this ongoing gap. This is a critical issue for QIA given the proposed expansion of the Project. The time is now to collect baseline data before these reasonably foreseeable future developments come along. With existing Project-related changes occurring and potential new or increased change in relation to Phase 2, it becomes progressively more difficult to collect baseline and trend-over-time data (either through physical or social scientific means). Without this information, trend-over-time information about issues like climate change, marine and ice conditions, among many other factors, may not be available to inform future decisions.

We note as well that in many cases, the Proponent does not have detailed trend-over-time data in relation to environmental and socio-economic conditions. This includes but is not limited to:

- Sea Ice Conditions
- Groundwater quality
- Migratory Birds
- Noise and sensory disturbance to wildlife
- Dustfall monitoring
- Climate effects
- Food security
- Invasive plants
- Metal concentrations in soil and vegetation
- Metal concentrations in caribou

The persistent lag in the collection and/or reporting of this data is deeply concerning for QIA. QIA has included specific comments in the attached tables to help direct the Proponent

further on where Baffinland needs to start building this trend-over-time data through more active and consistent data collection moving forward.

Timelines Presented in Report

QIA is concerned that the timeline of events does not correspond with the intended scope of the Report. Specifically, QIA has noticed commentary included in the Report that events do not align with the 2019 calendar year. Specifically, the Inuit Success Assurance Team has been referenced multiple times to identify Baffinland effort in 2019 for Inuit recruitment and retention. Though work may have been completed and QIA believes this is a positive initiative, context that these individuals have only been on site since the very end of 2019 is needed.

The Proponent's draft Climate Change Strategy was submitted approximately 15 months ago. The anticipated timelines for completion of Stage 1 and initiation of Stage 2, as well as when the Proponent will share the results of the external and internal scans with the NIRB and other parties, remain unclear. QIA requests that the Proponent provide a detailed timeline for the completion of these activities, and commit to sharing the results to date with the Board and other review parties.

Highlighting Marine and Aquatic Effects Monitoring and Management

Marine and aquatic effects, and their monitoring and management, remain of the highest priority to Inuit and are one of the largest issues in relation to the Project. There have been some notable improvements in the Proponent's performance and there remain some substantial gaps that must be addressed. Some of the (non-exclusive) key issues related to this critical topic are highlighted below.

In relation to dustfall and associated aquatic effects, QIA requests that pursuant to NIRB 2018 Monitoring Recommendation 2, the Proponent implement long-term monitoring programs for dustfall and specifically assess potential sediment deposition, impacts on water quality, [and] impacts to biota at fish-bearing streams and lakes along the tote road (including at Phillips Creek). A meaningful sedimentation threshold should also be established based on mortality rates of Arctic char eggs exposed to Project-generated dust sediment.

Regarding freshwater habitat and fish, QIA is concerned by the number of culverts each year that are perched, obstructed, or damaged (PCCs 45 and 47). A more proactive approach is required to prevent culvert damage, blockages, and undercutting that obstruct fish passage. Juvenile Arctic char that summer in tote road streams are exposed to Project-related dustfall and sediment and must traverse long culverts. Non-lethal metrics should be developed to monitor the health of these fish over the long term.

QIA has identified requested improvements to the Core Receiving Environment Monitoring Program (CREMP), which involves water and sediment quality monitoring (PCC No. 20 and 21) and aquatic biota monitoring in Mine Site lakes and streams (PCC 48a, 4.6.4). These include the continued archiving and collection of phytoplankton samples, assessment of the power of fish studies to detect Project-related changes, and verification of char age determinations. In 2019, despite testing prior to release, a number of exceedances occurred in the treated effluent. Measures should be taken to prevent similar exceedances in 2020.

Project Certificate Conditions 59 and 71 relate to aircraft disturbances and helicopter flight heights. Overflights at low altitudes can disturb marine mammals that haul out on terrestrial surfaces or sea ice, such as Atlantic walrus. Walrus haul out at terrestrial sites (uglit) when sea ice is not available. As the avoidance of walrus uglit will be important in subsequent years, the location of helicopter flight paths in relation to uglit should be reported on an annual basis.

In 2019, the marine environmental effects monitoring program (MEEMP) made numerous generally positive changes that reflect monitoring advice. Notable among these were the addition of a Northeast sampling transect and increases in the number of sampling sites, which will strengthen the program's ability to detect Project-related changes in bottom sediment and benthic biota. These improvements can be built on in 2020. Inuit knowledge of Arctic char movements and stock structure in the area should be sought for advice on how sampling design might be adjusted to reduce variability in the catch.

Strong and continually updated knowledge of sea ice conditions are critical for harvesting, wildlife habitat, and Inuit safety. The Proponent indicates that trend data are “not applicable”, but trends in sea ice conditions are important to monitor given their role as a trigger for shipping activity and mitigation and their importance to Arctic wildlife and Inuit harvesting. QIA requests that annual updates be completed.

NIRB Project Certificate Conditions 86-91 relate to understanding and mitigation of risk related to ballast water discharges and hull fouling, and to the prevention of invasive species establishment. They are not currently serving their purposes. Despite half a decade of Project-shipping, these risks are not yet understood, as the neither the ballast water nor the hull fouling have been sampled effectively to determine what species are being released into Milne Port and in what numbers. Collectively, these uncertainties limit understanding of risk and the ability to implement effective adaptive management to prevent species introductions.

Consistent improvements to vessel speed compliance have been made as Project operations have advanced, and compliance for ore carriers is particularly high. Compliance for freight /

fuel tankers, while showing improvements, is still lower than for ore carriers. Continued improvements in speed limit compliance is possible and should be a goal for 2020. QIA therefore requests that the Proponent expand efforts to ensure compliance with vessel speed limits, with a focus as necessary on particular vessels that have had lower compliance in past years.

The Proponent has been running the Shipboard Observer (SBO) Program for two years on board the IMV *Botnica*, during the shoulder shipping seasons. Review of reports from the Proponent have identified that behavioural observation data (i.e., the behavioural categories assigned to detected marine mammals) were not reported and analyzed. QIA requests that the Proponent clarify whether or not marine mammal behavioural data were collected as part of the 2019 SBO Program and to integrate these observations into future data collection, analysis and reporting.

Monitoring of Inuit Culture, Resources and Land Use (CRLU)

Note: Any comments below and in the socio-economic portion of the attached comments related to CRLU monitoring, are made notwithstanding the recent signing of the Inuit Certainty Agreement (ICA). The ICA brings with it great potential for a revisioning of the role that Inuit play in monitoring and management of effects on CRLU and the Project overall, but that promise is subject to future implementation and therefore has no bearing on QIA's comments on the 2019 Annual Monitoring Report.

In relation to CRLU, the 2019 Annual Monitoring Report repeats many of the assumptions and conclusions made in previous reports on this least evolved of Project-related monitoring and management topics. Generally, the text overstates the certainty that there are no or minimal project-related effects in a way not endorsed by Inuit and out of alignment with Inuit observations. There are a number of critical shortcomings related to both baseline assessments of CRLU and food security as well as ongoing monitoring programs.

For example, there has been little to no effort to understand impacts to the robustness and flexibility of the Pond Inlet food system since mining operations began. While acknowledging the importance of country (harvested and gathered) foods to Inuit and Inuit culture, BIMC has not effectively gauged the impact that their Project activities are having on access to country food (including both its availability and the ability of a range of community members, from different social and economic backgrounds, to access it).

The absence of any meaningful and localized baseline study of food security and in particular the availability of and access to country food in Pond Inlet constitutes a significant shortfall which hampers ongoing monitoring efforts. However ongoing monitoring of Project Impacts on food security are also challenged by the inadequate indicators currently

used. Visitor days and the number and monetary value of the claims assessed under the Wildlife Compensation Fund remain the only two methods currently in use by BIMC to assess Project effects on food security, and neither is an appropriate proxy indicator for changes to the availability of country food or Inuit access to it. Sensory disturbance, harvester safety and routing choices are all qualitative questions which require different approaches to monitor and all of these factors will play a role in influencing an indicator like visitor days. Some of these factors will be focused on in the Pond Inlet Country Food Baseline Study, part of the ICA; they can also be integrated into ongoing CRLU Monitoring and periodic Inuit traditional use data updating through the Inuit Stewardship Plan. However, for the purposes of the 2019 Annual Monitoring Report, they remain a substantial data gap.

Alongside these inadequate monitoring indicators, QIA is also concerned that the statement "...the amount of country food harvested per level of effort is not anticipated to change meaningfully" is not supported by solid evidence tied to existing monitoring techniques or indicators.⁴ No baseline study on harvesting effort has been conducted and there is no current effort to track change. There has been no documented attempt to test the veracity of this prediction, and it is a significant shortfall in current monitoring efforts. QIA is committed to working with Inuit and BIMC through the ICA to develop better baseline and trend-over-time data, a more effective monitoring system for Inuit land and ice use and harvesting, and an adaptive management system sensitive and meaningfully reactive to changes in land use, harvesting and food security.

As part of the above, Project-related engagement of Inuit still needs to be substantially improved. QIA plays a role in this and so does BIMC. Of particular concern is that there is not currently a clear and transparent paper trail to demonstrate how comments made by Inuit are followed up or dealt with. Baffinland is requested to improve its system for integrating community comments and demonstrating how they are responding to Inuit concerns or experiences.

Conclusions

Finally, we again state our appreciation to NIRB and BIMC for the opportunity to provide our comments on the 2019 Annual Monitoring Report and on BIMC's compliance level with NIRB's Project Certificate Conditions. We trust NIRB will continue to hold the Proponent to the highest standard in meeting the Terms and Conditions of the Project Certificate, including their specific and underlying objectives related to environmental protection and Inuit beneficitation.

⁴ Baffinland (2020). App G21-2019 Socio Economic Monitoring Report-IA1E, Section 8. Resource and Land Use: FEIS Predictions, Pg. 65. May 21, 2020.

QIA remains fully committed to working collaboratively and in good faith with all parties in relation to the Mary River Project. We look forward to seeing our requests adopted by BIMC in a proactive fashion. In instances where this does not occur, we strongly recommend the NIRB adopt our requests as requirements for Proponent improvement between 2019 and 2020.

Sincerely,

A handwritten signature in black ink, appearing to read "Jared Ottenhof". The signature is stylized with a large, sweeping initial "J" and a long horizontal stroke extending to the right.

Jared Ottenhof
Director, Qikiqtani Nunalirijikkut

Appendix: QIA comments on Baffinland 2019 Annual Monitoring Report

General Comments.....	2
Terrestrial Environment.....	11
Marine and Aquatic Environment	25
Socio-economic Environment.....	46
References Cited.....	53

General Comments

Comment #	QIA 2019 AMR GC #1
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Popular Summary Page: 8
QIA Comment	“A total of 32 positions (87 weeks) were available for Inuit to participate as employees in the 2019 Marine Environment Monitoring programs. A total of 23 Inuit staff ... supported roles of Inuit researchers”. Were the other available position (9) filled by non-Inuit? Or unfilled?
QIA Request	QIA requests that the Proponent report on who filled the other available positions that could have gone to Inuit, if any.

Comment #	QIA 2019 AMR GC #2
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 2.3 Engagement Activities Page: 24
QIA Comment	The two community-based shipping monitors played an important role in community communication in 2019. Are they being hired again in 2020?
QIA Request	QIA requests that the Proponent clarify their hiring plans for shipping monitors for the 2020 shipping season.

Comment #	QIA 2019 AMR GC #3
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E Section: Section 2.3.1 and 2.3.2 - Public Meetings and Events and Community Group Meetings Page: 25
QIA Comment	The Proponent has not provided detailed evidence of tracking the comments, concerns, feedback and recommendations of community members and members of the public as evidence of the strength of its engagement process. Appendix B does list the topics raised but does not provide the context in which it was raised or how it was addressed by BIMC.
QIA Request	QIA requests that the Proponent provide further evidence of the strength of its community engagement process by providing a tracking table indicating key issues, feedback and concerns raised by community members and members of the public, where these issues were raised and how BIMC has addressed them.

Comment #	QIA 2019 AMR GC #4
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual

	Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 2.5 Engagement with Working Groups Page: 29
QIA Comment	The [Working Group] meetings are structured to enable participants to have the opportunity to provide input on monitoring program design and implementation...”. This is not always effective, depending on timing of submission of draft monitoring reports and meeting materials. If materials are not provided with enough advance notice, parties are unable to prepare in advance, which limits the opportunity to provide effective input at the meetings. QIA notes that on-going efforts to revise the Working Group Terms of Reference (ToR) may help address these concerns.
QIA Request	QIA requests that the Proponent commit to a schedule whereby meeting materials are provided with enough advance time to allow participants to be adequately prepared to discuss monitoring and mitigation activities. QIA further requests that the Proponent provide an update to the NIRB and other parties on the status of the Terms of Reference revisions.

Comment #	QIA 2019 AMR GC #5
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E Section: Section 4.1 Methodology and Criteria Page: 40
QIA Comment	The Proponent notes that "Stakeholder comments relevant to the condition are considered" but it is not clear how this was undertaken or if comments from the former FEIS process was relied upon.
QIA Request	QIA requests that the Proponent describe the methods used to collect Stakeholder comments to inform this annual review and how they were considered.

Comment #	QIA 2019 AMR GC #6
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E Section: Section 4.2 Approach to Reporting on Performance Page: 41
QIA Comment	Table 4.2 provides the Proponent's approach to reporting on conditions. Trends are described as "summary of notable trends from previous years" (p.41). It is unclear how the Proponent decides which trends are notable. In the spirit of transparency all trends should be reported on including qualitative indicators, for example, Inuit perspective on improvements in communication and engagement.
QIA Request	QIA requests that the Proponent provide methodology for reporting on trends. In all future reporting NIRB should require the Proponent to report on all trends and change over-time.

Comment #	QIA 2019 AMR GC #7
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]

	<p>Section: 4.4 Performance on General Conditions (also various Appendices including the marine monitoring study reports)</p> <p>Page: 44</p>
QIA Comment	<p>General Condition 8 requires that “[all] monitoring information collected pursuant to the Project Certificate and various regulatory requirements for the Project shall contain... [t]he name of the person(s) who performed the sampling or took the measurements including any relevant accreditations” ... and “the name of the person(s) who performed the analysis including any relevant accreditations...”.</p> <p>Marine monitoring reports generally do not list all persons responsible for performing the sampling and analyses. For example, in Appendix G.25 (aerial survey report), the Closure section (p. 91) lists three Golder Associates Ltd. employees, presumably the report authors (and analysts?). But there is no list of all staff (and Inuit contractors, etc.) who collected the data. In s. 2.1 (Study Team and Training, p. 8), the report states that “[t]he study team consisted of two Golder and five contracted marine biologists with previous marine mammal survey experience, and four Inuit researchers trained as Marine Mammal Observers (MMOs).” The number of researchers collecting these data are provided, but not a complete list of who did so.</p>
QIA Request	<p>QIA requests that the Proponent provide the details required for this Condition.</p> <p>QIA further requests that the NIRB determine whether the requirements of this condition have been met, and whether it should be considered Partially Compliant given the missing information.</p>

Comment #	QIA 2019 AMR GC #8
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.1 Meteorology and Climate (PC Conditions 1 through 6)</p> <p>Page: 48</p>
QIA Comment	<p>“.. during Phase 2 Community Risk Assessment Workshops (ERM, 2019) where there was the recognition that all aspects of the environment (land, sea, people, wildlife) are changing because of climate change and that this should be considered in addition to mine impacts (Appendix B).”</p> <p>“Baffinland operates two meteorological stations, and this information is made publicly available for Mary River and Milne Inlet through The Weather Network and on our website... To date, no climate change impacts have been observed through Project monitoring.”</p> <p>How do the meteorological stations contribute to climate change monitoring? What is being monitored, and how does it contribute to addressing community concerns around changes being observed in “all aspects of the environment (land, sea, people, wildlife)”?</p> <p>"these data are provided, but not a complete list of who did so.</p>

QIA Request	<p>If meteorological stations are not measuring the various changes that Inuit are observing, additions to the data being collected should be considered, given that climate change is in fact occurring.</p> <p>QIA requests that the Proponent provide additional details on how their current monitoring activities contribute to climate change monitoring and address Inuit concerns regarding the need to consider climate change in Project monitoring.</p>
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Comment #	QIA 2019 AMR GC #9
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.1 Meteorology and Climate (PC Conditions 1 through 6)</p> <p>Page: 49</p>
QIA Comment	<p>Table 4.4 provides a summary of climate effects monitoring completed in 2019...".</p> <p>This is emissions monitoring only, how does it contribute to an overall understanding of climate change impacts on the Project, and for Project-related impacts on climate change?</p>
QIA Request	QIA requests that the Proponent provide additional information explaining how the current monitoring contributes to an overall understanding of climate change impacts on the Project, and for Project-related impacts on climate change.

Comment #	QIA 2019 AMR GC #10
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.1 Meteorology and Climate (PC Conditions 1 through 6) (Project Certificate Condition No. 2; Project Certificate Condition No. 4)</p> <p>Page: 52-53, 58-59</p>
QIA Comment	<p>Actions in the Climate Change Strategy document include “[i]mplementing comprehensive environmental monitoring and management programs that are based on a combination of scientific data and Inuit Qaujimajatuqangit to safeguard the environment.”</p> <p>How do existing monitoring and management programs consider climate change impacts from and on the Project, and how has Inuit Qaujimajatuqangit on climate change been incorporated into these programs?</p>
QIA Request	<p>QIA requests that the Proponent provide additional information detailing how climate change impacts have been considered in existing monitoring programs.</p> <p>QIA requests that the Proponent provide additional information on how Inuit Qaujimajatuqangit on climate change been incorporated into existing monitoring programs. QIA requests that the Proponent identify all plans it has to increase the gathering of IQ on climate change.</p>

Comment #	QIA 2019 AMR GC #11
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.1 Meteorology and Climate (PC Conditions 1 through 6) (Project Certificate Condition No. 2)</p> <p>Page: 52-53</p>
QIA Comment	<p>The action items in the Climate Change Strategy also include “[c]onducting ongoing risk assessments to ensure that all aspects of the operations are able to withstand potential climate change related events”.</p> <p>What work has been done here with respect to ore haulage and marine shipping? Are risk assessments currently ongoing? Where are the results of risk assessments reported?</p>
QIA Request	QIA requests that the Proponent clarify the status of ongoing risk assessments and report the results of these risk assessments as they relate to potential risks from climate change.

Comment #	QIA 2019 AMR GC #12
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.1 Meteorology and Climate (PC Conditions 1 through 6) (Project Certificate Condition No. 2)</p> <p>Page: 52-53</p>
QIA Comment	<p>“Since September 2019, Baffinland has been working actively with an environmental and sustainability consultancy to support the drafting of an amended [climate change] strategy based on a two-staged approach...”</p> <p>“Baffinland is currently in the process of moving through the various elements of Stage 1 and has completed the current state assessment, informed by the results of the external and internal scans.”</p> <p>The draft Climate Change Strategy was submitted ca. 15 months ago. What are the anticipated timelines for completion of Stage 1 and initiation of Stage 2? When will the Proponent share the results of the external and internal scans with the NIRB and other parties?</p>
QIA Request	QIA requests that the Proponent provide a detailed timeline for the completion of these activities and commit to sharing the results to date with the Board and other review parties.

Comment #	QIA 2019 AMR GC #13
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 4.6.1 Meteorology and Climate (PC Conditions 1 through 6) (Project Certificate Condition No. 2) Page: 54-57
QIA Comment	“Third-party verification of GHGs is planned for 2020 which will contribute toward the setting of future GHG emissions target.” Is this still the case, or has the coronavirus pandemic led to delays?
QIA Request	QIA requests that the Proponent provide an update on how the coronavirus pandemic has affected these activities and timelines for 2020.

Comment #	QIA 2019 AMR GC #14
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E Section: Section 4.6.3 Noise & Vibration (PC Conditions 13 through 15) Page: 77
QIA Comment	The Proponent acknowledges that Inuit community concerns have been raised relating to noise and vibration in 2019. However, how these concerns have been addressed has not been discussed in the section overview or dealt with in reporting on Noise and Vibration related PCs. Noise and vibration can impact culture and land use and need to be investigated if there are Inuit concerns.
QIA Request	QIA requests that the Proponent provide a list of specific Inuit concerns related to Noise and Vibration and how they have been addressed, and whether and how Inuit have verified the effectiveness of any measures to reduce concerns.

Comment #	QIA 2019 AMR GC #15
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E Section: Section 4.6.3 Noise & Vibration PC Conditions 15 Page: 88
QIA Comment	The Proponent has concluded that they are in compliance with the communication requirements of Condition 15 but have not reported on Stakeholder input on the effectiveness of communication and engagement methods, nor have trends in meeting this Condition been addressed. It is unclear how Inuit perceive these methods and how they have improved or worsened over time.
QIA Request	QIA requests that the Proponent describe and/or provide any available Stakeholder feedback on communication/engagement methods and how this has changed over-time.

Comment #	QIA 2019 AMR GC #16
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E Section: Section 4.7.7 Culture, Resources & Land Use - PC Condition 164 Page: 543
QIA Comment	The Proponent indicates that a new communications protocol was developed to respond to community shipping concerns. Further details on the protocol are not provided.
QIA Request	QIA requests that the Proponent provide a copy of the most recently developed communications protocol, especially re: community shipping concerns.

Comment #	QIA 2019 AMR GC #17
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E & Appendix G11 Draft 2019 Shipboard Observer Program Report (200521-08MN053-App G11-Draft 2019 SBO Report-IA1E) Section: Section 4.7.7 Culture, Resources & Land Use - PC Condition 164; Appendix G11 Draft 2019 Shipboard Observer Program Report; and Section 4.7.7 Culture, Resources & Land Use - PC Condition 166 Page: 541-543 & 546 - 550
QIA Comment	<p>The Proponent notes the hiring of shipboard monitors to improve shipping communications with Inuit Communities, "In 2019, Baffinland implemented the Pond Inlet "guardian program" (Shipping Monitors) which consisted of employing a minimum of two (2) full-time Shipping Monitors from the community of Pond Inlet to actively track daily Project vessel movements in the RSA in real-time, and in relation to reported marine mammal aggregations (as shared by the community and the monitoring teams)." (p. 541).</p> <p>The Proponent has commented that this has been effective for sharing shipping concerns with communities but has not provided details on how community inputs have informed changes in shipping. This is relevant as the Proponent acknowledges that in community meetings, "Baffinland noted that there were also ongoing challenges associated with the vessel traffic management, particularly with regards to vessel anchorage at Ragged Island, drifting in Eclipse Sound and general concern of underwater noise and associated impacts to marine mammals."(p. 542).</p> <p>The Draft Shipboard Observer Report does not outline how Monitors are to collect community concerns and report to the Proponent.</p> <p>The Proponent also states in Condition 166 that, "...This includes the hiring of two full-time Shipping Monitors to act as the liaison between community members, hunters and Baffinland and tracking of comments and concerns over the shipping season." (p. 547) In addition, Table 4.60 does not provide an example of Shipping Monitors as a communication method.</p> <p>Overall it is unclear how Shipping Monitors can have a two-way liaison role and what supports are in place to facilitate this.</p>
QIA Request	QIA requests that the Proponent describe any reporting protocols or opportunities for shipboard monitors to share community concerns and marine mammals sightings. The Proponent is also requested to describe any future steps for

	developing/improving ways for Shipping Monitors to facilitate communication from Inuit Communities to the Proponent.
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Comment #	QIA 2019 AMR GC #18
References	Document Name: Section 4.7.7 Culture, Resources & Land Use - PC Condition 166 Section: Section 4.6.3 Noise & Vibration PC Conditions 15 Page: 546
QIA Comment	The Proponent notes that "In 2018 Baffinland hosted a site visit with Pond Inlet Hamlet and HTO representatives and worked with the MHTO to improve hunter and visitor access on site, further defining Project site visitor communication protocols" The Proponent includes the 2015 Hunter and Visitor Site Access Procedure as a reference. It is unclear if revised communication protocols will be reflected in an updated Hunter and Visitor Site Access Procedure.
QIA Request	QIA requests that the Proponent provide a revised Hunter and Visitor Site Access Procedure including updated communication protocols.

Comment #	QIA 2019 AMR GC #19
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: General (Appendices) Page: general
QIA Comment	Draft monitoring reports (various Appendices in Annual Report) that were reviewed through the MEWG and TEWG, with comments submitted to the group distribution list via email, include the following: <ul style="list-style-type: none"> - Appendix G.8 - Draft 2019 Marine Environmental Effects Monitoring Program and Aquatic Invasive Species Monitoring Program Report - Appendix G.9 2019 Passive Acoustic Monitoring Program Report - Appendix G.10 Draft 2019 Bruce Head Shore-based Monitoring Program Report - Appendix G.11 Draft 2019 Ship-based Observer Monitoring Program Report - Appendix G.12 Draft 2019 Mary River Project Terrestrial Environmental Annual Monitoring Report - Appendix G.24 Draft 2017–2018 Integrated Narwhal Tagging Study Technical Data Report - Appendix G.25 Draft 2019 Marine Mammal Aerial Survey <p>These comments are sent to NIRB technical staff, via the MEWG and TEWG distribution lists, and are relevant to the Annual Report. QIA has not provided an extensive review of these draft monitoring reports as part of our Annual Report review. It is QIA's understanding, as per a July 2020 MEWG conference call, that the Proponent will provide responses to these written submissions and final versions of the monitoring reports in mid-August. The extensive comments provided by QIA and other review parties are not reflected in the draft reports appended to the Annual Report, or in the Annual Report. The disconnect between the timing of submission</p>

	of MEWG and TEWG comments and submission of the Annual Report leads to limitations in the information provided in the Annual Reporting to NIRB.
QIA Request	No specific request, comment provided for the Board's information.

Terrestrial Environment

Comment #	QIA 2019 AMR TE #1
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053- Mary River Project 2019 Annual Report-IA1E.pdf), Section 4.6.2 Air Quality, pg. 72 2. Comments on Baffinland Iron Mines Corp.’s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), QIA Comments and Recommendations Table, pg. 12
QIA Comment	<p>Project certificate condition 10 states that the Proponent shall update its Dust Management and Monitoring Plan. This update shall include items such as plans for monitoring the first few kilometers of the rail corridor leaving the mine site, monitoring dustfall at intervals along Milne Inlet Tote Road, and taking all adaptive management measures described in its Dust Management and Monitoring Plan if monitoring indicates that dust in the ambient air or dust deposition from the increased traffic.</p>
QIA Request	<p>QIA requests that the Proponent update the monitoring plan to include monitoring dust throughout the length of the rail corridor. QIA further requests that the proponent explore other methods for monitoring dustfall in the environment (e.g., satellite imagery), as has been discussed at meetings of the Terrestrial Environment Working Group. Extensive recommendations for modifications to the dustfall monitoring program have been put forward through the TEWG, and QIA is requesting that BIMC follow through with these recommendations, which include: a) re-examining dustfall locations based on where dustfall is predicted to be highest; b) pairing dustfall and vegetation monitoring; c) monitoring dustfall on vegetation; d) included some monitoring stations at the 1 m height (paired with stations at the 2 m height) to determine how much dustfall is being missed. A trend over time analysis of dustfall should be conducted for the next report.</p> <p>QIA has requested that Baffinland develop daily triggers for dust mitigation measures, using clear thresholds for when mitigation measures will be used. This request was also made in Comments on Baffinland Iron Mines Corp.’s Mary River Project (08MN053) Annual Monitoring Report (2018).</p> <p>QIA is requesting and has previously recommended that Baffinland develop a community-based monitoring program for impacts of dust to key values, including establishing culturally relevant thresholds for dustfall. QIA has put forward similar requests at meetings of the Terrestrial Environment Working Group and in Comments on Baffinland Iron Mines Corp.’s Mary River Project (08MN053) Annual Monitoring Report (2018). QIA recognizes that this request may be addressed through ongoing revisions to the monitoring and adaptive management programs, should the Mary River Phase 2 project be approved; however, those revisions have yet to be finalized.</p>

Comment #	QIA 2019 AMR TE #2
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), Section 4.6.3 Noise & Vibration - Project Certificate Condition No.14 (b), and No.60, pgs. 87; 214 2. Air Quality and Noise Abatement Management Plan (BAF-PH1-830-P16-0002-r7-Air-Quality-and-Noise-Abatement-Management-Plan), Section 3.4 Noise, pg. 20 3. Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), QIA Comments and Recommendations Table, pg. 13
QIA Comment	<p>Project certificate condition 14 (b) states that the proponent shall mitigate potential impacts of noise to wildlife and people during project operations. The mitigation measures for this condition do not address all major sources of noise beyond the use of mufflers.</p> <p>Project certificate condition 60 states that the proponent shall mitigate impacts to wildlife from explosions. The methods for this mitigation involve scanning the area for wildlife and if wildlife is present and could be harmed by the activity, blasting will not occur. It is unclear how the blast will impact nesting birds, which would be difficult to detect visually.</p> <p>The Air Quality and Noise Abatement Management Plan does not have information about sensitive timing windows for animals. Sensitive time windows are important to many animals including caribou and snow geese. The season that caribou give birth and are take care of their young is a sensitive time that should be respected. Bird nesting times should also be considered as a sensitive timing window . The Air Quality and Noise Abatement Management Plan does not provide adequate detail regarding how noise levels will be monitored to ensure compliance.</p> <p>QIA has put forward this request at meetings of the Terrestrial Environment Working Group and in Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018) regarding the need for the establishment of Early Warning Indicators and thresholds for noise. These comments have not been addressed to date.</p>
QIA Request	<p>QIA requests detail regarding EWI indicators and specific thresholds for noise particularly during sensitive timing windows for culturally important animals such as caribou and birds (snow geese).</p> <p>QIA requests that blasting also consider sensitive timing windows and not be undertaken if the noise will disrupt or harm wildlife particularly during sensitive timing windows (e.g., bird nesting). Blasting activities should report any birds flushed during blasting.</p> <p>QIA requests that a noise monitoring plan be developed to ensure mitigation measures are working effectively. This monitoring plan should include reporting peak noise events and frequency of high noise events (not averages). Details of this plan should be updated in the Air Quality and Noise Abatement Management Plan.</p>

Comment #	QIA 2019 AMR TE #3
References	Document Name: Baffinland Iron Mines 2018 Annual Report to the Nunavut Impact Review Board [200521-08MN053-Mary River Project 2019 Annual Report-IA1E] Section: Section 4.6.4, PC Condition 16 Page: 94
QIA Comment	The Proponent shall ensure that the water related infrastructure or facilities that are designed and constructed, including the modification of culverts, diversion of watercourses, and diversion of runoff into watercourses along the railway, access roads, port sites, the Milne Inlet Tote Road, and other areas of the Project site, are consistent with those proposed in the FEIS and FEIS Addendum in terms of type, location, and scope and that the requirements of all relevant regulatory authorities are satisfied advance of constructing those facilities. The Tote Road has never been built to the presented designs as approved in the FEIS Addendum.
QIA Request	Baffinland build the Tote Road as designed.

Comment #	QIA 2019 AMR TE #4
References	Document Name: Baffinland Iron Mines 2018 Annual Report to the Nunavut Impact Review Board [200521-08MN053-Mary River Project 2019 Annual Report-IA1E] Section: Section 4.6.4, PC Condition 17 Page: 96
QIA Comment	The Proponent shall develop and implement effective measures to ensure that effluent from project-related facilities and/or activities, including sewage treatment plants, ore stockpiles, and mine pit, satisfies all discharge criteria requirement established by the relevant regulatory agencies prior to being discharged into the receiving environment. QIA disagrees with Baffinland’s assessment of partial compliance as discharge criteria have been exceeded on five occasions. Baffinland has exceeded water quality criteria at locations MS-01B on two occasions, MS-08, and MP-04A. The November 12, 2019 exceedance at MS-08 is particularly of concern as the total ammonia was over ten times the applicable discharge criteria. Baffinland does not indicate what may have caused the temporary upset conditions and there was no indication if duplicate tests were performed.
QIA Request	Compliance with PC Condition 17 be considered non-compliant as discharge conditions have been exceeded. It is requested that a procedure for adaptive management be provided by Baffinland for the operation of water treatment plants, including thresholds based on monitoring data that if exceeded would trigger mitigative actions to ensure effluent is below required discharge criteria. Adaptive management should have monitored thresholds, that if exceeded have specific triggers to result in predetermined actions.

Comment #	QIA 2019 AMR TE #5
References	Document Name: Baffinland Iron Mines 2018 Annual Report to the Nunavut Impact Review Board [200521-08MN053-Mary River Project 2019 Annual Report-IA1E] Section: Section 4.6.4, PC Condition 18 Page: 100

QIA Comment	The Proponent shall carry out continued analyses over time to confirm and update, accordingly, the approximate fill time for the mine pit lake identified in the FEIS. QIA has observed a partial, temporary pit during previous inspection. QIA cannot determine compliance with this condition as it is unknown for what duration or extent the Mine Site had a pit.
QIA Request	Compliance with Condition 18 be considered non-compliant until analyses from the temporary pit are provided to reviewers.

Comment #	QIA 2019 AMR TE #6
References	Document Name: Baffinland Iron Mines 2018 Annual Report to the Nunavut Impact Review Board [200521-08MN053-Mary River Project 2019 Annual Report-IA1E] Section: Section 4.6.4, PC Condition 19 Page: 101
QIA Comment	The Proponent shall ensure that it develops and implements adequate monitoring and maintenance procedures to ensure that the culverts and other conduits that may be prone to blockage do not significantly hinder or alter the natural flow of water from areas associated with the proposed mine. In addition, the Proponent shall monitor, document and report the withdrawal rates for water removed and utilized for all domestic and industrial purposes. Baffinland indicates they exceeded water withdrawal limits at numerous locations including domestic potable water from Camp Lake as well as several dust suppression sources along the Tote Road. Baffinland indicates these exceedances may be due to documentation errors and will continue to work to improve yet has not provided verifiable actions.
QIA Request	QIA requests the Department of Fisheries and Ocean report from Baffinland 2018d.

Comment #	QIA 2019 AMR TE #7
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E Section: 4.6.6 Vegetation (PC Conditions 31 through 40) Page: 132-133
QIA Comment	Section 4.6.6 states that, "Reclamation and revegetation was discussed as part of Phase 2 community consultation activities (Phase 2 Community Tour in Igloolik, Community group meeting held at Mary River) in 2019 (Appendix B)" (p. 132). The Proponent notes that a revegetation pilot program was initiated in 2019 but does not describe Inuit involvement or if IQ has informed this program.
QIA Request	Please describe in detail how Inuit have been engaged in revegetation projects and if and how IQ has informed those programs. Please outline how Inuit will be involved in all future revegetation projects.

Comment #	QIA 2019 AMR TE #8
References	Document Name: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E Section: 4.6.6 Vegetation PC Condition 32 Page: 137

QIA Comment	The objective of project certificate condition 32 is for the Proponent to prevent the introduction of invasive species. The Proponent's method of mitigating the introduction of invasive plants is to have suppliers inspect supplies and equipment before offloading at Baffinland's Milne Port. The QIA has previously stated that only relying on suppliers is not enough to prevent invasive plants and the QIA has previously requested a third-party auditor.
QIA Request	The QIA requests that a third party auditor be required to periodically inspect suppliers for compliance in inspecting supplies and equipment.

Comment #	QIA 2019 AMR TE #9
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), Section 4.6.6 Vegetation PC Condition 33, pg. 138 2. Terrestrial Environment Mitigation and Monitoring Plan Rev 1 (baf-ph1-830-p16-0027-r1---terrestrial-environment-mitigation-and-monitoring-_2017-01-25-05.pdf), Section 4.3 Vegetation Monitoring, pg. 61 3. Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), QIA Comments and Recommendations Table, pg. 14
QIA Comment	<p>Project certificate condition 33 states that the Proponent shall include relevant monitoring and management plans within its environmental management system and the terrestrial environment management and monitoring plan. This section describes the Terrestrial Environment Mitigation and Monitoring Plan and the components including vegetation abundance and composition, vegetation health, culturally-valued vegetation, exotic invasive vegetation, and natural revegetation and dustfall.</p> <p>The reference document link includes the website https://www.baffinland.com/media-centre/document-portal/, which does not have an updated Terrestrial Environment Mitigation and Monitoring Plan. The only available version of this plan is from 2016 and does not include monitoring plans for culturally-valued vegetation.</p>
QIA Request	<p>QIA requests the proponent to provide an updated Terrestrial Environment Mitigation and Monitoring Plan that describes how lessons learned have been incorporated into adaptive management to inform monitoring.</p> <p>A component of the Terrestrial Environment Mitigation and Monitoring Plan was to include monitoring of culturally-valued vegetation; however, there is little information about how this monitoring will take place. QIA requests the proponent to include in the Terrestrial Environment Mitigation and Monitoring Plan details for monitoring culturally-valued vegetation. QIA has put forward this request at meetings of the Terrestrial Environment Working Group and in comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018). QIA recognizes that this request may be addressed through ongoing revisions to the monitoring and adaptive management programs, should the Mary</p>

	River Phase 2 project be approved; however at this time Proponent commitments and Inuit Certainty Agreement provisions have yet to be applied.
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Comment #	QIA 2019 AMR TE #10
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), Section 4.6.6 Vegetation PC Condition 35, pgs. 142-3 2. BIMC, June 24, 2020. Baffinland Response to NIRB Letter RE Monitoring 2020 (200624-08MN053-Baffinland Response to NIRB Letter Re 2020 Monitoring-Final-IMTE.pdf, pg. 2 3. Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), pg. 14
QIA Comment	<p>Project Certificate Condition No. 35 requires that the Proponent undertake monitoring of baseline metal levels in organ tissue from caribou harvested within the LSA. In practice, no monitoring of metals in organ tissue from caribou harvested within the LSA has been conducted to date.</p> <p>In the Annual Report the Proponent has stated that the best course for the Program is through participation in a Regional Program, however, in the Baffinland Reponse to NIRB Letter Re 2020 Monitoring it is noted that, "Funding decision through the Northern Contaminants Program which includes collaboration with multiple parties including the GN, Baffinland and Lead Investigator has been stalled..." (BIMC, Letter June 24, 2020). The Annual Report also mentions that the Proponent met with the Primary Investigator for the Northern Contaminants Program in December 2019, but does not provide details or notes from that meeting.</p> <p>The Annual Report and the June 24, 2020 letter indicate that an organ tissue program may not commence until late 2020 or even 2021 The June 24, 2020 letter states, "Training may potentially be conducted by a local GN wildlife biologist provided small gatherings (5 or less) can continue to occur in Pond Inlet over the coming months and that the GN is provided approval to resume research given their important role in this collaboration. Further discussion with all parties including the MHTO is required and the consideration for delaying activities until late 2020 or early 2021 pending outcome of above."(BIMC, Letter June 24, 2020, p.2). It is also unclear if the proposed steps for establishing the program provided in the Annual Report (see p. 143) has been approved by the TEWG.</p>
QIA Request	<p>Consistent with QIA's comment on the 2018 report, the status of this condition should be revised to non-compliant. Coordinating the acquisition of organ material with improved community-based monitoring of caribou within the PDA, LSA, and RSA is highly recommended.</p> <p>QIA requests that the Proponent share any meeting notes and or updates on the possible coordination with the Northern Contaminants Program. As this is a required condition, QIA seeks a description of how the Proponent will proceed with initiating the program if partnership with a Regional Program is not possible.</p>

	QIA requests that the Proponent confirm whether the TEWG agrees with the steps described in the Annual Report, whether the TEWG is supportive of participation in a Regional Program, and if the steps have not been verified with the TEWG, describe the next steps for seeking agreement on the Program.
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Comment #	QIA 2019 AMR TE #11
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), Section 4.6.6 Vegetation PC Condition 39, pg. 153 2. 2019 Revegetation Study (2019_RevegetationStudyReports.pdf), Section 3.2 Monitoring Commitment and Project Expansion, pg. 26
QIA Comment	<p>Project certificate condition 39 states that the Proponent will prevent erosion and promote progressive revegetation of disturbed areas. The Proponent has started a revegetation study that aims to address the lack of research regarding the revegetation of disturbed areas in the far North. This study began in 2019 and has two study components including a post-disturbance revegetation survey and a reclamation trial.</p> <p>The Reclamation Pilot Study document states, "Expansion of reclamation trials at the Project will be necessary to improve data capture and support more in-depth analysis." The proposed expansions of this study involve increasing the number of reclamation trial sites and planning for medium and large-scale reclamation trials once mine features start to become decommissioned.</p>
QIA Request	<p>QIA has concerns that targets to meet progressive revegetation will not be met due to the slow nature of northern growing conditions. QIA requests that the Proponent provide documentation that supports the assertion that progressive revegetation is likely to succeed particularly for developing lichen mats in density that is adequate to support caribou forage.</p> <p>As the Proponent expands the current revegetation studies, the following questions should be considered and reported on:</p> <p>What is the timeline for successful establishment of progressive revegetation and how will that timeline be met?</p> <p>Will the proposed manual seeding promote lichen regeneration? Are there other approaches that will support lichen establishment?</p> <p>How will lichen regeneration be affected by slope and soil stabilization (soil compaction)?</p> <p>What is the lag time for re-establishing lichen forage?</p>

Comment #	QIA 2019 AMR TE #12
References	<p>Document Name: Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf)</p> <p>Section: 4.6.6 Vegetation PC Condition 37</p> <p>Page: 148</p>

QIA Comment	Project Certificate condition 37 states that the proponent is required to prevent establishment of invasive species. Current exotic invasive vegetation surveying is conducted within disturbed areas within and adjacent to the project footprint. Scheduled surveys take place every 3 to 5 years or as triggered by observations of exotic invasive plant species. Current detection method includes driving the road to observe invasives from a vehicle. QIA is concerned that this method may only lead to detection once plants are occurring in higher densities.
QIA Request	<p>QIA requests that the proponent conduct invasive plant surveys more frequently than every 3 to 5 years. To increase the likelihood that invasive plants will be detected, the proponent is requested to increase survey effort, including conducting additional walking transects along roadways and disturbed areas to detect the occurrence of invasives at low densities.</p> <p>To ensure that the approach of relying on observations of exotic invasive plant species to trigger additional surveying is rigorous, QIA is again requesting additional training for all contractors and operators on site in identification and documentation of invasive plants. QIA has put forward this request in Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018). For greater clarity, QIA is requesting that Baffinland support Inuit to be trained in the identification of invasive plants and in conducting these surveys, as well as conducting inspections of contractor vehicles and equipment as needed.</p>

Comment #	QIA 2019 AMR TE #13
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), Section 4.6.8 Terrestrial Environment, pg. 179 2. Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), QIA Comments and Recommendations Table, pg. 15
QIA Comment	<p>The report states that the communities have become more comfortable with the idea that caribou would acclimatize to the railway over time.</p> <p>QIA continues to be concerned about the potential displacement of caribou due to the Project components and activities including the road and rail traffic.</p>
QIA Request	<p>As noted in Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018), the initial statement at left is misleading and affects the tone of the entire section. QIA requests removal of this statement. If Baffinland feels this is an accurate reflection of what they have heard from community engagement, please provide all references pointing to where this statement is substantiated, and all references to any contradictory inputs by Inuit.</p> <p>QIA requests that it be noted on the record that we have concerns about displacement of caribou particularly in migration and movement corridors and calving areas, and do not agree that there is compelling evidence that caribou will acclimatize.</p>

Comment #	QIA 2019 AMR TE #14
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), Section 4.6.8 Terrestrial Environment - Project Certificate Condition No. 50, pg. 183 2. Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), QIA Comments and Recommendations Table, pg. 15
QIA Comment	<p>This condition includes a requirement that the Proponent "will demonstrate appropriate refinements to design, incorporation of analytical methods and elaboration of methodologies".</p> <p>QIA has not seen appropriate response to nil results for caribou monitoring and small mammal monitoring in adapting the monitoring approach.</p>
QIA Request	<p>The Proponent should provide documentation regarding how adaptive management processes are applied to monitoring for wildlife particularly where Project results are not providing adequate data to test null hypotheses (for example that caribou migration and movement patterns will not be affected by the road and rail infrastructure). Studies should be re-designed to better address potential Project effects and historical baseline IQ information. These recommendations have been put forward numerous times at meetings of the Terrestrial Environment Working Group and in Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018). QIA recognizes that this request may be addressed through ongoing revisions to the monitoring and adaptive management programs, should the Mary River Phase 2 project be approved; however, those provisions have yet to be finalized and enshrined in Project requirements.</p>

Comment #	QIA 2019 AMR TE #15
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), 4.6.8 Terrestrial Environment - Project Certificate Condition No. 53, pg. 189 2. Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), QIA Comments and Recommendations Table, pg. 15
QIA Comment	<p>Monitoring and Mitigation Measures - concerns were raised in QIA's comments on the 2018 Annual Monitoring Report, noting gaps and deficiencies in monitoring survey efforts. These gaps have not been addressed and concerns remain regarding:</p> <ul style="list-style-type: none"> - Timing of surveys is limited and not informed by IQ - Threshold for understanding project effects on caribou movements are not clearly stated - The height to land surveys and tracking surveys have yielded nil results - considering the low abundance due to the cyclical nature of the population this methodology should be re-considered and a more appropriate approach for determining the effect of Project components should be explored. Note that HOL and road tracking transects both have poor validity where wildlife

	are in low density. 2019 incidental observations recorded 52 caribou in the PDA - this points to a disconnect with Project caribou monitoring methodology.
QIA Request	<p>As noted in Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018), current survey approaches are not considered by QIA to be effective at detecting caribou at low densities. The study approach for assessing Project effects (particularly road and rail) on caribou movement, calving, migration, etc. should be redesigned in accordance with previous recommendations on the record, including an effective landscape scale monitoring program (collars and/or marked-recapture pellet transects); an effective local scale monitoring program including improved use of incidental observations; and a separate monitoring program based on IQ, to be designed in collaboration with HTO members. QIA notes that these recommendations have been put forward numerous times at meetings of the Terrestrial Environment Working Group and in comments on Baffinland's annual terrestrial monitoring report without formal adoption to date. QIA further recognizes that these requests may be addressed through ongoing revisions to the monitoring and adaptive management programs, should the Mary River Phase 2 project be approved; however, these provisions have yet to be finalized and enshrined in Project conditions and agreements.</p> <p>Additional questions and concerns on PCC 53 include: Page 191 states that “[o]ne group of four (4) caribou was observed approximately 1 Km west of KM 13 of the Tote Road on September 22, 2019.” Is this the only observation from the Tote Road?</p> <p>Page 193 (PCC 53) - presenting haul truck, exploration team, hunters passing through, etc. sightings corrected for effort would be both easy and useful. QIA requests that BIMC document survey effort associated with incidental observations to improve the usability of these data.</p>

Comment #	QIA 2019 AMR TE #16
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), 4.6.8 Terrestrial Environment - Project Certificate Condition No. 53 and 54, pgs. 189, 195 2. Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), QIA Comments and Recommendations Table, 15
QIA Comment	c. Evaluation of Effectiveness of Caribou Crossings - This condition includes requirement for: "Evaluation of the effectiveness of proposed caribou crossings over the railway, Milne Inlet Tote Road and access roads as well as the appropriate number". Due to low density of caribou at this time crossing effectiveness cannot be established.
QIA Request	QIA requests that a community-based monitoring program be established where IQ can be used to inform appropriate locations for road and rail crossings and appropriate methods for monitoring effectiveness such that infrastructure does not preclude future caribou occupation of habitat that is currently vacant. This could

	<p>include incidental sightings from hunters and employees as is done for wolf sightings.</p> <p>QIA does agree that the Proponent is in compliance regarding this condition at this time. QIA recognizes that this recommendation has been put forward numerous times at meetings of the Terrestrial Environment Working Group and in Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018). QIA further recognizes that Baffinland has committed to working with IQ holders to identify crossing locations and monitoring approaches. However, it is important that the approach used to identify these locations allows for effective and meaningful participation of IQ holders.</p>
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Comment #	QIA 2019 AMR TE #17
References	<p>Document Name & Page:</p> <ol style="list-style-type: none"> 1. Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf), 4.6.8 Terrestrial Environment - Project Certificate Condition No. 56, pg. 199 2. Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments-IA1E.pdf), QIA Comments and Recommendations Table
QIA Comment	<p>Terrestrial Wildlife and Habitat - Wildlife Habitat</p> <p>The Proponent is required to develop a strategy for the recovery of terrestrial wildlife habitat in a progressive manner that is consistent with the Nunavut Wildlife Act including the integration of a decision-making process and the identification of mitigation responses to cumulative impacts on caribou survival, breeding propensity, and population dynamics</p>
QIA Request	<p>As identified in Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018), the Proponent has been asked to provide more detail on how the ICRP provides a detailed strategy for the recovery of terrestrial wildlife habitat in a progressive manner that is consistent with the Nunavut Wildlife Act.</p> <p>QIA would like to see documentation of how end land use objectives for wildlife habitat were determined and how IQ was incorporated into setting those specific strategic and tactical objectives. This has been previously noted in the document Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018). If this cannot be shown specifically QIA considers PCC to be out of compliance.</p>

Comment #	QIA 2019 AMR TE #18
References	<p>Document Name: Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf)</p> <p>Section: 4.6.8 Terrestrial Environment - Project Certificate Condition No. 57</p> <p>Page: 201</p>
QIA Comment	<p>The Proponent states that "incorporation of Inuit in field monitoring programs is critically important." While environmental monitors are included in baseline data collection, participation is low and incorporation of IQ in a meaningful way in</p>

	adaptive management is not evident. Barriers to Inuit participation and to meaningful incorporation of IQ are not described.
QIA Request	QIA requests the development of a parallel community-based monitoring program that builds opportunities for IQ knowledge transfer and integrates the harvester, tissue sampling and wildlife monitoring. QIA recognizes that Baffinland has committed to working with IQ holders to identify crossing locations and monitoring approaches. QIA further recognizes that this request may be addressed through ongoing revisions to the monitoring and adaptive management programs, should the Mary River Phase 2 Project be approved; however, these provisions have yet to be finalized and enshrined in Project conditions and agreements.

Comment #	QIA 2019 AMR TE #19
References	Document Name: Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf) Section: 4.6.8 Terrestrial Environment - Project Certificate Condition No. 58 Page: 205
QIA Comment	It is clear that documentation of the interaction of dustfall on caribou fecal pellets in the vicinity of the Project is not possible due to low density of caribou at this phase of their population cycle. Another metric for this impact should be identified. Lichen distribution in vegetation plots tends to be low and project effects could be masked due to larger number of samples with low exposure to dustfall and low lichen density. The methodology used for dustfall interactions with lichen relies on paired vegetation and dust plots. Additional sampling should be done to overlay dustfall distribution patterns with lichen distribution to identify areas of higher lichen density that are vulnerable to dustfall increase particularly as traffic is anticipated to continue to increase in phase II. Studies of lichen response to dustfall should focus on most sensitive areas (heavier deposition areas and higher density lichen that overlaps with high caribou potential).
QIA Request	QIA requests Baffinland develop a strategic sampling approach targeting known or potential caribou forage areas with higher abundance of lichen and risk of increased dustfall for focused studies on potential effects on lichen quality, abundance and uptake of metals.

Comment #	QIA 2019 AMR TE #20
References	Document Name: Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf) Section: 4.6.8 Terrestrial Environment - Project Certificate Condition No. 64 Page: 221
QIA Comment	Re: waste management provisions to prevent carnivores from being attracted to the Project: the Proponent states that “[c]arnivore and/or Arctic Fox interactions have gradually increased over the life of the Project as it grows in scale, however fewer interactions occurred in 2019 as compared to 2018 and 2017 validating the success of improved waste management practices implemented on site.”
QIA Request	QIA requests that the Proponent provide trend data to support claims concerning carnivores/Arctic Fox interactions.

Comment #	QIA 2019 AMR TE #21
References	Document Name: Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf) Section: 4.6.8 Terrestrial Environment - Project Certificate Condition No. 59; 4.6.9 Birds - Project Certificate Condition No.71 Pages: 220;233
QIA Comment	Condition 59 is intended to mitigate aircraft disturbance to wildlife and Inuit harvesting and Condition 71 is related to impacts on snow geese. Data are reported as percentages of logged points. These data do not provide a clear metric for impact to wildlife.
QIA Request	QIA requests that the Proponent provide data on the number of minutes flown below the minimum flight threshold particularly during sensitive timing windows for snow geese and caribou and over areas known to be sensitive habitat for snow geese and caribou (e.g., caribou calving and post-calving locations). Specific requests for modifications of the reporting and mitigation approaches have been put forward by QIA and other parties at the Terrestrial Environment Working Group and in comments on Baffinland's annual terrestrial monitoring report. These recommendations include exploring approaches for increased height-based compliance through consultation with pilots. Further effort is needed to report out on flight data to determine whether Baffinland is in compliance with this Project Certificate Condition.

Comment #	QIA 2019 AMR TE #22
References	Document Name: Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf) Section: 4.6.9 Birds - Project Certificate Condition No.65 and 68 Page: 224;228
QIA Comment	The Proponent endeavors to undertake construction activities outside of bird nesting season. Where construction is required active migratory bird nest surveys are completed for previously undisturbed areas. It is unclear the extent of activities during sensitive timing windows. The area disturbed is reported in Condition 68, but not frequency and duration of disturbance.
QIA Request	QIA requests that the Proponent provide additional information regarding how many occurrences of construction and duration of occurrences during these sensitive timing windows for birds.

Comment #	QIA 2019 AMR TE #23
References	Document Name: Mary River Project 2019 Annual Report (200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf) Section: 4.6.9 Birds - Project Certificate Condition No.74 Page: 242
QIA Comment	Shoreline bird surveys have not been updated since 2013 while Seabird waterfowl staging and waterbird surveys in Milne Inlet have not updated since 2015. It is noted that bird densities are too low for monitoring to determine Project effects. Trend data has not been provided for seabirds at Milne Inlet. Power analysis indicates data not adequate to test null hypothesis. Consideration should be given to whether:

	<ul style="list-style-type: none"> - Other metrics are available to support a sensitivity analysis regarding factors contributing to changes in bird nesting or migration. - IQ could better support understanding of monitoring project effects.
QIA Request	<p>QIA strongly requests that the Proponent return to/ start implementing the following:</p> <ul style="list-style-type: none"> - Annual Shoreline surveys (including the Milne Inlet area which has not been completed since 2013) - Annual Staging Waterfowl and Waterbird surveys for monitoring seabird migration and wintering (not completed since 2015 at Milne Inlet) - Collection and analysis of trend data for marine birds in Milne Inlet. QIA notes that this request has been put forward in Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) Annual Monitoring Report (2018). - additional support for Inuit community monitoring programs including IQ on bird migration and nesting patterns. <p>Without results that are valid for monitoring Project effects, the Proponent can only be considered to be partially in compliance for Condition 74.</p>

Marine and Aquatic Environment

Comment #	QIA 2019 AMR M&AE #1
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Section 4.6.5, PC Condition 20</p> <p>Page: 107</p>
QIA Comment	<p>The Proponent shall monitor the effects of explosives residue and related by-products from Project-related blasting activities as well as develop and implement effective preventative and/or mitigation measures, including treatment, if necessary, to ensure that the effects associated with the manufacturing, storage, transportation and use of explosives do not negatively impact the Project and surrounding areas.</p> <p>Baffinland indicated that select water samples collected downstream of active quarries and mining areas showed elevated ammonia and nitrate levels in comparison to baseline concentrations; however, no mitigative measures were taken.</p>
QIA Request	Baffinland provide the triggers for Adaptive Management for elevated amounts of ammonia and/or nitrate levels and indicate preventative measure and/or mitigative measures taken.

Comment #	QIA 2019 AMR M&AE #2
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Section 4.6.5, PC Condition 21</p> <p>Page: 109</p>
QIA Comment	<p>The Proponent shall ensure that the scope of the Aquatic Effects Monitoring Plan (AEMP) includes, at a minimum:</p> <ul style="list-style-type: none"> - Monitoring of non-point sources of discharge, selection of appropriate reference sites, measures to ensure the collection of adequate baseline data and the mechanisms proposed to monitor and treat runoff, and sample sediments. - Measures for dustfall monitoring designed as follows: <ul style="list-style-type: none"> o To establish a pre-trucking baseline and collect data during Project operation for comparison. o To facilitate comparison with existing guidelines and potentially with thresholds to be established using studies of Arctic char egg survival and/or other studies recommended by the Terrestrial Environment Working Group (TEWG). o To assess the seasonal deposition (rates, quantities) and chemical composition of dust entering aquatic systems along representative distance transects at right angles to the Tote Road and radiating outward from Milne Port and the Mine Site.

	<p>The Core Receiving Environment Monitoring Program (CREMP), Lake Sedimentation Monitoring Program and Dustfall Monitoring Program do not report mechanisms to monitor and treat runoff. Adaptive management, which would detail additional mechanisms to monitor and treat runoff, is being developed in consultation with QIA. Compliance for this will be re-assessed after this work; however, it remains non-compliant at this time.</p> <p>Though one of the objectives for the Dustfall Monitoring Program is to quantify the composition of dustfall generated by Project activities, an assessment of the chemical composition of dust was not provided. This is a non-compliance with item b) iii. of the Project Condition.</p>
QIA Request	QIA considers Condition 21 non-compliant until Baffinland provides mechanisms proposed to monitor and treat runoff and sample sediments and the chemical composition of dust entering aquatic systems along representative distance transects. This should include an assessment of the composition, which goes beyond provision of the compositional monitoring data.

Comment #	QIA 2019 AMR M&AE #3
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Section 4.6.5, PC Condition 21</p> <p>Page: 109-111</p>
QIA Comment	Under Project Certificate Condition 21, measures for dustfall monitoring were to be designed to facilitate comparison with existing guidelines and potentially with thresholds to be established using studies of Arctic char egg survival and/or other studies recommended by the Terrestrial Environmental Working Group (TEWG). The effects threshold used by the Proponent for sediment on char eggs is not based on char eggs or on local sediment. The sensitivity of Arctic char eggs to elevated sedimentation from Project-related dust and sediment, remains uncertain. Better information is needed on the effects of local sediment deposition on survival of Arctic char eggs and larvae.
QIA Request	QIA requests that the Proponent conduct laboratory or in situ studies to establish a meaningful sedimentation threshold based on mortality rates of Arctic char eggs exposed to Project-generated dust sediment.

Comment #	QIA 2019 AMR M&AE #4
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Section 4.6.5, PC Condition 21 & 10</p> <p>Page: 109-111, 72-73</p>
QIA Comment	One of the requirements under PCC 21 is "To assess the seasonal deposition (rates, quantities) and chemical composition of dust entering aquatic systems along representative distance transects at right angles to the Tote Road and radiating

	<p>outward from Milne Port and the Mine Site." In 2019, monitoring at Milne Port and along the Tote Road showed that annual dustfall continued to exceed FEIS predictions at 20 of 23 sampling sites situated up to 1000 m from the tote road (Table 3-5, p. 43; see also EDI 2020, Table 3-5, p. 35). Dustfall in the Milne Port area was predicted to be high and it was. In 2020 the Proponent plans to expand its dust suppression efforts using Dust Stop, "starting with two initial applications of the product along the entire Tote Road (24 hrs apart), followed by routine application to maintain the coating on the roads every two weeks", for an unspecified period (PCC 10, pg. 73). Data are needed on how the combination of elevated dustfall, other Project-related sediment additions (e.g., from roadbed erosion), and regular applications of dust suppressant may affect the ecology of waterbodies along the Tote Road, including Phillips Creek which drains into Milne Inlet. Adaptive management measures for monitoring effects of increased dustfall, as required under PCC 10, have not been identified for these affected aquatic environments, many of which provide important summer rearing habitat for juvenile Arctic char.</p>
QIA Request	<p>QIA requests that pursuant to NIRB 2018 Monitoring Recommendation 2, the Proponent "implement long-term monitoring programs for dustfall and specifically assess potential sediment deposition, impacts on water quality, [and] impacts to biota at fish-bearing streams and lakes along the tote road (including at Phillips Creek)..."</p>

Comment #	QIA 2019 AMR M&AE #5
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.5 (PCC 20, 21 see also 48a); Appendix G.1</p> <p>Page: 108--111 (see also 177-178)</p>
QIA Comment	<p>The Core Receiving Environment Monitoring Program (CREMP) involves water and sediment quality monitoring (PCC No. 20 and 21, s. 4.6.4) and aquatic biota monitoring (including phytoplankton, benthic invertebrates, and fish) in Mine Sites lakes and streams, particularly Arctic char (PCC 48a, 4.6.4). The results of the 2019 CREMP indicated some mine-related influences on water and sediment quality of a few of the mine's primary receiver systems but no ecologically significant, adverse, mine-related effects to biota were identified in the Mine Site waterbodies based on comparisons to applicable reference conditions or baseline data (Appendix G.1 CREMP report).</p> <p>In 2019 phytoplankton samples were collected and archived for potential future use (Appendix G.1, s.2.4.1, pg. 19). This sample archive is potentially an important resource for understanding any Project-related effects and should be maintained for the duration of the Project.</p> <p>The large drops in gillnetting catch-per-unit-effort (CPUE) of char in Camp Lake in 2017 and 2019 compared to 2016 and 2018 (Appendix G.1, s.3.3.5.1, pg. 74) could indicate a change in abundance or in some other factor that affects catchability, or be related to limited sampling effort and widely different sample sizes (pg. 76). If</p>

this variability is Project-related that is a concern, otherwise it limits the sensitivity of the sampling to detect Project-related changes. The "crack and burn" method of reading otoliths (Appendix G.1, s.2.4.3.3, pg. 27) may not be optimal for landlocked Arctic char, which tend to grow slower and live longer than anadromous char. Elevated concentrations of nitrate reported in the headwater primary receiving streams (L2-03 = 3.13 mg/L, pg. 35; FO-01 = 13 mg/L, pg. 142) could affect the development of juvenile char downstream if the nitrate concentrations are not sufficiently diluted and persist (Hickey and Martin 2009).

As in 2018, the CREMP report recommends several changes to the AEMP sediment quality benchmarks to reflect not only baseline data, but also reference lake data; and harmonize the lake sediment quality and benthic invertebrate monitoring stations, focusing only on littoral habitat, to improve the ability of the program to evaluate mine related effects to biota and potentially allow linkages to be assessed between sediment metal concentrations and benthic endpoints (Appendix G.1, s. 6).

QIA Request QIA requests that the archiving of phytoplankton samples be continued for the duration of this Project, in case they are needed to assess changes observed in the aquatic ecology.

QIA requests the Proponent assess the power of the fish sampling program to detect Project-related change and consider methods that reduce interannual variability in the fish sampling results (s.4.2.5.2, pg. 117).

QIA requests the Proponent seek verification of a subset of otoliths that covers the range ages by a reader familiar with landlocked char otoliths (e.g., DFO Central and Arctic).

QIA requests that the Proponent clarify how changes recommended in Appendix G1 might affect the assessment benchmarks and interpretation of impacts.

Comment #	QIA 2019 AMR M&AE #6
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Section 4.6.5, PC Condition 23 Page: 113
QIA Comment	The Proponent shall develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater within the Project area. Baffinland indicated that the sampling data set was limited and a trend of groundwater chemistry at the Landfill Facility was unable to be determined.
QIA Request	Condition 23 be considered non-compliant due to lack of progress on applying next steps. The Proponent is requested to provide further reasoning for why sampling was limited and trends unable to be identified. Further, the Proponent is requested

	to provide a description of the planned expansion of the groundwater monitoring program.
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Comment #	QIA 2019 AMR M&AE #7
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Section 4.6.5, PC Condition 24</p> <p>Page: 115</p>
QIA Comment	<p>The Proponent shall monitor as required the relevant parameters of the effluent generated from Project activities and facilities and shall carry out treatment if necessary, to ensure that discharge conditions are met at all times.</p> <p>QIA disagrees with Baffinland’s assessment of partial compliance as discharge criteria have been exceeded on five occasions. Baffinland has exceeded water quality criteria at locations MS-01B on two occasions, MS-08, and MP-04A. The November 12, 2019 exceedance at MS-08 is particularly of concern as the total ammonia was over ten times the applicable discharge criteria. Baffinland does not indicate what may have caused the temporary upset conditions and there was no indication if duplicate tests were performed.</p>
QIA Request	PC Condition 24 be considered non-compliant as discharge conditions have been exceeded. It is requested that a procedure for adaptive management be provided by Baffinland for the operation of water treatment plants, including thresholds based on monitoring data that if exceeded would trigger mitigative actions to ensure effluent is below required discharge criteria. Adaptive management should have monitored thresholds, that if exceeded have specific triggers to result in predetermined actions.

Comment #	QIA 2019 AMR M&AE #8
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Section 4.6.5, PC Condition 25</p> <p>Page: 119</p>
QIA Comment	<p>The Proponent shall undertake additional geotechnical investigations to identify sensitive landforms, modify engineering design for Project infrastructure, develop and implement preventative and/or mitigation and monitoring measures to minimize the impacts of the Project’s activities and infrastructure on sensitive landforms.</p> <p>QIA disagrees with Baffinland’s assessment of in compliance as the Tote Road has not been built to design and concerns on the state of the Tote Road are ongoing. The 2019 Tetra Tech Report confirms most concerns along the Tote Road from the 2014 Tetra Tech Report have not been addressed, with mitigative and monitoring measures not identified.</p>

QIA Request	PC Condition 25 be considered non-compliant until Baffinland builds the Tote Road as designed or provide a satisfactory effects assessment of operating the road in its current state. Tetra Tech recommends monitoring at three locations: KM Post 36.5 L&R, 35.7R and 49 which should be implemented and reported on in the 2020 NIRB Annual Report.
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Comment #	QIA 2019 AMR M&AE #9
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Section 4.6.5, PC Condition 26 Page: 122
QIA Comment	The Proponent shall develop and implement a comprehensive erosion management plan to prevent or minimize the effects of destabilization and erosion that may occur due to the Project’s construction and operation. QIA disagrees with Baffinland’s assessment of in compliance for PC Condition 26. At the time of submission, the updated erosion management plan considered to be the Surface Water and Aquatic Ecosystem Management Plan does not include adaptive management that would be required to be “comprehensive”, as required by the PC condition. At the time of the 2019 Annual Report, the erosion management plan had not yet been reviewed and thus status unknown.
QIA Request	PC Condition 26 should be considered non-compliant due to the lack of detail in the triggers provided. For example, specific observations should be listed which would trigger a response, not just general observation.

Comment #	QIA 2019 AMR M&AE #10
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Section 4.6.5, PC Condition 29 Page: 129
QIA Comment	Once project facilities are constructed, the Proponent shall provide copies of the as-built drawings and design to the appropriate regulatory authorities. QIA disagrees with Baffinland’s assessment of in compliance. Though Baffinland has made many positive advances to this condition in 2019, there remains concerns. First, QIA was provided a list of for construction and as-builts from Baffinland which includes several for construction designs without as-builts, or without a date of submission. Second, as-builts are required to assess impact to Inuit Owned Land by infrastructure built by Baffinland and directly impact QIA’s ability to properly assess reclamation security required. Neither of these concerns have been adequately confirmed by Baffinland’s submission. Lastly, QIA is aware of a water’s inspector direction to develop an as-built for the Camp Lake Water structure, which has not yet been shared.

QIA Request	Compliance with the PC Condition 29 should be considered non-compliant until such a time that QIA and Baffinland confirm reclamation security based on a review of each as-built constructed on Inuit owned land and the as-built for the water management structure near camp lake is received.
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Comment #	QIA 2019 AMR M&AE #11
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 4.6.7 (PCC 45 and 47); Appendices G.6 and G.20 Page: 165-168 (see also 174-175)
QIA Comment	The objective of Project Certificate Condition 45 (see also 47) is to mitigate impacts to freshwater aquatic habitats. The Proponent is required to adhere to the No-Net-Loss principle. To meet this requirement it has upgraded Tote Road crossings, and is required to conduct annual monitoring to ensure fish passage at the Tote Road crossing is not impeded (see also Appendix E, NIRB Recommendation 2). Issues with fish passage and/or habitat were observed at nine (9) fish bearing water crossings during fish use assessments along the tote road in late June-early July 2019 (Appendix G.6) and one (1) in the area of the Freight Dock (stream M11-1; Appendix G.20, Photos 44 and 49, pg. 62 and 66 of 74). These issues were caused by physical obstructions such as instream road aggregate/rip rap (BG-29, BG-01, M11-1) or by perching of culverts that limited upstream access (CV-106, CV-111, CV-114, CV-129, CV-216, CV-225, BG-50). The obstructions were removed soon after assessment, and perching was corrected in 2019 for five (5) of the culverts. Installation of step-pool rocky ramps was not feasible at CV-111 and CV-225, which will be revisited for remediation in 2020. QIA recognizes that the Proponent is working to remove barriers to fish passage but is concerned by the number of culverts each year that are perched, obstructed, or damaged.
QIA Request	QIA requests that the Proponent continue to correct fish passage problems and take an increasingly proactive approach to preventing culvert damage, blockages, and undercutting that obstruct fish passage.

Comment #	QIA 2019 AMR M&AE #12
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 4.6.7 (PCC 45 and 47); Appendices G.7 Page: 165-168
QIA Comment	Despite its freshwater objective, monitoring of habitat offsetting works in the marine environment related the Milne Port Ore Dock (Appendix G.7) and the Freight Dock (Appendix G.8) were also discussed with PCC 45. The habitat offsetting structure at the Ore Dock appear to be functioning as intended. However, settlement baskets and plates used to monitor epifauna establishment on the west side of the dock were lost, probably to shifting sea ice, and only 8 of the 28 taxa on

	the east side were identified to species. Of 18 taxa observed on ROV video transect surveys, only 2 could be identified to species. Loss of these samples and inability to identify taxa to species weakens this monitoring program and also weakens monitoring for invasive species, particularly those carried on ships hulls that may be settling on the plates.
QIA Request	QIA requests that the Proponent increase the number of plates and baskets so that there is greater redundancy in case of losses to ice, and increase the soak time so the epifauna are older and easier to identify.

Comment #	QIA 2019 AMR M&AE #13
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 4.6.7 (PCC 46, also see 17, 24) Page: 169-173 (see also 96-99, and 115-118)
QIA Comment	Under Project Certificate Condition 46 (see also Hydrology and Geology PCC 17 and Ground and Surface Water PCC 24), the Proponent is required to ensure that runoff from its facilities meets discharge requirements. In 2019, despite testing prior to release, exceedances of applicable discharge criteria occurred during a releases of treated sewage (ammonia), a release of treated effluent from the Waste Rock Water Treatment Plant (WR WTP) (total suspended solids), and a release of treated effluent from the Oily Water Treatment System (OWTS)(lead). Testing prior to release is intended to prevent the release of water effluent that exceeds discharge guidelines, but it did not.
QIA Request	QIA requests that the Proponent adjust its testing and release protocols to prevent similar exceedances in 2020.

Comment #	QIA 2019 AMR M&AE #14
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 4.6.7 (PCC 48a); Appendix G.6 Page: 177-178
QIA Comment	For Project Certificate Condition No. 48a, the need to conduct additional surveys for the presence of Arctic char in freshwater bodies and ongoing monitoring of Arctic char health in watersheds near the mine, Tote Road, and Milne Inlet Port has been identified. Many of the Tote Road streams provide important summer rearing habitat for Arctic char (Appendix G.6). These streams currently receive sediment from dustfall that lands in their catchment area and from roadbed erosion. The amount of sediment they receive annually and its effects on the stream ecology are unknown. To access habitats upstream of the road the small fish in many of these streams must pass through long culverts. Monitoring data on fish health in streams crossed by the tote road have not been found.
QIA Request	QIA requests that the Proponent develop and use non-lethal metrics to monitor Arctic char health over the long term at these stream crossings.

	QIA further requests that observations related to fish abundance/quality/health, etc. from the fledgling CRLU Monitoring Program are weighed appropriately when the Proponent draws future conclusions from this program.
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Comment #	QIA 2019 AMR M&AE #15
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.8 (PCC 49 - 64) (PCC No. 59); 4.6.9 (PCC 65 through 75) (PCC No. 71) (also see comments 45 and 65 in QIA’s review of the draft TEEMP report)</p> <p>Page: 210-213, 233-236</p>
QIA Comment	<p>These Project Certificate Conditions relate to aircraft disturbances and helicopter flight heights. These conditions are in place to reduce disturbance to terrestrial wildlife, but overflights at low altitudes can also potentially disturb marine mammals that haul out on terrestrial surfaces or sea ice. One species of concern is the Atlantic walrus. Walrus haul out at terrestrial sites (uglit) when sea ice is not available. At the June 2019 TEWG/MEWG meetings it was noted that helicopter-based exploration activities in Foxe Basin might disturb hauled-out walrus during the open-water season. QIA provided BIMC and their consultants with the locations (latitude-longitude) of known haulouts in northern Foxe Basin, so that these sensitive locations could be incorporated into mitigation planning. DFO subsequently provided the MEWG with their Science Response document regarding buffer zones to prevent disturbance of walrus (by both boats and aircraft) (DFO 2019b).</p> <p>Baffinland has shared the GPS coordinates of known haulout sites with their exploration team, including with helicopter pilots, so that flight paths remain at least 5 km away from known haulout locations where possible. Baffinland also prepared a map showing uglit locations relative to the helicopter tracks and confirmed that exploration to date has typically avoided the locations identified. QIA appreciates the Proponent's efforts to address this emerging issue in a timely manner, provide additional information, and incorporate the avoidance of uglit into its mitigation planning.</p> <p>As the avoidance of walrus uglit will be important in subsequent years, the location of helicopter flight paths in relation to uglit should be reported on an annual basis, similar to what is currently done with the Snow Goose Moulting Area. Despite being a marine mammal, the results of compliance monitoring for this subject are likely best reported in the helicopter overflight section of the TEEMP annual report, along with the other relevant data on flight heights and wildlife avoidance.</p>
QIA Request	QIA requests that the Proponent commit to reporting on helicopter overflights in relation to walrus uglit on an annual basis. The results of compliance monitoring for this subject are likely best reported in the helicopter overflight section of the TEEMP

	annual report, along with the other relevant data on flight heights and wildlife avoidance.
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Comment #	QIA 2019 AMR M&AE #16
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.10 (PCC 76 see also 99, 113); Appendices G.8 and G.20</p> <p>Page: 253-263 (see also 322-323, 402-408)</p>
QIA Comment	<p>The objective of Project Certificate Condition 76 is to mitigate potential impacts to the marine environment (see also PCC 99 and 113). To meet this condition the Proponent has developed a marine environmental effects monitoring program (MEEMP) to evaluate changes to marine habitat and organisms. The Proponent has provided a list of changes to the MEEMP in 2019. Notable among these are the addition of a Northeast sampling transect and increase in the number of sampling sites, which will strengthen the program's ability to detect Project-related changes in bottom sediment and benthic biota. As in 2018, these changes are generally positive and reflect monitoring advice.</p> <p>Appendix G.8 described a substantial portion of the total iron concentration in the water as "present in particulate form, and likely less bioavailable for uptake by aquatic biota." (s.4.1.1.4 Metals, pg. 54). This statement was not supported. Recent studies suggest inputs of biologically available iron can facilitate phytoplankton productivity and thereby alter light penetration and carbon availability (Cwiertny et al. 2008; Lambert et al. 2015; Shoenfelt et al. 2017, 2018; Conway et al. 2019, Khatiwala et al. 2019; Underwood 2020). Photos during construction of the freight dock show patches of ore dust blanketing the surface of Milne Port during the spring ice melt (Appendix G.20, Photos 22 and 37, pgs. 52 and 60 of 74). What fraction of Project-generated iron deposition that enters Milne Inlet is biologically available, and are these iron inputs affecting phytoplankton composition and production, and the availability of carbon to other marine biota?</p> <p>Changes in tissue metals in Arctic char and <i>Hiatella arctica</i> between 2018 and 2019 were not considered Project-related as "the metals that were elevated are not materially associated with iron ore" and "more likely reflect natural geologic sources or atmospheric deposition from further afield" (Appendix G.8, s.6.0, pg. 166; see also Exec. Sum., pg. vii; s. 4.1.7.4, p. 119; s.4.1.8, Tables 4-32 and 4-36 (pgs. 120 and 126); s.5.1.8, pg. 157). If that is the case, what changes have occurred in the monitoring program (locations, timing, catch composition, sample size, analytical methodology, etc.) that would explain the sampled population's high variability or change in exposure to different geological or atmospheric contaminants between years? This is very important to sort out to ensure that the long-term monitoring is directly comparable from year to year. Has Inuit knowledge of Arctic char movements and stock structure in the area been sought out to inform sampling design?</p> <p>QIA is encouraged that the Proponent is sending biological samples to experts for</p>

	confirmation or identification; however, we remain concerned by the number of taxa collected in 2019 that were not identified to species.
QIA Request	QIA requests that the Proponent and MEWG consider: 1) the potential effects of iron deposition on marine phytoplankton; 2) alternative field methods that would improve the rates of taxonomic identifications to species (e.g., longer soak time for settlement plates); and 3) methods of improving the power of tissue sampling to detect any Project-related effects.

Comment #	QIA 2019 AMR M&AE #17
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 4.6.10 (PCC 76 through 98) (PCC No. 78) Page: 267
QIA Comment	This Project Certificate Condition requires that the “analysis for pack and landfast ice... be updated annually using annual sea ice data (floe size, cover, concentration)”, which is not being done. The Proponent indicates that trend data are “not applicable”, but trends in sea ice conditions are important to monitor given their role as a trigger for shipping activity and mitigation and their importance to pagophilic wildlife and Inuit harvesting. QIA also notes that updates to the sea ice dataset will also contribute to climate change monitoring, which is also a requirement under the Project Certificate
QIA Request	QIA requests that the Board determine whether the Proponent can be “In Compliance” with this Condition when the requested updates have not been completed. QIA also request that the Proponent consider how this required sea ice monitoring can contribute to the climate change monitoring activities required under the Project Certificate.

Comment #	QIA 2019 AMR M&AE #18
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 4.6.10 (PCC No. 86) Page: 285-287
QIA Comment	The objective of Project Certificate Condition 86 is to update ballast water discharge impact predictions. As part of this condition NIRB recommended that additional sampling be undertaken to validate the model and to inform sampling sites and the monitoring plan. "...Golder has concluded that re-running the Phase 2 Proposal modelling is not warranted as the anticipated Phase 2 Proposal conditions are not expected to alter the ballast water dispersion results. Similarly, no further ballast water modeling of current operations (ERP) is considered warranted given that the Phase 2 Proposal ballast water modelling results and conclusions are based on greater than two (2) times the volume of ballast water that is presently discharged

	<p>under the existing Project." (2019 Annual Report to NIRB, pg. 287; 304 of 631).</p> <p>DFO (2020) has recommended the Proponent rerun the ballast water dispersion model incorporating particle dispersion and using new oceanographical data and data on the number of individuals of non-indigenous species released with ballast water (propagule pressure), based on biological sampling of Project vessel ballast water, to update and refine the ballast water risk assessment. The Proponent currently expects that any Project ore vessels capable of treating their ballast water will use both treatment and exchange to reduce the risk of introducing invasive species. If Project vessels begin switching to treatment alone, the model should be rerun to assess how this change affects ballast water dispersal and the quality of water being released into Milne Port (anchorages and dock(s)), in particular the temperature, salinity, and presence of contaminants (e.g., treatment residuals, persistent pollutants).</p>
QIA Request	<p>QIA requests that the Proponent rerun the ballast water dispersion models incorporating particle dispersion and using new data from oceanographical studies (e.g., currents) and from ballast water sampling of Project vessels (physical, chemical, and biological) to update and refine the ballast water risk assessment.</p> <p>QIA considers the Proponent to be Partially-Compliant with PCC 86.</p>

Comment #	QIA 2019 AMR M&AE #19
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.10 (PCC 87 and 88); Appendix G.8</p> <p>Page: 288-294</p>
QIA Comment	<p>The objective of Project Certificate Condition 87 (see also PCC 88) is to prevent invasive species introductions resulting from shipping. To meet this condition the Proponent has developed a monitoring program to evaluate changes to marine habitat and organisms and the presence of non-native species. These studies do not prevent species introductions, they provide evidence that efforts at prevention have failed. Once invasive species become established they can be impossible to eradicate and cause serious environmental damage and expense. Gathering the information needed to properly assess the risk of species introduction, and adopting a proactive approach to preventing species introductions is very important.</p> <p>QIA welcomes the increasing effort and collaborative approach to improve non-indigenous species (NIS) and aquatic invasive species (AIS) identification. Despite these efforts numerous taxa were not identified to species (Appendix G.8). This information should be included in the annual report to NIRB as it is important for understanding the uncertainty surrounding risk of species introductions, and to put the assertion that no species have been confirmed as invasive (e.g., 2019 Annual Report, pg. 306; Appendix G.8, pg. ix-xi) in proper context. For example, of the 52 taxa collected or observed by the AIS/NIS surveys of macroflora and benthic epifauna in 2019 (Table 4-43, pg. 141), 21 were identified to species, 2 to genus, and</p>

	<p>29 were not identified to genus or species. Only 8 of 28 encrusting epifauna taxa were identified to species (Appendix G.8, 4.2.4, Table 4.4.4, p. 146). Taxonomic resolution that is limited to Phylum, or identifies all algae along a benthic belt transect as "unidentifiable algae" (e.g., s.4.1.6, Figures 4-25 and 4-26, pgs. 100-101), limit the value of these studies for monitoring introductions and change.</p>
QIA Request	<p>QIA requests that the Proponent monitor species' presence and abundance in the ballast water tanks of incoming Project vessels to determine whether they have exchanged and/or treated the ballast water to remove potentially invasive species (compliance) and to learn the efficacy of those measures for removing non-indigenous species, particularly those that are potentially invasive.</p> <p>QIA requests the Proponent and MEWG work to solve the problems of how to: 1) collect epifauna from fouled ship's hulls, 2) identify taxa on the belt transects in poor visibility, and 3) obtain mature encrusting species to fill the species identification gaps. Alternative approaches such as real-time taxonomic assessment of the videos by Arctic marine taxonomists who can direct the camera operator to key features, periodic diver surveys, or the use of DNA or RNA techniques should be considered.</p> <p>Monitoring for the presence of non-indigenous species in the marine environment is ongoing and meets the requirement to monitor for non-indigenous species that have been introduced to Milne Inlet. However, it does not meet the PCC objective of preventing invasive species introductions.</p>

Comment #	QIA 2019 AMR M&AE #20
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.10 PCC 88</p> <p>Page: 292-294</p>
QIA Comment	<p>The objective of Project Certificate Condition 88 is also to prevent invasive species introductions resulting from Project shipping. To meet this condition the Proponent conducted a risk analysis in 2013, and has been monitoring the Milne Port and Ragged Island areas for aquatic invasive species. <i>"The risk assessment undertaken in support of the ERP (SEM 2013) determined that shipping operations under the ERP of the Project were unlikely to significantly increase the potential for AIS introductions as a consequence of ballast water discharges or ship hull fouling at Milne Port"</i> (2019 Annual Report to NIRB, pg. 293). That risk assessment was flawed and underestimated the potential risk posed by release of ballast water into Milne Inlet by Project shipping (DFO 2014, p. 24).</p> <p>Since 2013 many risk factors have changed. Ore markets have expanded to include ports in Asia, South America, and many areas of Europe, which will change the variety of species arriving at Milne Port. New oceanographic data are available for updating of ballast water dispersion modeling (see comment on PCC 86). Real data now exist for volumes and frequencies of ballast water discharges at Milne Port.</p>

	<p>And, the Ballast Water Management Convention has come into force, requiring ships to transition from mid-ocean exchange to treatment or treatment plus exchange of ballast water. These factors argue the need to reassess risks associated with non-indigenous species introductions. To do so, data are needed on the presence and abundance of species arriving in ballast at Milne Port.</p> <p>In its Risk Assessment for Introduction of Aquatic Invasive Species from Ballast Water, Golder calculated the probability of aquatic invasive species arriving in Milne Inlet to be HIGH, surviving once they arrived to be VERY HIGH and, based on these, that the probability was VERY HIGH that foreign species would be successfully introduced (<i>Baffinland 2018d, TSD 21, s. 4.0, p. 12; p. 20 of 24</i>). Given the number of potentially harmful aquatic invasive species (166) in a subset of source ports the magnitude of the consequences was ranked as VERY HIGH. Based on the probability of introduction and magnitude of consequences the invasion risk was ranked HIGH, with MODERATE uncertainty. Golder noted that using the actual number of species and abundance of AIS present in each ship’s ballast water would have reduced uncertainty related to invasive species risk (<i>Baffinland 2018d, TSD 21, s.3.1.1, p. 9; p. 17 of 24</i>). Updating this analysis might not change the ranking, but it might change the scale itself and could provide important information for monitoring and adaptive management.</p> <p>Scientifically defensible sampling of ballast water tanks for salinity and biota is needed to properly assess exchange compliance and the efficacy of exchange and treatment by various methods for reducing risk posed by invasive species, and risk posed by chemical (including possible treatment residuals) and physical differences between the ballast water discharges and waters of Milne Inlet. This information is needed to recalculate the risk assessment analysis and inform adaptive management. <i>“In 2019, the monitoring program was altered slightly to highlight the emphasis on early identification of Non-Indigenous Species (NIS) and not just AIS.”</i> (2019 Annual Report to NIRB, pg. 288). This change is important, since it is difficult to predict which non-indigenous species may be invasive in the Canadian Arctic and which species may not be invasive in Canadian Arctic waters.</p>
QIA Request	<p>QIA requests that the Proponent monitor ballast water of incoming Project vessels to determine the efficacy of exchange and treatment methods and use this, and other new information, to update the invasive species risk analysis and inform adaptive management designed to prevent invasive species introductions.</p> <p>QIA considers the Proponent to be Partially-Compliant with PCC 88.</p>

Comment #	QIA 2019 AMR M&AE #21
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.10 PCC 89 & 90</p> <p>Page: 295-303 (see also 288-291)</p>

<p>QIA Comment</p>	<p>The objective of Project Certificate Condition 89 (see also 90) is to prevent impacts to marine water quality from ballast water exchange. To meet this objective salinity is tested in a single ballast water tank of each arriving vessel to determine whether open-ocean exchange of ballast water has been conducted (i.e., test compliance) (2019 Annual Report to NIRB, pg. 297). The single salinity measurement does little to protect water quality or prevent the introduction of non-indigenous species (see also PCC 87). The quality of water in the tanks will be determined by whether ballast water obtained at foreign ports is exchanged mid-ocean, treated and exchanged, or simply treated before release into Milne Port. Consequently, its physical and chemical properties may vary widely, and may be altered somewhat by treatment. There is even greater uncertainty related to the efficacy of the exchange or treatment method used to reduce the presence of non-indigenous species, because the tanks are not sampled for biota. Consequently, the identity and abundance of species released into Milne Port and the risks they pose are unknown. If vessels have not fully exchanged their ballast water or treatment methods are ineffective the potential for introducing non-indigenous species is greatly increased. While the Proponent notes that <i>“the ship operators/owners are the responsible party for ensuring their ships are compliant with Federal ballast water regulations and the BWM Convention”</i> (pg. 297), it is the Proponent's responsibility under PCC 89 to protect water quality and prevent the introduction of invasive species.</p> <p><i>“The BWMP includes information on applicable legislation, BWMP program objectives, monitoring responsibilities, sampling equipment specifications, detailed technical procedures for sampling and analyses, comprehensive QA/QC procedures, and adaptive management measures for implementation during non-compliance events.”</i> (2019 Annual Report to NIRB, pg. 295). This is referring to D1 salinity testing of a single tank per vessel, which is of little value for assessing compliance with ballast water regulations, as there can be 20 or more separate ballast water tanks per vessel, or for assessing efficacy, as it does not provide information on potentially invasive live biota in these tanks. The draft Ballast Water Management Plan is missing many important features that are needed to assess regulatory compliance, and the efficacy of the various treatment methods under Project operating conditions (QIA Phase 2 FWS TC 45, pg. 148; DFO 2019a). This information is needed to understand invasive species risk and inform adaptive management.</p> <p>In 2019, 23 of the 82 ore carrier voyages were made by vessels equipped to treat ballast water (2019 Annual Report to NIRB, pg. 296). One of these vessels, the <i>Golden Ruby</i> conducted treatment only on its first voyage, so the quality of the water it released is unknown. The Proponent is in the position of being able to assess which treatment methods are best suited for Project operations. This is important since systems that meet D2 standards in temperate shipping environments may not do so when shipping to Project ports, and could be turned away without loading ore.</p>
<p>QIA Request</p>	<p>QIA requests that NIRB revisit the requirements of Project Certificate Condition 89 to ensure that this monitoring program provides:</p> <ul style="list-style-type: none"> - Greater certainty regarding the efficacy of open-ocean exchange and treatment; and

	<ul style="list-style-type: none"> - The data needed to understand and mitigate risks from non-indigenous species transported in ballast water of Project vessels. <p>QIA considers the Proponent to be Partially-Compliant with PCC 89.</p>
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Comment #	QIA 2019 AMR M&AE #22
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.10 PCC 90</p> <p>Page: 302-303</p>
QIA Comment	<p>Project Certificate Condition 90 requires the Proponent achieve compliance with provisions of The International Convention for the Control and Management of Ship’s Ballast Water and Sediment (2004) (aka BW Convention), which came into force in 2017 (IMO 2017). Under the BW Convention newly built ships must immediately meet the D-2 standard, which specifies the maximum number of organisms that can be present in the ballast water when it is discharged. By 2024 all existing ships must be retrofitted with ballast water treatment systems. Biological testing is not conducted to verify whether Project vessels that treat their ballast water meet the D2 standards under Project operating conditions and which systems are most reliable, effective, and pose the least environmental risk to the Milne Inlet receiving environment.</p> <p>The draft Ballast Water Management Plan (190513-08MN053-BIMC Draft Mgmt Plans-Ballast Water Mgmt Plan-IA1E.pdf) does not discuss ballast water treatment or testing to verify the efficacy of exchange or treatment for reducing the risk of invasive species introductions. It is not clear how the Proponent will verify that D-2 standards have been met before ballast water is discharged into Milne Port or how, without such testing, it will inform adaptive management (e.g., identify optimal treatment systems) to reduce risk.</p>
QIA Request	QIA requests that the Proponent revise and update its Ballast Water Management Plan to include testing of ballast water at a level designed to reduce uncertainty regarding compliance rates and conduct biological sampling to assess the efficacy of exchange, treatment, or both for reducing invasive species risk in Arctic waters.

Comment #	QIA 2019 AMR M&AE #23
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.10 (PCC 91); Appendix G.8</p> <p>Page: 304-308</p>
QIA Comment	The objective of PCC 91 is to prevent impacts to marine water quality in Milne Inlet. To meet this condition the Proponent must develop a detailed plan for monitoring biofouling species on Project vessels. In accordance with PCC 91, a SCUBA study of vessel hulls was attempted in 2017 but aborted due to safety concerns. In 2018 a

	remotely operated vehicle (ROV)-based underwater video was used to survey the hulls of three Project ore carriers. Despite using higher resolution video and better lighting on the ROV in 2019, most taxa still could not be identified to species (Appendix G.8, p. xi). Barnacles were observed fouling 4 of the 5 hulls examined (Appendix G.8, s.4.2, pg. 149). This is a concern as there are numerous invasive barnacle species (e.g., <i>Amphibalanus amphitrite</i> , <i>A. eburneus</i> , <i>A. improvisus</i> ; Fofonoff et al. 2018). QIA recognizes that the Proponent is working to meet this condition but notes that the video resolution was insufficient to permit species identification and that specimens were not collected for identification. Inability to identify hull biofouling species is an important weakness of the hull fouling surveys.
QIA Request	QIA requests that the Proponent work with the MEWG to develop a scientifically defensible monitoring program capable of assessing the presence and abundance of non-indigenous biofouling species on the hulls of Project vessels to inform adaptive management and prevent introduction of invasive fouling species at Milne Port. The Shipping and Marine Wildlife Management Plan (SMWMP) should be revised accordingly. QIA considers the Proponent to be Non-Compliant with respect to PCC 91, as it has yet to conduct effective monitoring of biofouling species on vessel hulls.

Comment #	QIA 2019 AMR M&AE #24
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: 4.6.11 (PCCs 99 through 128) (including section Introduction, PCC 101, PCC 109, PCC 110, PCC 111); also see Appendix G.9 Page: 319-320, 327, 372, 385, 391 (main report body)
QIA Comment	Objectives of the underwater acoustic monitoring program included comparing “measured (actual) ship noise levels to estimated ship noise levels determined through underwater noise modelling during open-water conditions”. The draft PAM report (Appendix G.9) did not provide any details on how the noise signatures of individual Project vessels (ore carriers, sealift, tankers) compare with model estimates. Other parties (e.g., Oceans North) also identified this issue in their review comments submitted directly to the MEWG.
QIA Request	QIA requests that the Proponent provide a summary of modelled versus measured ranges for a representative sample of the different Project-related vessel types. The MEWG submission by Oceans North provides a good example of format, based on data collected through their independent passive acoustic monitoring program being conducted in the RSA.

Comment #	QIA 2019 AMR M&AE #25
References	Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]

	<p>Section: 4.6.11 (PCC 99 through 128) (PCC 101) Page: 325-335</p>
QIA Comment	<p>“The 2019 Inuit program team members participated in end of program interviews to review and discuss preliminary monitoring results, and provide feedback on program design and program planning for the 2020 Monitoring Programs.”</p> <p>“End of program interviews were newly implemented to review and discuss preliminary monitoring results, and to solicit input on program design and program planning for Baffinland to consider during subsequent year monitoring activities.”</p> <p>How many of the Inuit marine monitoring employees participated in the interviews? Have the results been used to inform program design and program planning for the 2020 Monitoring Program?</p>
QIA Request	<p>QIA requests that the Proponent clarify how many Inuit program team members participated in the end of program interviews, and how these interviews informed 2020 planning.</p> <p>QIA requests that the Proponent clarify whether these interviews were conducted by an independent third-party or done internally.</p> <p>QIA requests that the Proponent provide additional details on the interview techniques, format, and questions.</p>

Comment #	QIA 2019 AMR M&AE #26
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.11 (PCC 99 through 128) (PCC 105; PCC 120) Page: 345-355, 416-419</p>
QIA Comment	The Proponent has made consistent improvements to vessel speed compliance as Project operations have advanced. Compliance for ore carriers is particularly high. Compliance for freight / fuel tankers has improved but it is still lower than for ore carriers. For example, over 25% of the Sedna Desgagnés’ transit through the RSA was in excess of the speed limit in 2019 (Table 4.32, pp. 347-348). Continued improvements in speed limit compliance is possible and should be a goal for 2020.
QIA Request	QIA requests that the Proponent expand efforts to ensure compliance with vessel speed limits and focus as necessary on particular vessels that have lower compliance.

Comment #	QIA 2019 AMR M&AE #27
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.11 (PCC 99 through 128) (PCC 105; PCC 106; PCC 107; PCC 108); Appendix G.11 Draft 2019 Ship-based Observer Monitoring Program Report</p>

	Page: Main document - 345-355, 356-360, 361-365, 366-370
QIA Comment	<p>The Shipboard Observer (SBO) Program has been running for two years on board the IMV Botnica, during the shoulder shipping seasons. Appendix G.11 (Draft 2019 Ship-based Observer Monitoring Program Report) was reviewed by QIA through the MEWG, and it was noted that behavioural observation data (I.e., the behavioural categories assigned to detected marine mammals) were not reported and analyzed. The Training Manual used to train SBOs (Appendix A of Appendix G.11) lists a variety of behaviours and indicates that primary and secondary behaviours should be recorded for each observation.</p> <p>Project Certificate Condition 107 speaks to the need for “detecting strong marine mammal, seabird or seaduck responses” and the need to “detect potential changes in distribution patterns and behavior”. QIA considers this to require the collection and reporting of behavioural data as part of the SBO Program.</p> <p>Were behavioural data, as outlined in the training manual, collected? If so, when will these data be analyzed and reported?</p>
QIA Request	<p>QIA requests that the Proponent clarify whether or not marine mammal behavioural data were collected as part of the 2019 SBO Program. If no, QIA requests that the Proponent clarify why these data were not collected. If yes, QIA requests the Proponent commit to analyzing these data and reporting results to the MEWG and NIRB.</p> <p>QIA further requests that the Proponent commit to collecting, analyzing, and reporting these data in future SBO Program reports (and we acknowledge that the 2020 program will not run as per previous years given issues caused by the coronavirus pandemic and associated public health requirements).</p>

Comment #	QIA 2019 AMR M&AE #28
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.11 (PCC 99 through 128) (PCC 109)</p> <p>Page: 371-383</p>
QIA Comment	<p>The novel coronavirus pandemic and associated public health restrictions have had a significant influence on the planned activities of the Proponent and all other review parties, including Federal agencies that conduct research in Nunavut. Adapting to the current situation necessitates flexibility, and the Proponent has made considerable efforts to adjust monitoring plans as required. This is commendable, but also means that changing plans to adapt to a fluid situation has led to on-going adjustments that are not reflected in the Annual report.</p> <p>For example, under Project Certificate Condition No. 109 (pp. 371-383), the Proponent notes that they are “currently planning to conduct marine mammal aerial surveys along the Northern Shipping Route during summer of 2020 as DFO is currently planning a marine mammal aerial survey in this region that would include</p>

	<p>the Northern Shipping Route." This has changed, based on recent discussions with the MEWG. DFO has canceled their planned survey due to the pandemic, and the Proponent now plans to conduct an aerial survey as a result (which is laudable). Similarly, the Annual Report states that "acoustic monitoring is not deemed necessary in 2020 for the open-water season". Monitoring plans have changed here as well (as per 2020 MEWG discussions), as an adaptation to current public health-imposed limitations.</p> <p>These changes will help ensure that important monitoring data are being collected in 2020, and a summary of how monitoring plans have changed from the time of Annual Report submission to the initiation of monitoring activities would be useful.</p>
QIA Request	QIA requests that the Proponent provide an update on how monitoring plans have changed from the time of Annual Report submission to the initiation of 2020 monitoring activities.

Comment #	QIA 2019 AMR M&AE #29
References	<p>Document Name: Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: 4.6.11 (PCC 99 through 128) (PCC 110; PCC 111; PCC 112)</p> <p>Page: 384-390, 391-396, 397-401</p>
QIA Comment	Efforts to develop Early Warning Indicators and thresholds for noise impacts to marine mammals have progressed slowly but are ongoing. As such, the Proponent is in Partial Compliance for related Project Certificate Conditions. Recent (July 2020 conference call) discussions at the MEWG have advanced these discussions. A summary of recent progress, with proposed timelines for completion, should be provided as part of the Proponent's response to the Annual Report review.
QIA Request	QIA requests that the Proponent provide a summary of recent progress in the development of Early Warning Indicators and noise thresholds, with proposed timelines for completion, as part of their response to the Annual Report review.

Comment #	QIA 2019 AMR M&AE #30
References	<p>Document Name: Appendix G. 19 and Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Appendix G.19 2019 Daily Ship Tracks with Ice Imagery (also see main report 4.6.11 (PCC 99 through 128), PCC 103 and PCC 110)</p> <p>Page: Appendix G.19 (all); Main report pages 338-342, 384-390</p>
QIA Comment	<p>Daily maps showing Project vessel ship tracks (including the MSV Botnica and vessels under escort) on all days when ice concentrations were 1/10 or greater are shown in Appendix G.19.</p> <p>These maps use Canadian Ice Service (CIS) data, which include pack ice (with associated concentration, etc.) and landfast ice (all shown in black on CIS map products). The Proponent's maps just show ice by concentration class (< 1/10, 1-</p>

	<p>3/10, 4-6/10, 7-8/10, 9-10/10, i.e., the same as used by CIS), without identifying which ice is landfast ice versus which is pack ice.</p> <p>For example, Figure 1 (page 2 of 43) in Appendix G.19 shows 9-10/10 concentration sea ice throughout Navy Board Inlet on 13 July 2019. As presented, anyone with familiarity with the CIS product (Daily Ice Charts, regional ice Charts) would logically conclude that all that ice is consolidated pack ice, when the CIS Daily Ice Chart for 13 July (Daily Ice Chart color WMO CT - Approaches to Resolute - WIS35CT - 2019/07/13) shows northern Navy Board Inlet to be covered in landfast ice. Granted, this landfast ice has no bearing on the Northern Shipping Route through Pond Inlet, Eclipse Sound, and Milne Inlet, but it is important that parties have accurate and realistic sea ice data throughout the Regional Study Area. These maps should include landfast ice as a separate category, given its importance to local Inuit and ecosystem functioning and its use as an environmental trigger for shoulder season shipping activity.</p>
QIA Request	QIA requests that the Proponent commit to showing ice type (landfast ice and pack ice) more clearly in future reporting.

Socio-economic Environment

Comment #	QIA 2019 AMR SE #1
References	<p>Document Name: Appendix G. 19 and Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Section 4.7.1, PC Condition 134</p> <p>Page: 459</p>
QIA Comment	<p>The Proponent shall include with its annual reporting to the NIRB a summary of employee origin information as follows:</p> <ul style="list-style-type: none"> - The number of Inuit and non-Inuit employees hired from each of the North Baffin communities, specifying the number from each. - The number of Inuit and non-Inuit employees hired from each of the Kitikmeot and Kivalliq regions, specifying the number from each. - The number of Inuit and non-Inuit employees hired from a southern location or other province/territory outside of Nunavut, specifying the locations and the number from each. - The number of non-Canadian foreign employees hired, specifying the locations and number from each foreign point of hire. <p>QIA disagrees with Baffinland's assessment of in-compliance as the entirety of required information is not presented. Baffinland did not provide in the 2019 Social Monitoring Report:</p> <ul style="list-style-type: none"> - The number of Inuit and non-Inuit hired from the Kitikmeot region. - The locations of employees from southern location or other province/territory. - The number of non-Canadian foreign employees hired.
QIA Request	Compliance with PC Condition 134 be considered non-compliant until the Proponent provides all required statistics.

Comment #	QIA 2019 AMR SE #2
References	<p>Document Name: Appendix G. 19 and Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf]</p> <p>Section: Section 4.7.2, PC Condition 141</p> <p>Page: 480</p>
QIA Comment	<p>The Proponent is encouraged to work with the Qikiqtani Inuit Association prior to construction in order to prioritize the provision of training of Inuit to serve as employees in monitoring or other such capacities.</p> <p>QIA disagrees with Baffinland's assessment of in compliance for PC Condition 141. Baffinland acknowledges that the possible commencement of Phase II would represent another Construction Phase of the Project. While Phase II has not been approved, Baffinland reporting had indicated new contracts relating to Phase II over the course of 2019 and had moved Phase 2 related equipment to Site. Meanwhile, a construction training program has yet to be initiated prior. The current Q-STEP</p>

	efforts in itself are not appropriately comprehensive for a Project expansion related to Phase 2, as Baffinland still has not met skilled Inuit Employment Goals for the current Project.
QIA Request	PC Condition 141 be considered non-compliant until a Construction Phase Training Program is implemented that factors the labour supply and demand to determine appropriate training programs to maximize Inuit employment, particularly if approval for construction of the Northern Rail is granted.

Comment #	QIA 2019 AMR SE #3
References	Document Name: Appendix G. 19 and Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Section 4.7.3, PC Condition 142 Page: 484
QIA Comment	The Proponent is encouraged to address the potential direct and indirect effects that may result from Project employees on-site use of various Inuktitut dialects as well as other spoken languages, specifically paying attention to the potential alienation of some employees that may occur as a result of language or other cultural barriers. QIA disagrees with Baffinland's assessment of in compliance for PC Condition 142. Baffinland has described what services/support are being offered to Inuit and the works being done to promote Inuktitut but it has not described what efforts are being made to address language or cultural barriers that may be caused by non-Inuit employees. Further, to QIA's knowledge, the amended Inuktitut in the Workplace Policy has not yet been implemented on Site.
QIA Request	PC Condition 142 be considered non-compliant. Baffinland is requested to confirm that the updated Inuktitut in the Workplace Policy, has been implemented on Site.

Comment #	QIA 2019 AMR SE #4
References	Document Name: Appendix G. 19 and Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Section 4.7.3, PC Condition 147 Page: 491
QIA Comment	The Proponent is encouraged to work with the Government of Nunavut and the Nunavut Housing Corporation to investigate options and incentives which might enable and provide incentive for employees living in social housing to maintain employment as well as to negotiate for and obtain manageable rental rates. QIA disagrees with Baffinland's assessment of in compliance for PC Condition 147. Baffinland has not provided any indication of what issues were contained in the Memorandum of Understanding with the GN.

QIA Request	PC Condition 147 is considered non-compliant. It is requested that Baffinland expand on the Memorandum of Understanding with the GN and any other actions that led or may come out of this to help employees housing situations.
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Comment #	QIA 2019 AMR SE #5
References	Document Name: Appendix G. 19 and Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Section 4.7.4 Economic Development, Self Reliance and Contracting and Small Business Opportunities - PC Condition 148 Page: 495
QIA Comment	There continues to be no adequate measuring of Project harvesting interactions and food security. BIMC needs to be considerably more proactive in addressing its effects in this realm. While acknowledging that there is clearly an effect being felt in this regard by Inuit, BIMC continues to fail to monitor these effects or identify ways in which they can be appropriately monitored.
QIA Request	QIA requests the Proponent not wait to be provided with improved monitoring methods by SEMWG and QSEMC, but to rather actively engage with these groups and provide its plans for addressing its monitoring obligations. Proponent to provide a list of next steps for fulfilling monitoring objectives, including reference to the role it envisions the fledgling Inuit Stewardship Plan will play in this work.

Comment #	QIA 2019 AMR SE #6
References	Document Name: Appendix G. 19 and Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Section 4.7.7 PC Condition 165 Page: 545
QIA Comment	PC Condition 165 indicates the Proponent is strongly encouraged to provide buildings along the rail line and Milne Inlet Tote Road for emergency shelter purposes and shall make these available for all employees and any land users travelling through the Project area. In the event that these buildings cannot, for safety or other reasons be open to the public, the Proponent is encouraged to set up another form of emergency shelters (e.g. seacans outfitted for survival purposes) every 1 kilometre along the rail line and Milne Inlet Tote Road. These shelters must be placed along Tote Road and rail routing prior to operation of either piece of infrastructure, and must be maintained for the duration of project activities, including the closure phase. QIA disagrees with Baffinland's assessment of in compliance for PC Condition 165. Emergency shelters are not stationed every 1 KM along the Milne Inlet Tote Road, nor is there evidence that they have been placed in adequate numbers in Inuit-preferred locations.
QIA Request	PC Condition 165 be considered non-compliant. Baffinland is requested to work with QIA and Inuit to install emergency shelters as per what we understand the spirit and

	intent of the Project Certificate to be – to increase the protection of Inuit from adverse conditions when traveling in the Project-affected area. This will require engaging with QIA and Inuit on Inuit preferred locations and intervals between them where appropriate emergency shelters will be located. It may not be limited to along the Tote Road, given that the Tote Road and Inuit travel routes are not always aligned.
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Comment #	QIA 2019 AMR SE #7
References	Document Name: Appendix G. 19 and Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 200521-08MN053-Mary River Project 2019 Annual Report-IA1E.pdf ; Baffinland Document Portal: Mary River Project 2019 NIRB Annual Report (Body).pdf] Section: Section 4.7.7 PC Condition 166 Page: 432
QIA Comment	The Proponent should ensure through its consultation efforts and public awareness campaigns that the public have access to shipping operations personnel for transits into and out of both Steensby Inlet port and Milne Inlet port either via telephone or internet contact, in order that any questions regarding ice conditions or ship movements that could assist ice users in preparing for travel may be answered by Project staff in a timely fashion. The objective of this condition is to ensure members of the public can access shipping information on an as-required basis to inform potential users of the scheduled Project activities, which could require deviations to land users' schedules or routing and to answer any questions concerning ice conditions. Currently, Baffinland has stated there is a new communications protocol with Pond Inlet but does not specify whether Inuit are able to contact Shipping Operations staff directly with any questions. Moreover, there is no indication of an effort to make the public aware of this protocol.
QIA Request	It is requested that Baffinland clarify whether this communications protocol includes direct communication between Shipping Operations and Inuit and whether and to what extent there has been a campaign to spread awareness of this protocol.

Comment #	QIA 2019 AMR SE #8
References	Document Name: 200521-08MN053-App G22-MHTO Ltrs of Support for 2019 Monitoring Programs-IA1M Section: Letter of 3 May 2019 from Golder to MHTO Page: 4
QIA Comment	Conditions of approval from the MHTO indicate the possibility that BIMC/Golder's aerial survey method might have an effect on narwhal harvesting success - was this impact observed? What changes and adaptive measures were introduced to mitigate against this if impacts were observed?
QIA Request	QIA requests that adaptive management responses related to the effects of monitoring be more clearly visible in the Annual Report and be discussed both in the context of biological studies related to Marine Mammals as well as research into impacts to Inuit harvesting.

Comment #	QIA 2019 AMR SE #9
References	Document Name: 200521-08MN053-App B-Community Engagement Record-IA1E Section: Appendix b - 2019 Community Engagement Records Page: 2
QIA Comment	What is meant by the discussion topic "community and social stability"? What is this term describing, and why does it not seem to appear elsewhere, for example in other documentation of socio-economic impacts and monitoring?
QIA Request	The Proponent is requested to define what is meant by "community and social stability" and identify examples in monitoring or other project literature where "community and social stability" is defined and where community concerns about this subject are meaningfully addressed.

Comment #	QIA 2019 AMR SE #10
References	Document Name: 200521-08MN053-App B-Community Engagement Record-IA1E Section: Appendix b - 2019 Community Engagement Records Page: 3
QIA Comment	Have notes or other records of discussions around IQ with HTO representatives been released or referenced in a meaningful and trackable way within project literature? The January 14, 2019 meeting clearly covered a significant number of topics. QIA is not aware of a meaningful record of this meeting, including any tracking of concerns or issues raised.
QIA Request	The Proponent is requested to provide notes and other records of meetings where communities or community reps are engaged, and shared on the public record in such a way as to provide clear evidence that when Inuit raise an issue or voice an opinion it is noted and evidence can subsequently be provided that it has been appropriately addressed.

Comment #	QIA 2019 AMR SE #11
References	Document Name: 200521-08MN053-App G21-2019 Socio Economic Monitoring Report-IA1E Section: Socio-Economic Monitoring Indicators Page: 7
QIA Comment	There is limited correlation between the topics being monitored under the Resource and Land Use category and the indicators used. Visitor days and wildlife compensation claims are not appropriate, accurate or reliable indicators of the variety of avoidance behaviours which are indicated as topics being monitored. Sensory disturbance, harvester safety and routing choices are all qualitative questions which require different approaches to monitor.
QIA Request	BIMC is requested to work with QIA to identify more appropriate techniques to monitor changes in Resource and Land Use than those currently in use. These should involve Inuit-designed indicators of changing harvesting patterns and behaviours and should be designed to identify changes as well as reasons.

Comment #	QIA 2019 AMR SE #12
References	Document Name: 200521-08MN053-App G21-2019 Socio Economic Monitoring Report-IA1E Section: Socio-Economic Monitoring Indicators

	Page: 8
QIA Comment	Claims that project harvesting interactions are being tracked mean very little as Baffinland has completed no baseline study of preconstruction harvesting amounts, patterns or diets and existing food security research relied on within the Socio-economic monitoring work is high-level, not community specific and largely focused on store-bought rather than harvested country foods.
QIA Request	Baffinland must complete a baseline food study which meaningfully addresses diets, country food harvesting and the role that country food plays in food security. This study should subsequently inform analysis of effects pathways whereby project effects on harvesting are impacting community food security and access to country food. It is recognized by QIA that the Proponent is committed to a Country Food Baseline study with the community of Pond Inlet; however, details for this work have yet to be defined.

Comment #	QIA 2019 AMR SE #13
References	Document Name: 200521-08MN053-App G21-2019 Socio Economic Monitoring Report-IA1E Section: Section 8. Resource and Land Use: FEIS Predictions Page: 65
QIA Comment	The statement "...the amount of country food harvested per level of effort is not anticipated to change meaningfully." is not being meaningfully addressed by existing monitoring techniques or indicators. No baseline study on harvesting effort has been conducted and there is no current effort to track change. There has been no documented attempt to test the veracity of this FEIS prediction, and it is a significant shortfall in BIMC monitoring efforts.
QIA Request	This statement should be retracted unless the Proponent can support it with additional evidence. In addition, the Proponent needs to work with QIA to identify more appropriate techniques to monitor changes in Resource and Land Use than those currently in use. These should involve Inuit-designed indicators of changing harvesting patterns, behaviours and harvesting effort and should be designed to identify changes in harvester behaviour as well as reasons. This should be designed to work in concert with ongoing tracking of food harvesting to provide meaningful monitoring of changing effort levels for the procurement of country food.

Comment #	QIA 2019 AMR SE #14
References	Document Name: 200521-08MN053-App G21-2019 Socio Economic Monitoring Report-IA1E Section: Section 8. Resource and Land Use: Key Findings Page: 65,72
QIA Comment	Visitor days and changes there-in are a virtually meaningless number unless presented alongside other related factors such as weather data, snow cover, group size, destination of groups etc. Currently no conclusions can be drawn from changes in the number of visitor days as to any project effects on harvesting patterns/behaviours in the Project area.
QIA Request	Additional data should be recorded alongside visitor days and should be considered in the analysis of visitor days to provide additional explanation of any changes.

Comment #	QIA 2019 AMR SE #15
References	Document Name: 200521-08MN053-App G21-2019 Socio Economic Monitoring Report-IA1E Section: Section 8.2 Wildlife compensation fund claims Page: 66
QIA Comment	The statement "(WCF) claims provides insight into land use and harvesting issues which may be arising because of the Project." is inaccurate on two fronts. The WCF claims provide a record of direct harvesting loss due to the Project - not "issues which may be arising". The insights that currently be accurately said to be provided by changes in claim amounts are that Inuit harvesting continues to be impacted by the Project - the WCF claims system is not designed to track indirect effects to harvesting or the land observed or experienced by hunters.
QIA Request	BIMC is requested to work with the MHTO and QIA to identify more meaningful ways to track data related to harvester-observed project effects. This should include an MHTO-led review of the WCF system and the information tracked by claims, as well as BIMC working with QIA to identify more appropriate techniques to monitor changes in Resource and Land Use than those currently in use. These should involve Inuit-designed indicators of changing harvesting patterns and behaviours and should be designed to identify changes as well as reasons.

References Cited

- Baffinland (Baffinland Iron Mines Corporation). 2018d. FEIS Phase 2 Addendum. TSD 21 (181003-08MN053-TSD 21-Risk Assmt Aquatic Invasive Species-IA2E.pdf)
- Conway, T.M., Hamilton, D.S., Shelley, R.U., Aguilar-Islas, A.M., Landing, W.M., Mahowald, N.M., and John, S.G. 2019. Tracing and constraining anthropogenic aerosol iron fluxes to the North Atlantic Ocean using iron isotopes. *Nat. Commun.* 10: 2628. <https://doi.org/10.1038/s41467-019-10457-w>
- Cwiertny, D.M., Young, M.A., and Grassian, V.H. 2008. Chemistry and photochemistry of mineral dust aerosol. *Annu. Rev. Phys. Chem.* 2008. 59:27–51, <https://www.annualreviews.org/doi/full/10.1146/annurev.physchem.59.032607.093630>
- DFO. 2014. Science review of the final environmental impact statement addendum for the early revenue phase of Baffinland’s Mary River Project. *DFO Can. Sci. Advis. Sec. Sci. Resp.* 2013/024: 51 pp.
- DFO. 2019a. 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: 58 pp.
- DFO. 2019b. Mitigation Buffer Zones for Atlantic Walrus (*Odobenus rosmarus rosmarus*) in the Nunavut Settlement Area. *DFO Can. Sci. Advis. Sec. Sci. Resp.* 2018/055: 27 pp.
- DFO. 2020. 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 Can. Sci. Advis. Sec. Sci. Resp.* 2020/018: 31 pp.
- EDI (Environmental Dynamics Inc.). 2020. 2019 Mary River Project terrestrial environment annual monitoring report. Prepared for Baffinland Iron Mines Corporation. April 2020 draft 471 pp.
- Fofonoff PW, Ruiz GM, Steves B, Simkanin C, & Carlton JT (2018) National Exotic Marine and Estuarine Species Information System. <http://invasions.si.edu/nemesis/>. Access Date: 7-Jun -2020
- Golder (Golder Associates Ltd.), 2020a. Draft 2019 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Report submitted to Baffinland Iron Mines Corporation. Report No.16663724-197-R-RevD-24000. 8 May 2020.
- Hickey, C.W., and Martin, M.L. 2009. A review of nitrate toxicity to freshwater aquatic species. Prepared for Environment Canterbury by the National Institute of Water & Atmospheric Research Ltd, Canterbury, NZ. Report No. R09/57: iv + 46 pp.
- IMO (International Maritime Organization). 2017. International convention for the control and management of ships’ ballast water and sediments (BWM). Entered into force 8 September 2017. Available at: [http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-\(BWM\).aspx](http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx), Accessed on 4 June 2019.

Khatiwala, S., Schmittner, A., Muglia, J. 2019. Air-sea disequilibrium enhances ocean carbon storage during glacial periods. *Sci. Adv.* 5, eaaw4981 (2019).

<https://advances.sciencemag.org/content/5/6/eaaw4981/tab-pdf>

Lambert, F., Tagliabue, A., Shaffer, G., Lamy, F., Winckler, G., Farias, L. Gallardo, L., and De Pol-Holz, R. 2015. Dust fluxes and iron fertilization in Holocene and Last Glacial Maximum climates, *Geophys. Res. Lett.*, 42: 6014–6023, doi:10.1002/2015GL064250.

Rescan. 2004. Acute and chronic toxicity of nitrate to early life stages of lake whitefish and lake trout. Draft report prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services Ltd. June 2004. 317 pp.

SEM (Sikumiut Environmental Management Ltd.). 2013. Risk assessment for the potential introduction of aquatic nonindigenous species through ballast water discharge at Milne Port. Prepared for Baffinland Iron Mines Corporation. Prepared by Sikumiut Environmental Management Ltd. June 4, 2013. [BIMC ERP FEIS V8 130620-08MN053-App 8B-4-Risk Assessments-IT8E.pdf]

Shoenfelt, E.M., Winckler, J.S.G., Kaplan, M.R., Borunda, A.L., Farrell, K.R., Moreno, P.I., D.M., Recasens, C., Sambrotto, R.N., Bostick, B.C. 2017. High particulate iron(II) content in glacially sourced dusts enhances productivity of a model diatom. *Sci. Adv.* 3, e1700314

Shoenfelt, E.M., Winckler, G., Lamy, F., Anderson, R.F., and Bostick, B.C. 2018. Highly bioavailable dust-borne iron delivered to the Southern Ocean during glacial periods. *PNAS* 115(44): 11180-11185. www.pnas.org/cgi/doi/10.1073/pnas.1809755115

Underwood, E. 2020. The Complicated role of iron in Ocean health and climate change. *Knowable Magazine*. <https://www.smithsonianmag.com/science-nature/complicated-role-iron-ocean-health-and-climate-change-180973893/>