



## Nunavut Research Institute

### License Holder Reporting requirements

For research undertaken in the 2024 calendar year (commencing January 01, 2024 and ending December 31, 2024)

#### Project Title:

Bruce Head Shore-based Monitoring Program

**Project Leader(s):** Full name, affiliation, and contact information (address, phone number, email) of each project leader (principle investigator and co-PIs)

WSP Canada Inc, 2640 Douglas St, Victoria, British Columbia hired by Baffinland Iron Mines.

**Project Team:** Full name, affiliation, and address (name of city/community and province/territory/state) of each member of the project team

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 Billy Tagak, Jr, Qajaq, Iqaluit, NU  
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**Abstract:** A concise summary of what was done, found, and concluded to date, and how the results/information will be used. This summary must be translated into the appropriate dialect of Inuktitut. Suggested length: 250-300 words. **\*This section will be published in the NRI's annual compendium of licensed research**

In August 2024, WSP Canada Inc. (WSP), on behalf of Baffinland Iron Mines Corporation (Baffinland), undertook the Bruce Head Shore-based Monitoring Program ('the Program'), a field-based study conducted annually since 2014 (with the exception of 2018) for the purpose of assessing narwhal responses to Baffinland shipping activities along an active shipping corridor off North Baffin Island, Nunavut. As part of the Program, systematic data on narwhal relative abundance and distribution (RAD), group composition and behaviour were collected from a cliff-based observation platform overlooking the Northern Shipping Route where Project vessels transit through an established narwhal summering ground in Milne Inlet. Ship movements in the study area were recorded using a combination of shore- and satellite-based Automatic Identification System (AIS) vessel tracking systems to provide high-resolution positional data on all medium- (50–100 m in length) and large-sized (>100 m in length) vessels transiting through Milne Inlet. Additional data were collected on environmental conditions and anthropogenic activities (e.g., recreational traffic and hunting activities) to distinguish between the potential effects of Project-related shipping activities and confounding factors that may also influence narwhal behaviour. The Program specifically addresses Project Certificate (PC) conditions 99c, 101g, 109, 110, 111, and 112 related to evaluating potential disturbance of marine mammals from shipping activities that may result in changes in animal abundance, distribution, and behaviour within the Project's Regional Study Area (RSA). The 2024 Bruce Head Shore-based Program represents the tenth year of Project effects monitoring (EEM) conducted at Bruce Head in support of the Mary River Project.

**Key messages:** Concise, plain language summary of key take-away messages of work to date, findings and conclusions. Preferably 3-5 points, in bullet form.

Findings and conclusions are still being analyzed. A plain language executive summary of will be available in the 2024 NIRB annual report that will be published in spring 2025.

**Objectives:** Project objectives, preferably in bullet form.

The objective of the Program is to investigate and characterize narwhal behavioural responses to shipping along the Northern Shipping Route in Milne Inlet, with data collected on RAD, group composition, and behaviour. Additionally, data are collected on environmental conditions and anthropogenic activities (e.g., shipping and hunting activities), as well as predation events by killer whales (*Orcinus orca*), to distinguish between the potential effects of Project-related shipping activities and other factors that may also influence narwhal behaviour.

**Annual activities:** A description of activities and methods carried out during the current reporting period. This section should answer the questions: What? Where? When? Who? How? Include dates team members conducted research at remote field sites or collected data (including interviews) in communities; append a map with locations and/or coordinates of remote field sites, if applicable.

Bruce Head Shore-based monitoring Program surveyed narwhal from August 7th to September 3rd, 2024 using visual and unmanned aerial vehicle to collect data on narwhal relative abundance, group composition and behaviour. This study was conducted by a team of 21 (listed above) over a 4 week period in two shifts. They observed narwhal behaviour during Baffinland's 2024 shipping season (see figures 1, 2 and 3)

**Results and Achievements:** Findings and results to date of the above activities, highlighting any key research achievements (see guide below for formatting tips regarding tables and figures).

The results of the 2024 monitoring programs is currently being analyzed. Preliminary results will be available in the spring of 2025 and will be published in Baffinland's 2024 Annual Report to the NIRB.

**Challenges/Obstacles:** In this section, please comment on any challenges/obstacles (if any) that you experienced during this project year. If there were any actions to mitigate or resolve these challenges, please list them here. Were any concerns raised regarding the conduct of research team members or the impacts of the project?

2024 witnessed an increased level of hunting activity during the 4-week program which compromised approximately 10 days of data.

**Expected Project Completion Date:** Provide month and year of expected completion date of the project.

The field component was completed September 3rd, 2024

**Project website (if applicable):** If your project has a presence on the internet, including a website and/or social media page, please provide the link and/or account handle.

URL: <https://www.baffinland.com/media-centre/document-portal/>

**Citations:** Please append a complete reference list if citations are used anywhere in the document.

#### **POLICY RELEVANCE**

Does this research support policy development or decision-making in Nunavut? If yes, please describe.

In accordance with existing Terms and conditions of the Nunavut Impact Review Board (NIRB) project Certificate (PC) 005 Baffinland is responsible for the establishment and implementation of a Marine Monitoring Plan (MMP), which includes detailed information on Baffinland's project effects monitoring programs that are conducted over a sufficient time to meet the following objectives:

- a. Measure the relevant effects of the Project on the marine environment
- b. Confirm that the project is being carried out within the terms and conditions relating to the protection of the marine environment.
- c. Assess the accuracy of the predictions contained in the Final Environmental Impact Statement (FEIS) for the project.

## RESEARCH OUTCOMES: BENEFITS

**Community engagement:** Briefly list and describe any community consultation, engagement, collaboration and outreach activities that you have undertaken for the project; describe the role(s) that community members and/or specific organizations have played in research co-design and activities.

Before the commencement of the marine monitoring programs, WSP on behalf of Baffinland obtains a letter of support from Mittimatalik Hunters and Trappers Organization (MHTO).

**Youth engagement:** Briefly list and describe any outreach, school or classroom activities that you have undertaken for the project; describe the role(s) that youth have played in your research activities.

N/A

**Training and Employment:**

How many Nunavummiut received training from team members? Please describe training and/or compensation provided.

Nunavummiut participants received training from team members on health and safety and the expected Field Level Risk Assessment (FLRA) before the start of each activity.

How many team members received training from Nunavummiut? Please describe training received and/or what knowledge sharing and/or skills exchange took place.

Nunavummiut participants shared information and knowledge with team members in an informal capacity over the duration of the field program.

How many Nunavummiut received employment? Please describe employment type and length, role(s) and responsibilities, and compensation provided.

Seven Nunavummiut participants were hired through QAJAQ as Marine Mammal Observers (MMO) for the one month duration of the program. In previous years we had Nunavummiut as polar bear monitors.

How many Nunavummiut received honoraria as research participants? Please describe method of participation (interview, observation, sample, survey, etc.), including compensation provided.

Same as above

Please explain how the project directly benefited Nunavut organizations and/or businesses (e.g., through contract services, local purchases, equipment donations, etc.)

Any Inuit firm registered with Nunavut Tunngavik incorporated (NTI) with 100% Inuit ownership operating in Qikiqtani region is designated as a preferred Inuit Firm (PIF) with Baffinland and gains advance notice on contracting opportunities at the Mary River Project.

**OPTIONAL: Nunavut Team Members, hires, and/or trainees (excluding research participants e.g., interviewees)**

*The NRI is creating an inventory of Nunavummiut who are skilled and/or interested in research. The information provided below will not be shared publicly but will support long-term capacity sharing by connecting local and visiting researchers with research talent in each community.*

Name	Expertise/skills	Training/interest areas	Contact Info	Community

**Academic Mobility**

If you are affiliated with an academic institution, please answer the following question: For which Level of Project(s) will the data be used? (Check all that may apply)

- ☒ Research
- ☐ Post-Doctoral Research
- ☐ PhD Thesis
- ☐ Masters (Major Research Paper)
- ☐ Masters (Thesis)
- ☐ Graduate Course Project
- ☐ Staff/Administration Research
- ☐ Undergraduate Honours Thesis

Other



## BUDGET

Please complete the table below to detail your projected and actual research expenditures during the reporting period.

Category	Planned/Approved Expenditure	Actual Expenditure
Travel and Accommodation		
Equipment, Materials and Supplies		
Salaries/Wages for Nunavut residents		
Salaries/Wages for non-Nunavut resident researchers		
Professional Fees and services in Nunavut		
Professional Fees and Services outside of Nunavut		
<b>TOTAL EXPENDITURES</b>		

List the total \$ amount of funding from each funding source for your full research program, including in-kind support

N/A

## RESEARCH OUTPUTS / REPORTING TOOLS

What research outputs were generated? Please list below and append copies of each. Specify which outputs (if any) may be made public on the NRI research licensing database.

The 2024 Baffinland Annual Report to the NIRB. This will be available in spring 2025.

Have peer-reviewed manuscripts been published as a result of your project? If Yes,  
complete the following table:

Full citation	Publicly accessible/ free to access (Y/N)	Link (if available) and DOI (if available)

If No, do you intend to submit a manuscript (or manuscripts) for peer reviewed publication?

WSP has an internal review process, and all monitoring programs are reviewed by the technical Marine Environment Working Group (MEWG) members.

Were non-peer reviewed materials produced to either communicate or synthesize results to the public? Examples of these materials include (but are not limited to): websites, reports, brochures, podcasts, webinars, presentations, non-peer reviewed publications, etc.

If Yes, complete the following table:

Title	Description of Materials	Link (if available)	DOI (if available)
Bruce Head Shore-based Monitoring Report	Details if the Bruce head shore based program, including observ	Yes	<a href="https://www.baffinland.com/media-centre/document-portal/">https://www.baffinland.com/media-centre/document-portal/</a>
NIRB Annual Report	Detail of all program conducted by Baffinland during the year in r	Yes	<a href="https://www.baffinland.com/media-centre/document-portal/">https://www.baffinland.com/media-centre/document-portal/</a>
		No	No
		No	No

Did your project develop a communications plan? Please describe communications/reporting tools used, and list the target audience for each and/or who requested which.

Through the NIRB review process, we respond to all comments received. We send hard copies and digital copies of NIRB annual report and monitoring reports to the five Hunters and Trapper Associations in th affected communities.

How were Nunavummiut credited and/or acknowledged in all project outputs, such as co-authorship, participant biographies, article acknowledgements, etc.

Nunavummiut participants are always acknowledged in the reports. This will be listed when the 2024 Annual report to the NIRB is published in spring 2025.

## DATA AND INTELLECTUAL PROPERTY

Did you enter into a research agreement, data-sharing agreement and/or intellectual property rights agreement with a community and/or designated Inuit organization (DIO)? If yes, please explain.

Do intellectual property rights apply to your research? If yes, please explain.

WSP owns all copyright including all text, data, tables, figures, drawings published in the Bruce Head Shore-based monitoring report.

Who owns the data? Has the raw data been shared with the appropriate community and/or DIO? If yes, how? How is data security and storage handled by community-based co-owners?

The data from Baffinland research is owned by Baffinland. Results of the research is shared to community members through the Marine Environment Working Groups. In addition, hard copies and soft copies of the Annual report are shared with the communities.

Where is the data stored and will the data be destroyed within a set timeframe?

Baffinland and its consultants store the data, and there is no schedule to destroy the data.

Is the data trackable and/or available in a public data repository? If yes, please provide the appropriate information and/or link to ensure the findability and accessibility of the data.

Results are available at <https://www.baffinland.com/media-centre/document-portal/> but raw data is not available publicly.

Please append a copy of your data management plan.

#### **CLIMATE CHANGE**

Is your research about climate change (causes, impacts, mitigation, adaptation, etc.)? If yes, explain.

No, this program is not focused on Climate Change.

## PHOTOGRAPHS

*If possible, please provide high-resolution photos of licensed research activities that NRI may use in communication materials, organizational reporting, and other promotional purposes. The photographer and all recognizable people in each photo must sign the attached Photo and Video Release form. Please also complete the table below for each photo provided and submit to NRI along with all required NRI photo release forms. The photographer/owner will be credited in all uses of the photograph(s).*

File Name	Location	Description	Subjects	Photographer/Owner	Date
Attachment for NRI_BH	Bruce Head, Baffin Island, NU	Bruce Head Campsite with observation s	No subjects	WSP	August, 2024
Attachment for NRI_BH	Bruce Head, Baffin Island, NU	A group of Narwhal Observed from Bruce	No subjects	WSP	August 2024
Attachment for NRI_BH	Bruce Head, Baffin Island, NU	Brucehead Observation seacan platform	No subjects	WSP	August, 2024

Would you like your project to be considered for a research profile and promotion by the NRI? **Yes**

## **FORMATTING TIPS**

### ***Main text:***

Please supply report in a standard manuscript format (**Microsoft Word format is required**).

### ***Tables:***

Any number of tables can appear in one file (as long as they are clearly marked). Tables prepared using simple table formats as provided in word processing programs such as WordPerfect are preferred. Each table should be numbered according to its appearance in the text (e.g., Table 1, Table 2) and each should have a brief descriptive heading.

### ***Figures:***

Each figure or graphic element should be submitted as a separate file. Black & white and colour graphics are both acceptable. We can accommodate most standard graphic file formats, however, please indicate in which format the graphic was prepared.

### ***References:***

Please use the APA or MLA Citation Style while referencing throughout the report.

### ***Size:***

The size of the electronic document must not exceed 4MB (if larger than 4MB, please send attachments separately and number the emails).

**ATTACHMENT FOR NRI: BRUCE HEAD MONITORING PROGRAM**



Figure 1: Bruce Head campsite with the observation Seacan platform in the foreground.



Figure 2: A group of Narwhal observed from Bruce Head.



Figure 3: Bruce Head Observation Seacan platform with an ore carrier transiting in the background