

APPENDIX C
2024 Working Group Meeting Records and
Correspondences

APPENDIX C.1
MEWG Meeting Records

Meeting Minutes

Meeting Date: April 17, 2024
Time: 1:00 PM EDT
Meeting Name: MEWG/TEWG – Terms of Reference
Meeting Type: Virtual
Meeting Location: Zoom
Meeting Chair: Cortney Oliver, Baffinland
Interpreter: Lizzie Phillips

Organization / Stakeholder Name	Participants (First and Last Name)
Baffinland	Cortney Oliver Christine Kowbel (Lawsons) Lou Kamermans Mikaela McDonald Megan Lord-Hoyle Lizzie Phillips
QIA	Lorraine Land Conor Goddard Richard Nesbitt Bruce Stewart Chris Wagner
Government of Canada	Marie-Claude Martel (PC) Adam Downing (TC) Melissa Pinto (ECCC) Jennifer Sabourin (ECCC) Bridget Campbell (ECCC) Paul Harper (DFO) Chris Wagner (DFO) Alastair Beattie (DFO) Marianne Marcoux (DFO) Nicolas Wasilik (DFO) Colin Kovachik (DFO) Joseph McHattie(DOJ) Clarisse Fiset (NRCan)
Government of Nunavut	Jessica Waldinger
HTOs	MHTO Ikajutit HTO HBHTO – Tom Issigaitok
Observers	Amanda Joynt (ON) Kristin Westdal (ON) Margaret Friesen (CANNOR) Chantel Emiktaut (CANNOR)

MEETING DETAILS

Project Component(s) Discussed	Terms of Reference revisions
Amendment(s) Discussed	N/A
IIBA / ICA Relevance	N/A
Meeting Material File Path (e.g., Sign In Sheet, Presentations, Photos)	Terms of Reference

MEETING SUMMARY

BIM and stakeholders discussed major revisions to the Terms of Reference, including definitions, functionality of the working group, time frame of distributed materials prior to a meeting, working group recommendation processes, and selection of an independent Chair. Questions were raised on voting thresholds, consensus, the independent Chair selection process, significant impact determinations, BIM's power related to the independent Chair, and the TOR editing process moving forward.

SUMMARY OF ACTION ITEMS

Action ID	Item Description	Due Date	Responsibility
1	Baffinland to revise the flow chart of the selection of the independent Chair to include a section on when co-Chairs would be selected versus a single Chair.	N/A	BIM
2	BIM, QIA, and GoC legal counsel to coordinate on further edits.	N/A	BIM

MEETING MINUTES

Meeting began at approximately 1:00 PM EDT.

CO – Welcome to new participants, the MHTO, and Pond Inlet. Note that the meeting on Zoom today will be recorded for minutes. If there are any concerns, please speak up.

CO – Welcome everyone. This is a combined meeting of the MEWG and TEWG. The purpose of today is to go over the terms of reference and the revised final draft. We will walk through key changes, address comments received, and then Q&A and discussion on next steps to select an independent Chair. The revised TOR have been a long time coming and will improve the functionality of the working groups. Not all of your comments were addressed in the draft, and not all of Baffinland's comments were addressed either, but we are in a good place to move forward.

CO – If there are comments not addressed, there will be further revisions in a couple of years.

CO – Thank you everyone. I will pass it over to Christine to provide overview of key changes in the TOR.

CK – Hello everyone, I’m Christine Kowbel, and I’m one of Baffinland’s lawyers. I’m going to go through the changes at a high level so there is time for questions. The first section we had comments on was Definitions. First, was the definition of the “precautionary principle”. The main comment was that Baffinland was using a definition that only considered cost. Baffinland has now added more to this definition to include many factors about making recommendations, not just cost. The next definition is “consensus”, where the original definition said that all members need to agree. The definition has been revised to say 80% need to agree, not everyone.

CK – The next changes are in Section 2 Function. One of the important functions of the working group is to give recommendations, and there were comments on what should be considered in a reasonable recommendation. We’ve added to the list of things to consider, like the precautionary principle and other definitions, the connection of the effect to the project, whether the change is needed to make the project sustainable, what it would take for Baffinland to implement, including what workers would need to do and what studies are necessary. Also added a definition of recommendations that would not be reasonable and would not be carried forward at a meeting as they would have too big an impact on the project. The Chair would decide this, not Baffinland. Added detail on the Chair or NIRB stepping in for dispute resolution.

CK – Also made changes to the composition of the working groups. When TOR are accepted, Baffinland will no longer be the Chair and a new Independent Chair will be hired. We have also added members to the group. Any HTOs from Arctic Bay, Sanirajak, Igloodik, Clyde River, Kimmirut, and Kinngait can be members of the working group. Members have full participation rights, including ability to make recommendations to Baffinland. The role of observers has also been changed. Observers can participate in meetings but do not have power to make recommendations to Baffinland.

CK – Next is Section 5. We received comments that people want to have the right documents and have time to read them before the meetings. We have made that process better and set deadlines for the Chair to circulate materials before meetings. Clarifications made to the schedule of meetings to allow for more meetings moving forward.

CK – Next is Section 8, which sets out the process for how the working group can make recommendations to Baffinland. If a member wants to make a recommendation, there is a process to present it to the group and explain why the recommendation is needed and how it will be effective to address a problem. There will be a vote, including by Baffinland, because they are a member of the group. If Baffinland votes yes to the recommendation, it becomes enforceable and must be implemented. If other members do not agree, there is a process to go to the Chair or NIRB. The process is meant to give everyone a chance to work together to adjust the recommendation, which will help make the recommendations something Baffinland can accept.

CK – Last section is “Other”. TOR are subject to review in two years. This is almost a pilot project to see if these TOR work better than what we’ve been working with. In two years, the Chair will run a process to allow members to review TOR again. Final change comes from conversation with QIA. The working group

is meant to deal with day-to-day and operations, but QIA wanted a process for when a member thinks something is urgently needed. In that situation, the member would go to the Chair and Baffinland and point out there is something to be immediately reviewed.

CK – The rest are appendices. We've added a list of qualities we and other members would like to see for the independent Chair in Appendix C. We recognize these may not all be present in one person and we may need two Chairs. Those are the big changes as we see them.

CO – Thank you for the overview. Let's take a break if there are no immediate questions, and we will address questions when we come back.

Ikajutit HTO – How do we become a member?

CO – If you are interested in membership then you can become a member. As of today, you are a member.

Sanirajak HTO – Sanirajak would like to become a member too.

CO – That's great, thank you. Any other questions? I'll start with Jessica from the GN.

JW – Why are the voting thresholds different for the selection of the Chair, which is unanimous, while the selection for the final member recommendation is 80% or higher, but needs to include a positive vote from Baffinland? So why is there a discrepancy between those two voting thresholds and why is it not by majority? My concern is the functionality of those thresholds.

CK – The reason that the TOR looks for unanimous consent to the Chair is that we think that given the way the appointments work, if we are not able to come to an agreement on the Chair, we start over with a new person. This way everyone will be motivated to come to an agreement. The Chair will be selected from a list of nominees, and members can nominate too, so there's a good chance we will be able to come to a consensus on that. If everyone agrees, they'll be more supportive of the Chair. The 80% threshold was in response to comments which asked for less than 100%, so we chose 80%. And for why Baffinland needs to be part of the 80% for the recommendation to be enforceable, the reason is that the terms and conditions for the project are set by the Minister. If Baffinland adds commitments, then other mitigations can be added. But if the working group was able to make a recommendation and make it binding without Baffinland's agreement, it would be like putting them in the position of the Minister. So this approach is consistent with respecting that the Minister sets the terms and conditions for the project. The other aspect is that in an ideal world, we would always want 100% agreement, but that won't always happen. Recommendation votes will happen a lot more often than the Independent Chair vote. So if we made it 100% agreement for all votes, that would reduce functionality. Part of what we're trying to do with these new TOR is make things more functional.

JW – Thank you for explaining. My other question is can Baffinland provide insight on how the short list for the Independent Chair candidates would be created.

CO – Before we conclude the meeting today, we will go through the selection process for the short list of the Chair. Next is Connor Goddard from QIA.

CG – Something that QIA has taken issue with during the TOR editing process has been the ability for Baffinland to veto final member recommendation. I thought we had established some agreeable grounds with Baffinland making concessions at Section 8.2.14. And the linking back of 8.2.14 to 8.2.11 still gives Baffinland the power of veto. Is that a clerical error during the iterative editing process of renumbering items? Wanted to flag this as something we still take issue with.

CK – That is not a clerical error. The way that was worked through with QIA and Baffinland is that there is additional process where Baffinland has more evidence being brought forward and additional discussion. If in the end Baffinland does not agree with the final vote, it's still recorded as a recommendation and goes to NIRB that someone made the recommendation. The reason for Baffinland's lack of support would then need to be communicated to NIRB. For recommendations Baffinland accepts, those become enforceable and Baffinland has to follow through on those.

CG – I will pass it over to Lorraine Land.

LL – There may be some miscommunication here, because from QIA's perspective, we understood this was being resolved to ensure that there was a situation where a recommendation could go through a process to deal with any potential disputes about the recommendation. I think the reason why CG flagged this as a potential clerical error is in some of the discussions back and forth, we went through different versions that referred within the TOR to other provisions, and it looks like some of that may not track in terms of the relationship between provision 8.2.14 and the other provisions. So just to be clear that from QIA's perspective, the intention is not to say that if Baffinland does not support a recommendation that is made, that it then goes to the Chair for resolution, then to NIRB for resolution, and then it comes back for a final vote that would then still be vetoed by Baffinland.

CK – That isn't a clerical error. It's important to focus on provision 8.2.12 and going back to NIRB and the Chair and there is opportunity to consider the recommendation further. There will be opportunity for members to explain why they think the recommendation should follow the original wording. However, the power to set terms and conditions for the project is with the Minister alone. It is not proper in law for the working group to be given that power. Baffinland is happy to go back and discuss references and wording further with QIA.

CO – Going to Joseph now.

JM – Thank you. The basis here is that the Minister sets the terms and conditions for the project. We cannot delegate the Minister's ability to impose conditions on the project. But the Minister here has imposed conditions on the project – specifically Term and Condition 77 – which says the working group

can create binding conditions. I don't think we have to be too worried about exercising ministerial power that we don't have, because the Minister has said that exercising that power is a condition of the project.

CK – Since you're a lawyer, you're familiar with the law, which is that the Minister can't delegate things he can't give away to other people. That's a conversation for us to have as lawyers. Just because there is a term and condition that says something doesn't mean the minister delegated that authority. We don't agree that it says what you think it says, and even if it did, we don't think the Minister has the legal authority to do that.

JM – Thank you. I'd like to go over some previous points, like consensus decision making. There's no single definition of consensus, but in each case it's the opposite of tie-breaking votes. It's more about discussing and arriving at views. If 80% of people agree on a point, how is it consensus-making when one party can veto the consensus?

CK – If you look through Section 8, part of consensus isn't just the vote at the end of the day, it's the conversations and understanding people. The way these TOR have been restructured is to give more shape to that process, so that is the goal of consensus. People will be very clear when they're making a recommendation for consideration, clear about the IQ, and the scientific evidence to support it. Baffinland is going to look at that and explain what they need to do on-site to implement things, and then we'll come to a vote. Consensus is a process, not just about the vote. And the second part of your question, why should Baffinland have to agree to it? The answer is that they're the ones who have to implement it. You've heard my point on the Minister being the one to set terms and conditions. That's the basis for Baffinland deciding to go ahead with this project. Working groups and other things are there to help improve the project if there are things we need to do. Maybe Courtney, you could speak to the diving recommendation as one example where Baffinland was able to not implement the exact recommendation but something very similar to it. That's the kind of compromise and consensus we're hoping this group can get to. It's not a veto, it's coming to something that will actually work and that we can invest time and finances into and be confident it is going to be effective.

CO – The example CK mentioned was a recommendation from a few years back where we were asked to use divers to do some work on the hull of boats. We looked into it, but from a Baffinland perspective, it was a significant health and safety risk. But what we were able to implement was the use of mechanized equipment that can do the same work as divers with less risk. So it wasn't that Baffinland ignored the recommendation, it was a retooling of what made the most sense from an operational perspective.

CK – So in that case, if the recommendation was accepted as worded, people would have been at risk. When Baffinland doesn't accept the recommendation, it's not because of money or Baffinland being difficult, there are a lot of factors that go into that decision.

JM – Thank you for those examples. A second question I had about the TORs is that the text of term and condition 77 provides that disputes about recommendations should be referred to a third party and in

this proposed process we have disputes proposed to the Chair. So I'm wondering why we're departing from the term and condition on that point.

CK – I think it's a good chance to emphasize that the Independent Chair will be a third party, not someone already part of the working group. This new resolution to the Independent Chair will be dispute resolution by a third party. There's also a section which talks about how NIRB can help with dispute resolution, and they are also a third party.

JM – Thank you. Lastly, I understand that previously every government department was treated as a separate member, as opposed to now, we have the Government of Canada treated as one member. Why is this? We have several departments, all of whom have different perspectives.

CK – In Appendix B, all MEWG members and observers are listed. Various departments of the Government of Canada are listed separately there. I think what you're talking about is a distinction about voting, and we thought it was most fair for the Government of Canada to vote as one, just like Government of Nunavut, gets one vote, QIA gets one vote. If every sub department of GoC was able to vote on recommendations, the numbers could cause a problem for voting and be unfair to others.

JM – I guess we'll follow up later to clear up the difference between, can GoC vote and then departments, as members with their own representatives in their own roles.

CK – It sounds like we're on the same page on that point.

CO – Any other questions? Amanda?

AJ – Thank you. I have a question about the determination of what is a significant impact to the project and how the Chair would make that determination. As well, some confusion between Section 2.3 and 8.2.3. Section 2.3 has a voting process that relies on the working group seeing a recommendation, but if the Chair rejects it before it gets to the working group, how would that reach the voting process? I think there is a lack of clarity that needs to be looked at again. That also includes 2.1.6.2.

CK – Thank you, Amanda. The decision about proposals that would significantly challenge the scope, scale, and viability, that's not something Baffinland would decide. The Chair would decide. If you look at the qualifications for the Independent Chair, and there may be co-Chairs, we need to trust their ability to make recommendation decisions. The reason for that particular provision you're talking about is that we respect that once the formal recommendation is made, it's a lot of work and emotion for people to invest in a process. If a recommendation is for all shipping for the project to stop and it's a non-starter, we think it's better for the Chair to look at that and give direction to that person to go back and rethink that recommendation, rather than going through a process all the way to the end, when there isn't a chance of success based on the nature of the impact of the recommendation. So I don't think those will happen very often. And I think even having this provision means that people will do their best to make recommendations that are implementable and wouldn't have this impact.

AJ – Thank you. My next question is that Baffinland has the power to fire the Chair. I don't think that qualifies as independent, and I understand why that financial issue clause is there. But I think there may need to be a shift in the wording to refer the financial issue to an independent third party for review, instead of Baffinland reviewing it and making the unanimous decision to fire the Chair. If we could shift that wording, it would create further independence of the Chair.

CK – The provision you're talking about is Section 4.2.9, and those are situations, the only time that Baffinland would be able to trigger by itself the termination of the Chair, would be for financial misconduct. The reason that doesn't compromise independence is that what happens next isn't that Baffinland becomes the Chair, but a new one is appointed. That person will still be independent.

AJ – Thank you. I think to avoid any perception that Baffinland has the power to remove the Chair, it would be easier to refer any financial impropriety or issue to an independent review to review and remove the Chair if needed. I think that would provide better understanding and view of independence.

CK – I think it's important to note that there are many working groups for projects across the north, but Baffinland is the only proponent that has said they're willing to pay for an independent third party Chair for the working groups. This is something new and is quite a big financial commitment, so I think this is reasonable and generally, if any member has a concern that the Chair is not following the TOR or not running the group in a way that we think is consistent with the appendices and qualifications, we would just get a new Chair. It's not going to control what people do, it's just asking them to follow the rules of the job that they take on, as anyone would expect of anyone taking on a contract.

AJ – Thank you. One more comment. I wanted to state that we agree with QIA that the working groups are not put in the position of the Minister if the working group provides a recommendation that Baffinland disagrees with, and this is an important part of the TOR, so it may be time to go back to NIRB or the Minister for clarification on the types of recommendations because this is a really important part.

CK – That is noted and we think we put forward a reasonable process and an improvement over the current process. And it's important for everyone to recognize that these TOR will be in place for the next two years, and then there will be a chance to revisit them generally. If we keep delaying the TOR, we don't get a chance to improve. We don't get a chance to get this Independent Chair, or to improve our system. And the current frustrations that people are having and the challenges we're having in getting to what we really want to do with the working group will continue. I think the kind of process you're talking about, Amanda, is going to push things out in a way that it's just going to keep causing these problems. So we all need to reflect on that, and as Cortney said, this is all a compromise. This is not all what Baffinland wants, this is not all what anyone wants. So our suggestion is to move forward with these TOR and see how they work.

AJ – Thank you for that answer. I wasn't suggesting that anything stop in the process. I think those two things can happen at once, so we can move forward with the TOR and we can also ask the Minister for clarification on what is meant by enforceable recommendation.

CK – Not to belabour the point, but moving forward with TOR that are still open to issues the way you're talking about is not going to support functionality for the next two year period that I think we all need. So again, I ask everyone to reflect on that. We have been modifying these TOR since 2019, and these open issues are making it hard to come to something. I think everyone could look at this and say it's better than what we have now. It's not perfect, but it's better. So I encourage everybody to reflect on that.

AJ – That's actually what I'm trying to avoid is having two years of disagreement over what an enforceable recommendation is, so I think asking the Minister and NIRB what an enforceable recommendation is would actually make things a little easier and clearer as we move through these two years. That's what I'm trying to achieve.

CK – So I hear that you don't like it, Amanda, but I think it's clear. I think we'll move on with, and I'll turn it back to Cortney.

CO – Any more questions or comments? I'm not seeing anyone, so we'll take a five minute break to give Lizzie, our translator, a break. We'll reconvene and then we'll go through the selection process for the Chair so we're clear on that. We can talk about the qualifications and then take any last questions and conclude.

<<Meeting breaks for 5 minutes>>

CO – On the screen is the qualifications and qualities required for an Independent Chair. I wanted to see if anything on here needs clarification, or if there were any other characteristics, skills, or qualities that anybody wanted to add to this list. I'm sharing my screen so I can't quite see everybody. If you can put your hand up, it'll pop up and I'll be able to address comments that way. Okay, so I'm taking silence as consent here, what I'm seeing is no hands. The list is comprehensive and we're okay with it. I'll bring up the flow chart of how to select the Independent Chair. Basically all members of the working group can select or put forward up to two candidates they think meet the qualifications, and some written rationale explaining how the candidate meets the qualifications set out in the criteria list. Once we've received either a list from all members or confirmation they are abstaining, we will reach out to candidates and gauge interest and discuss the budget that comes with the scope of work. Once we have confirmation from those candidates that they are interested, and like any job application, they're okay with the budget set for the terms of work, we would circulate to the members a short list of candidates from the larger group. Then after the short list with the rationale and confirmation is received, we would schedule a virtual meeting with at least 14 days' notice. At that virtual meeting, there would be an opportunity to discuss all of the candidates from the short list as a group, and potentially bring them to the meeting to introduce themselves and describe their qualifications and interest in chairing the working group. The objective of that meeting would be to ultimately select a Chair, or Chairs, through unanimous consensus

vote if that's achievable. If it was not achieved, it could be referred to the NIRB for advice. If after that advice is received, there is still uncertainty or it's not a unanimous consensus, then a new process would begin. It's encouraging that the qualifications seem to speak for themselves, so we all know the type of Chair the group is looking for. Any questions on the process or candidate selection or qualifications? Jessica, go ahead.

JW – From the flow chart, where does the mechanism for it to be one Chair then two Chairs, co-Chairs? Where in the process does that happen? I searched the document and it wasn't spelled out anywhere.

CO – You're right, it's not explicit in the flow chart, but we see that as being part of the selection meeting. If there was interest to have two of those candidates work as co-Chairs, there would be the opportunity to discuss it.

JW – If we meet and see the credentials of the potential candidates, and after that Baffinland gauges temperature in the room to determine if people wanted a single Chair or co-Chairs, then how does it work? What's the voting mechanism there?

CO - There would be opportunity as well to consider the idea once we had that short list of candidates. Once we have a comprehensive list of candidates and then have a short list of who's interested and willing, once it is circulated, there would be a discussion at that time as to whether the group is in favour of a co-Chair or a Chair. It would be hard to gauge that until we know the quality of candidates that come forward and what skills they bring and how they might complement one another. There could be one single Chair that exhibits all the qualities that the Chair needs, and in the event where that's not the case, there could be two complementary candidates. We can add a piece to the flow chart where the co-Chair decision would be made. Any other questions? Go ahead Connor.

CG – I ask that further bilateral discussion take place, or back and forth on edits resume, between QIA and Baffinland's mutual counsel. I wanted to see what the group's thoughts were on that process continuing as we move forward on the selection process for the independent Chair, simultaneously, and not having the finalization of the edits a necessary prerequisite to engaging the independent Chair selection process. And further add that we'd like to see the GoC engage in that discussion at the legal level. For clarification, that legal counsel re-engage on finalization of the TOR edit. In referencing legal counsel, I'm referring to QIA, Baffinland, and the government, and that at the same time, we advance the selection process for the independent Chair.

CK – Thank you, Connor. Baffinland is always happy to meet with QIA. We don't think we support moving forward with the Independent Chair until we have this finalized and more certain, but we can talk about that offline.

CG – Does the GoC have a perspective on this that they'd like to raise?

CO – I'm not hearing GoC weigh in here, so I'll turn it over to the rest of the group to provide last minute feedback.

AB – We were discussing in the background, but we do see the value of being further engaged in that part of the process as QIA requested, so we would like to participate.

CK – Yes, we can have a legal conversation. As I said, I think there's some confusion on the fundamentals of the law here, so we're happy to have that conversation.

CO – Thank you everyone, we'll be wrapping up our meeting for today a little early. Thank you for participating and for your patience as we got going a bit slow today. We'll leave it as an action for the legal counsels between QIA and Baffinland to coordinate with the GoC.

Meeting closed at approximately 3:37 PM EDT.

May 13th, 2024

Marine Environmental Working Group (MEWG) Meeting

Meeting ID: M-13052024
Group/ Organisation: MEWG Members and Observers, Baffinland and Consultants
Meeting Location: Virtual - ZOOM
Meeting Chair: Cortney Oliver

Organization Name	Participants
Member Organization	
Mittimatalik Hunters and Trappers Organization (MHTO)	Joined
Clyde River (Nangmautuaq) Hunters and Trappers Organization (NHTO)	Absent
Igloodik Hunters and Trappers Organization (IHTO)	Isaac
	Theo
	Andrew
	Judah(Juuta)
Hall Beach (Sanirajak) Hunters and Trappers Organization (HB HTA)	Absent
Arctic Bay (Ikajutit) Hunters and Trappers Organization (IHTA)	Absent
Baffinland Iron Mines Corporation (Baffinland)	Lou Kamermans (LK)
	Bradley Rasmussen (BR)
	Cortney Oliver (CO)
	Lizzie Philip (LP) - Interpreter
	Jesse Manufor(JM)
Environment and Climate Change Canada (ECCC)	Grant Gilchrist(GG)
	Melissa Pinto(MP)
	Jennifer Sabourin(JS)
Qikiqtani Inuit Association (QIA) and Consultants	Andrew Jaworenko(AJ)
	Lindsay Galbraith(LG)
	Jeff Higdon(JH)
	Conor Goddard(CG)
	Bruce Stewart(BS)
Government of Nunavut (GN)	Natalie (Lee) D'Souza(ND)

Parks Canada (PC)	Vincent Marmillot(VM)
	Scott Burley(SB)
	Marie-Claude Martel (MCM)
Department of Fisheries and Oceans Canada (DFO)	Paul Harper(PH)
	Nicolas Wasilik(NW)
	Marianne Marcoux(MM)
	Jose Audet-Lecoutte(JA)
	Alasdair Beattie(AD)
Makivik Corporation	Camille LP(CL)
Baffinland Consultants	
WSP Golder	Julia Horgan(JH)
	Tannis Thomas(TT)
	Phil Rouget(PR)
	Patrick Abgrall (PA)
JASCO	Melanie Austin(MA)
Observer Organization	
World Wildlife Fund (WWF)	Erin Keenan(EK)
	Sam Davin(SD)
Canadian Northern Economic Development Agency (CANNOR)	Margaret Friesen(MF)
Oceans North (ON)	Kristin Westdal(KW)
	Amanda Joynt(AJ)
Transport Canada (TC)	Adam Downing(AD)
Others	Chantel NPMO

AGENDA – MAY 13TH, 2024

Time	Agenda Item	Lead	Materials	Purpose
Day 1				
1:00 – 1:30	Welcome and Roll Call	C. Oliver	N/A	N/A
1:30 – 1:45	Review Minutes and Action Items	C. Oliver	Minutes Action Log	For Approval For Information
1:45 – 2:30	Discussion of 2023 Program Results for: Open Water Passive Acoustic Monitoring Program (PAM), Marine Mammal Aerial Survey Program (MMASP)	P. Rouget	Final 2023 Open Water Acoustic Monitoring Report, Final 2023 Marine Mammal Aerial Survey Program Report	For Discussion
2:30 – 2:45	Health/Translation Break			
2:45 – 3:45	Continuation of 2023 Program Results (PAM & MMASP)			
3:45 – 4:00	Summary of Action Items and Wrap-Up	C. Oliver	N/A	N/A

SUMMARY OF ACTION ITEMS

Action ID	Responsibility	Item Description	Due Date	Status
Completed action items				
M-19042023-10	Baffinland	Lawsons/Baffinland to follow up with the NIRB regarding section of 3.3/role of the NIRB	Prior to release of fourth draft.	Completed
M-12072023-06	Baffinland	Baffinland to circulate the third draft of the revised TOR to both the MEWG and TEWG once complete.	Upon completion of third draft.	Completed
Outstanding Action Items				
M-14062022-04	Daniel Coombs (DFO)	Provide MEWG and TEWG for review the details and report of the sampling program in the Robertson River area.	September 30 th , 2022	Not started – DFO to follow up with Science Group. Update provided at 11-Dec-2023 meeting – report will be released in one year’s time and action will remain open.
M-15022023-03	Baffinland	Develop plain language summaries for each Management Plan being submitted with the SOP.	In Progress	Plain language summaries were not developed for draft Management Plans submitted with the SOP application, however, they will be developed by for submission of finalized Management Plans.
M-12122023-02	DFO	DFO to follow up with IHTO regarding identified calving areas in the Clyde River and Arctic Bay areas	Not specified	Not started.
M-12122023-03	Baffinland	WSP to develop Figure 1 from Baseline Shipping tech memo in tabular format for distribution to the MEWG.	Not specified.	Not started.
M-12122023-04	Baffinland	PIPR, SOP and MMP updates to be re-visited at future meeting and questions regarding PIPR and SOP commitment statuses to be submitted by members via email.	Not specified.	Not started.
M-12122023-05	DFO	DFO to find the studies on where narwhal and beluga are located in the winter in the area of the Southern shipping route and provide this information to the MEWG.	Not specified	Not started.
M-12122023-06	QIA	Clarify whether the IIBA will be renegotiated for the Steensby Component.	Not specified	Not started.

MEETING MINUTES

Meeting began at approximately 1.00pm

CO [BIM] Roll call, housekeeping and introductions.

CO [BIM] Open action items from last MEWG, DFO has an open action till end of the year, BIM has closed some but we are working on simple language summaries.

DFO [PH]: Can you remind us on the open item.

CO [BIM] The issue is related to a river. Give me a second and I will find it.

“M1406202204 Daniel Coombs (DFO) Provide MEWG and TEWG for review the details a nd report of the sampling program in the Robertson River area. 11Dec2023 meeting - re port will be released in one year’s time and action will remain open.”

2023 Marine Mammal Aerial Survey Program Presentation (WSP)

PR [WSP]: I will start with a description of the monitoring programs with a focus on what we was done in the program is and end with challenges with the Tide Gauge Monitoring for the MEEMP Program. The purpose of this spring meeting is to go over the results of the programs, with opportunity for questions and answers. A total of 5 programs were run in 2023, the two programs that will be discussed today are the marine mammal aerial program and acoustic monitoring program run by JASCO. Slide 4 shows all the programs that have been run since shipping started, baseline are in green, all programs run since start of mine operations is in blue, while all programmes in 2023 are in yellow. It is split into 3 Valued Ecosystem Component (VEC) – marine mammals, marine habitat & biota, and marine water and sediment quality. Each of these components have impact predictions and determine if mitigation methods in place are functioning as intended. Today’s presentation will focus on two programs both focused on potential project impacts on marine mammals as the VEC. For different programs we have relevant indicators like noise or shipping impacts on all marine mammals, some are more specific related to focal species, in this case, narwhal and ringed seals for which key issues have been identified. The column on the right of the table provided examples of indicators as part of these monitoring program. For example, for narwhal we use aerial to look at stock abundance and relative abundance. Bruce Head program focuses on changes in narwhal behaviour with sub indicators like travel speed, group formation and cohesion as examples of behaviour in that program. I will hand over to Patrick.

PA [WSP] For the aerial survey in 2023, three (3) legs were conducted, as in past years. Leg 1 (early shoulder), which is before shipping started, done at Eclipse Sound and Admiralty Inlet. In 2023 there were ten (10) survey flights that were conducted between July 23 – 31. Eight (8) surveys were done in Eclipse Sound grid, two (2) surveys in Admiralty Inlet grid, and all flights were done before shipping started. We conducted different surveys like systematic transects, dedicated transects in ice leads, along floe edge, and ship routes, and reconnaissance flights. There were 2 Inuit researchers one from Pond Inlet and the other from Arctic Bay. The take home from the Leg 1 flights, is the extent of ice in Eclipse Sound

isolated the two distribution areas. The narwhals that were observed in Eclipse Sound/Pond Inlet area remained in the regional study area (RAS) for the duration of Leg 1. Narwhal observed early in Navy Board Inlet were later seen to have left after July 27th, they never entered Eclipse Sound because of the ice blockage.

Next slide, Leg 2 surveys are designed to estimate population of abundance of narwhals in Eclipse Sound and Admiralty Inlet. The surveys were conducted between August 10 and 29ths and included photographic and visual surveys. The difference between this survey and previous years is that only one plane was used in 2023. During the survey only 2 surveys were completed in Eclipse Sound and 1 partial survey completed in Admiralty Inlet. There were nine (9) early warning indicators (EWI) surveys that were conducted to collect data on group composition of narwhal. There were four (4) observers on the aircraft (2 biologists and 2 Inuit researchers), one from Pond Inlet and the other from Arctic Bay.

Slide 11 looks at the two (2) surveys completed at Eclipse Sound, one was completed in 2 days – August 12 – 13, while the other was over 3 days August 23 – 25 due to poor weather. Because of the long duration of time between the surveys (2 weeks), the surveys were not averaged, and the August 12-13 were used as the survey abundance because it was a complete survey and conditions were better with less chance of animals being double counted. However, looking at the table, the abundance estimates for both surveys about 10,500 for the first survey and 9,500 for the second survey - with no statistical difference between the two surveys.

Slide 12 this shows a visual representation of the survey abundance averages at Eclipse Sound since 2013. We can see how the error in the survey estimates have decreased with improvements of technology including photographic surveys. This helped narrow down the error margin in the estimates. From the average in 2023 of 10,500 narwhal, how statistically that remains with the previous surveys of 2013, 2016 and 2019 so that there is no statistical difference. The 2023 number we see is higher than 2021 and 2022.

Slide 13 Admiralty Inlet was difficult to access due to weather and because compared to previous years where we've had one plane instead of two, we couldn't access it on one day and needed two days. Some of the poor weather and fog prevented the top three transect lines from being covered and some other lines had partial coverage. From the surveying observed, the narwhal concentration appeared to be in the central portion of Admiralty Inlet. A photographic surveys was done in the high concentration area but that had issues with high sea states as well. So we believe the abundance estimate includes the minimum number of animals present due to the weather present (Aug 19-20) and the abundance estimate for Admiralty Inlet is approximately 30,000 animals.

Slide 14 visual representation of narwhal in Admiralty Inlet between 2013 and 2023. The number in 2023 doesn't differ statistically from abundance estimates in Admiralty Inlet except in 2021, there was a high number of Narwhal estimated in Admiralty Inlet & coincided with low estimate in Eclipse Sound in 2021.

Slide 15 is the combined abundance estimate for Eclipse Sound and Admiralty Inlet combined 40,700 animals that is using August 12 – 13 and 19 – 20 surveys. The combined estimated numbers has remained stable from 2013 to 2023, except in 2021.

Slide 16 shows the Early Warning Indicator (EWI) results, at both locations we are within the estimate % for immatures. Last slide for annual survey leg 3 at the end of shipping season at the northern shipping route Navy Board Inlet, Tremblay sound, Milne inlet and at previously reported entrapment areas done on October 31. There was no narwhal observed at the completion of shipping season as there was loose ice floes which would not present animals from leaving. There were two inlet researcher from Pond inlet and Arctic Bay.

This completes the aerial mammal survey, one thing we want to flag is the change and restrictions in flights under 2,000 feet that is coming up in marine conservation areas. This is up for discussion at the MEWG, how to run flights at 1000ft or whether exemptions are needed.

Q&A Session

- Parks Canada In the chat section, Parks Canada stated that they would like to reinforce that for research activities, flying below the altitude of 2,000 feet over Tallurutiup Imanga National Marine Conservation Area is not prohibited. They strongly support the aerial surveys and the appropriate protocol.
- KW [ON] Abundance estimate of 2013 was used, wondering why abundance estimate of 2004 was left off. ON and others believes 2004 is a more appropriate year because Baffinland already had vessels in the area in 2013.
- PA [WSP] 2013 was identified as baseline, so we are comparing to this. Yes, vessels including non project were already in the area before 2013. This was discussed at the last meeting, the information we have been working on this project onwards was that 2013 was indicated by DFO as the reference year to compare it to.
- KW [ON] Can DFO confirm that they are they are happy using 20113 as baseline? Regardless, it will also be good to show in the report that there were over 20,000 animals in Eclipse Sound in 2004, its good to see a change in time and variation.

- CO [BIM] I want to remind the group that we had a lengthy discussion about the baseline year in the December meeting, we can add time to discuss this in the next MEWG but I will let DFO respond to the question.
- JA [DFO] I would like to understand where the agreement to use 2013 baseline came, I can't recall DFO agreeing to that.
- CO [BIM] You are right that DFO does not share that baseline year. We invited DFO to provide a Technical memo to match WSP position for all the MEWG members to weigh. There is an issue with uncertainty about the statistical correctness of 2004 year, I would want WSP to correct me if I am wrong
- PR [WSP] We dedicated time to this discussion at the last meeting, we provided a technical memo on this, from memory we are waiting for DFO to respond to this but we haven't seen any formal response from DFO. Why 2013 than 2004, there is lot of uncertainty about 2004 estimates, we don't have confidence that 2004 was higher than 2013. The shipping during that time was not project related and would be negligible compared with project period. There is an extended period between 2004 and 2013 that narwhal will be exposed to stressors that are not monitored nor related to the project. Do MEWG members think that it is appropriate for us to use estimates that we have no control over, rather than use estimate that is more certain and related to project? We are still waiting for DFO formal comments related to the technical memo.
- CO [BIM] Oceans North, we will welcome feedback on this from you too.
- KW [ON] We will submit a formal response.
- CO [BIM] We will get back to this at the next MEWG meeting.
- Isaac [IHTO] We know there was no monitoring program in 2004 until when mining started. Does DFO know the number of narwhals that moved from Pond inlet to Arctic Bay?
- PA [WSP] We don't have the numbers for that except the presentation that we just did, but animals are shared between both areas.
- Isaac [IHTO] Probably by tomorrow we will have more things to say about marine mammals in our area
- MM [DFO] Regarding movement between Eclipse Sound and Admiralty Inlet, we have observed that 30% of whales move in between the 2 areas, but that will not explain the fluctuations in number. It is difficult to tell if the whales come from Pond inlet. We conducted aerial survey last summer, but we are still working on the results.

Break to return at 2.45pm

Q&A Session Continued

- JH [QIA] My question is not necessary based on the presentation, but I will reference sections of the report. Page 71 of the report section 3.1.5.1 says that the gamma key function assumes no detection on the track line. Is this correct?
- PA [WSP] Yes that is correct. Gamma assumes zero on the track line.
- JH [QIA] You would have had detection on the track line?
- PR [WSP] Yes, there can be some detection on the track line
- JH [QIA] I will read this and get back. Next question Page 74, section 3.5.5.2 re: photo survey detection model, report says "[a] hazard rate key function with no adjustments had the lowest AIC of 6187.95 for the detection function model but was rejected because the distribution did not follow a hazard rate function." How is model best fit by a distribution that didn't fit the data?
- PR [WSP] For this part, we will need to get technical model folks to resolve the issues. If you can put them in writing then we can provide a response if this is acceptable to Cortney and the MEWG members?
- CO [BIM] Jeff we are open to your response on WSP suggestion.
- JH [QIA] Once I am done, I will put my questions in the chat. Appendix E, power analysis, page 212 of 219 in the pdf. Why is there such a large variation in the number of degrees of freedom? E.g. 2019 Eclipse Sound survey, $df=6.45$, versus 2023 Eclipse Sound survey, $df=305$. It notes that information that DFO used to report narwhals were not available, so WSP had to develop one. Can DFO provide this?
- MM [DFO] We will have to check old survey data, and can provide this. We will add this as action item.
- JH [QIA] I have another question related to power analysis, but I would prefer to take it offline with WSP. Another question during the Leg 1 survey a hooded seal was detected, was that found on water or on ice? And is this the first time it's been seen?
- PR [WSP] It was observed in the water, we can look at previous reports, I don't have the report year off hand, but this is the 2nd time we have seen this.
- JH [QIA] I will put this on the chat, page 23 figure 8. Ice condition, except I am getting it wrong, it appears like more open water than packed ice. Is the colour ramp backwards? Compare against maps if WSP can speak to it now that's fine, otherwise that's my last question.
- PR [WSP] We will look at the report and get back to know if it's a colouring issue

- MM [DFO] if you can provide the half or effective strip width for the distance sampling analysis, not off the top of your head or at the next meeting
- PR [WSP] We will note it down and provide it at the next meeting.
- MM [DFO] Page 47, new camera system, the resolution is doubled, did you evaluate the detectability of narwhals between the old and new system?
- PR [WSP] We will get back on that.
- MM [DFO] In the report page 47, survey flight was flown at 1000ft instead of 2000ft, can you state when this happens in the report.
- PR [WSP] I will double check to make sure it not a wording issue on the report. Following the protocol, all visual observation were done at 1,000ft, while photographic survey was flown at 2,000ft.
- MM [DFO] Page 62 table 2, average group size from the survey was calculated including the reconnaissance survey but the reconnaissance data was not used in abundance estimate, can you clarify?
- PR [WSP] Response to the previous question, if weather allows, photographic surveys can be done at 1,000ft if cloud prevents to be done at 2,000ft, but this was not done in 2023. Reconnaissance surveys for the detection factor, to get better sample size to increase the numbers.
- LG [QIA] My questions pertains to community engagement and IQ. There is no discussion of integration of IQ collected to inform the analysis in the technical report? Can WSP or BIM speak to that, was any community and IQ information collected in 2023 to inform the analysis? What methods were used, if not, what is the most recent IQ that has been used?
- CO [BIM] We include all feedback we get in engagements from the community whether its one-on-one meetings, MEWG on specific programs like Bruce Head. A lot of the monitoring programs were developed based on IQ including Bruce Head. This report is a technical report used to compare data year over year with previous monitoring year. The results are compared with existing IQ observation to se if they are in agreement or not with these monitoring programs.
- PA [WSP] Generally, when we were discussing the methodology for aerial survey for Legs 1 and 2, there were discussion with MHTO, where to go, what time of the year for Leg 1, those discussions were had years ago, whereas Leg 2 is based on DFO protocol to replicate and have comparable data. If things change from year to year based on our engagement with MEEWG, MHTO and the community we make changes to the methodology.

- LG [QIA] Why is IQ not considered for Leg 2 especially in the trends over time and abundance information from IQ perspective? In the light of the discussions we have had on increases and decreases in population.
- PA [WSP] The result from aerial survey parallel what we hear from the community, in terms of increase and decrease of narwhal, so in the years they witnesses fewer narwhals that was reflected in our surveys. This is shown in different BIM reports, I can't remember specifically in this report, but there are correlations between what the community members are observing and what we are reporting. If it's not reflected in this report, it will be because it was focused on the technical aspects of narwhal abundance. There is some recording of what the community is saying in Baffinland reports.
- LG [QIA] I agree that the report did reference this but not the abundance estimate, this reads as a gap. The report recommends no aerial survey for 2025, and a lot of the context is not mentioned. Will we discuss this at the next MEWG?
- CO [BIM] We will discuss this in the 5 year monitoring plan tomorrow

2018 – 2023 Acoustic Monitoring Program Presentation – JASCO

- MA [JASCO] The Acoustic monitoring program has 3 key outcomes –
- Soundscape statistics
 - Metrics for assessing noise impacts on marine; and
 - Marine mammal calls detection and classification.

The slide shows over the years which objective that we have done every year, based on feedback from MEWG or Inuit - we make changes in the wider distribution of the study area. 2019/20 we did a study on noise from ice breakers, in 2021 we measured noise from Ragged Island, 2023 we added noise from Capsize vessels, 2022/23 noise from convoys, which were added to the program.

Next slide. In 2023 we had 2 recorders deployed in Milne Inlet deployed from Aug 1 to Oct 9 to measure Capesize ore carriers and convoys. The max, min and mean for the two stations were very similar. The median levels have increased slightly, but in 2023 despite adding Capesize ore carriers, the median levels dropped.

Next slide. Day two measurement of ore carriers, the colours shows the loudness of the sound. Red and yellow shows high sounds while blue are low sounds. The graph shows how the frequency changes over time. The top image is a Panamax that is the typical ore carriers that have been coming and the bottom is the Capesize which started in 2023. This shows the sound difference between the two.

Next slide is showing 120db exposure as a function. This shows the number of days and exposure duration. Although that Capesize are louder but because there are less number of vessels, the whales are exposed to less noise overall.

The slide is showing source sounds for vessels, Capesize ores carriers are 3db louder than Panamax, but as noted earlier, mammals are exposed to less noise.

We split this data into those that have no noise detected. Black dots are not sound detected, which is ambient, while red are sounds that are detected. Three (3) different frequencies represent vocalisation that narwhal makes, 1khz burst pulses, 5khz whistles, 25khz high frequency and clicks. The numbers in the table shows a reduction in the distances when those noises can be detected.

The next slide shows the plots divided into individual frequencies. The next slide shows the charts as the convoy (2 tugs and supply vessel) passed the recorder, the red shows the exact time when the convoy passed. That's the worst case. Middle roll when there were no other vessels when Capesize vessels are at Port, bottom shows when 3 vessels (Icebreaker, Capesize, Panamax) transiting individually. The various red spikes shows the various vessels passing.

Plot of all the noise source levels of all vessels from 2015 – 2023 classified by vessel type and inbound vs outbound. At the end, we collected the 2 recorders and redeployed them on Oct 9, to record noise at the end of the shipping season, programmed to turn on 1 minute each hour during winter and to switch on July 15 to capture shipping noise at the start of this year shipping season.

No monitoring is planned for 2024 following retrieval of over winter recorders in early August. Next planned monitoring is 2026

CO [BIM]

We are at the end of our time today, I would suggest that everyone notes down their questions. The next MEWG is June 5th and 6th at Best Western, Downtown Ottawa. The discount code was shared, we encourage everyone to book using the code there is a virtual component for those that can't attend. Since we do not have our terms of reference, can forward names of those to be invited to the MEWG meetings so they can be invited. Hold your questions, we will start tomorrow.

The meeting ended by 4.00pm

May 14th, 2024

Marine Environmental Working Group (MEWG) Meeting

Meeting ID: M-14052024
Group/ Organisation: MEWG Members and Observers, Baffinland and Consultants
Meeting Location: Virtual - ZOOM
Meeting Chair: Cortney Oliver

Organization Name	Participants
Member Organization	
Mittimatalik Hunters and Trappers Organization (MHTO)	Judah and others
Clyde River (Nangmautuaq) Hunters and Trappers Organization (NHTO)	Absent
Igloodik Hunters and Trappers Organization (IHTO)	Issac
	Theo
	Andrew
	Judah(Juuta)
Hall Beach (Sanirajak) Hunters and Trappers Organization (HB HTA)	Absent
Arctic Bay (Ikajutit) Hunters and Trappers Organization (IHTA)	Absent
Baffinland Iron Mines Corporation (Baffinland)	Lou Kamermans (LK)
	Bradley Rasmussen (BR)
	Cortney Oliver (CO)
	Lizzie Philip (LP) - Interpreter
	Jesse Manufor(JM)
Environment and Climate Change Canada (ECCC)	Grant Gilchrist(GG)
	Melissa Pinto(MP)
	Jennifer Sabourin(JS)
Qikiqtani Inuit Association (QIA) and Consultants	Andrew Jaworenko(AJ)
	Lindsay Galbraith(LG)
	Jeff Higdon(JH)
	Conor Goddard(CG)
	Bruce Stewart(BS)

Government of Nunavut (GN)	Natalie (Lee) D'Souza(ND)
Parks Canada (PC)	Vincent Marmillot(VM)
	Scott Burley(SB)
	Marie-Claude Martel(MCM)
Department of Fisheries and Oceans Canada (DFO)	Paul Harper(PH)
	Nicolas Wasilik(NW)
	Marianne Marcoux(MM)
	Jose Audet-Lecoutte(JA)
	Alasdair Beattie(AD)
Makivik Corporation	Absent
Baffinland Consultants	
WSP Golder	Julia Horgan(JH)
	Tannis Thomas(TT)
	Phil Rouget(PR)
	Andrea Locke
	Patrick Abgrail(PA)
JASCO	Melanie Austin(MA)
Observer Organization	
World Wildlife Fund (WWF)	Erin Keenan(EK)
	Sam Davin(SD)
Canadian Northern Economic Development Agency (CANNOR)	Margaret Friesen(MF)
Oceans North (ON)	Kristin Westdal(KW)
	Amanda Joynt(AJ)
Transport Canada (TC)	Adam Downing(AD)
Others	Chantel NPMO

AGENDA – MAY 14TH, 2024

Time	Agenda Item	Lead	Materials	Purpose
Day 2				
1:00 – 1:15	Welcome and Roll Call	C. Oliver	N/A	N/A
1:15 – 1:45	Overview of 5 Year Marine Monitoring Plan	P. Rouget	WSP Presentation	For Discussion
1:45 – 2:45	<p>Discussion Related to SOP Commitment 027, DFO Technical Comment DFO-TRC-01(2). See Below</p> <ul style="list-style-type: none"> • <i>Baffinland will include “Discussion regarding DFO proposed aerial survey repeats averaging” to the next MEWG meeting agenda, and is willing to produce reports averaging aerial surveys in one or more future years, provided certain survey conditions are met (i.e. based on standard scientific methodology).</i> • <i>BIM will put into the meeting agenda, after discussion with DFO, a sufficient amount of time to ensure fulsome discussion of this topic can be had at the MEWG.</i> • <i>BIM will prepare, for the MEWGs benefit, a comparison table showing the difference in outcomes of the current vs DFO suggested methods of survey analysis.</i> • <i>BIM will provide a plain language summary of the issues including definitions/descriptions of “certain survey conditions” at least 2 weeks prior to the next MEWG for all MEWG members.</i> • <i>BIM will submit the plain language summary to DFO for review and comment 2 weeks prior to wider distribution to the MEWG members.</i> • <i>If adopted by Baffinland according to the MEWG Terms of Reference, new analytical methodologies to be adopted by the 2024 shipping season or as recommended by the MEWG.</i> 	P. Rouget / A. Beattie	WSP – SOP Survey Averaging Technical Memorandum & DFO Memo	For Discussion
2:45 – 3:00	Health/Translation Break			
3:00 – 3:45	<p>Discussion on suitable indicators to replace tidal gauge component of MEEMP</p> <p><i>Baffinland is committed to fulfilling this Condition (T&C No. 1), whether through continued monitoring of relative sea levels or through a different, more suitable indicator. Baffinland commits to discussing alternative climate change indicators with the MEWG to effectively address PC Condition.</i></p>	All	Members are to come prepared with alternative suggestions for indicators to monitor relative sea levels	For Discussion
3:45 – 4:00	Summary of Action Items and Wrap-Up	C. Oliver	N/A	N/A

MEETING MINUTES

Meeting began at slightly after 1.00pm due to technical issues.

CO [BIM] Roll call, housekeeping and introductions for those that weren't present yesterday.

Q&A from Yesterday's Presentation

MM [DFO] There has been reports about narwhals been disturbed at thresholds lower than 120db. In the report can we have different thresholds analysed in the report so we can make better judgement?

MA [JASCO] One of the objective is to verify what was predicted in the EIS based on 120db. What we want to understand in the monitoring is whether our assumptions based how far the sound will travel and how long exposure to vessel noise might occur, is matched up to what we are measuring. What we have seen is that our modelling is quite conservative to what we are seeing. The reason for 120db is to be consistent with how the effects assessment was done. Also, from other monitoring programs, like Bruce Head we have not seen evidence to show that there is need to look at thresholds far lower than 120db. Data points that behavioural responses are occurring at distanced that are reflective of 120db. That is not to say that, that is written in stone for all time, 120db is the regulated level for this kind of impact assessment studies. We also looked at a range of sound levels, and analysis such as listening range reduction, minimum and maximum sound levels, variation of sound levels over time. The whole report is not focused on 120db, but to validate the EIA which is based on 120db.

MM [DFO] We think it will be informative to show different decibels levels to show how long narwhals were exposed to shipping levels.

MA [JASCO:] The comment is noted. I think that we can consider this going forward for future analysis.

CO [BIM] it would be helpful for me to understand DFO rationale and if you can put this in the 2023 NIRB annual report comments.

JH [QIA] Most of my question will not be based on the presentation, but on the report. 3 convoy sounds were recorded in the report. How many convoys were there in total in 2023?

MA [JASCO] I don't know the total I will have to refer to BIM, however we measured 3 convoys during monitoring.

CO [BIM] I can find that information.

- JH [QIA] While no ships went through Milne inlet while Capesize ships was being loaded at Port, was this by design? Also while they were being loaded, were there ships anchored at ragged island?
- CO [BIM] I will need to check with our head of shipping. My understanding is that this year will be same as last year but I will check if this is by design.
- JH [QIA] The report distinguishes between vessels and boats, but what is the differences? Are the differences between the sizes quantified anywhere?
- MA [JASCO] In the methodology section 2.2.2 where automated noise vessels was stated, it states how we distinguish a boat from vessel, it doesn't distinguish this by length. There are few steps in the automated vessel noise detection, number of tones detected in a minute, factors such as the speed, and duration of detection, but we don't have physical characteristics that distinguishes what is a boat and a vessel.
- JH [QIA] f Figure 11 in the report page 25 not shown in the presentation. Is there any way that a boat can be detected in the same temporal band as a vessel, if so can crosshatching be used to show that boat was detected in the band?
- MA [JASCO] Looking at the plots there could be time when they overlapped. We could use crosshatching in the future.
- JH [QIA] Section 2.4.4 page 23, sampling rate did not allow us separate beluga and narwhal, is this something that can be done with the devices being used currently?
- MA [JASCO] We used a single sampling rate for 2023, in other years we alternated between a low and high sampling rate. We have observed that a lower sampling rate is adequate as it allows us to record for longer than using a longer sampling rate. Regardless the art of differentiating between beluga and narwhal is not black and white, it's difficult to distinguish between the two as they are very similar.
- JH [QIA] This is something we would want to revisit when southern shipping route starts, when Steensby becomes operational because there are a lot of Beluga there.
- JH [QIA] In appendix E of acoustic monitoring report, can you explain the temporal restriction on Aug 1 to 10, and why that was used?
- MA [JASCO] I will have to double check with our analyst and respond as soon as I get a response. We can record at a higher sampling rate with the devices we have, which will mean adding more batteries.
- JH [QIA] Thank you for the responses.
- KW [ON] How can we get MHTO partnered on this work? MHTO has been working with Oceans North and results point to lower response threshold for narwhal.
- CO [BIM] We have invited ON and Josh to present to the group on a number occasions. We are inviting you again to present o the group.
- KW [ON] I am sure Josh will be happy to present to the group, I will extend the invitation to Josh?

- CO [BIM] Can MHTO speak on the results of the work they are doing with Oceans North?
- MHTO While Capesize ore carrier is loading, do they leave the engine running?
- CO [BIM] They don't turn off completely due to safety reasons, but are idling and the noise is low.
- MA [JASCO] Responding to JH earlier question, August 1 - 10 was removed because the automated detection was false, when all the detection in the first week of August was analysed by a human, it was found not to be whale sounds.

Five year Monitoring programme for Northern shipping – BIM

- CO [BIM] What you see here is the monitoring plan and the proposed frequencies for the next 5 years. We are not proposing any changes to the MEEMP program in the coming years or to Bruce Head or Ship Based observer program. In respect to the MEEMP program, after the 2024 monitoring season, we will consider the results again and if there is any changes proposed, we will come back to this group for discussion. The two changes are in respect to the Marine Mammal Aerial Survey Program (MMASP) and the Acoustics Monitoring program. For MMAP, there are a few practical realities with the 2024 season that have come up with the leg 1 and 2 surveys.

That portends to flight availability, we haven't been able to secure flights to do those surveys, but we have secured for leg 3 flights. We want to discuss reducing the frequency of leg 1 and 2, putting it on a 3 year cycle, to do the next full cycle will be 2026. We have had a number of consecutive years of this program and we believe that with 2023 results that this is a time to consider reducing the program and looking at conducting the program every 3 years – 2026 than 2029.

The other change that Melanie spoke to during her presentation is on the acoustic monitoring program, and reducing the frequency to every 3 years. The rationale for this is that we are not proposing any changes to the shipping season, we have captured Capesize, ice breakers and different vessels that come calling to port. In the 2024 shipping season, we will have the same Capesize vessels that were used last year.

What I need to flag overall concerning the Steensby component is that this year we are planning to run a ringed seal aerial survey in the South starting from June 5 to 12.

This is the proposal we are discussing now, I am open to answering questions and hearing thoughts from members

- PH [DFO] We are assessing this offline, DFO doesn't think the change is appropriate, we think 2nd leg is very important for monitoring, we would like to come back to this.
- MC [PC] Do you think you will have more than 84 vessels a year in the next 3 years?
- CO [BIM] We have SOP approved for 84. There won't be additional vessels in 2024.
- MC [PC] But when you start building Steensby you will bring materials in other vessels. I think the number will be more when you start Steensby, so we have concerns about reducing the aerial surveys.
- CO [BIM] We had 75 in 2023 and under SOP amendment we can't have more than 84 vessels in 2024.
- MC [PC] The 84 vessels only for ore shipping?
- CO [BIM] Yes, 84 are ore carriers.
- MC [PC] We will wait for DFO, but we think it's premature to take a decision on reducing the cycle of aerial survey.
- CO [BIM] Thank you, your points are noted, I believe that others will have comments.
- ND [GN] I am confused about the motivation to reduce the frequency., and don't think a rationale for reducing the frequency of the programs was provided in writing in advance for a decision at this meeting or is this being raised now?
- CO [BIM] The rationale wasn't in writing but this is in the agenda and up for discussion with the group. We don't have a position paper and I can get WSP to speak on this. One practical thing to note is that there are no planes to do Leg 1 and 2 at the end of July and beginning of August. We are on a waitlist and don't have reservation to run the program.
- ND [GN] Do you have any foresight on when you will have planes to run the surveys?
- CO [BIM] I don't, I have followed up with the provider and we are on a waitlist.
- ND [GN] Can you provide the rationale in writing to help us understand your position.
- CO [BIM] I am going to invite WSP to provide some of the rationale, if you want it in writing we can articulate that and share.
- PA [WSP] Aerial survey was not meant to be a yearly program, DFO don't run annual aerial programs, and it is a lot of resources. It became yearly because BIM observed a decline in narwhal population and to find out if the number was rebounding especially during phase 2 application. We are waiting to compare the result from DFO on their aerial survey, and feed this data into the adaptive management process to help understand if surveys need to resume earlier than 3 years. We think that we are back at a stable narwhal population of 2013 and 2016. We will also get feedback from the community to input into the adaptive management process. We are going back to the initial intent of doing aerial surveys every few years to monitor the population, which is what is being proposed.

- ND [GN] We would prefer waiting for the DFO results before providing our views on changing the frequency of the surveys going forward. We would also appreciate Baffinland providing the rationale that was just shared in writing. We would prefer waiting for the DFO results before providing our views on changing the frequency of the surveys going forward. We would also appreciate Baffinland providing the rationale that was just shared in writing.
- CG [QIA] Given that we received the 5-year plan presentation late last week, I am requesting that we include this as an agenda item in the June MEWG meetings in order to allow for a more comprehensive internal review to better inform the discussion. Given the lack of plane availability, have alternatives been explored like satellite imagery to fill the gap?
- CO [BIM] We have explored satellite imagery for a few years but it doesn't provide the level of details that we need.
- PA [WSP] We have thought about using satellite for abundance surveys but the technology and resolution is not yet there. But might be able to get to that point in the lifetime of the project.
- CG [QIA] Does BIM or WSP have update on when plane availability can be expected and how it will impact leg 1 and 2 surveys.
- CO [BIM] We have been told that if things change we will be notified.
- PR [WSP] For the last 2 years it has been difficult to get these planes. Due to Covid impacts where a lot of these studies were put on hold, now there has been a lot of demand for arctic studies. I don't expect to have the planes available this summer. There are challenges with satellite for abundance estimates. The resolution that can be used is very expensive, there is also a huge risk in collecting data over the huge area expecting to have clear conditions within the limited time you need to capture the data. For instance if we solicit from a satellite company to capture data during that period, cloud cover can limit the quality of data, and we still pay for it.
- CG [QIA] With the difficulty in locking down planes, has WSP and BIM taken a look at using drone for this work? I understand that technology has improved over the years.
- PR [WSP] Similar to satellite, the use of drone has been looked at. The challenge is that, the vast extent of the study area limits the use of drone as it can't travel further away from the operator, getting permits also limits its use. When satellite and drones improve, we can consider their use.
- CO [BIM] The draft agenda for MEWG June has been circulated, but I will add the discussion to the agenda
- KW [ON] DFO has to survey countless population across the arctic, and DFO is not a full for profit like BIM. I don't think its fair comparison to say DFO doesn't do it every year so why do we have to do it every year. I think the whales' population has been fluctuating and not stable. If we are unable to do this year, let's get the planes lined up for next year.

- Lou [BIM] I think we need to have a practical discussion, we are running surveys every year for every program that we have. This is not something that is expected for any project across Canada or what we should reasonably say should be expected of BIM. We cannot run every program that we have every year. Yes we are for profit, but this programs are very expensive. The government of Canada should be funding their organisations to do the right science and what their mandate is. For DFO, they are meant to manage stocks that are actively being harvested. Our operation is working every angle to avoid impact on the animals. We are suggesting a one in every 3 years survey, when it is acceptable for DFO to do it on a 7 - 10 years, and we support that decision from DFO, we expect that same type of reasonableness to be returned to us. We can't have reasonable conversation, if the expectation is that we do everything all the time.
- KN [ON] I don't think that everybody is expecting that every simple program is run every single year, and clearly that not what is happening. The acoustic program is taking a break, Bruce Head wasn't successful last year, maybe that one takes a break, but I think for all the programs the one that has the most viable early warning indicator is the aerial survey program. Maybe we should talk about of all the programs, which one should be the priority in a year, maybe that's a very useful conversation.
- CO [BIM] With respect to all the programs including Bruce Head. BIM has to weigh many different contributing factors. One of which is Inuit participation and IQ. IQ helped to create the Bruce Head program were we have very high successful Inuit participation, and there are a lot of contributing factors for the different program frequencies. We have taken note of your comment. We will move on to the next agenda item.

Survey Averaging Discussion - WSP

- PR [WSP] This relates to technical comments that DFO provided last year to SOP on the analytical process. Which is, whether, when or not to average the result to get abundance estimate for that year.

Specifically, DFO recommendation included having a discussion to take an average of all surveys conducted in a single season and using that as the abundance estimate. In some years it is possible to complete one study in the study area for that year. In other years we try to complete more than one survey in that year, and we call them replicates. The abundance estimate can be improved by taking the average of several surveys.

You are likely to get more presence estimate when you have multiples. But that is if you are confidence that they are present in equal numbers. You assume that no animal has left or no new animal has come into the RSA. This is a challenge because we don't know when they are present or when they are migratory.

What do we know about narwhal in Northern Baffin? They arrive Eclipse Sound in late July, their number peak in mid-August. Narwhal numbers decline late Aug as the out migrate out of the system. Narwhal can migrate to multiple summer grounds within the season. DFO does July 24th and August 24th we try to match this but it is not always possible to do this. You want to avoid bias when animals are not doing their normal thing in the summer grounds.

BIM aims to complete the study within the 2 areas to ensure that we don't bias the result. We use 2 planes and complete in a 2 to 3 days period.

In other to minimise survey data that will bias the abundance of narwhal we have a criteria to know when replicates are appropriate or not based on what has been used by federal government and other international research institutions as follows;

1. It should be done few days between each other
2. Not statistically different between replicate surveys
3. Exclude early or late surveys, what is early or late is not defined especially based on ice conditions, we have used IQ to determine when this is happening.

Based on 5 years survey data, you will see why we have included or excluded replicate surveys.

DFO asked us to provide this. We have provided this is in the technical memo dated March 22nd 2024, which has outlined what I have discussed with a table of years comparing when we have used replicate and when we haven't used replicate. This was provided in the technical memo, and it is the same trend when done both ways. There is no difference between abundance estimate in 2023 and the baseline year.

10 minute break, returned at 3.10pm

Q&A

MM [DFO] Can we get references why we can't average surveys that are significantly different?

PR [WSP] Do you want an example when DFO excluded data when there was significant difference between those estimates or generic reference for when it's appropriate or not? I can provide both.

MM [DFO] I will want for both, and why we can't average surveys done several days apart?

PR [WSP] I have not looked for a citation for the 2nd question, that more of a general rule of thumb that we apply to avoid bias that I explained. That to avoid double counting of animals that have moved away. I don't have a citation for that, but it is a real concern on our part.

MM [DFO] Just to be clear, we try to complete our survey as quickly as possible. Where there is one replicate we try to complete it as fast as possible, but if we do repeat replicate it is okay to have few days apart.

- PR [WSP] We agree on that being reasonable for surveys 1 or 2 days apart from each other, but when it is a week or more past the previous survey that's a concern because you might get animals that have migrated.
- MM [DFO] I want to clarify something for the group. Counting narwhals is hard, one thing that makes it hard is that narwhal dive. We have to estimate how long they spend underwater and we can adjust survey estimate for that time. For example, if they spend half their time underwater, we multiply to double the number of narwhals on the surface. So we put tags on narwhals and it gives us the diving patterns of narwhals, and that's how we calculate how much time they spend on the surface and the under water. But we have one number to adjust for narwhal, so let's say on average they spend 50% time under water so we multiply by 2. So the challenge is that we complete such surveys in 1 or 2 days. So let's say on the first day we count 1,000 narwhals on the surface, we multiply by 2 and get an estimate of 2,000. So next day they are mainly foraging and you count 500 narwhals on the surface, you multiply by 2 and get 1,000. So it depends on when you do the survey and the behaviour of the narwhals, are they on the surface or under water. We can't control how long they spend under water or on the surface. That's why narwhal estimate varies depending whether we saw narwhal on the surface or underwater because we have only one correction factor, that's why it's important we take an average, to average out the high and low surveys to get a better estimate. Sorry for the long explanation, I just wanted to make sure we understand why we average.
- MM [DFO] Why did you use the waving type of model, to model the trends in narwhal?
- Phil [WSP] With respect to the last question on model, I will have to get back to you on the question. With respect to earlier comments, the potential bias associated with it we call availability bias based on their behaviour on how easy or not to detect an animal on the surface. I agree and disagree in certain regards. We are talking about two different types of bias, you are talking about availability bias and averaging for that purpose but there is a totally different form of bias that has to do with their behaviour, more temporal based behaviour so animals are responding due to their migratory timings. So there are 2 potential issues that could be coming into bias the data. So averaging your surveys to compensate for this does not eliminate the migratory bias. So while I think it's important to have a correction factor for the availability bias, the migratory bias needs to be addressed in a separate manner
- It is important and we are happy to adopt both approaches, this is just to stimulate scientific discourse on finding the right approach. We hope we come to an agreement on this over the next few months. The issue is, what are we going to do with all data to date? If we are changing correction factors and adjusting bias, how can we align this collectively from over 20 years of data? Open question.
- MM [DFO] That's all my questions. We will provide written comments on survey averaging.
- CO [BIM] Do you want to circulate this yourself or through Baffinland
- MM [DFO] This is procedural, I will discuss with our group.

Tidal gauge monitoring Presentation – WSP

CO [BIM] Can we use 30 minutes to discuss this and get feedback and some of the challenges that we are having.

AL [WSP] The T&C on using tidal gauges to monitor relative sea level and storm surges. Is tidal gauges a good system to measure this, are there other measures? Is tidal gauges the best approach? How can we improve the program to meet objectives? We want comments and feedback on how better to do this?

Tidal gauge monitoring was in operation at Milne Port till 2022. The following were considered important. Measuring relative sea level and comparing both within years and between years. Measurement should be accurate.

The next slide shows the equipment we have been using to measure temperature. This device is placed inside a metal tube at the bottom of the ore deck ladder and lowered into the water. Each year that is installed, A GPS RTK (real time kinematic) survey is conducted to measure its position and elevation. Up to 16 points are measured and averaged and the graph shows the result.

The problem is that the elevation data is very variable year to year, we don't know if there is a problem with the device connection to the satellite.

Next slide, this is figure from the last time it was used. Is a tidal gauge program the best? Are there other methods that should be considered? If the tidal gauge is the best approach, does the program meet the objective and how can it be improved?

CO [BIM] AL has analysed the challenge we are having and we are posing the question to the group if there are any ideas that can be shared? If you have thoughts on how to improve it please share with us through email, we may dedicate some time to this at the next meeting.

BS [QIA] These are very technical questions that are not easy, we need some advice from scientists who are experts at measuring marine impact and land rise and how they affect ocean levels and coastal zones.

AL [WSP] I agree with what BS said. Obviously, there are technical difficulties to do this kind of study in this kind of environment with the inability to connect to proper chart datum. We are able to get measurement for within year but not between years. We have no way to validate the measurements we are getting for between years.

BS [QIA] One approach is to set an action item for BIM to seek experts to give advice to the group in a memo. There may be expert for Geological Surveys Canada or perhaps DFO that can be brought to the next meeting

- CO [BIM] I want to counter your proposal. This is our technical working group, so between organizations here can have access to experts who can attend this meeting through them. We flagged this in our annual report, and we should turn to our internal capability to find experts that can offer advice.
- BS [QIA] AL's suggestion of Canadian Hydrographic Service could be a group that Canadian government can reach for advice.
- AL [WSP] The intent of this presentation is to clarify the terms of reference for this study, and once we are clear on this, we can determine if it is technically possible. We underestimated the technical difficulty at this location, maybe it's technically impossible to do this at this location.
- CO [BIM] Maybe if DFO can consider BS recommendation that will be great.
- PH [DFO] I will reach out to AL offline, and we will look for experts within DFO and see if it's possible to bring the expert to the next meeting.
- CO [BIM] I want to thank all participants, HTOs, Lizzie your interpretation is well appreciated. Anything we need to follow-up on we will circulated via email. We will meet again in a month.

The meeting ended by 4.00pm

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Marine Environmental Working Group (MEWG) Meeting

Meeting ID: M-05062024
Group / Organization: MEWG Members and Observers, Baffinland and Consultants
Meeting Location: Ottawa / Conference Call
Meeting Chair: Cortney Oliver

Organization Name	Participants
Member Organization	
Mittimatalik Hunters and Trappers Organization (MHTO)	Jonah Koonark (JK), Phanuel Enoogak (PE) Online MHTO
Iglulik Hunter and trappers Organization (IHTO)	Judah Sarpinak (JS), Lloyd, Isaac
Sanairaijak Hunters and Trappers Organization (HBHTO)	Sam Arnaqjuanq (SA)
Nangmoutaq Hunters and Trappers Organisation (NHTO)	Nysana
Baffinland Iron Mines Corporation (Baffinland)	Cortney Oliver (CO), Angela Bischoff (AB), Lou Kamermans (LK), Constance Merkosak (CM), Jesse Manufor (JM), Matt Weaver(MW)
Environment and Climate Change Canada (ECCC)	Melissa Pinto (MP), Jennifer Sabourin (JS)
Qikiqtani Inuit Association (QIA) and Consultants	Bruce Stewart (BS), Jeff Higdon (JH), Andrew Jaworenko (AJ), Connor Goddard (CG), Amoudla Kootoo (AK) Lindsay Galbraith (LG), Chris Wagner (CW)
Government of Nunavut (GN)	Natalie D’Souza (ND), Jessica Waldinger (JW)
Parks Canada (PC)	Vincent Marmillot (VM), Scot Burley (SC), Marie-Claude Martel(MCM)
Department of Fisheries and Oceans Canada (DFO)	Kimberly Howland (KH), Paul Harper (PH), Nicholas Wasilik (NW), Jose Audet-Lecoutte (JAL), Marianne Marcoux (MM), Gabriel Bernardo Lacaille (GBL),

Organization Name	Participants
	Colin Kovachik(CK)
Makivvik	Camille Le Gall-Payne (CLP)
Baffinland Consultants	
WSP Golder	Phil Rouget(PR), Andrea Locke (AL), Kyla Graham (KG), Patrick Abgrall (PA), Julia Horgan (JH), John McClintock (JM). Mitch Firman(MF)
JASCO	Melanie Austin (MA)
Observer Organization	
World Wildlife Fund (WWF)	Sam Davin (SD), Erin Keenan (EK)
Nunavut Impact Review Board (NIRB)	Absent
Canadian Northern Economic Development Agency (CANNOR)	Chantel E(CE)
Oceans North (ON)	Amanda Joynt(AJ), Kristin Westdal (KW)
Transport Canada (TC)	Adam Downing
Others	

AGENDA

Item	Time	Activity
1	9:00-9:30	Welcome and Roll Call
2	9:30-9:45	Review Minutes and Action Items
3	9:45-10:45	Final 2023 Marine Monitoring Program Results – Bruce Head Shore-Based Monitoring Program, Marine Environmental Effects Monitoring Program (MEEMP), Shipboard Observer Program (SBO)
4	10:45-11:00	Health Break
5	11:00-12:30	Continuation of Final 2023 Marine Monitoring Program Results & Update on Steensby Spill Modelling
6	12:30-1:30	Lunch Break
7	1:30-2:45	Continuation of 5 Year Monitoring Plan- Northern Shipping Route
8	2:45-3:00	Health Break
9	3:00-3:30	Tidal Gauge Monitoring ...continued from May meeting
10	4:00-4:30	Summary of Actions and Wrap up

SUMMARY OF ACTION ITEMS

Action ID	Responsibility	Item Description	Due Date	Status
Completed Action Items				
M-19042023-10	BIM	Lawsons/Baffinland to follow up with the NIRB regarding section of 3.3/role of the NIRB	Prior to release of fourth draft.	Completed
M-12072023-06	BIM	Baffinland to circulate the third draft of the revised TOR to both the MEWG and TEWG once complete.	Upon completion of third draft.	Completed
M-14052024-03	BIM	To provide rationale for changing the frequency of the aerial mammal surveys to 3 years cycle and add this for discussion in the next MEWG meeting	Next MEWG	Completed
M-14052024-04	BIM	To include the 5-year monitoring plan discussion on next MEWG agenda	Next MEWG	Completed
M-15022023-03	BIM	Develop plain language summaries for each Management Plan being submitted with the SOP.	Upon completion	Completed - Summaries of management plans are included in the adaptive management plan and those will be translated once AMP has been finalized.
M-12122023-07	BIM	Circulate the timeline for submission of SOP2 to the Planning Commission and NIRB, as well as the end date of SOP2.	When information becomes available	Completed
M-13052024-07	BIM	To provide a response on the question “was it by design that no ship went through Milne port while Capesize ship was being loaded at port? Also while they were being loaded, were there ships anchored at ragged island?”	Next MEWG	Completed
M-13052024-08	BIM	To provide to QIA the number of ship convoys in 2023	Not specified	Completed
M-14052024-02	ON/MHTO	ON to present to the group the work they have been doing with MHTO on narwhal response threshold.	Not specified	Completed
M-05062024-01	BIM	To confirm whether vessels were using closed loop scrubbers.	Not specified	Completed – open and closed loop scrubbers have been restricted for years. Vessels do not discharge in Milne Port.
M-05062024-04	BIM	To share the meeting recording of the Spill Modelling presentation with the GN.	Not specified	Completed

Action ID	Responsibility	Item Description	Due Date	Status
M-14052024-01	DFO	DFO to provide comments in the 2023 annual report on the rationale for request to analyze different decibels lower than 120Db threshold	Not specified	Completed - Provided in IR comments on Annual Report.
M-12122023-03	BIM	WSP to develop Figure 1 from Baseline Shipping tech memo in tabular format for distribution to the MEWG.	Not specified.	Completed – Sent in an email.
M-13052024-02	ON	To provide a formal response to the use of 2013 as baseline year	Next MEWG	Completed
M-13052024-05	WSP	To provide information on colour ramp on the map for ice condition to QIA	Not specified	Completed
M-12122023-06	QIA	Clarify whether the IIBA will be renegotiated for the Steensby Component.	Not specified	Completed. QIA and BIM are commencing the 3 year review. Part of the review is looking at where IIBA update is needed to address Steensby operation and construction. The process will include engagement will all impacted communities.
M-14052024-05	DFO	To provide written rationale on survey averaging for consideration by all MEWG members	Not specified	Completed – Provided in IR comments on Annual Report.
M-14052024-07	WSP	To provide references to DFO on survey averaging	Not specified	Completed – sent in the online chat
M-14052024-01	DFO	DFO to provide comments in the 2023 annual report on the rationale for request to analyze different decibels lower than 120Db threshold	Not specified	Completed - Provided in IR comments on Annual Report.
M-05062024-06	BIM	To clarify and confirm the number of ships at Milne Port before the August 12-13, 2023 narwhal survey to Parks Canada.	Not specified	Completed
M-05062024-05	DFO	To send BIM comments on frequency of narwhal surveys (from the 5-year monitoring program memo).	Not specified	Completed
M-13052024-03	WSP	Page 74, section 3.5.5.2 re:photo survey detection model, report says “hazard rate key function with no adjustment had the lowest AIC of 6187.95 for the detection function model but was rejected because the distribution did not follow a hazard rate function” How is model best fit by a distribution that did not fit the data?	Not specified	Completed
M-13052024-04	WSP	Appendix E, Power analysis page 212 of 219 in the pdf. Why is there such a large variation in the number of degrees of	Not specified	Completed

Action ID	Responsibility	Item Description	Due Date	Status
		freedom? Eg 2019 Eclipse Sound survey df= 6.45 versus 2023 Eclipse Sound df= 305. It notes that information that DFO used to report narwhals is not available. Can DFO provide this?		
M-13052024-06	WSP	WSP to respond to DFO if they evaluated the detectability of narwhals between the old and new camera systems	Not specified	Completed
M-14052024-06	WSP	To provide reason for the choice of wavy model to model narwhal trend	Next MEWG	Completed
M-05062024-02	WSP	To check with the statisticians on how cumulative effects of changing baseline conditions like climate change have been considered in the Bruce Head program, and incorporated in the model.	Not specified	Completed – “No, we have not. For Bruce Head, we are looking at the immediate response to vessels in the vicinity of vessels; climate change isn’t likely to affect that, but it is likely to affect overall relative abundance. We account for some cumulative effects via having a year effect in the model. So, if relative abundance decreases over time due to reduction in food sources over the winter or similar, we would see it as a significant year effect. The downside is that the year effect also accounts for 1) one-offs, like the 2023 ice jam that resulted in very low counts, and 2) any habituation the whales might be undergoing to the increase in shipping since 2015.”
Outstanding Actions				

Action ID	Responsibility	Item Description	Due Date	Status
M-14062022-04	Daniel Coombs (DFO)	Provide MEWG and TEWG for review the details and report of the sampling program in the Robertson River area.	September 30 th , 2022	Not started – DFO to follow up with Science Group. Update provided at 11-Dec-2023 meeting – report will be released in one year's time and action will remain open.
M-12122023-08	QIA	QIA to clarify future engagement plans with IHTO.	Not specified	Not started.
M-12122023-09	DFO	DFO to provide aerial survey program results from Steensby area to SM from IHTO.	Not specified	Not started.
M-13052024-01	DFO	To provide technical memo on use of 2013 as baseline to compare with WSP memo on the use of that year as baseline year.	Next MEWG	Not started
M-12122023-04	BIM	PIPR, SOP and MMP updates to be re-visited at future meeting and questions regarding PIPR and SOP commitment statuses to be submitted by members via email.	Not specified.	Not started.
M-12122023-05	DFO	DFO to find the studies on where narwhal and beluga are located in the winter in the area of the Southern shipping route and provide this information to the MEWG.	Not specified	Not started.
M-12122023-02	DFO	DFO to follow up with IHTO regarding identified calving areas in the Clyde River and Arctic Bay areas	Not specified	Not started.
M-14052024-08	DFO	To meet offline with Andrea Locke (WSP) on the gauge discussion and seek experts within DFO that can provide advice on the issues raised with tidal gauge monitoring.	Not specified	In progress
M-05062024-03	BIM	To meet with Igloodik to hear their concerns and adjust the mapping for spill modelling if we need to.	Not specified	In progress. BIM has started Steensby engagements.

MEETING MINUTES

At this meeting, MEWG members agreed that henceforth, the minutes would be written in summaries rather than the previous method of a transcription and the meeting recordings will be shared with the group.

Meeting started at 9:29am

2023 Final Marine Monitoring/Invasive Species Results presentation - Andrea Locke, WSP

S. Davin (WWF) kicked off questions by asking how trace metal concentrations are reported in results. Are these values representative of total metals, dissolved metals or insoluble metals, he asked. A. Locke (WSP) responded that they will be reported for individual metals and are done through accredited laboratories using standard tissue analysis methods. Analysis goes back a number of years, in the initial years of monitoring there appeared to be an increase in concentration over time, but in the most recent years, it has leveled off, and has decreased in some cases. For instance, iron is stabilising and a decrease is more common. It is possible that this is due to changes in iron ore management, showing a decrease in iron in the water and fish tissue adjacent to the dock.

S. Davin (WWF) clarified that in dissolved metals vs insoluble vs total there is a difference in the bioavailability of metals depending on their state. He asked if the samples collected were at discrete intervals or was a long-term passive sampling method used. He pointed out that when sampled at discrete intervals, the presence of contaminants of concern in the water due to tidal fluctuations might not be seen, but a representative concentration will show when using long-term passive sampling.

A. Locke (WSP) provided context to the sampling procedure, stating that sampling is done during the ice-free season; water quality is sampled using discrete sampling on five different occasions over a month and half. Sediment quality is sampled using a van veen sampler; each station is sampled on one date. Fish is sampled once during summer. Sampling is done discretely because there is some difficulty in deploying continuous sampling in that water, you certainly cannot run it yearlong.

S. Davin (WWF) followed up by asking what depth is sampled, is it first 1cm, 5cm etc.? A. Locke (WSP) responded that it is the top 15cm, to the depth of the van veen grab, and samples that do not meet criteria for penetration of the sediment are disposed and started over. S. Davin (WWF) asked whether that meant the top 15 cm are homogenised and presented as an integrated sample. A. Locke (WSP) clarified that for sediment quality, only the top 5cm, which is an integrated sample are used and total and dissolved metals are recorded. 15cm is the depth for benthic infauna.

S. Davin (WWF) provided context to his questions with comments on how marine sedimentation rates can be variable, but are often very low. Suggesting that looking at 5cm could represent a great number of years and it is difficult to assess these results without an understanding of the sedimentation rate at the location. A. Locke (WSP) noted that Bioturbation could come into it, which is another aspect of scientific study.

After a ten-minute break P. Enooagak (MHTO) began the discussion mentioning that there are also cods that are eaten by seals and that should be sampled and analysed. A. Locke (WSP) responded that we are not using cod as one of the species, but that the study of tissues for char and sculpin indicates whether fishes are picking iron from stockpile or land. We are not seeing increase in iron in the tissues, and the levels have been going down recently. The reason for this study is that char and sculpin can move up the systems of higher fishes or mammals like seals. Even though there is no cod study, the study of other species helps to understand what is happening. P. Abgrall (WSP) added that if we are not seeing it at the base of the food chain, we believe it will not accumulate in the seals that are eating them.

B Stewart (QIA) brings up that measurement from the grab samples on the sediment being a mixed sample makes them awkward. He asked if BIM has considered using sediment core samples to get clean samples rather than scraping 5cm from the top. A. Locke (WSP) responded that there will still be mixing if you use core. The current process is to look at the sample to determine if it has been disturbed during the grab. If the sample have been disturbed, that sample will not be used. The sample will be from the inner portion of the grab. I do not think you can be sure if what you sampled is recent or not. Sampling the top 5cm will ensure that the sample has been deposited in the recent past.

B. Stewart (QIA) suggested that, since mixing happens every year collecting a deeper sediment core should provide a longer deposition record that enables detection of changes that might otherwise be missed when sampling only the surface sediment. This will be looked into A. Locke (WSP) responded. However, the thought is that the sampling issue will occur if you sample from the core, which is the same for sampling at 5cm. Both will get mixing in the core. B. Stewart (QIA) noted that the objective will be to see change over a longer period and is curious of what results will be produced with a metre core.

S. Davin (WWF) added that the best practice to control bioturbation in sample collection is to set a sediment trap to accumulate samples from only the time the trap is set or how long the trap is in place. Second best practice is to collect the core, but that would require the control of sedimentation rate by using Lead-210 dating. The idea is sampling only from the top cm would require the need to infer how long that is. S. Davin (WWF) encouraged the consideration of this process if we aim to speak to the accumulation of metals and hydrocarbons in a meaningful timescale. He further asked if the vessels to Milne Port are equipped with exhaust gas cleaning system and if Vanadium in the water column and sediments is being monitored. A. Locke (WSP) confirmed that Vanadium is monitored. However, she cannot speak about the vessels. She asked the clarifying question if this is in reference to the scrubbers on the vessels. L. Kamermans (BIM) pointed out that Baffinland has restricted the use of open loop scrubbers for vessels calling on Milne Port for several years based on work with WSP predecessor during the phase 2 review. These restrictions still exists, and with this, we believe that there is no pathway for Vanadium as referred. S. Davin (WWF) asked a clarifying question, if open loop scrubbers are not being used, are the vessels using closed loop scrubbers and if there are, are they discharging in Milne Port. Which C. Oliver (BIM) promised to confirm and report (**Action – M-05062024-01**)

J. Sarpinak (IHTO) reiterated that it is important to consider arctic cod. As arctic char only spends short summer in the ocean while arctic cod lives on the ocean all year long. C Oliver (BIM) made a note to take this into consideration

J. Audet-Lecoutte (DFO) commented that taxa richness is lower in benthic infauna around Milne Port and asked if this is unrelated to activities. A. Locke (WSP) provided context stating that in 2023 taxa richness was lower in the stations farther away from the ore dock. From 2020, there was reduction due to propeller scouring at station SW-2 that has subsequently recovered. Currently we are not seeing a reduced biodiversity or abundance at that site anymore.

J Audet-Lecoutte (DFO) further asked to know what the process is to designate a no risk taxa for non-native species. A Locke (WSP) explained that the process starts with reviewing all the identifications for the year, if a species that is not previously recorded in the taxa that was developed is detected, a comparison with invasive species database is done to know if it has appeared anywhere on INS database. Examination of non-database sources is also done to know if the species have served as AIS. We also try to understand its biogeographic distribution and if it is a species that has been reported in the Canadian arctic, or if its distribution is one that would include the project site because distribution data is not very complete for the arctic. For a species to be no risk, they must not have been an invasive species anywhere in the world and have a distribution that includes the project site. No risk is mainly negligible risk. J. Audet-Lecoutte (DFO) continued his questions, asking if the reference point is all of the arctic and not site specific. Which A. Locke (WSP) responded saying that the non-certainty is assigned to the data based on geographic area. Site specifics are being looked at but in some cases the distribution is patchy, so there is some uncertainty with the result, but it has to be detected in biological regions adjacent to project area, this is included in the annual report.

K Howland (DFO) asked for clarification on if a species is listed somewhere as invasive and their distribution is uncertain in the Canadian arctic will this be considered no risk. To which A Locke (WSP) replied saying, there are several species that are on the watch list due to uncertainty, if it is on the watch list it will be placed in a different risk category. She further mentioned that some species have been placed in a different risk because concerns have been raised about them. Getting to the initial question, the answer is a no, they will not be, no risk.

M. Marcoux (DFO) asked about the Bruce head program and if the data presented was, only the days narwhals were observed, and what this data will look like compared to the previous years. She also asked if monitoring was being done on days when there were no narwhals. P. Abgrall (WSP) clarified that in the analysis, it was not broken down to days when there were narwhals, and rather it was broken down to when the first narwhal was observed in the area. The data when narwhals were not in the area was removed. M. Marcoux (DFO) pointed out that by doing this it does represent the number of narwhals per day, which is low compared to previous years since the exclusion of days before the ice stopped the narwhals from going into Milne Inlet. Which P Abgrall (WSP) responded that the information of when the first narwhal came was on the fifth and that the first ship came on the 10th. There was a large number of observation days with no narwhal during this time. While talking to the community, we noted their observation of where narwhal are, but the numbers did increase. First narwhal was before the ships came through, but this is the case because of late ice.

P Rouget (WSP) joined the conversation, adding that only several days were removed when it was clear narwhal could not come in because of ice. This was determined by aerial surveys because we had sight of them from the air. After aerial survey ended, it was a guessing game to know when narwhals will come in. It was assumed there were several days to a week that animals could or could not enter Milne Inlet. Having done this for 6 - 7 years and having observed that when there are ice field the narwhal decides to stick in that ice rather than come in so they would not be observed from Bruce Head. It can be included when narwhal could not be there and when they elected not to be there.

M. Marcoux (DFO) added that it is interesting to note that the proportion of immatures have increased and any change in the proportion is an indicator and it is possible that female with calves can be left behind. Noting that the sample size is small because not many narwhals were seen but this is something that should be paid attention to for the future. P. Abgrall (WSP) responded that the narwhal numbers was up this year. He further explained that early on it was noticed that more groups of mother calves came in which is why there is a higher proportion. This was why the aerial survey data was looked at since it could be biased as the sample size was small as we had only a short window when the animals were passing through.

A. Joynt (ON) commented that it was mentioned in the report that 2.4 - 2.6km is the estimate range when narwhals were being impacted by passing vessels. P Abgrall (WSP) confirmed this, adding that the analysis showed moderate physical effect up to a distance of 2.4 - 2.6km for northern bound vessel, and clarified that this is not observed for southern bound vessels. A. Joynt (ON) then asked for clarification on the criteria used to determine that, asking whether it is the distance from ship and presence of the ship or is it behaviour. P. Abgrall (WSP) explained that it is from doing the relative abundance count from the hill, not drone based. Although JASCO have recorders at Bruce Head, there is no measurement of the sound levels at that point. The focus is less on sound levels if there is an opportunity to get direct observations at the distances they are impacted and their reaction. 2.5km is the maximum distance the range effect was seen. Sound levels were useful in the modelling, but when there was direct observation of the range of distances, sound levels were not the focus. The use of acoustic measurement can match some of those observation especially for the focal follows.

A. Joynt (ON) mentioned that it has been said before by others at MEWG; that it will be good to integrate the acoustic monitoring with observation programs, so that an understanding of the sound levels can be captured when these behaviours begin and that it is Ocean's North recommendation to do this. She then asked P. Abgrall (WSP) for clarification on whether 5km is the visual limit for Bruce Head. He replied stating that 5km was based on observation from the behavioral data. He noted that some of the animals will react to distances of 5km and that is why it is truncated at that distance. A. Joynt (ON) reiterated that it would be good to integrate this program with data from the acoustic monitoring program. As it will help to understand if 120db is the limit for assumed disturbance for narwhals in addition to what are the received sound levels along with the different type of behavioural response we are seeing from the Bruce head program. In response to A. Joynt (ON) comment, C. Oliver (BIM) noted that this has been looked at previously. She pointed out that in some way it is not that easy, as some animals respond at a distance when sound is audible while some will not respond even when exposed. She called on M. Austin (JASCO) to elaborate. M. Austin (JASCO) then proceeds to explain that there is acoustic data

to tell what the sound level at specific distance for specific ships are. That this was reported to some extent in 2019. However, this has not been reported in our annual reporting, but it is something that can be looked into. She further said that there is a complicating factor that there is no measurements at the specific times when these behavioral observations are made at Bruce Head. This is something that has been thought about to produce a better result. For instance, drone observations will have to have the acoustic recorder close enough to where that drone focal follow occurred at that specific time. As noted in the data, there is variability in the ship levels from transit to transit. It is difficult to record the sound levels at the exact time of the observation, but the data and modelling can be used to predict a range of levels that the narwhals are likely to be experiencing at the time of the observation. M. Austin (JASCO) finally noted that the variability between measurement and variability in responses between animals makes it difficult to know with certainty at which threshold animals are responding and not responding.

A. Joynt (ON) suggested that we continue the use of modelling without the exact measurement, but where possible we should go beyond or less than 120db. Then it can be certain that 120db is the right threshold to use. She raised concerns for stopping at 120db and the uncertainty if 5km is covering 120db in some areas of Eclipse Sound. P. Abgrall (WSP) corrected this, stating that observations are not being restricted to an estimate range of 120db. The drone focal follows, the response of animals at all distances, the reaction of animals to vessels at 2.4km is based on all observation put together. It has not been locked in at 120db. For instance, the tagging study that was done with DFO and community, it was observed that when ships approach, the tagged animals move away from the shipping lane. The animals move away at 2.5km from the ship and move back after the vessel passes. For one vessel passage, 18 – 25mins is the disturbance if the animal chooses to remain in the shipping lane area. The response of 120db is not the lowest sound level that narwhal will respond to, but it is a threshold that most or 50% of the animals might respond to. That is the guideline used to establish threshold and there is variability amongst animals he said.

A. Joynt (ON) responded stating that when thinking about thresholds as per NIRB guidance and terms and conditions there needs to be an understanding if the threshold is precautionary. If there is an application of the principles of precaution to marine environment, it needs to reassess this, instead of a standard threshold. P. Rouget (WSP) responded saying that the approach is precautionary as we present the maximum distances at which responses are discovered. In many of the cases using 2.5km, animals respond to 1km, but by using 2.5km, which is the maximum distances (worst-case scenario) where you see effect. In non-windy conditions, they respond below 120db, there is variability in noise level and a huge variability in how animals respond to that noise. The reason that a range is presented for response distance rather than a full range of sound levels is that animals will respond from 100db to 155db. 120db is disturbance threshold in most scientific citations. When looking at responses as a whole, from both tagging and Bruce Head data, it can be stated that 120db is a reasonable threshold for narwhals in terms of responses. Majority of animals will not respond to sound levels below 120db. It is important to note that responses below 120 are not ignored, as all sound levels are captured. A. Joynt (ON) clarified that she is not suggesting that levels outside of 120db are being ignored. However, there is a need to integrate this into different programs which she will continue the discussion offline.

J. Higdon (QIA) in his comments asked if data on sea bird behaviour is being analysed and recorded and where that is located. P. Abgrall (WSP) responded that distribution and abundance are reported in the Ship Based Observation program, but no additional behaviours are recorded based on impact on the program. He said that the vessels are monitoring for potential bird strikes, and there has only been one observation of this on the program until date.

J. Higdon (QIA) further asked about Botnica and Fennica being used together and if they were escorting the same vessels. P. Abgrall (WSP) responded that one was lead vessel and the other one was following. The lead vessel was for observation of marine mammal behaviour; working together was to make sure there is a wider strip of open water in front of the following ore carrier to have less pack of ice or loose ice around the vessels.

Lunch Break

After the break, J. Higdon (QIA) started by asking about the 2013 pilot program and if that data are available and why is it not included in the model. P. Abgrall (WSP) responds that because the methodology was not developed, it was realised that it did not work. The methodology to divide the area into grids was developed and used instead.

J. Higdon (QIA) asked if there is flexibility in program start dates especially for Bruce Head. He wondered if the program was shifted by a week, would there have been more data. C. Oliver (BIM) responded by saying that mobilising for Bruce Head is not swift, there are a lot of preparation involved such as making sure that internet is working and camp is ready. P. Abgrall (WSP) supporting C. Oliver comments stated from experience learnt overtime it is tricky, and things have to be planned in advance. He added that the concern at that time was to go early to get narwhal than going later as there was unfavourable weather condition to have people camp out.

J. Higdon (QIA) asked if Early Warning Indicator (EWI) is reported using unmanned aerial data or visual data. To which P. Abgrall (WSP) responded that visual data has been there before the drone program. J. Higdon (QIA) remarked that there is now 4 years of UAV. Can there be an increase in the sample size? Like using more drones to increase focal follows. To which P. Abgrall (WSP) commented that this has always been something that has been looked at. Last year there was an attempt but ice conditions impacted this. Lesson learned have been incorporated last year but conditions did not allow. The intention is to make it happen in 2024. While there are limitation and safety restrictions with UAV numbers, there is still a desire to increase sample size.

J. Higdon (QIA) further asked if the plan is to have two drones for this year. Which P. Abgrall (WSP) confirmed, clarifying that it is two drones going back and forth to increase the observation time, but not at the same time

J. Higdon (QIA) asked if the behaviour response data has been collected using UAV and if these observations are integrated. P. Abgrall (WSP) commented saying that drone data is analysed on its own, behaviour data is also analysed separately. Pointing out that looking at relative abundance of narwhal, has been consistent since 2014 looking at the data for Bruce Head.

J. Higdon (QIA) then pointed out that in the report it was mentioned that action was made to record focal follows. P. Abgrall (WSP) clarified saying that observers are not able to see all areas of the shipping lane and drones were used to search for narwhal, but in terms of getting actual numbers, WSP will have to mine the data.

J Higdon (QIA) in another round of questions asked about the number of narwhal groups being divided into 10 bins and what was the statistical justification for the binning process. P. Abgrall (WSP) responded that this was a DFO suggestion and that there were different options presented to MEWG and ultimately arriving at looking at 10 groups to account for variability. He further asked about the 18TH and 20TH of August and how the Nordic transited through without AIS system and how those data were removed. P. Abgrall (WSP) responded that after going through it, the data were found and it was available, but there is some uncertainty about when and why it was not on, but noted that it is a rarity. C. Oliver (BIM) added that it could be a satellite issue and not ship issue; for instance, there have been situations where a phantom ship showed up when there was no ship. These are satellite glitches.

J. Higdon (QIA) noted that the report recommends additional monitoring in many cases and asked if BIM and WSP targeted using Inuit and community knowledge to fill this uncertainty. P. Abgrall (WSP) responded, saying that Bruce Head program has heavy involvement of Inuit participants. There were meetings with Inuit participants to know if what they observed matched with the data collected. What has been heard from observers is that narwhal does not move as much as when this was started. J. Higdon (QIA) final question was, how has cumulative effects of changing baseline conditions like climate change been considered in the Bruce Head program, and incorporated in the model. P. Abgrall (WSP) agreed to check with the statisticians on what environmental variables were considered (**Action – M-05062024 -02**)

5 year Monitoring Plan Presentation by Cortney Oliver

C. Oliver presented Baffinland the 5-year Monitoring Plan and WSP introduced the macro-algae identification project that is done in partnership with the University of New Brunswick. There were no questions on these items.

The Steensby Fuel Spill Modelling Presentation by Phil Rouget (WSP)

After his presentation, P. Rouget (WSP) noted that Baffinland will be engaging on this topic further with the Baffin Island communities and HTOs, with a particular focus on the Southern communities of Kinngait and Kimmirut and Makivvik Corporation. Therefore, Baffinland/WSP sought agreement on the locations of the Spill Model locations from the MEWG.

J. Sarpinak (IHTO) observed that there are no translations on the maps on the slides and asked that these should be translated before community engagement. C. Oliver (BIM) confirmed that the maps on the slides will be translated before any community engagement.

Lloyd (IHTO) started his questions by pointing out that he would hate to see a fuel spill anywhere and hopes it does not happen. On the maps where the animals are (e.g. polar bear, walrus), it seems like every map does not have enough information on it. Commenting that last year we requested for the haul outs, where they migrate

and the calving areas to be put on the maps. He stated that every map seen here today is off, for instance the walrus haul out and calving locations should be larger. There are concerns that are not seen this on your map, he concluded. C. Oliver (BIM) responded by thanking him for raising the observations. She informed him that this is the reason why the presentation was brought to the group for comments. Lou Kamermans, Senior Director of Sustainable Development (BIM), added that BIM will be in touch with Igloolik (**Action - M-05062024-03**) were concerns can be heard and adjust the mapping if needed. Lloyd (IHTO) also pointed out that other communities like Northern Quebec will have concerns too. He asked that they should be heard from as well.

L. Kamermans (BIM) further elaborated that the engagements done in communities on Steensby in the past one year has been permit focused (i.e. DFO Fisheries Act Authorization, offsetting measures and the Approval to Construct with Canadian Transport Agency). He informed the MEWG that over the next year those engagements are going to shift focus to the development of monitoring programs, completion of spill modelling scenarios and risk assessments for shipping. There will be focus on mitigations for shipping and how to make these fit for Steensby and ensure the right information is obtained. If there are more areas to identify, the desire is to talk about this with the community and ensure that the most current information is available to build the monitoring and mitigation programs. L. Kamermans (BIM) then thanked Lloyd (IHTO) for his comments on translation and noted that there is a desire to want to talk about this and that will happen.

C. LP (MVK) asked two questions 1) considering the upcoming heavy fuel oil (HFO) ban, will this have an impact on the modelling 2) this model is aimed at understanding how the fuel is behaving – will there be an element of discussion on jurisdiction and how this will be managed in the case of an emergency. She ended by commenting that it would be interesting to have this included.

L. Kamermans (BIM) answered by stating that consultation with Transport Canada (TC) is currently ongoing regarding the HFO ban, he pointed out that there is meant be an exemption until 2029 where HFO can be carried until then. Noting that the short answer is there should be modelling for the types of fuel that can be spilled. He pointed out that where the Steensby project is at currently, 2028 is the earliest operation and there might be one year where HFO can be carried by vessels before the complete ban. The focus is on fuels that will be in the area for the duration of the operation. As an important next step, we will take the spill model output will inform risk assessments and updates to the spill response plan for vessels and the shore-based spill response plan. There will be continued consultation with communities. With 10 years of experience and a developed spill response plan there has been no major spills. It has been used, and has proved effective for minor spills. It will be tailored to be specific to the Steensby Component of the Project.

C. LP (MVK) thanked L. Kamermans (BIM) for his response. Adding that this is good to know. She then asked a couple of questions: if the timeline could be illustrated, is 2028 the earliest start of operation, how long will work be done on the spill model and initiate the second phase, how will this be incorporated to the Steensby planning. To which, C. Oliver (BIM) responded that this will be done over the next year.

J.Sarpinak (IHTO) referring back to his earlier comment on maps and engagement. Stated that at the Federal (TC and DFO) level there is hardly ever community engagement when they do their processes. He continued and

reiterated that before any engagement happens, the maps need to be translated into Inuktitut as some community members are unilingual. To which C. Oliver (BIM) reassured him that the fuel spill model has not started, there is time to ensure the model is appropriate and uses the correct locations based on IQ.

S. Davin (WWF) referring back to the discussion on HFO suggested that one of the biggest things BIM could do today to reduce pollution risks and impacts associated with vessel operations, noise aside, is not to use HFO now or in the future. On the subject of the HFO ban, he cited that the language states that exemptions are possible for ships with 76cm between the fuel tank and outer hull of the vessel, and waivers can be provided by Arctic States for their own domestic fleets. He asked if the modelling would include time for the potential spill to reach shore. C. Oliver (BIM) confirmed that they will.

J. Audet-Lecoutte (JAL) in his contribution assured Lloyd (IHTO) that DFO would be consulting the communities this summer on the Steensby Rail and Port. He pointed out that sometimes, the federal agencies over rely on other boards like NIRB for consultation, but this time DFO will in the communities. He further asked if any hotspots have been identified in the study (hotspots means important habitat overlapping with riskier operations such as fuel transfer). Have any of these spots been identified, he asked.

P. Rouget responded that the four locations presented correspond with areas of overlap of Ecologically or Biologically Significant Areas (EBSAs) and risk, as well as camping/hunting/fishing areas. This is not an exhaustive list of the sensitive areas but are examples to illustrate sensitive areas. The types of fuel release will also be looked at, for example, some areas are more sensitive to birds than mammals who can detect and avoid spill areas. Ultimately, models cannot be done everywhere, it does take place over a simulated time-period and how long it would take fuel to reach shore. This would all be presented in the modelling results. He reiterated that the modelling has not started – this presentation is looking at theoretical locations. Hence, feedback is wanted from members on the locations based on IQ and traditional knowledge as well as research. Modelling results can tell which communities would be impacted by a spill event.

A. Downing (TC) in his contribution assured Lloyd (IHTO) that TC would consult and engage with communities during the summer with the other federal colleagues at the same time to consult on Steensby Port and the Railway. C. Oliver (BIM) added that BIM has been talking with others, NIRB and Government of Canada, and like to see this partnership. She advised that this is an opportunity to join engagements to lessen engagement fatigue in the communities.

Lloyd (IHTO) then asked if there has any research on the ship route to Steensby, especially the depth. To which L. Kamermans (BIM) responded yes. He stated that there has been quite a lot happening and is planned to happen. He informed the MEWG of the various studies that have been done along the shipping route. These include bathymetry studies conducted in 2023, looking at safe approaches from a depth perspective for the vessels coming to Steensby Port, and study of ice conditions, as ice surveys was done in June 2023 using satellite imagery. In addition, the Project Certificate Terms and Condition required BIM to provide a report on ice conditions over the past 28 years, which was provided with our annual monitoring report. There is now a shift into wildlife monitoring, there will be ringed seal surveys happening right now and as early as next fall and BIM could be

starting other marine mammal focused programs. There is a lot of work being done and there will be continued consulting with communities along the shipping route, which is being planned. Having direct meetings and fill in spaces on those maps and get feedback is how our monitoring programs are designed.

Health Break

Continuation of questions on the Spill Modelling presentation.

M. Marcoux (DFO) started by asking if the shipping lane has been defined for Steensby and if there is potential for the ships to take a different route. To which C. Oliver responded that there is still potential for modifications to be done to the shipping lane.

A. Joynt (ON) contributed and pointed out that there is missing data in the Nunatsiavut area on the map. She observed that there is an EBSA along the Northern Coast, the Northern Labrador EBSA, which is connected to the Eastern Hudson Strait and Baffin Bay. She was encouraged with Makivvik and encouraged the engagement with Nunatsiavut Government.

N. D'Souza (GN) in her contribution elaborated that the GN has jurisdiction of spills on commissioner's lands; she stated that the GN are interested in any lands that might be affected by spills post-devolution taking effect. She asked that the recording of the presentation be shared with her to take back to the technical folks and other departments, such as Culture and Heritage for any special sites on the shoreline. C. Oliver (BIM) agreed to cut the recording (**Action - M-05062024-04**). N. D'Souza (GN) further mentioned that the GN would like to be involved with any further discussions on jurisdiction.

B. Stewart (QIA) noted that it is good that this is brought here early on in the process. One of the initial problems that needs to be corrected from his observation is that these maps were developed for a very high-level and identify known key areas, but did not capture local Inuit important areas. This should be incorporated going forward. In terms of picking spots along a long track like this, it is worth considering assessing the impacts all along the track. There are studies, like the ballast water ones, which use particle modelling that assesses how long it takes particles spilled to get to shore. If there is good oceanographic data over a wide area, it could provide a tool that would enable BIM to test spills all along the track, so that a spot is not picked only to find it to not be in the right place. There might be different results using a continuum rather than a single point. This would need to be done seasonally for each of the options. QIA will have many comments going forward and it is good to be involved in the process.

Still on the topic of engagements, B. Stewart asked if there is a plan to consult and engage with the closest Kivalliq communities, Coral Harbour and Naujaat. C. Oliver (BIM) responded that BIM plans to engage with Coral Harbour and have reached out to Naujaat but had not heard back, there are no plans right now to engage with Naujaat. B. Stewart (QIA) pointed out that other communities rely on the marine mammals in Hudson Strait so they may be interested in participating. He then referred to slide 72 on the Zoom presentation and ask why there is no T2 open water location for a 15,000L spill.

P. Rouget (WSP) answered that every time a different series of modelling conditions is done there is a cost associated with this. He explained that there is a budget that is being worked with to capture locations along the shipping corridor. WSP/BIM elected as more important to look at the full spill of an entire spill tanker in each season at all locations, as opposed to the spill volume associated with an ore carrier, which is lower in volume. Hence, this captured the worst-case scenario.

P. Rouget (WSP) in further response to B. Stewart (QIA) earlier question on modelling along the entire shipping lane, reiterated that the spill model needs to be built and configured to a number of domains for the chosen locations. Once the model is built with the correct data, different spill locations along the shipping corridor can be run. In these scenarios, full seasons are being looked.

B. Stewart (QIA) noted the importance of carefully considering how to build the model and the scope under which it can be used. In particular the need to inform spill response along the entire shipping lane, and to accept information updates (e.g., from aerial surveys), so the data are immediately available to inform spill response in areas where there has not been a spill model test. Regarding additional baseline for the survey, he then asked if the ringed seal aerial survey and birth lair survey done on the ice are planned for this spring. P. Rouget (WSP) responded that there is a ringed seal abundance and distribution survey taking place imminently, the teams were mobilizing today and yesterday. He corrected that the birth lair survey, would need to be done another time of year. He elaborated that this survey is similar to the 2021 ringed seal surveys, which will provide good data that will be incorporated into the environmental sensitivities part of the model.

B. Stewart (QIA) then follows up asking if the models will assist with community preparedness, which should probably be included in the modelling exercise. M. Marcoux (DFO) added that DFO has the same thought about community preparedness. Mentioning that it seems like the model is based on fuel spills in the water and assumes no intervention is done. She believes there should be an intervention making the model to be more agile. She referred to the cost of the model, and suggested that it should include variables like community preparedness, jurisdiction and equipment in the model right away. P. Rouget (WSP) responded that while these additions are good and would reduce impacts, the stated requirements of the model in the project certificate is to model a worst-case scenario where no interventions is possible.

On the subject of preparedness and response, S. Davin (WWF) added that the parameters suggested for the model to include two fuel types - marine diesel oil (MDO) and ultra-low sulphur diesel (ULSD). He suggested that if there were a likelihood of vessels using other fuels or less conventional fuels like liquefied natural gas (LNG) or ammonia, it would be worthwhile and important to include those scenarios, as the responses will be different depending on fuel type.

Regarding the ringed seal aerial survey, Lloyd (IHTO) asked if the community engagement would be done before all the results are provided. According to him, the IHTO would like to say something after the counting and before the results are published. C. Oliver (BIM) responded that when results are available they will be shared with the communities..

J. Sarpinak (IHTO) goes back to the fuel spill modelling, citing that only some of the marine mammals are listed, there is narwhals, belugas, 3 types of seals (bearded, ringed, harp) and a lot of fish. He asked that these be included in the modelling. P. Rouget (WSP) responded positively sharing that WSP would be happy to work together with the HTOs on this and receive information on what these sites are. He pointed out that the modelling is fluid, so other locations can be chosen and then clarify with all parties if there are missing information and come to an agreement. L. Kamermans (BIM) noted that as important as all of this is, it's more important that there is a focus on prevention. He said that this will be a part of the talks had with the communities and what kinds of mitigations should be applied. There has been a very safe operation so far, there is an automatic identification system (AIS) to locate ships, completed bathymetry studies to ensure safe arrival of ships, including Capesize vessels, there have been simulations run in St. John's on vessels passing each other, there are ice navigators on each vessel to ensure that they run safely in those conditions. A lot goes into mitigation, this is the focus, emergency response is critical, and there is a lot of flexibility to ensure that this is as safe as possible, he concluded.

With no further questions, C. Oliver (BIM) thanked everyone for their comments and contribution.

Tidal gauge monitoring discussion, a follow up from the last MEWG meeting.

C. Oliver (BIM) introduced the discussion on Tidal gauge monitoring and asked DFO if there is an update. P. Harper (DFO) stated that there was no update, as that people were still getting back to him from the Canadian Hydrographic Service. C. Oliver (BIM) then asked if anyone else found anything within their network or organization. There was no answers from the group. C. Oliver then states that at this point there is no solution on our own, and is looking for advice from the group to go forward on tidal gauge monitoring.

5-year Northern Monitoring Plan

C. Oliver (BIM) represented the 5-year plan because when she presented it earlier, some members were not back from lunch. A. Locke (WSP) also reintroduced the conversation she did earlier, narrating a collaboration with the University of New Brunswick for sampling over 2-years to look at DNA based identification of macroalgae and morphological identification. They are also looking at archived samples. The aim of this is to better identify macroalgae and will be useful for the NIS/AIS part of the monitoring program to help with identification. This will also help improve understanding and distribution of algae in Arctic Canada and a better understanding of distribution of species for other areas as well.

Lloyd (IHTO) asked if it is still the plan to have the overwintering vessel at Steensby Port. L. Kamermans (BIM) responded that the original project proposal included an overwintering barge for fuel, but there is no barge at Steensby Port now and there is an attempt to develop an early works program that lets go of that idea. He informed the MEWG that if in the end, there is a need to bring in an overwintering fuel barge, the concerns of the communities and regulators are well captured in the PC, there would be a high standard to meet to bring an overwintering vessel or barge in. He pointed out that BIM's preference is to avoid this altogether.

N. D'Souza (GN) acknowledged the memo on the 5-year monitoring plan. Stating that after a review of the memo and at this time the GN has no comments. She noted the changes proposed to the marine mammal aerial survey program, she informed the MEWG that the GN's comment is to defer to DFO on their views regarding those changes.

M. Marcoux (DFO) raised a question regarding acoustic monitoring frequency. She observed that from the shipboard observer (SBO) presentation, last summer there were two icebreakers operating at the same time with the cargo vessel, she asked if there is acoustic monitoring for this configuration of ships. C. Oliver (BIM) responded that this data is available, but the recorders is yet to be retrieved.

M. C. Martel (PC) noted that the narwhal numbers were approximately 10,000 in Eclipse Sound from the August 12-13 survey last year, which was observed despite the highest level of ore shipped and use of Capesize vessels. However, the first Capesize vessel arrived on August 29, which is 2.5 weeks after the survey. Therefore, how many vessels arrived at Milne Port before the survey? C. Oliver responded that there were two tugs and a sealift on August 9th, and a convoy of three-ore carriers on Aug 11th. She promised to double check the numbers and made a note to follow up. M. C. Martel (PC) pointed out that she understands the logistical issues around the survey timing and the delayed shipping season but has a hard time understanding that the narwhal are back, when there were no Capesize vessels and there were less than 10 vessels during the survey.

P. Abgrall (WSP) contributing to the conversation added that in part, the statement does not explain the whole story; another survey was done later in August, about 10 days after the first. He explained that the numbers were about equivalent in both surveys. The sighting conditions were better in the first survey, which was done in one day, the second survey was done over a few days due to weather. He reiterated that the number of narwhal in Eclipse Sound are back to what they were in previous years, while the number of narwhals between Admiralty Inlet and Eclipse Sound remained the same. The idea is that the number of ships in one season would not affect the number of narwhal in that season, it would have happened over a number of shipping seasons. A decrease in narwhal numbers would be seen if the population was declining or narwhal were abandoning the area, which is not what is being seen. C. Oliver (BIM) in answering the earlier question from M. Martel (PC) stated that the Capesize did come through before the second survey. M. Martel (PC) commented that since the 2023 shipping season was a bit different because of the delay, Parks Canada (PC) would prefer to continue the survey until the narwhal trends are stable.

P. Harper (DFO) in a follow-up agreed with Parks Canada and commented that it is premature to decrease the frequency of monitoring, and that DFO will provide their comments in writing. According to him, one year of data is not sufficient to conclude on the trends of narwhal population. L. Kamermans (BIM) pointed out that DFO also has frequency of monitoring for their purposes, and stated that DFO comments on frequency is appreciated. He elaborated stating that BIM looks to other organizations and what is done elsewhere, in DFO's case it's for quota setting and for BIM its impact monitoring. They are different but any information to find similarities on that would be helpful. P. Harper (DFO) responded that DFO would follow up and get back to L. Kamermans (BIM) on comments regarding narwhal survey frequency (**Action - M-05062024-05**).

The Meeting ended by 4:00pm

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Marine Environmental Working Group (MEWG) Meeting

Meeting ID: M-06062024
Group / Organization: MEWG Members and Observers, Baffinland and Consultants
Meeting Location: Conference Call
Meeting Chair: Cortney Oliver

Organization Name	Participants
Member Organization	
Mittimatalik Hunters and Trappers Organization (MHTO)	Jonah Koonark [JK] Phanuel Enoogak [PE] MHTO (virtual)
Iglulik Hunters and Trappers Organization (IHTO)	Judah Sarpinak [JS], Isaac (virtual) Lloyd (virtual)
Sanirajak Hunters and Trappers Organisation (HBHTO)	Sam Arnardjuak [SA] (virtual)
Nangmoutaq Hunters and Trappers Organization [NHTO]	Nyasana (virtual)
Baffinland Iron Mines Corporation (Baffinland)	Lou Kamermans [LK] Cortney Oliver [CO] Jesse Manufor [JM] Angela Bischoff [AB] Matt Weaver [MW] (virtual)
Environment and Climate Change Canada (ECCC)	Jennifer Sabourin [JS] (virtual) Melissa Pinto [MP] (virtual)
Qikiqtani Inuit Association (QIA) and Consultants	Bruce Stewart [BS] Jeff Higdon [JH] Andrew Jaworenko [AJ] Connor Goddard [CG] Amoudla Kootoo [AK] Lindsay Galbraith [LG] (virtual)
Government of Nunavut (GN)	Natalie D'Souza [ND] Jessica Waldinger [JW] (virtual)
Parks Canada (PC)	Vincent Marmillot (VM), Scot Burley (SC), Marie-Claude Martel (MCM)
Department of Fisheries and Oceans Canada (DFO)	Kimberly Howland [KH] Paul Harper [PH] Jose Audet-Lecoutte [JAL] Marianne Marcoux [MM] Gabriel Bernard-Lacaille [GBL] (virtual) Nicholas Wasilik [NW] (virtual) Sarah Bailey [SB] (virtual) Colin Kovachik [CK] (virtual)

Organization Name	Participants
Makivvik	Camille Le Gall-Payne [CLP]
Baffinland Consultants	
WSP	Andrea Locke [AL] Patrick Abgrall [PA] Phil Rouget [PR] (virtual) Julia Horgan [JH] (virtual) Kyla Graham [KG] (virtual) Mitch Firman [MF] (virtual)
JASCO	Melanie Austin [MA] (virtual)
NEMO	Absent
Observer Organization	
World Wildlife Fund (WWF)	Sam Davin [SD], Erin Keenan [EK]
Nunavut Impact Review Board (NIRB)	Absent
Canadian Northern Economic Development Agency (CANNOR)	Chantel E [CE] (virtual observer)
Oceans North (ON)	Amanda Joynt [AJ] Ben Savard [BS] (virtual) Kristin Westdal [KW] (virtual) Alex Ootoowak [AO] (virtual) Josh Jones [JJ] (virtual) Katrina Johnson [KJ] (virtual)
Transport Canada (TC)	Jackie Barker [JB] (virtual)

AGENDA

	Time	Activity
1	9:00-9:10	Welcome and Roll Call
2	9:10-9:40	2023 Regional Aerial Survey - DFO
3	9:40-10:10	2023 Ballast Water Results & 2024 Ballast Water Monitoring Program Overview
4	10:10-10:20	Health Break
5	10:20-10:50	2024 DFO Ballast Water Monitoring Program
6	10:50-12:00	2024 Shipping Season Overview
7	12:00-1:00	Lunch Break
8	1:00-2:00	Acoustic Monitoring in Eclipse Sound – Oceans North and MHTO
9	2:00-2:30	Summary of Action Items and Wrap-Up

M-06062024

Meeting started at 9am

DFO's 2023 Regional Aerial Survey Presentation - Marianne Marcoux [DFO]

Question and Answers

S. Arnardjuak (HBHTO) started the conversation by stating that satellites used during covid, however, without covid restrictions is everything back to normal surveys? M. Marcoux (DFO) responds that during covid there was an attempt to use satellite images, but it is unable to get abundance estimate, so it is back to doing aerial surveys.

There was an online question from (MHTO) asking about the narwhal in Pond Inlet. The question asked if these narwhals returned to Pond Inlet after these large vessels started coming to the area. M. Marcoux responded that there has not been a chance to count all narwhals in Eclipse Sound, but there is a plan for this next summer. J Audet-Lecoutte (DFO) asked if the result will be comparable to what is been done by BIM. M. Marcoux (DFO) said yes, stating that both DFO and BIM use acceptable methods to estimate for relative abundance.

K. Westdal (ON) had two questions, which were can the surveys by BIM and DFO be averaged in the future; and at the beginning of this presentation it stated that the Eclipse Sound population and Admiralty Inlet population are two stocks, is that something that DFO is standing by? M. Marcoux (DFO) answered both questions. For the first question on averaging, it could be possible to average WSP and DFO, and I do not see any issue with that. Second question, DFO recognise two narwhal populations - Hudson Bay, and Baffin Bay population. DFO manages these in six different stocks based on genetic information, traditional knowledge and movement. There is recognition that there is some movement between the different stocks. They are same population but Eclipse Sound and Admiralty Inlet are managed as two separate stocks. Following up with this, J. Audet-Lecoutte (DFO) asked if the different stocks share the same summer areas, do they go back to their original winter habitat even if they mix during summer. M. Marcoux (DFO) responded that the map is not available and that DFO has general area for wintering ground. There is not much data for how they mix, that information is difficult. The thought is they mix during the winter and go back to the same summer aggregation; there is some level of mixing.

J. Higdon (QIA) asked if the 2019 drone work contributed to the population estimate that was published. M. Marcoux (DFO) replied that the drone covered onshore area, while the plane was for offshore. However, one challenge was the first day photos on the plane could not be adjusted.

J. Koonark (MHTO) asked the next question asking what does the colours in photo analysis indicate. M. Marcoux explains that they are categories, male, female, the red is unknown. We like to put them in categories. The yellow area is the stock that is least known about and are referred to as the Somerset stock, so the narwhals may come from there or Northern Hudson Bay narwhal population, that is unknown.

P. Abgrall (WSP) then relayed a question from Mitch who is online, how does DFO calculate variance in the survey? M. Marcoux (DFO) explained that the variance is calculated by using a strip transect design so there is a variance between transect lines and variance in adjustment factors, so those are added up.

P. Abgrall (WSP) commented on availability bias. Asking if correction factor and water clarity in the photos are varying in the different regions or is there correction factor throughout. M. Marcoux (DFO) responded that DFO have not done the analysis yet. However, depending on water clarity the top layer or further down can be seen. According to her, DFO has developed how to categories murky or not murky per photo, and will develop adjustment factor to arrive at how much time narwhals spend in the top 2 meters or 4 meters of water and then adjust accordingly if its murky or not

P. Abgrall (WSP) commented that he has been exploring the use of drones and automated detection software, and is glad that they are here now. He asked that since this is the first time DFO is using automatic detection, how much time was saved using AI? He also asked if it is seen as a real-time and or economic savings down the line to run aerial surveys. He also expressed his curiosity about DFO's finding on its usage. M. Marcoux (DFO) responded that Whale Seeker was hired to do photo detection, the results just came in but there has not been an opportunity to look at them. In the future, there is a desire to do them in-house in the vision-processing lab in Waterloo. It is promising; if it is done in-house the cost is less. For the 2023 survey, there were two people looking at the photos and it took them 1 year to do half the photos. P. Abgrall (DFO) expressed his interest to have a discussion with M. Marcoux (DFO) when the analysis is completed, noting that there has been slow improvement over time. He further asked how is IQ integrated in the design of the DFO surveys especially in the movement of animals. M. Marcoux (DFO) responded that DFO integrated IQ by doing some engagement with communities and we had meeting in Winnipeg in 2019 where there were representatives from the six different stocks.

J. Koonark (MHTO) clarified the question asked by Igloodik online earlier. The question was where are the narwhal coming from, are they coming from our area? The MHTO are losing narwhals, are they coming from Pond Inlet. M. Marcoux (DFO) responds that the whole Somerset stock is the one DFO knows the least about, they could come from there or Northern Hudson Bay population, but it is not exactly known.

The 2023 Ballast Water Results & 2024 Ballast Water Monitoring Program Overview - Kimberly Howland (DFO)

The conversation began with Isaac (IHTO) who is online asking how many gallons of ballast water does one ore carrier carry. K. Howland (DFO) responded that it is 30,000 Litres, which is approximately 8000 gallons.

Isaac (IHTO) followed up by asking, if the ballast water collected from Greenland and Iceland is dumped in Milne Port. K. Howland (DFO) explained that water collected in Europe, which is discharged and new water collected from the area around the south of Iceland, between Greenland and Europe in the mid-North Atlantic.

The discussion continued with Isaac (IHTO) asking how many different organisms did DFO find in Greenland and Iceland waters? Are the organisms the same or different than what is in Milne Port. K. Howland (DFO) replied that for instance the marenzelleria organism is different from those in the waters of Greenland and Iceland. The conversation continues with K. Howland (DFO) stating that some organisms could be the same, some plankton are widely distributed. Once a new species is identified, DFO will know. DFO and BIM have data on species that live in Milne Port so there can be a comparison. She added that it is worth mentioning that organisms in Mid-Atlantic Ocean may not do as well on the coast. From samples in the cargo holds from Deep Ocean, three-quarters had no organisms and the other had low numbers. There are studies that show that the mid ocean exchange is a good step. Other researchers are finding that having that exchange plus treatment is much better.

Isaac (IHTO) commented that since there will be more ships going to Steensby Inlet it implies that more ballast water will be released by the ore carriers, to which K Howland (DFO) agreed and replied that there will be more ballast water released than at Milne Port as there will be more ships.

A. Locke (WSP) commented about the protocol for ballast water management before it comes to port. Currently the international requirement is to conduct exchange or treatment and BIM's requirements exceed the international and Canadian requirements as they do both. This has been identified as being valuable. She asked if this will become a more widespread practice in Canada? K Howland (DFO) responded that there certainly has been discussion about this. DFO has given advice to Transport Canada (TC) on the revision of ballast water regulations. Recommending both practices for international and only treatment for domestic vessels, as this is not currently requirement by TC. S. Bailey (DFO) added that right now exchange and treatment is a requirement for any ship that will discharge into Canadian freshwater environments.

J. Sarpinak (IHTO) asked how does treated ballast water affect the Ocean at Milne Port? Citing chlorine levels in the treated water and possible invasive species. He expressed concern that there is strict regulation for international border services on movement of plants and animals but not for ballast water that can introduce invasive species that pose a risk to the ocean and food chain. K. Howland (DFO) responded that chlorine is put into ballast water to kill organisms, although in high concentrations it can be a problem. However, the guideline is 0.2ppm, which has been set based on research and what is safe for the environment. If ships discharge higher levels, it could have an impact, but we are not certain. On the second question, right now the only kinds of organisms that are specifically regulated are ones that can be moved, like some fish species are prohibited from being brought across the border, mainly the US-Canada border. In theory, there could be something like that, but often there is an unknown for what organisms are on ships. The current regulation for treatment is the best method for this right now. Ships can do exchange or treatment right now, but going forward, overseas vessels will have to do treatment, but within Canada this is not required.

At this point C. Oliver (BIM) looking at the chlorine graph added that when chlorine is mixed into the water at Milne Port; BIM does not believe this to be problematic. If the levels are high, then it could be

problematic. However, in the overall totality of Milne Port, it is not a cause for concern. K. Howland (DFO) added that it is highly diluted. She further said that the regulations and guidance are in place for a reason, ideally, it would be helpful to understand and hopefully this is not seen very often, but it is good to keep an eye on it. C. Oliver (BIM) contributed to the conversation by mentioning that in working with DFO in this study, BIM have gone to Fednav who work with the owners of the Vessels and shared information. In discussion with the owners, they are committed to adhering to exchange and treatment, as well as the mitigations through the standing instructions we give every year, and every stakeholder is doing their best to adhere and mitigate risk.

A. Locke (WSP) noted that, these are new technologies, informing the MEWG that herself, K. Howland (DFO), and S. Bailey (DFO) were all recently at a conference with a large ballast water component, essentially these issues with chlorine and in some cases high levels of zooplankton in ballast water are seen across the world, not specifically Milne Port. Some work is being done to make sure that chlorine level are within the discharge levels. K. Howland (DFO) agreed with A. Locke (WSP) and said that these problems are common and the approach to treatment is new. Ships putting in these systems is new; it has been a phased approach with inputting the systems. There can be errors with the crew not being familiar with the system. Efforts are being made towards training operators and crew. There are improvements to the numbers of organisms found.

J. Koonark (MHTO) inquired why only ballast water from eight ships were tested and not all the vessels that came through Pond Inlet. K. Howland (DFO) responded that last year, 2023 was only a 2-week pilot study to see if the work is feasible and this was the first time doing this work up North. This year 2024, DFO will be doing more ships, not all of them, as people can only be up there for so long. Once people from the community are trained, it might be possible to have sampling throughout. Currently there is research for long term monitoring, a larger sample will be analyzed this year and it should be more representative. J. Koonark (MHTO) followed up asking how much chlorine does Capesize vessels use. K. Howland (DFO) responds that they produce their own chlorine using electricity and saltwater. She referred to S. Bailey (DFO) if she knows the concentration. S. Bailey (DFO) added that full strength chlorine treatment is 8ppm, but the highest measurement seen was 4ppm, which is half strength of full treatment. She further said that the measurement was taken right at the point where the neutralization is added. It is possible that the neutralization worked better if the sample is taken a few minutes later. There is uncertainty on how our measurements reflect the risk to Milne Inlet once water is discharged. J. Koonark (MHTO) noted that 4.8-ppm measurement from one of ships is very high and asked if it indicates anything. K. Howland (DFO) responded that it indicates that the water coming out of the ship may still have chlorine in it. J. Koonark (MHTO) then asked why it is so high. To which K. Howland (DFO) responded that DFO is not sure, but referring to what S. Bailey (DFO) mentioned earlier the measurements are taken close to the neutralization point. As water exits the ship, the concentration level might go down. In addition, sometimes the neutralization system does not work effectively, so it could be a mechanical problem, or the cold temperatures.

J. Audette-Lecoutte (DFO) in his comments states that there are risks associated with species that are going to be stuck to the hull and transported via biofouling. He then asked if there are measures put in place to

avoid that. K. Howland (DFO) responded that although that is not what is being looked at here, but yes, there are certain types of paints, vessels can use or they can be cleaned more frequently. In contributing to the discussion, A. Locke (WSP) stated that for Baffinland, all vessels coming into Milne Port certify that they have a certified hull cleaning treatment on the hull, which either repel or shed organisms off, vessels conduct hull fouling amendment on a prescribed schedule. This is the same procedure adopted by TC. For the companies contracted to supply Baffinland, this inspection is carried out during the contracting process.

S. Davin (WWF) thanked K. Howland (DFO) for the presentation and the great photos. He then continued to say that the risk of a negative outcome is thought about in impact and probability (likelihood). 84 voyages are allowed each year by MHTO; the potential voyages will increase to 242 with Steensby, not including construction. The risk of introducing NIS will be higher. This led S Davin (WWF) to pose a question to DFO –does the DFO team plan to evaluate what the additional risk would look like for Baffin and Foxe Basin large marine ecosystems (LMEs). S. Davin (WWF) suggested to Baffinland, that it would be a best practice to conduct routine testing to look into effectiveness of the treatment and concluded by asking if ore carriers will conduct testing of their treatment systems now or in the future.

K. Howland (DFO) responded by answering the first question. The main goal of this study is to look into the risk factors. The data that is collected could be used to look into calculating risk – this is certainly doable. S. Bailey's (DFO) team have led these risk assessments with numbers of organisms found in vessels. However, with the Arctic, there is poor data, and would make sense to do an updated assessment. It is certainly something that could be done in the future using methods that are already in place. Perhaps it is something that could be done to assess risk, BIM and DFO could work together to achieve that. C. Oliver (BIM) added to this, stating that BIM have an SOP commitment to continue to work with DFO on risk assessment after the current pilot project. Currently all ships are tested for salinity and require treatment and exchange. Once next year's results are available, BIM will be looking at the risk assessment.

B. Stewart (QIA) gave thanks for the presentation. According to him, this program is important for mitigating risk from ballast water given ongoing shipping – several of the ships tested last year did not meet the water standards and asked if sampling from the same ships each year was considered to see if the problem is associated with specific vessels. K. Howland (DFO) noted that logistically it is difficult to be on Site the whole season, as there is no capacity as DFO is there for 4 weeks of the shipping season, in addition to limited lab space and competing program resources. Many of those ships do have repeat visits to BIM, looking at the list of ships; some come twice maybe three times. It is a good possibility some of the vessels will be the same, but it is not logistically feasible. C. Oliver (BIM) added that there is a commitment to making sure ships stay on top of treatment. The ships are aware of the results and there are hopes of not having repeats of last year.

J. Higdon (QIA) then said, given the vessel owners are committed to making these changes. It would be good to follow up on these commitments. If they are unable to meet standards – have follow up studies been considered on these vessels if they do not meet standards for two consecutive years to help them fix the problem. K. Howland (DFO) stated that this is not considered in the scope of the study. In some

cases, the reasons might not be known. There is work being done to ensure crews are better trained. However, the reasons for these failures have not been looked into, but in theory there could be follow-up with the ship. C. Oliver stated that currently, ships comply with the D-2 Regulation. They are early adopters of the treatment and exchange as stipulated in D2 standard. While BIM cannot speak for the ships, it can still be said that as early adopters we want best practices and are willing to work together to achieve this. S. Bailey (DFO) then added that the team as well as other international colleagues are tackling the problem of how well treatment is working and how to improve. Mentioning that this is the beginning and early days in the adoption of treatment. There are training efforts to improve equipment and testing of equipment. Transport Canada has funded a research program for ship owners to improve the technology.

At this point, C. Oliver (BIM) noted that the meeting is running a bit behind so a few more questions and then K. Howland (DFO) can wrap up this section.

B. Stewart (QIA) encouraged DFO and BIM to follow up with the vessels where possible, as it is important as a means of mitigating the risk and provide easy solutions. For example, it might reveal effects related to timing of treatment and exchange that, if addressed, could improve compliance. In 2023, 50% of the vessels DFO was able to board did not have ballast water that could be tested for biota. Can BIM facilitate this access so DFO can increase their sampling size and help to meet with ship owners? C. Oliver (BIM) responded that last year was the pilot, and there has been a take away of lessons learned. There are operations and timing on operations. It is not always easy scheduling; a ship does not always get to port on schedule, best effort is being done to work with DFO and the Port Captain to better coordinate it as best as possible. K. Howland (DFO) added that Jorgen (Port Captain) is aware of this; and has been informed of what worked and didn't work at the end of last year's field season. DFO is going to be better looped in communications of when ships are arriving. There will be a letter that goes to the ships to let them know a sample is needed of actual ballast tanks as opposed to cargo tanks and to get a schedule of when ships plan to deballast. K. Howland (DFO) also responded to B. Stewart's (QIA) comments on following up with the ships, saying that this could be talked about as a team, the results are given to the vessel owners. Maybe somewhere in that process feedback can be requested to figure out why treatment did not work. She thanked B. Stewart (QIA) for the suggestions.

End of questions on the 2023 Ballast Water Results. Next K. Howland (DFO) then presented the plans for the 2024 Ballast Water Program.

J. Sarpinak (IHTO) asked can youths from our communities of Igloodik and Sanirajak be included in this training process before shipping in the Southern shipping route starts. K. Howland (DFO) responded that there is interest, there has been an application sent for additional funding that will allow DFO to bring a small number of individuals. The funds are not available to go to individual communities, but those communities can come to Pond Inlet for training. DFO have asked BIM if there are able to fly individuals to BIM site, and there is support for that. The training this year has come quickly, and we did not have the funds to fly people, but they may only observe. Next year DFO may have the required funding to accommodate them. Isaac (IHTO) then added that IHTO is pleased with this information given. IHTO is

supportive of environmental studies. If QIA is listening, can they support financially for this study especially for Steensby inlet.

Oceans North and MHTO Acoustic Monitoring in Eclipse Sound Presentation - Josh Jones

J. Koonark (MHTO) asked if the recorder is on all year round or July to November. J. Jones (ON) replied that it is on all year round, and that it is currently recording. Isaac (IHTO) asked the next questions - was there any difference between deep water and shallow waters, which is louder. J. Jones (ON) answered that generally, the sound is louder in shallow water, unlike deeper water, which is quieter because most of the sound is from the surface. It was learnt in this study that the protected areas are quieter than the open ocean.

An online question came from (IHTO) asking will Ocean North be working in Steensby area with these devices. J. Jones (ON) answered that one of the things that has been asked of Oceans North (ON) by the National Science Foundation is to collaborate with communities in the North where the work is being done. If there is interest from HTO Igloodik, effort can be put into getting some support for it. Isaac (IHTO) stated that there is interest in this; people have been saying that Steensby waters are different from Pond Inlet. Steensby is shallower than Pond Inlet waters, so there are differences.

S. Davin (WWF) asked J. Jones (ON) to comment about what percentage of time that noise levels at the hydrophone sites exceeds the natural baseline during the ice-free season. J. Jones (ON) responded that there is some of that information available on a publication from last year. The number is not available off hand. The approach of the study looked at percentage of time this is higher or lower, with and without ship presence.

M. Austin (JASCO) at this point, pointed out that sound tends to travel further in deeper water, so sounds from ship will be heard over longer distances in deeper water than in shallow waters. She further asked if there is data from the Milne Inlet. J. Jones (ON) responded that it is not right to generalise stating that how far sound goes in shallow water compared to deep water is determined by many factors. In the paper that was published last year, we included the analysis of sound levels from Pond Inlet and Milne Inlet and time when there are ships and when there are no ships. M. Austin (JASCO) replied that generally, that is what JASCO have seen with sounds, Milne verses Eclipse. She then asked if calculation is being done for source levels or just received levels. Noting that it is hard to tell from the scale on the presentation, it appears that many of the ships turn just before they pass the recorder. She suggested that the recorders should be moved more to the west where it is directly on the shipping route. J. Jones (ON) responded to the question on source level verses received levels, he said that to determine the amount of noise a ship emits takes a little bit of calculation and bit of guesswork even if you place microphones next to the ship. What the focus has been on is to get precise received levels from all ships at all distances and developing an encyclopedia of this. With a careful measurement of received levels, one could measure the source levels of the vessels. Ocean North were more concerned with the received level because that is what the animals will be exposed to. Your idea of having it straight on the shipping route will be very helpful, there is work being done with vessels to see if they can go right over the site.

M. Austin (JASCO) then asked if ON deployed from the floe edge. J. Jones (ON) responded that there is an attempt to do the most practical. It will be really helping to talk to shipping operators to get more of a straight path. ON are not limited in our ability to measure or estimate this currently.

M. Austin (JASCO) stated it will be helpful to compare loudness of different vessels looking at source levels instead of received levels, because received levels are a function of distance. For the purpose of the studies, received levels are appropriate; she further explained that she is was just curious to see if ON are also looking at source levels.

Nyasana (NHTO) asked when ships are entering without iron ore do they make more noise than coming back with ore. J. Jones (ON) responded that the received levels are similar from what was measured. There tends to be lower frequencies when the ships are loaded and the propellers are deeper. M. Austin (JASCO) noted that in BIM's acoustic studies loaded ships leaving Port tends to be a couple of decibels louder.

J. Audet-Lecoutte (DFO) then asked if acoustic monitoring like this could detect behaviour changes in narwhal such as stopping the clicks. To which J. Jones (ON) responded that it is clear that certain narwhal behaviour can be monitored acoustically. There are a lot to observe of narwhal behaviour from acoustic monitoring like this.

P. Abgrall (WSP) then asked two quick questions. The first was about Alex from Pond Inlet helping in the study design to make the recorders as quiet as it can be. Can what was done be shared to inform other programs in the area? J. Jones (ON) answered that Alex and a number of HTOs, Board of Directors, looked at the equipment to make sure there is no rattle that can create vibrations.

P. Abgrall's (WSP) next question was, since the receivers are deployed at the floe edge, did you record hunting and can the receivers hear gunshots. J. Jones (ON) confirmed that gunshots could be heard but cannot think about how far they can be heard. P. Abgrall (WSP) stated that the question was due to curiosity of how narwhal react to gunshots compared to shipping event. Isaac (IHTO) asked if there has ever been research on narwhal and stress level since shipping started. M. Marcoux (DFO) answered that a study was done before shipping started. The program was with MHTO who provided DFO with samples from their whales. Samples from narwhals entrapped in ice which are known to be stressed were used for this study. Cortisol (stress levels in the skin) were measured and it was found that narwhals in the samples had higher levels of stress after shipping started, than before. The ones that were trapped in the ice had the highest level of stress.

C. Oliver (BIM) stated that currently BIM is working on some methodology that was communicated to the MHTO in April to do a community program on narwhal health, stress, including body condition. In the future, there will be more information to share. P. Enooagak (MHTO) then stated that the narwhal in Pond Inlet became less healthy compared with Arctic Bay do you have any result? The narwhals are negatively impacted by shipping from our observation. C. Oliver (BIM) responded that BIM have heard this before

from other engagement that the whales became skinnier. BIM are working with MHTO to analyse body condition. BIM is also planning to return to MHTO to discuss methodologies to look at animal health.

According to P. Enooagak (MHTO) the seals have had similar impacts since BIM started operating. Seals have started to return, and there's a desire to see same with narwhal, but those that come to our area are a lot less, this is what is being experienced. P. Abgrall (WSP) acknowledged Phaniel's contribution to the monitoring program with advice for a number of years and there is respect for his contribution. He stated that there is concern with what is being heard from the communities. However, BIM wants to understand how much is environmental like climate change and what is project related. This concern was first brought to BIM/WSP attention in 2018; one hunter mentioned this was happening from early 2000s. BIM is looking at what this effect may be, and want to understand what the contributing factors are. It is hard to identify specifically what could be causing this. In addition, M. Marcoux (DFO) added that DFO started a project in Arctic Bay, drones are being used to take images of narwhal and measure body condition in Arctic Bay, there is a desire to know if they are skinnier than those in Eclipse Sound.

AJ (ON) thanked everyone for contribution. She suggested that this could be added into the cumulative effects framework. As this is the type of program that can be integrated into it as the framework is developed.

J. Koonark (MHTO) asked if cruise ships make a lot of noise too, there are many cruise ships coming to the area. J. Jones (ON) responded that there are about ten good measurements from passenger ships, generally their sound is travelling less far, there are some exceptions that have sounds (generators or part of their propeller systems) and the ships sounds goes as far as the ore carriers. Therefore, it varies. M. Austin (JASCO) then asks if there is calculation being done on the distances to ascertain sound levels and which sound levels are being looked at? J. Jones (ON) responded that it is on the slide, comparing two ships, with and without a generator. With the one with generator emitting more sound. This is part of ongoing research.

M. Austin (JASCO) asked for clarification on what is used to compare cruise ships to ore carriers, since source levels are not being calculated. J. Jones (ON) clarified and asked if the question is how sound levels are measured? According to him, what has been published is all frequencies that the animals might hear, that is the received levels that animals will experience. Received level from all distances, it is not a focus on sound level but received levels of ships at all distances. M. Austin (JASCO) expressed that the response did not quite answer her question, but she is happy for the conversations to continue.

AJ (ON) added a comment to the previous MHTO comment about cruise ships. She said that last year ON worked with MHTO and Transport Canada to request that cruise vessels do not pass close to Pond Inlet. There has been work done with the Association of Arctic Expedition cruise operators to request electronic customs, that enables them to not waste fuel and to go fully around instead of coming into Pond Inlet. The letter has gone to the minister, and there is a push politically for it to happen.

Nyasana (NHTO) virtually asked if there has been thought about a study on animals in Steensby before infrastructure and shipping route starts. K. Howland (DFO) mentioned that DFO have done some baseline studies in 2012 focusing on benthic, but not on mammals when that was an original BIM plan. That work is published, and the baseline information have been shared with BIM. Nyasana (NHTO) further asked if DFO would do similar studies on mammals. M. Marcoux (DFO) responded that there has been work with IHTO to deploy hydrophones around Igloodik, similar to what J. Jones (ON) is doing in Pond Inlet.

C. Oliver (BIM) appreciated J. Jones for the work that he is doing with Oceans North and MHTO. There will be added time in future agenda for further discussion. She reminded everyone that the meeting has ran out of the allotted time and asked if the MEWG had a hard stop. It was agreed that we spend extra 15mins to wrap up shipping season.

2024 Shipping season presentation – Cortney Oliver

C. Goddard (QIA) thanked C. Oliver (BIM) for the answer on number of convoys. Then asked what the make-up of the convoys is- are they variable – same size or different. C. Oliver (BIM) responded that BIM did not captured that, it will depend on the day and how the convoy was scheduled. That information is not available off hand. K. Howland (DFO) in a follow-up question asked if there is a schedule or order of various vessels C. Oliver (BIM) replied that this is also not available but can be shared. C. Oliver (BIM) continued and responded to the earlier question from C. Goddard (QIA) about the make-up of convoys. Noting that most of the convoys will be ore carriers but the sizes are not certain.

J. Koonark (MHTO) brought to the attention of the MEWG that when the vessels are passing through Bruce Head, some of the ships are too fast going over 9knots. C. Oliver (BIM) responded that BIM using AIS monitoring system can tell when they deviate from 9knots, last year there were 2 instances when the ships moved to 10knots, and this is because the tugs increased speed for safety.

P. Abgrall (WSP) narrated how some years ago some cargo vessels were moving too fast leaving the Port especially when they are going to a different community. BIM speaking to the hunters, modified the routes by asking the shipping to be further away from the shores where the hunters were, I think we have started seeing better speed adherence from the shipping companies. C. Oliver (BIM) added that in the December meeting it was mentioned that diversions occurred because of icebergs, to get back on course, and there were very few related to speed.

S. Davin (WWF) joined the conversation and asked C. Oliver (BIM) to what degree can BIM influence the Ore carriers servicing the mine? For instance if BIM wanted the vessels to no longer use scrubbers, is that a decision that will be made and passed onto Fednav or is it a discussion that Fednav will lead. C. Oliver (BIM) responded stating that last year BIM started restricting scrubbers, and ships are not allowed to empty them in the RSA. All captains calling to Port are given the rules of transit while they are in contract with BIM.

C. Oliver (BIM) thanked everyone both online and in person in Ottawa and the meeting ended by 2:46pm

Marine Environmental Working Group (MEWG) Meeting

Meeting ID: M-01092025
Group / Organization: MEWG Members and Observers, Baffinland and Consultants
Meeting Location: Conference Call
Meeting Chair: Cortney Oliver

Organization Name	Participants
Member Organization	
Mittimatalik Hunters and Trappers Organization (MHTO)	Mathias – Chairman MHTO Owen Jaworenko (OJ)
Igloodik Hunter and trappers Organization (IHTO)	none
Sanairajak Hunters and Trappers Organization (HBHTO)	Laimike Ullapak (LU)
Nangmoutaq Hunters and Trappers Organisation (NHTO)	Present – Nysana Qillaq [NQ]
Ikajutit Hunters and Trappers Association (IHTA)	None
Baffinland Iron Mines Corporation (Baffinland)	Cortney Oliver (CO), Lou Kamermans (LK), Lizzie Philips (LP) Translator Jesse Manufor (JM), Matt Weaver(MW) Michael Salomonie (MS) Katie Babin (KB)
Environment and Climate Change Canada (ECCC)	Melissa Pinto (MP), Jessica Kassar (JK) Sarah Forte (SF) Grant Gilchrist (GG)
Qikiqtani Inuit Association (QIA) and Consultants	Bruce Stewart (BS), Jeff Higdon (JH), Andrew Jaworenko (AJ), Amoudla Kootoo (AK) Lindsay Galbraith (LG),
Government of Nunavut (GN)	Natalie D’Souza (ND)
Parks Canada (PC)	Scot Burley (SC), Marie-Claude Martel(MCM) Vincent Marmillot (VM)
Department of Fisheries and Oceans Canada (DFO)	Kimberly Howland (KH), Paul Harper (PH), Nicholas Wasilik (NW), Jose Audet-Lecoutte (JAL), Marianne Marcoux (MM),
Baffinland Consultants	

Organization Name	Participants
WSP Golder	Phil Rouget(PR), Andrea Locke (AL), Patrick Abgrall (PA), Julia Horgan (JH), Trish Tomliens (TT)
CIRNAC	Absent
Observer Organization	
World Wildlife Fund (WWF)	Sam Davin (SD), Devin Holtermann (DH)
Nunavut Impact Review Board (NIRB)	Absent
Canadian Northern Economic Development Agency (CANNOR)	Absent
Oceans North (ON)	Kristin Westdal (KW) Ben Savard (BS)
Transport Canada (TC)	Melissa Guay (MG)
Makivik	Camille Le Gall-Payne (CLP)
Others	

AGENDA

Item	Time	Activity
1	11:00- 11:30	Welcome and Roll Call
2	11:30-12:00	Review Minutes and Action Items
3	12:00-1:00	Lunch Break
4	1:00 – 2:00	Summary of Marine Monitoring Work Completed in 2024 Season (Includes Summary of Program Updates and Implications of Ice Conditions on Field Programs) Q & A
5	2:00 – 3:00	Continuation on 2024 Monitoring
6	3:00 – 3:15	Health Break
7	3:00 – 3:45	2024 Shipping Season Overview
8	3:45 -- 4:30	Overview of 2024 DFO Ballast Water Program Q & A
9	4:30 – 4:45	Update on Terms of Reference (TOR)

SUMMARY OF ACTION ITEMS

Action ID	Responsibility	Item Description	Due Date	Status
M-14062022-04	Daniel Coombs (DFO)	Provide MEWG and TEWG for review the details and report of the sampling program in the Robertson River area.	September 30 th , 2025	Not started – DFO asked to update the due date. QIA is still interested in the report.
M-12122023-09	DFO	DFO to provide aerial survey program results from Steensby Inlet area to the IHTO.	Not specified	Not started. – Clarify this action from the December MEWG minutes where it was actioned.
M-12122023-05	DFO	DFO to find the studies on where narwhal and beluga are located in the winter in the area of the Southern shipping route and provide this information to the MEWG.	Not specified	Not started.
M-12122023-02	DFO	DFO to follow up with IHTO regarding identified calving areas in the Clyde River and Arctic Bay areas	Not specified	Not started.
M-14052024-08	DFO	To meet offline with Andrea Locke (WSP) on the gauge discussion and seek experts within DFO that can provide advice on the issues raised with tidal gauge monitoring.	Not specified	In progress. This has lost some traction, PH (DFO) will follow up with colleagues on this.
M-05062024-03	BIM	To meet with Igloodik to hear their concerns and adjust the mapping for spill modelling if we need to.	Not specified	In progress. BIM has started Steensby engagements.
M-09012025-1	BIM	To organize an interim virtual MEWG in the next 8 weeks to discuss the 5-year monitoring plan for the Northern Shipping Route previously shared in May and June 2024.	End of February or 2 nd week in March	In progress: Planning for this has started, looking at end of February or 2 nd week in March
M-09012025-2	BIM	To confirm the fuel used by vessels when they turn off their scrubber. Whether it is Ultra Low Sulphur Fuel (ULSF) or Marine Gas Oil.	As soon as possible	Completed: The ships use Marine Gas Oil (MGO)

Action ID	Responsibility	Item Description	Due Date	Status
M-09012025-3	QIA	Bruce Stewart QIA to share his thoughts and recommendation on the sedimentation issue in the MEEMP program in an email to Cortney	As soon as possible	Completed – emailed on Feb 28 th , 2025
M-09012025-4	BIM	BIM to hold an information session on the ToR at the same meeting as action M-09012025-1.	End of February or 2 nd week in March	In progress: Planning for this has started, looking at end of February or 2 nd week in March
M-09012025 -5	BIM	BIM committed to provide duration of vessels staging at Ragged Island and proportion of vessels that transited directly to Milne Port compared to those that staged at Ragged Island for the 2024 shipping season. This is to evaluate the risk of hull fouling at Ragged Island.	Not specified	Not started

MEETING MINUTES

The meeting started at 11:00 AM with a welcome and roll call by Cortney Oliver (CO). She informed the members that the day's meeting would focus on the activities and accomplishments of 2024. A roll call followed, with members introducing themselves.

JM (BIM) reviewed the outstanding action points. Key takeaways from this session included:

- While there has been a delay in DFO addressing some of their action items, QIA is interested in receiving the Robertson River Report.
- DFO is uncertain about the action regarding the aerial survey in the Steensby area. This action will be reviewed based on the December 2023 meeting minutes, where it was originally assigned.
- QIA noted that their action item was reported as complete at the June 2024 meeting.
- The action on the tidal gauge has seen little progress. PH (DFO) committed to following up with colleagues.
- BIM has started planning Steensby engagements and will coordinate with Igloodik in the coming weeks.
- It was suggested that action items should be shared with meeting invitations.

Summary of 2024 Marine Monitoring Program – Andrea Locke and Phil Rouget

The Marine Environment Effects Monitoring Program (MEEMP) activities conducted in 2024 were presented by Andrea Locke.

Lunch Break

Questions on the MEEMP Program

- KH (DFO) inquired about the spacing between the two sets of sampling. AL (WSP) clarified that the sampling season in 2024 was shorter than in the previous year. It was not a full period for benthic sampling, but sampling was conducted at the beginning and end of the season, approximately three weeks apart.
- KH (DFO) also asked why no sampling was conducted at Ragged Island. MCM (PC) emphasized the importance of sampling Ragged Island due to concerns about invasive species. AL (WSP) explained that while sampling was planned, safety concerns prevented it. Ragged Island was last sampled two years ago, and there is minimal risk of AIS/NIS as there is no discharge there. BIM vessels adhere to IMO standards, and fewer vessels anchor at Ragged Island compared to Milne Port. However, AL assured that Ragged Island will be considered in future planning with a strong safety plan in place.
- SD (WWF) asked why results were absent from the presentation and whether changes to the sampling plan were planned for 2025. CO clarified that this meeting was to review 2024 activities, and results would be shared in the Spring meeting. SD recommended sediment traps for a more comprehensive understanding of ship-source pollution at Milne Port. AL acknowledged the suggestion but stated it was outside the scope of the MEEMP program. However, water quality monitoring is conducted for Type A water license reporting.

Discussion on Quadrants at Philips Creek

- SF (ECCC) requested additional details on the two missing quadrants at the mouth of Philips Creek. AL (WSP) explained that divers attempted to locate them, but they may have been buried by sediment or moved due to ice breakup. Replacements were not available at the time. Recommendations will be included in the 2024 Annual Report and discussed in the Spring MEWG meeting.
- BS (QIA) urged consideration of SD's (WWF) sedimentation monitoring suggestion, particularly for Steensby Inlet. AL (WSP) stated that changes to methodology are challenging mid-series, but the team will discuss it internally.
- BS (QIA) emphasized the need to determine what happened to the quadrants and explore alternative tracking methods. AL reiterated that sedimentation at Philips Creek is a natural process (spring snowmelt) and not related to the port. BS (QIA) suggested that sedimentation could be linked to the Tote Road project, requiring further investigation.
- CO (BIM) clarified that any sedimentation related to the Tote Road would be detected through BIM's Tote Road monitoring program. She requested BS (QIA) to share recommendations via email. **Action: BS (QIA) to provide recommendations via email.**

Sampling at Ragged Island

- KH (DFO) mentioned that DFO observed vessels staging at Ragged Island for several days. CO (BIM) committed to providing data on the duration of vessel staging at Ragged Island and the proportion of vessels transiting directly to Milne Port versus those staging at Ragged Island. **Action: BIM to provide vessel staging data.**

Marine Mammal Program – Phil Rouget

- DH (WWF) asked about plans for future marine mammal surveys at Steensby and the publication of the shipping route. CO (BIM) confirmed that a draft shipping route had been shared previously and that future monitoring at Steensby was still in the planning phase due to construction delays.
- JH (QIA) inquired about the timeline for the annual report publication. CO (BIM) stated that the timeline would align with previous years, with results shared at an appropriate time.
- JH (QIA) asked if the 2021 ringed seal report had been analyzed and if the 2024 study followed the same design. PR (WSP) clarified that the 2021 survey was conducted by Golder (not LGL), and results would be analyzed alongside the 2024 survey. The study design was the same, except that the 2024 survey included two sampling events.

Planning for 2025

- MM (DFO) inquired about plans for an aerial survey in 2025. CO (BIM) explained that BIM follows a three-year cycle for aerial surveys and acoustic monitoring. The next Leg 2 survey is planned for 2026.
- AK (QIA) noted that April may be too late to plan for aerial surveys and emphasized the importance of involving HTOs. **Action: BIM to organize an interim MEWG meeting within eight weeks to discuss the five-year monitoring plan.**

2024 Shipping Season Overview – Cortney Oliver

- Mathias (MHTO) praised the usefulness of shipping transit information for hunters.
- NQ (NHTO) suggested that other communities should visit Pond Inlet to understand the impact of shipping.

- Sam (WWF) inquired about the fuel used by vessels to ensure compliance. **Action: Confirm the compliant fuel used by vessels.**
- CLP (Makivvik) requested information on discharged water management for the southern route. CO (BIM) noted that BIM would provide more details as Steensby planning progresses.
- LU (HBHTA) asked about ballast water use at Milne Inlet. CO (BIM) confirmed that ballast water is discharged in the deep ocean, 200 nm from shore, and is treated with chlorine to meet D2 standards.

DFO Ballast Water Program – Kim Howland (DFO)

- CO (BIM) thanked Oceans North for funding DFO's monitoring efforts. BS (QIA) appreciated BIM's improved communication and sampling process. KH (DFO) confirmed funding availability for trial monitoring after 2025.

Update on Working Group Terms of Reference (ToR) – Courtney Oliver

- CO (BIM) announced that since April 2024, BIM, QIA, and GoC have worked on refining the enforceability of MEWG recommendations. The ToR is nearly finalized and will be submitted to NIRB before being shared with MEWG for feedback.
- ND (GN) questioned why the ToR was finalized by only three members rather than the full MEWG. CO (BIM) clarified that the Terms and Conditions require consent from BIM, QIA, and GoC. ND (GN) insisted that all members should sign the ToR. ND expressed that the ToR should be agreed to and signed off by all members that are bound by it, not just a few parties. If that has not occurred, the ToR should not bind the entire group. The GN also requested a copy of the ToR that would be submitted to the NIRB be shared with the MEWG and for this to be added by BIM as an action item. BIM declined to add this as an action item during the call and stated they would not be sharing the ToR for further input. CO (BIM) reiterated that concerns should be emailed for discussion.

CO (BIM) thanked everyone and stated that the action items from the meeting would be circulated within a week. The meeting adjourned at 4:55 PM.

ბილინგვალი

ბილინგვალი ორენოვანი საუბარი 11:00-ზე დაიწყო. ორენოვანი საუბარი დასრულდა და ორენოვანი საუბარი დასრულდა. ორენოვანი საუბარი დასრულდა.

ს. ჯ. (JM) [ქართული] ორენოვანი საუბარი დასრულდა. ორენოვანი საუბარი დასრულდა.

- ორენოვანი საუბარი დასრულდა. ორენოვანი საუბარი დასრულდა.
- ორენოვანი საუბარი დასრულდა. ორენოვანი საუბარი დასრულდა.
- ორენოვანი საუბარი დასრულდა. ორენოვანი საუბარი დასრულდა.
- ორენოვანი საუბარი დასრულდა. ორენოვანი საუბარი დასრულდა.
- ორენოვანი საუბარი დასრულდა. ორენოვანი საუბარი დასრულდა.
- ორენოვანი საუბარი დასრულდა. ორენოვანი საუბარი დასრულდა.

მდგომარეობა 2024-ი წლისთვის მდგომარეობის შეფასება - დანართი 2 და 3

მდგომარეობის შეფასების დანართი (MEEMP) მდგომარეობის შეფასების დანართი 2024-ი წლისთვის დანართი 2 და 3

მდგომარეობის შეფასების დანართი

მდგომარეობის შეფასების დანართი (MEEMP)

- ორენოვანი საუბარი (KH) [ქართული] ორენოვანი საუბარი დასრულდა.
- დანართი 2 (AL) [WSP] მდგომარეობის შეფასების დანართი 2024-ი წლისთვის მდგომარეობის შეფასების დანართი დასრულდა.
- ორენოვანი საუბარი (KH) [ქართული] მდგომარეობის შეფასების დანართი დასრულდა.
- ორენოვანი საუბარი (MCM) [ქართული] მდგომარეობის შეფასების დანართი დასრულდა.
- დანართი 2 (AL) [WSP] მდგომარეობის შეფასების დანართი დასრულდა.

