

NWRT Final Project Report

1. **NWRT Project Number:** 3-17-08
2. **Project Title:** Eclipse Sound and Admiralty Inlet narwhal tagging from sea-ice floe edge and leads
3. **Project Leader:**

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4. Summary

Narwhal studies in the North Baffin region are primarily focused on clarifying stock management boundaries between summering whales in Eclipse Sound and Admiralty Inlet. Tagging narwhal is the best approach to address this question, however, tagging sufficient numbers of animals has been difficult and tagging in late August likely requires the tags to remain active for eleven to twelve months in order to conclusively answer the main question of stock segregation. In contrast to previous tagging efforts, here we attempted to tag animals just prior to the summer aggregation season from the sea ice. Tagging at this time only requires tags to operate for 3 months, as opposed to the usual 12 months. In this approach tags are attached via a single attachment anchor similar to a harpoon head using a jab-stick or crossbow. This approach relies greatly upon local support and knowledge. Future use of this method would pose more opportunities for local Inuit leadership in tagging studies. Unfortunately, ice, weather and whale behaviour in 2017 all contributed to no whales being tagged. Much valuable knowledge and experience was gained relating to the methods and skills used to tag at the ice edge, and will be used to further develop this approach. Currently, our goal is to work on technical issues of tag transmission and attachment over the course of 2018 and try again in the spring of 2019.

5. Objectives

1) Attach satellite location and dive tags on 25 narwhal (maximum number split between Eclipse Sound and Admiralty Inlet) to determine degree of segregation between Eclipse Sound and Admiralty Inlet stocks.

[NO UPDATES]

6. Methods

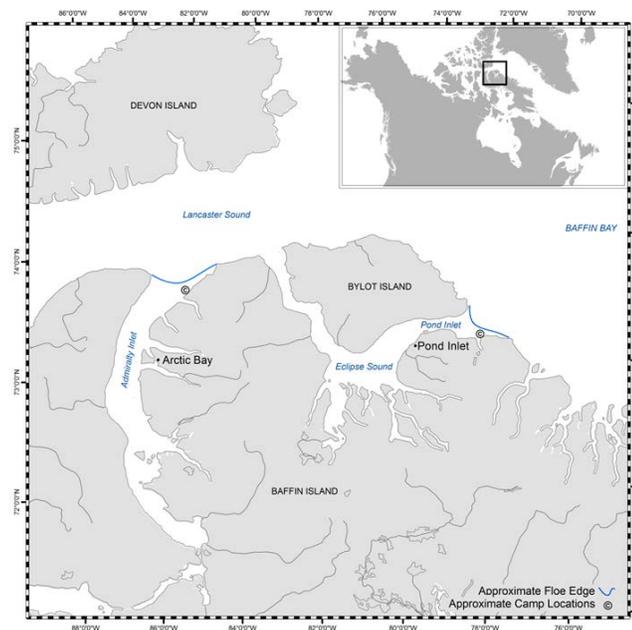
Plans were to tag Narwhal remotely (i.e. not live-captured) with a towable (tethered tag on a leader line) MK10 Argos satellite tag. Tags are attached via a single point anchor system of either Domeier or Wilton design with a short (5-10 cm) leader line. Based from the sea-ice or floe edge boat (inflatable zodiac type), a jab-stick or crossbow (preferably jab-stick) was used in attempts to tag narwhal. Tags were programmed to transmit locations twice a day via Argos satellite positioning. This type of tag can be programmed to release from the animal on a specific day and float to the surface when and where they can transmit achieved data such as dive and temperature data. If physically found and recovered, tags can also be downloaded manually, and in this case much more data including diagnostics is retrievable. *[NO UPDATES]*

7. Project Schedule

Date Start	Date End	Activity	Completion Status
01-Apr-17	14-May-17	Planning and Preparation for Field	Complete
15-May-17	20-Jun-17	Field camp (Pond Inlet and Admiralty Inlet)	Complete
15-Jul-17	14-Sep-17	Conducting other field research (no progress during this time)	NA
14-Sep-17	Indefinite	Data Analysis - No tag data but experience and skill development will be used to further development of this approach	NA
01-Dec-17	15-Dec-17	Interim reporting NWMB	Complete
01-Jan-18	30-Mar-18	Final Reporting	Complete
08-Mar-18		Pond Inlet HTO reporting and consultation (face-to-face visit)	Complete
01-Jan-18	30-Mar-18	Final Reporting to all funding bodies and collaborators.	Complete

8. Preliminary Results/Discussion

Unfortunately no whales were tagged at the floe edge in 2017. Here we review the details of efforts made and lessons learned. Overall, even though whales were not tagged, the project was perceived as a success by all involved based on the progress made in developing the method and training of local researchers. Camps were setup at the ice edge in Pond Inlet (East opening of Eclipse Sound to Baffin Bay – see map below), and Admiralty Inlet (opening to Lancaster Sound – see map). Timing of attempts at the two locations was coordinated with Mittimatalik HTO and Ikajutit HTO.



Due to ice conditions and early sightings of narwhal, the decision was made to alter plans and visit Pond Inlet floe edge first before Admiralty Inlet. Cory Mathews (DFO) and Bob Hodgson (DFO) arrived in Pond Inlet on May 22, and were able to get to the floe edge May 24th. The two DFO staff plus two local researchers (Andrew Jaworenko and James M Angnetsiak) camped at the floe edge for 12 days (minus one 16hr period where weather forced researchers back to the community for safety). Dr. Mathews and Mr. Hodgson departed Pond Inlet for Arctic Bay on June 5th, taking all necessary equipment and narwhal tags with them to Arctic Bay. After arranging logistics with local researchers (Jeremy Tunraluk and Niore Iqalukjuak) the group headed to the floe edge on June 6th. After surveying the entire length of the floe edge, training local researchers on equipment use and tagging methods, the crew returned to Arctic Bay to wait for better ice and weather conditions. DFO staff left local researchers with equipment and sufficient training such that they could attempt tagging when conditions improved. Mr. Tunraluk and Mr. Iqalukjuak camped at the floe edge again between June 14th and 20th and again June 25th to 29th. After the first of these two trips Mr. Tunraluk reported,

“There is a lot more whales down there but it is hard to tag them. We kept waiting for one to get close to the edge but it seems we were just in the wrong spot at the right time. The weather was not really cooperating with us so we ended up coming back. I always had the gun ready to go but as you are aware it is hard to judge.”

After the second attempt Mr. Tunraluk reported,

“We ended up being stranded on the second day of our last trip and didn't even get close to whales on the 4-5 days we were out there.”

Given that no tags were deployed at the floe edge, to assess this tag attachment and model, the decision was made to deploy a floe edge type tag on a live captured animal in Tremblay Sound (subsequent and separate but related project). Below is a photograph of the tagged whale taken immediately after attaching the tag. Tag attachment was difficult, even under the controlled conditions associated with having a captured animal held at the beach. Andrew Jaworenko, the local researcher who attached the tag, reported that likely due to there being no cutting tip on the anchor (unlike a traditional harpoon head), it took more force to insert the anchor than would be possible from the floe edge or from a boat with a moving whale. This challenge aside, this whale was spotted from camp in Tremblay Sound more than 3 weeks after tagging, and the tag appeared to be very secure, indicating good holding strength and therefore likely long tag longevity on the whale. Separate from tag deployment and attachment, the tag did not perform well with respect to data transmissions to satellite. We received 4 locations and a total of 22 messages from the tag while the whale was in Tremblay Sound. After discussing results with the manufacturer, we think the horizontal aspect of the antenna was not ideal and caused weak transmissions.



Difficult attachment but strong holding power as well as some data recovery but less than expected, overall shows potential for this approach; however further development is needed in both areas of tag attachment and tag design. We will take 2018 to work on improving these aspects with the intention to attempt this approach again in the field in spring 2019.

9. Reporting to Communities

Reporting and consultations are on track as per the schedule presented in the NWRT project proposal (shown below). Meetings with the Pond Inlet HTO and an open house for the community were attempted in December 2017, to coincide with project leads presenting at the NWMB meeting December 5th.

Unfortunately the HTO was overwhelmed in early December with meetings regarding Baffinland Mine and they asked us to remain on the January reporting timeframe (which we will do). Given results are minimal due to no narwhal tagged, we plan to invite and pay for one member of the Ikajutit HTO to come to Pond Inlet during meetings with the Mittimatalik HTO. This will allow for the Ikajutit HTO to hear of results from the summer tagging program in Tremblay Sound which shows 7 of 20 tagged whales visiting Admiralty Inlet area. The summer tagging program, because only taking place within the area attributed to the Eclipse Sound summer stock, did not directly involve consultations with Ikajutit HTO, however given the importance of these results to the Arctic Bay community we will be engaging them in future consultations in addition to sending them copies of reports.

Community and/or HTO	Before research	During research	Completion of research
Pond Inlet	1) January 2017 letter via email – project planning and funding support	1) May/June 2017 – HTO meeting and presentation pre-field work	March 2018 – Pond Inlet community visit and meeting to present results and draft final report
	2) March 2017 project planning and support meeting (face-to-face in Pond)	2) Open communication during fieldwork for safety and in the event of anything of note	
	3) May 2017 Contract setup	3) June 2017 – HTO meetings and presentation post-field work	

FINAL REPORT TO FOLLOW IN 2018

For inquiries regarding this ongoing research please contact:

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