



January 12, 2023

Dear Ikajutit Hunters and Trappers Association board members,

We are interested in setting up a field camp at Kakiak point, to study narwhal body condition as well as movement and dive behaviour. Our team with Fisheries and Oceans Canada is planning an aerial survey in the summer of 2023 in order to come up with an updated narwhal abundance estimate. We are interested in using drones and remote tags to gather information about the dive behaviour of narwhals to support the survey.

In the following two pages we have included summaries about the two projects for your review. It's important for us to speak with the HTA to determine the best way to conduct this study and get advice on how methods can be adjusted so we are best able to do the work.

If you would like more information please let us know. We can plan a virtual meeting or come to Arctic Bay for a meeting in-person.

Please let us know if you support this work by writing an **X** next to each project:

_____ Drone work on narwhals

_____ Remote tagging of narwhals

Thank you,

Marianne Marcoux, Research Scientist,
Maha Ghazal, Biologist, and
Florence Lapierre Poulin, Biologist

Fisheries and Oceans Canada



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Canada

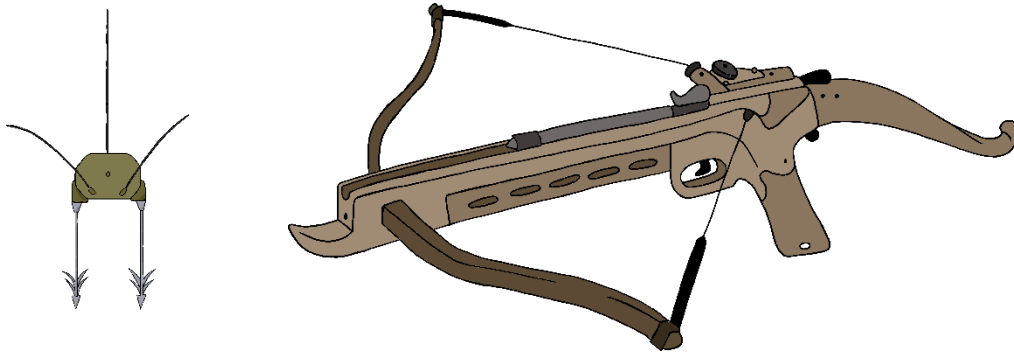
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Below is the project summary for the proposed **remote tagging of narwhals**

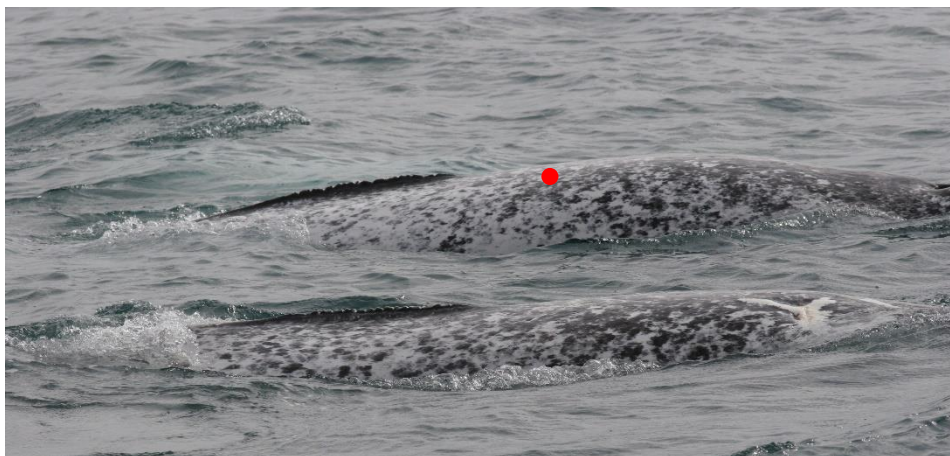
We would like to use remote tags to gather information about the dive behaviour of narwhals. Our goal would be to deploy the tags on the whales before the aerial survey so that we can get locations of the whales at the same time the survey is being flown. Tags usually last a few weeks but have lasted for many months in the past. The tags provide information on location when the whale surfaces, as well as information on the depth and time of their dives.

Our team would attempt to deploy tags on the narwhals backs using a crossbow, from either shore, boat, or kayak. Although we have never tried to remotely tag narwhals, we have had success with this method on belugas, killer whales and bowhead whales. We would like to try this method because it is less invasive and less stressful for the animals than capturing them in a net to put a tag on their back. In this way there would be no direct contact between the human and the whale.

These are drawings of what the satellite tag and crossbow look like:



The location of the red dot is approximately where we would aim to put the tag on the whale:





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Below is the project summary for the proposed **drone work on narwhals**:

We have two goals for the drone work:

- 1) To collect footage of narwhals swimming at and near the surface of the water, to follow them for as long as possible and get information on their dive behaviour and how long they stay underwater. If successful, this information can be useful in narwhal abundance estimate, by correcting for the time the animals spend underwater versus at the surface.
- 2) To collect footage of narwhals to look at their body condition by comparing their length to width at different points along the body. We can also determine the number of males, females and calves in groups.

We would fly the drone from shore or boat at a height of 20 meters or more to ensure we do not disturb the animals. The drone will fly directly overhead to ensure we get a straight down view of the whales, and will follow the whales until they cannot be seen or the drone battery runs out, usually a maximum of 20 minutes.

Here is an example of a drone image taken from 20 meters above the water's surface:



Here is an example of a right whale and how the body condition images can be analysed:

