



New

## Scientific Research

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Parks Canada Agency, Tallurutiup Imanga National Marine Conservation Area (TINMCA), is proposing a three year pilot project to gather underwater noise baseline data in the area of Arctic Bay, running through open water seasons in 2020, 2021, and 2022. Lead of the Project is Clare Kines, Inuit Stewardship Co-ordinator for TINMCA. This proposal is designed to begin establishing baseline data on underwater noise, within TINMCA. TINMCA is currently in the establishment phase but has been operating since the signing of an Inuit Impact Benefit Agreement in August 2019. The pilot project will involve deploying four hydrophones in strategic spots within TINMCA in the area of Arctic Bay. This work would contribute to better understanding human generated noise and its effects on marine life and ocean health within the NMCA. This pilot underwater noise study is consistent with similar studies done in the Arctic and in Canada. It is expected that the result of this study would contribute to the overall understanding of human generated noise on marine wildlife. Once the data is analyzed, the results will be shared with the Hunter and Trapper Organization of Arctic Bay, the Hamlet, and the community at large. The following are the proposed locations: 1) Adam's Sound, the approach to the community of Arctic Bay; 2) Strathcona Sound, the approach to the Nanisivik Naval Facility; 3) near Kakiak Point on Admiralty Inlet, an important area for the harvest of Narwhal by Arctic Bay Community members, and an important area of Narwhal habitat; and 4) the area in the vicinity of Sannirugaaluit (Yeoman Island), an area that should have less anthropogenic underwater noise. The exact locations will be confirmed after further consultation with the community, including Arctic Bay Hunter and Trapper Organization, the Hamlet, and QIA. Discussion with QIA is also ongoing to explore potential partnership between Parks Canada and the Inuit Stewards regarding the deployment and recovery of the hydrophones. 2020 is an important year to start baseline data, as Covid-19 has reduced the amount of ship traffic that should be present in the Arctic. The four hydrophones that are to be deployed are Micro Aural hydrophones (Multi-Electronique Ltd.), locations 1-4 on the map. These hydrophones will be deployed annually over three years during the open water season. They would be deployed in waters less than 30 metres deep, using an anchor and surface buoy (see below photos of the hydrophones and quick release devices). At the earliest, initial deployment would take place in mid-August and the sites revisited in 5 week intervals (in late September and early November). An alternative mooring may be used, consisting of a subsurface buoy, and a Vemco Ascent acoustical release, depending on circumstance. In the case of the subsurface mooring, an anchor made of local rock with an eye bolt would be left behind. The acoustic devices also obtain data on tagged Greenland sharks as part of an ongoing study by Nigel Hussey of the University of Windsor. He has been using similar devices throughout Baffin Bay, including around Pond Inlet, Clyde River and Qikiqtarjuaq, to monitor the movement of 180 Greenland sharks in order to support sustainable fisheries management and development of community fisheries. Nigel Hussey's research is conducted through the support of local HTOs, the Government of Nunavut and the Nunavut Fisheries Association with relevant licenses to fish obtained through the Department of Fisheries and Ocean. Basically, Nigel Hussey will lend Parks Canada some of his Vemco Ascent acoustical release to make the underwater noise baseline pilot project more efficient, while collecting data on Greenland sharks for him. Hydrophones record sound, they do not make sound. They are passive and remain in one spot. Further, surface floats to which the hydrophones are attached are small vinyl floats that will not cause damage to boats and create no risk to wildlife. This technology, although relatively new, is in place throughout the Arctic and the rest of Canada and has been used by government and universities. During the 2nd visit the data would be downloaded and the battery recharged. The equipment will be removed from the site during the 3rd visit in late October / early November. Dates may be adjusted to account for ice and other local conditions. The hydrophones are set to sample at 96,000 Hz and record at 15 minutes out of each hour, for approximately five weeks each deployment. It is important to note that the hydrophones record sounds only, and do not make any sound. No camp is planned, visits will be by boat. Vessels utilized to deploy and recover the hydrophones would be welded aluminum runabouts, not exceeding 28 feet, and powered by outboard motors. It is anticipated that either Arctic Bay Adventures' boat, or one used by the

Days on site: 40

Total Person days: 120

Operations Phase: from 2020-08-01 to 2022-11-30

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Area within Hydrophone #1 will be placed. Adam's Sound, approaches to Arctic Bay	Scientific/International Polar Year Research	Marine	Site is a marine area, within the traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.	none	Within the traditional use area of Arctic Bay, at the mouth of Adam's Sound. It is within Tallurutiup Imanga National Marine Conservation Area.
Area within Hydrophone #2 will be placed. Strathcona Sound, approaches to Nanisivik	Scientific/International Polar Year Research	Marine	Site is a marine area, within the traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.	none	Within the traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.
Area within Hydrophone #3 will be placed. Kakiak Point area, important location for Arctic Bay	Scientific/International Polar Year Research	Marine	Site is a marine area, within the traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.	none	Within the traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.
Alternate location for an area within Hydrophone #3 will be placed.	Scientific/International Polar Year Research	Marine	Site is a marine area, within the traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.	none	Within the traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.
Area within	Scientific/International	Marine	Site is a marine area,	none	Within the

Hydrophone #4 will be placed. Admiralty Inlet, waters around Yeoman Island.	Polar Year Research		within the traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.		traditional use area of Arctic Bay. It is within Tallurutiup Imanga National Marine Conservation Area.
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ᓄᓇᓕᓯᓪᓐ	Debbie Johnson, SAO	Hamlet of Arctic Bay	2020-07-14
ᓄᓇᓕᓯᓪᓐ	Dorothy Oyukuluk, Manager	Ikajutit Hunters and Trappers Organization	2020-07-14

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உரிமையாளர் அல்லது அங்கீகரிக்கப்பட்ட நபர்:

## North Baffin

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## Project transportation types

Transportation Type	Transportation Description	Length of Use
Water	28 or 27 foot Aluminum boat with outboard motors, or similar	

## Project accomodation types

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Environmental Impacts will be minimal. Where a subsurface mooring will be used, for the hydrophones, an anchor consisting of local rock, a metal sleeve, stainless steel eyebolt, and the lug from the acoustic release, will be left on the ocean floor. It is expected to have no impact on wildlife, or navigation.

# **Additional Information**

**SECTION A1: Project Info**

**SECTION A2: Allweather Road**

**SECTION A3: Winter Road**

**SECTION B1: Project Info**

**SECTION B2: Exploration Activity**

**SECTION B3: Geosciences**

**SECTION B4: Drilling**

**SECTION B5: Stripping**

**SECTION B6: Underground Activity**

**SECTION B7: Waste Rock**

**SECTION B8: Stockpiles**

**SECTION B9: Mine Development**

**SECTION B10: Geology**

**SECTION B11: Mine**

**SECTION B12: Mill**

**SECTION C1: Pits**

**SECTION D1: Facility**

**SECTION D2: Facility Construction**

**SECTION D3: Facility Operation**

**SECTION D4: Vessel Use**

**SECTION E1: Offshore Survey**

**SECTION E2: Nearshore Survey**

**SECTION E3: Vessel Use**

## SECTION F1: Site Cleanup

## SECTION G1: Well Authorization

## SECTION G2: Onland Exploration

## SECTION G3: Offshore Exploration

## SECTION G4: Rig

## SECTION H1: Vessel Use

A 27-28 foot aluminum boat (or similar) powered by outboards will be used to deploy and recover the hydrophones. No overnight stays are anticipated

## SECTION H2: Disposal At Sea

none.

## SECTION 11: Municipal Development

[illegible]

## Typical Arctic Marine Environment

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## Typical Arctic Marine flora and fauna

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Study area is within the community of Arctic Bay's traditional use area.

### Miscellaneous Project Information

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Impacts will be minimal. Where a subsurface mooring is used for the hydrophones an anchor, consisting of local rock, a metal sleeve, stainless steel eyebolt, and the lug from the acoustic release, will be left on the ocean floor. It should have no impact on local wildlife.

## Cumulative Effects

n/a

## Impacts

$e \rightarrow e \Delta^{96} CD \sigma^{-97} r^C$      $d \leftarrow d \Gamma DC \dot{\sigma}^C D^C$      $d \rightarrow d^{96} CD r L \dot{r}^C$

PHYSICAL													
Designated environmental areas													
Ground stability													
Permafrost													
Hydrology / Limnology													
Water quality													
Climate conditions													
Eskers and other unique or fragile landscapes													
Surface and bedrock geology													
Sediment and soil quality													
Tidal processes and bathymetry													
Air quality													
Noise levels													
BIOLOGICAL													
Vegetation													
Wildlife, including habitat and migration patterns													
Birds, including habitat and migration patterns													
Aquatic species, incl. habitat and migration/spawning													
Wildlife protected areas													
SOCIO-ECONOMIC													
Archaeological and cultural historic sites													
Employment													
Community wellness													
Community infrastructure													
Human health													

$$(P = \langle b \rangle \Delta \langle p \rangle \cap \langle a \rangle \langle b \rangle^c, N = \langle b \rangle \langle p \rangle^c \langle c \rangle \langle a \rangle \langle b \rangle^c \langle c \rangle \langle p \rangle^c \langle p \rangle \langle b \rangle^c \langle c \rangle \langle a \rangle \langle b \rangle^c, M = \langle b \rangle \langle p \rangle^c \langle c \rangle \langle a \rangle \langle b \rangle^c \langle c \rangle \langle p \rangle^c \langle p \rangle \langle b \rangle^c \langle c \rangle \langle a \rangle \langle b \rangle^c, U = \langle b \rangle \langle p \rangle \langle l \rangle \langle a \rangle \langle p \rangle^c \langle b \rangle)$$

1 polygon	Area within Hydrophone #1 will be placed. Adam's Sound, approaches to Arctic Bay
2 polygon	Area within Hydrophone #2 will be placed. Strathcona Sound, approaches to Nanisivik
3 polygon	Area within Hydrophone #3 will be placed. Kakiak Point area, important location for Arctic Bay
4 polygon	Alternate location for an area within Hydrophone #3 will be placed.
5 polygon	Area within Hydrophone #4 will be placed. Admiralty Inlet, waters around Yeoman Island.

