



NIRB Application for Screening #126009

One Ocean Expedition - Norwegian tall ship through Northwest Passage and the Nunavut region in 2025

Application Type: New

Project Type: Scientific Research

Application Date: 11/20/2024 2:56:47 AM

Period of operation: from 2025-08-05 to 2025-09-02

Project Proponent: Haakon Vatle
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DETAILS

Non-technical project proposal description

English: Non-Technical Project Proposal Description One Ocean II Expedition – Arctic Future Pathfinders Jørgen Berge, UiT The Arctic University of Norway (UiT) One Ocean Expedition is a global project, and a recognized part of the UN Decade of Ocean Science for Sustainable Development (2021-2030). The main goal is to create attention, stimulate ocean science, and share knowledge about the crucial role of the ocean for sustainable development in a global perspective. Statsraad Lehmkuhl is one of the largest and oldest tall ships in active use, and she is run by a non-profit foundation. In 2022/23, she completed the first One Ocean Expedition, a 20-month long circumnavigation of the world. In April 2025, One Ocean II will embark on another expedition, starting in 2025 in Bergen with a stop in Nice, France, where it will be a part of the One Ocean Science Congress and the UN Ocean Conference. The general research questions addressed during the circumnavigation of the One Ocean II expedition are:

- How do biodiversity and indicators of human pressures vary over the world's ocean?
- What is the distribution and vertical displacement of mesopelagic sound scattering layers across the world's ocean?
- What are the physical characteristics of the regions and water masses we pass through?
- Is there a correlation between observations, models and satellite measurements, and can the measurements be used to improve weather and ocean forecasting?

UiT The Arctic University of Norway has chartered the vessel to sail through the Northwest Passage in the autumn of 2025 and the homeland of Inuit, Yupik, Unangan and Athabaskan peoples. The backbone of the voyage will be an interdisciplinary course for master's students and doctoral fellows. There will also be a scientific program for this portion of the expedition. Our aim is to identify local Arctic challenges and make them visible on a wider public scale. We are interested in contributing to a better understanding of the Arctic biome and environment, as well as the future challenges local and global communities are facing by climate-driven changes in the Arctic. Research and teaching with a focus on social sciences are of interest for amplifying voices of Indigenous rights holders to a larger scientific and public audience. Our research evolves around:

- Assessment of fish and zooplankton populations
- Biodiversity assessment using physical sampling, morphological and molecular (environmental DNA) analyses
- Biotechnology: exploring marine bioactive compounds
- Understanding changes in sea ice thickness
- Technology: safe and sustainable operations in remote areas with demanding weather conditions
- Arctic Memoryscapes – documenting changes in Arctic coastal and underwater heritage
- Information literacy by integrating Indigenous knowledge, experiential learning, and Extended Reality technologies
- Ocean literacy: understanding and stewardship of marine environments through integrating diverse knowledge systems and emotional literacy
- Documenting, revitalizing, and integrating management and conservation practices of Indigenous peoples
- Creative futures thinking using experiential learning and worldbuilding through the course running on-board
- International relations: interplay between the Arctic and Arctic local and Indigenous societies with global political, economic, security processes
- Arctic linguistic landscapes
- Didactics: students' perspectives on teaching and learning processes in collaborative interdisciplinary project work
- Epidemiology and impact of diet transitions in Indigenous populations
- Health studies: impact of onboard watch system on health and wellness of OOI participants

There are a range of sensors mounted to the ship which will measure the occurrence of marine mammals, currents, weather patterns, ocean temperature, and ocean light conditions. A vessel flow through system will continuously collect water samples. At certain stations along the voyage, water and organism samples will be collected from the marine environment. For this, we will use Niskin bottles (water samples), towed nets and fishing rods (zooplankton and fish), and boxcorers (sediment extraction from the seafloor). Most of the social sciences will take place on board and involve studies with the cruise participants themselves and their experiences. Extended reality and artificial intelligence are some of the tools that will be used. Some researchers will conduct interviews with local communities. Marine data collected with the vessels sensors will be made publicly and globally available through NMDC (<https://nmdc.no/en>) following FAIR data principles within 12 months. Preliminary results generated under way will be shared with the community at organized events during the planned stops on land. The voyage through the Northwest Passage will start in Nuuk on August 5th, 2025, and end in Anchorage October 4th, with planned stops in:

- Miitimatilik/Pond Inlet (August 14)
- OR Resolute/Qausuittuq (August 17) (for border and immigration – weather and ice depending)
- Uqsuqtuuq/Gjoa Haven (August 22-26)
- Ikaluktutiak/Cambridge Bay (August 29 to September 2)
- Siqnazuaq/Nome (for US border and immigration)

French:

Description de la Proposition de Projet Non-Technique Expédition One Ocean II – Explorateurs de l'Avenir Arctique (Arctic Future Pathfinders) Jørgen Berge, UiT The Arctic University of Norway (UiT) L'Expédition One Ocean est un projet mondial, reconnu dans le cadre de la Décennie des Nations Unies pour les Sciences Océaniques au service du Développement Durable (2021-2030). L'objectif principal est de créer de l'attention, de stimuler la science océanique, et de partager des connaissances sur le rôle crucial de l'océan pour le développement durable dans une perspective globale. Le Statsraad Lehmkuhl est l'un des plus grands et des plus anciens grands voiliers encore en activité ; il est géré par une fondation à but non lucratif. En 2022/23, il a réalisé la première expédition One Ocean, un tour du monde de 20 mois. En avril 2025, une autre expédition, One Ocean II, débutera à Bergen, avec une escale à Nice, en France, où elle prendra part au Congrès Scientifique One Ocean et à la Conférence des Nations Unies sur l'Océan. Les questions de recherche générales abordées lors du voyage maritime de l'expédition One Ocean II sont les suivantes : • Comment la biodiversité et les indicateurs de pressions humaines varient-ils sur les océans du monde ? • Quelle est la distribution et le déplacement vertical des couches de diffusion acoustique mésopélagiques à travers les océans du monde ? • Quelles sont les caractéristiques physiques des régions et des masses d'eau que nous traversons ? • Existe-t-il une corrélation entre les observations, les modèles et les mesures satellitaires, et ces mesures peuvent-elles être utilisées pour améliorer les prévisions météorologiques et océaniques ? UiT (The Arctic University of Norway) a affrété le navire qui franchira le Passage du Nord-Ouest et la patrie des peuples Inuit, Yupik, Unangan et Athabaskan en automne 2025. L'élément central du voyage sera un cours interdisciplinaire destiné aux étudiants en master et aux doctorants. Un programme scientifique est également prévu pour cette partie de l'expédition. Notre objectif est d'identifier les défis locaux de l'Arctique et de les rendre visibles à une échelle publique plus large. Nous souhaitons contribuer à une meilleure compréhension du biotope et de l'environnement arctiques, ainsi qu'aux défis futurs auxquels les communautés locales et mondiales sont confrontées en raison des changements climatiques dans l'Arctique. La recherche et l'enseignement axés sur les sciences sociales visent à amplifier la voix des titulaires de droits autochtones auprès d'une audience scientifique et publique plus large. Notre recherche s'articule autour de : • Évaluation des populations de poissons et de zooplancton • Évaluation de la biodiversité à l'aide d'échantillonnage physique, d'analyses morphologiques et moléculaires (ADN environnemental) • Biotechnologie : exploration des composés bioactifs marins • Compréhension des changements dans l'épaisseur de la glace de mer • Technologie : opérations sûres et durables dans des zones éloignées avec des conditions météorologiques exigeantes • Paysages mémoriels arctiques – documentation des changements dans le patrimoine côtier et sous-marin de l'Arctique • Littérature informationnelle en intégrant les connaissances autochtones, l'apprentissage expérientiel et les technologies de réalité étendue • Connaissance des océans : compréhension et gestion des environnements marins par l'intégration de systèmes de connaissances divers et de la littérature émotionnelle • Documenter, revitaliser et intégrer les pratiques de gestion et de conservation des peuples autochtones • Réflexion créative sur l'avenir en utilisant l'apprentissage expérientiel et la création d'univers dans le cadre du cours dispensé à bord • Relations internationales : interaction entre l'Arctique et les sociétés locales et autochtones de l'Arctique avec les processus politiques, économiques et de sécurité mondiale • Paysages linguistiques arctiques • Didactique : perspectives des étudiants sur les processus d'enseignement et d'apprentissage dans le cadre de projet interdisciplinaire collaboratif • Épidémiologie et impact des transitions alimentaires dans les populations autochtones • Études de santé : impact du système de surveillance à bord sur la santé et le bien-être des participants de OOI Une gamme de capteurs montés sur le navire mesurera la présence de mammifères marins, les courants, les conditions météorologiques, la température de l'océan et les conditions lumineuses de l'océan. Un système de flux à travers le navire collectera en continu des échantillons d'eau. À certaines stations le long du voyage, des échantillons d'eau et d'organismes seront prélevés dans l'environnement marin. Pour cela, nous utiliserons des bouteilles Niskin (échantillons d'eau), des filets remorqués et des cannes à pêche (zooplancton et poissons), et des carottiers (extraction de sédiments du fond marin). La plupart des sciences sociales se dérouleront à bord et impliqueront des études avec les participants du voyage maritime et leurs expériences. La réalité étendue et l'intelligence artificielle sont quelques-uns des outils qui seront utilisés. Certains chercheurs mèneront des entretiens avec les communautés locales. Les données marines collectées avec les capteurs du navire seront rendues publiques et seront mondialement disponibles via NMDC (<https://nmdc.no/en>) en suivant les principes FAIR des données dans un délai de 12 mois. Les résultats préliminaires générés en cours de route seront partagés lors d'événements organisés

Inuktitut:

[illegible]

kungiagutainut ilanganutaniaktitailigiiyiit ovalo naamaktiligutait OOIImi ilaukatauyunutPikaktut naniitjutait naunaiyagutait kaangani ukiak kanuk naunaiyaniaktuk pikatagutainik tagiumihugaat, nuutitigutait tagiut, hilait kanugitjutait, tagiumi unakutait ovalo tagiumi kauyimaligaagatkanugitjutait. Umiakut katitigutait imanik ilanganut pikatainaniaktait katitiklugit imaitkimilguugutainik. Ilangani nunami naunaiyagutait ilanganut umiaktukviit, imait ovalo hunavaluitkimilguuktauniaktut katitiklugit tagiumi avatilinga. Hafumunga, atuniaktut Niskinik hikuliangit puut(imat kimilguukhimayait) atukataklugit kivyaktuutit ovalo ikalukhiugutait (hunavalunik ovaloikalunik), ovalo boxcorers (hunavaluit pikataniaktait tagiut ataaniit). Ilangit Inuligiiyiit kauyimayaitpiniakatut ilihagutainik umiaktuktut ilauyut inminik ovalo kauhimaliktaait. Takitjutaini takuniaktaitovalu takunahugiyait kauhimayait ilangit hanalgutait atuniakatut. Ilangit kimilguuktiit piniaktutnunainik nunalaat.Tagiungit katitikhimayut katitigutaini umiat naunaiyagutaini takupkainiaktut Inunut ovalo hilakyuamipihimayait ilanganut NMDCni (Kagitauyakut: <https://nmdc.no/en>) pitaagumik FAIRmi katitikhimayutikumagiyait ilangani 12ni tatkihutimi. Hivuliit takuhimaliktaait pipkailiktut ublumi takukatiginiaktaitnunalaani katimakatigiilugumik nutkakvikhainut nunainik. Umiaktuktitlugit ilanganut UkiuktaktumiTagiut piliniakatut Nuukmit August 5mi, 2025, ovalo nutkaklutik Anchorage October 4mi,paknaiyaktut nutkaklutit hapkonani:Miitimatalik (August 14mi) OVALUNIIT QausuittuqMI (August 17MI) (nutkakviit kimilguuktaulutikKimilguuktinit Inunik-Hilat ovalo hikuut kanugitaanga)Uqsuqtuuqmi (August 22-26)Ikaluktutiakmi (August 29mit September 2mut)Siqnazuq/Nomemi (Amialikat nutkakviit ovalo tikikatuktut Kimilguuktiit)

Personnel

Personnel on site: 110

Days on site: 45

Total Person days: 4950

Operations Phase: from 2025-08-05 to 2025-09-02

Closure Phase: from 2025-08-13 to 2025-09-05

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Station work area 1	Researching	Marine	N/A	N/A	N/A
Station work area 2	Researching	Marine	N/A	N/A	N/A
Ikaluktutiak	Access Road	Municipal	N/A	N/A	N/A

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Information is not available			

Authorizations

Indicate the areas in which the project is located:

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Nunavut Research Institute	in the process of applying	Not Yet Applied		
Other	Enviornmental Impact Screening Committee (EISC), application in progress	Not Yet Applied		
Parks Canada	Feedback from Parks Canada After discussing with our colleagues, we can confirm there is no Parks Canada specific permit requirement from a nautical or scientific perspective for your expedition	Active		
Fisheries and Oceans Canada	In the process of applying	Not Yet Applied		
Other	Government of CanadaApplication for consent to conduct marine scientific research	Applied, Decision Pending		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	Sail Training Ship Statsraad Lehmkuhl, Crew change in Cambridgebay	

Project accomodation types

Other,

Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Kongsberg Discovery EK80 (38, 120, 200 kHz)	1	N/A	Single-beam echosounder, hull mounted sensor
RDI 75 kHz, Kongsberg Discovery CP 300 kHz	1	N/A	Acoustic Doppler Current Profilers, Hull mounted
WS700-UMB Smart Weather Sensor	1	N/A	Temperature, relative humidity, precipitation intensity, precipitation type, precipitation quantity, air pressure, wind direction, wind speed, radiation Mast mounted sensor
Three Ocean Sonics hf hydrophones	1	N/A	record passive acoustics, hull mounted sensor
WS100 Radar Precipitation Sensor / Smart Disdrometer	1	N/A	Mast mounted sensor for Rain/precipitation quantity, rain/precipitation type (Rain, snow, sleet, freezing rain, hail)
Apogee SI-421-SS. Narrow field of view infrared radiometer sensor	1	N/A	Mast mounted Sea Surface skin temperature
CTD rosette	1	n/A	Temperature, conductivity, dissolved oxygen, chlorophyll A, turbidity, backscatter pH, PAR Seabird SBE19plus V2 SBE43 DO CHL-a & TURBIDITY ECO-FLNTU SATPAR PAR-LOG ICSW, SATPAR SURFACE/REFERENCE PAR SBE18 pH
Ferrybox, sensors of flow through system	1	N/A	installed on board Temperature, conductivity, dissolved oxygen, turbidity, chlorophyll A
Quantum SQ-522 PAR sensor	1	N/A	Mast mounted sensor, Optical sea awarness
WP2 plankton net, mesh size of 180 micrometer.	1	N/A	Zooplankton Zooplankton net deployed from vessel
Onboard filtration and qPCR/sequence analyses and water filtered for post cruise lab analysis	1	N/A	Water samples for eDNA analysis, Water samples collected from vessel flow through system and water bottles on CTD rosette (12x2.5l) for microplastics analysis, isotope analysis
Box corer	1	50cm x 50cm	seafloor sediment extraction
Multicorer	1	6 corers à 10cm diameter	seafloor sediment extraction

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Arctic grade Marine Gas Oil Sulphur content <0.05% Alternativt Marine Gas Oil Sulphur content <0.05%. Usually only filled 85%	fuel	3	1179	3537	Cubic Meters	Fuel for the sailingship Statsraad Lehmkuhl
16% Formaldehyde	hazardous	1	0.1	0.1	Liters	preservation of benthic invertebrates
Ethanol	hazardous	6	1	6	Liters	preservation of benthic invertebrates anf fish larvae
4% Formaldehyde	hazardous	8	1	8	Liters	preservation of zooplankton samples

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0		

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Waste disposal	Combustible wastes	N/A	we will keep our waste on board the ship until we reach anchorage to avoid stressing the area	N/A
Marine Based Activities	Sewage (human waste)	N/A	The ship has treated sewage on board which according to international regulations	only cleaned and treated Sewage will be released

Environmental Impacts:

Aquatic species, including habitat and migration / spawning --> hunting, spawning areas will be avoided. Effect on migration will be minimal as the ship will only sail through the areas, with short station stops of <24hours along the way for sampling activities.

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

LOA (in reference to fees etc.): 84,60 mLPP: 72,40 mMax Beam (Hull only): 12,60 mMoulded depth: 7,32 mMax. Draft: 5,50 mMax. Air draft above sea level: 48,00 mHighest mast above main deck: 45,00 mFuel tank capacity: 90 m3Fresh water capacity in tanks: 120 m3GRT: 1516 tNRT: 454 tDisplacement: 2231 tNumber of sails: 22Total Sail area: 2026 m2Max. speed: Engine: 10 knots / Sail: 17 knotsCrew and traineesMax. number of voyage trainees 150Crew: 25Seating area below deck: 80 + 96MachineryMain Engine: Bergen Diesel-KRM6 -750 rpm 827 kWGear: Volda ACG - 450Propulsion system: Rolls Royce / Kamewa: CCP 4 bl. dia. 2,25 m 794 kWBow thruster: Rolls Royce Type 45 TV 270 kWSteering gear: Rolls Royce /Frydenbø HS 40Generator 1 og 2: Caterpillar – C 7.1 -150 kWShaft generator: ABB, PTO 300 kWGenerators: Kongsberg Marine 360 kWEmergency generator: Volvo Penta-TAMD 71B/Stamford 90 kWElectrical power system: 400 V – 50Hz, 230 V - 50Hz - three phaseMain switchboard aft: ABB - 230 VMain switchboard forward: Rolls Royce/ TB- Austevoll 400 V / 230 VEmergency switchboard: TB- Austevoll 230 VHSB switchboard: Rolls Royce / TB AustevollAutomation: Rolls Royce: ACONSafety equipmentMOB rescue boats: (2) 6 person Zodiac 600 w/ 90 / 80 HK outboardsLiferafts: (2) 65 person DKR + Viking open(4) 50 person DKS Viking(8) 25 person DK+ VikingEvacuation slides (Inflatable): (2) Viking MinislidesSurvival suits (Full body): (181) VikingLifejackets (Thermal): (195) adult / 40 (16) child / 10 infantFirefighting equipmentAddressable alarm system: ACON IAS systemEngine room: Halotron inert gas remote extinguishingEmergency generator room: Halotron inert gas remote extinguishingAccommodation and storage areas: Marioff Hi-fog water mist extinguishingBattery room: Marioff Hi-fog water mist extinguishingNavigation equipmentRadar (ARPA): (2) X-Band KM 25 KwECDIS (Full): (2) K-NAV Stand AloneAIS: Simrad AI 70Navtex: Furuno NX 700 BGPS: Kongsberg SeaPos 320Gyro compass: Simrad /Robertson GC 80Echo sounder: Skipper GDS 101Doppler Speed Log: Furuno DS 80Radio Station GMDSS A3MF/HF: Sailor CU5100 250W DSCVHF: Sailor RT5022 DSCSAT-C: Sailor 6110 mini-CEPIRB: Tron 30 S MK IIRadar Transponder: Tron SARTSatcom Voice/Data: Sailor VSAT 900 High PowerSatcom Voice/Data: Iridium Pilot Captain PhoneInternal communicationPA/Intercom: Vingtor Marine VMP-32/FUEL: arctic grade marine gas oil.Sulphur content <0.05%

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

Description of Existing Environment: Physical Environment

Description of Existing Environment: Biological Environment

Description of Existing Environment: Socio-economic Environment

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

Cumulative Effects

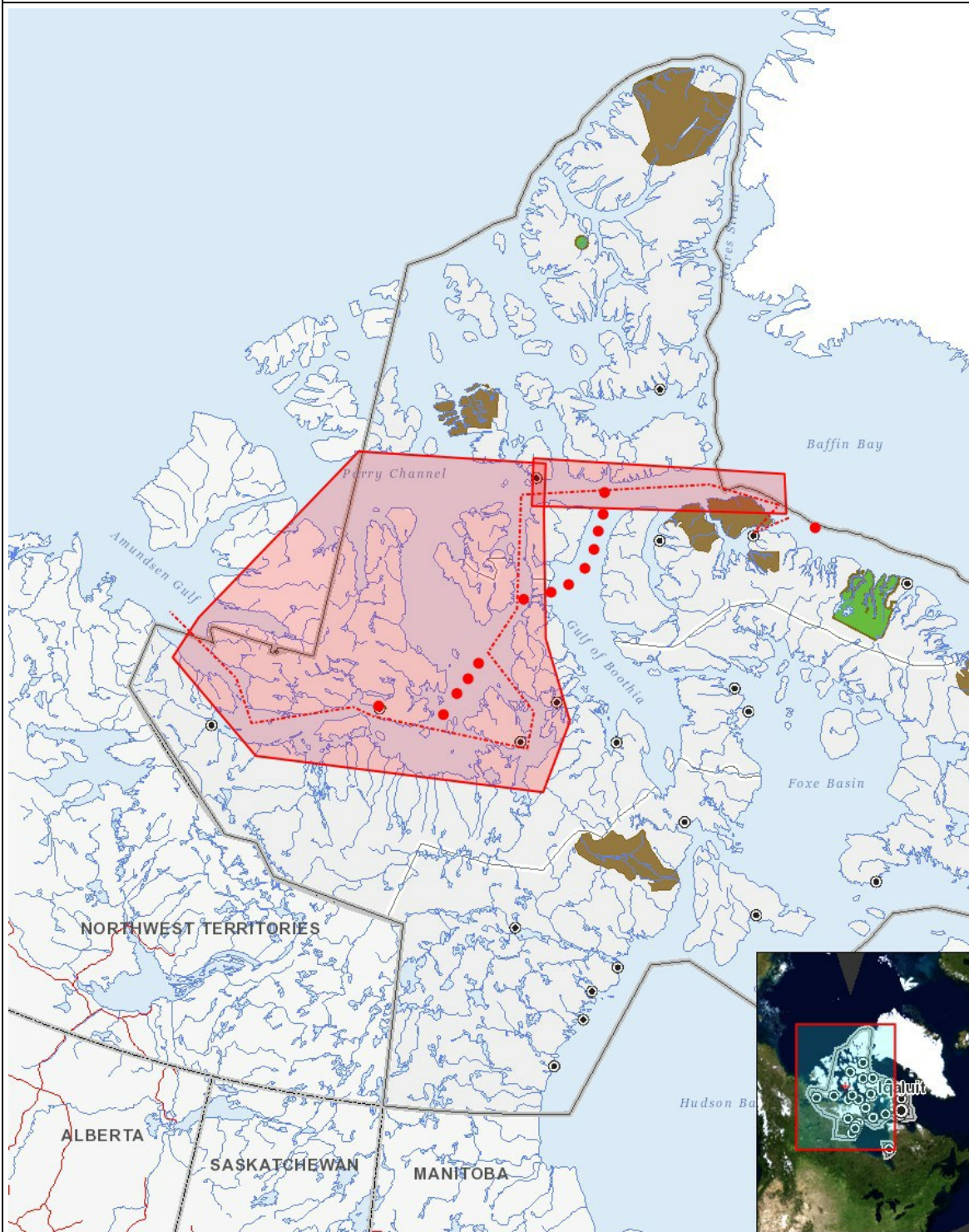
Impacts

Identification of Environmental Impacts

		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
Construction																										
-		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Operation																										
Researching		U	U	U	-	U	U	U	U	U	U	U	U	U		U	U	U	M	U		U	U	U	U	U
Access Road		U	U	U	-	U	U	U	U	U	U	U	U	U		U	U	U	M	U		U	U	U	U	U
Decommissioning																										
Researching		U	U	U	-	U	U	U	U	U	U	U	U	U		U	U	U	M	U		U	U	U	U	U
Access Road		U	U	U	-	U	U	U	U	U	U	U	U	U		U	U	U	U	U		U	U	U	U	U

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

- | | | |
|---|----------|---|
| 1 | polygon | Station work area 2 |
| 2 | polygon | Station work area 1 |
| 3 | polyline | Polyline is alternativ route, if weather conditions or other conditions demands/allows us |
| 4 | point | Polyline is alternativ route, if weather conditions or other conditions demands/allows us |
| 5 | point | Polyline is alternativ route, if weather conditions or other conditions demands/allows us |
| 6 | point | Polyline is alternativ route, if weather conditions or other conditions demands/allows us |

7 point	Polyline is alternativ route, if weather conditions or other conditions demands/allows us
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16 point	Polyline is alternativ route, if weather conditions or other conditions demands/allows us
17 point	Ikaluktutiak