



Demande de la CNER faisant l'objet d'un examen préalable #125612 HEALY2021 Transit

Type de demande : New

Type de projet: Scientific Research

Date de la demande : 5/10/2021 11:39:16 AM

Period of operation: from 0001-01-01 to 0001-01-01

Autorisations proposées: from 0001-01-01 to 0001-01-01

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DÉTAILS

Description non technique de la proposition de projet

Anglais: This is a multi-disciplinary research project that will take advantage of the Healy transiting the Northwest Passage from Alaska to Baffin Bay and collect underway data that will contribute to our understanding of the depth of the seafloor (bathymetry) and make measurements that will help us better understand climate change and changes in productivity in through the NWP and the Arctic. All measurements will be made while vessel is underway. No samples of the seafloor will be taken. Water and air samples will be taken by flow-through systems while the vessel is transiting. The ship will take advantage of the HEALY's transit from Alaska to Nuuk, to fill critical bathymetric gaps and add to the growing effort of complete seafloor mapping. We will make carbon isotope measurements through the NW Passage and in Baffin Bay to help better understand ocean-atmosphere-ice-land interactions using water and carbon (CO₂ & CH₄) isotope measurements of marine air and sea water. We will measure particulate organic matter distributions in surface waters across Northwest Passage- High resolution collection of suspended particulate samples through Healy's surface underway seawater system along the ship's track. We will collect gravity data across the Arctic Basin. We will look at net community productivity in surface waters across the Northwest Passage through sampling of Healy's underway science seawater line for dissolved gases. The data will be used to calculate high-resolution rates of biological production rate (net community production) every ~2 minutes along the cruise track. We will collect Environmental DNA (eDNA) and do optical sampling in Arctic Seas and Northwest Passage to determine the community composition (eDNA), net community production of the mixed layer (PIGI), surface chlorophyll content for satellite intercomparison/calibration. A shipboard hydrographic/velocity survey will be carried out. The main objectives are to determine the fate of the fresh water carried into Baffin Bay by the West Greenland boundary current, and to establish the pathways by which heat from the current gets diverted to the Uummannaq region glaciers. The work has been, and will be, coordinated with scientists from the Geological Survey of Canada. Our colleagues from the GSC made initial community engagement visits in 2013. In May 2015 and in March 2016, community engagement sessions were held in Clyde River, Qikiqtarjuaq, Pangnirtung and Iqaluit. In 2018 and 2019, community consultations were held in Pangnirtung and Qikiqtarjuaq. COVID prevented such visits this year. Research results will be reported back during community visits about six months after the conclusion of the field season and will be made publicly available. Results will also be presented at workshops in the North, at science conferences and will result in publications in various scientific journals, reports and plain language documents over the months and years following the project.

Français: Il s'agit d'un projet de recherche multidisciplinaire qui profitera du passage du Healy par le passage du Nord-Ouest de l'Alaska à la baie de Baffin et recueillera des données en cours qui contribueront à notre compréhension de la profondeur du fond marin (bathymétrie) et effectuera des mesures qui nous aideront mieux comprendre le changement climatique et les changements de productivité dans le PTN et l'Arctique. Toutes les mesures seront effectuées pendant que le navire est en route. Aucun échantillon du fond marin ne sera prélevé. Des échantillons d'eau et d'air seront prélevés par des systèmes «à circulation» pendant le transit du navire. Le navire profitera du transit du HEALY de l'Alaska à Nuuk pour combler les lacunes bathymétriques critiques et ajouter à l'effort croissant de cartographie complète des fonds marins. Nous effectuerons des mesures des isotopes du carbone dans le passage NW et dans la baie de Baffin pour aider à mieux comprendre les interactions océan-atmosphère-glace-terre en utilisant les mesures isotopiques de l'eau et du carbone (CO₂ et CH₄) de l'air marin et de l'eau de mer. Nous mesurerons les distributions de matière organique particulaire dans les eaux de surface à travers le passage du Nord-Ouest - Collecte à haute résolution d'échantillons de particules en suspension à travers le système d'eau de mer en surface de Healy le long de la trajectoire du navire. Nous collecterons des données gravimétriques dans le bassin arctique. Nous examinerons la productivité nette des communautés dans les eaux de surface du passage du Nord-Ouest en échantillonnant la conduite d'eau de mer scientifique en cours de Healy pour les gaz dissous. Les données seront utilisées pour calculer les taux à haute résolution du taux de production biologique (production communautaire nette) toutes les ~ 2 minutes le long de la piste de croisière. Nous collecterons l'ADN environnemental (ADNe) et effectuerons un échantillonnage optique dans les mers arctiques et le passage du Nord-Ouest pour déterminer la composition de la communauté (ADNe), la production communautaire nette de la couche mixte (PIGI), la teneur en chlorophylle de surface pour l'intercomparaison / l'étalonnage des satellites. Un levé hydrographique / de vitesse à bord sera effectué. Les principaux objectifs sont de déterminer le sort de l'eau douce transportée dans la baie de Baffin par le courant de frontière ouest du Groenland, et d'établir les voies par lesquelles la chaleur du courant est détournée vers les glaciers de la région d'Uummannaq. Les travaux ont été et seront coordonnés avec des scientifiques de la Commission géologique du Canada. Nos collègues du SGC ont effectué les premières visites d'engagement communautaire en 2013. En mai 2015 et en mars 2016, des séances d'engagement communautaire ont eu lieu à Clyde River, Qikiqtarjuaq, Pangnirtung et Iqaluit. En 2018 et 2019, des consultations communautaires ont eu lieu à Pangnirtung et Qikiqtarjuaq. COVID a empêché de telles visites cette année. Les résultats de la recherche seront communiqués lors des visites communautaires environ six mois après la fin de la saison sur le terrain et seront rendus publics. Les résultats seront

Inuktitut:

Inuinnaqtun:

Hapkua amihunik-havaqatiqaqhutik qauyihaiyut havaaghariyait aturahuaqhugu Healy
ikaaqhuni Northwest Ikaaqvianik Alaskamit Baffin Kangiqhuanut katitiqlutik naunaitkutanik
ikayuutighait ilihimattiarahuaqhugu itinia natia taryum (taryuliqiyit) qauyihailutik
qauhittiarutighaptingnik hila aallannguqpallianianik aallannguqpalliyullu Ikaaqvingmi
Ukiuqtaqtumilu. Kinguani naunaitkutauyut tamangnit Ihivriuqhiylluat (PI-nguyut)
havaaghainik inirumayainiklu. Qauyihaivangniat umiaq ikaaqtillugu. Qauyihailaittut taryum
natianit. Imaqmik anurimiklu qauyihaivangniat “anialattivikkut” umiaq ingilratillugu. 1-Larry
Mayer. Iniqpiaqhimayumayaat Nunauyaliuqtut Taryum Natianik 2030-nguqtinnagu.
Havakvigiyumayaat ikaaqtillugu HEALY Alaska-mit Nuuk-mut, ayuqhautit naunaiyaqlugit
ikayuqlutik havaghimmaaqtunik nunauyaliuqtut taryum natianik. 2-Jeff Welker
qauyihaivangniaq paulingnik takunaittunik ingilratillutik Northwest Ikaaqvianik Baffin
Kangiqhuanillu ilihimattiarahuaqhugu taryuq-hila-hiku-nunalu ilagiingniit imaqmik
atuqhutik paurmiklu (CO₂ taamnalulu CH₄) takunnaittunik qauyihaiplutik taryumi anurimik

taryum imaaniklu. 3-Miguel Goni qauyihaivangniaq nauyunik ingilraviinik immap qaanganit Northwest Ikaaqvianit- Ingilrutiqaattiaqhutik katitirivangniat tingiraqtunik takunnaittunik taryum qaanganit Healy-kut taryum qaanganit haniap ingilravianit. 4-Bernie Coakley katitirivangniaq nunalihimaniqmut naunaitkutunik ikaaqlugu Ukiuqtaqtuq. Northwest Ikaaqvianik ikaaqutut USCGC Healy-kut katitirivangniat ilikkuuqtumik nunalihimaniqut qauyihautinik atatapkaiyuq Ualiniqhiqmik Kivalliqmik Ukiuqtaqtuanik naunaitkutainik hivikittumi havakvingnit. 5-Lauren Juranek qauyihaivangniaqtaat nauvalliyut immap qaangani Northwest Ikaaqvianit ikaaqhugu qauyihaqlugu Healy-mit qauyihaiyut taryum imaanik avuhiutihimayunik tipinik qiniqhiaplutik. Naunaitkutait atuqtauniaqtut kitittiyaamik kayumiktunik nauttivaliavagiaghait (naallugit nayugaqnit nauvalliyut) naattaraangat ~ 2 minutes ingilravianit. 6-Andrew Margolin. Katitirahuaqtuq Avatinik DNA-nik (eDNA)qiniqhiatlunilu qauyihailuni Ukiuqtaqtum Taryuanik Northwest Ikaaqvianiklu naunairahuaqhugu nayugainit hanauhianik (eDNA), naallugit nayugainit nauvalliyut avugiiktunit qaanganit (PIGI), qaanganit chlorophyll-mik avuqariaghainik satellite-kut ihivriuqhiyaamik/ihuaqhaiyaamik. 7-Bob Pickart. Umiaqmit qauyihautiqarlutik taryum natianik/hakugingnianik qauyihainahuat aktinia qauyihaqlugulu. Ilihattiarumayaat qanuriningania imariktut Baffin Kangiqhuanut Uataanullu Akukittum harvaani, uunaqtuqlu anuri harvaum qaanganit hanguvia qauyihailugu Uummannaqmut qiqumayutuqanut. Hapkua havaaghat parnaiyaqtauhimayut, parnaiyaqtauhimaniaqtullu qauyihaiyllu talvanngat Nunaliqiyit Qauyihaiyut Kanatamit. Havaqativut talvanngat GSC-kunnit nunallaaqmiunik katimaqatiginngaqhimayait 2013-mi pulaaqvianit. May 2015-mi March 2016-milu, nunallaaqmiunik katimaqatigihimayut Kangiqtugaapingmi, Pangniqtuumi, Iqalungnilu.2018-mi, 2019-milu, nunallaarmiunik katimapkaihimayut Pangniqtuumi Qikiqtaryuamilu. Qalakyuarnaq-mut pulaaqtailivaktut ukiuq. Qauyihaiyut ilihimaliqitait naunaiqhitiyauniaqqut nunallaarnut pulaaqhimagumik 6-nik tatqiqhiutit kinguani iniqviata havaaghainik inungnullu hailiyauhimanahuat. Ilihimaliqitait takupkaqtitauniaqtut katimaviinit Ukiuqtaqtumi, ayuqnaqtunik qauyihaiyut katimaviinit makpiraaliuqtaulutiklu qaffinikiaq ayuqnaqtunik qauyihaiyut makpiraangutainit, naunaitkutainit ayuqnaittuknullu uqaqhikkut titiqqanit tatqiqhiutinit ukiunilu atuqtughani havaaghaum iniqvianit.

Personnel

Personnel on site: 104

Days on site: 7

Total Person days: 728

Operations Phase: from 2021-08-25 to 2021-09-13

Activités

| Emplacement | Type d'activité | Statut des terres | Historique du site | Site à valeur archéologique ou paléontologique | Proximité des collectivités les plus proches et de toute zone protégée |
|--|-------------------------|-------------------|--------------------|--|--|
| f2021343448216-HEALY_USCG_INITIAL_TRACK_TEST | Marine Based Activities | Marine | N/A | N/A | N/A |

Engagement de la collectivité et avantages pour la région

| Collectivité | Nom | Organisme | Date de la prise de contact |
|--------------|--|---|-----------------------------|
| Pangnirtung | Nancy Anilniliak - Senior Administrative Officer at the time | Our collaborators on this cruise from the GSC had in-person discussions with the communities of Pond Inlet, Qikiqtarjuaq and Pangnirtung in 2019 regarding seabed surveys and marine geohazards. The specifics of the Healy cruise were not discussed in 2020-2021 because of covid and travel restrictions | 2019-03-20 |
| Qikiqtarjuaq | Geela Kooneeliusie | Our collaborators on this cruise from the GSC had in-person discussions with the communities of Pond Inlet, Qikiqtarjuaq and Pangnirtung in 2019 regarding seabed surveys and marine geohazards. The specifics of the Healy cruise were not discussed in 2020-2021 because of covid and travel restrictions | 2019-03-01 |
| Pond Inlet | Molleen Anaviapik (was contact but never met in person due to travel issues) | Our collaborators on this cruise from the GSC had in-person discussions with the communities of Pond Inlet, Qikiqtarjuaq and Pangnirtung in 2019 regarding seabed surveys and marine geohazards. The specifics of the Healy cruise were not discussed in 2020-2021 because of covid and travel restrictions | 2019-03-15 |

Autorisations

Indiquez les zones dans lesquelles le projet est situé:

Transboundary
Kitikmeot
North Baffin

Autorisations

| Organisme de régulation | Description des autorisations | État actuel | Date de l'émission/de la demande | Date d'échéance |
|-------------------------|---|---------------------------|----------------------------------|-----------------|
| Autre | Nunavut Planning Commission | Active | 2021-04-08 | |
| Autre | Foreign Affairs, DFO and NRCan - Government of Canada | Applied, Decision Pending | 2021-01-06 | |
| Autre | Ministry of Foreign Affairs Denmark and Greenland | Applied, Decision Pending | 2021-01-26 | |

Project transportation types

| Transportation Type | Utilisation proposée | Length of Use |
|---------------------|---|---------------|
| Water | Research transit of USCG Icebreaker HEALY | |

Project accomodation types

Autre,

Utilisation de matériel

Équipement à utiliser (y compris les perceuses, les pompes, les aéronefs, les véhicules, etc.)

| Type d'équipement | Quantité | Taille – Dimensions | Utilisation proposée |
|------------------------|----------|---------------------|---|
| 3.5 kHz echo-sounder | 1 | attached to ship | seabed imaging |
| multibeam echo-sounder | 1 | attached to ship | bathymetric data collection |
| USCG Icebreaker HEALY | 1 | 420'x82'x29.3' | Research Vessel |
| CTD | 1 | 6' x 3' | measure temperature, salinity of water |
| XBT | 100 | 1'x3 | measure water temperature profile while underway |
| XCTD | 85 | 1'x3 | measure temperature and salinity profile while underway |
| gravimeter | 1 | 3'x3'x3' | Device to measure the earth's gravity field |
| Flow-through sensors | 4 | 3'x2'1' | Several devices to monitor the properties of the seawater and air by passing seawater (or air) through them as vessel is underway. A detailed list of these sensors if provided in the documentation at the end of the application. |
| underwater glider | 1 | 5'x3"11 | IF time permits an autonomous glider will be launched in Baffin Bay towards the end of the leg. This glider will be retrieved by the scientific party of the next leg. The glider will be measuring water properties. |

Décrivez l'utilisation du carburant et des marchandises dangereuses

| Décrivez l'utilisation de carburant : | Type de carburant | Nombre de conteneurs | Capacité du conteneur | Quantité totale | Unités | Utilisation proposée |
|---------------------------------------|-------------------|----------------------|-----------------------|-----------------|---------|---|
| Diesel | fuel | 1 | 12202915 | 12202915 | Gallons | Vessel has Diesel Electric propulsion and carries all fuel it needs |
| Bleach | hazardous | 1 | 5 | 5 | Liters | cleaning sample holders |
| Ethanol | hazardous | 1 | 5 | 5 | Liters | Sample preservation |

Consommation d'eau

| Quantité quotidienne (m3) | Méthodes de récupération de l'eau proposées | Emplacement de récupération de l'eau proposé |
|---------------------------|---|--|
| 0 | | |

Déchets

Gestion des déchets

| Activités du projet | Type des déchets | Quantité prévue | Méthode d'élimination | Procédures de traitement supplémentaires |
|---------------------|--------------------------|-----------------|---|---|
| Waste disposal | Déchets combustibles | 500 lbs | Please see Waste/Garbage Disposal Plans in attached documents | Please see Waste/Garbage Disposal Plans in attached documents |
| Waste disposal | Déchets combustibles | 20,000 gallons | Please see Waste/Garbage Disposal Plans in attached documents | Please see Waste/Garbage Disposal Plans in attached documents |
| Waste disposal | Eaux grises | 125,000 gallons | Please see Waste Management Plans in attached documents | Please see Waste Management Plans in attached documents |
| Waste disposal | Déchets non combustibles | 300 lbs | Please see attached Garbage/Waste Management Plan | Please see attached Garbage/Waste Management Plan |

Répercussions environnementales :

None. The vessel will be transiting. There will be no samples taken except of water and air using flow-through systems on board the vessel. It is self-contained with respect to waste disposal and meets all national and international environmental standards. Measurements made of bathymetry, air and water properties as well as productivity and eDNA records will be made publicly available when analyses are completed and will aid in better understanding for the environment of the region.

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

The Coast Guard Cutter HEALY (WAGB - 20) is United States' newest and most technologically advanced polar icebreaker. On this expedition the HEALY will be transiting from Seward Alaska to Nuuk Greenland through the NWP and will be collecting bathymetric data, and sampling water and air using flow-through systems. When crossing Baffin Bay, the HEALY will make a number of CTD casts (measuring salinity, temperature and depth). The HEALY is classified as a medium ice-breaker designed to conduct a wide range of research activities, providing more than 4,200 square feet of scientific laboratory space, numerous electronic sensor systems, oceanographic winches, and accommodations for up to 50 scientists. HEALY is designed to break 4.5 feet of ice continuously at three knots and can operate in temperatures as low as -50 degrees F. Length, Overall 420'0 (128 meters) Beam, Maximum 82'0 (25 meters) Draft, Full Load 29'3 (8.9 meters) Displacement, Full Load 16,000 LT Propulsion Diesel Electric, AC/AC Cycloconverter Generating Plant Drive Motors 4 Sultzer 12Z AU40S2 AC Synchronous, 11.2 MW Shaft Horsepower 30,000 Max HP Propellers 2 Fixed Pitch, 4 Bladed Auxiliary Generator EMD 16-645F7B, 2400 kW Fuel Capacity 1,220,915 GAL (4,621,000 liters) Cruising Speed 12 knots @ 105 RPM Max Speed 17 knots @ 147 RPM Icebreaking Capability 4.5 ft @ 3 knots (continuous) 8 ft (2.44 m) Backing and Ramming Science Labs Main, Bio-Chemical, Electronics, Meteorological, Photography Accommodations 19 Officer, 12 CPO, 54 Enlisted, 35 Scientists, 15 Surge, 2 Visitors For this expedition there will be 104 scientists and crew aboard the vessel. The vessel will leave Seward Alaska on 25 August and arrive in Nuuk Greenland on 13 Sept. The ship track is presented as a map in The Waste management plan is provided in the Documents section. As a Coast Guard cutter, HEALY is also a capable platform for supporting other potential missions in the polar regions, including logistics, search and rescue, ship escort, environmental protection, and enforcement of laws and treaties. Ballast water: Ballast operations are conducted in accordance with the Vessel Environmental Manual. Healy has segregated ballast tanks, so operations are conducted outside of 200 nautical miles as far as practicable. Healy has a ballast capacity of 1,000,000 gal. Ballast is untreated. If ballast is taken on within 200 NM, the water is exchanged outside 200 NM and the tanks are flushed. • Bilge water: Bilge water is put into the Oily Water Holding Tank (9,000g). The bilge water is process through the Oily Water Separator and only discharged overboard if it contains less than 15ppm. The OWS is only operated outside 12NM. Any bilge water that is not processed is held until return to port where it is offloaded and disposed of commercially. The oil removed via the OWS is stored in a separate Waste Oil tank. • Deck Drainage: Deck drains on the weather decks and in the Hangar drain directly overboard. Internal Deck drains from machinery spaces are routed to the Oily Water Tank, and non-machinery drains go to the Grey Water Tank. • Grey and black water: Healy utilizes a vacuum eductor system to collect black water in the Black Water Tank (1000g). The Grey water system is gravity drained, and is collected in the Grey Water Tank (13,300g). The Black water is pumped into the Grey Water tank automatically when the Black Water Tank reaches 800g. The Grey Water tank is pumped overboard manually by the engineering watch stander. No treatment chemicals are added to either tank. Healy pumps roughly 6,000g of grey/black water overboard each day underway (high end estimate with full science party). Dumping of grey/black water is only conducted outside of 12NM from land. • Solid waste: Food waste is ground up in a food disposal system, and added to the grey water tank, where it is pumped overboard. Solid waste such as cardboard and trash is stored for disposal in port. • Waste oil: Waste oil is stored in the Waste Oil tanks (combined 17,000g) and is kept until it can be offloaded to a commercial disposal company. • Hazardous or toxic waste: Hazmat is contained in a designated and secure locations throughout the ship. The crew includes three Marine Science Technicians who are US Coast Guard career hazmat specialists and responsible for Healy hazmat. Detailed information on protocols, storage locations, and crew responsibilities is contained in the attached Hazmat Program. • List all applicable regulations concerning management of wastes and discharges of materials into the marine environment Per the Commanding Officer's Standing Orders, Healy does not discharge sewage inside of 12 NM from land regardless of operating area in order to comply with the highest standard set by international regulations. Trash is stored in a shipping container on the weather decks and is not dumped overboard outside of exceptional circumstances. Healy does not discharge wastes within designated Marine Sanctuaries. • Provide detailed Waste Management, Emergency Response and Spill Contingency Plans See Attached. • Does the vessel(s) possess an Arctic Pollution Prevention Certificate? If yes, indicate the date of issue and the name of the classification society. No. • Describe the source of fresh water and potable water. Healy operates two flash-type distilling units to create potable water. The distillers are not operated within 12 NM of land, nor within harbors, rivers, inlets, bays, or landlocked waters. • Indicate whether ice-breaking will be required, and if so, approximately where and

when? No ice operations are planned for the Northwest Passage Transit. • Discuss any possible impacts to caribou migration, Inuit harvesting or travel routes, and outline proposed mitigation measures. No impacts anticipated. • Indicate whether the operation will be conducted within the Outer Land Fast Ice Zone of the East Baffin Coast. For more information on the Outer Land Fast Ice Zone, please see the Nunavut Land Claims Agreement (NLCA), Articles 1 and 16.14. Healy will transit outside the Outer Land Fast Ice Zone. • Describe whether any part of the project will be located outside of the Nunavut Settlement Area and whether any other regulatory requirements must be met (e.g. CEAA). Healy's Northwest Passage transit will include both the Inuvialuit Settlement Region and Nunavut Settlement Area. Vessel complies with all international and national regulations -- Waste disposal management plan is provided in Documents section.

SECTION H2: Disposal At Sea

Ballast water: Ballast operations are conducted in accordance with the Vessel Environmental Manual. Healy has segregated ballast tanks, so operations are conducted outside of 200 nautical miles as far as practicable. Healy has a ballast capacity of 1,000,000 gal. Ballast is untreated. If ballast is taken on within 200NM from land, the water is exchanged outside 200 NM and the tanks are flushed. • Bilge water: Bilge water is put into the Oily Water Holding Tank (9,000g). The bilge water is processed through the Oily Water Separator and only discharged overboard if it contains less than 15ppm. The OWS is only operated outside 12NM. Any bilge water that is not processed is held until return to port where it is offloaded and disposed of commercially. The oil removed via the OWS is stored in a separate Waste Oil tank. • Deck Drainage: Deck drains on the weather decks and in the Hangar drain directly overboard. Internal Deck drains from machinery spaces are routed to the Oily Water Tank, and non-machinery drains go to the Grey Water Tank. • Grey and black water: Healy utilizes a vacuum eductor system to collect black water in the Black Water Tank (1000g). The Grey water system is gravity drained, and is collected in the Grey Water Tank (13,300g). The Black water is pumped into the Grey Water tank automatically when the Black Water Tank reaches 800g. The Grey Water tank is pumped overboard manually by the engineering watch stander. No treatment chemicals are added to either tank. Healy pumps roughly 6,000g of grey/black water overboard each day underway (high end estimate with full science party). Dumping of grey/black water is only conducted outside of 12NM from land. • Solid waste: Food waste is ground up in a food disposal system, and added to the grey water tank, where it is pumped overboard. Solid waste such as cardboard and trash is stored for disposal in port. • Waste oil: Waste oil is stored in the Waste Oil tanks (combined 17,000g) and is kept until it can be offloaded to a commercial disposal company. Hazardous or toxic waste: Hazmat is contained in a designated and secure locations throughout the ship. The crew includes three Marine Science Technicians who are US Coast Guard career hazmat specialists and responsible for Healy hazmat. Detailed information on protocols, storage locations, and crew responsibilities is contained in the attached Hazmat Program. • List all applicable regulations concerning management of wastes and discharges of materials into the marine environment Healy operates in accordance with the US Coast Guard Vessel Environmental Manual (COMDTINST M16455.1A), which ensures Coast Guard vessels are in compliance with The International Convention for the Prevention of Pollution from Ships (MARPOL), The Act to Prevent Pollution from Ships (APPS), The Clean Water Act, The Resource Conservation and Recovery Act, the Toxic Substances Control Act, CERCLA, the Occupational Safety and Health Act, and U.S. Department of Transportation Laws regulating the transportation of hazardous material. Healy does not discharge sewage inside of 12 NM from land. Trash is stored in a shipping container on the weather decks. Healy does not discharge wastes within designated Marine Sanctuaries. Below is a visual representation of Coast Guard discharge policy: • Provide detailed Waste Management, Emergency Response and Spill Contingency Plans See Attached. • Does the vessel(s) possess an Arctic Pollution Prevention Certificate? If yes, indicate the date of issue and the name of the classification society. No. • Describe the source of fresh water and potable water. Healy operates two flash-type distilling units to create potable water. The distillers are not operated within 12 NM of land, nor within harbors, rivers, inlets, bays, or landlocked waters. • Indicate whether ice-breaking will be required, and if so, approximately where and when? No ice operations are planned for the Northwest Passage Transit. • Discuss any possible impacts to caribou migration, Inuit harvesting or travel routes, and outline proposed mitigation measures. No impacts anticipated. • Indicate whether the operation will be conducted within the Outer Land Fast Ice Zone of the East Baffin Coast. For more information on the Outer Land Fast Ice Zone, please see the Nunavut Land Claims Agreement (NLCA), Articles 1 and 16.14. Healy will transit outside the Outer Land Fast Ice Zone. • Describe whether any part of the project will be located outside of the Nunavut Settlement Area and whether any other regulatory requirements must be met (e.g. CEAA). Healy's Northwest Passage transit will include both the Inuvialuit Settlement Region and Nunavut Settlement Area.

SECTION II: Municipal Development

Description de l'environnement existant : Environnement physique

Vessel will transit through deepest waters of NWP and across Baffin Bay.

Description de l'environnement existant : Environnement biologique

Description de l'environnement existant : Environnement socio-économique

Miscellaneous Project Information

Identification des répercussions et mesures d'atténuation proposées

Répercussions cumulatives

We do not envision any adverse environmental impacts from the transit of the vessel.

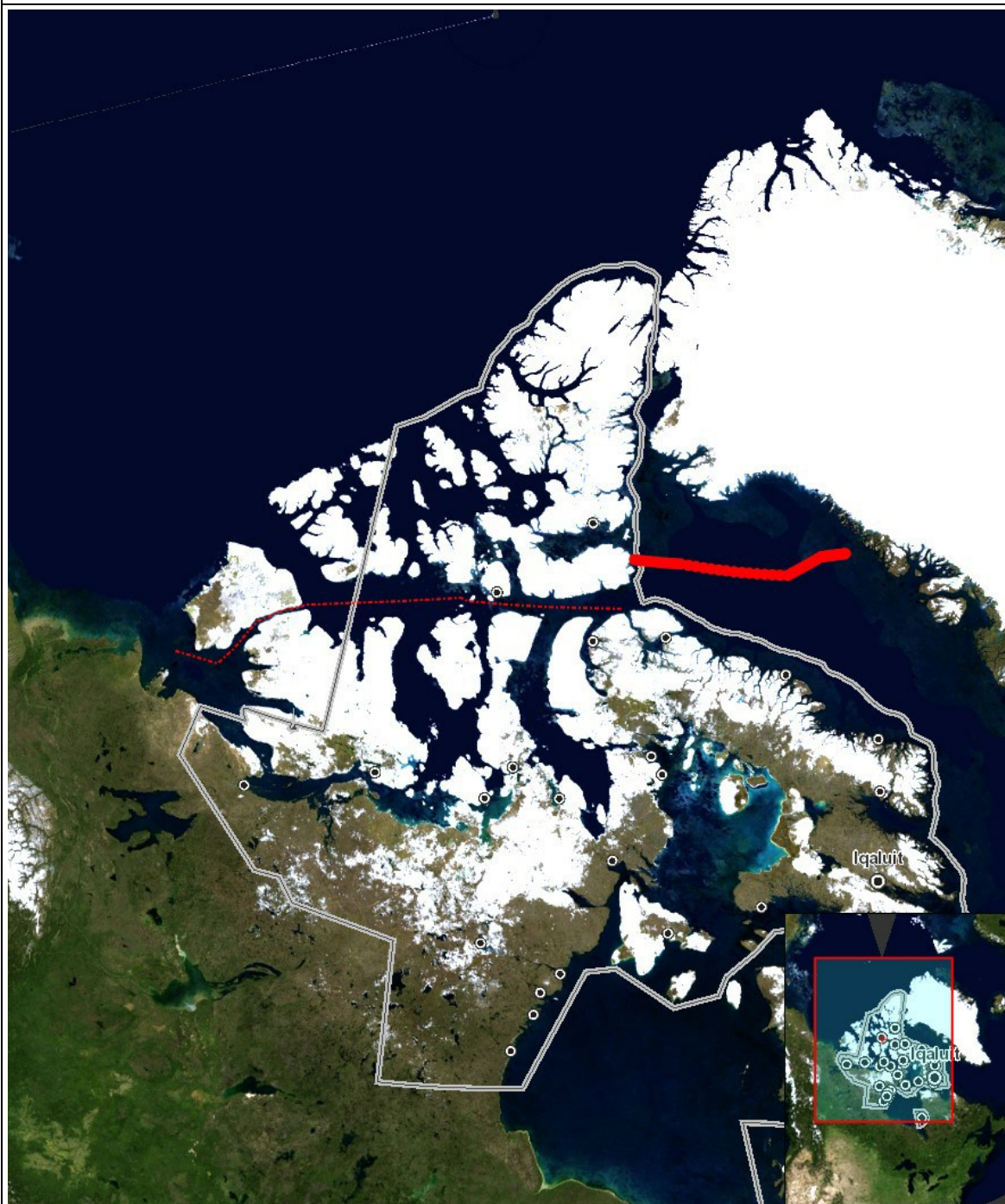
Impacts

Identification des répercussions environnementales

| | | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Exploitation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Marine Based Activities | | - | - | - | - | P | P | - | - | - | P | P | - | - | - | - | - | - | P | - | - | - | - | - | - | - |
| Désaffectation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

(P = Positive, N = Négative et non gérable, M = Négative et gérable, U = Inconnue)

Site du projet



Liste des géométries de projet

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| 1 | polyline | f2021343448216-HEALY_USCG_INITIAL_TRACK_TEST |
| 2 | point | f2021343599750-PICART_CTD_TRANSECT |
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