

Project Dashboard

HEALY2021 Transit (149490)

Proposal Status: Conformity Determination Issued

- **Overview**
- Documents
- Questionnaire

Project Overview

Type of application: **New**

Proponent name:	Larry Mayer
Company:	University of New Hampshire Center for Coastal and Ocean Mapping

Schedule:

Start Date:	2021-08-25
End Date:	2021-09-13
Operation Type:	Seasonal

Project Description:

This is a multi-disciplinary research project that will take advantage of the Healy transiting the Northwest Passage from Alaska to Baffin Bay. The following is a summary of each Principal Investigators (PI's) project and the nature and objectives. All measurements will be made while vessel is underway. 1- PI- Larry Mayer. Towards the Complete Mapping of the Seafloor by 2030- We propose to 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. 2- PI- Jeff Welker. Continuous, coupled H₂O-C isotope measurements through the NW Passage and in Baffin Bay: Critical interaction changes in a New Arctic –Quantify ocean-atmosphere-cryosphere-terrestrial (OACT) interactions using water and carbon (CO₂ & CH₄) isotope measurements of marine air and sea water. 3- PI- Miguel Goni. 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. 4- PI- Bernie Coakley. Calibration of gravity data across the Arctic Basin- The NW Passage transit of USCGC Healy offers an opportunity to collect a single calibration line linking up the Western and Eastern Arctic data clusters over a short period of time. 5- PI-Lauren Juranek. Net community productivity in surface waters across the Northwest Passage- The objective of this work is to sample 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. 6-PI- Andrew Margolin. Environmental DNA (eDNA) and Optical Sampling in Arctic Seas and Northwest Passage- Determine the community composition (eDNA), net community production of the mixed layer (PIGI), surface chlorophyll content for satellite intercomparison/calibration (optical/HyperSAS). 7-PI- Bob Pickart. A shipboard hydrographic/velocity survey will be carried out along with glider measurements. 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.

Personnel:

Persons:	104
Days:	7

Project Map**List of all project geometries:**

ID	Geometry	Location Name
7126	point	f2021343599750- PICART_CTD_TRANSECT
7127	point	f2021343599750- PICART_CTD_TRANSECT
7128	point	f2021343599750- PICART_CTD_TRANSECT
7129	point	f2021343599750- PICART_CTD_TRANSECT
7130	point	f2021343599750- PICART_CTD_TRANSECT
7131	point	f2021343599750- PICART_CTD_TRANSECT
7132	point	f2021343599750- PICART_CTD_TRANSECT
7133	point	f2021343599750- PICART_CTD_TRANSECT
7134	point	f2021343599750- PICART_CTD_TRANSECT
7135	point	f2021343599750- PICART_CTD_TRANSECT
7136	point	f2021343599750- PICART_CTD_TRANSECT
7137	point	f2021343599750- PICART_CTD_TRANSECT
7138	point	f2021343599750- PICART_CTD_TRANSECT
7139	point	f2021343599750- PICART_CTD_TRANSECT
7140	point	f2021343599750- PICART_CTD_TRANSECT
7141	point	f2021343599750- PICART_CTD_TRANSECT
7142	point	f2021343599750- PICART_CTD_TRANSECT
7143	point	f2021343599750- PICART_CTD_TRANSECT

7144	point	f2021343599750- PICART_CTD_TRANSECT
7145	point	f2021343599750- PICART_CTD_TRANSECT
7146	point	f2021343599750- PICART_CTD_TRANSECT
7147	point	f2021343599750- PICART_CTD_TRANSECT
7148	point	f2021343599750- PICART_CTD_TRANSECT
7149	point	f2021343599750- PICART_CTD_TRANSECT
7150	point	f2021343599750- PICART_CTD_TRANSECT
7151	point	f2021343599750- PICART_CTD_TRANSECT
7152	point	f2021343599750- PICART_CTD_TRANSECT
7153	point	f2021343599750- PICART_CTD_TRANSECT
7154	point	f2021343599750- PICART_CTD_TRANSECT
7155	point	f2021343599750- PICART_CTD_TRANSECT
7156	point	f2021343599750- PICART_CTD_TRANSECT
7157	point	f2021343599750- PICART_CTD_TRANSECT
7158	point	f2021343599750- PICART_CTD_TRANSECT
7159	point	f2021343599750- PICART_CTD_TRANSECT
7160	point	f2021343599750- PICART_CTD_TRANSECT
7161	point	f2021343599750- PICART_CTD_TRANSECT
7162	point	f2021343599750- PICART_CTD_TRANSECT
7163	point	f2021343599750- PICART_CTD_TRANSECT
7164	point	f2021343599750- PICART_CTD_TRANSECT
7165	point	f2021343599750- PICART_CTD_TRANSECT

7166	point	f2021343599750- PICART_CTD_TRANSECT
7167	point	f2021343599750- PICART_CTD_TRANSECT
7168	point	f2021343599750- PICART_CTD_TRANSECT
7169	point	f2021343599750- PICART_CTD_TRANSECT
7170	point	f2021343599750- PICART_CTD_TRANSECT
7171	point	f2021343599750- PICART_CTD_TRANSECT
7172	point	f2021343599750- PICART_CTD_TRANSECT
7173	point	f2021343599750- PICART_CTD_TRANSECT
7174	point	f2021343599750- PICART_CTD_TRANSECT
7175	point	f2021343599750- PICART_CTD_TRANSECT
7176	point	f2021343599750- PICART_CTD_TRANSECT
7177	point	f2021343599750- PICART_CTD_TRANSECT
7178	point	f2021343599750- PICART_CTD_TRANSECT
7179	polyline	f2021343448216- HEALY_USCG_INITIAL_TRACK_TEST

Planning Regions:

Qikiqtani

Kivalliq

Affected Areas and Land Types

Settlement Area

North Baffin Planning Region

Project Land Use and Authorizations

Project Land Use

Scientific Research

Marine-Based Activities

Scientific Research

Licensing Agencies

NRI: [Scientific Research Licence](#)

NIRB: 0

Other Licensing Requirements

No data found.

Material Use

Equipment

Type	Quantity	Size	Use
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.
			IF time permits an autonomous glider will be launched in Baffin Bay towards the end of the leg.
underwater glider	1	5'x3"11	This glider will be retrieved by the scientific party of the next leg. The glider will be measuring water properties.

Fuel Use

Type	Container(s)	Capacity	UOM	Use
Diesel	1	12202915	Gallons	Vessel has Diesel Electric propulsion and carries all fuel it needs

Hazardous Material and Chemical Use

Type	Container(s)	Capacity	UOM	Use
Bleach	1	5	Liters	cleaning sample holders
Ethanol	1	5	Liters	Sample preservation

Water Consumption

Daily Amount (m³)	Retrieval Method	Retrieval Location
0		

Waste and Impacts

Environmental Impacts

No anticipated environmental impacts. The vessel complies with all international waste management guidelines and is self-contained with respect to waste. Vessel management plan is appended in the Documents section

Waste Management

Waste Type	Quantity Generated	Treatment Method	Disposal Method
No data found.			