STARC Report AICC Summer 2022

2021 Cruise Support

2022 Dockside Mobilization

2023 Drydock Work Items

SLEP Updates

Surface melting at high latitudes

UC San Diego

Oregon State University

Acknowledgements

National Science Foundation
(NSF)

United States Coast Guard
(USCG)

STARC University Partners
(SIO, OSU, UW)

Arctic Icebreaker Coordinating Committee
(AICC)

SIO Oceanographic Data Facility
(ODF)

Multibeam Advisory Committee
(MAC)

WHOI Potential Fields Pool Equipment
(PFPE)

Shipboard Automated Meteorological and
Oceanographic System (SAMOS)

National Oceanic and Atmospheric Administration
(NOAA)

National Geospatial-Intelligence Agency
(NGA)

HLY21TC: AMOS

Chief Scientist: Jason Gobat

3 STARC Technicians sailed in support of AMOS
Brendon Mendenhall, Kate Kouba, Howie Johnson

Collected underway seawater and meteorological data, operated sonars such as multibeam, subbottom profiler, and ADCPs

Worked with C5I to configure and repair network functionality under the new cyber secure environment

Interfaced with the Edgetech and Airmar transducers to enable mooring release communication, triangulate ice trapped float locations, and verify operation of two autonomous gliders

Configured, tested and deployed CTD and XBT systems

Mooring recovery

HLY21TD: Northwest Passage

Chief Scientist: Larry Meyer

4 STARC Technicians sailed in support of the NWP mission
Brendon Mendenhall, Kate Kouba, Max Hughes, Adam Stenseth

Collected underway seawater and meteorological data

Worked with CCOM personnel to ensure optimal operation of the multibeam mapping sonar and Knudsen subbottom profiler

Deployed XBT and XCTD probes every 6-12 hours while mapping through changing waters to fine tune the temp/salinity profile

Launched SVP buoys in the Passage

Performed high resolution XCTD transect across Baffin Bay

SVP Buoy deployment

HLY21TE: Baffin Bay

Chief Scientist: Bob Pickart

4 STARC Technicians sailed in support of Baffin Bay science
Emily Shimada, Adam Stenseth, Mason Schettig, Liz Ricci

Collected underway seawater and meteorological data

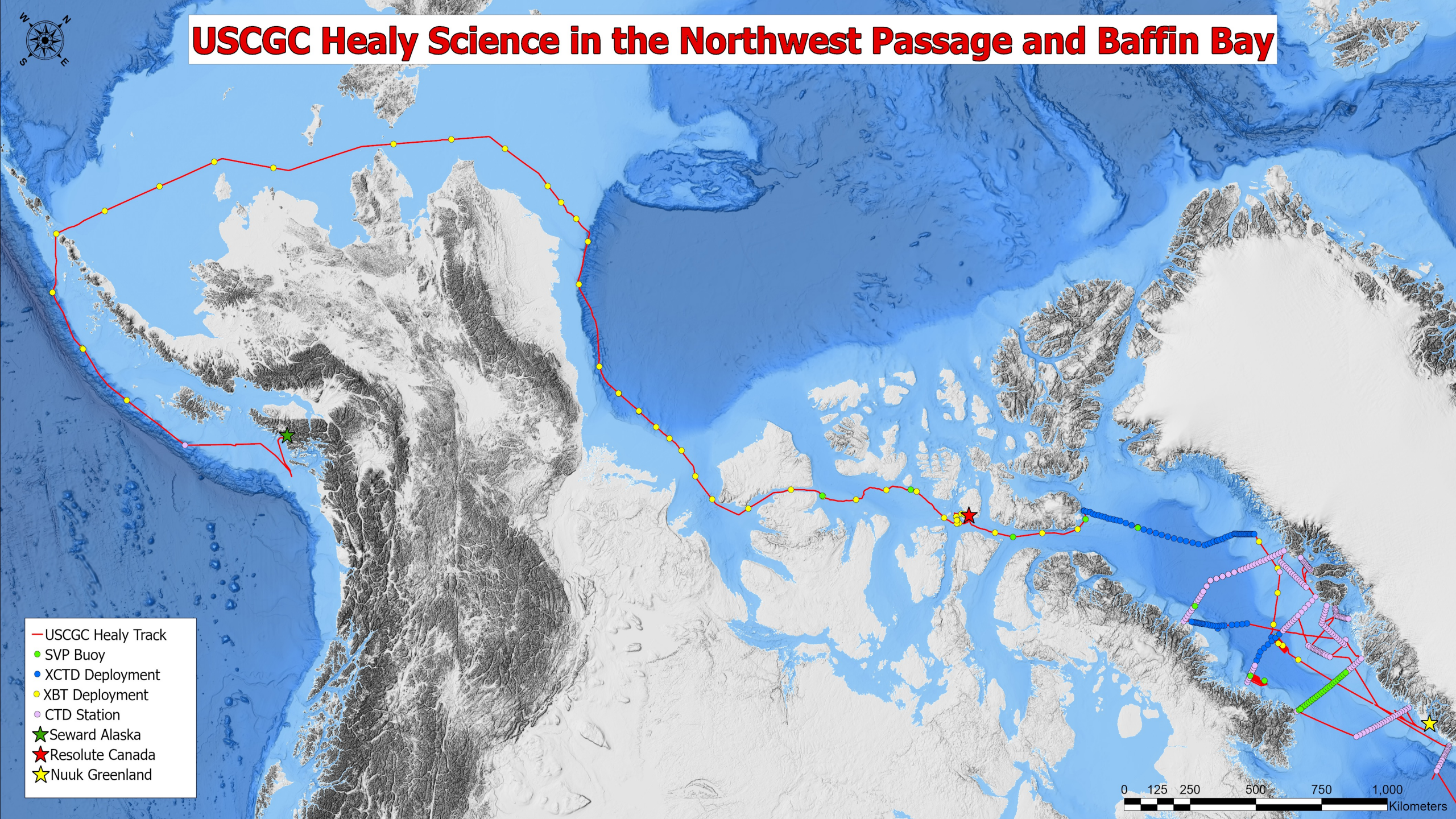
Operated sonars such as multibeam, subbottom profiler, and ADCPs

Supported over 200 CTD casts, prepared rosette and niskin bottles, maintained sensors, re-terminated the .322 cable when damaged

Launched SVP buoys, a G-3 glider, and XCTD probes

Assisted in the set up and operation of the autosalinometer and Milli-Q systems

CTD cast


USCGC Healy Science in the Northwest Passage and Baffin Bay
USCGC Healy Track
SVP Buoy
XCTD Deployment
XBT Deployment
CTD Station
Seward Alaska
Resolute Canada
Nuuk Greenland
0 125 250 500 750 1,000
Kilometers

2022 Dockside Mobilization

CTD, SSW, and MET sensors

- Send in all science sensors for annual calibration
- Ensure installation is in accordance with best practices

Sonar system testing

- Measure impedance of the EM122 TX /RX transducers
- Test Knudsen deck unit and transducers

Acquisition Computers and VM Cluster

- Annual hardware, software, and driver updates
- Ensure cyber security compliance

Autosalinometers

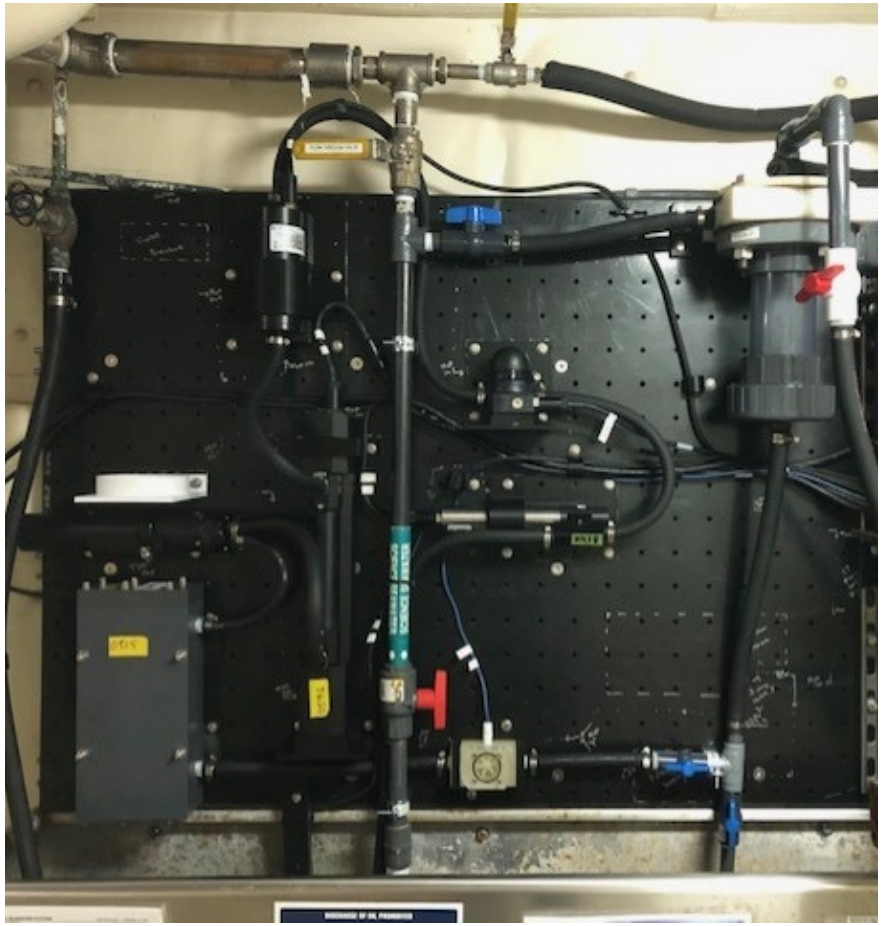
- Three units available at SIO, require grooming

pCO2 system (NOAA) modifications

- Work with NOAA to ensure system functionality

Gravimeter Mobilization (PFPE)

- Identify stable period for BGM-3 mobilization



Port Side SSW Wall

UC San Diego

Oregon State University

2023 Drydock Work Items

Transducer Well Deck Preservation

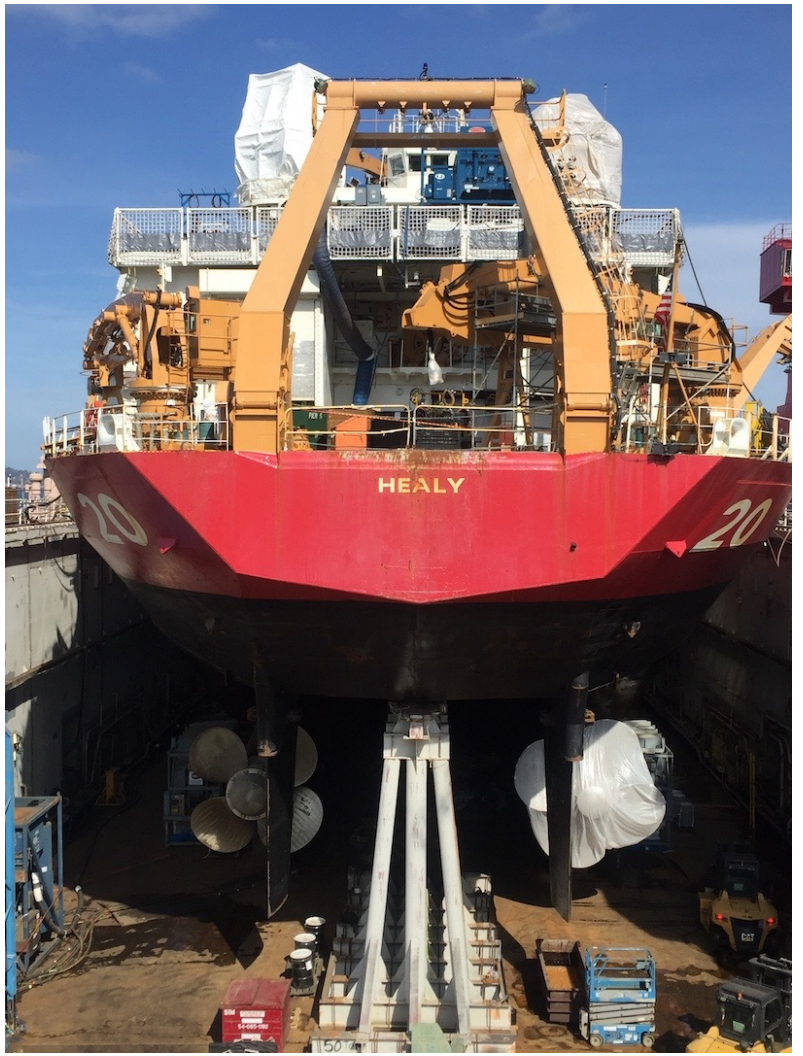
- 100% deck and 3” up bulkheads
- Transducer well exteriors and lids
- Request new ice windows for aux wells

Transducer Maintenance:

- All transducers will be removed
- Clean and preserve transducer well interiors
- Replace OS75 and OS150 ADCP transducers
- Install EK80 18kHz and 38kHz fishery sonars
- Equipment purchase and delivery in 2022

Multibeam:

- EM122 RX array replacement
- Modify RX frame to install baffles



Healy high and dry

Service Life Extension Program (SLEP)

Coast Guard has included the following in the SLEP work package:

- **Kongsberg EM304 MKII:** 20-32 kHz Multibeam to replace the 12 kHz EM122
- **Kongsberg SBP29:** 2 - 9kHz subbottom profiler, beam steerable, slope correcting

Requiring additional engineering review, the shallow water multibeam may be included in the SLEP, or a future drydock availability period if accepted

- **EM712:** 40 - 100 kHz shallow water multibeam for high resolution surveys of the continental shelf. Requires an extending ram with a gate valve for ice protection

* NSF commitment to funding contingent on NSF/CG MOU discussions

Questions

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