



Science & Education Report

MS FRAM

MS FRAM 24th June – 6th July 2025

Circumnavigating Svalbard



Credit: Jan Hvizdal/ HX



Citizen Science

NASA Globe Observer

We Collected 2 observations for NASA. You can [view our data](#) on the global map.

Inaturalist

We submitted 167 observations to Inaturalist. [You can view our observations by clicking here.](#)

Ebird

We submitted 18 checklists to Ebird. You can view the [trip report for your voyage by clicking here.](#)

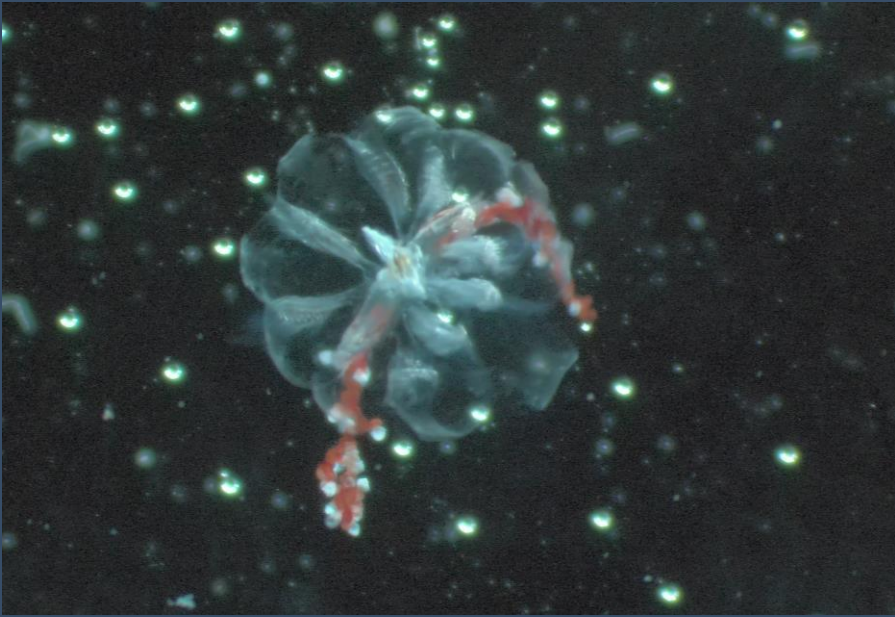


Science Boat

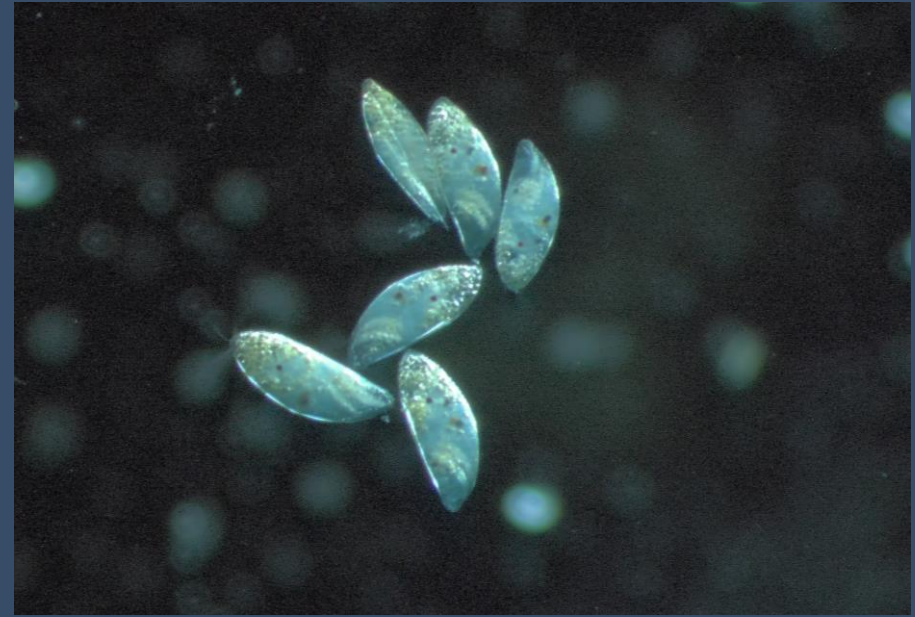
On our voyage we conducted 7 Science Boats during which we collected Secchi disc measurements, ctd profiles, plankton samples, Niskin bottle samples, and hydrophone recordings.

We used the microscopes in the science centre to identify plankton caught during the science boats. The most abundant zooplankton were copepods, a tiny planktonic crustacean (pictured left). Please see the following slide for more pictures of plankton caught during our voyage.

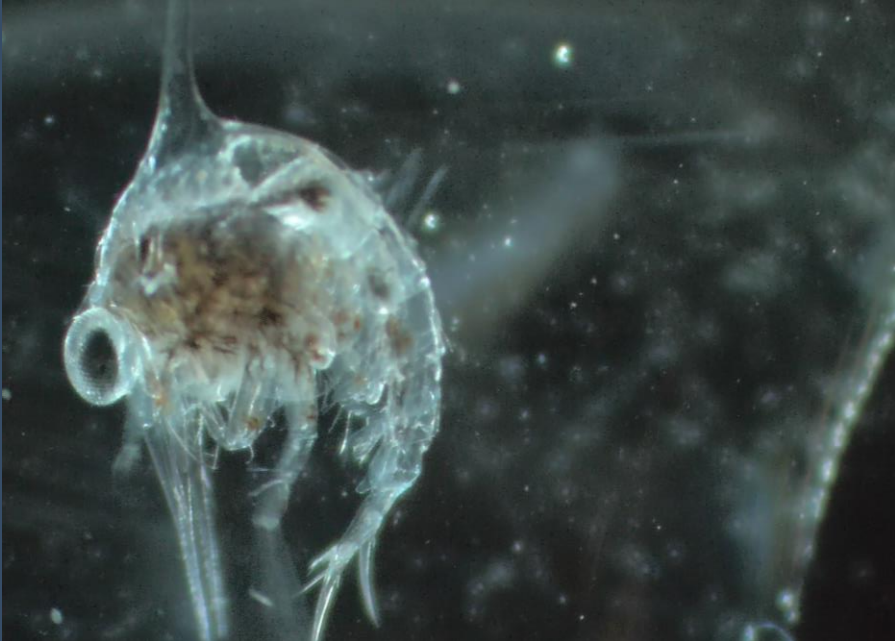
[Click here to visit the Secchi Disc Project and view the Secchi data.](#)



Ctenophore, also known as comb jelly.



Barnacle cyprid larvae.



Crab larvae, known as a zoea.



Salp larvae.



Underwater Drone and Hydrophone

To view the underwater drone footage from your voyage, please [visit the HX YouTube channel by clicking here.](#)

To listen to hydrophone recordings from your voyage, please [visit our SoundCloud page by clicking here.](#)



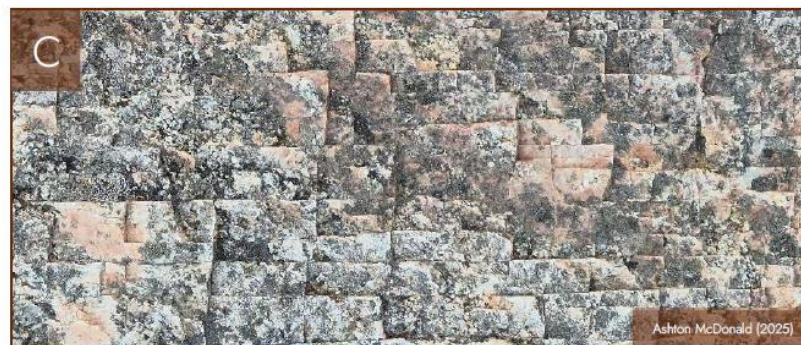
Geology reports

Svalbard is a paradise for geologists — a land where deep time rises to the surface. Its mountains and valleys reveal a story stretching back over 2.5 billion years. Here, you'll find rich seams of coal formed in tropical swamps, marine fossils of ichthyosaurs and ammonites from long-vanished seas, and even the preserved footprints of dinosaurs pressed into Cretaceous sandstone.

Travel back to the landing sites of your voyage by reading the geology reports compiled by your geologist Ashton.

26.06.2025: Virgohamna, Amsterdamøya. (79.7270° N, 10.9400° E)

Virgohamna, located on the northwest coast of Danskøya, just off Spitsbergen, lies within the Caledonian basement complex of northwestern Svalbard. The area is underlain by Proterozoic to Cambrian metamorphic rocks, primarily mica schists, quartzites, and phyllites, which were strongly deformed during the Caledonian orogeny (~430–390 million years ago). These rocks exhibit clear foliation, folding, and metamorphic banding, and represent ancient sediments that were buried, heated, and uplifted during mountain-building processes. The coastal platform at Virgohamna is mantled by glacial and marine sediments, forming raised beaches, moraines, and thin tills from the last glaciation. The site is geologically significant not only for its exposed metamorphic bedrock but also for its periglacial surface processes, including frost-shattered outcrops and polygonal ground. Historically known for early Arctic exploration and whaling, Virgohamna today provides insight into both the deep geological past and the more recent glacial history of northwest Svalbard.



IMAGES:

- (A) Kapp Pike mountainside composed of Migmatite with aplites.
- (B) Metamorphosed bedrock banding.
- (C) Frost shattered pink granite.
- (D) Banded late-tectonic
- (E) Migmatite
- (F) Banded gneiss.
- (G) Toposvalbard (NPI) (2025)
- (H) Geoscience Atlas of Svalbard (2015)

Smeerenburgfjorden Complex:

| | |
|-----|----------------------------------|
| 208 | Late-tectonic granite |
| 209 | Migmatite |
| 210 | Migmatite with aplites |
| 211 | Granitic orthogneiss |
| 212 | Banded gneiss |
| 213 | Marble with skarn mineralisation |
| 214 | Porphyroblastic gneiss |
| 215 | Fine-grained felsic gneiss |
| 216 | Quartzite |

27.06.2025: Monacobreen, Liefdefjorden. (79.6469° N, 12.6194° E)

Monacobreen is a large tidewater glacier flowing into Liefdefjorden, in northern Spitsbergen. It lies within a region where Paleozoic and Mesozoic sedimentary rocks overlie the Caledonian metamorphic basement. The surrounding bedrock includes Devonian red sandstones, Carboniferous to Permian limestones and dolomites, and Mesozoic shales and siltstones—all gently dipping and locally faulted. These layers record a shift from post-orogenic continental deposition to shallow marine shelf environments along the Barents Shelf margin. The glacier itself is actively reshaping this geology, with its terminus calving directly into the fjord, producing moraines, glaciomarine sediments, and iceberg-rafted debris. Monacobreen is also a key site for glaciological research, with studies focusing on glacier dynamics, sediment transport, and climate-related retreat. The combination of well-exposed stratigraphy and active glacial processes makes it an ideal location to study the interaction between tectonics, sedimentary evolution, and modern Arctic glaciation

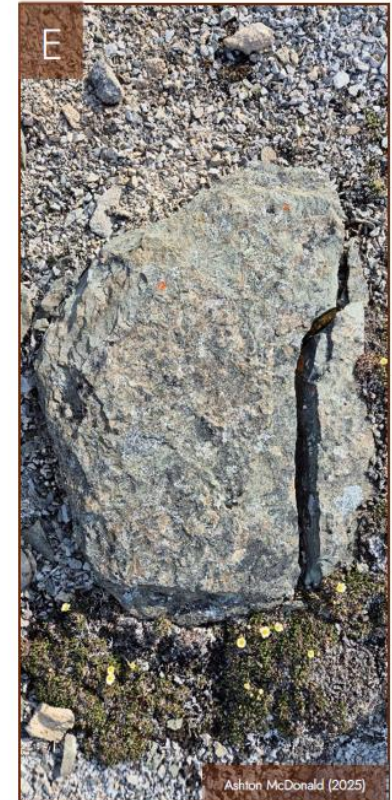
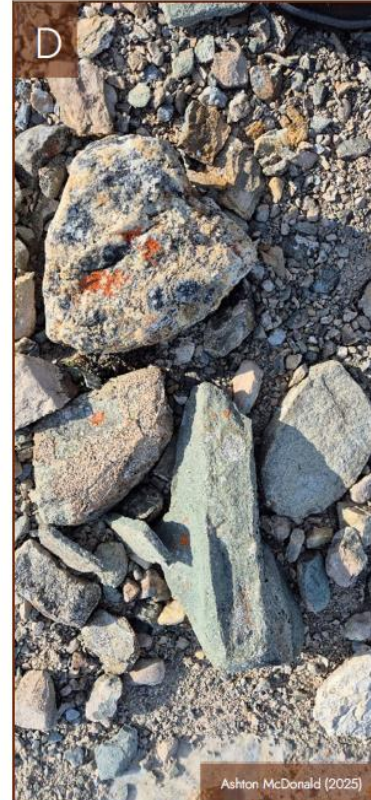


Images:

(A) Toposvalbard (2025) (B) Atlas of Svalbard (2015) (C) Old Red Sandstones displayed beautifully on the Hoghotten mountainside at Monacobreen and Siegerbreen Glacier. (D) Boulders, pebbles, sands and silts hitching a ride on the back of an iceberg that calved in the area. Known as 'Ice Rafted Debris'. Later will produce dropstones into the bed sediments of Liefdefjorden.

27.06.2025: Texas Bar, Liefdefjorden. (79.6167° N, 12.7167° E)

Texas Bar, located on the northern shore of Liefdefjorden, sits within a geologically diverse region where Paleozoic sedimentary rocks overlie the Caledonian basement. The local bedrock is primarily composed of Devonian to Carboniferous sandstones, siltstones, and limestones, deposited in continental and shallow marine environments following the Caledonian orogeny. These strata are gently folded and occasionally faulted, part of the larger tectonic framework of northern Spitsbergen, shaped by post-Caledonian extension and later Cenozoic uplift. The landscape features classic periglacial landforms, such as erratic's from glacial ice rafting, solifluction lobes, patterned ground, and frost-shattered bedrock, formed under intense freeze-thaw cycles. Texas Bar itself—historically a small trapper's cabin—sits on a raised marine terrace, part of the post-glacial isostatic rebound record. This makes it a useful site not just for understanding regional stratigraphy, but also for observing glacial–interglacial sea level change and permafrost dynamics in the High Arctic.



Images:

(A) Glacially rafted erratic boulder. (B) + (C) Frost shattered limestone and siltstone lobes. (D) Upper left — sandstones. Lower right — green shale glauconite. (E) Fossilized glauconite from low energy marine shelf. (F) Toposvalbard (2025) (G) Atlas of Svalbard (2015)

30.06.2025: Phippsøya, Sjuøyane (Seven Islands). (80.7167° N, 20.9833° E)

Phippsøya is the largest island in the Sjuøyane (Seven Islands) group, located at the far northern edge of the Svalbard archipelago. Geologically, it belongs to the Caledonian basement province, with bedrock dominated by Proterozoic to Cambrian high-grade metamorphic rocks, including mica schists, quartzites, and gneisses. Much of this basement is part of the Mesoproterozoic to earliest Neoproterozoic Duvefjorden Complex, consisting largely of migmatites, and in part the Brennevinnsfjorden Group, representing some of the oldest exposed crust in Svalbard. These rocks were intensively deformed and metamorphosed during the Caledonian orogeny (~430–390 million years ago), a mountain-building event triggered by the collision of the ancient continents Baltica and Laurentia. The island exhibits classic features of high-grade metamorphism, including strong foliation, tight folding, and pervasive ductile deformation. Intruding this complex basement are plutonic bodies of the Roipfjorden Granitoid Suite, a group of Caledonian-aged intrusive rocks that further testify to the deep crustal processes active during the orogeny. The surface of Phippsøya is shaped by periglacial and glacial processes, with frost-shattered bedrock, patterned ground, and patches of thin glacial till. In low-lying areas, Quaternary marine deposits are also present, reflecting post-glacial sea-level changes and coastal reworking during the Holocene. The island lies at the northern edge of the Barents Sea shelf, in a region that was heavily glaciated during the Last Glacial Maximum, and today provides a rare, exposed window into Svalbard's ancient crystalline basement, largely free from younger sedimentary cover.



Quaternary

Unconsolidated material (Pleistocene - Holocene):

2 Marine deposits

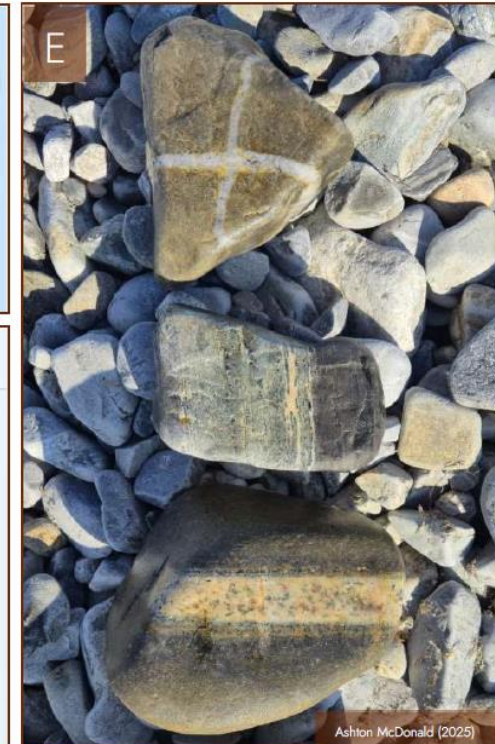
INTRUSIVE ROCKS

250 Roipfjorden Granitoid Suite: Granite and granitoid rocks (Caledonian, post-orogenic)

Mesoproterozoic and earliest Neoproterozoic (>960 Ma)
(age relations between groups are unknown)

Nordauslandet:

185 Duvefjorden Complex: migmatite (in part stratigraphic equiv. of Brennevinnsfjorden Group)



Images:

(A) Migmatite mountains composed of metamorphosed sedimentary layers and igneous dyke intrusions. (B) Marine deposits, sub angular to rounded pebble. (C) Toposvalbard (2025) (E) Atlas of Svalbard (2015). (F) Intruded metamorphic pebbles with striking coloured veins.

Wildlife List - Marine & Land Mammals



Marine Mammals - Wildlife List - MS FRAM 24/06 to 06/07 2025

[illegible]

Land Mammals - Wildlife List - MS FRAM 24/06 to 06/07 2025

[illegible]

Wildlife List — Birds



| | | | | | | | | | | | | | | | | | |
|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Svalbard | | | | | | | | | | | | | | | | | |
|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Birds - Wildlife List - MS FRAM 24/06 to 06/07 2025

| Scientific Name | English | Deutsch | Francais | Norsk | 24/06 | 25/06 | 26/06 | 27/06 | 28/06 | 29/06 | 30/06 | 01/07 | 02/07 | 03/07 | 04/07 | 05/07 | 06/07 |
|---------------------------------|-------------------------------|---------------------|-------------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <i>Stercorarius parasiticus</i> | Arctic Skua/ Parasitic Jaeger | Schmarotzerraubmöwe | Labbe parasite | Tyvjo | | | X | X | | X | | X | | X | X | | |
| <i>Sterna paradisaea</i> | Arctic Tern | Küstenseeschwalbe | Sterne arctique | Rødnebbterne | | X | X | X | | X | X | X | X | X | X | | |
| <i>Fratercula arctica</i> | Atlantic Puffin | Papageitaucher | Macareux moine | Lunde | | X | X | X | | | X | | | | | | |
| <i>Cephus grylle</i> | Black Guillemot | Gryllteiste | Guillemot à miroir | Teist | | X | X | X | X | X | X | | X | X | X | X | |
| <i>Rissa tridactyla</i> | Black-legged Kittiwake | Dreizehenmöwe | Mouette tridactyle | Krykkje | | X | X | X | X | X | X | X | X | X | X | | |
| <i>Branta bernicla</i> | Brant Goose | Ringelgans | Bernache cravant | Ringgås | | | | | | | | | | | | | |
| <i>Uria lomvia</i> | Brünnich's Guillemot | Dickschnabellumme | Guillemot de Brünnich | Polarlomvi | | X | X | X | X | X | | X | X | | X | X | |
| <i>Somateria mollissima</i> | Common Eider | Eiderente | Eider à duvet | Ærfugl | | X | X | X | | X | X | X | X | X | X | X | |
| <i>Charadrius hiaticula</i> | Common Ringed Plover | Sandregenpfeifer | Pluvier grand-gravelot | Sandlo | | X | | | | | | | | | | | |
| <i>Calidris alpina</i> | Dunlin | Alpenstrandläufer | Bécasseau variable | Myrsnipe | | X | | | | | | | | | | | |
| <i>Larus hyperboreus</i> | Glaucous Gull | Eismöwe | Goéland bourgmestre | Polarmåke | | | X | X | | X | X | X | X | X | X | | |
| <i>Stercorarius skua</i> | Great Skua | Skua | Grand Labbe | Storjo | | | | | | | | X | | | | | |
| <i>Phalaropus fulicarius</i> | Grey/Red Phalarope | Thorshühnchen | Phalarope à bec large | Polarsvømmesnipe | | X | | | | | | X | X | | | | |
| <i>Pagophila eburnea</i> | Ivory Gull | Elfenbeinmöwe | Mouette blanche | Ismåke | | | | | | | X | | | | X | X | |
| <i>Somateria spectabilis</i> | King Eider | Prachteiderente | Eider à tête grise | Praktærfugl | | X | | X | | | | | X | | | | |
| <i>Alle alle</i> | Little Auk/Dovekie | Krabbentaucher | Mergule nain | Alkekonge | | X | X | | X | X | X | | | | X | | |
| <i>Clangula hyemalis</i> | Long-tailed Duck | Eisente | Harelde kakawi | Havelle | | X | | X | | | | | X | | | | |
| <i>Fulmarus glacialis</i> | Northern Fulmar | Eissturmvogel | Fulmar boréal | Havhest | | X | X | X | X | X | X | X | X | X | X | | |
| <i>Anser brachyrhynchus</i> | Pink-footed Goose | Kurzschnabelgans | Oie à bec court | Kortnebbgås | | | | | | X | | | | | | | |
| <i>Stercorarius pomarinus</i> | Pomarine Skua/Jaeger | Spatelraubmöwe | Labbe pomarin | Polarjo | | | | | | | | X | | | | | |
| <i>Calidris maritima</i> | Purple Sandpiper | Meerstrandläufer | Bécasseau violet | Fjæreplytt | | X | | X | | X | X | X | X | | X | X | |
| <i>Gavia stellata</i> | Red-throated Diver/Loon | Sterntaucher | Plongeon catmarin | Smålom | | X | | | | | | | X | | | | |
| <i>Lagopus mytus</i> | Rock Ptarmigan | Alpensneehuhn | Lagopède alpin | Fjellrype | | | | X | | | | | | | | | |
| <i>Plectrophenax nivalis</i> | Snow Bunting | Schneeammer | Plectrophane des neiges | Snøspurv | | X | X | X | | X | X | | X | | X | X | |
| <i>Branta leucopsis</i> | Barnacle Goose | Weisswangengans | Berache nonnete | Huitkingås | | X | X | X | | | | | X | | X | X | |

Guest scientists

We had the privilege of hosting Charlotte Findlay and Lauren McWhinnie from Heriot-Watt University. Charlotte and Lauren have been onboard carrying out some exciting whale research for the WAVE project, that aims to understand how whales might be impacted by vessels in the Arctic. Charlotte and Lauren have been collecting their data from the bridge of the ship and with guests' help from the bow on deck 5. They counted a total of 9 species of marine mammals during this circumnavigation of Svalbard.

Visit the [WAVE](#) website to find out more.



Picture by Charlotte Findlay

Guest scientists

We also had the privilege of hosting Fabienne Mannherz from Aarhus University. Fabienne's was onboard to investigate the underwater noise created by cruise operations in Svalbard. Please see the following slide for an overview of the recordings and deployments done by Fabienne during your voyage.

You can stay up to date with Fabienne's research by visiting her blog: <https://hejfabienne.substack.com/>



AECO 




AARHUS UNIVERSITY



Picture by Vivi Bolin

Sound Cruising

Svalbard 24th June – 6th July  HURTIGRUTEN
EXPEDITIONS

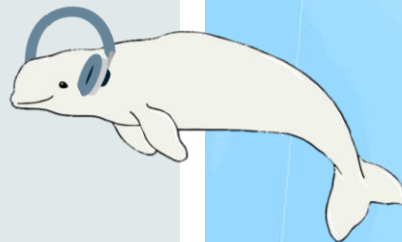
Handheld recordings

15 locations

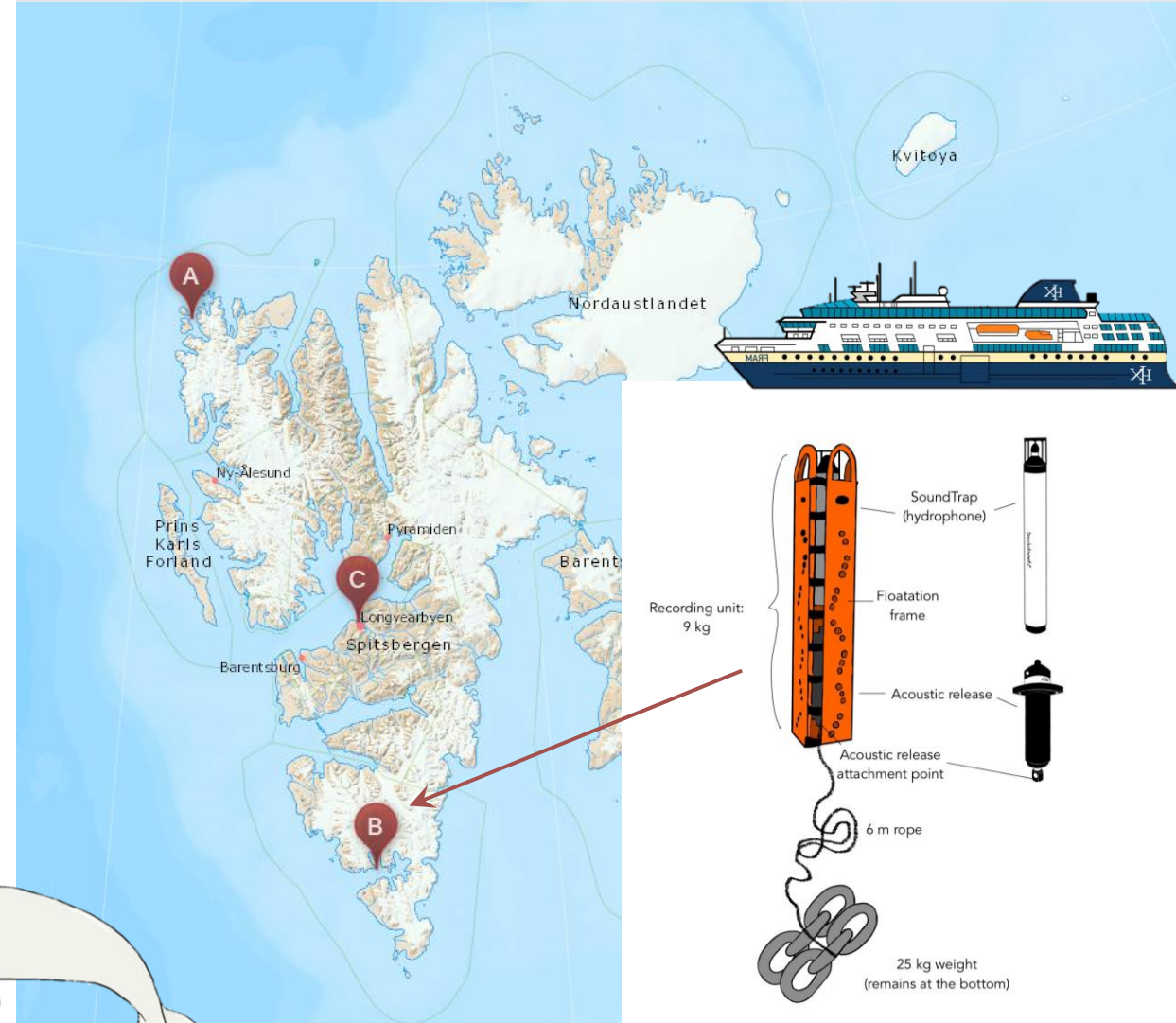
- 4 with the help of Science Boat

Sound sources recorded

- Fram
- Zodiacs
- Underwater drone
- Sea Ice
- Glacier ice & water flow
- Bearded seals



Successful deployment of the third recorder
in Hornsund / Burgerbukta



60 km

Maps/coordinates are unsuited for navigation



IX

Connect with your
inner scientist