Science Recap

MS FRAM

MS FRAM
17th- 24th
August 2025

Circumnavigating Svalbard

Credit: Yuri Choufour/ HX

Credit: Yuri Choufour/ HX

Citizen Science

NASA Globe Observer
We collected 1 observation for NASA. You can view our data on the global map.

Inaturalist
We submitted more than 350 observations to Inaturalist., this is the record for this Arctic season in Svalbard! You can view our observations by clicking here.

Ebird
We submitted 15 checklists to Ebird. You can view the trip report for your voyage by clicking here.

Planktonics Project – eDNA around Svalbard.
We collected water samples once during this voyage.

Credit: Yuri Choufour/ HX

NASA Globe Cloud Observer

We collected 1 observation for NASA.

We observed lenticular clouds on multiple occasions. These are a unique type of cloud generated by high speed winds at high altitudes in mountainous environments.

Don’t hesitate to continue looking at the sky back home, since every contribution helps scientists.

View our data on the global map


Credit: Laura Gledhill/ HX

Patterned ground

We saw patterned ground on the hike in Alicehamna. Patterned ground refers to the geometric patterns of sorted and unsorted soil and stones found in cold, periglacial, and alpine environments, formed by the repeated freezing and thawing of the active layer over permafrost.

t: Yuri Choufour/ HX

iNaturalist

On our voyage we submitted 350+ observations covering a wide range of 67 living species, from plants to animals passing to planktonic creatures.

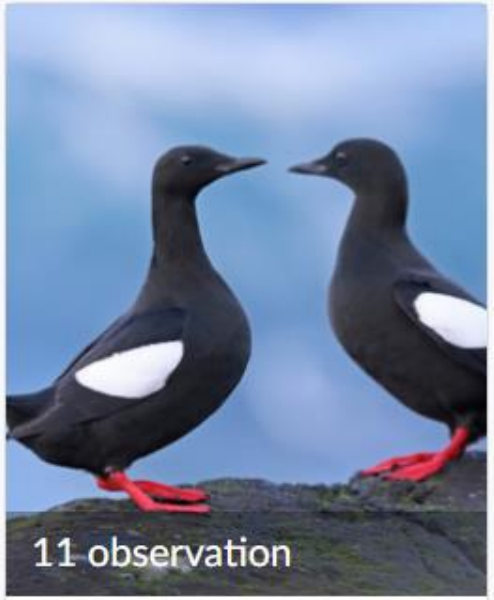
Thank you very much for your contribution, and feel free to contribute to our project for this voyage when you are back home reviewing your photos.

Click here to visit the iNaturalist Project for this voyage.

Overview | 350 OBSERVATIONS | 67 SPECIES | 27 IDENTIFIERS

Polar Willow
Salix polaris

Tufted Saxifrage
Saxifraga cespitosa



Black Guillemot
Cepphus grylle

iNaturalist

The most abundant species registered were the Polar Willow, followed by Tufted Saxifrage and Black Guillemots. Thank you so much for your passion , dedication and interest in our project!

You can still upload your photos to our project once back home.

Click here to visit the iNaturalist Project for this voyage.

Credit: Yuri Choufour/ HX

The Cornell Lab of Ornithology

eBird

On our voyage we conducted 15 surveys, observed 17 bird species and counted a total of 879 individuals. The most abundant species were the Common Eider, followed by the Arctic Tern and the Kittywake. These data are crucial to document the abundance and distribution of emblematic polar and cosmopolitan species around Svalbard, both terrestrial and marine species.

Thank you very much for joining Julia during our wildlife watch and help us contributing to the greatest birding project at a worldwide scale !

Click here to visit the Ebird Project for this voyage.

HappyWhale

During our circumnavigation around Spitsbergen, we saw walruses, harbour seals and bearded seals!

Although we did not manage to take any individually identifiable photos of marine mammals on this voyage, you can do so for any older photos you may have from years gone by, this can give scientists a better idea of how long the individuals sighted more recently have been alive for!

Thank you very much for joining Jenna during our wildlife watches.

Click here to visit the HappyWhale Project.

Credit: Yuri Choufour/ HX

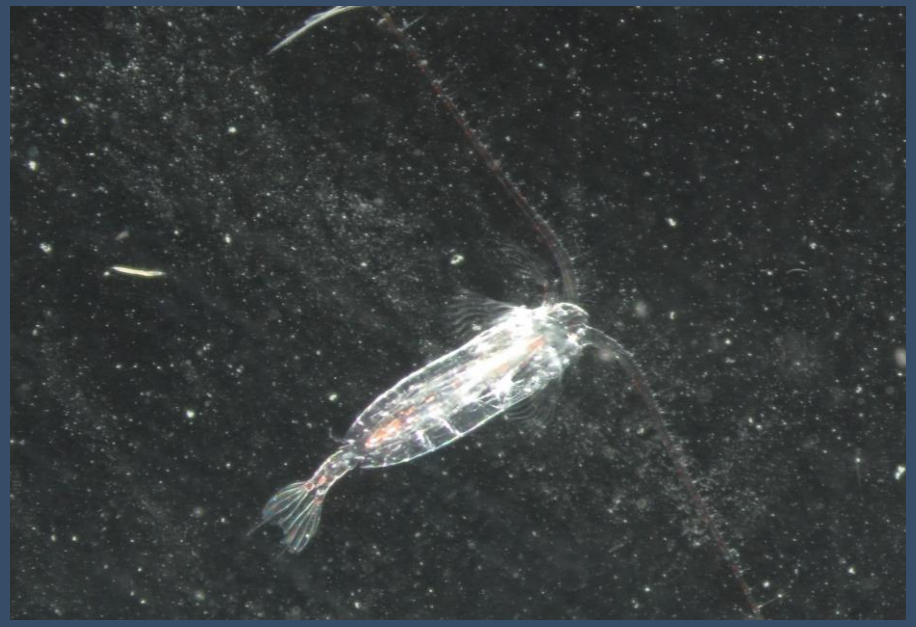
Science Boat

On our voyage we conducted 3 Science Boats during which we realized Secchi disc measurements & CTD profiles to characterize the water column parameters, and collected plankton & Niskin bottle samples for eDNA.

We used the microscopes in the science centre to identify plankton caught during the science boats. Phytoplankton was almost null in certain areas whereas zooplankton was abundant, with a variety of copepods, invertebrates larvae and eggs found in our samples. 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.

Mr. Copepod. *Calanus finmarchicus (below) and zooplankton soup (above)*



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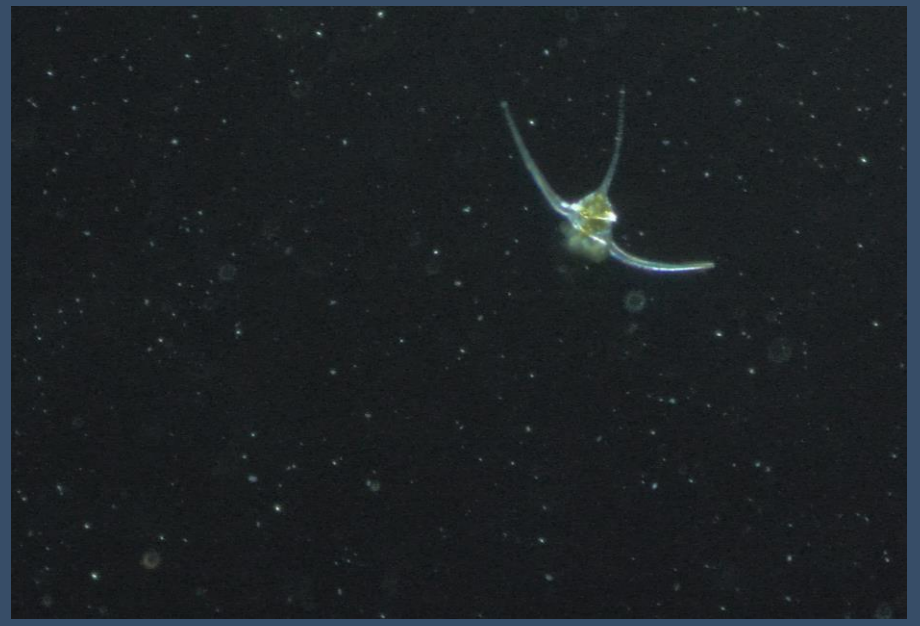


Dinoflagellate *Tripos* sp. (above) and *Protoperidinium sp.* (below)

Credit: Charlotte Kirchner/ HX

Planktonics Project – eDNA around Svalbard

This project aims to describe the diversity of jellies organisms present in waters around the archipelago of Svalbard using the eDNA technics. This consists of filtering water, extract and amplify the DNA preserved on the filters targeting specific groups of species. During our Science boat, we managed to collect one time in Fuglefjorden for this project. Filters were kept frozen in our facilities until they will be picked up by the scientists to be analysed in the laboratory. This project has been founded in part by the HX Foundation.

Credit: Yuri Choufour/ HX

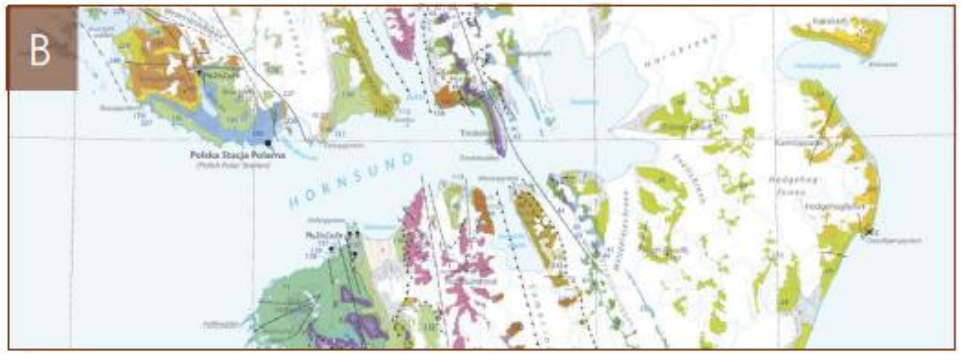
Geology report

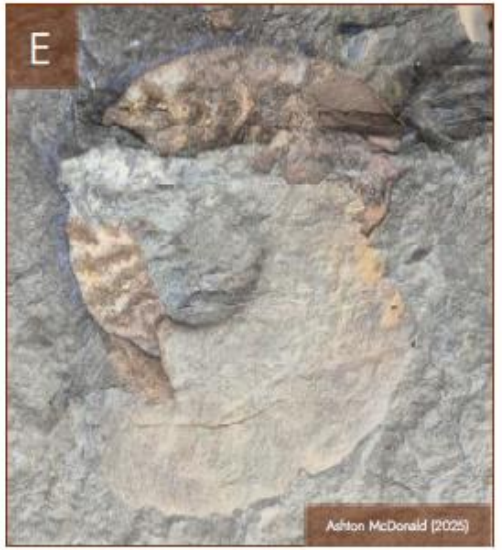
Svalbard is a paradise for geologists — a land where deep time rises to the surface. Its mountains and valleys reveal a story stretching back over 2.5 billion years. Here, you'll find rich seams of coal formed in tropical swamps, marine fossils of ichthyosaurs and ammonites from long-vanished seas, and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

The next slides highlights the surprising rocks formation we discovered during our voyage.

Burgerbukta, Hornsund: (77.03875'N, 15.95512'E).

Burgerbukta is a fjord branching off the inner part of Hornsund, on the southwest coast of Spitsbergen, Svalbard. Geologically, the area lies within the Hecla Hoek succession, one of Svalbard's oldest geological units, composed of Proterozoic to lower Paleozoic sedimentary and metamorphic rocks. The bedrock around Burgerbukta includes quartzites, phyllites, and dolomitic marbles, which were deposited in shallow marine environments and later deformed and metamorphosed during the Caledonian orogeny (~430–390 Ma).Intrusions of Paleozoic and Mesozoic dolerites may be found nearby, related to regional tectonic activity during the opening of the North Atlantic and Arctic oceans. The fjord and its surroundings are also heavily shaped by Quaternary glaciation, with steep U-shaped valley walls, hanging glaciers, and moraine systems showing active glacial erosion and deposition. Present-day glaciers calve into the fjord, making it a key location for observing glacial–marine interaction and sediment transport.





Hornsund:

Deilegga Group (correlative of Nordbukta Group):

178 Undifferentiated: marble, quartzite and phyllite

Hornsund - Sørkapp Land:

99 *Adriabukta Formation (Late Devonian or Early Carboniferous):* polymict conglomerate in lower part, sandstone, shale

100 *Marietoppen Formation (Pragian - Eifelian):* multicoloured sandstone, shale

Hornsund - Sørkapp:

107 *Arkfjellet Formation (age uncertain):* carbonate rocks, sandstone and shale

Hornsund - Sørkapp:

Sørkapp Land Group (Ordovician):

110 *Wiederfjellet Formation:* quartzite

111 Dolomite and limestone formations, undifferentiated

IMAGES:

(A) TopoSvalbard (2025)

(B) Geoscience Atlas of Svalbard (2015)

(C) Arrangement of rocks found upon the moraine system in local area. Detailing the shallow marine fossils of Annelida. The hydrocarbon source rocks in purple shale stones, slate stone and mudstones.

(D) Complexity of conglomerates, quartzite and volcanic natured scoria.

(E) Further evidence of Svalbard once being a shallow marine environment, a fossilised nautilus or ammonite.

Graveneset, Magdalenefjorden: (79.553'N, 11.040'E).

Graveneset, a headland in Magdalenefjorden, is framed by mountains of Precambrian migmatites and granites, formed between 1.7 and 1.0 billion years ago during deep crustal melting and subsequent crystallisation. These basement rocks are cut by striking white calcite and quartz veins, emplaced during later hydrothermal activity in the Caledonian orogeny (~490–390 million years ago), when mountain-building processes fractured the crust and allowed hot, mineral-rich fluids to circulate and precipitate minerals in the cracks. The beaches are strewn with well-rounded granite boulders and pebbles, shaped by glacial grinding and wave action. Many contain the distinctive "wishing stones"—dark granite encircled by a single white vein. In Scottish folklore, such stones were kept for luck or thrown into the sea while making a wish, linking this Arctic landscape to a tradition carried by sailors and whalers far from home.

IMAGES:
(A) TopoSvalbard (2025)

(B) Geoscience Atlas of Svalbard (2015)

(C) Whalers Rock: Proterozoic migmatites and granites

(D) Banded Gneiss

IMAGE C: The rock reads: "Whaling station and burial ground 1612 – 1800. The Whaling station was used by Dutch, English and Basque Expeditions 1612 – 1650. British, Dutch and German Whalers are buried here. The map shows graves and blubber cookeries. It is forbidden to walk in the burial area. The monuments are protected by law."

Unconsolidated material (Pleistocene - Holocene):

1 Moraines

2 Marine deposits

Smeerenburgfjorden Complex:

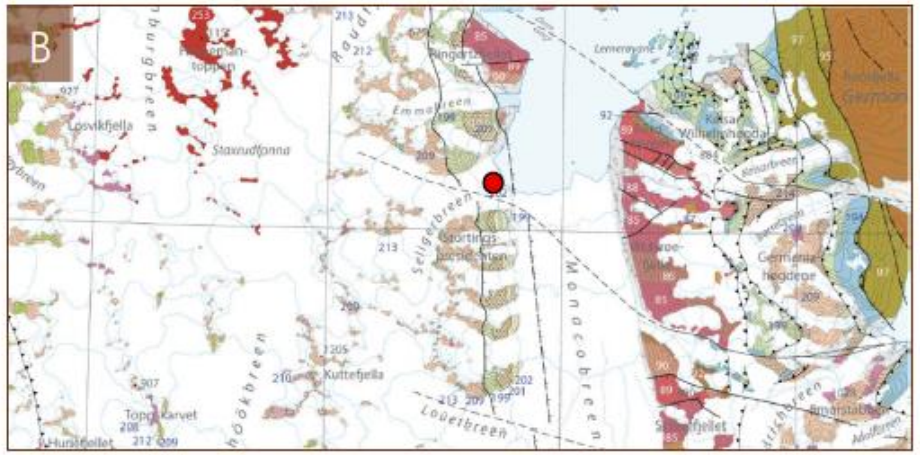
210 Migmatite with aplites

211 Granitic orthogneiss

212 Banded gneiss

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

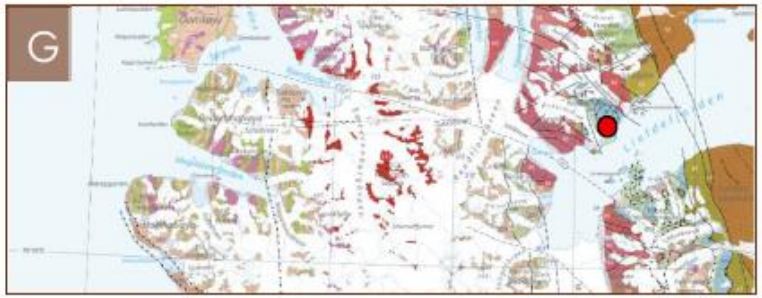
Monacobreen is a large tidewater glacier flowing into Liefdefjorden, in northern Spitsbergen. It lies within a region where Paleozoic and Mesozoic sedimentary rocks overlie the Caledonian metamorphic basement. The surrounding bedrock includes Devonian red sandstones, Carboniferous to Permian limestones 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 iceburg that calved in the area. Known as 'Ice Rafted Debris'. Later will produce dropstones into the bed sediments of Liefdefjorden.

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) Fossiled glauconite from low energy marine shelf. (F) Toposvalbard (2025) (G)Atlas of Svalbard (2015)

Beach clean-up

MS Fram is on a mission to collect ocean waste in the isolated locations we visit.

We collected Xkg of ocean waste during our voyage, bringing the total for the season to Xkg!

Credit: Laura Gledhill/ HX

Trash-O-Meter:

MS Fram is on a mission to collect ocean waste in the isolated locations we visit.

Statistics so far:

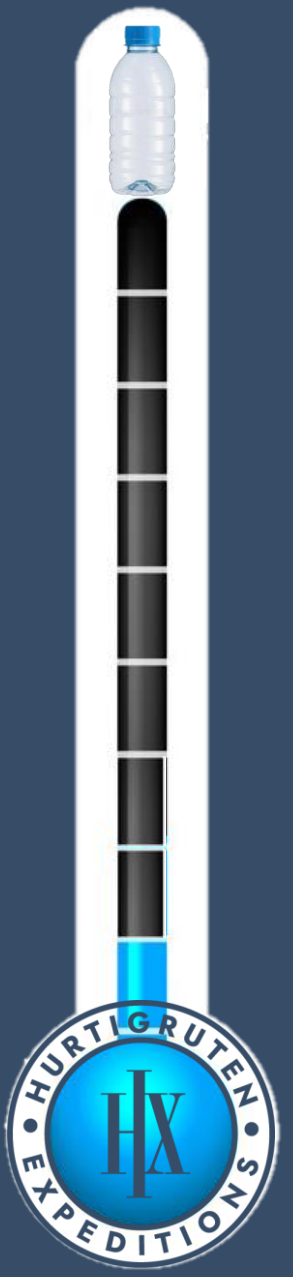
So far we have collected a whopping:
Weight: 116.6 KG

On our voyage we collected a total:
Weight: 17.5 KG

Combined weight of waste removed during our voyage:

134.10 KG

Thank you for helping clean up the Arctic.



GUEST SCIENTISTS

- SOOP Project – Katja Metfies
- NPI – Fabienne Mannherz

- 5 sampling locations
- Diverse sampling sites (Glaciers, run-off areas, converging fjords, clear water)
- 3 science boat sessions
- Water samples from 0.0 m to 10 m depth
- 2 samples each site
  - 1x eDNA analysis
  - 1x Chlorophyl analysis
- CTD measurements from 20 m to 40 m depth
- Visibility measurements with Secchi (1.2 m to 5.80 m)
- Filtration to 0.4 µm-membranes
- Stored at -20°C in ethanol




Sound-Cruising

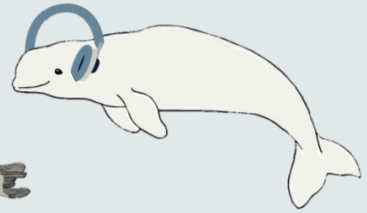
SVALBARDS MILJØVERNFOND

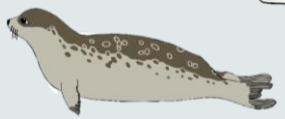
Investigating underwater noise of cruise operations in Svalbard

Funded study (900.000 NOK) to collect a data set of noise budgets and characteristics associated with local cruise activities

- Prolonged
- Repeated
- Cumulative

noise exposure for





NORWEGIAN POLAR INSTITUTE

AARHUS UNIVERSITY

AECO

HURTIGRUTEN EXPEDITIONS

Heidi Ahonen, PhD
Researcher Marine Bioacoustics
Norwegian Polar Institute

Fabienne Mannherz
PhD student Marine Bioacoustics
Aarhus University, Denmark

Sound Cruising Recap

Svalbard 17th -24th August

Successful recovery of locations A and B

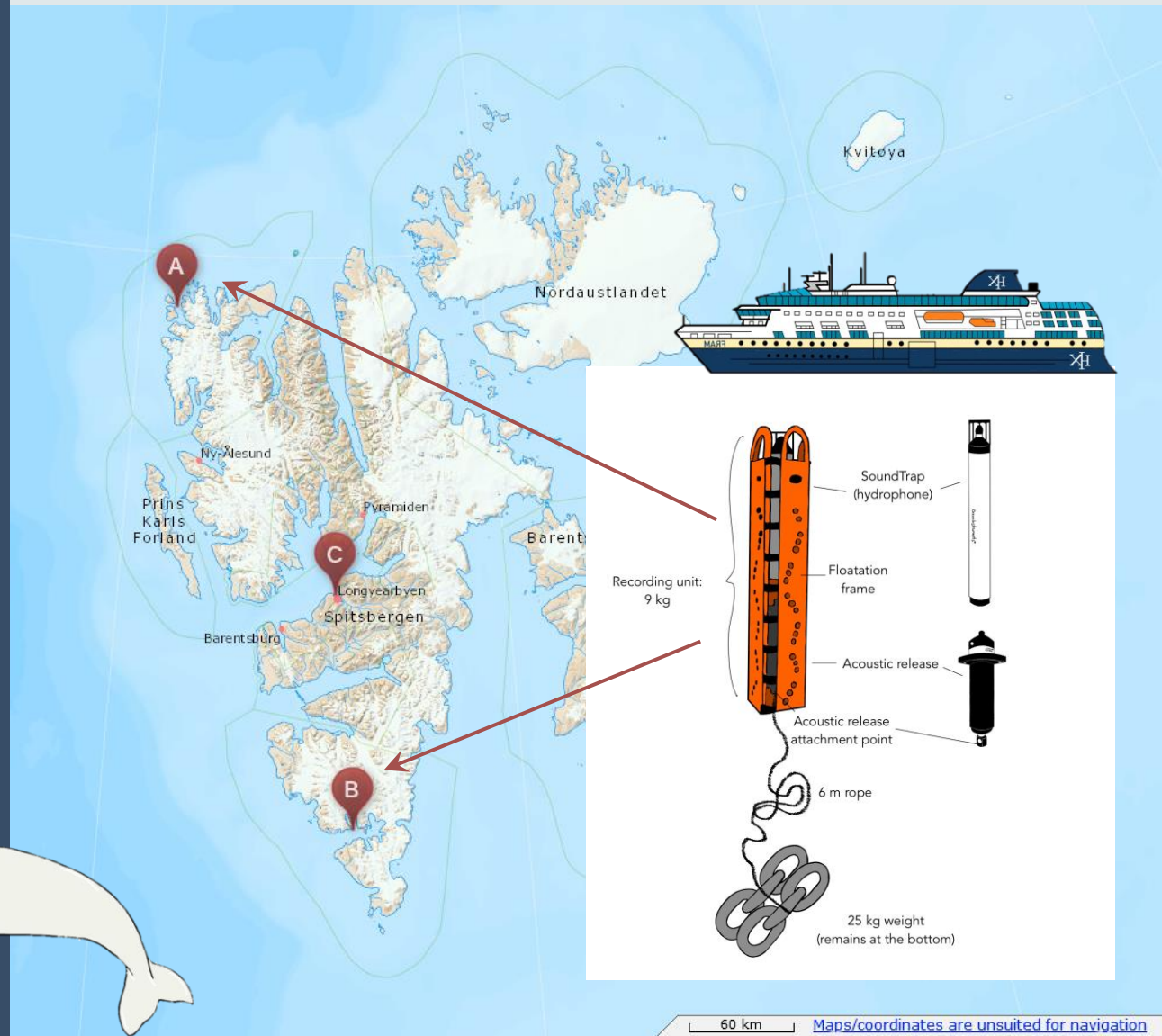
Location A) Smeerenburgfjord

- Successful recovery of summer ’25 hydrophone station
- Successful re-deployment*

Location B) Gnålodden (Burgerbukta)

- Successful recovery of summer ’25 hydrophone station
- Re-deployment* planned for next week

*will record 10 min. every hour until June ‘26



Winter is coming …

… with **11 Terabytes of audio data** (.wav files) waiting to be processed and analysed for:

- Ship presence
- Duration of ship noise
- Absolute levels (decibels)
- Frequency range (& acoustic overlap with Arctic marine mammals)

Fabienne Mannherz
PhD Student Marine Bioacoustics
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@hejfabienne
@hejfabienne

Newsletter/Blog:
Postcards by Fabienne

(generated with ChatGPT)

https://hejfabienne.substack.com/

Wildlife List - Marine & Land Mammals

Credit: Jan Hvizdal / HX

Cetaceans

Scientific Name	English	Deutsch	Francais	Norsk	17/08	18/08	19/08	20/08	21/08	22/08	23/08	24/08
Balaenoptera acutorostrata	**Common Minke Whale**	Zwergwal	Petit rorqual	Vågehval								
Balaenoptera musculus	**Blue Whale**	Blauwal	Rorqual bleu	Blåhval								
Balaenoptera physalus	**Fin Whale**	Finnwal	Rorqual commun	Finhval							x	
Megaptera novaeangliae	**Humpback Whale**	Buckelwal	Baleine à bosse	Knølhval								
Delphinapterus leucas	**Beluga Whale**	Weißwal	Béluga	Hvithval							x	
Lagenorhynchus albirostris	**White-beaked Dolphin**	Weißschnauzendelfin	Lagénorhynque à bec blanc	Kvitnos								
Physeter macrocephalus	**Sperm Whale**	Pottwal	Grand cachalot	Spermhval								
-	**Unidentified whale**	Nicht identifizierter Wal	Non identifié Baleine	Uidentifisert Hval								

Pinnipeds and Polar Bear

Scientific Name	English	Deutsch	Francais	Norsk	17/08	18/08	19/08	20/08	21/08	22/08	23/08	24/08
Erignathus barbatus	**Bearded Seal**	Bartrobbe	Phoque barbu	Storkobbe		x			x			
Phoca vitulina	**Harbour Seal, Common Seal**	Seehund	Phoque veau-marin	Steinkobbe			x	?		x	x	
Pusa hispida	**Ringed Seal**	Ringelrobbe	Phoque annelé	Ringsel								
Odobenus rosmarus	**Walrus**	Walross	Morse	Hvalross				x	x	x		
Cystophora cristata	**Hooded seal**	Klappmützenrobbe	Phoque à capuchon	Klappmyss								
Pagophilus groenlandicus	**Harp/Greenland seal**	Sattelrobbe	Phoque du Groenland	Grønlandssel								
Ursus maritimus	**Polar Bear**	Eisbär	L'ours blanc	Isbjørn			x					

Land Mammals

Scientific Name	English	Deutsch	Francais	Norsk	17/08	18/08	19/08	20/08	21/08	22/08	23/08	24/08
Rangifer tarandus	**Reindeer**	Rentier	Renne	Svalbardrein			x				x	
Alopex lagopus	**Arctic Fox**	Polarfuchs	Renard arctique	Fjellrev								

Wildlife List — Birds

Birds - Wildlife List - MS FRAM 17/08 - 24/08/2025

Scientific Name	English	Deutsch	Francais	Norsk	17/08	18/08	19/08	20/08	21/08	22/08	23/08	24/08
Alle alle	**Little Auk/Dovekie**	Krabbentaucher	Mergule nain	Alkekonge		x	x	x		x		
Anser brachyrhynchus	**Pink-footed Goose**	Kurzschnabelgans	Oie à bec court	Kortnebbgås			x	x	x	x	x	
Arenaria interpres	**Ruddy turnstone**	Steinwälzer	Tournepierre à collier	Steinvender								
Branta bernicla	**Brant Goose**	Ringelgans	Bernache cravant	Ringgås								
Branta leucopsis	**Barnacle Goose**	Weißwangengans	Bernache nonnette	Hvitkinngås	x		x			x	x	
Calidris alba	**Sanderling**	Sanderling	Bécasseau sanderling	Sandløber								
Calidris maritima	**Purple Sandpiper**	Meerstrandläufer	Bécasseau violet	Fjæreplytt	x	x	x	x			x	
Cepphus grylle	**Black Guillemot**	Gryllteiste	Guillemot à miroir	Teist		x	x	x	x	x	x	
Charadrius hiaticula	**Common Ringed Plover**	Sandregenpfeifer	Pluvier grand-gravelot	Sandlo								
Clangula hyemalis	**Long-tailed duck**	Eisente	Harelde boréale	Havelle								
Fratercula arctica	**Atlantic Puffin**	Papageitaucher	Macareux moine	Lunde		x		x		x		
Fulmarus glacialis	**Northern Fulmar**	Eissturmvogel	Fulmar boréal	Havhest	x	x	x	x	x	x	x	
Gavia stellata	**Red-throated Diver/Loon**	Sterntaucher	Plongeon catmarin	Smålom		x					x	
Lagopus mytus	**Rock Ptarmigan**	Alpenschneehuhn	Lagopède alpin	Fjellrype								
Larus hyperboreus	**Glaucous Gull**	Eismöwe	Goéland bourgmestre	Polarmåke		x	x	x	x	x	x	
Mergus serrator	**Red-breasted Merganser**	Mittelsäger	Harle huppé	Siland								
Pagophila eburnea	**Ivory Gull**	Elfenbeinmöwe	Mouette blanche	Ismåke				x	x			
Phalaropus fulicarius	**Grey/Red Phalarope**	Thorshühnchen	Phalarope à bec large	Polarsvømmesnipe								
Plectrophenax nivalis	**Snow Bunting**	Schneeammer	Plectrophane des neiges	Snøspurv		x		x	x	x	x	
Pluvialis apricaria	**European Golden Plover**	Goldregenpfeifer	Pluvier doré	Heilo								
Polgsticta stlleri	**Steller's Eider**	Scheckente	Eider de Steller	Stellerand								
Rissa tridactyla	**Black-legged Kittiwake**	Dreizehenmöwe	Mouette tridactyle	Krykkje	x	x	x	x	x	x	x	
Somateria mollissima	**Common Eider**	Eiderente	Eider à duvet	Ærfugl			x	x	x	x	x	
Somateria spectabilis	**King Eider**	Prachteiderente	Eider à tête grise	Praktærfugl								
Stercorarius longicaudus	**Long-tailed Skua/Jaeger**	Falkenraubmöwe	Labbe à longue queue	Fjelljo								
Stercorarius parasiticus	**Arctic Skua/ Parasitic Jaeger**	Schmarotzerraubmöwe	Labbe parasite	Tyvjo		x	x	x	x	x	x	
Stercorarius pomarinus	**Pomarine Skua/Jaeger**	Spatelraubmöwe	Labbe pomarin	Polarjo								
Stercorarius skua	**Great Skua**	Skua	Grand Labbe	Storjo					x			
Sterna paradisaea	**Arctic Tern**	Küstenseeschwalbe	Sterne arctique	Rødnebbterne		x	x	x	x	x	x	
Uria lomvia	**Brünnich's Guillemot / Thick-billed Murr**	Dickschnabellumme	Guillemot de Brünnich	Polarlomvi						x		
Xema sabini	**Sabine's Gull**	Schwalbenmöwe	Mouette de Sabine	Sabinemåke								

Flora

Scientific Name	English	Deutsch	Francais	Norsk	17/08	18/08	19/08	20/08	21/08	22/08	23/08	24/08
Bistorta vipara	**Alpine bistort**	Knöllchen-Knöterich	Renouée vivipare	Harerug					X		X	
Cassiope tetragona	**Arctic white heather**	Vierkantige Schuppenheide		Kantlyng							X	
Cerastium arcticum	**Arctic mouse-ear chickweed**	Arktisches hornkraut	Céraiste arctique	Snøarve			X	X	X	X		
Cochlearia officinalis	**Scurvy-grass**	Gebräuliches löffelkraut	Cranson officinal	Skjørbuksurt			X					
Dryas octopetala	**Mountain avens**	Silberwurz	Dryade á 8 pétales	Reinrose					X	X	X	
Eriophorum scheuchzeri	**Arctic cottongrass**	Scheuchzer`s wollgrass	Linaigrette de scheuchzer	Snøull	X							
Fucus vesiculosus	**Bladderwrack**	Blasentang	Fucus vesiculeux	Blæretang								
Oxyria digyna	**Mountain sorrel**	Alpen-säuerling	Oxyria à 2 carpelles	Fellsyre		X		X	X	X		
Papaver dahlianum	**Svalbard poppy**	Svalbard-mohn	Pavot	Svalbardvalmue								
Pedicularis hirsuta	**Hairy lousewort**	Behaartes läusekraut	Pédiculaire	Lodnemyrklegg						X		
Ranunculus nivalis	**Snow buttercup**	Schnee-hahnenfuss	Renoncule	Snøsoleie								
Ranunculus pygmaeus	**Dwarf Buttercup**	Zwerg-Hahnenfuß	Renoncule naine	Dvergsoleie								
Saccharina latissima	**Sugar Kelp**	Zuckertang	Laminaire sucree ou Baudrier de Neptune	Sukkertare								
Salix arctica	**Arctic Willow**	Arktische Weide	Saule arctique	Tundravier			X	X	X	X	X	
Salix herbacea	**Dwarf willow**	Kraut-Weide	Saule herbacé	Musøre								
Saxifraga cernua	**Drooping saxifrage**	Nickende Steinbrech	Saxifrage penchée	Knoppsildre					X	X		
Saxifraga cespitosa	**Tufted saxifrage**	Rasen-steinbrech	Saxifrage en touffe	Ttuesildre		X		X	X	X		
Saxifraga hirculus	**Marsh saxifrage**	Moor-steinbrech	Saxifrage œil-de-bouc	Myrsildre			X					
Saxifraga nivalis	**Alpine saxifrage**	Schnee-steinbrech	Saxifrage arctique	Snøsildre				X				
Saxifraga oppositifolia	**Purple saxifrage**	Roter steinbrech	Saxifrage á feuilles opposées	Rødsildre		X	X		X	X	X	
Saxifraga platysepala	**Spider plant**	Ffaden-steinbrech	Saxifrage des spitzberg	Trådsildre								
Silene acaulis	**Moss campion**	Stengelloses leimkraut	Silène acaule	Fjellsmelle			X		X		X	
Poa alpina	**Alpine bluegrass**					X	X		X	X		
Saxifrage aizoides	**Yellow Saxifrage**								X		X	

Credit: Yuri Choufour/ HX

Thank you all for your contribution to science!