



# Science & Education Report

MS FRAM



# MS FRAM 6<sup>th</sup> – 15<sup>th</sup> 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 42 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.](#)

# 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:  
Weight: 49.70 KG

On our voyage we collected a total:  
Weight: 26.20 KG

Combined weight of waste removed during  
our voyage:

# 75.90 KG

Thank you for helping clean up the Arctic.







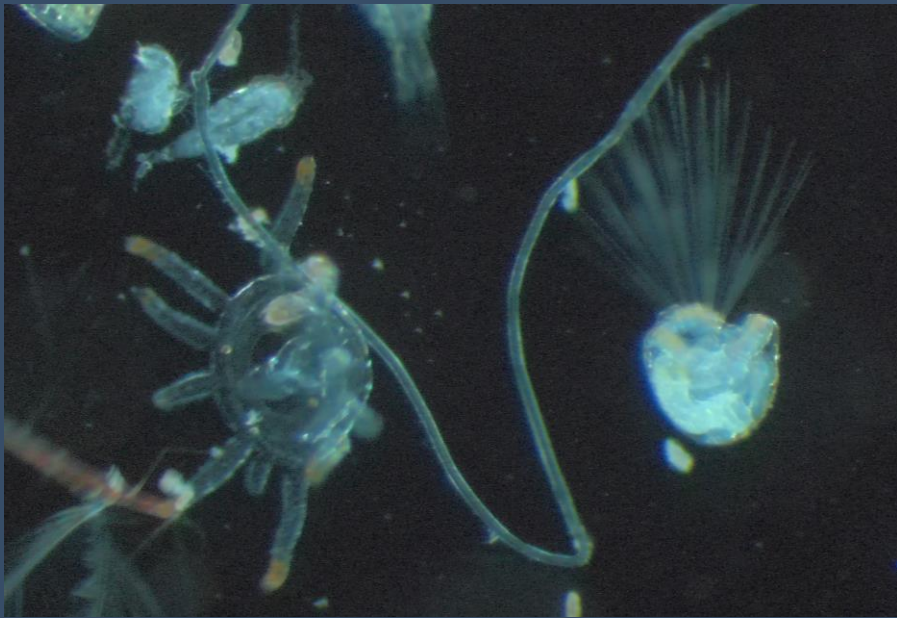
# Science Boat

On our voyage we conducted 5 Science Boats during which we collected Secchi disc measurements, ctd profiles, plankton samples and Niskin bottle samples for eDNA.

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.](#)

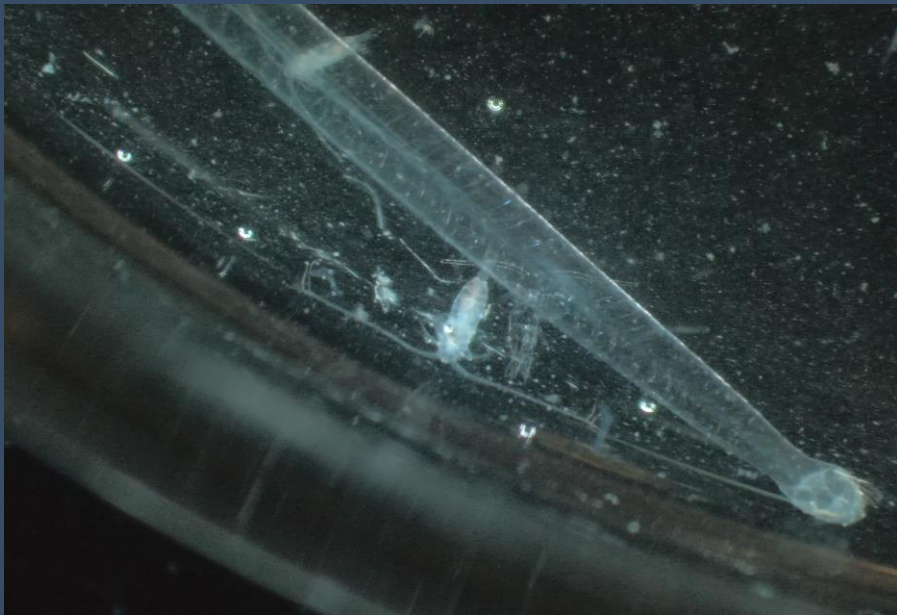




Cnidarian larvae (right) and polychaete larvae (left)



Copepods and echinoderm larvae.



Arrow worm (Chaetognath).



Sea angel larvae.



# Underwater Drone

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

Credit: Jan Hvizdal/ HX





# Geology reports

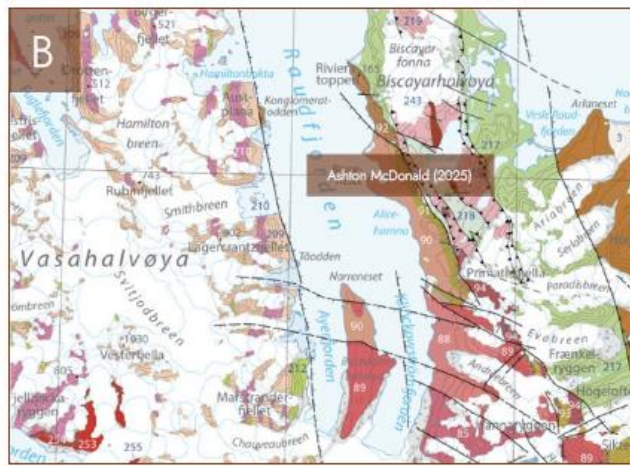
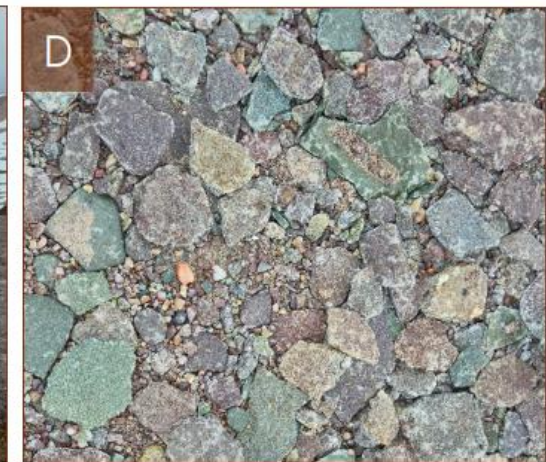
Svalbard is a paradise for geologists — a land where deep time rises to the surface. Its mountains and valleys reveal a story stretching back over 2.5 billion years. Here, you'll find rich seams of coal formed in tropical swamps, marine fossils of ichthyosaurs and ammonites from long-vanished seas, and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



# Alicehamna, Raudfjorden: (79.73662'N, 12.23099'E).

Alicehamna, on the southern shore of Raudfjorden, exposes a sequence of Devonian sedimentary rocks resting on Caledonian metamorphic basement. The area is dominated by units of the Ben Nevis Formation, composed of greenish-grey sandstones, and the Schivefjellet Member, a finer-grained interval within this sequence. These rocks represent deposition in fluvial and deltaic systems during the post-orogenic collapse of the Caledonides. The prominent red rocks belong to the Old Red Sandstone group, deposited in arid continental settings. Interbedded polymictic conglomerates with a red matrix contain clasts of quartzite, phyllite, and sandstone, derived from erosion of nearby Caledonian rocks. The Prinsesse Alicefjellet Formation, characterized by quartz-rich conglomerates, is also exposed, indicating high-energy river deposition. Greenish rocks in the area include chlorite-bearing phyllites and greenstones from the Proterozoic basement. The landscape shows strong glacial overprinting, with striated bedrock, moraines, and raised beach terraces recording the effects of Quaternary glaciation and post-glacial uplift.



## Red Bay Group (Lochkovian):

- 85 Ben Nevis Formation: greenish and grey sandstone, siltstone and shale
- 86 Drakehaugen Member: greenish-grey sandstone
- 87 Schivefjellet Member: quartz conglomerate
- 88 Frænkelyrgeen Formation: red clastic rocks, mostly sandstone and siltstone
- 89 Andréebreen Formation: greenish sandstone and pebble conglomerate
- 90 Prinsesse Alicefjellet Formation: quartz conglomerate
- 91 Rabotdalen Formation: sandstone, siltstone, subordinate carbonate rocks
- 92 Wulffberget Formation: limestone conglomerate, quartz and polymict conglomerate

## IMAGES:

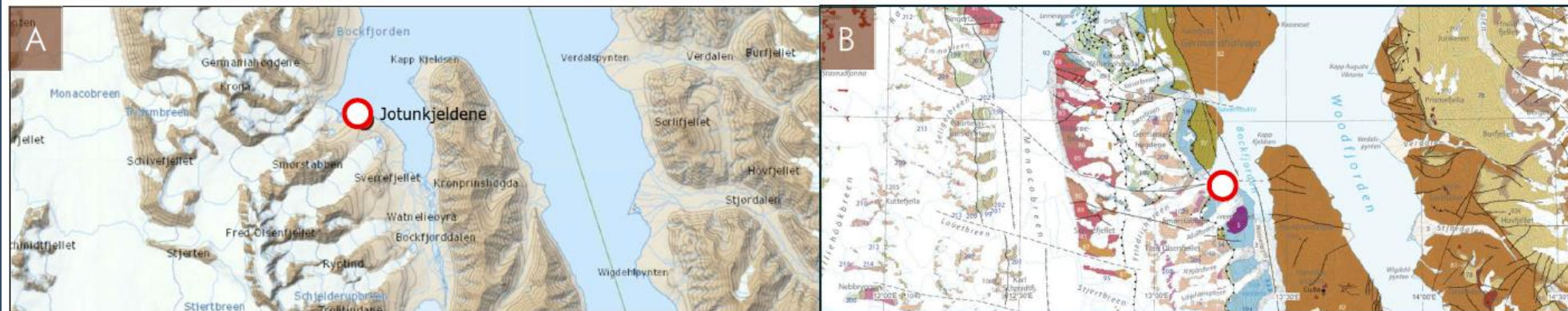
- (A) TopoSvalbard (2025) (B) Geoscience Atlas of Svalbard (2015) (C) Alicehamna and Solanderfjellet summit.
- (D) Ben Nevis Formation (green sandstones)
- (E) Prinsesse Alicefjellet Conglomerates.





# Jotunkjeldene, Bockfjorden. (79.45461°N, 13.28395°E).

Jotunkjeldene is a geothermal area in Bockfjorden, notable for its warm springs—a rare phenomenon in the Arctic. The springs emerge along fault zones cutting through Precambrian basement rocks, including gneiss and quartzite, which form the rugged terrain of the Bockfjorden Basement Complex. The geothermal heat source is believed to be residual heat from Tertiary magmatism, associated with the opening of the North Atlantic and formation of the West Spitsbergen Fold-and-Thrust Belt. This magmatic activity is part of the same tectonic regime that formed the volcanic province on nearby Sørkapp Land and on Jan Mayen. The area is also rich in travertine deposits—formed by the precipitation of carbonate minerals from the warm spring water—indicating long-lived hydrothermal circulation.



## IMAGES:

- (A) TopoSvalbard (2025)
- (B) Geoscience Atlas of Svalbard (2015)
- (C) Old Red Sandstone upon Sorrellfjellet.
- (D) Jotunkjeldene Thermal Springs.
- (E) Carbonate evaporite rocks formed from the thermal springs mineral rich fluid.
- (F) Arrangement of igneous and sedimentary rocks relating to volcanics.

194

Undifferentiated: marble and dolomite marble

Generalifjella Formation:

**Northwestern Spitsbergen:**  
Krossfjorden Group:

5

**Bockfjorden Volcanic Complex (Pleistocene):**  
Bockfjorden Volcanic Complex: basic pyroclastics, agglomerate and lava

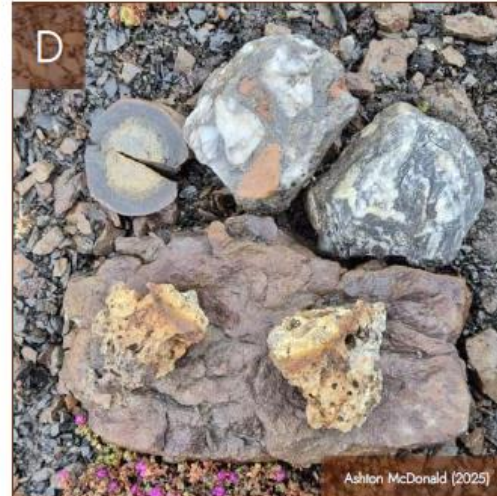
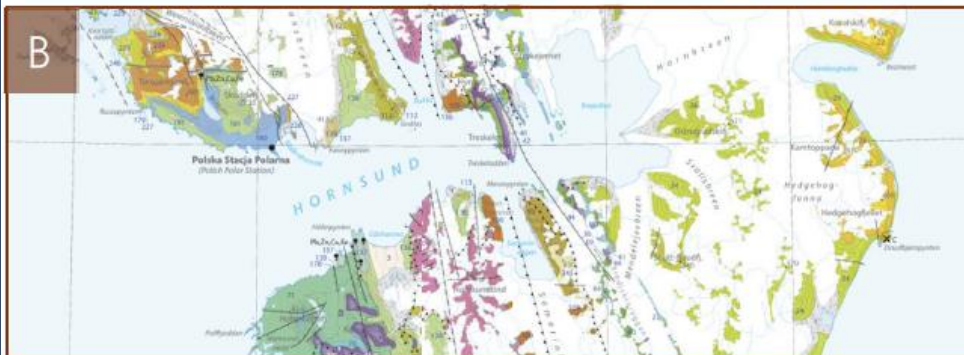
81

**Wood Bay Formation (Pragian - Emsian):**  
Verdalen Member: multicoloured sandstone with yellowish limestone interbeds  
Dicksonfjorden Member: red sandstone, shale



# 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.



# Wildlife List - Marine & Land Mammals





## Marine Mammals - Wildlife List - MS FRAM 06/07 to 15/07 2025

Scientific Name	English	Deutsch	Francais	Norsk	06/07	07/07	08/07	09/07	10/07	11/07	12/07	13/07	14/07	15/07
<i>Balaenoptera acutorostrata</i>	Common Minke Whale	Zwergwal	Petit rorqual	Vågehval	X			X						
<i>Balaenoptera physalus</i>	Fin Whale	Finnwal	Rorqual commun	Finhval				X						
<i>Megaptera novaeangliae</i>	Humpback Whale	Buckelwal	Baleine à bosse	Knølhval				X						
<i>Delphinapterus leucas</i>	Beluga Whale	Weißwal	Béluga	Hvithval	X	X						X		
-	Unidentified whale	Nicht identifizierter Wal	Non identifié Baleine	Uidentifisert Hval					X					
<i>Erignathus barbatus</i>	Bearded Seal	Bartrobbe	Phoque barbu	Storkobbe								X		
<i>Phoca vitulina</i>	Harbour Seal, Common Seal	Seehund	Phoque veau-marin	Steinkobbe		X							X	
<i>Pusa hispida</i>	Ringed Seal	Ringelrobbe	Phoque annelé	Ringsel									X	
<i>Pegophilus Groenlandicus</i>	Harp seal	Sattelrobbe	Phoque du Groenland	Grønlandssel					X					
<i>Odobenus rosmarus</i>	Walrus	Walross	Morse	Hvalross		X	X	X		X				
<i>Ursus maritimus</i>	Polar Bear	Eisbär	L'ours blanc	Isbjørn			X							

## Land Mammals - Wildlife List - MS FRAM 06/07 to 15/07 2025

Scientific Name	English	Deutsch	Francais	Norsk	06/07	07/07	08/07	09/07	10/07	11/07	12/07	13/07	14/07	15/07
<i>Rangifer tarandus</i>	Reindeer	Rentier	Renne	Reinsdyr		X		X			X		X	
<i>Alopex lagopus</i>	Arctic Fox	Polarfuchs	Renard arctique	Fjellrev		X				X	X			



# Wildlife List — Birds





**Birds - Wildlife List - MS FRAM 06/07 to 15/07 2025**

[illegible]





# IX

Connect with your  
inner scientist