

The background image is a serene landscape featuring a calm body of water in the foreground, reflecting the sky and surrounding elements. Two icebergs float on the water's surface. The middle ground is filled with a dense forest of evergreen and some deciduous trees, some of which have yellowed with autumn. The background shows rolling hills or mountains under a dark, moody sky with soft, diffused light. A large, semi-transparent watermark of the Roman numeral 'IV' is overlaid on the left side of the image.

Science & Education Report

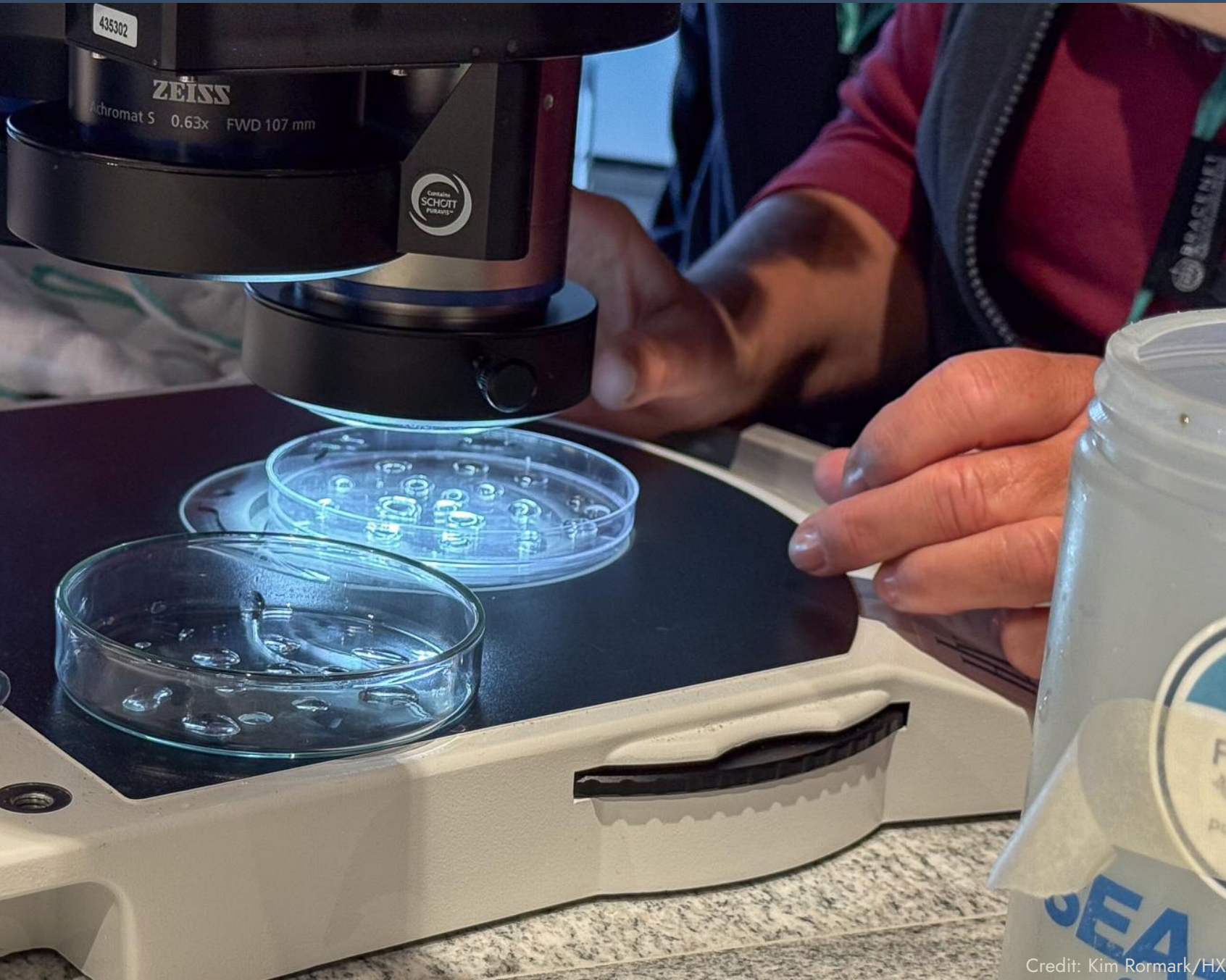
MS Fridtjof Nansen 2025

MS Fridtjof Nansen

The Northwest Passage — Through
the Arctic Labyrinth (Greenland to
Alaska)

17 Aug 2025 — 09 Sept 2025





Science & Education Program

From Greenland's iceberg-dotted fjords to the wide tundra of Nunavut and the rugged coast of Alaska, the Science and Education Team journeyed with you across the Northwest Passage, uncovering the wonders of this remarkable Arctic region. Through lectures, hands-on workshops, and cultural experiences ashore—from Ilulissat's icefjord to the historic community of Gjoa Haven—we explored resilient wildlife, Indigenous traditions, and the powerful natural forces that continue to shape these northern landscapes.

We hope that these shared moments, such as encountering sea ice in the Amundsen Gulf, watching bowhead whales surface off the Canadian Arctic coast, or walking the shores of Ungahitak Island, have deepened your appreciation for the Arctic and sparked a lasting curiosity about the natural world.



Science & Education Program

Aboard HX vessels, we are guests through the Arctic's wild and ever-changing landscapes, but through citizen science, you've become part of something bigger. Science is for everyone, happening everywhere, every day, and your participation makes a difference.

By observing wildlife, collecting data, and contributing to global research projects, you've forged a deeper connection with Arctic ecosystems.

This journey doesn't end here. You have the tools to keep exploring, documenting, and protecting nature wherever you go. Together, we can turn curiosity into action, fostering a future where people and the planet thrive.

History

In our voyage, we have been following the journey of several explorers — in particular, Franklin's doomed expedition in 1845 and Roald Amundsen's successful navigation through the Northwest Passage, 1903-1906. Already from Disco Bay, we were tracing the expeditions' resupply before they crossed Baffin Bay. At Lancaster Sound, we sailed through the non-existent Croker Mountains imagined by Sir John Ross in 1818. Inside the passage, we made landfall at Beechey Island and saw the graves of the first casualties of Franklin's expedition.



History

We managed to sail through the Bellot Strait, which has troubled so many sailors before, and we went to the southeast side of King William's Island. Here we anchored up outside Gjoa Haven, where Roald Amundsen made two overwinterings between 1903 and 1905. Afterwards, we continued to sail the strait discovered by John Rae in 1854, which bears his name. Continuing to Victoria Island, we visited the community at Cambridge Bay before making a landing at the beach where the Maud Amundsen's last Ship had spent almost 90 years as a wreck. With our underwater drone, we documented the remains of the vessel on the seabed. After visiting Ulukhaktok, we sailed out into the Beaufort Sea. On our way to Nome, we recounted the tales of explorers who had sailed the opposite, eastward direction in their attempts to conquer the passage, a feat finally managed by the crew of the RCMP Schooner St Roch in 1940-1942.

As with Roald Amundsen, our voyage ended in Nome.



Geology

The Smoking Hills of the Northwest Territories are a rare Arctic spectacle, where cliffs along the coastline burn with a quiet, steady fire. Here, layers of sulfur-rich lignite, formed from ancient vegetation over 100 million years ago—ignite when exposed to air, sending plumes of smoke and steam drifting across the tundra.

The legacy of this natural combustion is etched in vivid colours: red and ochre where iron has oxidised, white crusts of sulfur and alum, and blackened shale scarred by centuries of burning. Unlike volcanoes, these fires are fueled not by molten rock but by buried coal seams that smoulder slowly beneath the surface.

To witness the Smoking Hills from the ship is to see geology in motion—a living reminder that Earth's processes are diverse, enduring, and continuously reshaping even the most remote reaches of the Arctic.



Cryosphere

As we entered the Amundsen Gulf, we encountered our first sea ice—a shifting mosaic of frozen ocean water that drifts with winds and currents. Unlike glaciers or icebergs, which form on land, sea ice grows directly on the sea's surface, expanding in winter and retreating each summer in a rhythm that defines life in the polar seas.

Here, floes ranged from thin, newly formed ice to thicker, weathered slabs, broken and pressed together into ever-changing patterns. This floating habitat is vital for wildlife: polar bears hunt along its edges, seals haul out to rest, and plankton bloom beneath its cover, fueling the Arctic food web.

To watch the Amundsen Gulf fill with ice is to glimpse one of Earth's most dynamic environments, fragile, powerful, and central to the story of a warming Arctic.



Arts, Crafts & Creativity

The Arctic's beauty is more than something to be seen—it's something to be felt, interpreted, and expressed. Through watercolour painting, wildlife origami, and clay modelling, you transformed inspiration into art, capturing the essence of this remote and breathtaking world.

No prior experience was needed—just an open mind and a willingness to explore creativity in new ways. From delicate brushstrokes to carefully folded paper, each creation became a personal tribute to the landscapes and wildlife that surrounded us.

More than just an artistic escape, these sessions provided a space to connect—sharing stories, laughter, and quiet moments of reflection as the icy world drifted by. May these creations serve as reminders of this journey, sparking inspiration long after you've returned home.













Wildlife Watch

As we crossed the Arctic from Greenland's glacier-carved fjords to the vast tundra of Nunavut and on toward Alaska, you were invited to step out on deck and take in the shifting seascape—towering icebergs, drifting floes, and skies alive with birdlife. Yet the most memorable moments often came in stillness, as we scanned the horizon together in quiet anticipation.

Along the way, we encountered an incredible range of seabirds: ivory gulls circling the sea ice, fulmars gliding effortlessly in the wind, murres and guillemots crowded along the cliffs, and sandpipers feeding on the shores. Each sighting brought the Arctic coastlines to life, reminding us that even the most remote reaches of the world pulse with energy, pattern, and purpose.

These encounters were more than fleeting impressions, they were invitations to look closer, to stay curious, and to care for the fragile web of life that depends on these cold northern waters.



Science Boat

Over eight science boat sessions in Sisimiut, Ilulissat, Gjoa Haven, and around Murray Island, we moved beyond observation into hands-on exploration of the Arctic Ocean. With each drop of the net, each cast of the CTD, and each reading of the Secchi disk, guests became part of the scientific process.

Through the plankton net, we revealed the tiny organisms that sustain Arctic marine life. The CTD device uncovered the ocean's hidden structure, its temperature, salinity, and depth, while the Secchi disk offered a simple yet powerful measure of water clarity, linked to the abundance of phytoplankton at the base of the food web.

These sessions weren't just about data collection; they were about curiosity, discovery, and connection. Science isn't something distant; it's a way of seeing, questioning, and understanding the world around us. As you return home, may this journey inspire you to keep exploring, keep asking questions, and never stop being amazed by the natural world.

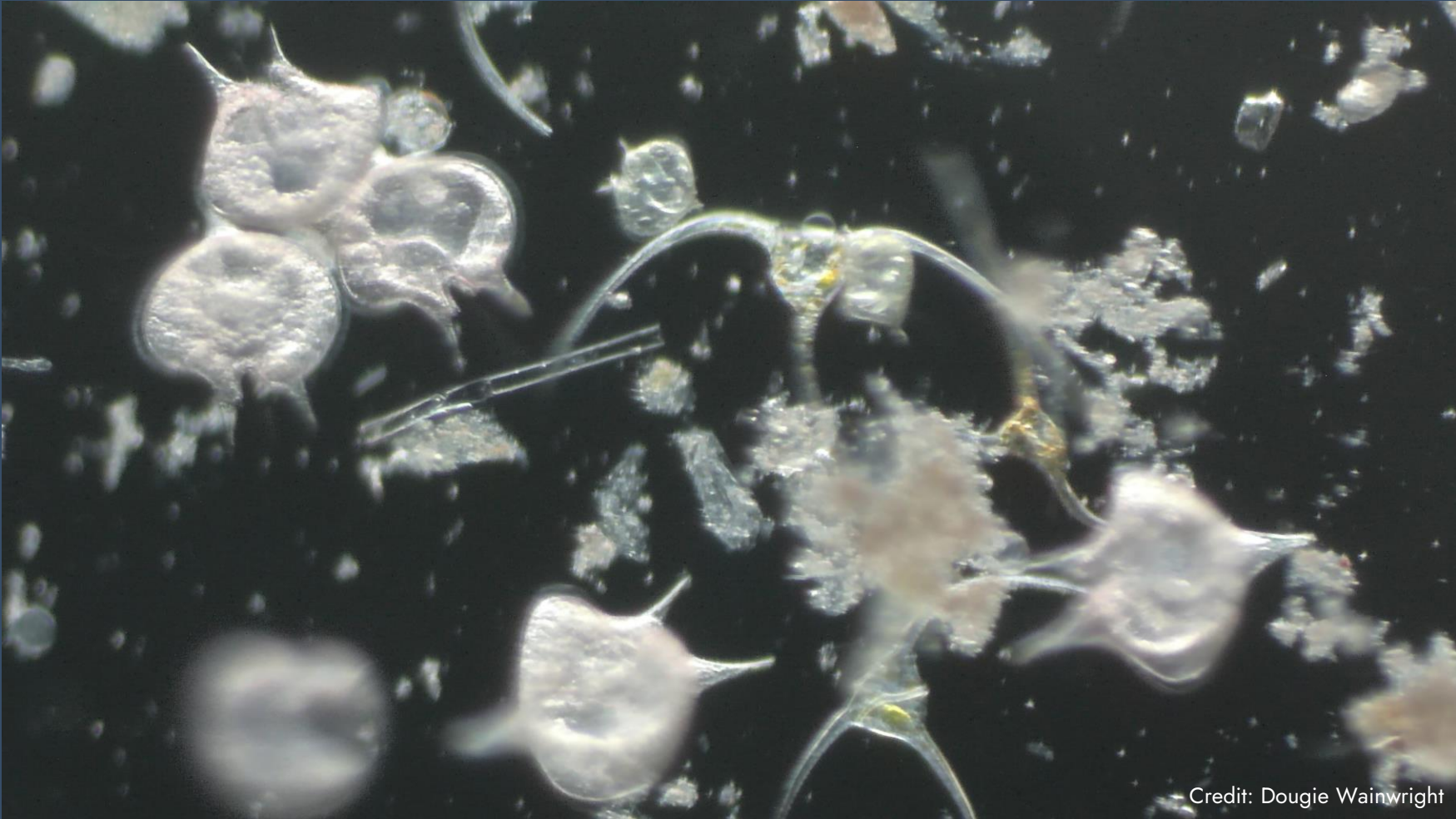


Plankton Samples

Back in the science centre, we brought the ocean into focus—examining our water samples under the microscope to uncover the hidden world of **phytoplankton** and **zooplankton**.

Using microscopes, we projected magnified images onto the screen, allowing everyone to see the intricate details of these tiny organisms. Smaller binocular microscopes offered a hands-on experience, inviting you to search for life in each drop of water.

The samples revealed a world dominated by phytoplankton and zooplankton, forming the foundation of the marine food web. What seemed invisible to the eye became a vivid reminder that even the smallest life forms shape this vast and wild ecosystem.

A microscopic view of plankton, showing various organisms including diatoms with their intricate silica shells and other small marine life forms against a dark background.

Credit: Dougie Wainwright

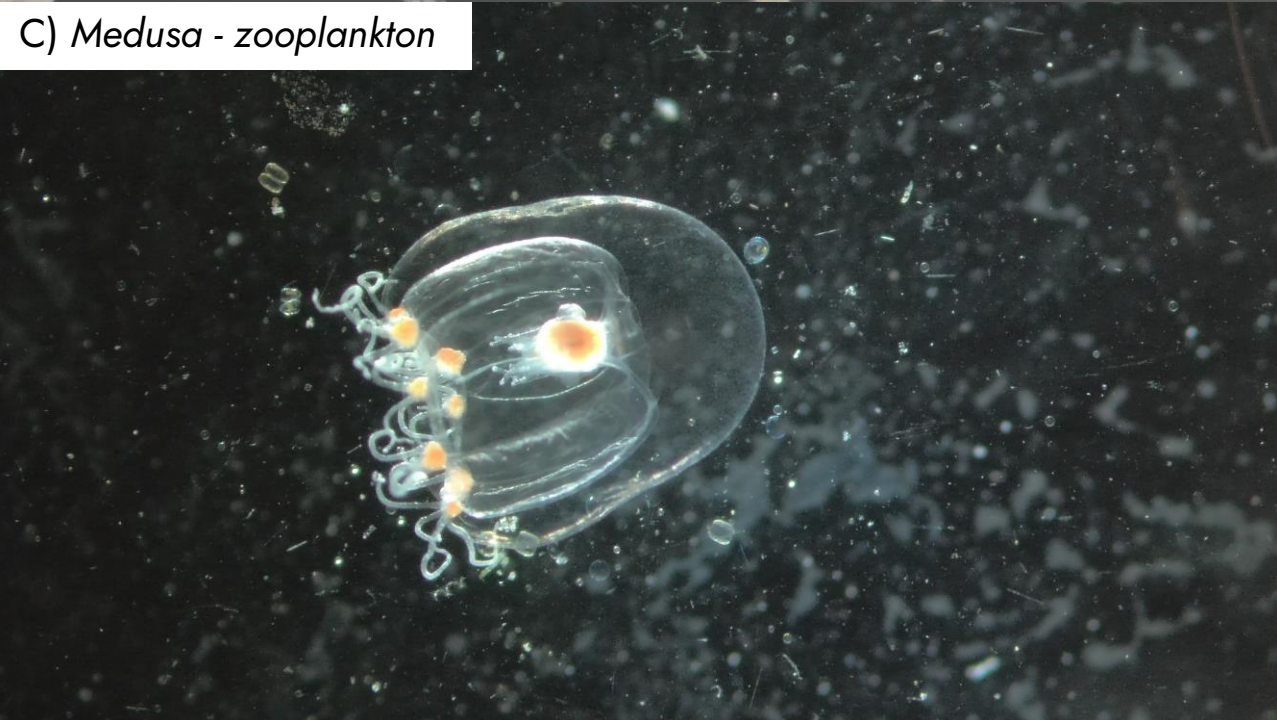
A) *Dinoflagellate* - phytoplankton



B) *Copepod* - zooplankton



C) *Medusa* - zooplankton



D) *Amphipod* - zooplankton



NASA Cloud Observer

During our voyage, we contributed to NASA's **GLOBE Cloud Observations**, collecting data on:

- **August 21st** (At-sea)
- **August 28th** (Pasley Bay)
- **September 4th** (At-sea)
- **September 5th** (Beaufort sea)
- **September 6th** (At-sea)
- **September 7th** (Bering sea)

By comparing your ground-based observations with satellite measurements, scientists can refine cloud classifications, enhance climate models, and improve weather predictions—advancing our understanding of Earth's atmosphere and climate.

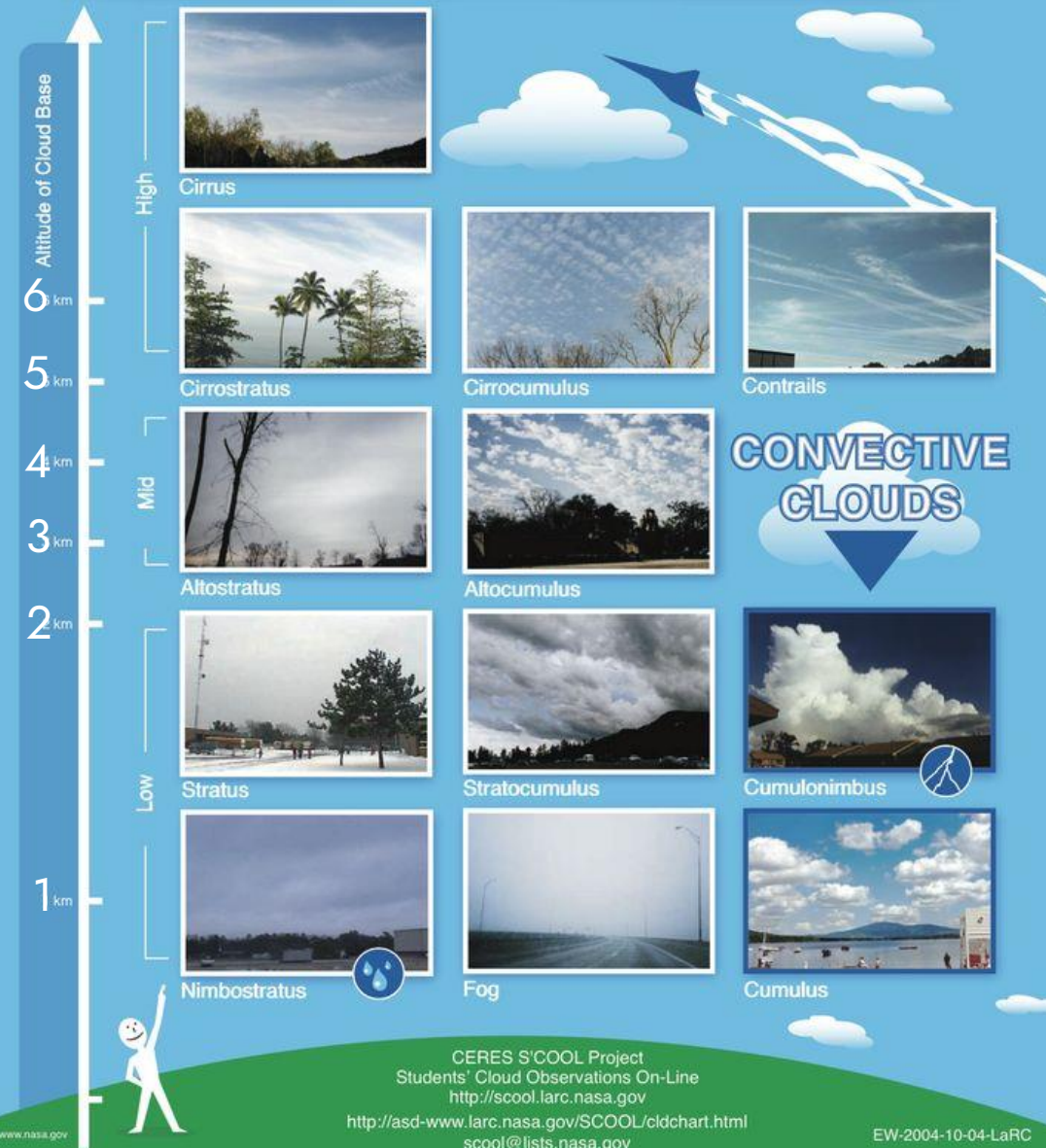
Curious to continue? You can observe and submit data from home using the GLOBE Observer app, transforming everyday cloud-watching into real scientific impact.

[View our data on the global map](#)





S'COOL Cloud Identification Chart



NASA Cloud Observer

High Clouds (Base above 6,000 meters):

Cirrus: Thin, wispy clouds composed of ice crystals. They often appear as delicate streaks or feathery wisps high in the sky.

Cirrostratus: Thin, sheet-like clouds that cover large portions of the sky. They can create a halo around the sun or moon.

Cirrocumulus: Small, fluffy clouds in a regular pattern, resembling fish scales or ripples.

Medium Clouds (Base between 2,000 and 6,000 meters):

Altostratus: Puffy, grayish-white clouds with rounded edges. They often form parallel rows or patches.

Altostratus: Thick, grayish clouds that partially obscure the sun or moon. They lack the distinct features of cirrostratus.

Low Clouds (Base below 2,000 meters):

Stratus: Uniform, grayish clouds that cover the sky like a blanket. They can bring drizzle or light rain.

Stratocumulus: Low, lumpy clouds with defined edges. They often appear in rows or patches.

Nimbostratus: Thick, dark gray clouds associated with steady rain or snow.

Remember that these cloud types can vary in appearance and behaviour, but this basic classification helps meteorologists understand weather patterns and atmospheric conditions. If you'd like to explore more examples, you can check out NASA's [On-Line Cloud Chart](#).

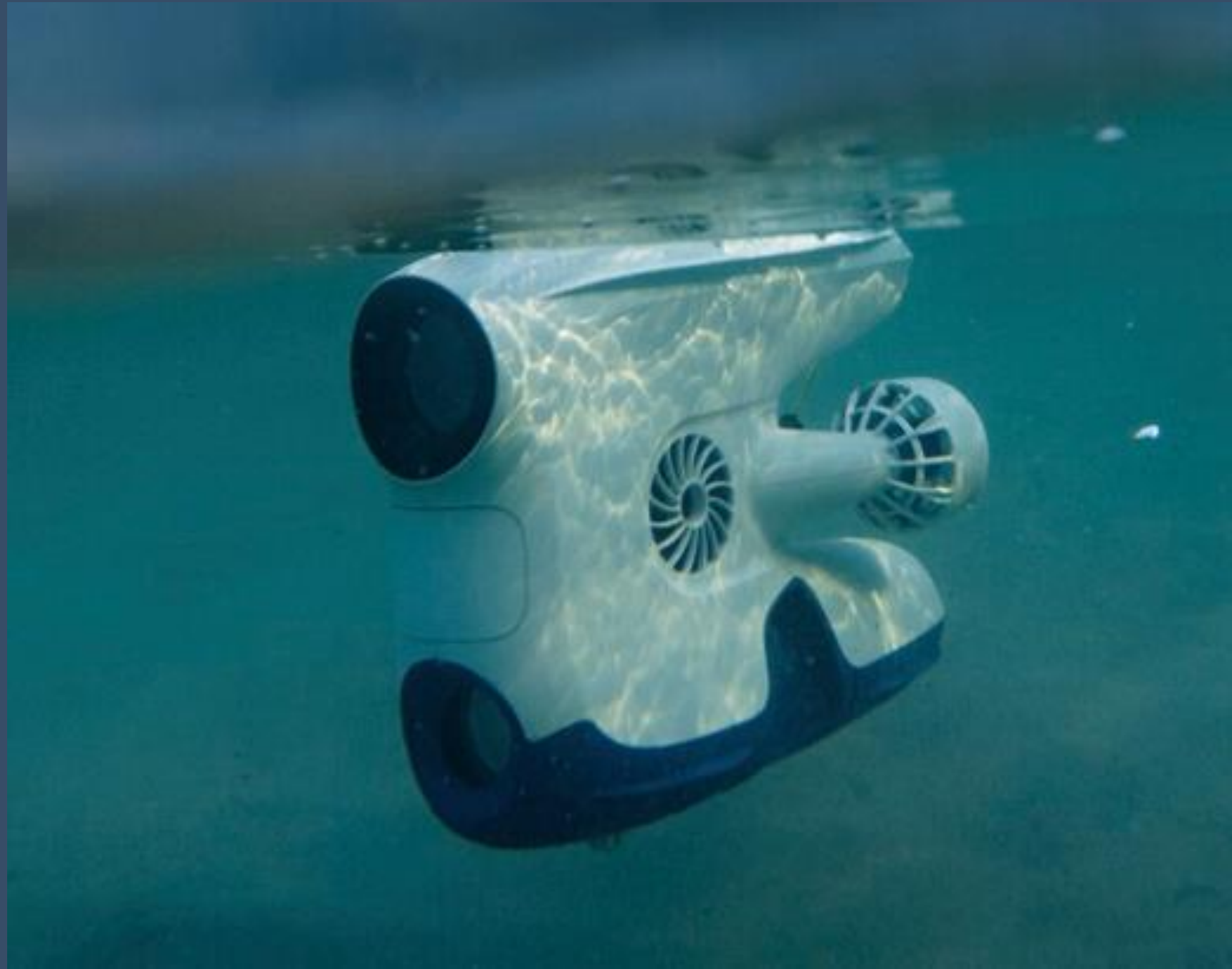
[View our data](#) on the global map

Underwater Drone

While exploring Cambridge Bay, we deployed our underwater drone, opening a window into the hidden world beneath the Arctic's surface. This technology lets us observe marine life, seafloor habitats, and submerged landscapes in ways impossible from above.

Each dive revealed new perspectives—cod moving through the shadows, bright anemones anchored to the seafloor, and even a solitary sea urchin tucked among the rocks. These glimpses remind us how vibrant and dynamic Arctic ecosystems are, even in waters that appear still and empty from the ship.

View the highlights from our underwater drone footage on HX Underwater Drone Footage [YouTube Channel](#)



iNaturalist

Throughout this voyage, you played a vital role in documenting the incredible biodiversity of the High Arctic.

By capturing and submitting images of wildlife and plant life, you contributed to a global effort to track species distribution and monitor ecosystems across some of the Arctic's most remote and ecologically rich coastlines.

Together, we gathered:

1891 Observations

326 Species Identified

19 Observers Participating

Click on the **link** to view our collective data and see the impact of your contributions:

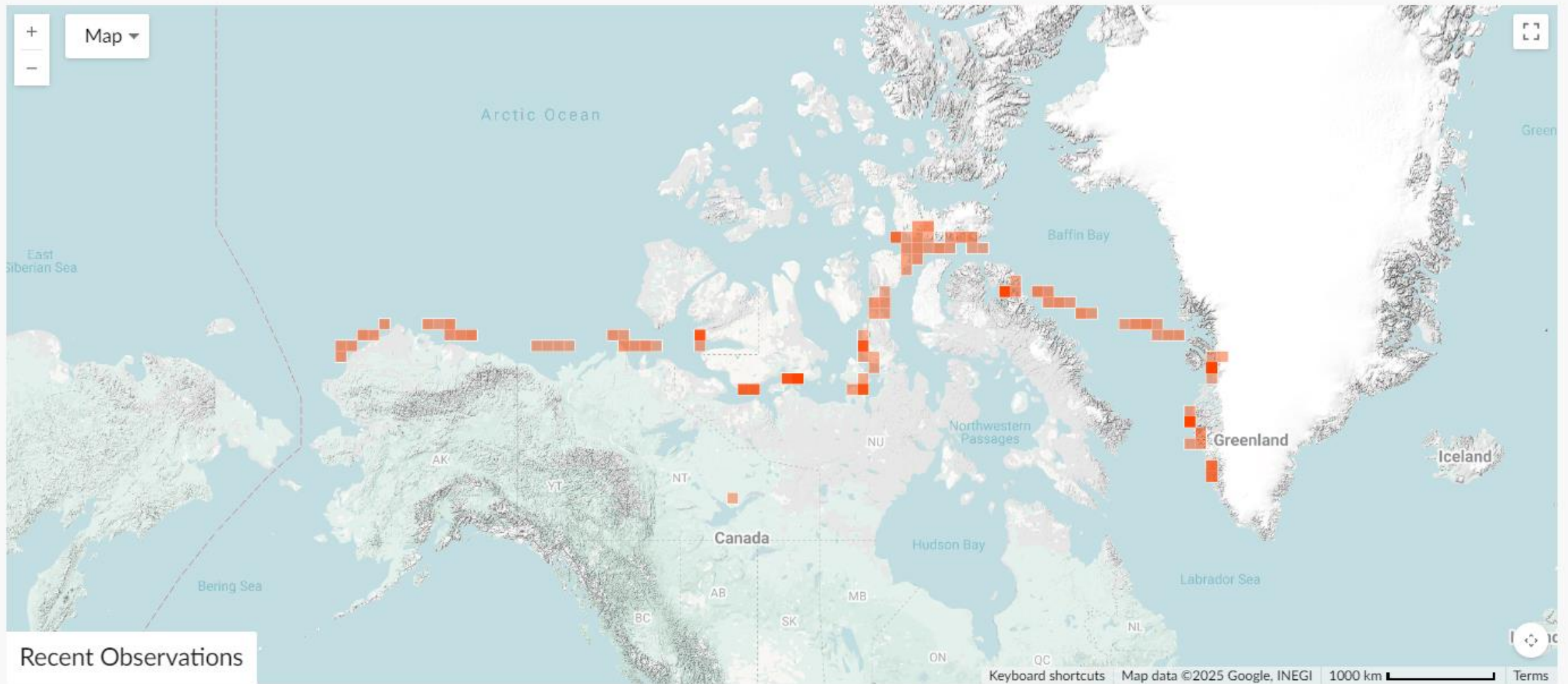
View our [data](#) on the iNaturalist website



Credit: Kim Rormark/HX

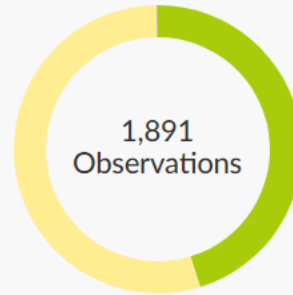
FNNWP2513 – MS Fridtjof Nansen 17.8-9.9.2025

Map of Observations

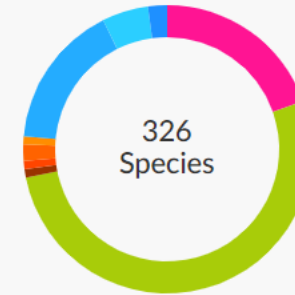


FNNWP2513 – MS Fridtjof Nansen 17.8-9.9.2025

Stats



- Research Grade
- Needs ID
- Casual



- Unknown
- Protozoans
- Fungi
- Plants
- Chromista
- Mollusks
- Insects
- Arachnids
- Ray-Finned F...
- Amphibians
- Reptiles
- Birds
- Mammals
- Other Animals

Recent Observations →

[View All](#)

Black-legged Kittiwake ·
Dreizehenmöwe
Rissa tridactyla

1 10h



Northern Fulmar ·
Eissturmvogel
Fulmarus glacialis

2 13h



Short-tailed Shearwater ·
Kurzschwanzsturmtaucher
Ardenna tenuirostris

1 11h



Black-legged Kittiwake ·
Dreizehenmöwe
Rissa tridactyla

1 13h



eBird

Bird-watching isn't just a hobby, it's a powerful tool for science. eBird, a global citizen science platform, allows bird enthusiasts to record and share sightings, contributing valuable data for research and conservation.

During our voyage, our onboard ornithologists conducted wildlife watches, completing 44 checklists and recording 39 bird species along the way.

Every entry adds to a growing database that helps scientists track migration patterns, monitor populations, and understand bird behaviour in remote regions like the Arctic.

View our [data](#) on the eBird website

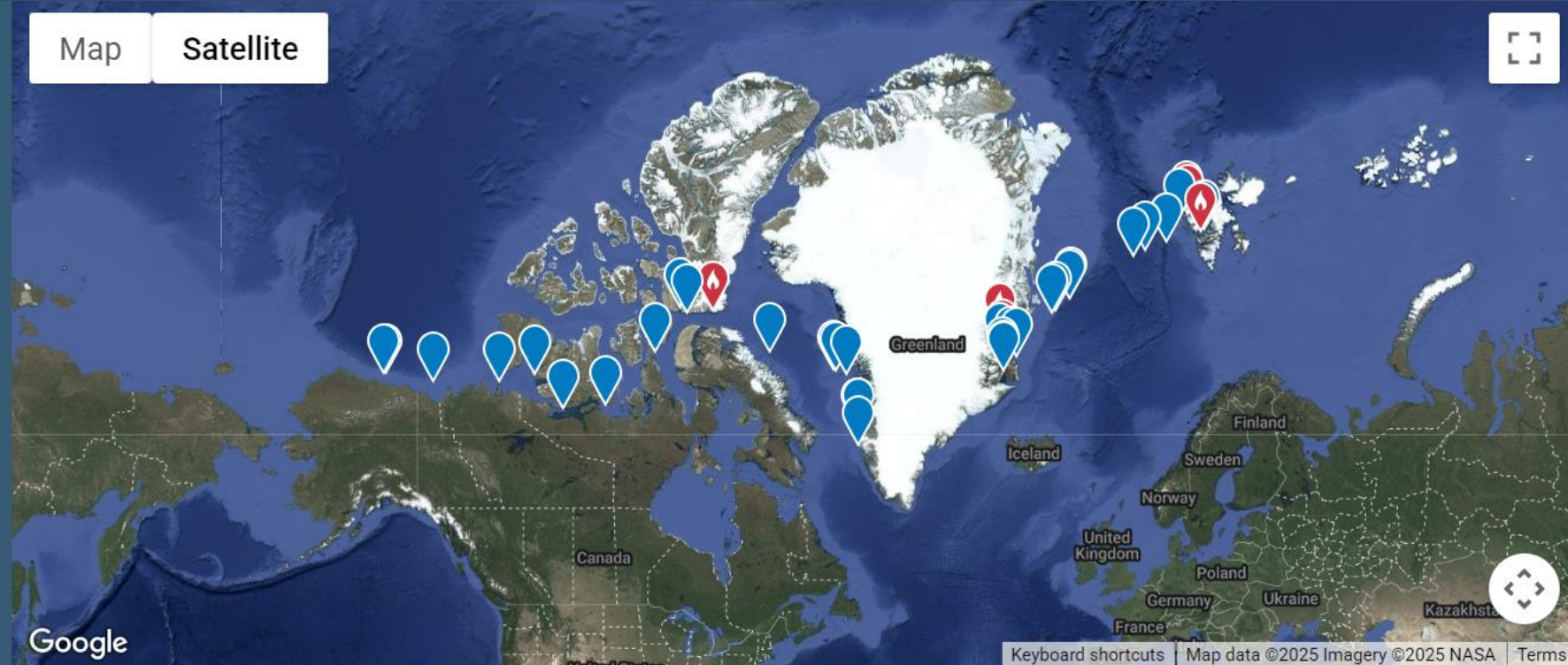
FNNWP2513 - Northwest Passage - Through the Arctic Labyrinth (Westbound)

17 Aug – 9 Sep 2025 (24 days)

Public

Canada | Greenland | Svalbard |

United States [Subregions](#)





ORCA

Daniela Tamayo, ORCA Ocean Conservationist, recorded sightings of marine mammals during this voyage.

Using ORCA's OceanWatchers App, multiple sightings were registered all across the Northwest Passage:

- 32 individuals including polar bears, harp seals, bearded seals, ringed seals, walruses, bowhead whales and minke whales.
- 27 survey sessions.
- More than 2000 minutes of active surveying.
- 20 encounters with polar bears, cetaceans and pinnipeds.

Back

ORCA Survey

Upload

Timeline

Map

Summary

Please do not forget to upload this survey!

18:22

Finish

18:07

Sighting

18:01

30 Minutes

18:00

Sighting

17:55

Sighting

17:52

Sighting

17:37

Sighting

17:14

Start

Back

ORCA Survey

Upload

Timeline

Map

Summary

Back

ORCA Survey

Upload

Timeline

Map

Summary

1:07 hrs

Time spent

23.2 km

Distance travelled

Species seen

5

Bowhead whale

Wildlife List — Land Mammals



Wildlife List – Land Mammals

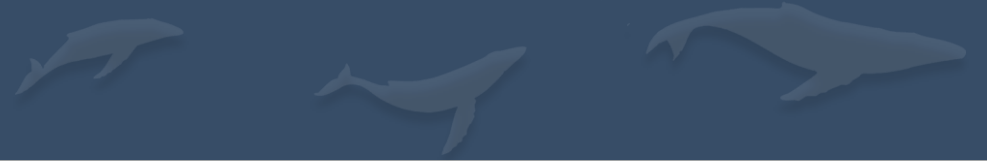
<i>Scientific Name</i>	English	Deutsch	Français
<i>Ovibos moschatus</i>	Muskox	Moschusochse	Bœuf musqué
<i>Lepus arcticus</i>	Artic hare	Schneehasen	Lièvre arctique
<i>Lemmus trimucronatus</i>	Brown lemming	Brauner Lemming	Lemming brun

Wildlife

List - Marine Mammals



Wildlife List – Marine Mammals



Scientific Name	English	Deutsch	Français
<i>Megaptera novaeangliae</i>	Humpback whale	Buckelwal	Baleine à bosse
<i>Balaena mysticetus</i>	Bowhead whale	Grönlandwal	Baleine boréale
<i>Erignathus barbatus</i>	Bearded seal	Bartrobbe	Phoque barbu
<i>Pagophilus groenlandicus</i>	Harp/Greenland seal	Sattelrobbe	Phoque du Groenland
<i>Pusa hispida</i>	Ringed seal	Ringelrobbe	Phoque annelé
<i>Odobenus rosmarus</i>	Walrus	Walross	Morse
<i>Ursus maritimus</i>	Polar bear	Eisbär	Ours polaire

Wildlife List — Birds



Wildlife List — Seabirds

Scientific Name	English	Deutsch	Français
<i>Ardenna tenuirostris</i>	Short-tailed Shearwater	Kurzschwanz-Sturmtaucher	Puffin fuligineux
<i>Alle alle</i>	Little Auk	Krabbentaucher	Mergule nain
<i>Fulmarus glacialis</i>	Northern Fulmar	Eissturmvogel	Fulmar boréal
<i>Uria lomvia</i>	Thick-billed Murre	Dickschnabellumme	Guillemot de Brünnich
<i>Cepphus grylle</i>	Black Guillemot	Gryllteiste	Guillemot à miroir
<i>Fratercula arctica</i>	Atlantic Puffin	Papageitaucher	Macareux moine
<i>Stercorarius longicaudus</i>	Long-tailed Jaeger	Falkenraubmöwe	Labbe à longue queue
<i>Xema sabini</i>	Sabine's Gull	Schwalbenmöwe	Mouette de Sabine
<i>Larus fuscus</i>	Lesser Black-backed Gull	Heringsmöwe	Goéland brun
<i>Larus glaucoides</i>	Iceland Gull	Polarmöwe	Goéland arctique
<i>Larus hyperboreus</i>	Glaucous Gull	Eismöwe	Goéland bourgmestre
<i>Larus marinus</i>	Great Black-backed Gull	Mantelmöwe	Goéland marin
<i>Rissa tridactyla</i>	Black-legged Kittiwake	Dreizehenmöwe	Mouette tridactyle
<i>Sterna paradisaea</i>	Arctic Tern	Küstenseeschwalbe	Sterne arctique
<i>Fratercula corniculata</i>	Horned Puffin	Hornlund	Macareux cornu
<i>Aethia cristatella</i>	Crested Auklet	Schopfalk	Starique cristatelle
<i>Fratercula cirrhata</i>	Tufted Puffin	Gelbschopflund	Macareux huppé
<i>Aethia psittacula</i>	Parakeet Auklet	Rotschnabelalk	Starique perroquet

Wildlife List — Seabirds

Scientific Name	English	Deutsch	Français
<i>Synthliboramphus antiquus</i>	Ancient Murrelet	Alkeik Zwergalk	Starique minuscule
<i>Aethia pusilla</i>	Least Auklet	Zwergalk	Starique minuscule
<i>Pagophila eburnea</i>	Ivory Gull	Elfenbeinmöwe	Mouette blanche
<i>Clangula hyemalis</i>	Long-tailed Duck	Eisente	Harelde kakawi
<i>Stercorarius pomarinus</i>	Pomarine Jaeger	Spatelraubmöwe	Labbe pomarin
<i>Phalacrocorax pelagicus</i>	Pelagic Cormorant	Meerscharbe	Cormoran pélagique
<i>Uria aalge</i>	Common Murre	Trottellumme	Guillemot marmette

Wildlife List – Waterbirds

Scientific Name	English	Deutsch	Français
<i>Anser albifrons</i>	Greater White-fronted Goose	Blässgans	Oie rieuse
<i>Anser caerulescens</i>	Snow Goose	Schneegans	Oie des neiges
<i>Branta bernicla</i>	Brant Goose	Ringelgans	Bernache cravant
<i>Branta canadensis</i>	Canada Goose	Kanadagans	Bernache du Canada
<i>Anas platyrhynchos</i>	Mallard	Stockente	Canard colvert
<i>Somateria mollissima</i>	Common Eider	Eiderente	Eider à duvet
<i>Somateria spectabilis</i>	King Eider	Prachteiderente	Eider à tête grise
<i>Gavia stellata</i>	Red-throated Diver/Loon	Sternaucher	Plongeon catmarin
<i>Arenaria interpres</i>	Ruddy Turnstone	Steinwälzer	Tournepierre à collier
<i>Calidris maritima</i>	Purple Sandpiper	Meerstrandläufer	Bécasseau violet
<i>Phalaropus lobatus</i>	Red-necked Phalarope	Odinshühnchen	Phalarope à bec étroit
<i>Pluvialis dominica</i>	American Golden Plover	Prärie-Goldregenpfeifer	Pluvier bronzé
<i>Calidris fuscicollis</i>	White-rumped Sandpiper	Weißbindenstrandläufer	Bécasseau à croupion blanc
<i>Histrionicus histrionicus</i>	Harlequin Duck	Kragenente	Arlequin plongeur
<i>Cygnus columbianus</i>	Tundra Swan	Zwergschwan	Cygne siffleur
<i>Branta hutchinsii</i>	Cackling Goose	Zwergkanadagans	Bernache de Hutchins
<i>Anas acuta</i>	Northern Pintail	Spießente	Canard pilet

[illegible]

Wildlife List – Landbirds

Scientific Name	English	Deutsch	Français
<i>Falco peregrinus</i>	Peregrine Falcon	Wanderfalke	Faucon pèlerin
<i>Calcarius lapponicus</i>	Lapland Bunting / Longspur	Spornammer	Plectrophane lapon
<i>Plectrophenax nivalis</i>	Snow Bunting	Schneeammer	Plectrophane des neiges
<i>Acanthis flammea</i>	Common Redpoll	Birkenzeisig	Sizerin flammé
<i>Anthus rubescens</i>	American Pipit	Pazifikpieper	Pipit d'Amérique
<i>Oenanthe oenanthe</i>	Northern Wheatear	Steinschmätzer	Traquet motteux
<i>Corvus corax</i>	Northern Raven	Kolkrabe	Grand Corbeau
<i>Bubo scandiacus</i>	Snowy Owl	Schneeeule	Harfang des neiges
<i>Antigone canadensis</i>	Sandhill crane	Kanadakranich	Grue du Canada
<i>Haliaeetus albicilla</i>	White-tailed Eagle	Seeadler	Pygargue à queue blanche
<i>Eremophila alpestris</i>	Horned Lark	Ohrenlerche	Alouette hausse-col
<i>Calidris bairdii</i>	Baird's Sandpiper	Bairdstrandläufer	Bécasseau de Baird
<i>Charadrius semipalmatus</i>	Semipalmated Plover	Semipalmierter Regenpfeifer	Pluvier semipalmé
<i>Buteo lagopus</i>	Rough-legged Hawk	Raufußbussard	Buse pattue

A photograph of two whales swimming in deep blue water. A large, semi-transparent watermark 'IX' is overlaid on the image. The text 'Connect With Your Inner Scientist' is centered in white.

Connect With Your Inner Scientist