IX

MS FRIDJOF NANSEN

Highlights of Antarctica
17th – 27th January 2025

Science & Education Logbook

Science & education program

The science and education team onboard accompanied you on an expedition cruise through the highlights of Antarctica. Through lectures, discovery sessions and visits ashore we aimed to make every expedition day a memorable and unique learning experience.

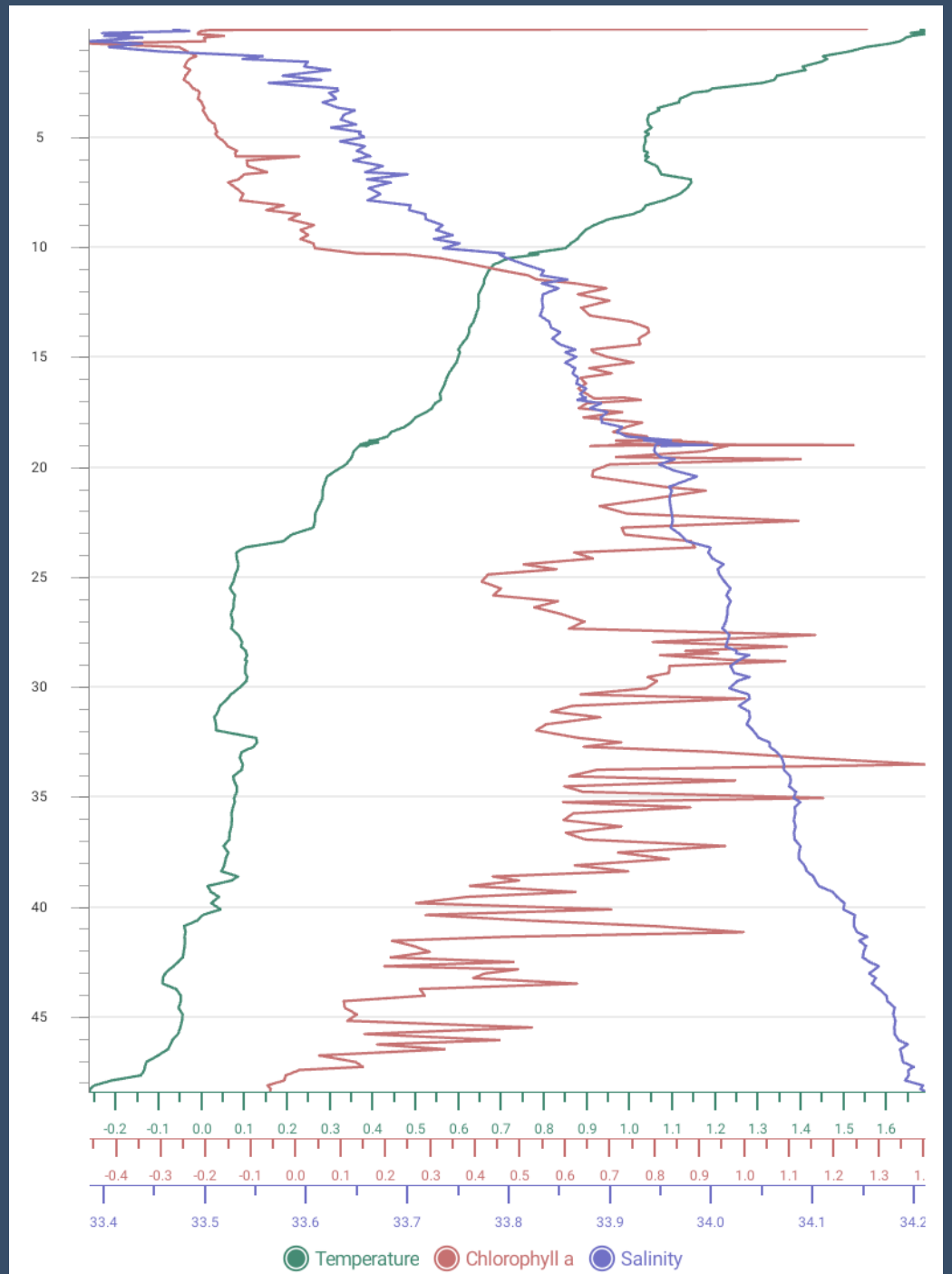
History & Culture: Discovery and Exploration

On this voyage we have we seen cultural remains of the whaling industry in the Antarctic and we have discussed the impact it had on the whale populations in the southern seas. On several of our landing sites we have observed buildings from the Argentinian science program from the early 1950s and we have put this into context of the competing national claims to the Antarctic in the post war era. Onboard we have had lectures on the explorers of the Antarctic as well as many other activities and workshops. Some of us have even danced tango on the ship!

Science Boat

During our voyage we studied the abundance and types of plankton present in our sampling locations. This included taking a plankton sample, recording water conditions using our 'CTD', and using a Secchi disk to record water clarity, indicating the amount of plankton present. The Secchi data can be found in the Table below.

Date	Location	Secchi Depth (m)	Sea Surface Temp (°c)
20.01.25	Petermann Island	10.7	0.0
21.01.25	Damoy Point	16.5	0.6
22.01.25	Neko Harbour	9.5	-0.2
23.01.25	Mikkelsen Harbour	12.0	-0.4
24.01.25	Half Moon Island	17.9	0.7



CTD data

•The image to the left shows an example of a CTD data profile, taken in Neko Harbour on the 22nd January 2025, where we took measurements down to 50m.

•Temperature: The temperature decrease from 1.7°C at the surface to -0.3°C at 50m shows how deeper water is generally colder.

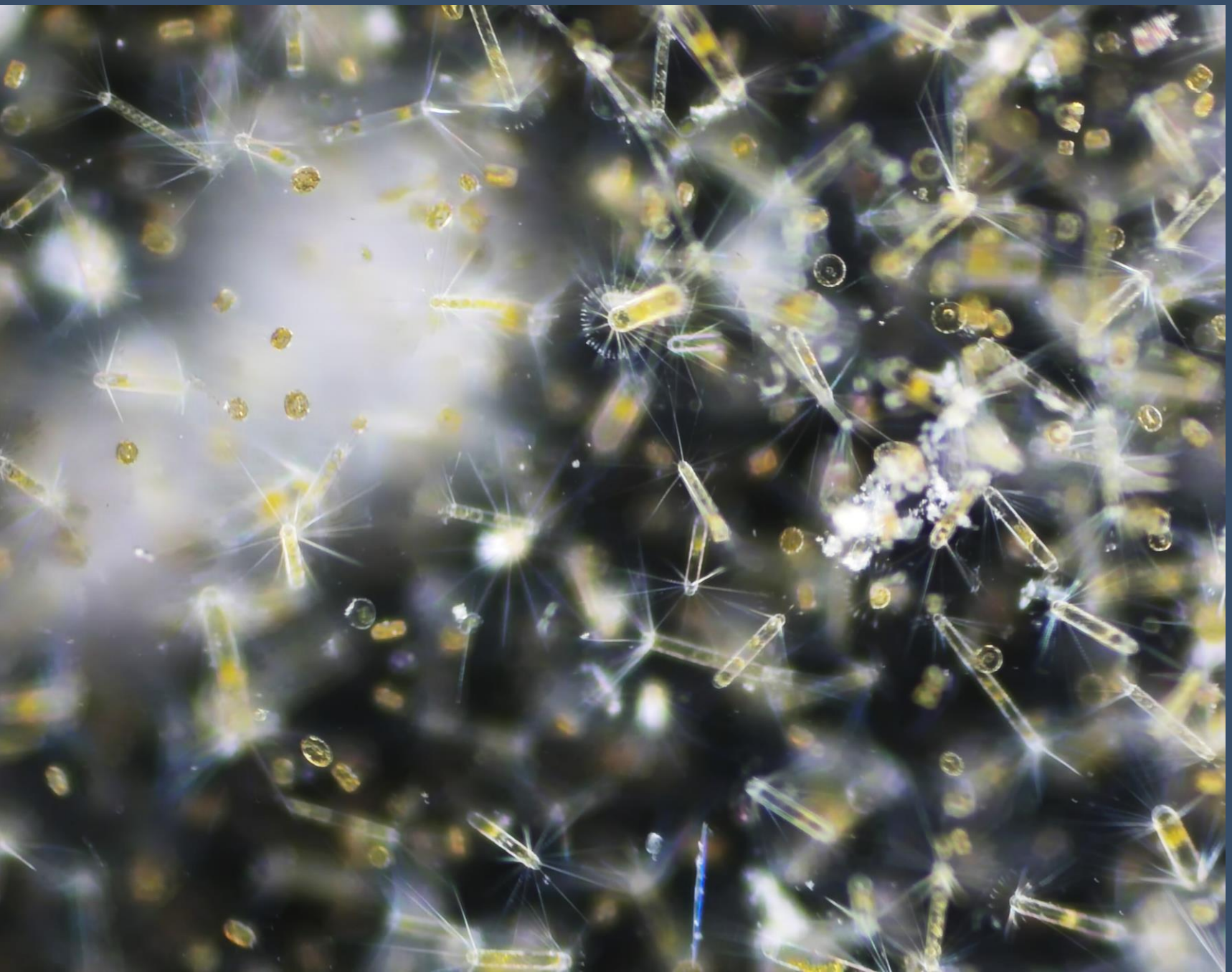
•Salinity: The increase in salinity from 33.4 PSS at the surface to 34.2 PSS at 50m indicates that denser, saltier water sinks, while fresher, warmer water stays near the surface.

•Chlorophyll a: This green pigment is essential for photosynthesis in phytoplankton. Since photosynthesis requires light, phytoplankton are mostly found in shallower depths where sunlight can penetrate.

Our findings at Neko Harbour provide a clear snapshot of the water column's structure and the distribution of phytoplankton, driven by light availability for photosynthesis.

FjordPhyto

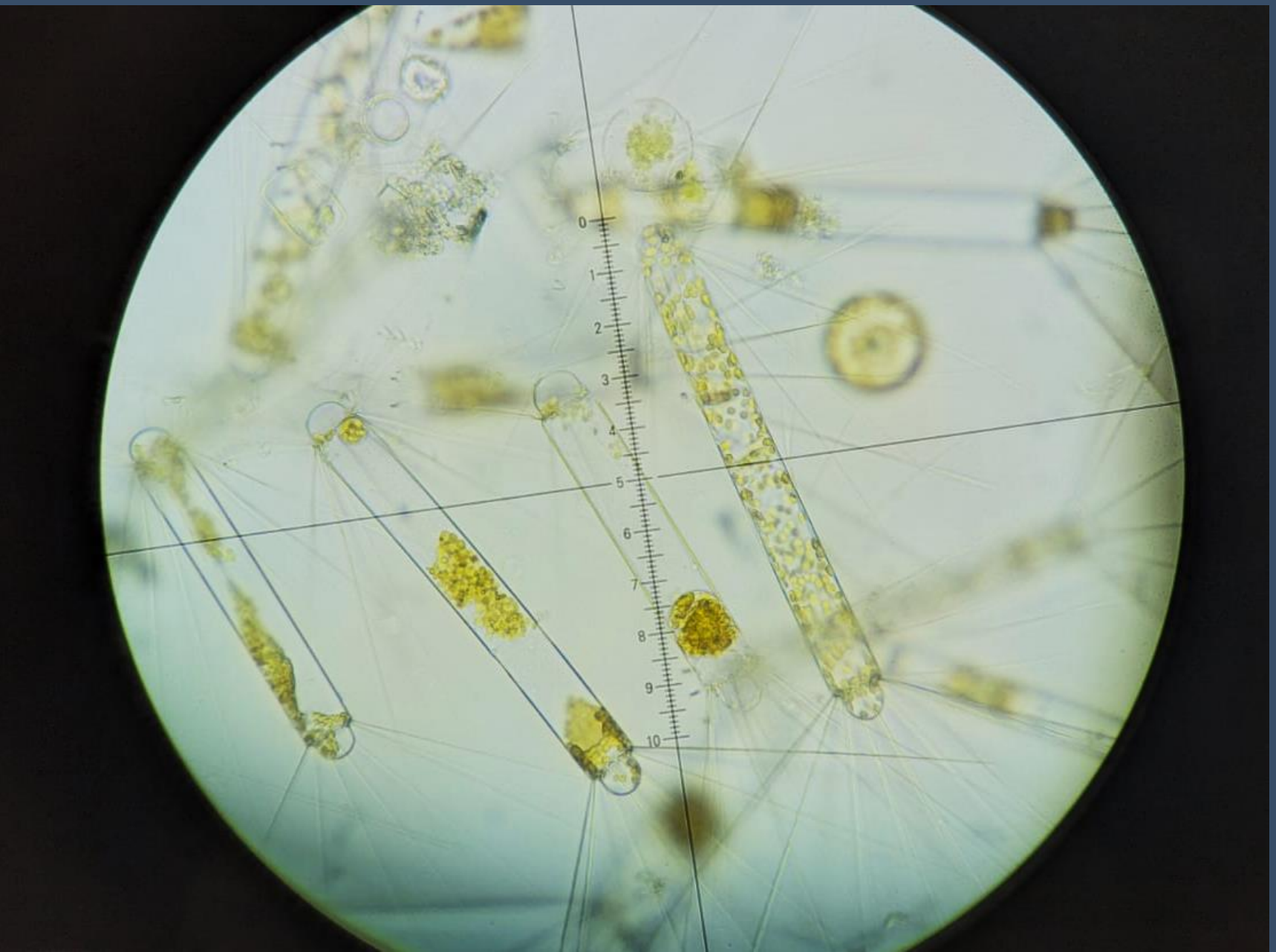
This project aims to monitor the changes in abundance and distribution of phytoplankton in Antarctic waters in relation with glaciar ice melting. We performed samples during this voyage at Petermann Island, Damoy Point, Neko Harbour, Mikkelsen Harbour, and Half Moon Island. We towed a plankton net,; measured water temperature, salinity, and chlorophylle a; preserved melt water samples to measure dissolved oxygen, and collected a water sample to study environmental DNA. The whole mission was a success, thank you for participating with us! Use the QR code below to learn more about how this data has and will be used!



Plankton samples

Plankton are ocean drifters transported by currents and tides, and the lack of ability to navigate against these natural forces. Animals (zooplankton) and plant-like algae (phytoplankton), play a key role in supporting the marine food web and health of our oceans.

The image on the left shows a variety of phytoplankton collected in Neko Harbour on the 22nd January 2025.



Phytoplankton

Diatoms are a type of phytoplanktonic cells which external skeleton is made of silica. They underpin the bottom of the marine food web as they, like plants on land, convert sunlight into energy and oxygen and also sequester carbon dioxide. This function is provided by the green coloured pigment, chlorophyll, which you can observe in the picture on the left.

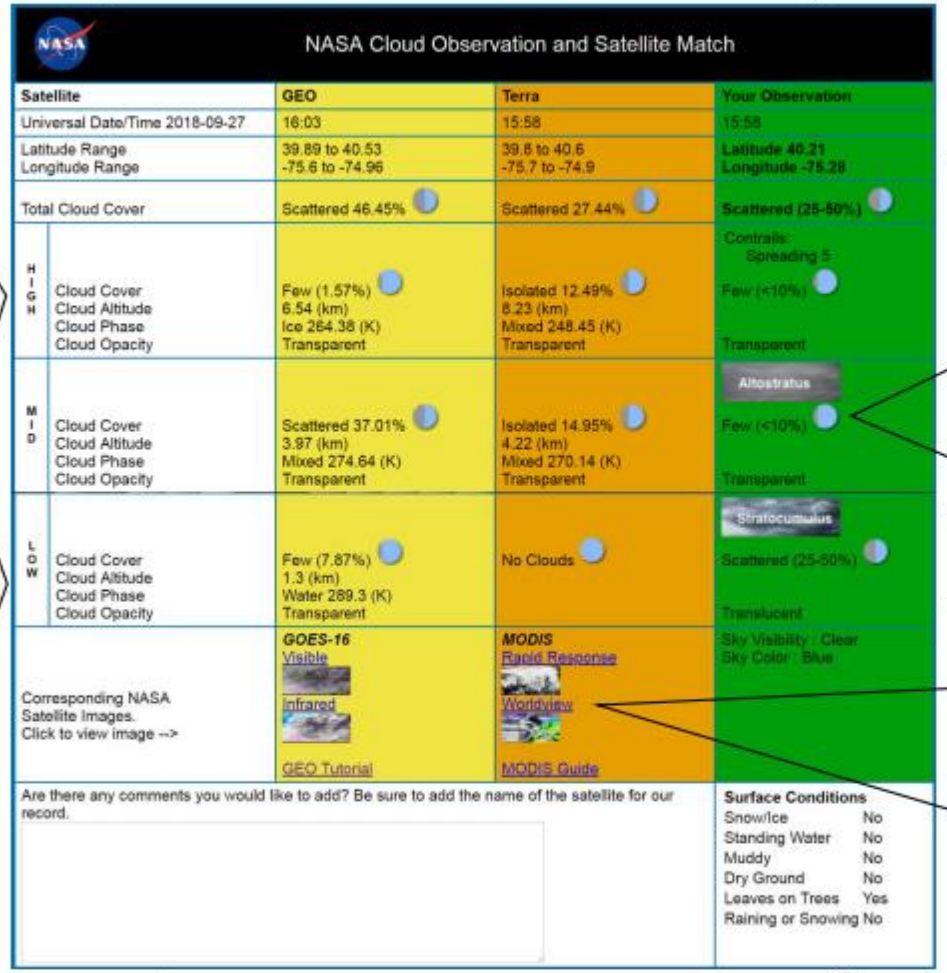
The left image shows some ‘Corethron’ diatoms – their specialised silica spines are thought to be used for protection against predators and to help them stay afloat near the waters surface.

The left column in white lists all the observations reported and compared with satellite data.

The green column (right) displays your observations that are compared to satellite data (middle columns) including **latitude/longitude**, **date & time**, and observed total **cloud cover**.

You report **cloud opacity**, **cover**, and **type** for each height (high, mid, low). Satellites report **cloud altitude**, **phase**, **opacity**, and **cover.**

Cloud Altitude is measured in kilometers (km). Cloud phase, (liquid, ice or both mixed) is measured in Kelvin (K).



NASA Cloud Observation and Satellite Match

Satellite	GEO	Terra	Your Observation
Universal Date/Time 2018-09-27	16:03	15:58	15:58
Latitude Range Longitude Range	39.89 to 40.53 -75.6 to -74.96	39.8 to 40.6 -75.7 to -74.9	Latitude 40.21 Longitude -75.28
Total Cloud Cover	Scattered 46.45%	Scattered 27.44%	Scattered (25-50%)
HIGH Cloud Cover Cloud Altitude Cloud Phase Cloud Opacity	Few (1.57%) 6.54 (km) Ice 264.38 (K) Transparent	Isolated 12.49% 8.23 (km) Mixed 248.45 (K) Transparent	Contrails: Spreading 5 Few (<10%) Transparent
MID Cloud Cover Cloud Altitude Cloud Phase Cloud Opacity	Scattered 37.01% 3.97 (km) Mixed 274.64 (K) Transparent	Isolated 14.95% 4.22 (km) Mixed 270.14 (K) Transparent	Altostratus Few (<10%) Transparent
LOW Cloud Cover Cloud Altitude Cloud Phase Cloud Opacity	Few (7.87%) 1.3 (km) Water 289.3 (K) Transparent	No Clouds	Stratocumulus Scattered (25-50%) Translucent
Corresponding NASA Satellite Images. Click to view image -->	GOES-16 Visible Infrared GEO Tutorial	MODIS Rapid Response Worldview MODIS Guide	Sky Visibility : Clear Sky Color : Blue
Are there any comments you would like to add? Be sure to add the name of the satellite for our record.			Surface Conditions Snow/Ice No Standing Water No Muddy No Dry Ground No Leaves on Trees Yes Raining or Snowing No

The circles represent cloud cover.
- No Clouds 0%
- Clear >0-10%
- Isolated 10-25%
- Scattered 25-50%
- Broken 50-90%
- Overcast 90-100%
- Obscured 100%

Click to view the satellite images taken at the time of your observation. Learn about GOE/GOES-16 and MODIS images. Click to learn how to use Worldview.

Questions or comments? Submit them here and remember to include the name of the satellite(s) in question.

Your observations also include information about **Surface Conditions** when you made the observation.

GLOBE Observer

NASA cloud observer

We conducted three observations in total during this voyage to the Peninsula. We had one satellite match, so we can compare our observations with those of the satellite. Our observation will complement the satellite data to improve the models, providing more information about how the atmosphere behaves from below up to the top. Thank you for your interest and help!

View our data on the global map

Geological Highlight

The geological highlight of the trip was Deception Island in the South Shetland Islands. This active volcano boasts a stunning landscape shaped by eruptions. The submerged caldera is surrounded by towering volcanic basalt cliffs. From the ship we were able to observe Whaler's Bay and its black sand beaches, saw fumaroles, and observed seabirds thriving in the geothermal warmth. Deception Island is a living laboratory for volcanology and glaciology, offering geologists a unique and unforgettable experience.

Peterman Island

Snow Algae

During our voyage we took observations and photographs of ‘snow algae’. These green or pink/red cells live on snow and ice, and their dark colour reduces the ‘albedo effect’, causing the suns raditation to be absorbed resulting in a faster melting rate.

We collected observations of snow algae in the following locations, and sent this data to the ‘Snow Algae Project’.

The Locations of snow Algae photos and data sent in were:

Damoy Point

Peterman Island (Registered site for the project)

Lemaire Channel

Yalour Islands

Snow Algae Photos

Damoy Point

Yalour Islands

iNaturalist

We submitted 307 observations identifying 76 species anything living and wild. We uploaded observations of penguin, seals, whales, lichens and even plankton! The most observed species were the humpback whale and the gentoo penguin.

Our observations can help scientist to better understand the distribution of these species in the wild and to protect them in a changing environment.

View our data submitted on our iNaturalist project

Adelie Penguin in Petermann Island, © Charlotte Kirchner / HX

Event in progress

MS Fridtjof Nansen Highlights of Antarctica 17th - ...

Jan 17, 2025 - Jan 27, 2025

About

Members 26

Shared observations from guests and Expedition Team onboard MS Fridtjof Nansen during the expedition cruise "Highlights of Antarctica" from 17th - 27th Jan 2025, aiming to collect data on the local biodiversity

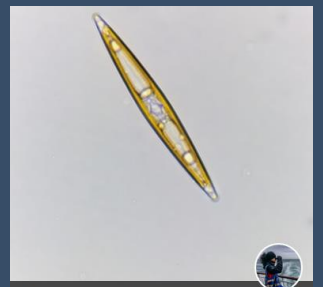
Read More ›

Project Members Only

Project Journal

RG

Weddell Seal
Leptonychotes weddellii
2 2 days ago

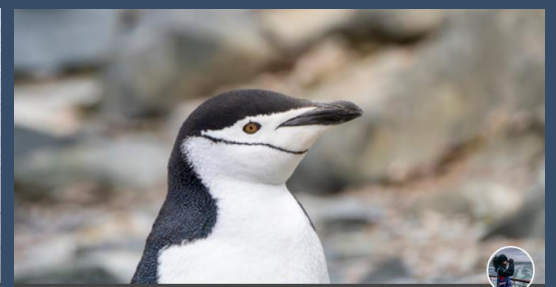


Genus *Navicula*
1 2 days ago

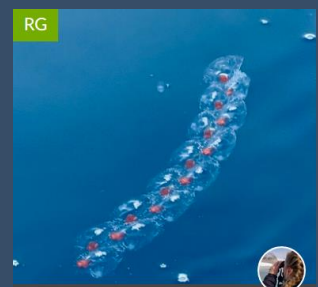
Black-browed Albatross
Thalassarche melanophris
2 7 days ago

RG

Southern Humpback Whale
Megaptera novaeangliae ssp. *australis*
3 3 days ago



Chinstrap Penguin
Pygoscelis antarcticus
1 a day ago



RG

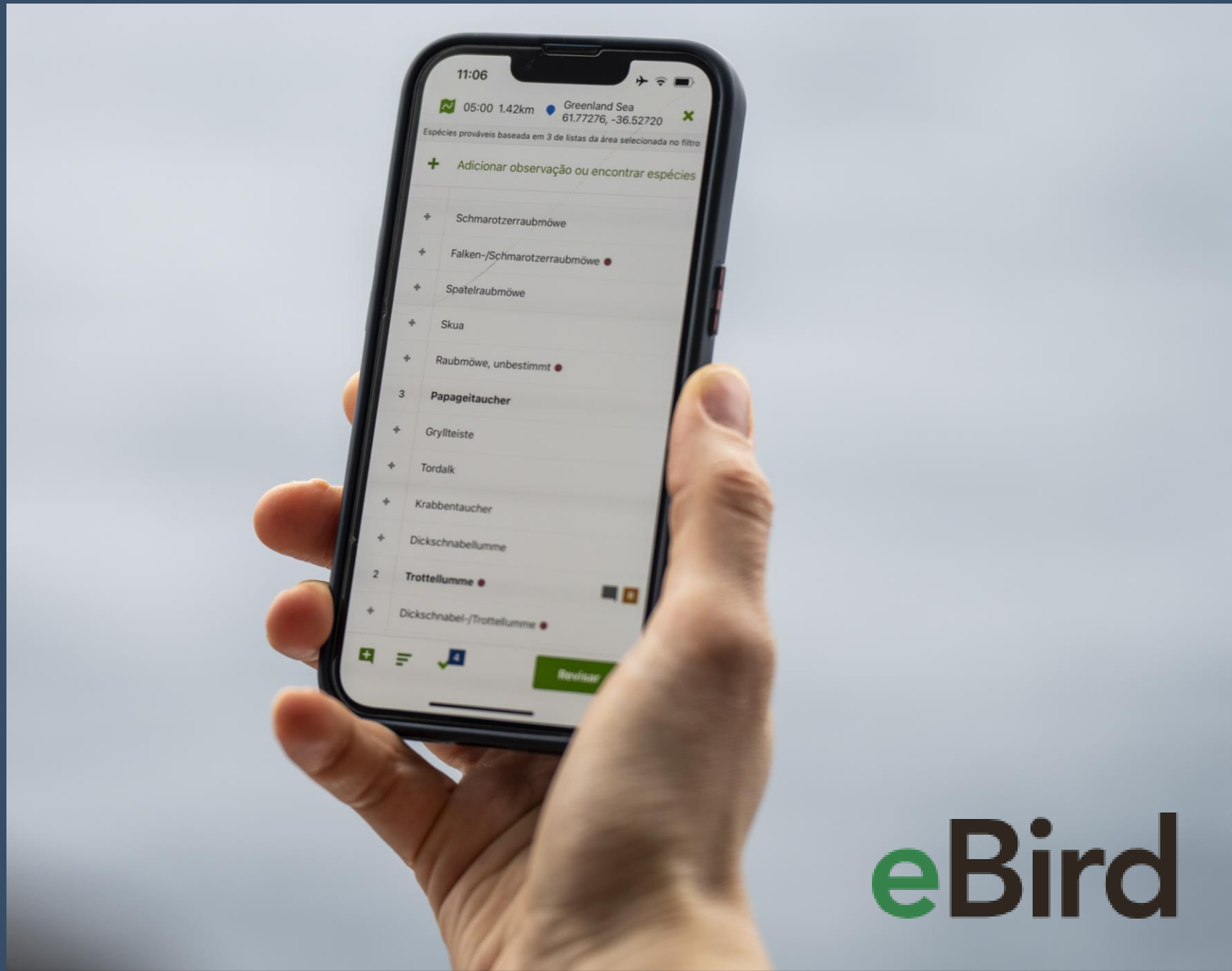
Salpa thompsoni
2 3 days ago

303	76	57	15
OBSERVATIONS	SPECIES	IDENTIFIERS	OBSERVERS

eBird

During this voyage, our ornithologist, Ingvild, did at least 58 surveys between Ushuaia and the Western Antarctic Peninsula with a total of 57 species. Some of the highlights were the Snow Petrels, Antarctic Petrels and of course the four penguin species; Magellanic, Adelie, Gentoo and Chinstrap.

Find the trip report for the voyage and the checklists here.



Trip Report on eBird

FNANT2411G - MS Fridtjof Nansen - Highlights of Antarctica - 17th to 27th of January 2025

17 – 27 Jan 2025 (11 days) Link-only

Antarctica | Argentina | Chile | High Seas Subregions

Ingvild Riska, Liam Northfield, Science Coordinator

Share Edit

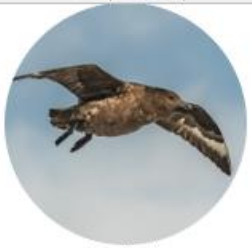
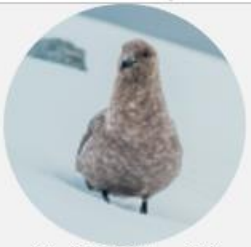
Wildlife List - Birds

During this voyage, together with your help, we have observed at least 57 species of birds. Here is our full bird list.

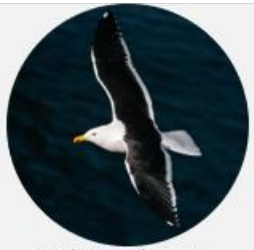
Wildlife List

Species		January									
		17	18	19	20	21	22	23	24	25	26
Pygoscelis papua EN: Gentoo Penguin FR: Manchot papou DE: Eselspinguin NO: Bøylepingvin 中文: 巴布亚企鹅/白眉企鹅	 Credit: Kay Fochtmann/HX				●	●	●	●	●		
Pygoscelis adeliae EN: Adelie Penguin FR: Manchot d'Adélie DE: Adeliepinguin NO: Adeliepingvin 中文: 阿德利企鹅	 CreditTed Gatlin/HX				●						
Pygoscelis antarcticus EN: Chinstrap Penguin FR: Manchot à jugulaire DE: Zügelpinguin NO: Ringpingvin 中文: 帽带企鹅/纹颊企鹅	 Credit: Martin Hain/HX				●	●	●	●	●		
Spheniscus magellanicus EN: Magellanic Penguin FR: Manchot de Magellan DE: Magellanpinguiin NO: Magellanpingvin 中文: 南美企鹅/麦哲伦企鹅	 Credit: Kim Rarmark/HX	●									

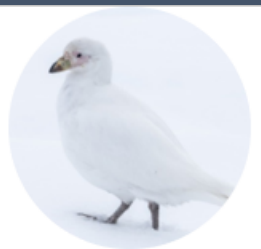
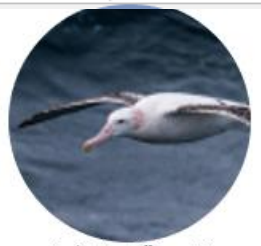
Wildlife List

Species		January								
		17	18	19	20	21	22	23	24	25	26
Leucocarbo bransfildensis EN: Antarctic (Blue-eyed) Shag FR: Cormoran antarctique DE: Antarktisscharbe NO: Antarktisskarv 中文: 南极鸬鹚	 Credit: Martin Hain/HX				●	●	●	●	●		
Leucocarbo atriceps EN: Imperial Shag FR: Cormoran impérial DE: Kaiserscharbe NO: Knoppskarv 中文: 蓝眼鸬鹚	 Credit: Caliponte/Wikipedia	●									●
Stercorarius antarcticus EN: Subantarctic Brown Skua FR: Labbe antarctique DE: Subantarktikskua NO: Sørhavsjo 中文: 棕贼鸥	 Credit: Ted Gatlin/HX								●		
Stercorarius maccormicki EN: South Polar Skua FR: Labbe de McCormick DE: Antarktikskua NO: Sørjo 中文: 南极贼鸥/麦氏贼鸥	 Credit: Kay Fochtmann/HX				●	●	●	●	●		

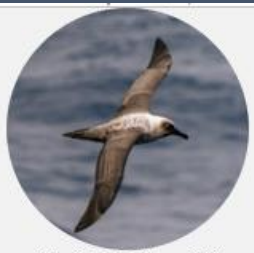
Wildlife List

Species		January									
		17	18	19	20	21	22	23	24	25	26
Stercorarius chilensis EN: Chilean Skua FR: Labbe du Chili DE: Chileskua NO: Kaneljo 中文: 智利贼鸥	 Credit: Arthur Chapman/Wikipedia	●									
Larus dominicanus EN: Kelp Gull FR: Goéland dominicain DE: Dominikanermöwe NO: Taremåke 中文: 黑背鸥	 Credit: Kay Fochtmann/HX	●			●	●	●	●	●		
Sterna vittata EN: Antarctic Tern FR: Sterne couronnée DE: Antarktikseeschwalbe NO: Sørhavsterne 中文: 南极燕鸥	 Credit: Ted Gatlin/HX				●	●	●	●	●		
Sterna hirundinacea EN: South American Tern FR: Sterne hirundinacée DE: Falklandseeschwalbe NO: Svaleterne 中文: 南美燕鸥	 Credit: Dfaulder/Wikicommons	●									

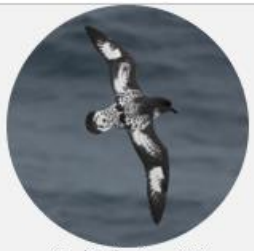
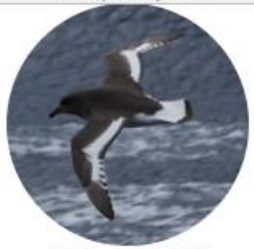
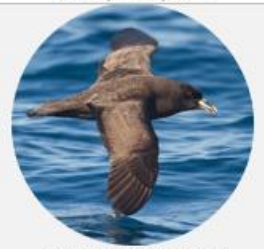
Wildlife List

Species		January								
		17	18	19	20	21	22	23	24	25	26
Chionis albus EN: Snowy Sheathbill FR: Chionis blanc DE: Weißgesicht-Scheidenschnabel NO: Antarktisslirenebb 中文: 白鞘嘴鸥	 Credit: Kay Fochtmann/HX				●	●		●	●		
Diomedea exulans EN: Snowy Albatross FR: Albatros hurleur DE: Wanderalbatros NO: Vandrealbatross 中文: 漂泊信天翁	 Credit: Tim Hoffmann/HX		●								
Thalassarche chrysostoma EN: Grey-headed Albatross FR: Albatros à tête grise DE: Graukopfalbatros NO: Gråhodealbatross 中文: 灰头信天翁	 Credit: Kay Fochtmann/HX		●	●							
Thalassarche melanophris EN: Black-browed Albatross FR: Albatros à sourcils noirs DE: Schwarzbrauenalbatros NO: Svartbrynalbatross 中文: 黑眉信天翁	 Credit: Kay Fochtmann/HX	●	●	●							

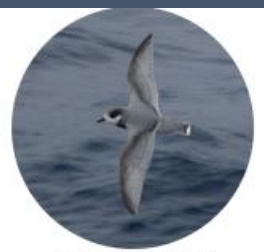
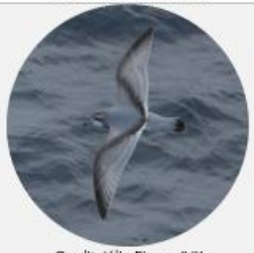
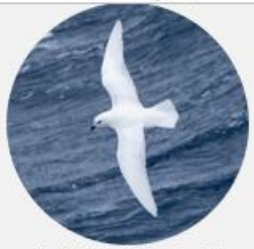
Wildlife List

Species		January								
		17	18	19	20	21	22	23	24	25	26
Phoebetria palpebrata EN: Light-mantled Albatross FR: Albatros fuligineux DE: Graumantelalbatros NO: Gråalbatross 中文: 灰背信天翁	 Credit: Kay Fochtmann/HX									●	
Macronectes halli EN: Northern Giant Petrel FR: Pétrel de Hall DE: Hallsturmvogel NO: Nordkjempepetrell 中文: 霍氏巨鷸	 Credit: Tim Hoffmann/HX		●								
Macronectes giganteus EN: Southern Giant Petrel FR: Pétrel géant DE: Riesensturmvogel NO: Sørkjempepetrell 中文: 南方巨鷸	 Credit: Kay Fochtmann & Ted Gatlin/HX	●	●	●	●	●		●	●	●	●
Fulmarus glacialoides EN: Southern Fulmar FR: Fulmar argenté DE: Silbersturmvogel NO: Sørhavhest 中文: 银灰暴风鷸	 Credit: Kay Fochtmann/HX			●							

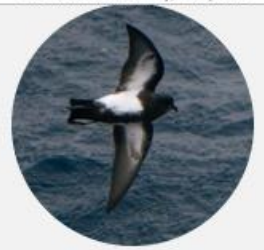
Wildlife List

Species		January									
		17	18	19	20	21	22	23	24	25	26
Daption capense EN: Pintado Petrel FR: Damier du Cap DE: Kapsturmvogel NO: Flekkpetrell 中文: 花斑鳽	 Credit: Júlia Finger/HX			●		●	●		●		
Thalassoica antarctica EN: Antarctic Petrel FR: Pétrel antarctique DE: Antarktissturmvogel NO: Antarktispetrell 中文: 南极鳽	 Credit: Júlia Finger/HX			●							
Procellaria aequinoctialis EN: White-chinned Petrel FR: Puffin à menton blanc DE: Weißkinn-Sturmvogel NO: Hvithakepetrell 中文: 白颏风鳽	 Credit: JJ Harrison/Wikipedia			●						●	
Ardenna grisea EN: Sooty Shearwater FR: Puffin fuligineux DE: Dunkelsturmtaucher NO: Grålire 中文: 灰鳽	 Credit: Marcus Bergström/HX		●							●	●

Wildlife List

Species		January								
		17	18	19	20	21	22	23	24	25	26
Halobaena caerulea EN: Blue Petrel FR: Prion bleu DE: Blausturmvogel NO: Blåpetrell 中文: 蓝鳽	 Credit: Kim Rørmark/HX		●	●						●	
Pachyptila desolata EN: Antarctic Prion FR: Prion de la Désolation DE: Taubensturmvogel NO: Antarktishvalfugl 中文: 鸽锯鳽	 Credit: Júlia Finger/HX			●							
Pachyptila belcheri EN: Slender-billed Prion FR: Prion de Belcher DE: Dünnschnabel-Sturmvogel NO: Smalnebbhvalfugl 中文: 细嘴锯鳽	 Credit: Marcus Bergström/HX										
Pagodroma nivea EN: Snow Petrel FR: Pétrel des neiges DE: Schneesturmvogel NO: Snøpetrell 中文: 雪鳽	 Credit: Marcus Bergström/HX				●		●	●			

Wildlife List

Species		January								
		17	18	19	20	21	22	23	24	25	26
Oceanites oceanicus EN: Wilson's Storm Petrel FR: Océanite de Wilson DE: Buntfuß-Sturmschwalbe NO: Wilsonstormsvale 中文: 黃蹼洋海燕	 Credit: Ethan Rudnitsky/Wikipedia		●	●	●	●	●	●	●	●	●
Fregetta tropica EN: Black-bellied Storm Petrel FR: Océanite à ventre noir DE: Schwarzbauch-Sturmschwalbe NO: Svartbukstormsvale 中文: 黑腹舰海燕	 Credit: Kay Fochtmann/HX		●							●	

HappyWhale

This voyage was a success in terms of whale sightings: 3 flukes were submitted to the platform with all returning a match. One whale was first sighted in Antartica in 2015, but has also been recorded in Ecuador. The second and third whales have recorded 7 and 9 times respectively through HappyWhale submissions, but both have only ever been recorded in Antarctica. Photos were also submitted of 2 leopard seals and 5 crabeater seals; these species can also be identified by unique markings.

Thank you so much for helping us gathering amazing pictures and moments!

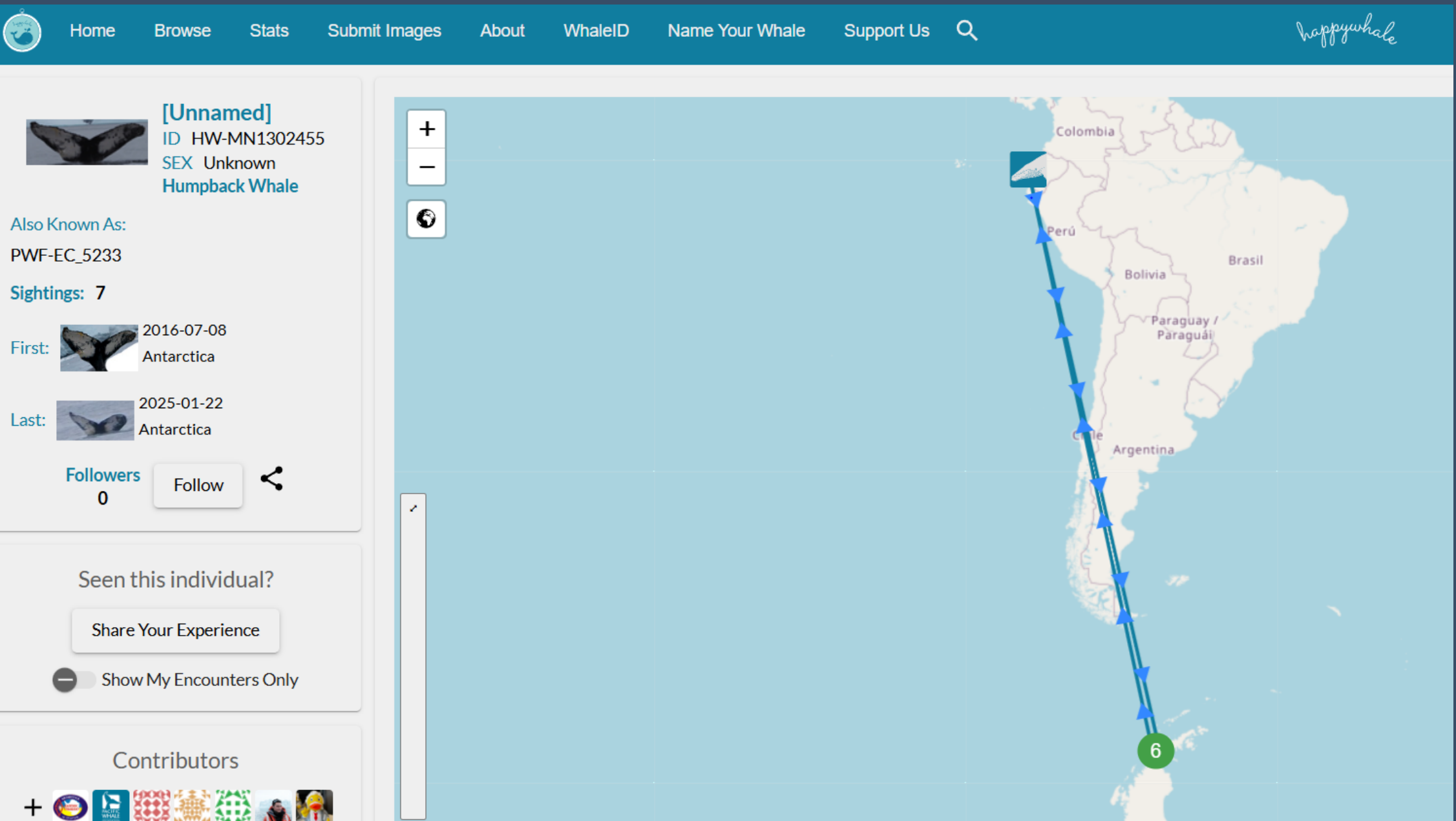
View our data on the global map

Humback whale BTBEL-Mn_03_027, Yalour Islands
© Lauren Peach/HX

Crabeater seal, submitted to HappyWhale

©Charlotte Kirchner/HX

Our whale from Neko Harbour!



Wildlife List
Marine Mammals

Photo: Timo Heinz / HX

Wildlife List – Marine Mammals

CETACEANS - WHALES & DOLPHINS

Species		January									
		17	18	19	20	21	22	23	24	25	26
Balaenoptera musculus EN: Blue Whale FR: Baleine bleue DE: Blauwal NO: Blahval 中文: 蓝鲸	 Credit: Massimo Demma/Ocean Conservation Society										
Balaenoptera physalus EN: Fin Whale FR: Rorqual commun DE: Finnwal NO: Finhval 中文: 長須鯨	 Credit: Massimo Demma/Ocean Conservation Society			●							
Megaptera novaeangliae EN: Humpback Whale FR: Baleine a bosse DE: Buckelwal NO: Knolhval 中文: 座头鲸	 Credit: Massimo Demma/Ocean Conservation Society			●	●	●	●	●	●		
Balaenoptera borealis EN: Sei Whale FR: Rorqual de Rudolphi DE: Seiwal NO: Seihval 中文: 塞鲸	 Credit: NOAA Fisheries	●									●

Wildlife List – Marine Mammals

Balaenoptera bonaerensis EN: Antarctic Minke Whale FR: Petit rorqual de l'Antarctique DE: Antarktischer Zwergwal NO: Antarktisk vågehval 中文: 南极小须鲸	 Credit: SEAMMO (Sea Mammal Monitoring Organisation)					●	●		●		
Lagenorhynchus obscurus EN: Dusky dolphin FR: Lagenorhynque obscur DE: Schwarzdelfin NO: Morkdelfin 中文: 暗色斑纹海豚		●									●
Globicephala melas EN: Long-finned pilot whale FR: Globicéphale noir DE: Grindwal NO: Grindhval 中文: 长肢领航鲸											●

Wildlife List – Marine Mammals

SEALS – TRUE AND EARED SEALS

Species		January									
		17	18	19	20	21	22	23	24	25	26
Leptonychotes weddellii EN: Weddell Seal FR: Phoque de Weddell DE: Weddelrobbe NO: Weddellsel 中文: 韋德爾氏海豹	 Credit: Kay Fochtmann/HX					●	●	●	●		
Lobodon carcinophaga EN: Crabeater Seal FR: Phoque crabier DE: Krabbenfresser NO: Krabbeetersel 中文: 食蟹海豹/鋸齒海豹	 Credit: Martin Johansen				●		●				
Hydrurga leptonyx EN: Leopard Seal FR: Léopard de mer DE: Seeleopard NO: Leopardsel 中文: 豹海豹	 Credit: Kay Fochtmann/HX				●						

Wildlife List – Marine Mammals

Mirounga leonina EN: Southern Elephant Seal FR: Eléphant de mer austral DE: Südlicher See-Elefant NO: Sydlig sjøelefant 中文: 南象海豹	 Credit: Martin Hain/HX							●			
Arctocephalus gazella EN: Antarctic Fur Seal FR: Otarie à fourrure antarctique DE: Antarktischer Seebär NO: Antarktis pelssel 中文: 南极海狗/南极毛皮海狮	 Credit: Kay Fochtmann/HX							●	●		

FRIEDLAENDER LAB

Bio-telemetry and Behavioral Ecology

83 Humpback Whales

Minke, Sei & killer whale sightings

Friedlaender Lab: Remote Biopsy

13 skin + blubber samples
3 from mother+calf pairs


Thank you for participating!