



**Science & Education Report**

# MS Fridtjof Nansen

22 January to 07 February 2024

Antarctic Circle Expedition

FNANT2403





# Science & Education Program

During this voyage, we ran 6 citizen projects in total: Nasa Cloud Globe Observer, eBird, iNaturalist, HappyWhale, FjordPhyto and SecchiDisk.

We also helped our guest scientists from COA (California Ocean Alliance) and Polar Watch Program to gather data to assess the healthy state of the humpback whale population in Antarctica.

A lot of you were very interested in the scientific aspect of our voyage and we thank you all for your enthusiasm. Here we provide a resume of our science activities.



# NASA cloud observer

Quite a few of you joined to assist Owen and Nadja during our cloud daily observations. We did 6 observations in total during this voyage. So far, we have only obtained three matches for our observations at Planeau Island, Hanusse Bay and The Gullet. Our observation matched quite well with the satellite overview, bringing more information of how the atmosphere behaves from below up to the top. Thank you very much for your interest and help, even during our snowy/stormy weather!

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

Our observations this trip: we had three matches this trip!



Date	Location	Match
25.01.24	Wilhemina Bay	-
27.01.24	Pleneau Island	YES
29.01.24	Hanusse Bay	YES
01.02.24	Bongrain Point	-
02.02.24	The Gullet	YES
03.02.24	Detaille Island	-



Total observations: 6

# iNaturalist

We submitted 82 observations identifying 21 species, from planktonic creatures to marine mammals and birds. The most observed species were the Adelie and Gentoo penguins followed by the Crabeater Seals. Don't forget, there is still time to join our project once you are back home and have time to go through your photos. Helping us document the local biodiversity will help the scientists worldwide to monitor the changes in distribution and abundance of the most iconic Antarctic species.

Join our project by searching its code name: FNANT2403.

View our data submitted on our [iNaturalist project](#)



# eBird

During this voyage, our ornithologist Simon, did 13 eBird surveys between the Drake Passage and the Western Antarctic Peninsula. A total of 16 species were observed and 1,011 individuals counted. The top observed species were Gentoo Penguin, the Kelp Gull and the Black-browed albatross. Find the trip report for the voyage and the checklists [here](#).



eBird

Kay Fochtmann/HX

# 27 bird species observed on this trip

Gentoo Penguin	Wandering Albatross
Adelie Penguin	Black-browed Albatross
Chinstrap Penguin	Light-mantled Albatross
Magellanic Penguin	Southern Giant Petrel
Antarctic Shag	Southern Fulmar
Imperial Cormorant	Cape Petrel
Rock Shag	White-chinned Petrel
Chilean Skua	Soft-plumaged Petrel
Subantarctic Brown Skua	Snow Petrel
South Polar Skua	Antarctic Prion
Kelp Gull	Sooty Shearwater
Dolphin Gull	Wilson's Storm Petrel
Antarctic Tern	
South American Tern	
Snowy Sheathbill	

**At least 1011 individuals of 16 species logged into eBird**

-  Beagle Channel
-  Drake Passage
-  Antarctica





# Secchi Disk

We had a number of Science Boat sessions during this trip: Neko Harbour, Horseshoe Island and Bongrain Point. On each of them we did perform a secchi disk measurement to document the clarity of the water and assess the abundance of phytoplankton.

Date	Location	Depth (m)
26.01.24	Neko Harbour	6.2
31.01.24	Horseshoe Island	2.2
01.02.24	Bongrain Point	5.9

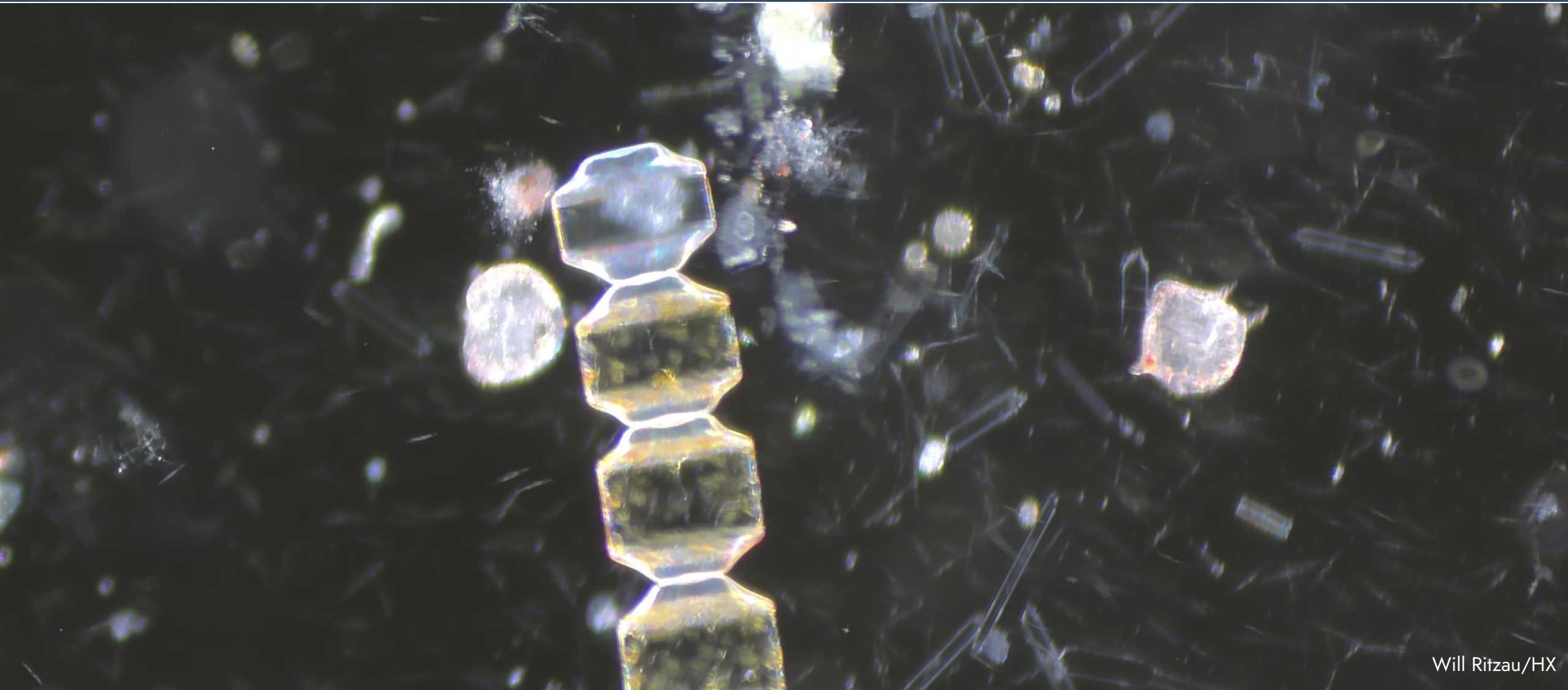
[View our data](#) submitted to the Secchi Disk Project



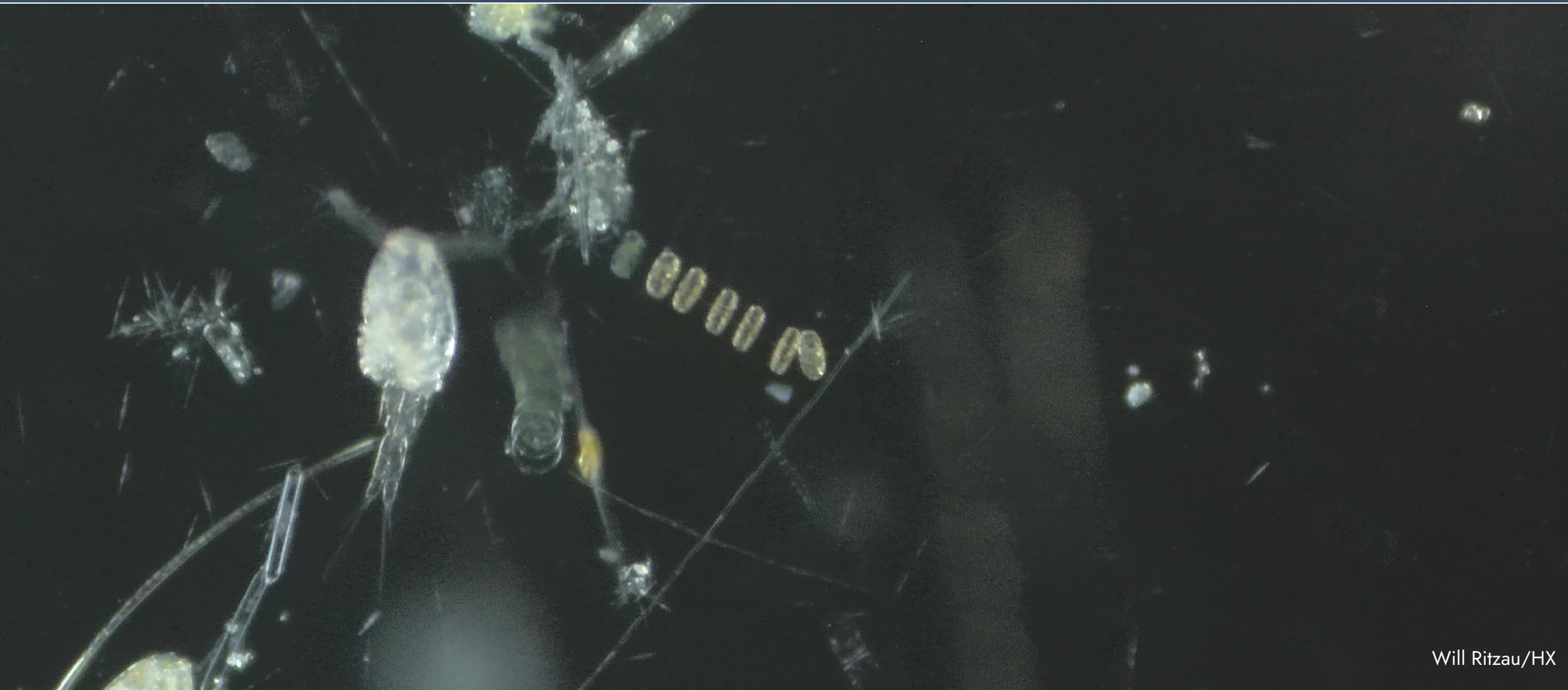
# Plankton samples

Our samples allowed us to describe the plankton community from the south of the Peninsula up to the far north, noticing an increase in the diversity of species and the abundance towards the South with a bloom of diatoms observed in Marguerite Bay during our Science Boat in Horseshoe Island. Here are a couple of photos to illustrate diatoms, small flagellates, crustacean larvae and microplastics.

# Phytoplankton : Diatoms & Dinoflagellates



# Zooplankton : Larvae – Copepods & Microplastic



# Jellyfish – Antarctic Giant Jellyfish (*Desmonema glaciale*)



02/01/2024 12:41:33 PM



blueye

Temperature: 2.0 °C

Heading: 209°

Depth: 0.1 m



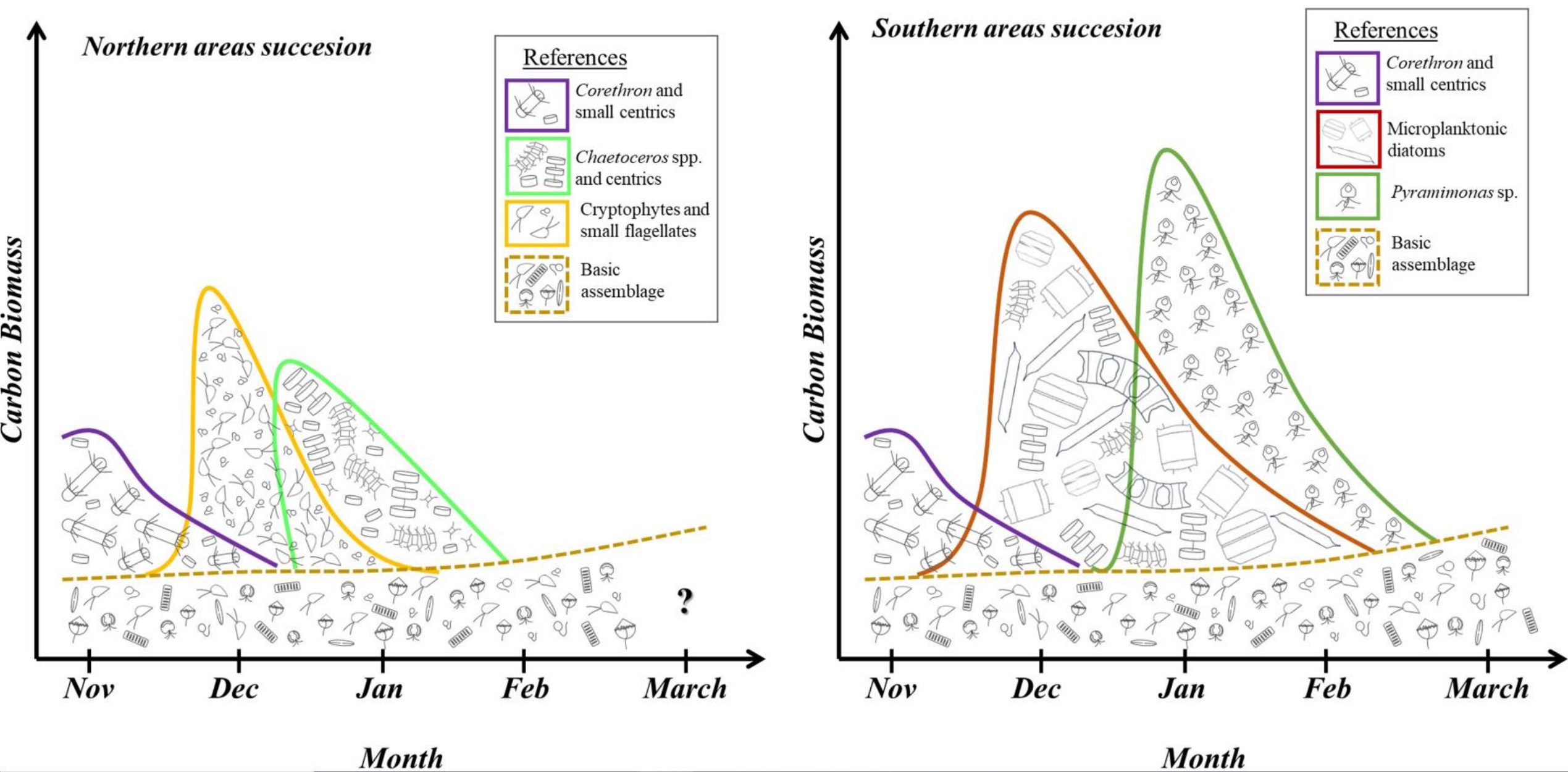
# FjordPhyto

This project aims to monitor the changes in abundance and distribution of phytoplankton in Antarctic waters in relation with glacier ice melting. We performed 1 sample during this voyage, at Neko Harbour. We towed a plankton net of 100um mesh size to gather water samples, deployed our CTD sensor to understand the oceanographical parameters of the water (temperature, salinity, chlorophyll a) and preserved melt water samples to measure dissolved oxygen later on. The whole mission was a success, thank you for participating with us!

[Visit FjordPhyto website to find out more](#)



Hélène Dubrasquet/HX



Here is a diagram that explains the temporal succession of phytoplankton communities. Our voyage allowed us to visit both the Northern and Southern areas of the Gerlache Strait. We observed big differences in the abundance and diversity of species between the north (Lemaire) and the south (Marguerite Bay), with higher and richer waters towards the south, matching those results. Data obtained thanks to the FjordPhyto project participants. Marscioni et al 2023.





# Happywhale

This voyage was a total success in terms of whale sightings: 20 fluke photos were submitted to the platform. Additionally, 6 Weddell Seals, 8 Leopard Seals & 5 Antarctic fur Seals photos were submitted.

In parallel, we submitted our data to the VCAPS- IAATO program, with more than 75 humpback whale sightings for the whole voyage! Thank you so much for helping us gathering amazing pictures and moments!

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

# Marine Mammal Data

## Submissions for Individual Identification:

- 20+ Humpback Whale Flukes
- 6 Weddell Seals
- 8 Leopard Seals
- 5 Antarctic fur Seals

## Sighting Submissions to IAATO:

- 75+ Humpback Whales
- 50+ Southern Elephant Seals
- 20+ Weddell Seals
- 18 Leopard Seals
- 50+ Crabeater Seal
- 5 Antarctic Fur Seals



# Guest Scientist: Blake from COA

Our whale scientist had a very successful voyage: 24 individuals were biopsied in 2 days between Wilhelmina and Paradise Bay, 23 photogrammetry images were obtained after flying the drone, and 29 fluke photos were submitted to Happywhale. Blake was very happy and so we were. Thank you for your interest and help to gather essential data about these wonderful animals. Don't hesitate to follow-up with this project through their different social media platforms.

Friedlander Lab – COA  
(Californian Ocean Alliance)



Martin Hain/HX

# Guest Scientists: Marcos & Carina, Polar Watch

Our guest scientists joined us during this voyage to continue the effort of monitoring whale species distribution and abundance around the Antarctic Peninsula with the aim of gathering key information about the position of the whale feeding grounds. They spent 38hrs observing from the bridge summarising 62 sightings of baleen whales, 48 of them being humpbacks whales. The purpose is to identify the key areas for krill aggregation and see what is the interaction with human activities, including tourism and fisheries.



# Guest Scientist: Hélène, from Centro IDEAL

Our Science coordinator is also a PhD student at centro IDEAL, searching for the presence of potential invasive green seaweed in Antarctic waters. During this voyage, she collected *Ulva* spp endemic individual in Pleneau Island, search for attached communities on floating seaweeds and filtered water sample from Bongrain Point. She will analyse those samples in the lab in the following months, through genetics and environmental DNA technics.

[Centro IDEAL, Universidad Austral de Chile](#)



# Wildlife List - Birds





Bird Species	January										February					
	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06	
<i>Stercorarius antarcticus</i> EN: Subantarctic Brown Skua FR: Labbe antarctique DE: Subantarktiskua NO: Sørhavsjo CHI: 大贼鸥		X	X	X												
<i>Larus dominicanus</i> EN: Kelp Gull FR: Goéland dominicain DE: Dominikanermöwe NO: Taremåke CHI: 黑背鸥	X		X	X	X	X		X	X	X	X				X	
<i>Sterna vittata</i> EN: Antarctic Tern FR: Sterne couronnée DE: Antarktiskeeschwalbe NO: Sørhavsterne CHI: 南极燕鸥			X	X	X		X	X	X	X	X					
<i>Sterna hirundinacea</i> EN: South American Tern FR: Sterne hirundinacée DE: Falklandseeschwalbe NO: Svaletterne CHI: 南美燕鸥	X														X	
<i>Chionis albus</i> EN: Snowy Sheathbill FR: Chionis blanc DE: Weißgesicht-Scheidenschnabel NO: Antarktisslirenebb CHI: 白鞘嘴鸥				X	X											
<i>Diomedea exulans</i> EN: Wandering Albatross FR: Albatros hurleur DE: Wanderalbatros NO: Vandrealbatross CHI: 漂泊信天翁	X	X											X		X	
<i>Thalassarche melanophris</i> EN: Black-browed Albatross FR: Albatros à sourcils noirs DE: Schwarzbrauenalbatros NO: Svartbrynalbatross CHI: 黑眉信天翁	X	X											X	X	X	







# Wildlife List - Marine Mammals





Seals Species	January										February					
	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06	
<i>Lobodon carcinophaga</i> EN: Crabeater Seal FR: Phoque crabier DE: Krabbenfresser NO: Krabbeetersel CH: 食蟹海豹					X	X	X	X	X	X	X	X				
<i>Hydrurga leptonyx</i> EN: Leopard Seal FR: Léopard de mer DE: Seeleopard NO: Leopardsel CH: 豹海豹					X	X										
<i>Mirounga leonina</i> EN: Southern Elephant Seal FR: Eléphant de mer austral DE: Südlicher See-Elefant NO: Sydlig sjøelefant CH: 南象海豹										X						
<i>Leptonychotes weddellii</i> EN: Weddell Seal FR: Phoque de Weddell DE: Weddelrobbe NO: Weddellsel CH: 韋德爾氏海豹				X	X	X	X			X		X				
<i>Otaria flavescens</i> EN: South American Sea Lion FR: Lion de mer d'Amérique du Sud DE: Mähnenrobbe NO: Søramerikansk sjøløve CH: 南海獅															X	
<i>Arctocephalus gazella</i> EN: Antarctic Fur Seal FR: Otarie à fourrure antarctique DE: Antartischer Seebär NO: Antarktispelsel CH: 南极毛皮海獅										X						



**IAX**

**Connect with your  
Inner Scientist**