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## Science & Education Report



# MS Roald Amundsen

18 Jan – 3 Feb 2026

## Antarctic Circle Expedition

When you arrived on the MS Roald Amundsen you boarded an education and research-focused expedition ship fully equipped as a floating laboratory and designed to be a center of learning and discovery. In your time on board, you contributed to scientific studies and expanded your knowledge of the world around you. Let's take a look back on our journey and what we accomplished throughout our voyage.







# Science & Education Programme

Our onboard Naturalists and Guest Scientists guided our guests using scientific tools to investigate the world around us. Through lectures, discovery sessions, expedition boat cruises, science boat outings, and visits ashore we aimed to make every expedition day a memorable and unique learning experience.



# Arts, Crafts & Creativity

We witnessed the amazing landscapes of Antarctica and were inspired to create art reflecting our surroundings, including watercolour postcards, travel journals, and sea glass jewelry.





# Culture:

## Deception Island

Whalers Bay is a site of stark, natural beauty characterized by its volcanic black sand beaches and a uniquely sheltered harbour. The site serves as a poignant intersection of various historical eras:

**Hektor Whaling Station:** (1912–1931) Originally a Norwegian operation, this land-based factory employed approximately 150 workers during peak summer seasons. The skeletal remains of oil containers and processing facilities offer a haunting glimpse into the whaling industry and the arduous lives of its crews.

**Operation Tabarin & Station B:** Established by the Britain in 1944 during World War II, Station B served a strategic dual purpose. While its primary mission was to deny Nazi Germany the use of regional resources, it also functioned to assert British sovereignty against competing Chilean and Argentine interests. The site's history in aerial operations is still visible today, with the remaining hangar serving as a silent witness to that era.

**Volcanic legacy:** Following a series of violent eruptions between 1967 and 1969. The base was permanently abandoned on February 23, 1969.





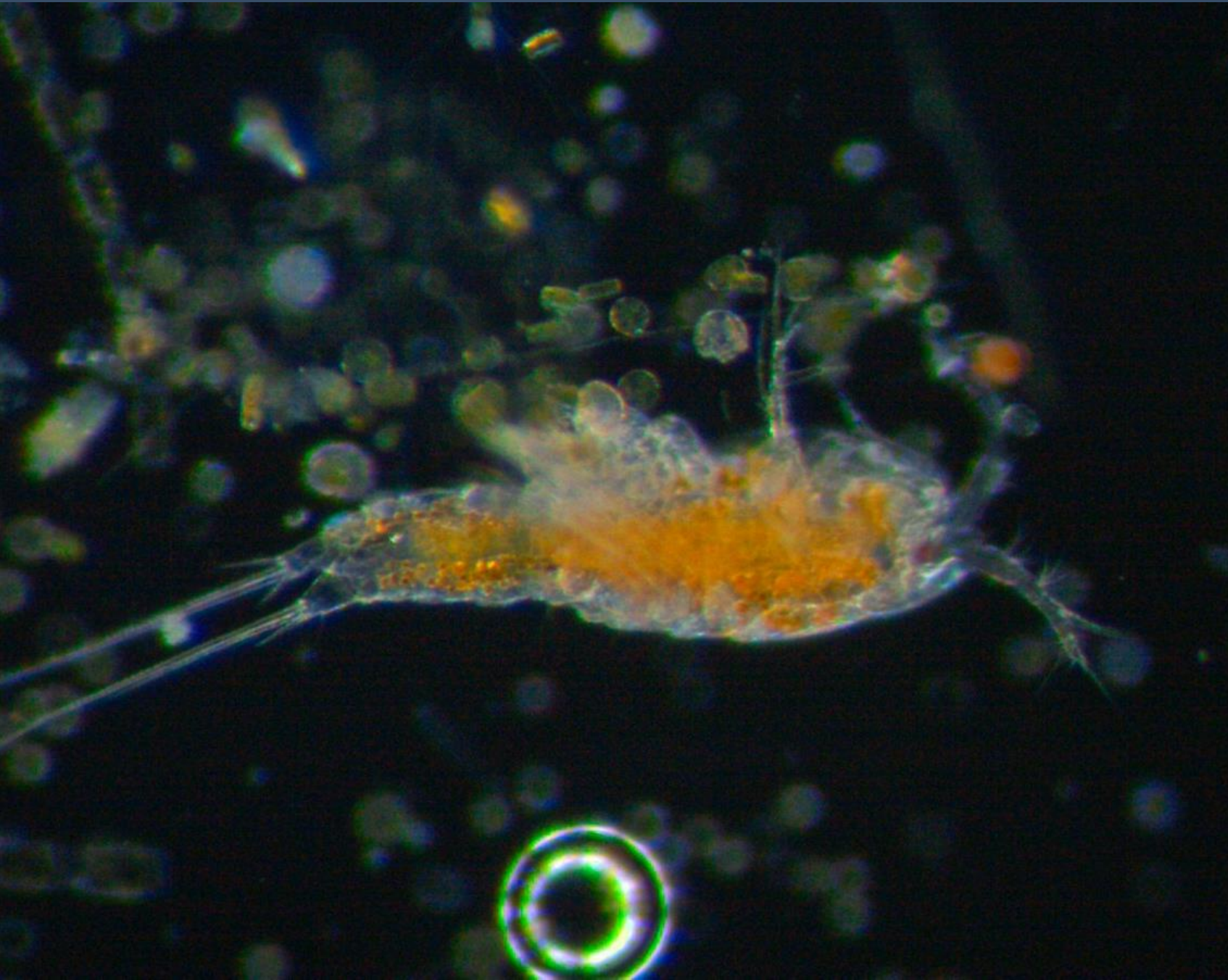
# History & Culture: Antarctic Bases

Today, these bases stand as living museums and vital scientific research stations, serving a dual purpose that bridges the past and present. As historical witnesses, they preserve the material culture of early Antarctic occupation, the original buildings, equipment, and artefacts that tell the story of human perseverance in Earth's harshest environment. The data collected at these stations contributes to our understanding of global environmental systems, from ozone depletion to ice sheet dynamics.

The image on the right shows the Stonington Island base where the first women overwintered in Antarctica in 1947: Jackie Ronne and Jenny Darlington.







# Science Boat

During our voyage we conducted plankton sampling techniques focusing on the abundance and type of plankton in the waters we sailed. The samples and data which you recorded provided invaluable data for the FjordPhyto and Secchi Disk projects, which monitor plankton abundance and species in the Antarctic Peninsula. During the science boat sessions we used a CTD to create a physical profile of the water column, took measurements of turbidity to estimate phytoplankton abundance, and then deployed a plankton net to collect samples.

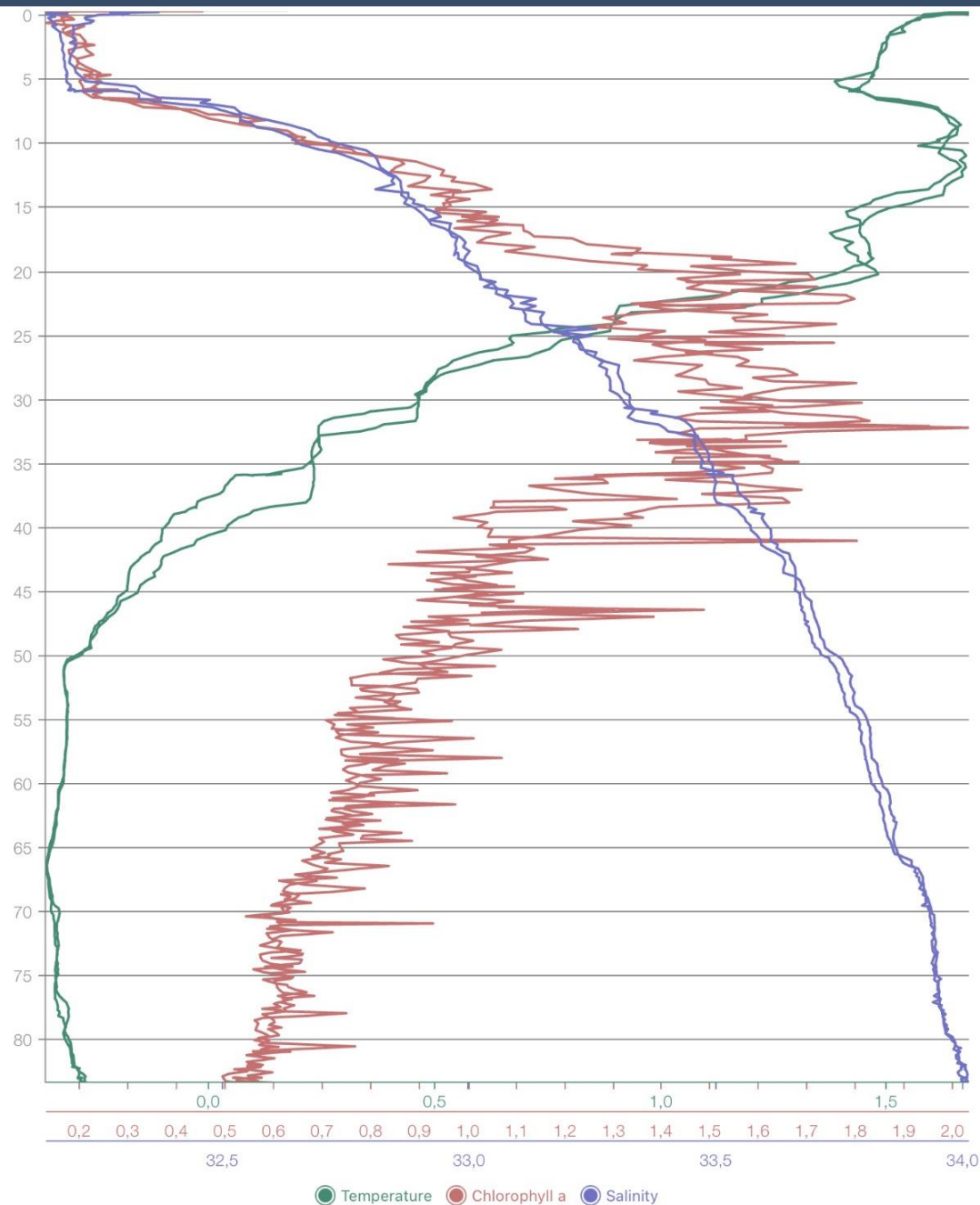


# Science Boat: Petermann Island CTD data

Our CTD casts gave us insight into how salinity, temperature, and chlorophyll changes with depth. Here we deployed the CTD to 85m.

As we would expect, salinity increases with depth (from 32 PSU at the surface to 34 PSU at 85m, while temperature decreases (from 1.6°C at the surface, to -0.7°C from 50m onwards, since cold, salty water is more dense. Chlorophyll – the photosynthetic pigments in phytoplankton – measurements gives us information on phytoplankton abundance. Usually, more chlorophyll is detected in the first 30m of depth, where sunlight is able to penetrate. At Petermann Island we detected a peak between 20–35m depth of approx. 2ug/l.

Overall, this CTD cast shows a typical Antarctic summer profile, with strong summer stratification of water layers driven by glacier meltwater, a productive surface ocean typical of the Antarctic Peninsula in January, and a classic subsurface (around 20m) chlorophyll maximum due to more nutrients than the surface (less depleted) and reduced UV stress here compared to the surface.

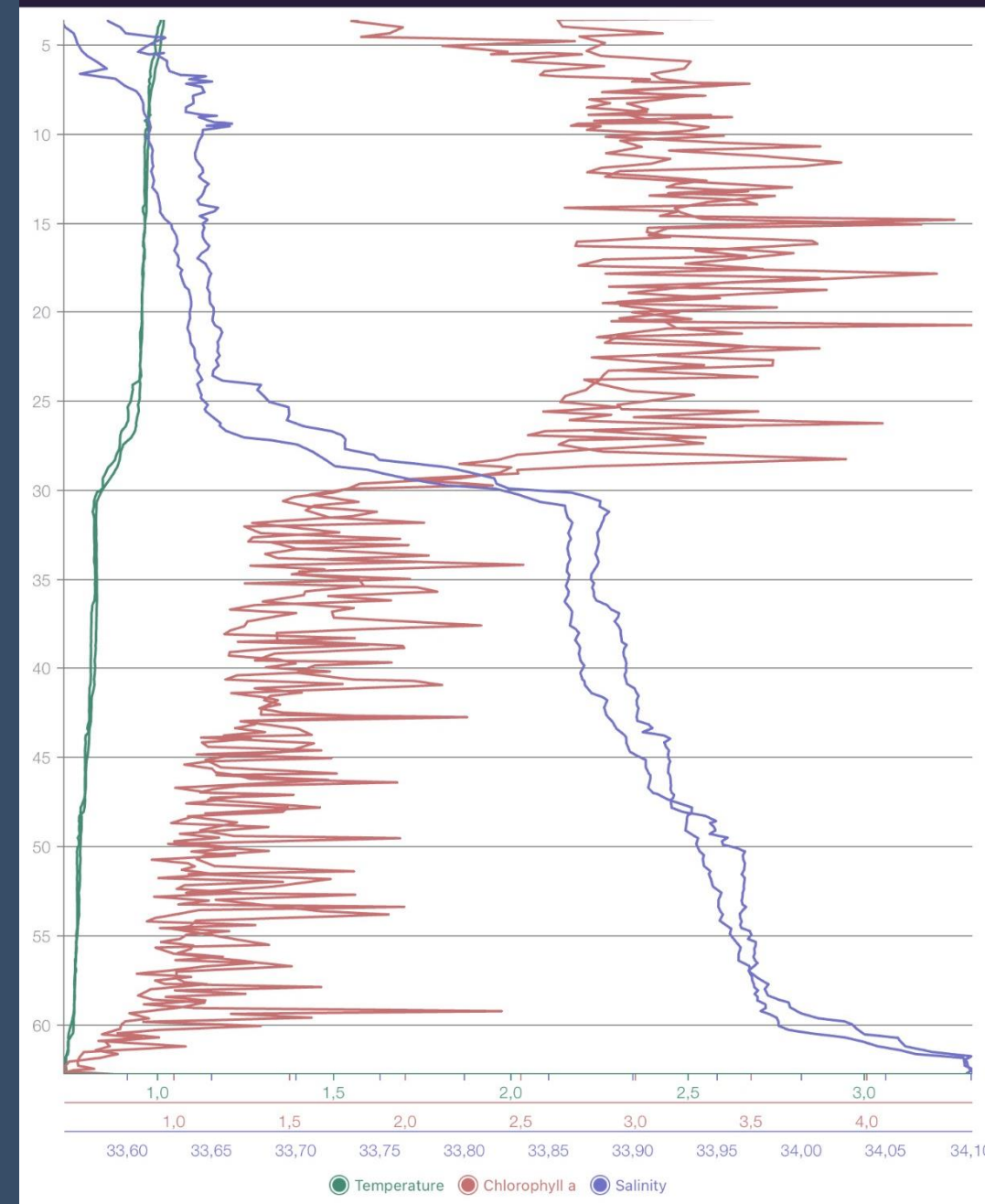




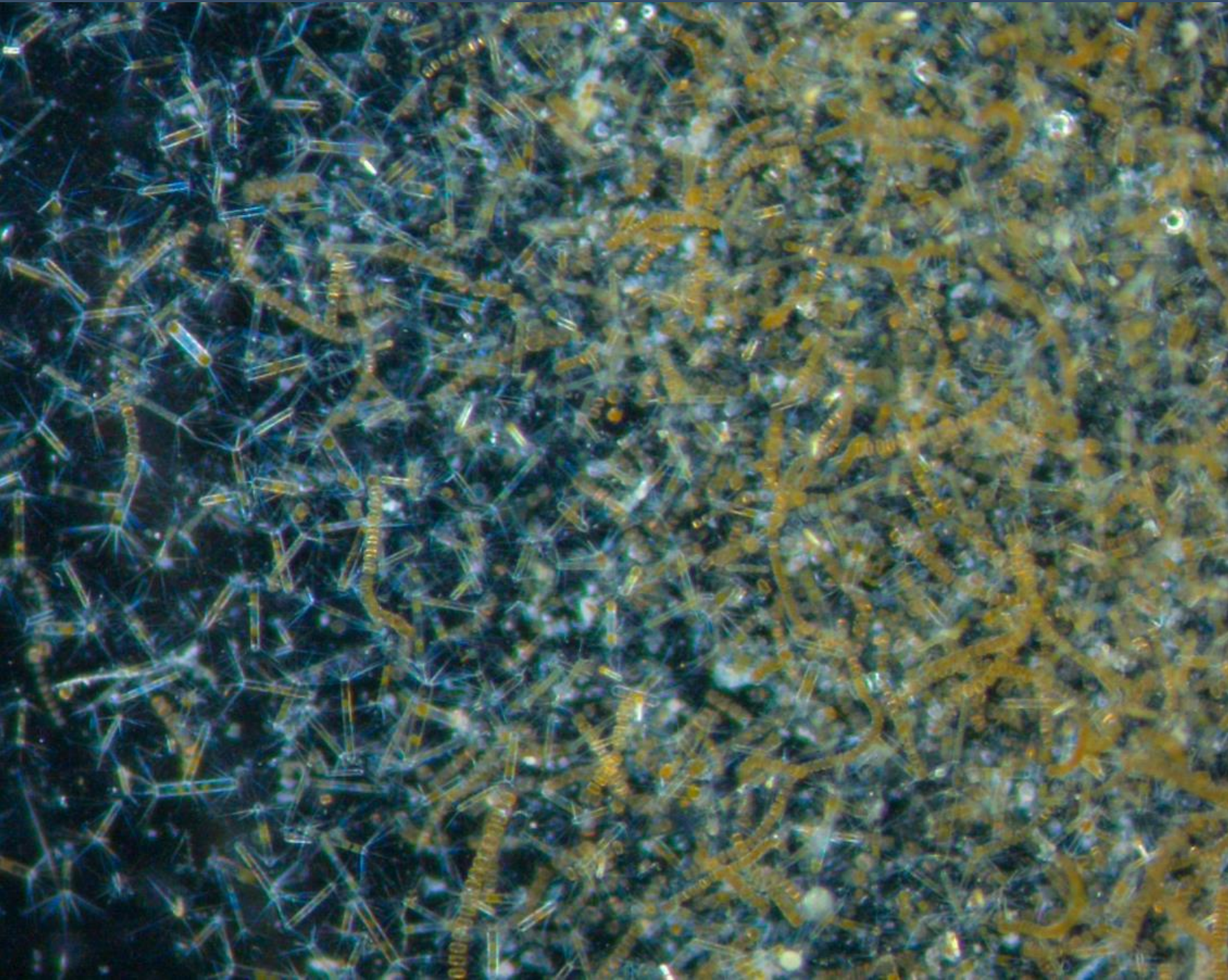
# Science Boat: Damoy Point CTD data

Here our CTD cast shows:

- **Temperature (green)** at the surface (0–25m) is  $\sim 1^{\circ}\text{C}$ . It stays fairly uniform throughout the 65m profile.
- **Salinity (blue)** is relatively stable at  $\sim 33.6$  PSU from 0–30m, then increases at 30m and remains at  $\sim 34$  PSU until 65m. This pattern suggests fresher water at the surface (likely from ice melt or runoff) and saltier, denser water at depth.
- **Chlorophyll (red)** is at its highest concentration between 0–25m, where there's a broad peak. Below 30m, values drop off. In contrast to Petermann Island, this surface chlorophyll maximum often happens close to glaciers, where meltwater stabilises the surface, and nutrients are resupplied continuously by melting ice.







# Plankton Samples

Plankton are ocean drifters transported by currents and tides because they lack the 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 plankton sample from Damoy, showing a large amount of phytoplankton!



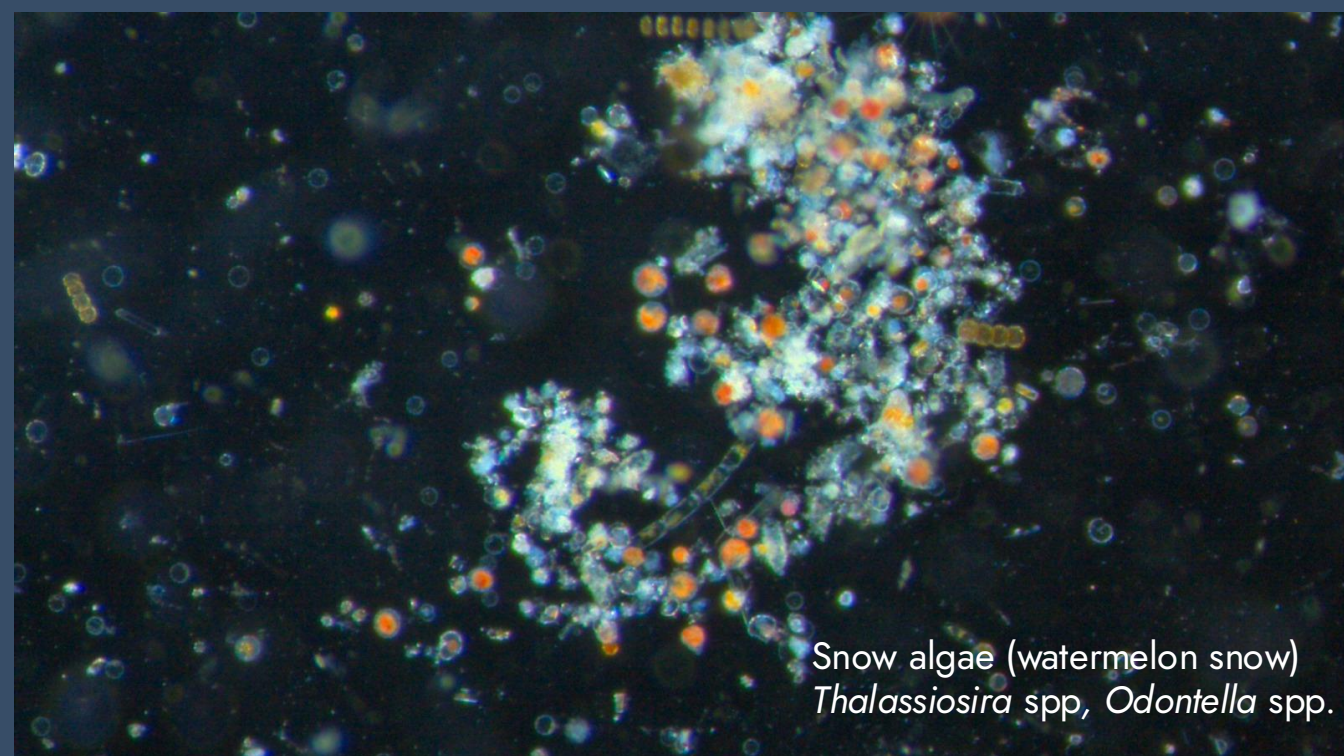


# Phytoplankton

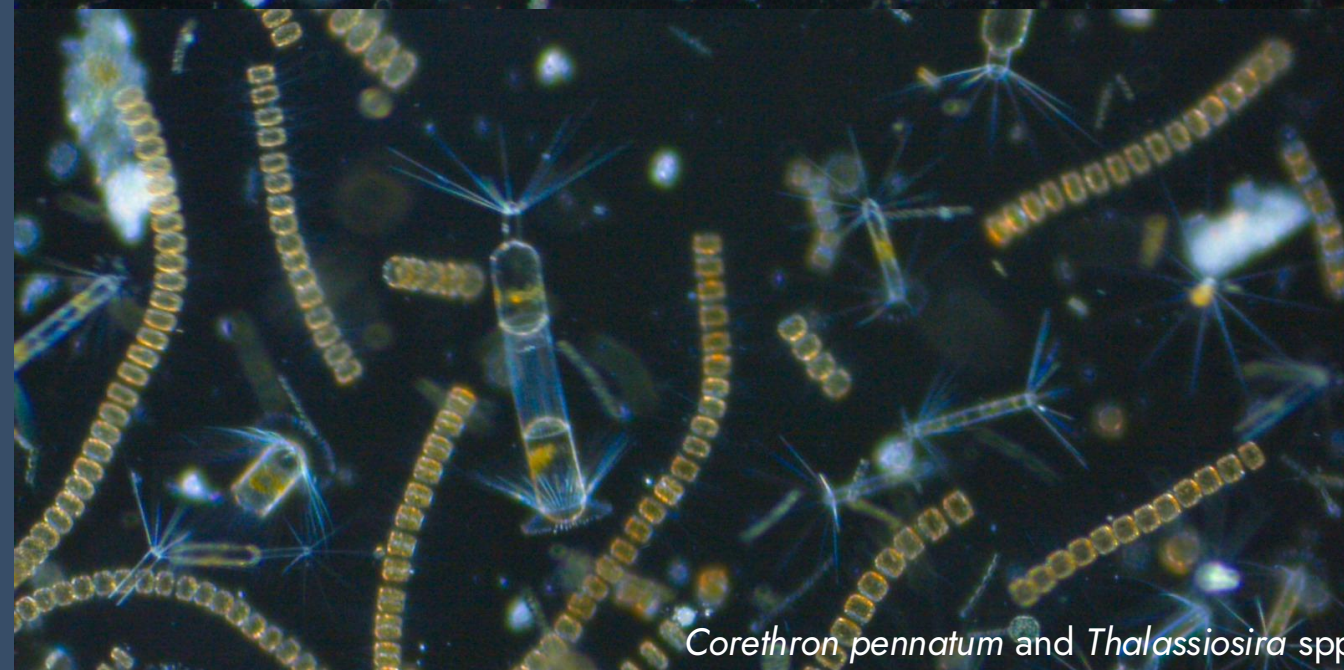
Phytoplankton underpin the Antarctic marine food web as they, like plants on land, contain photosynthetic pigments (chlorophyll and fucoxanthin) that convert sunlight into energy and oxygen, and also sequesters carbon dioxide.

We collected phytoplankton samples at Petermann Island, Horseshoe Island, Stonington Island, Damoy Point, Danco Island, and Deception Island. The prominent species we found was *Corethron pennatum*, a favourite food of krill and arguably the most important (and beautiful) Antarctic species!

We collected data on the abundance and type of phytoplankton present for our partner project, FjordPhyto.

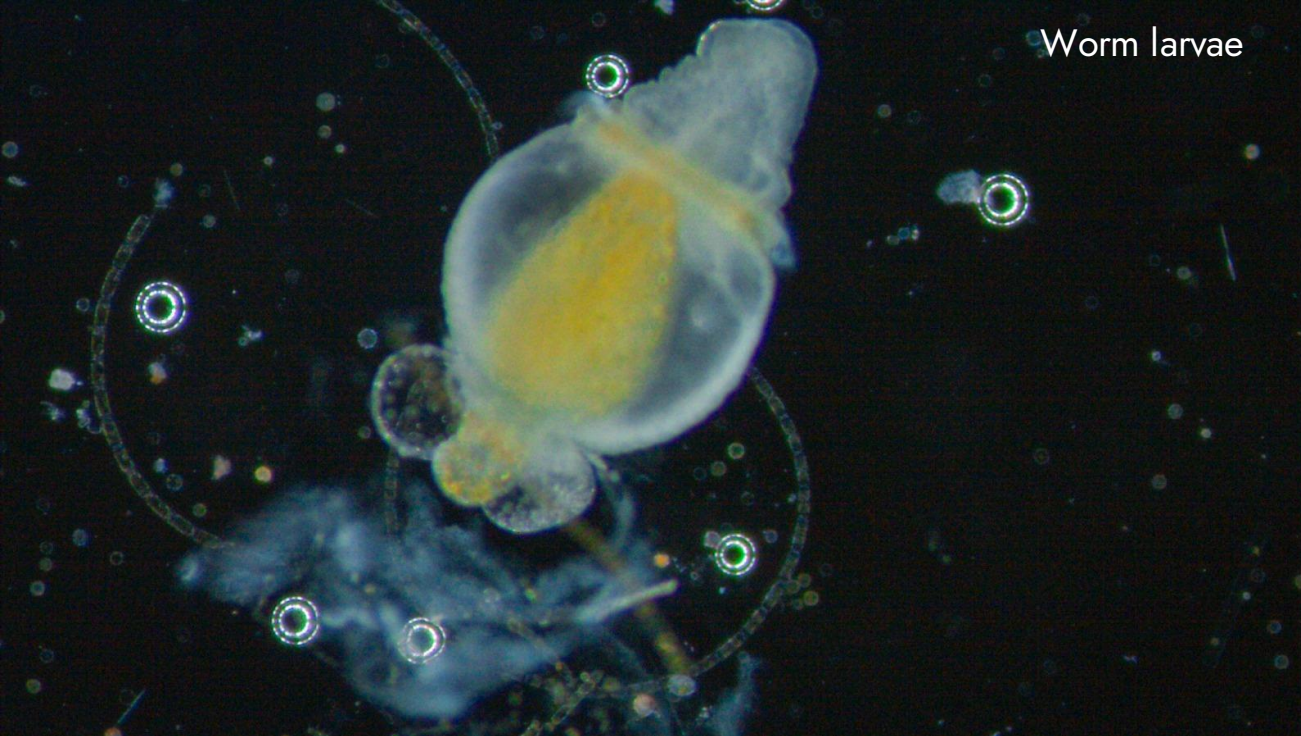


Snow algae (watermelon snow)  
*Thalassiosira* spp, *Odontella* spp.



*Corethron pennatum* and *Thalassiosira* spp



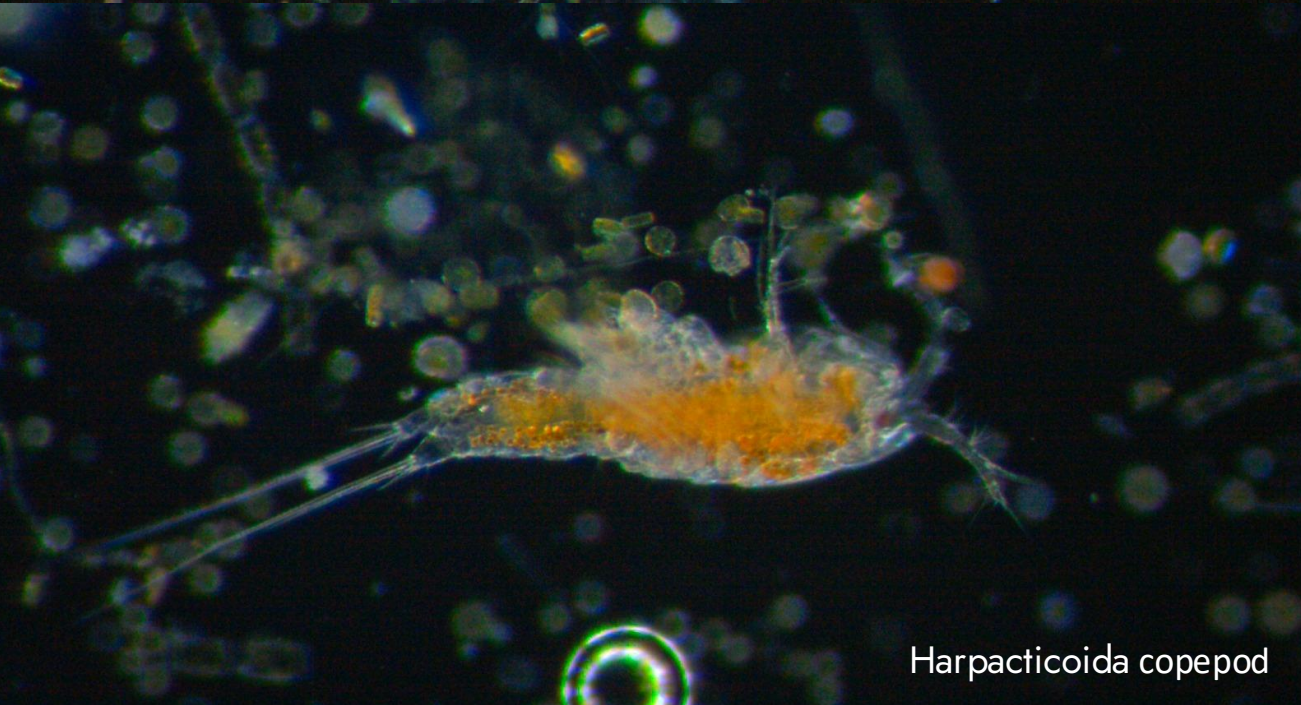


Worm larvae

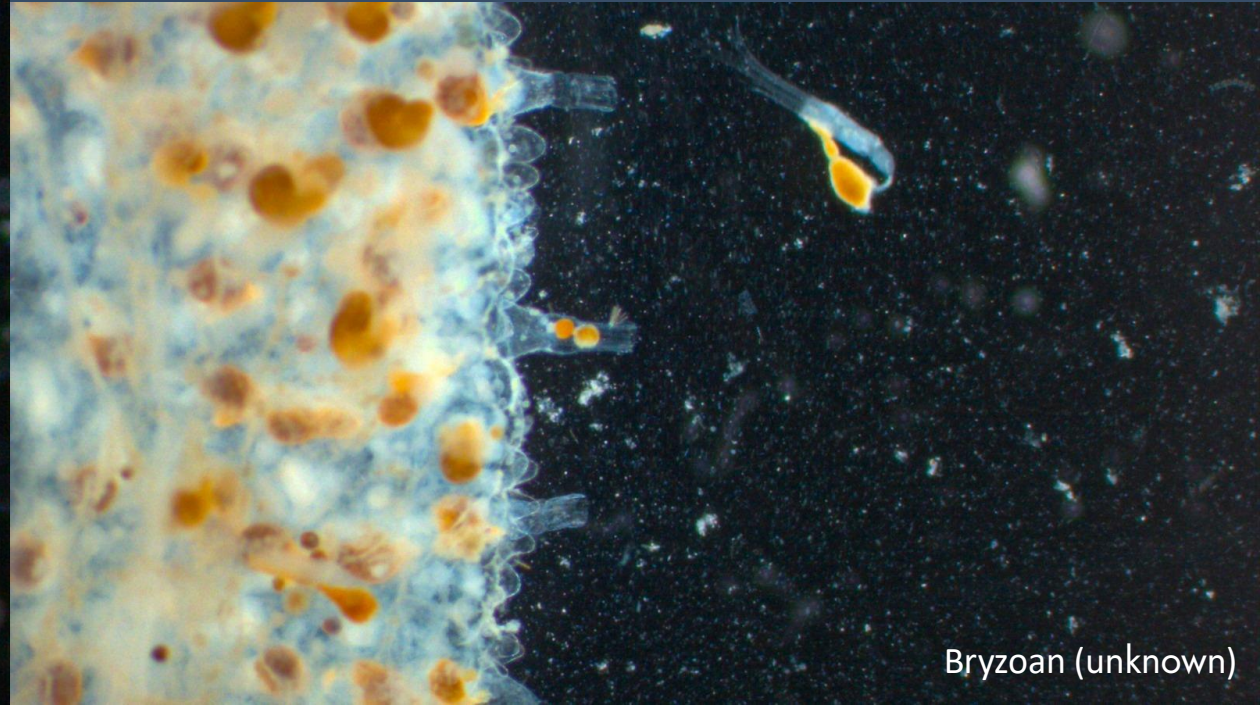
# Zooplankton

We also found a selection of zooplankton species including worm larvae at horseshoe island, salps at Danco, copepods in Petermann and Stonington, and even rare bryzoans in George VI Sound, whose identities are still being debated by experts!

The photos taken on our microscopes have also been added to our iNaturalist project to help monitor plankton biodiversity.



Harpacticoida copepod



Bryzoan (unknown)





# NASA GLOBE Cloud Observer

Clouds aren't just shapes in the sky; they are important components of Earth's heat budget and balance. Information about when, where, and what types of clouds are forming helps scientists understand more about Earth's climate and climate change. Through NASA's GLOBE Cloud Observer program, we help contribute such data.

Our Citizen Scientists **submitted 5 observations** to the global database run by NASA. Our observations might be matched to data from weather satellites orbiting above and will be used to better understand global weather phenomena.







# Geological Highlight: Horseshoe Island

We visited the site of the former British Base Y, which sits atop a diversity of rocks transported by waves and glacial ice from neighbouring areas of the fjord system. Sea levels in the area were once up to 55m higher than they are today due to the melting of the ice sheet in the last 10,000 years. This allowed storms to transport rocks of different origins up above the present day beach line. Before that, glaciers flowed through the fjord, depositing rocks on to the island from higher reaches of the mountain range along the Antarctic Peninsula.





# Malachite

The bedrock of Horseshoe Island is dominated by gabbro, which is an intrusive igneous rock that has cooled slowly from magma (which is fluid) deep within the Earth. After the gabbro was formed, cracks (called fractures) developed. These cracks were then filled in by hot, mineral-rich fluid from deeper within the Earth. This fluid brought with it copper which reacted with oxygen and carbon dioxide to form the green mineral called **malachite**. Cracks (fractures) that are filled in by minerals are called veins. Therefore, we call these green mineralisations 'veins of malachite'.



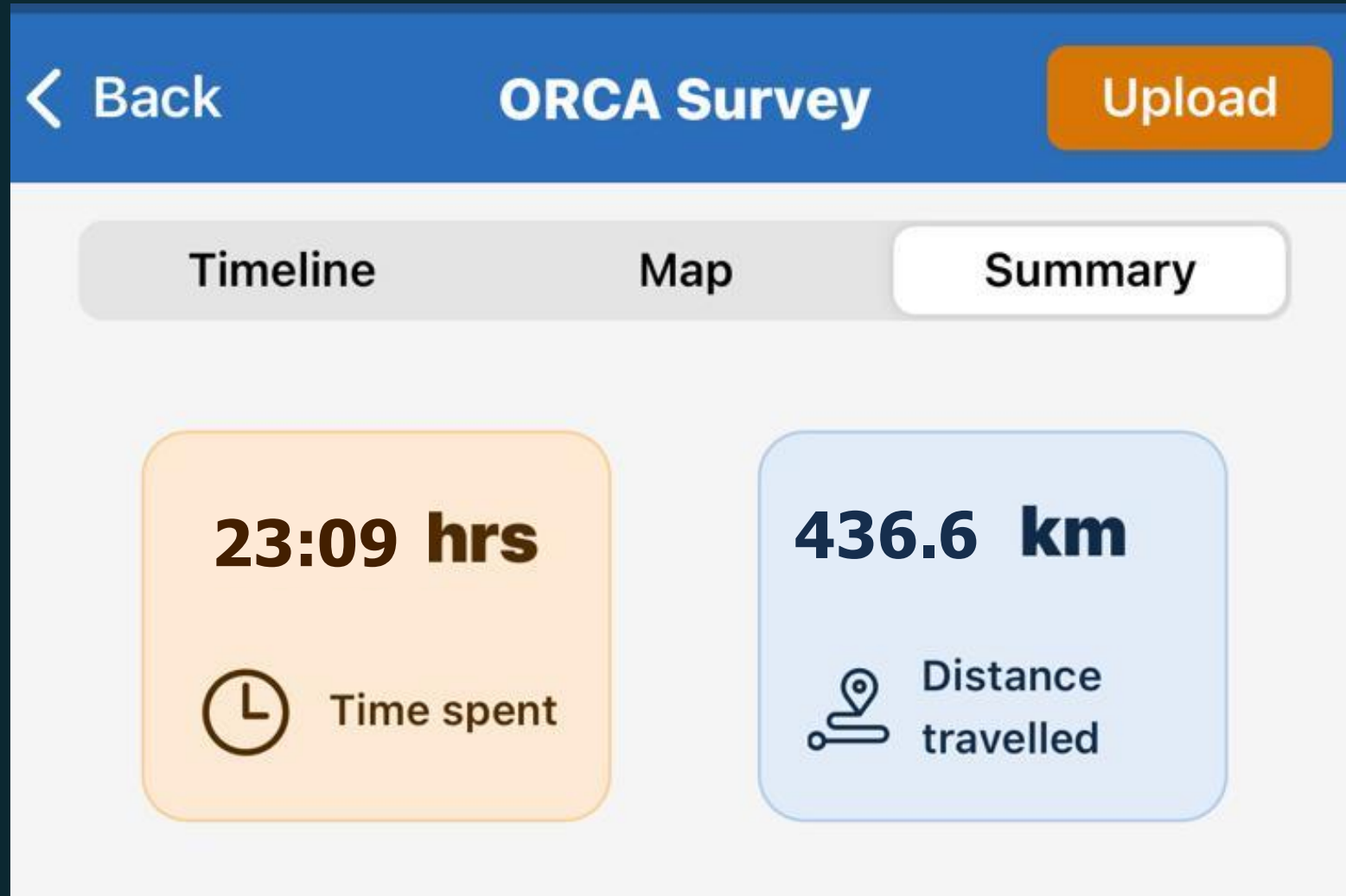
# Citizen Science **ORCA**



© Martin Barreiro



# How much have we surveyed?





Back

ORCA Survey

09:47

30 Minutes

09:46

Sighting

09:34

Sighting

09:21

Sighting

09:18

Sighting

09:11

Sighting

09:11

30 Minutes

08:48

Sighting

08:41

30 Minutes

08:11

30 Minutes

07:40

Start

Back

ORCA Survey

Timeline

Map

Summary

Back

ORCA Survey

Timeline

Map

Summary


3:18 hrs

Time spent

68.5 km


Distance travelled

Species seen



26

Orca



2

Humpback whale



# What Species Did We See?

Species Name	Number of Individuals Seen
Humpback whale	22
Orca	43
Unidentified whale	2



# eBird







# AMANT2517 - Antarctic Circle

18 Jan – 3 Feb 2026 (17 days) Link-only

Antarctica | Argentina | Chile | High Seas Subregions

M/S Roald Amundsen Science Center, Christopher Jones, Ingvild Riska, Marcus Bergström, Michelle Risi

Share Edit



**Narrative**  
Owners and editors of a Trip Report may write a narrative.  
Add narrative

DATA FOR: **Group (all people)**

**34**  
Species Observed  
+6 other taxa

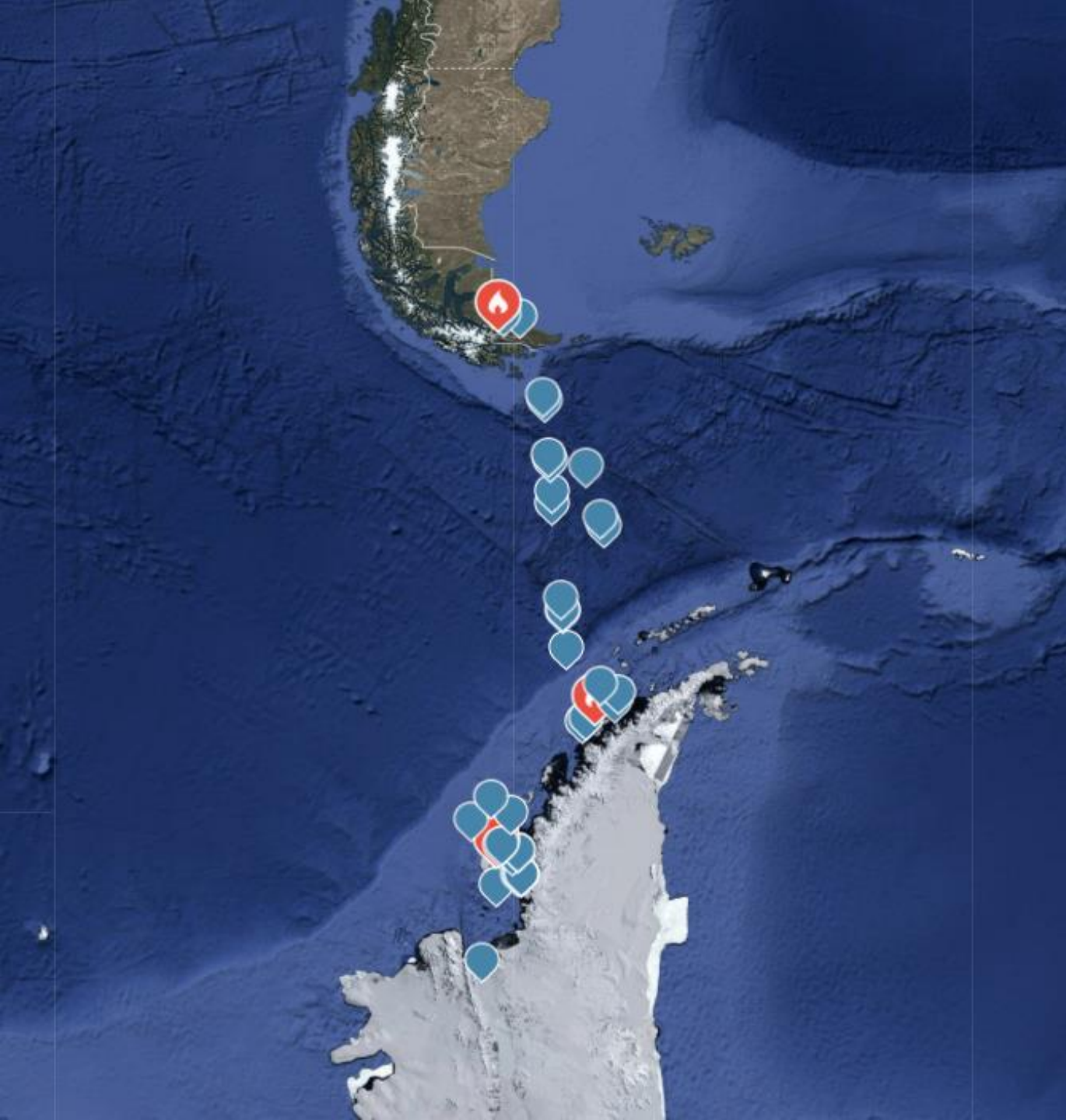
**38**  
Checklists

**2**  
Species with Photos

## Species Observed

Show all details





- All together, we saw **34** bird species on the voyage.
- **Four** of these bird species are found only in Antarctica.
- We logged **38** eBird sessions.
- These records are now available for scientists around the world studying bird distribution, migration, and habitat use.



# Citizen Science iNaturalist

During our voyage we had the chance to explore many different ecosystems: from the lush Beagle Channel, to the windy Drake Passage and the icy paradise of Antarctica, we observed a huge variety of phytoplankton, marine invertebrates, birds, and mammals.

In total we recorded:

- **74** Species
- **1045** Observations

... and counting; as you upload more photos from home our dataset grows!

Through iNaturalist, these observations can now be used as data in global scientific research.

Thank you for joining the project and contributing to this amazing Citizen Science platform.

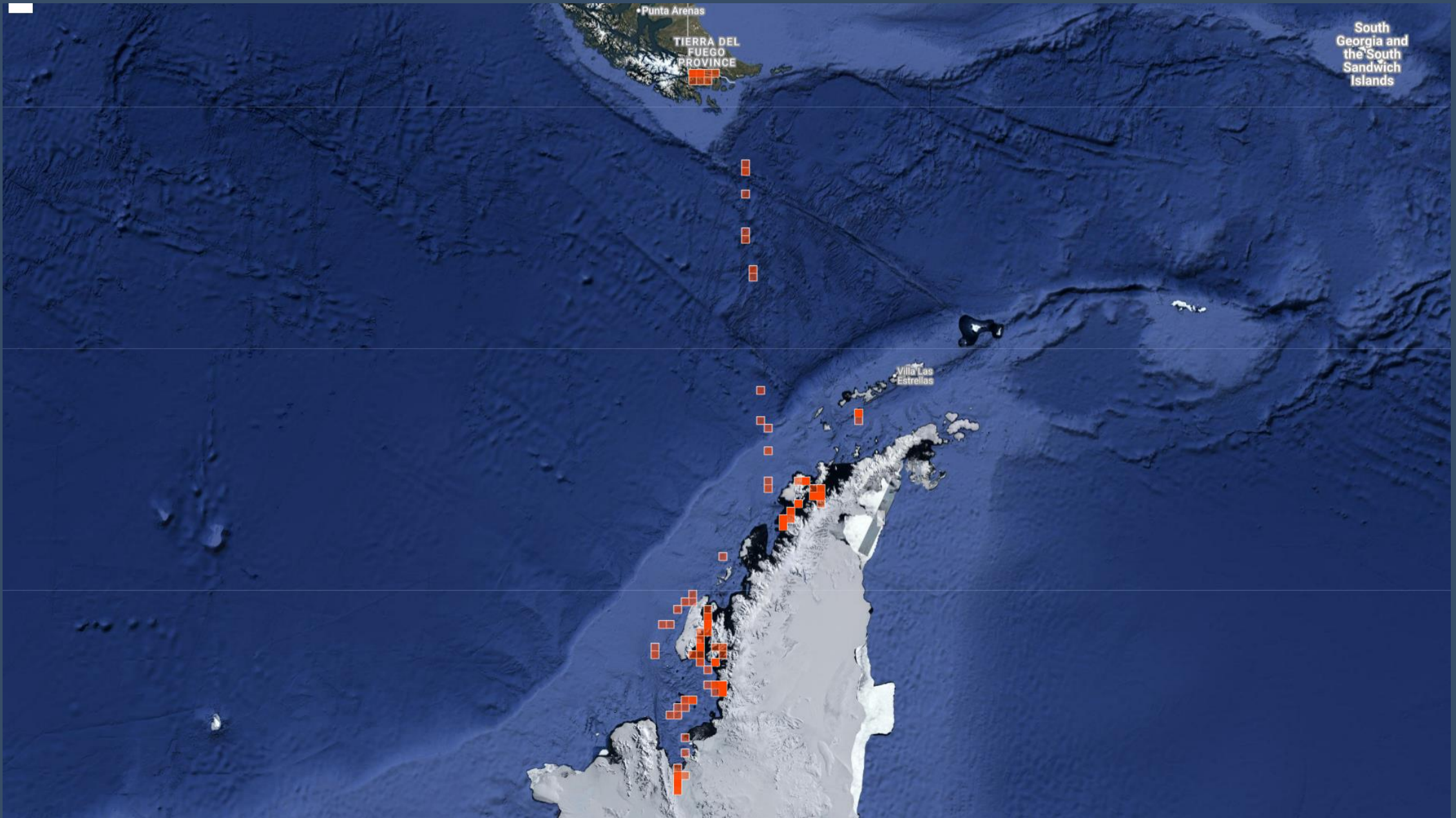
View our data submitted on our iNaturalist project here:

[2026 Jan 18 - Feb 03: MS Roald Amundsen: Antarctic Circle Expedition](#)





# Where Have We Observed?





# What Have We Observed?



83 observations

Adelie Penguin ·  
Adeliepingvin ·  
Adeliepinguin  
*Pygoscelis adeliae*



70 observations

Crabeater Seal ·  
Krabbeetersel ·  
Krabbenfresser  
*Lobodon carcinophaga*



69 observations

Gentoo Penguin ·  
Bøylepingvin · Eselspinguin  
*Pygoscelis papua*



59 observations

Humpback Whale ·  
Knølhval · Buckelwal  
*Megaptera novaeangliae*



46 observations

South Polar Skua · Sørjo ·  
Antarktiskua  
*Stercorarius maccormicki*



42 observations

Imperial Shag · Knoppskarv ·  
Blauaugenscharbe  
*Leucocarbo atriceps*



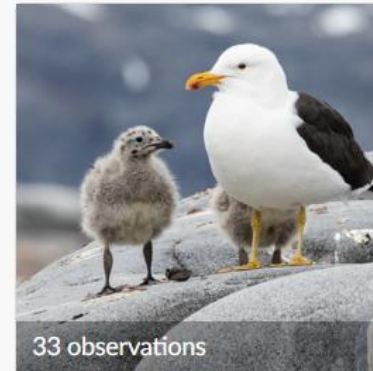
41 observations

Chinstrap Penguin ·  
Ringpingvin · Zügelpinguin  
*Pygoscelis antarcticus*



33 observations

Southern Giant Petrel ·  
Sørkjempepetrell ·  
Riesensturmvoegel  
*Macronectes giganteus*



33 observations

Kelp Gull · Taremåke ·  
Dominikanermöwe  
*Larus dominicanus*

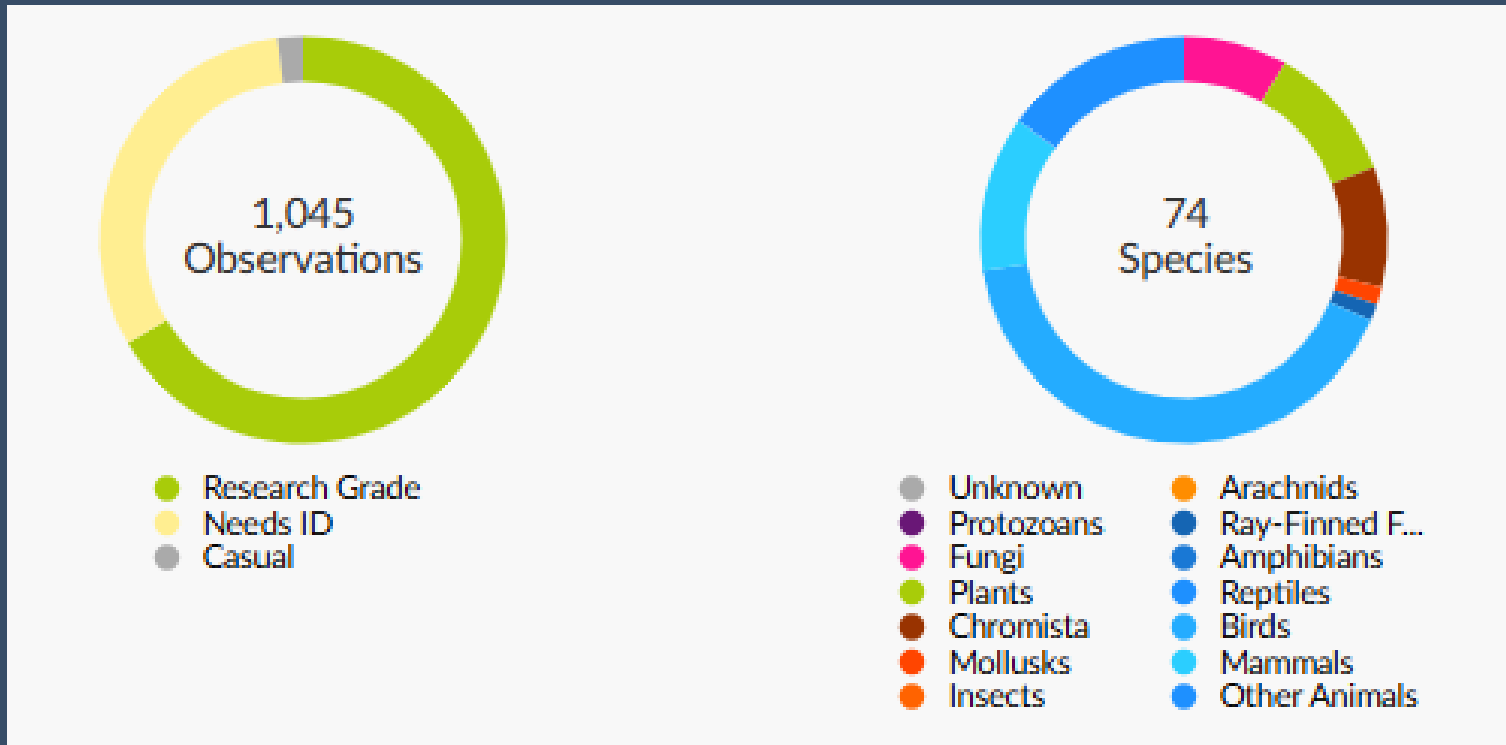


26 observations

Antarctic Tern ·  
Sørhavsterne ·  
Antipodenseeschwalbe  
*Sterna vittata*



# What Have We Observed?



## Species

- 30 birds
- 5 seals
- 3 whales
- 1 mollusc

- 67% are already research grade



# Who Has Observed?



## Most Observations

clairedut

176



dougiewainwright

98



ingvildriska

94



marionfr

75



vivistu

69

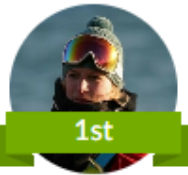


dmontijo

66

[View All](#)

[View Yours](#)



## Most Species

clairedut

31



ingvildriska

29



dmontijo

24



vivistu

23



hgriesbach

22



dougiewainwright

22

[View All](#)

[View Yours](#)

- 60 members
- 32 observers

# Citizen Science

## Happywhale

Cetaceans — whales, dolphins, and porpoises — capture our imaginations and our hearts whenever we witness them. And, doing something as simple as taking a photo of them can help scientists learn more about these animals. That's where Happywhale comes in: by using AI to match images of whales submitted by users, they can track individuals as they migrate across the world and through their lives. When you submit a photo of a whale, you will be notified of any past and future matches of that individual!

We uploaded 28 observations in total. Of these, 20 were humpback whales encountered in the Antarctic Peninsula, and five came back as matches. The remaining eight were B1 orca observations from the Gullet, and two of them came back as matches.

[View](#) the MS Roald Amundsen's submissions to Happywhale during our voyage





- **20** observation of a humpback whales:  
**5** matches!
- **8** individuals of B1 orcas:  
**2** matches!





## Fracti (Antarctica)

ID : AHCW-3326

SEX : Unknown

**Humpback Whale**

Also Known As

BTBEL-Mn\_1c\_039

### Sightings 3

First  2007-12-26  
Antarctica

Last  2026-01-21  
Antarctica

**Followers**

1

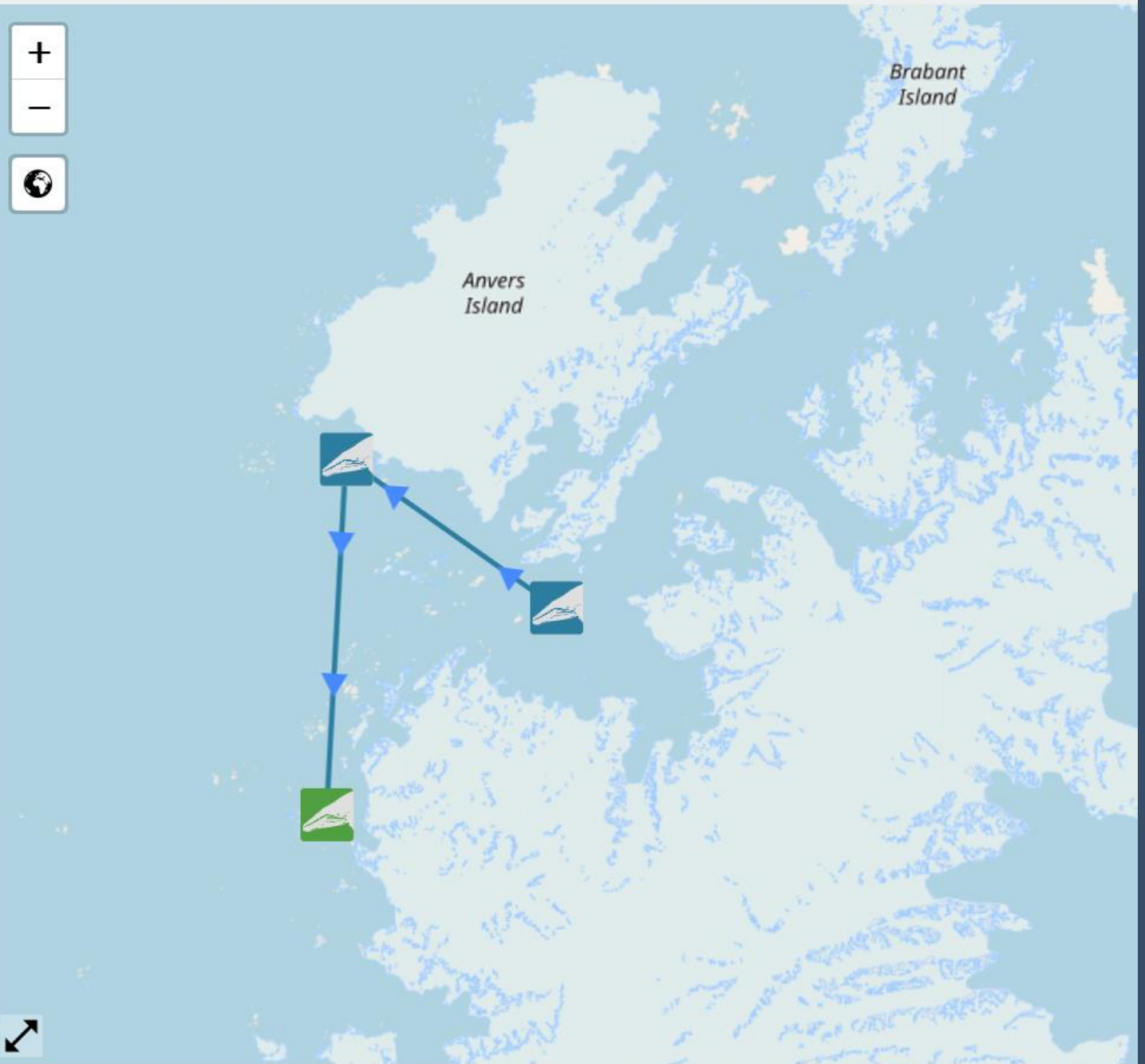
Follow



Seen this individual?

Share Your Experience

☐ Show My Encounters Only







## [Unnamed]

ID : HW-MN1302383


SEX : Unknown

### Humpback Whale

Also Known As

BGT-0815

### Sightings 5

First  2019-07-20  
Chocó, Colombia

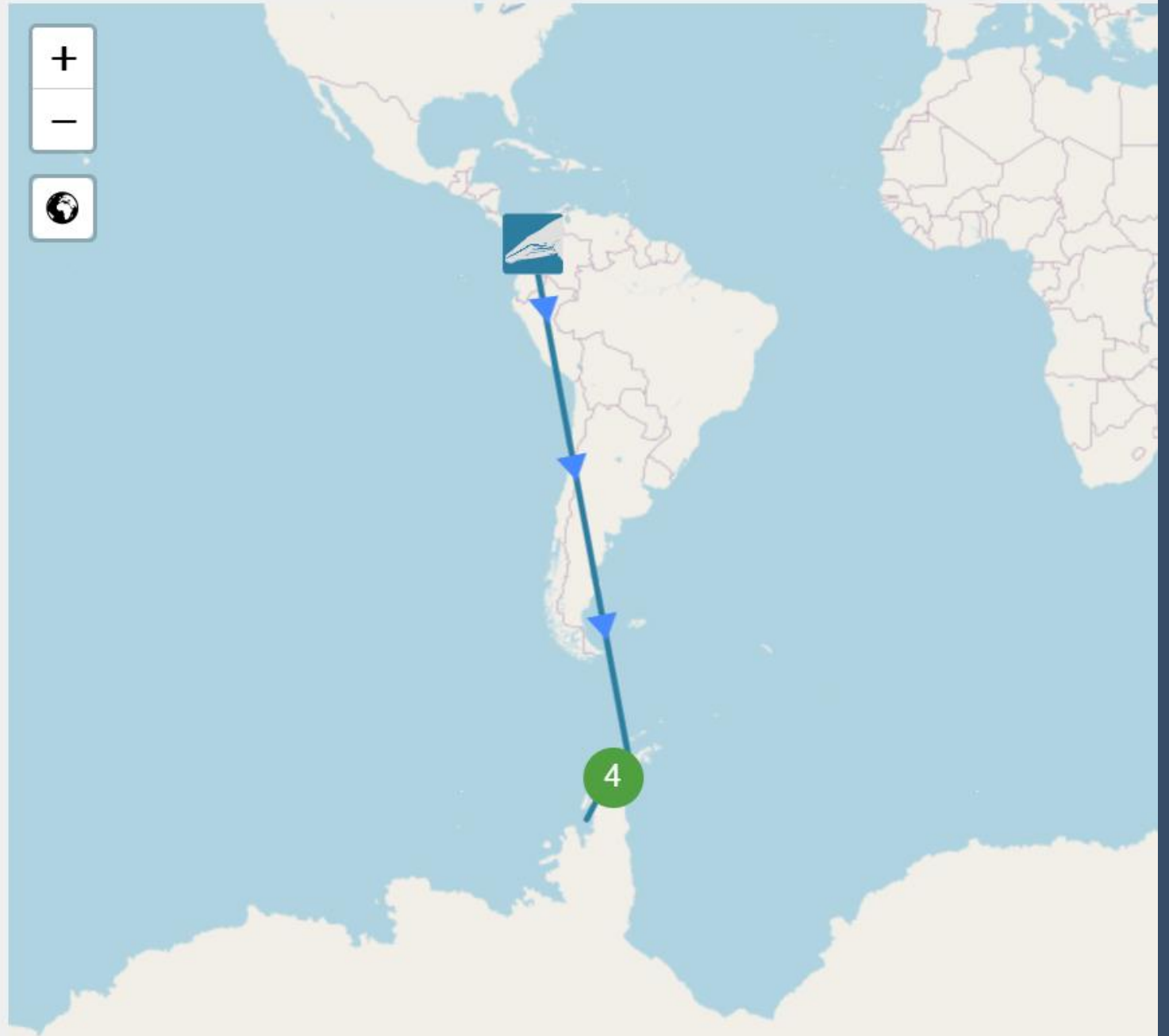
Last  2026-01-25  
Antarctica

Followers  
0

Follow



Seen this individual?





## Ferdinand (Antarctica)

ID : HW-OO13B1-0024

SEX : Male

**Killer Whale - Antarctic Type B1**

### Sightings 1

First  2026-01-22  
Antarctica

Last  2026-01-22  
Antarctica

**Followers**  
2

Follow



Seen this individual?

Share Your Experience



Show My Encounters Only



Liard Island

Adelaide  
Island



Pourquoi  
Pas Island



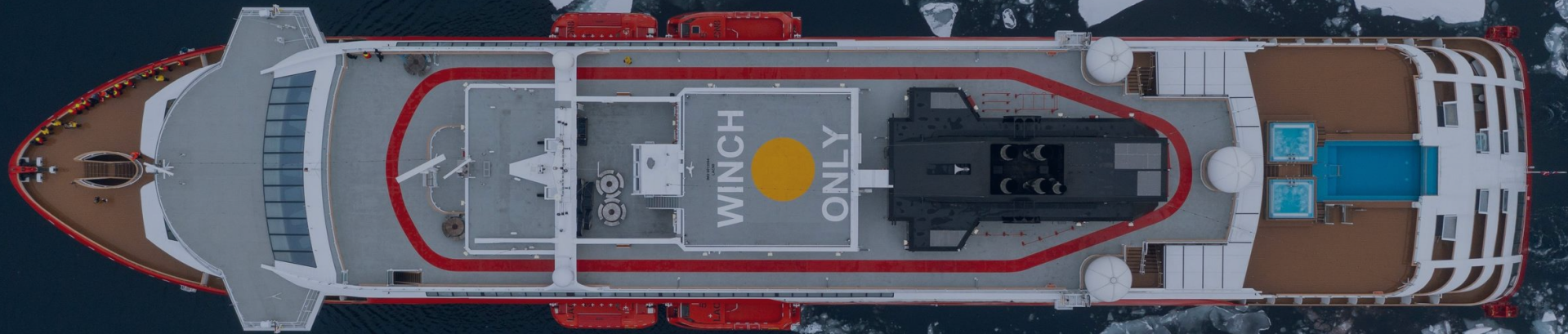
# Guest Scientists and Lecturers:

Dr Rodolfo Werner

Dr Andy Lowther

California Ocean Alliance:

Natalia & Fransisco

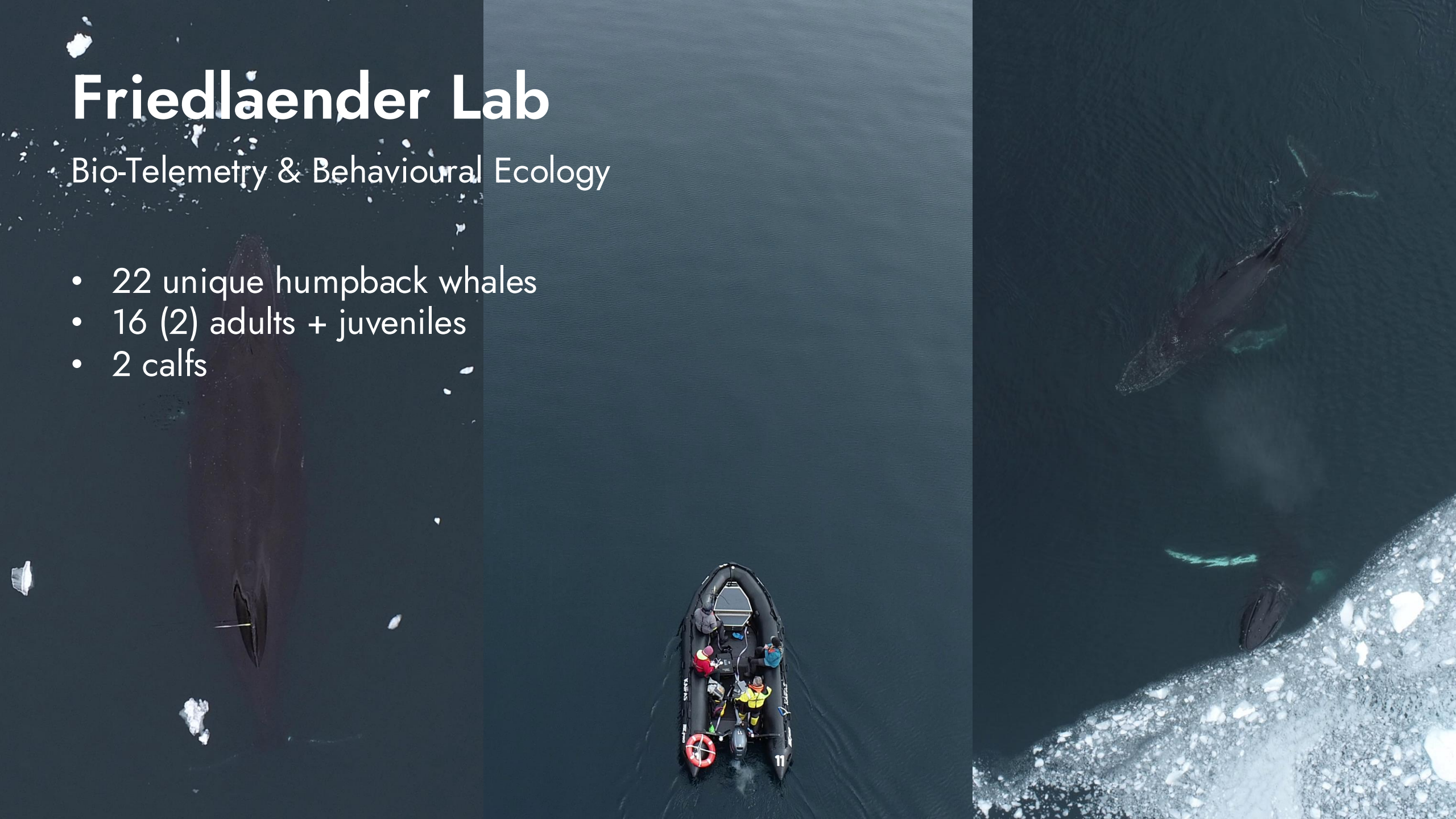




# Friedlaender Lab

Bio-Telemetry & Behavioural Ecology

- 22 unique humpback whales
- 16 (2) adults + juveniles
- 2 calfs





# 11 Fluke Photographs

Permit ACA 2025-020



**Surveys and Photo IDs**

# Remote Biopsy

14

skin + blubber samples

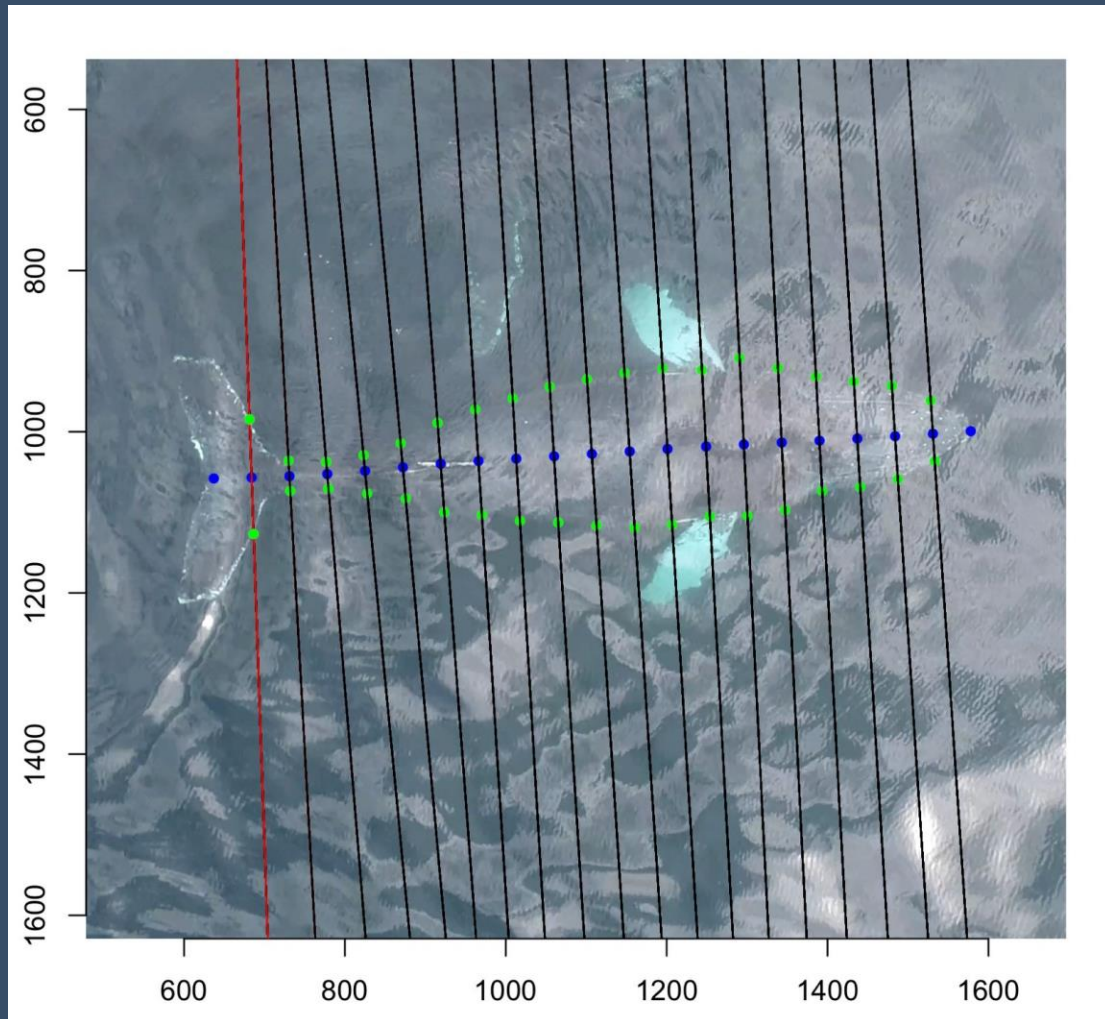


Permit ACA 2025-020

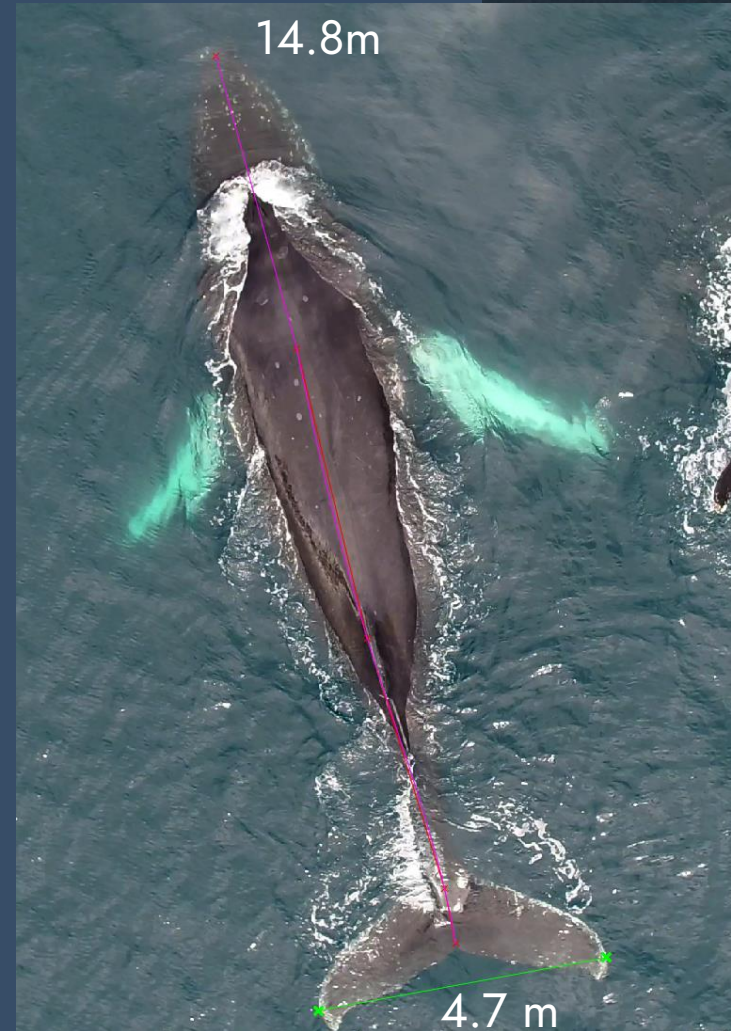


# 19 UAS Operations

photogrammetry samples



Permit ACA 2025-020



# FRIEDLAENDER LAB

Bio-telemetry and Behavioral Ecology





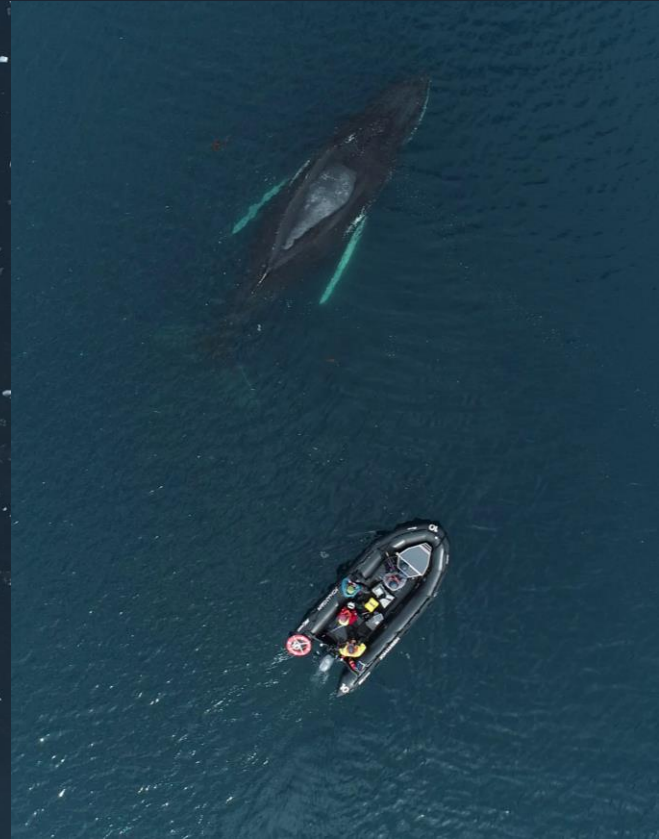
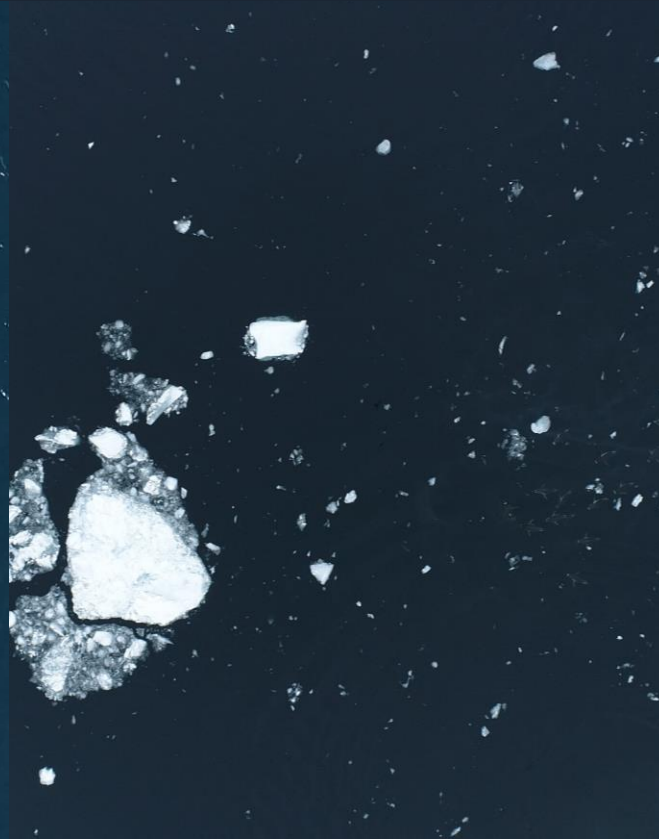
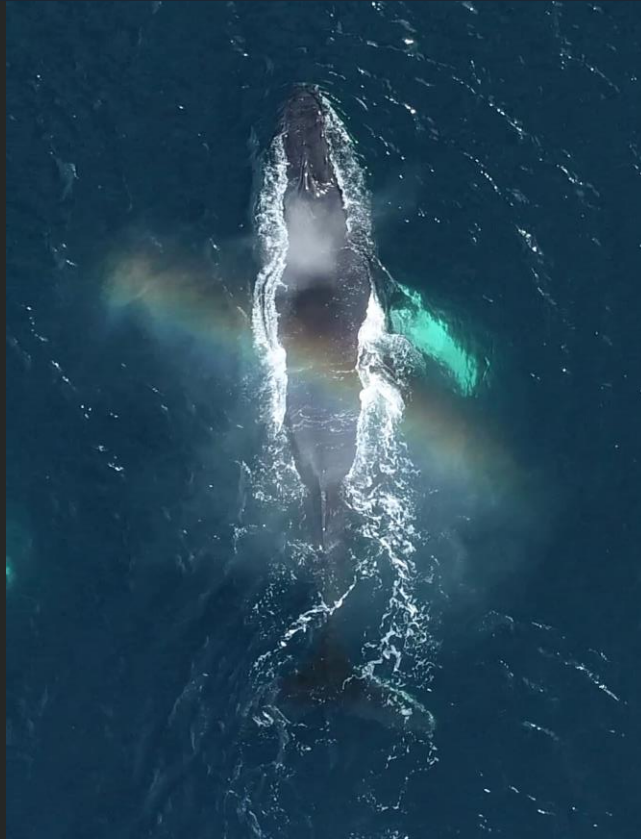
# FRIEDLAENDER LAB

Bio-telemetry and Behavioral Ecology

Follow along with our operations...



@FRIEDLAENDER\_LAB







IX

Connect with Your Inner Scientist