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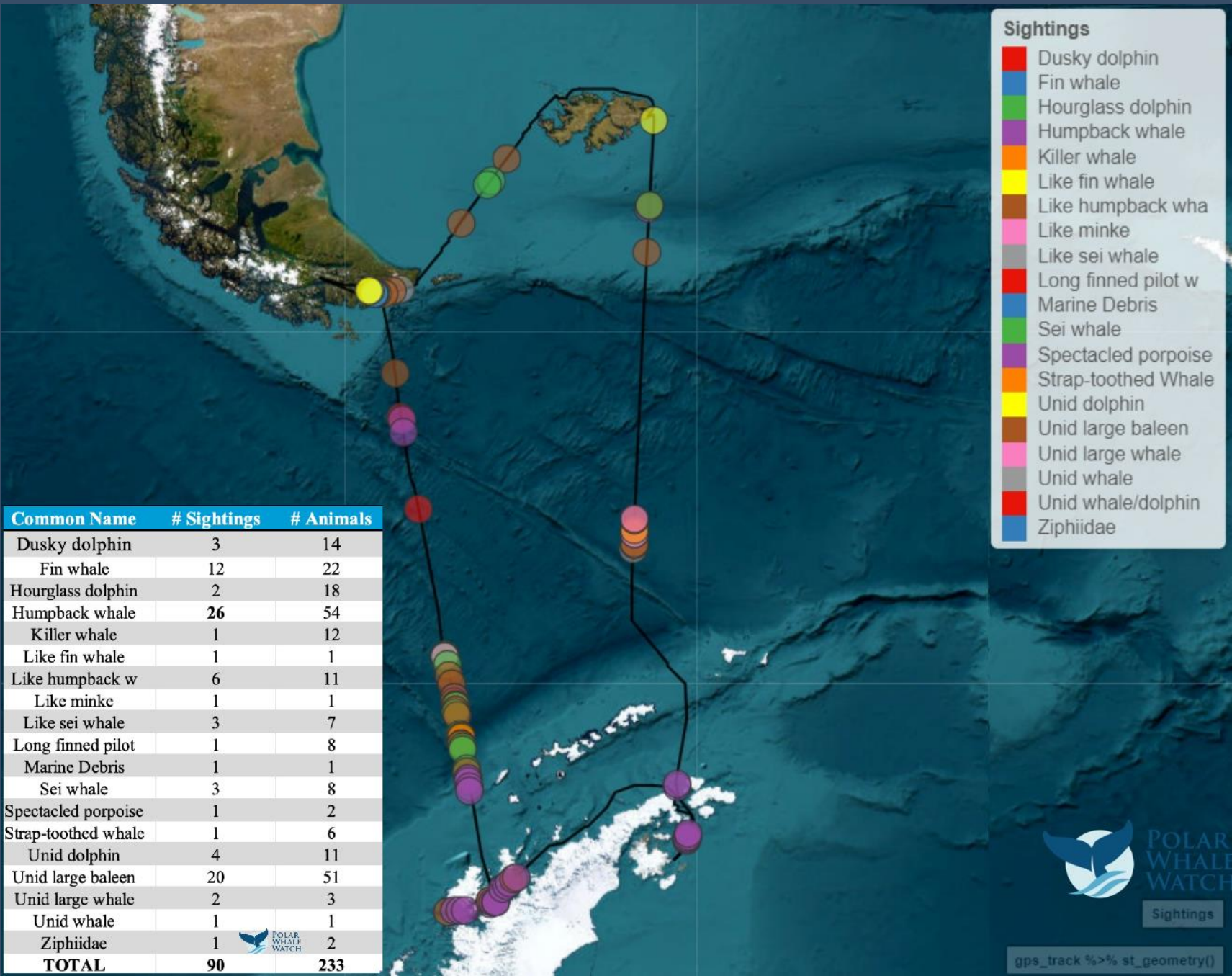
Science & Education Report

MS Roald Amundsen

29 December
2024 – 12
January 2025

Antarctica and Falklands Expedition





Guest Scientists

We were fortunate to be joined by our Guest Scientists Nohelia and Greg with **Polar Whale Watch** on our voyage. They collected data about the abundance of whales during our time in the Southern Ocean, which are then used to estimate the amount of Antarctic krill in the region. Based out of the University of Tasmania, Polar Whale Watch seeks to ensure the continued recovery of Antarctic baleen whales by developing and delivering abundance estimates of krill to fishery managers.

We were also pleased to host Dr. Rodolfo Werner as a guest lecturer speaking on his work with Antarctic marine policy, as well as student researchers from St. Andrews University conducting seabird and marine mammal surveys.

[Visit our Science & Education Hub online](#) to find out more about our scientific collaborations..

ORCA

Our partners at the whale and dolphin conservation charity ORCA are committed to conducting research that helps to identify important whale and dolphin habitats by using “platforms of opportunity” including expedition ships like the Roald Amundsen! Our onboard ORCA Conservationist, with the help of our guests, recorded vital sightings data across the course of our cruise that will help inform conservation decisions and policy in the future.

View more information about our partnership with ORCA here
[ORCA | HX Hurtigruten Expeditions](#)





Science & Education Program

Our onboard naturalists guided our guests through our expedition. We used scientific tools to investigate the world around us and saw many interesting fauna, flora, and phenomena!

We used science to observe and explore the places we visited both off and on the ship. From isolating DNA from fruit to getting up close to different types of ice, guests participated in a activities and workshops that gave us a deeper understanding and appreciation for the natural world around us.

On the next pages you can find some highlights of our onboard Science and Education Program as well as our Citizen Science Program.

History

A history of the 'Heroic Age' of Antarctic exploration was brought to life by our Historians, who also gave us insight into the Antarctic Treaty and its implications for the future of the continent.

In contrast to Antarctica, we experienced a more familiar setting in the Falkland Islands. We received an overview of the history of the Falkland archipelago on board, which was complemented by our local guides in Stanley who spoke to us about their first-hand experience living on the islands. The fact that since 1840 the islanders have, and will always, identify as part of Great Britain is something you see and feel even in the air itself, but the recent memory of the 1982 conflict with Argentina remains tangible to all who live there and all who visit.





Science Boat

We investigated the underwater world during 6 Science Boat sessions exploring the following locations:

- Orne Harbor, Antarctica
- Damoy Point, Antarctica
- King George Point, Antarctica

We observed and discussed the wildlife and geology in each location to better understand the area's ecology.

We deployed a plankton net to collect phytoplankton and zooplankton, used a CTD to create a physical profile of the water column, and took measurements of turbidity to submit to two Citizen Science projects: the Secchi Disk Project and FjordPhyto.

The data we collected supports research on long-term changes in the phytoplankton communities of the Antarctic Peninsula.

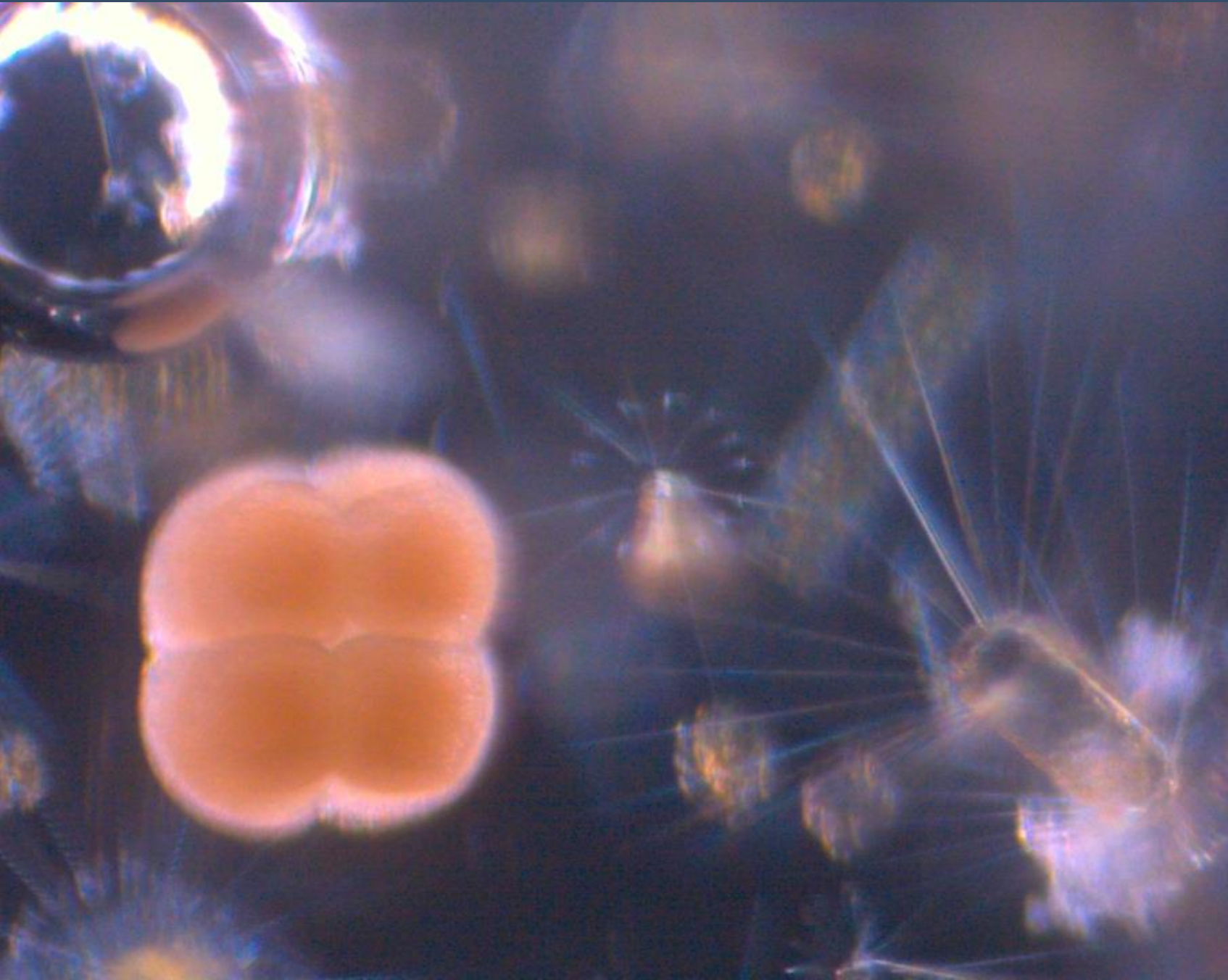
FjordPhyto & the Secchi Disk Project

FjordPhyto is a citizen science project that investigates the influence of melting Antarctic glaciers on plankton communities in the Southern Ocean. For this project we took seawater samples that will be analyzed for the presence of glacial meltwater, different species of phytoplankton, and the DNA of phytoplankton to understand their genetic response to climate change.

The Secchi Disk Project also investigates the presence of phytoplankton, not only in Antarctica, but throughout the world's ocean. You can make your own Secchi disk and continue this project at home!

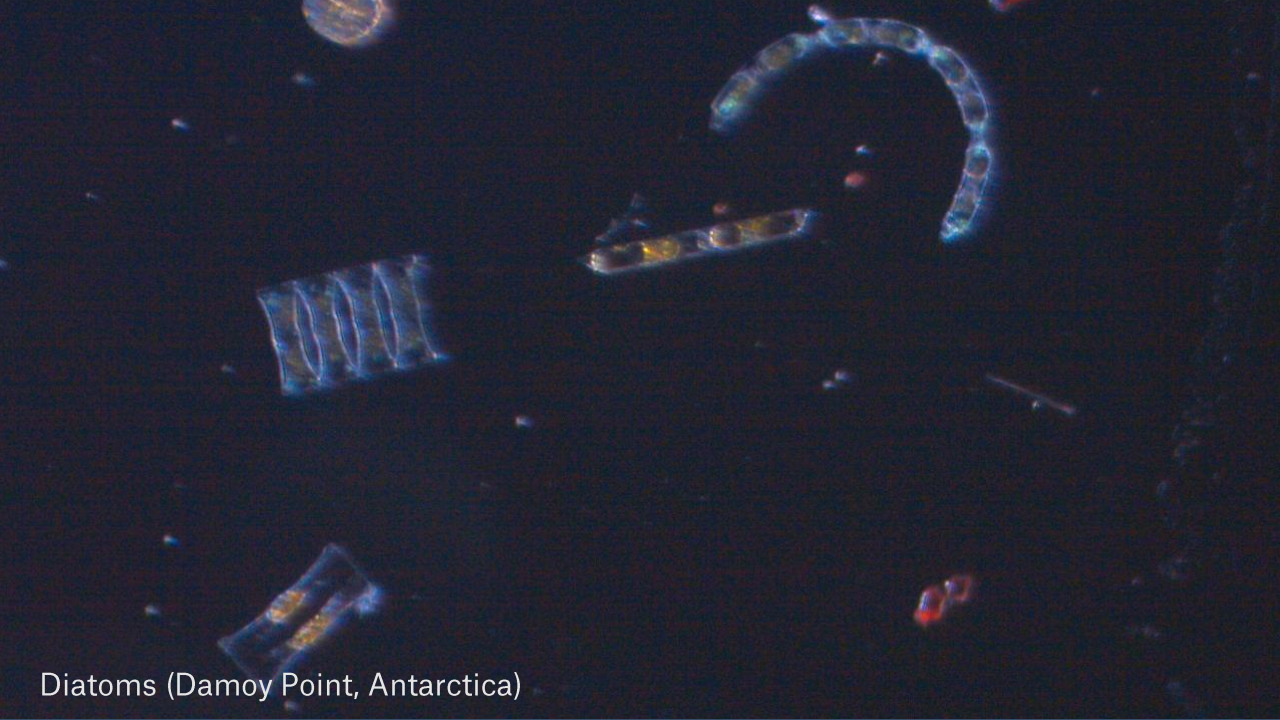
Learn more about these projects at the [FjordPhyto website](#) and [Secchi Disk Project Website](#).





Plankton Samples

After we collected water samples on the Science Boat, we brought them back to the Science Center to look at their contents under the microscope. Here are some of the things we found!



Diatoms (Damoy Point, Antarctica)



Corethron diatom (Damoy Point, Antarctica)



Diatoms (King Georges Point, Antarctica)



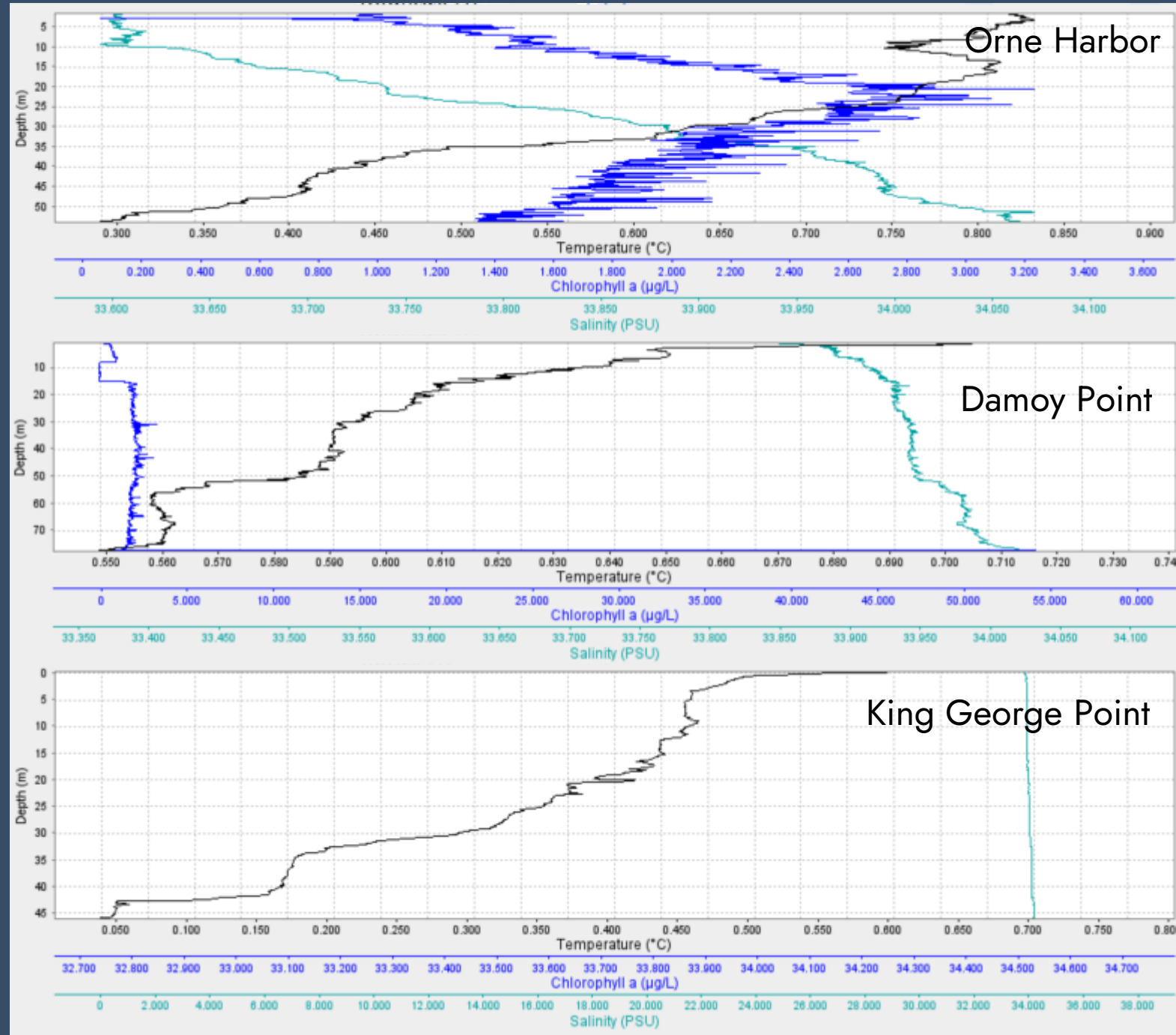
Diatoms (King Georges Point, Antarctica)

CTD Profiles

Our CTD casts gave us insight into the way salinity, temperature, and chlorophyll changed with depth. Every sampling site had a unique profile!

Stratification, or layering, can occur with salinity and temperature, causing different depths to have different characteristics. If there is no stratification, we call the water column “well mixed.” Typically, salinity increases with depth while temperature decreases, since cold, salty water is denser than warm, less salty water. Stratification can provide insights into nutrient replenishment at the surface, which is crucial for photosynthesis in phytoplankton.

At our 3 sites in Antarctica, our profiles were well mixed with regards to salinity; both the surface and at depth were around 34 PSU – the standard salinity of seawater. Temperature was always higher in the top meters of the water column, but the lowest temperature drop was seen at King George Point on Rongé Island (0.05 °C), perhaps due to its location; open to the wide Gerlache Strait allows it to be influenced by colder, deeper ‘open ocean’ water.



NASA Cloud Observer

Our NASA citizen scientists submitted **6** observations to the global database run by NASA. Our observations were matched to data from weather satellites orbiting earth and will be used to better understand global weather phenomena.

If you would like to continue cloud observations at home, you can download the app 'GLOBE Observer.'

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

CLOUD ID GUIDE

Cloud level	Cloud type
Low level	Stratus (St): Low, featureless layer cloud
	Stratocumulus (Sc): Low layer typically irregular clumps
	Cumulus (Cu): Low, separated "cotton Wool"- clumps
	Cumulonimbus (Cb): Huge Storm Cloud, often anvil shaped
Mid level	Nimbostratus (Ns): Thick gray layer, with steady Precipitation
	Altostratus (As): Mid level featureless overcast layer
	Alto cumulus (Ac): Mid Level or patch of clumps and rolls
High level	Cirrostratus (Cs): Low, featureless layer cloud
	Cirrocumulus (Cc): Low, featureless layer cloud
	Cirrus (Ci): High feathery streaks of ice crystals

Altitude (m)

500
300-1,400
300-1,500
600-13,00
0-3,000
2,000-5,000
2,000-6,000
5,000-9,000
7,500-10,500
6,000-12,000

What to look for?

Can shroud tops of buildings/trees, fog when at ground level

Well defined clumpy base, or varied white gray tones

Cauliflower tops, flattish base or crisp edges. From when seen from dark base

Showers from dark base top, if visible, has soft base

Dark featureless overcast

Possible with darker shades

Dull gray covers the sun looks as if through

Cloud-lets are 1-3 shaded on side

Subtle milky white sunlight casts

Cloud elements no larger than

Wavy hair-like clumps or

iNaturalist

Our Onboard Naturalists and our guests used the citizen science app iNaturalist to record the flora and fauna seen throughout our journey. Our observations are available to be used in scientific research around the world.

In total we recorded:

- **88** Species
- **135** Observations

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

View our data submitted on our iNaturalist project here:

[2024 29 Dec - 2025 12 Jan: MS Roald Amundsen - Antarctica & Falklands](#)





eBird

Our onboard ornithologists were constantly surveying the birdlife we encountered along our route. Including during **7** formal Wildlife Watches and **4** dedicated eBird sessions, we recorded **48** species across **24** eBird checklists over the course of the voyage. Through the eBird platform, the data we collected is available for scientists around the world.

View our eBird data for this trip here:
<https://ebird.org/tripreport/312227>

Happywhale

We have submitted photos of **13** individuals from this trip to Happywhale, adding to their catalogue of identified whales across the world. Happywhale uses the fingerprint-like patterns on humpback whales' flukes and the saddle patch marks of orca to identify them from user-submitted photographs. We have received matches for **2** humpback whale individuals so far!

View the MS Roald Amundsen's submissions to Happywhale during our voyage:

[MS Roald Amundsen Dec 29 – Jan 12](#)
[Happywhale](#)





Snow Algae

We collected **6** observations for Western Washington University's "Snow Algae Project" both from the ship and on the landing sites in Antarctica.

Snow algae are small photosynthetic organisms that grow seasonally on glaciers and snow and ice packs. This phenomenon is observed in polar and alpine regions. Scientists are investigating how snow algae affect the albedo, or reflectance of sunlight, of the areas where it is found, and how this in turn affects snowmelt.

View our more information about this project here: [Western Washington Cryosphere Studies and Aquatic Biogeochemistry Lab - Home](#)

Wildlife List - Birds



Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<i>Chloephaga picta</i>	Upland Goose	Magellangans	Ouette de Magellan	斑胁草雁
<i>Chloephaga hybrida</i>	Kelp Goose	Kelpgans	Ouette marine	白草雁
<i>Chloephaga rubidiceps</i>	Ruddy-headed Goose	Rotkopfgans	Ouette à tête rousse	棕头草雁
<i>Tachyeres brachypterus</i>	Falkland Steamer Duck	Falkland-Dampfschiffente	Brassemer des Malouines	短翅船鸭
<i>Lophonetta specularioides</i>	Crested Duck	Schopfente	Canard huppé	冠鸭
<i>Chionis albus</i>	Snowy Sheathbill	Weißgesicht-Scheidenschnabel	Chionis blanc	白鞘嘴鸥
<i>Haematopus leucopodus</i>	Magellanic Oystercatcher	Magellanausternfischer	Huïtrier de Garnot	智利蛎鹬
<i>Haematopus ater</i>	Blackish Oystercatcher	Südamerikanischer Austernfischer	Huïtrier noir	南美蛎鹬
<i>Charadrius falklandicus</i>	Two-banded Plover	Falkland-Regenpfeifer	Pluvier des Falkland	双斑鸻
<i>Gallinago paraguaiae</i>	Magellanic Snipe	Magellanbekassine	Bécassine de Magellan	南美沙锥
<i>Calidris fuscicollis</i>	White-rumped Sandpiper	Weißbürzel-Strandläufer	Bécasseau à croupion blanc	白腰滨鹬
<i>Stercorarius antarcticus</i>	Brown Skua	Subantarktiskua	Labbe antarctique	棕贼鸥
<i>Stercorarius maccormicki</i>	South Polar Skua	Antarktiskua	Labbe de McCormick	麦氏贼鸥
<i>Stercorarius chilensis</i>	Chilean Skua	Chileskua	Labbe du Chili	智利贼鸥
<i>Chroicocephalus maculipennis</i>	Brown-hooded Gull	Patagonienmöwe	Mouette de Patagonie	褐头鸥
<i>Leucophaeus scoresbii</i>	Dolphin Gull	Blutschnabelmöwe	Goéland de Scoresby	豚鸥
<i>Larus dominicanus</i>	Kelp Gull	Dominikanermöwe	Goéland dominicain	黑背鸥
<i>Sterna vittata</i>	Antarctic Tern	Antarktikseeschwalbe	Sterne couronnée	南极燕鸥

Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<i>Sterna hirundinacea</i>	South American Tern	Falklandseeschwalbe	Sterne hirundinacée	南美燕鸥
<i>Aptenodytes forsteri</i>	Emperor Penguin	Kaiserpinguin	Manchot empereur	帝企鹅
<i>Aptenodytes patagonicus</i>	King Penguin	Königspinguin	Manchot royal	王企鹅
<i>Pygoscelis adeliae</i>	Adelie Penguin	Adeliepinguin	Manchot d’Adélie	阿德利企鹅
<i>Pygoscelis papua</i>	Gentoo Penguin	Eselspinguin	Manchot papou	白眉企鹅
<i>Pygoscelis antarcticus</i>	Chinstrap Penguin	Kehlstreifpinguin	Manchot à jugulaire	纹颊企鹅
<i>Spheniscus magellanicus</i>	Magellanic Penguin	Magellanpinguin	Manchot de Magellan	南美企鹅
<i>Eudyptes chrysocome</i>	Southern Rockhopper Penguin	Südfelsenpinguin	Gorfou sauteur	凤头黄眉企鹅
<i>Diomedea exulans</i>	Snowy Albatross	Wanderalbatros	Albatros hurleur	漂泊信天翁
<i>Phoebetria palpebrata</i>	Light-mantled Albatross	Graumantelalbatros	Albatros fuligineux	灰背信天翁
<i>Thalassarche chrysostoma</i>	Grey-headed Albatross	Graukopfalbatros	Albatros à tête grise	灰头信天翁
<i>Thalassarche melanophris</i>	Black-browed Albatross	Schwarzbrauenalbatros	Albatros à sourcils noirs	黑眉信天翁
<i>Oceanites oceanicus</i>	Wilson's Storm Petrel	Buntfuß-Sturmschwalbe	Océanite de Wilson	烟黑叉尾海燕
<i>Fregetta tropica</i>	Black-bellied Storm Petrel	Schwarzbauch-Sturmschwalbe	Océanite à ventre noir	黑腹舰海燕
<i>Macronectes giganteus</i>	Southern Giant Petrel	Riesensturmvogel	Pétrel géant	巨鹱
<i>Fulmarus glacialoides</i>	Southern Fulmar	Silbersturmvogel	Fulmar argenté	银灰暴风鹱
<i>Daption capense</i>	Cape Petrel	Kapsturmvogel	Damier du Cap	花斑鹱
<i>Pagodroma nivea</i>	Snow Petrel	Schneesturmvogel	Pétrel des neiges	雪鹱

Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<i>Pterodroma mollis</i>	Soft-plumaged Petrel	Weichfeder-Sturmvogel	Pétrel soyeux	柔羽圆尾鹱
<i>Halobaena caerulea</i>	Blue Petrel	Blausturmvogel	Prion bleu	蓝鹱
<i>Pachyptila desolata</i>	Antarctic Prion	Taubensturmvogel	Prion de la Désolation	鸽锯鹱
<i>Pachyptila belcheri</i>	Slender-billed Prion	Dünnschnabel-Sturmvogel	Prion de Belcher	细嘴锯鹱
<i>Procellaria aequinoctialis</i>	White-chinned Petrel	Weißkinn-Sturmvogel	Puffin à menton blanc	白颈风鹱
<i>Ardenna gravis</i>	Great Shearwater	Großer Sturmtaucher	Puffin majeur	大鹱
<i>Ardenna grisea</i>	Sooty Shearwater	Dunkler Sturmtaucher	Puffin fuligineux	灰鹱
<i>Pelecanoides urinatrix</i>	Common Diving Petrel	Subantarktis-Lummensturmvogel	Puffinure plongeur	鹈燕
<i>Phalacrocorax magellanicus</i>	Magellanic Cormorant	Felsenscharbe	Cormoran de Magellan	岩鸕鹚
<i>Leucocarbo atriceps</i>	Imperial Shag	Kaiserscharbe	Cormoran impérial	蓝眼鸕鹚
<i>Leucocarbo bransfieldensis</i>	Antarctic Shag	Antarktikscharbe	Cormoran antarctique	南极鸕鹚
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	Nachtreiher	Bihoreau gris	夜鹭
<i>Cathartes aura</i>	Turkey Vulture	Truthahngeier	Urubu à tête rouge	红头美洲鹫
<i>Phalacroboenus australis</i>	Striated Caracara	Falklandkarakara	Caracara austral	红腿巨隼
<i>Muscisaxicola maclovianus</i>	Dark-faced Ground Tyrant	Maskengrundtyrann	Dormilon bistré	暗脸地霸鹟
<i>Turdus falcklandii</i>	Austral Thrush	Magellandrossel	Merle austral	南美鸚
<i>Passer domesticus</i>	House Sparrow	Haussperling	Moineau domestique	家麻雀
<i>Anthus correndera</i>	Correndera Pipit	Correnderapieper	Pipit correndera	科雷鹛

Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<i>Spinus barbatus</i>	Black-chinned Siskin	Bartzeisig	Tarin à menton noir	黑颏金翅雀
<i>Leistes loyca</i>	Long-tailed Meadowlark	Langschwanzstärling	Sturnelle australe	长尾草地鹨
<i>Melanodera melanodera</i>	White-bridled Finch	Weißbart-Ammertangare	Mélanodère à sourcils blancs	黑喉雀鹀



Wildlife List - Marine Mammals

Wildlife List — Marine Mammals

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	Chinese
<i>Balaenoptera bonaerensis</i>	Antarctic minke whale	Südlicher Zwergwal	Rorqual à museau pointu de l'Antarctique	南极小须鲸
<i>Balaenoptera physalus</i>	Fin whale	Finnwal	Rorqual commun	长须鲸
<i>Megaptera novaeangliae</i>	Humpback whale	Buckelwal	Baleine à bosse	大翅鲸
<i>Balaenoptera borealis</i>	Sei whale	Seiwal	Rorqual de Rudolphi	塞鲸
<i>Orcinus orca</i>	Killer whale, orca	Schwertwal, Orca	Orque	虎鲸
<i>Cephalorhynchus commersonii</i>	Commerson's dolphin	Commerson-Delfin	Céphalorhynque de Commerson	黑白海豚
<i>Lagenorhynchus australis</i>	Peale's dolphin	Peale-Delfin	Lagénorhynque de Peale	皮氏斑纹海豚
<i>Cephalorhynchus commersonii</i>	Commerson's dolphin	Commerson-Delfin	Céphalorhynque de Commerson	黑白海豚
<i>Lagenorhynchus cruciger</i>	Hourglass dolphin	Stundenglasdelfin	Lagénorhynque sablier	沙漏斑纹海豚
<i>Globicephala melas</i>	Long-finned pilot whale	Grindwal	Globicéphale noir	長肢领航鲸
<i>Mesoplodon layardii</i>	Strap-toothed beaked whale, Layard's beaked whale	Layard-Wal	Mésoplodon de Layard	長齒中喙鲸
<i>Phocoena dioptrica</i>	Spectacled porpoise	Brillenschweinswal	Marsouin à lunettes	黑眶鼠海豚
<i>Otaria byronia</i>	South American sea lion	Mähnenrobbe	Lion de mer d'Amérique du Sud	南海狮
<i>Leptonychotes weddellii</i>	Weddell seal	Weddelrobbe	Phoque de Weddell	韦德尔氏海豹
<i>Mirounga leonina</i>	Southern elephant seal	Südlicher See-Elefant	Éléphant de mer austral	南象海豹
<i>Hydrurga leptonyx</i>	Leopard seal	Seeleopard	Léopard de mer	豹海豹



IX

**Connect With Your
Inner Scientist**