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Science & Education Report



MS Roald Amundsen

9 – 23 December, 2025

Antarctica and Falklands Expedition

When you arrived on MS Roald Amundsen you boarded a 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 while sailing along the wild and wonderful coasts of the Antarctic Peninsula and the Falkland Islands.

Arts, Music, Crafts & Creativity

Inspired by the landscapes, wildlife, and special moments along our journey, we created art to express our feelings. Through drawing, painting, and sculpting sessions, and much more, we made tangible keepsakes of our voyage.





Science & Education Programme

MS Roald Amundsen is more than a ship – it is a platform of opportunity for us to explore, collect meaningful data, and learn more deeply about the places we visit.

Our onboard naturalists guided our guests through our expedition. We observed, documented, and discussed the many interesting fauna, flora, and phenomena we witnessed. From replicating the true sizes of whales and dolphins, to getting up close to different types of ice, guests participated in activities and workshops that gave us a deeper understanding and appreciation for the natural world around us.

On the next pages you can find information about some of the highlights of our onboard Science and Education Programme as well as our Citizen Science Program during this voyage.

History

The 'Heroic Age' of Antarctic exploration was brought to life by our Historian, who told us of the triumphs and tragedies of Shackleton, Amundsen, Scott, and many of the other brave explorers who dared to head into the unknown South. We also saw evidence of the human history in Antarctica in person when we visited the historic hut at Damoy, explored Almirante Brown Station, and sailed past the whaling station on Deception Island.

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. Since 1840 the islanders have identified – and will always identify – as part of Great Britain. This is something you can 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.





Underwater Drone

The underwater world is endlessly fascinating: it seems as if it holds an entire universe in its depths. Luckily, with our state-of-the-art underwater drone, we are able to explore some of the places that we would otherwise only be able to imagine! We had the opportunity to deploy our underwater drone during our journey at the following sites:

- **Orne Harbour, Antarctica**
- **Spert Island, Antarctica**
- **Saunders Island, Falkland Islands**

Through the lens of the drone, we saw a variety of strange and beautiful creatures in their natural habitats, including invertebrate communities, colorful algae, seastars, and even some penguins; the subsurface citizens of Antarctica, as glimpsed with this tool of modern exploration.

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

Science Boat

Learning in a lecture or workshop is one thing, but getting your hands wet (literally!) in the pursuit of science is quite another! For the guests who participated in the Science Boat outings, they joined an experience focused on collecting meaningful data by 'taking the lab outside' – and underwater!

We investigated the underwater world during **twelve** Science Boat sessions in Antarctica at **Petermann Island, Damoy Point, Brown Station, and Orne Harbor** and **3** sessions at **Saunders Island** in the Falklands. 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, gathered CTD data 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.



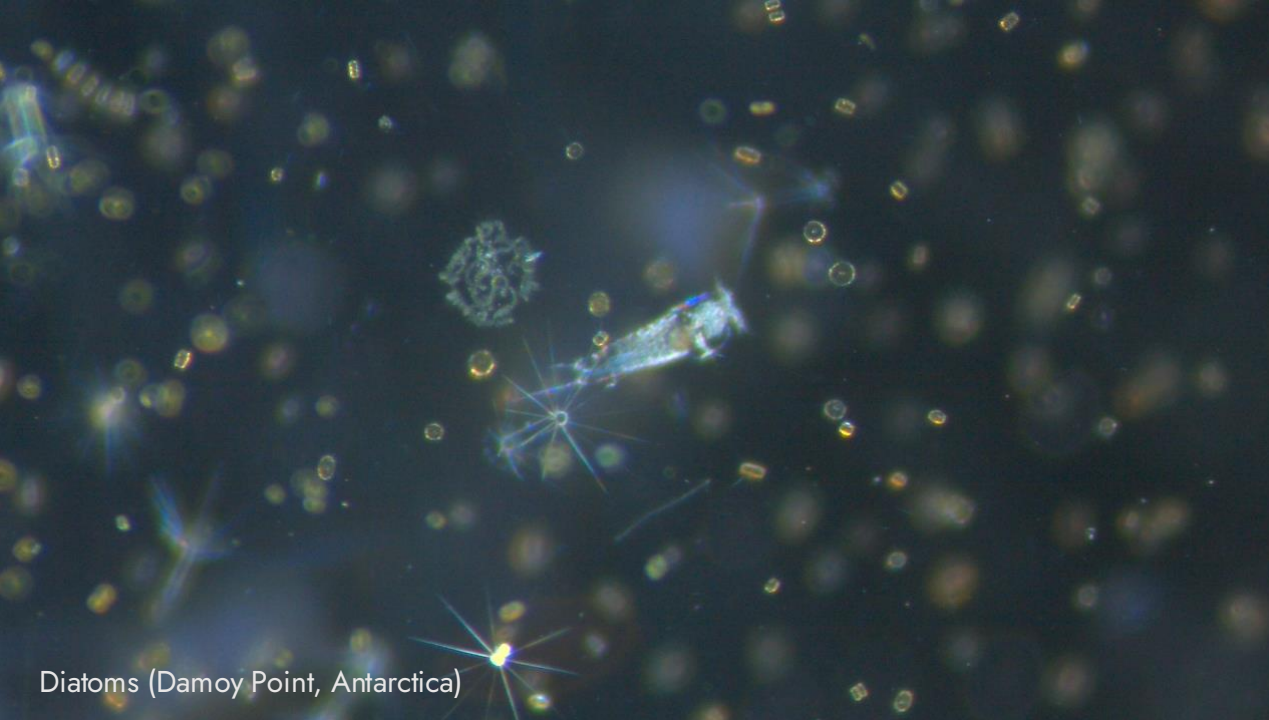


Plankton Samples

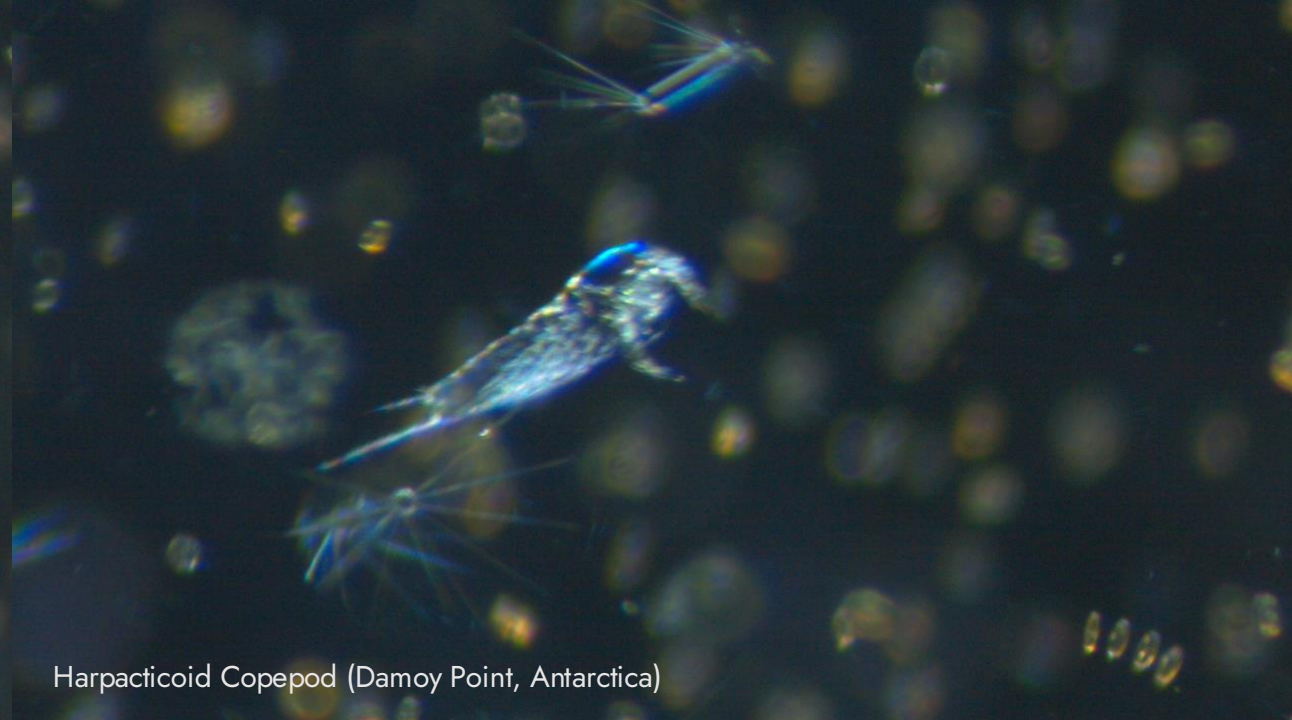
After we collected water samples on the Science Boat, we brought them back to the Science Centre to look at their contents under the microscope. From phytoplankton, those tiny photosynthetic organisms at the base of the food web, to crustaceans like copepods, we encountered many different creatures.

We noticed a very big difference in the amount of plankton found among our sites in Antarctica; only in Damoy did we have a high concentration of phytoplankton, and nowhere did we catch many zooplankton! In contrast, in the Falklands, we saw high concentrations of both phytoplankton and zooplankton.

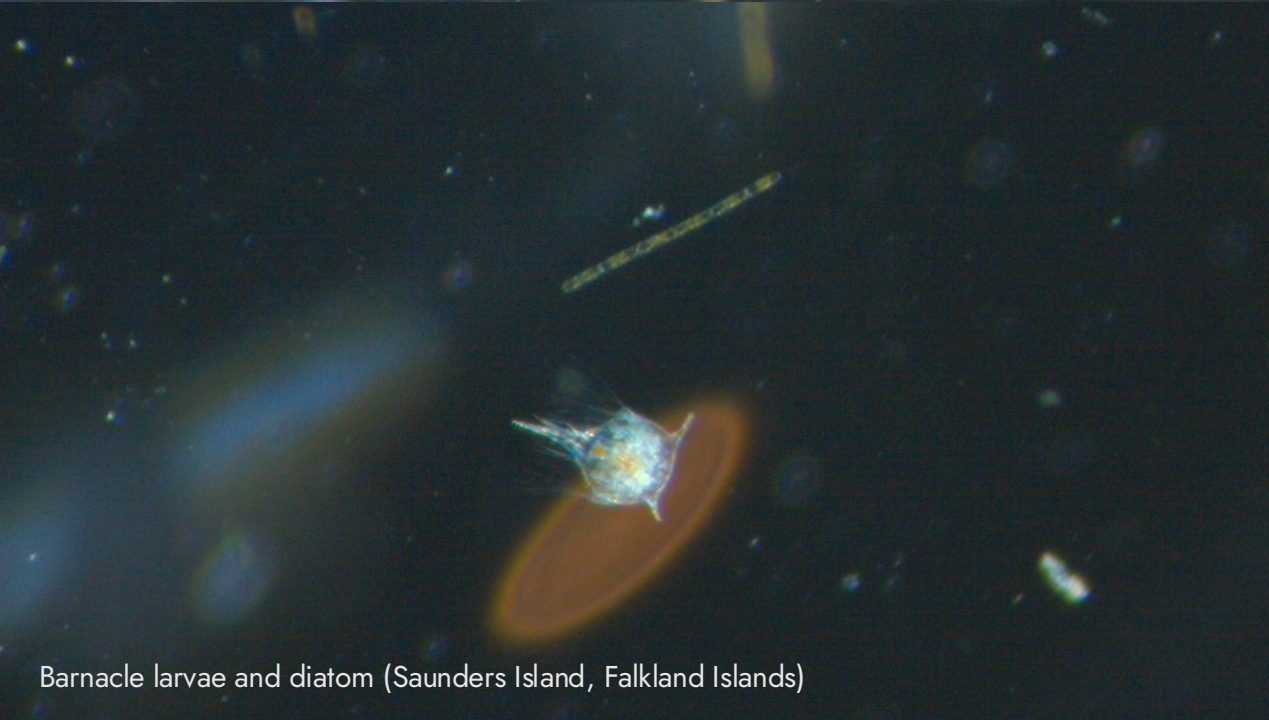
Let's take a closer look at some of what we found!



Diatoms (Damoy Point, Antarctica)



Harpacticoid Copepod (Damoy Point, Antarctica)



Barnacle larvae and diatom (Saunders Island, Falkland Islands)



Copepod nauplius and diatom (Saunders Island, Falkland Islands)

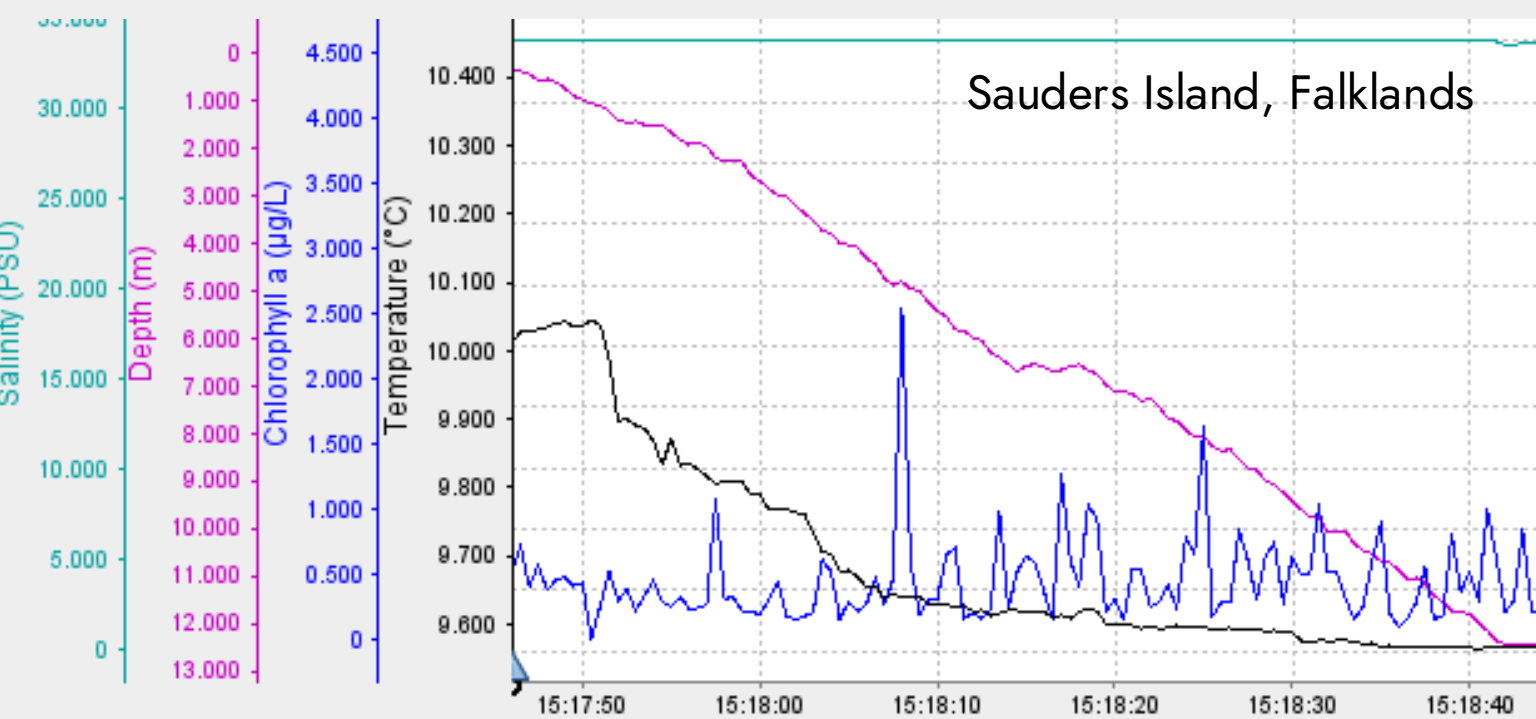
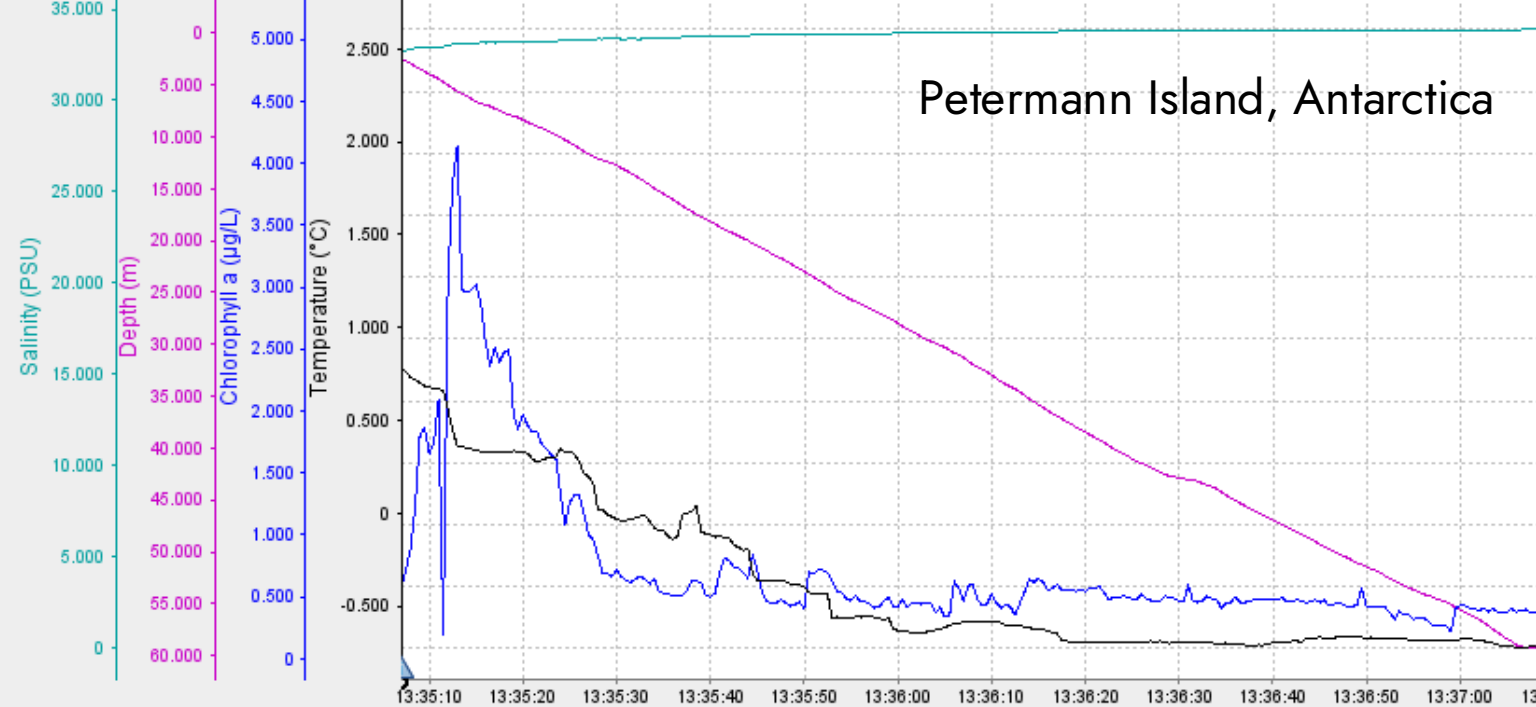
CTD Profiles

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. Typically, salinity increases with depth while temperature decreases, since cold, salty water is denser than warm, less salty water. If there is no stratification, we call the water column “well mixed.” Stratification can provide insights into nutrient replenishment at the surface, which is crucial for photosynthesis in phytoplankton. The presence or absence of phytoplankton can essentially give us an idea of the productivity of an area: a region with a lot of phytoplankton means there is a lot of food at the base of the food web. We estimate phytoplankton abundance by measuring chlorophyll – the photosynthetic pigments in phytoplankton.

Different species have different tolerances to temperature, salinity, and sunlight, and all of these factors influence who can live where. As you can see, there are many complex relationships influencing this ‘primary productivity’. The data we collect provides valuable insight for scientists to better understand how these ecosystems work!





CTD Profiles

At our four sites in Antarctica (Petermann, Brown Damoy, and Orne) our profiles were well mixed with regards to salinity and temperature. Salinity both on the surface and at depth were always around 34 PSU – the standard salinity of seawater. Temperature only decreased by 1°C to 2°C from the surface down to 80m. We also saw chlorophyll levels highest in the top 10m of the water, meaning this is where phytoplankton tended to be in order to maximize their access to sunlight. These trends are not unexpected for this time of year; as winter ice has already melted, salinity is not affected by freshwater input, and temperatures are only slightly higher on the surface than at depth due to increased warmth from long daylight hours.

In the Falklands at Saunders Island, we sampled in a relatively shallow bay. This water body was also well mixed in regards to temperature and salinity, with 34 PSU salinity and a decrease of only 1°C from the surface to the bottom at 13m. The biggest difference in the CTD data between Antarctica and Falklands (besides overall higher temperatures) came from the distribution of phytoplankton: rather than just one big peak in chlorophyll levels, phytoplankton were spread out from the surface to the bottom. This is because it was shallow enough for sunlight to penetrate the whole water column!

Citizen Science 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 to determine the abundance of different species of phytoplankton across the season. We also took DNA samples that will be used to investigate the genetic response of phytoplankton 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](#).



Citizen Science

NASA Cloud Observer

Clouds are more than just shapes in the sky, they are incredibly important components to 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 this kind of data. Submissions from data-poor areas like the polar regions are especially important!

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

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

Citizen Science iNaturalist

On our voyage we explored two very different ecosystems: the Antarctic Peninsula and the Falkland Islands. While there was relatively low diversity in the species we saw in Antarctica, every observation was important since there is so little data available for this region compared to the rest of the world. In contrast to Antarctica, visiting the Falklands felt like an explosion of diversity and abundance, especially for plants, insects, and birdlife!

We used the Citizen Science app iNaturalist to identify and record the flora and fauna seen on our journey. Our observations are available to be used in global scientific research.

In total we recorded:

- **103** Species
- **394** Observations

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

View our data submitted on our iNaturalist project [2025 Dec 09 to 23: MS Roald Amundsen: Antarctica & Falklands Expedition · iNaturalist](#)





Citizen Science eBird

Penguins, petrels, prions, and beyond; our trip to Antarctica was replete with seabirds of all shapes and sizes. From the charismatic penguins to the majestic great albatrosses, we spent hours on deck watching these splendid creatures. And, when we arrived at the Falklands, we were greeted again with a new suite of species, including passerines and raptors. Our guests and onboard naturalists were constantly surveying and recording the avifauna we encountered along our route.

We recorded **57** bird species across **62** eBird checklists. Through the eBird platform, the data we collected is available for scientists around the world to help understand patterns of bird distribution, migration, and habitat use.

View our data for this trip here:
[Dec 09 to 23, 2025: Antarctica & Falklands Expedition - eBird Trip Report](#)

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 each individual whale's unique markings, they can track individuals as they migrate across the world and through their lives. When you submit a photo, you will also be notified of any past and future matches of that individual!

Happywhale uses the fingerprint-like patterns on humpback whales' flukes and the saddle patch marks of orca to identify them. On this voyage we submitted photos of **17 humpback** and **4 orca** individuals to be identified. We have already received **12** matches back! This data has added to Happywhale's catalogue of identified whales across the world.

View the MS Roald Amundsen's submissions to
Happywhale during our voyage:
[Happywhale: MS Roald Amundsen Dec 09–23 2025](#)





Trip Survey Totals

Humpback whale		.....	63
Fin whale		.....	2
Sei whale		.....	9
Antarctic Minke whale		.....	2
Orca ....		.....	40
Peale's dolphin		.....	5

Partnership 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 MS Roald Amundsen. Our onboard ORCA Ocean 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.

On our voyage, we surveyed **333.3 km** of ocean over the course of **20 hours and 58 minutes!**

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

Partnership

Guest Scientists

We were fortunate to be joined on this voyage by Hannah and Sephena, Guest Scientists from the **California Ocean Alliance**. They used MS Roald Amundsen as a 'platform of opportunity' to collect data on whales along the Antarctic Peninsula. The project combined drone-based photography and biological sampling to assess whale health, reproduction, and population structure. During onboard presentations we were able to view the aerial drone footage of whales they surveyed during our trip, hear about the tools they used, and learn about how the data they are collecting will be used to assess the above indicators.

Visit the [Friedlander Bio-Telemetry & Behavioral Ecology Lab webpage](#) to learn more about this project and visit the [HX website](#) for more information about our partnership with the California Ocean Alliance.



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>Tachyeres brachypterus</i>	Falkland steamer duck	Falkland-Dampfschiffente	brassemmer 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	huîtreir de garnot	智利蛎鹬
<i>Haematopus ater</i>	blackish oystercatcher	Südamerikanischer Austernfischer	huîtreir noir	南美蛎鹬
<i>Charadrius modestus</i>	rufous-chested cotterel	Rotbrust-Regenpfeifer	pluvier de d’Urville	棕胸鸻
<i>Charadrius falklandicus</i>	two-banded plover	Falkland-Regenpfeifer	pluvier des Falkland	双斑鸻
<i>Stercorarius antarcticus</i>	brown skua	Subantarktiskua	labbe Antarctique	大贼鸥
<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
<i>Sterna hirundinacea</i>	South American tern	Falklandseeschwalbe	sterne hirundinacée	南美燕鸥

Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<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	Eselpinguin	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>Eudyptes chrysolophus</i>	macaroni penguin	Goldschopfpinguin	gorfou doré	长眉企鹅
<i>Diomedea exulans</i>	snowy albatross	Wanderalbatros	albatros hurleur	<i>Diomedea exulans</i>
<i>Diomedea epomophora</i>	southern royal albatross	Südkönigsalbatros	albatros royal	<i>Diomedea epomophora</i>
<i>Phoebetria palpebrata</i>	light-mantled albatross	Graumantelalbatros	albatros fuligineux	<i>Phoebetria palpebrata</i>
<i>Thalassarche chrysostoma</i>	grey-headed albatross	Graukopfalbatros	albatros à tête grise	<i>Thalassarche chrysostoma</i>
<i>Thalassarche melanophris</i>	black-browed albatross	Schwarzbrauenalbatros	albatros à sourcils noirs	<i>Thalassarche melanophris</i>
<i>Oceanites oceanicus</i>	Wilson’s storm petrel	Buntfuß-Sturmschwalbe	océanite de Wilson	<i>Oceanites oceanicus</i>
<i>Fregetta tropica</i>	black-bellied storm petrel	Schwarzbauch-Sturmschwalbe	océanite à ventre noir	<i>Fregetta tropica</i>
<i>Macronectes giganteus</i>	southern giant petrel	Riesensturmvogel	pétrel géant	巨鹱
<i>Macronectes halli</i>	northern giant Petrel	Hallsturmvogel	pétrel de hall	霍氏巨鹱
<i>Fulmarus glacialoides</i>	southern fulmar	Silbersturmvogel	fulmar argenté	银灰暴风鹱
<i>Thalassoica antarctica</i>	Antarctic petrel	Antarktiksturmvogel	pétrel Antarctique	南极鹱

Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<i>Daption capense</i>	pintado petrel	Kapsturmvogel	damier du cap	花斑鹱
<i>Pagodroma nivea</i>	snow petrel	Schneesturmvogel	pétrel des neiges	雪鹱
<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>Cinclodes antarcticus</i>	blackish cinclodes	Falkland-Uferwipper	cinclode fuligineux	淡黑抖尾地雀
<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

Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<i>Spinus barbatus</i>	black-chinned siskin	<i>Bartzeisig</i>	tarin à menton noir	黑颏金翅雀
<i>Passer domesticus</i>	house sparrow	Haussperling	moineau domestique	家麻雀
<i>Anthus correndera</i>	correndera pipit	Correnderapieper	pipit correndera	科雷鹀
<i>Leistes loyca</i>	long-tailed meadowlark	Langschwanzstärling	sturnelle australe	长尾草地鹀
<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 borealis</i>	sei whale	Seiwal	rorqual de Rudolphi	塞鲸
<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>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>Physeter macrocephalus</i>	sperm whale, cachalot	Pottwal	cachalot	抹香鲸
<i>Otaria byronia</i>	South American sea lion	Mähnenrobbe	lion de mer d'Amérique du Sud	南海狮
<i>Hydrurga leptonyx</i>	leopard seal	Seeleopard	léopard de mer	豹海豹
<i>Leptonychotes weddellii</i>	Weddell seal	Weddelrobbe	phoque de Weddell	韦德尔氏海豹
<i>Lobodon carcinophaga</i>	crabeater seal	Krabbenfresser	phoque crabier	食蟹海豹
<i>Mirounga leonina</i>	southern elephant seal	Südlicher See-Elefant	éléphant de mer austral	南象海豹

The background of the image is a photograph of a massive, layered blue ice formation, likely a glacier or ice shelf. Sunlight filters through the ice, creating a dramatic play of light and shadow. In the lower right foreground, a small penguin stands on a white ice patch, providing a sense of scale to the enormous ice wall. Overlaid on the left side of the image is a large, stylized logo consisting of the letters 'I' and 'X' in a serif font. The 'I' is white, and the 'X' is a vibrant cyan blue. The logo is semi-transparent, allowing the background image to be seen through it.

IX

**Connect with Your
Inner Scientist**