SCIENCE & EDUCATION REPORT



Iconic Antarctica — The Explorer's Route

MS Roald Amundsen, 1–15 November 2026



Science & Education Programme

When you arrived on MS Roald Amundsen, you boarded an education and research-focused expedition ship, fully equipped as a floating laboratory and designed to be a centre of learning and discovery. During your time on board, you contributed to scientific studies and expanded your knowledge of the world around you.

Let us take a look back on our journey and what we accomplished together while sailing through the Southern Ocean.



History & Culture

Following the route of Antarctica's early explorers, we experienced some of the continent's most historic and memorable locations. From stepping onto sea ice in the Weddell Sea and cruising through Hope Bay in the footsteps of the Swedish Nordenskjöld Expedition, to spending a day inside the flooded volcano of Deception Island, history was never far away.

We visited Argentina's Brown Station in Paradise Bay, followed the wake of Jean-Baptiste Charcot around Pléneau Island and Port Charcot, and sailed through the Lemaire Channel, named during the pioneering Belgica Expedition.

At Danco Island, the sight of a lone sailing vessel framed by ice and mountains offered a glimpse of what Antarctica may have looked like to those early explorers, bringing the spirit of the Explorer's Route to life.



Arts, Crafts & Creativity

During our voyage along the Antarctic Peninsula, we explored a world of icebergs, glaciers, whales, penguins, and seabirds while visiting locations connected to the history of Antarctic exploration.

Inspired by these encounters, we created artwork reflecting our surroundings through watercolours, journaling, clay sculptures, postcards, origami, and other creative projects.



Citizen Science Projects



NASA's GLOBE Clouds Observer

Clouds are not just shapes in the sky; they are important components of Earth's heat budget and climate system. Information about when, where, and what types of clouds form helps scientists better understand Earth's climate and the effects of climate change. Through NASA's GLOBE Cloud Observer programme, we contributed to this growing body of data.

Our Citizen Scientists submitted five observations across five sessions to NASA's global database. If you would like to continue making cloud observations at home, you can download the GLOBE Observer app.

View our data on the global map



Cryosphere

Antarctica's vast, frozen landscapes are more than breathtaking. The glaciers, sea ice, and towering icebergs we explored together are part of the cryosphere, a key regulator of Earth's climate. Ice reflects sunlight, helps stabilise global temperatures, and holds the world's largest reservoir of freshwater. It is not just Antarctica's lifeblood, but ours as well.

Yet as we admired its beauty, we could not ignore the signs of change. Climate shifts are transforming this frozen world at an alarming rate, threatening polar ecosystems, global weather patterns, and sea levels. Understanding the cryosphere is not just about studying Antarctica. It is about understanding our planet's future.

May the memories of this journey remind you that what happens here affects us all. Carry this knowledge forward, share what you have seen, and become an advocate for the ice that sustains life on Earth.



Credit: Ted Gatlin/HX

iNaturalist

During our voyage, we explored a wide range of ecosystems. From the sheltered waters of the Beagle Channel to the windswept Drake Passage and the icy landscapes of Antarctica, we observed a remarkable variety of plankton, marine invertebrates, birds, mammals, and even a few plants. In total, we recorded 416 observations of 67 species – and counting.

As you continue to upload photographs from home, our dataset will keep growing. Through iNaturalist, these observations now contribute to global scientific research and biodiversity monitoring. Thank you for taking part in the project and contributing to this valuable Citizen Science platform.

View our data submitted via our iNaturalist project



e-Bird

At sea and on land, our onboard Ornithologists and keen birders surveyed the avifauna along our route. Penguins, petrels, prions, and many more species accompanied us on our journey to Antarctica. From emperor penguins to snowy albatrosses, we spent hours on deck observing these remarkable seabirds.

Through wildlife watches and dedicated eBird sessions, we recorded 32 bird species across 27 eBird checklists. By contributing to the eBird platform, we added the observations from our voyage to a global database that scientists use to better understand patterns of bird distribution, migration, and habitat use.

View our data on our eBird trip report



Happywhale

Cetaceans, including whales, dolphins, and porpoises, often leave a lasting impression on those who encounter them. By simply taking a photograph, you can contribute to research that helps scientists better understand these animals. Happywhale uses AI to match images submitted by users, allowing researchers to track individual whales across oceans and over time. When you upload a whale photograph, you may receive notifications about previous or future sightings of that individual.

During this voyage, we submitted records of 10 humpback whales and two fin whales observed in the Drake Passage and the Gerlache Strait, in Chiriguano Bay and Flanders Bay, and near Danco Island and Pléneau Island.

View our submissions to Happywhale



ORCA

During our journey to Antarctica, we were joined by Marine Scientist and ORCA Ocean Conservationist Arianna, who collected data on whales, dolphins, and seals during wildlife watches. ORCA is a marine conservation charity dedicated to the long-term protection of cetaceans and marine ecosystems.

Arianna sent the data back to ORCA, which shares it with organisations involved in cetacean conservation. During more than 30 hours of surveying, covering over 280 km, Arianna recorded a total of 10 humpback whales, six orcas, four fin whales, two Antarctic minke whales, 50 hourglass dolphins, 10 Peale's dolphins, and 15 dusky dolphins.

Visit orca.org.uk for more information



Science Boat Sessions

Throughout the voyage, our science boat programme helped us explore the waters of the Antarctic Peninsula while contributing to ongoing research. During our science boat sessions, we carried out 12 CTD casts and 12 Secchi depth observations, measuring temperature, salinity, chlorophyll, and water clarity.

We will submit the CTD data to the South Atlantic Environmental Research Institute (SAERI), supporting long-term monitoring of polar marine environments. We uploaded all Secchi depth observations to the Secchi Disk Project, contributing to this global Citizen Science programme and its long-term record of ocean clarity.

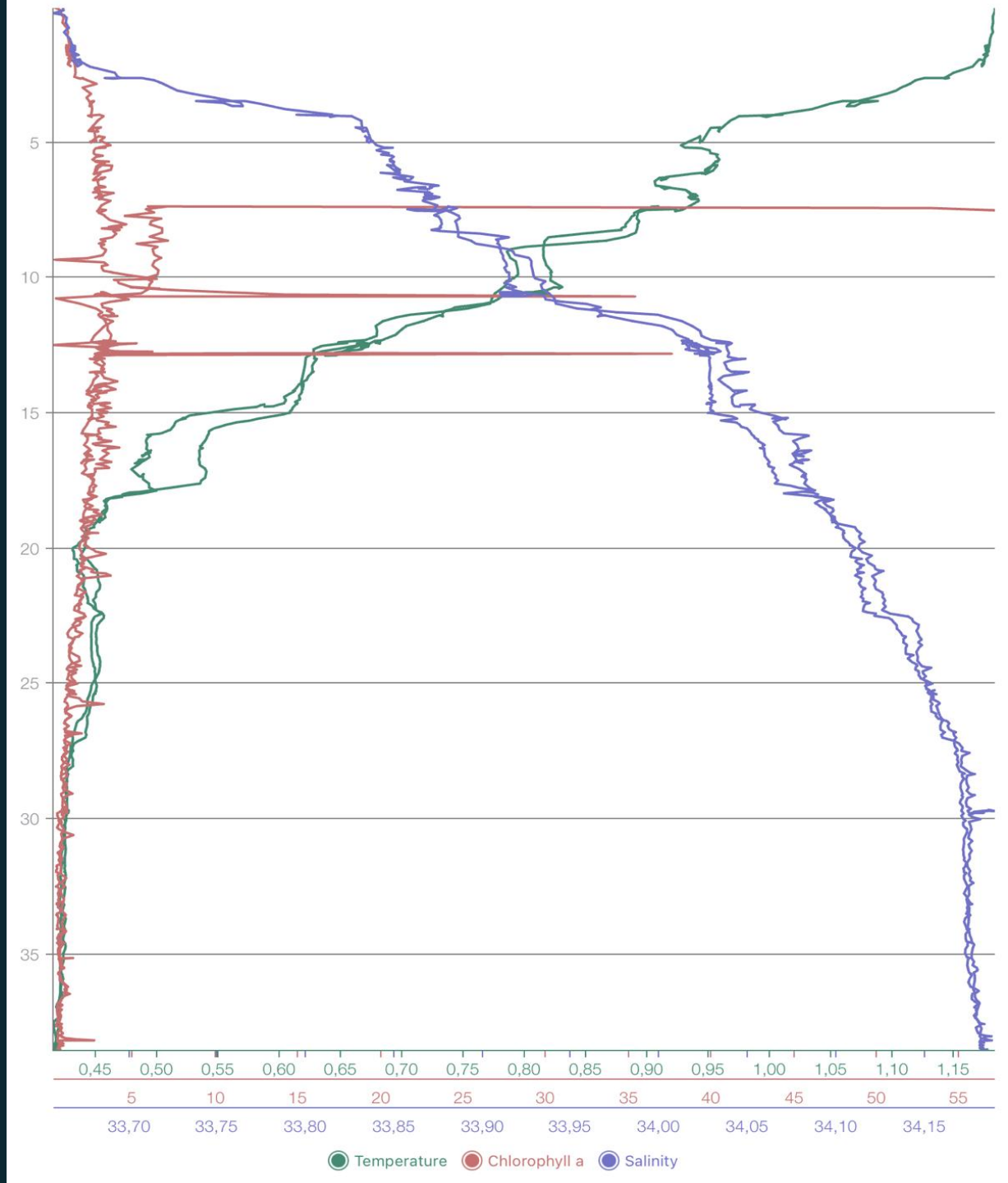
View our data submitted to the Secchi Disk Project



CTD Casts

Our CTD casts provided insight into how temperature, salinity, and chlorophyll changed with depth, shown on the vertical axis of the graph. At Yankee Harbour, we deployed the CTD to over 35 m. Salinity increased from 33.6 PSU at the surface to around 34.2 PSU at 38 m. Temperature was approximately 1.2°C at the surface, then decreased to 0.5°C by 20 m and remained stable below. Chlorophyll, an indicator of phytoplankton abundance, peaked at around 7 µg/l at 5–15 m, where sufficient light supports growth.

This profile is typical of the Antarctic spring, with fresher meltwater at the surface overlying colder, saltier water below and a chlorophyll maximum concentrated around 10 m depth.

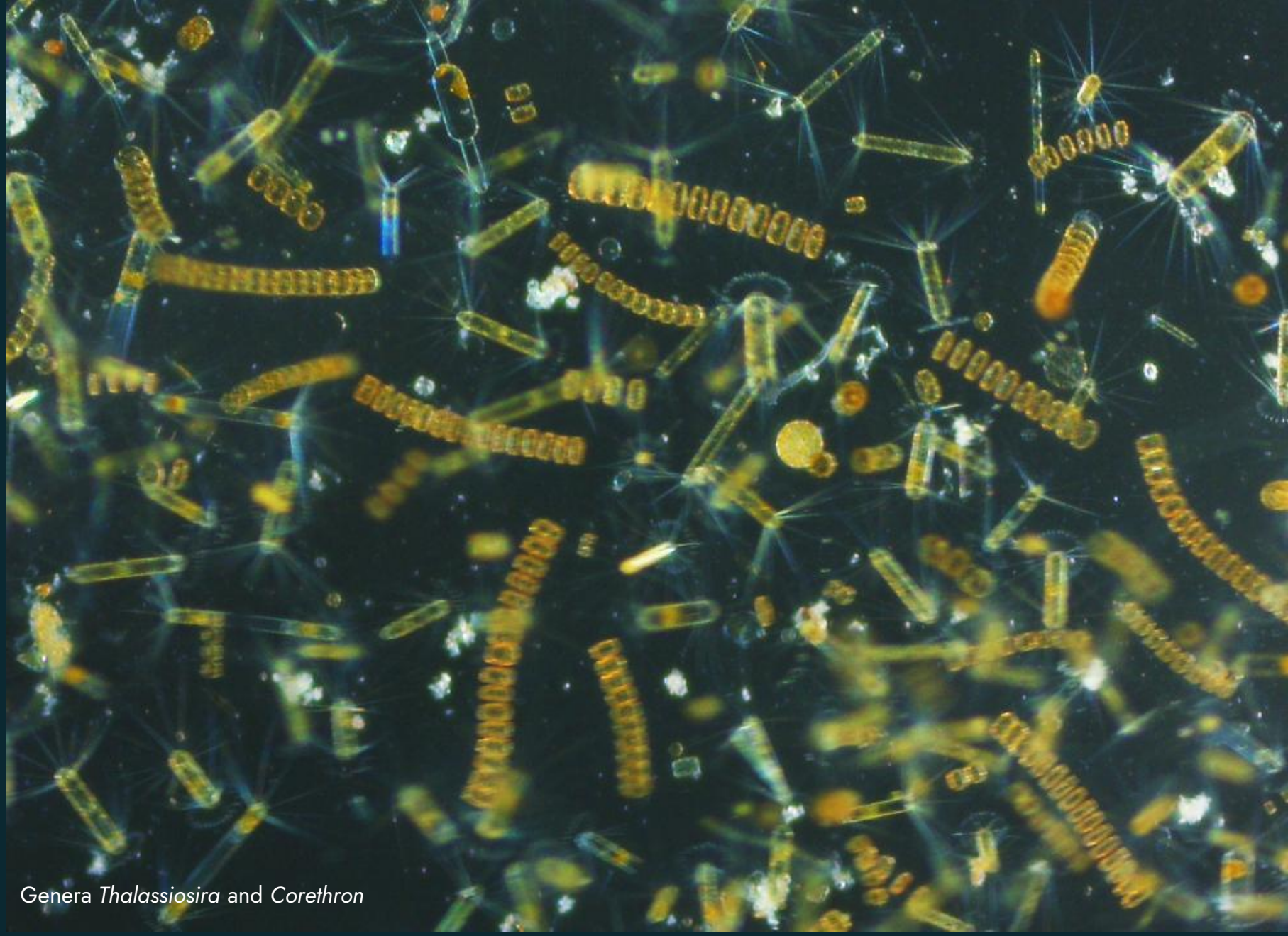


Phytoplankton Samples

Plankton are ocean drifters carried by currents and tides. These tiny organisms, including plant-like algae (phytoplankton) and animal plankton (zooplankton), form the foundation of marine food webs. Like plants on land, phytoplankton use sunlight to produce energy and oxygen while removing carbon dioxide from the atmosphere.

Our plankton samples showed low phytoplankton abundance across most of the Antarctic Peninsula, suggesting the spring bloom had not yet fully developed. A few northern sites, particularly around the South Shetland Islands, showed higher concentrations as increasing daylight and ice-free waters began to support growth.

The photo on the right shows a sample collected at Half Moon Island, containing numerous diatoms from the genera *Thalassiosira* and *Corethron*.



Genera *Thalassiosira* and *Corethron*

Zooplankton Samples

We also collected zooplankton samples. These included 'holoplankton', which remain planktonic throughout their lives (e.g. copepods), and 'meroplankton', which are only planktonic for part of their life cycle (e.g. polychaete worms). Zooplankton were abundant in our vertical plankton samples, which targeted deeper waters where many species remain during daylight hours as part of their daily vertical migration.

Although zooplankton abundance typically increases following the spring phytoplankton bloom, substantial populations were already present, likely sustained by stored energy reserves and alternative food sources.

The photos on the right show zooplankton we collected at Danco Island and Brown Station. We added them to our iNaturalist project to help monitor plankton biodiversity.


Polychaete Worm


Antarctic Krill


Sea Angel


Calanoid Copepod

Wildlife List — Birds



Wildlife List — Birds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
Tachyeres patachonicus	**Flying Steamer Duck**	Langflügel-Dampfschiffente	Brassemer de Patagonie	Patagoniaskovleand
Lophonetta specularioides	**Crested Duck**	Schopfente	Canard huppé	Duskand
Chionis albus	**Snowy Sheathbill**	Weißgesicht-Scheidenschnabel	Chionis blanc	Antarktisslirenebb
Stercorarius chilensis	**Chilean Skua**	Chileskua	Labbe du Chili	Kaneljo
Stercorarius antarcticus	**Brown Skua**	Subantarktikskua	Labbe antarctique	Sørhavsjo
Stercorarius maccormicki	**South Polar Skua**	Antarktikskua	Labbe de McCormick	Sørjo
Leucophaeus scoresbii	**Dolphin Gull**	Blutschnabelmöwe	Goéland de Scoresby	Magellanmåke
Larus dominicanus	**Kelp Gull**	Dominikanermöwe	Goéland dominicain	Taremåke
Sterna hirundinacea	**South American Tern**	Falklandseeschwalbe	Sterne hirundinacée	Svaleterne
Sterna vittata	**Antarctic Tern**	Antarktikseeschwalbe	Sterne couronnée	Sørhavsterne
Aptenodytes forsteri	**Emperor Penguin**	Kaiserpinguin	Manchot empereur	Keiserpingvin
Aptenodytes patagonicus	**King Penguin**	Königspinguin	Manchot royal	Kongepingvin
Pygoscelis adeliae	**Adelie Penguin**	Adeliepinguin	Manchot d'Adélie	Adeliepingvin
Pygoscelis papua	**Gentoo Penguin**	Eselspinguin	Manchot papou	Bøylepingvin
Pygoscelis antarcticus	**Chinstrap Penguin**	Kehlstreifpinguin	Manchot à jugulaire	Ringpingvin

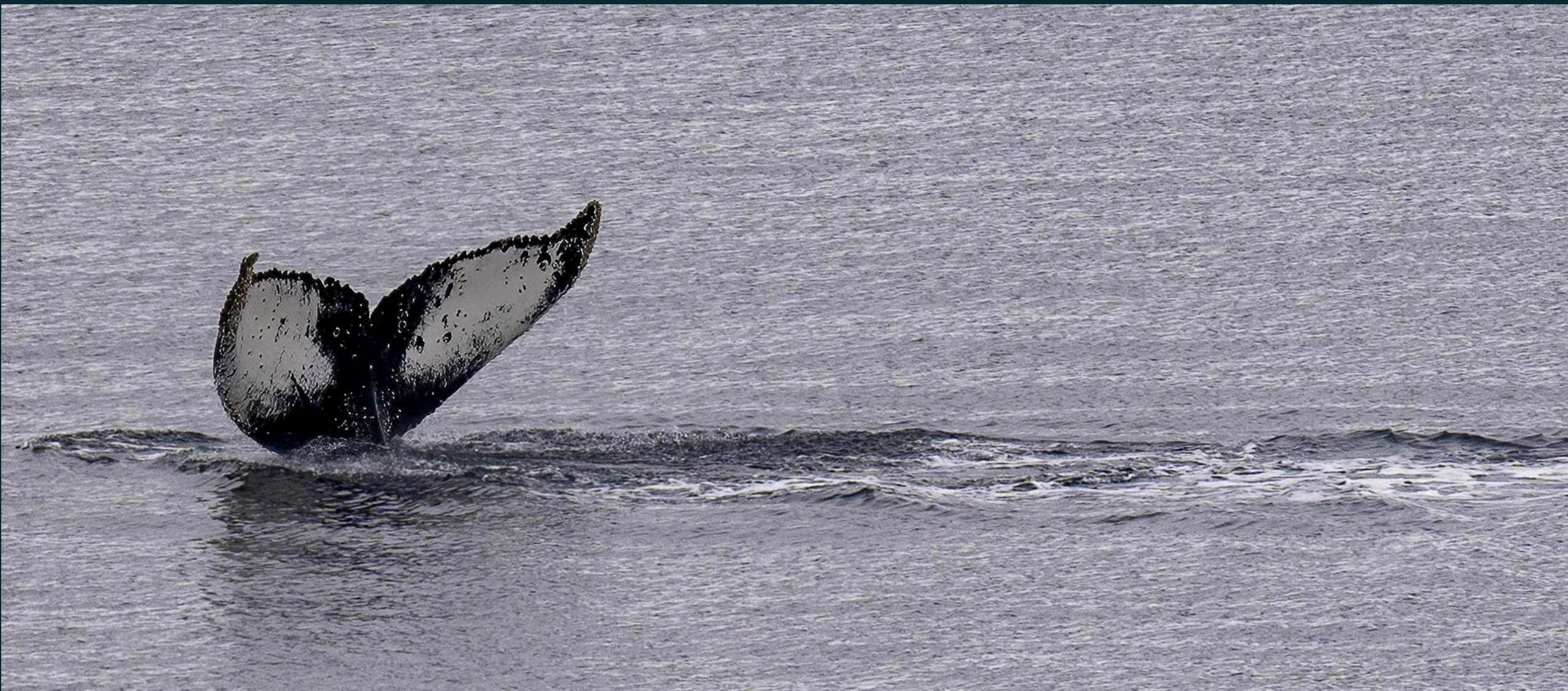
Wildlife List – Birds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
Diomedea sanfordi	**Northern Royal Albatross**	Schwarzflügelalbatros	Albatros royal du Nord	Svartvingealbatross
Diomedea epomophora	**Southern Royal Albatross**	Südkönigsalbatros	Albatros royal	Kongealbatross
Diomedea exulans	**Snowy Albatross**	Wanderalbatros	Albatros hurleur	Vandrealbatross
Phoebetria palpebrata	**Light-mantled Albatross**	Graumantelalbatros	Albatros fuligineux	Gråalbatross
Thalassarche chrysostoma	**Grey-headed Albatross**	Graukopfalbatros	Albatros à tête grise	Gråhodealbatross
Thalassarche melanophris	**Black-browed Albatross**	Schwarzbrauenalbatros	Albatros à sourcils noirs	Svartbrynalbatross
Oceanites oceanicus	**Wilson's Storm Petrel**	Buntfuß-Sturmschwalbe	Océanite de Wilson	Wilsonstormsvale
Macronectes giganteus	**Southern Giant Petrel**	Riesensturmvogel	Pétrel géant	Sørkjempepetrell
Fulmarus glacialoides	**Southern Fulmar**	Silbersturmvogel	Fulmar argenté	Sørhavhest
Thalassoica antarctica	**Antarctic Petrel**	Antarktiksturmvogel	Pétrel antarctique	Antarktispetrell
Daption capense	**Pintado Petrel**	Kapsturmvogel	Damier du Cap	Flekkpetrell
Pagodroma nivea	**Snow Petrel**	Schneesturmvogel	Pétrel des neiges	Snøpetrell
Halobaena caerulea	**Blue Petrel**	Blausturmvogel	Prion bleu	Blåpetrell
Pachyptila desolata	**Antarctic Prion**	Taubensturmvogel	Prion de la Désolation	Antarktishvalfugl
Procellaria aequinoctialis	**White-chinned Petrel**	Weißkinn-Sturmvogel	Puffin à menton blanc	Hvithakepetrell

Wildlife List — Birds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
Ardenna grisea	**Sooty Shearwater**	Dunkler Sturmtaucher	Puffin fuligineux	Grålire
Phalacrocorax magellanicus	**Magellanic Cormorant**	Felsenscharbe	Cormoran de Magellan	Magellanskarv
Leucocarbo atriceps	**Imperial Shag**	Kaiserscharbe	Cormoran impérial	Knoppskarv
Cathartes aura	**Turkey Vulture**	Truthahngeier	Urubu à tête rouge	Kalkunkondor
Passer domesticus	**House Sparrow**	Haussperling	Moineau domestique	Gråspurv

Wildlife List – Marine Mammals



Wildlife List – Marine Mammals

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
Balaenoptera physalus	**Fin whale**	Finnwal	Rorqual commun	Finhval
Megaptera novaeangliae	**Humpback whale**	Buckelwal	Baleine à bosse	Knølhval
Orcinus orca	**Killer whale, Orca**	Schwertwal, Orca	Orque	Spekkhogger
Balaenoptera bonaerensis	**Antarctic minke whale**	Südlicher Zwergwal	Petit rorqual de l'Antarctique	Sørlig vågehval
Cephalorhynchus cruciger	**Hourglass dolphin**	Stundenglasdelfin	Lagénorhynque sablier	Korsdelfin / Timeglassdelfin
Cephalorhynchus australis	**Peale's dolphin**	Peale-Delfin / Schwarzkinndelfin	Lagénorhynque de Peale	Pealedelfin / Svartkinnet delfin
Aethalodelphis obscurus	**Dusky dolphin**	Schwarzdelfin	Lagénorhynque obscur	Mørkdelfin / Mørkfarget delfin
Arctocephalus gazella	**Antarctic fur seal**	Antartischer Seebär	Otarie à fourrure antarctique	Antarktisk pelssel
Leptonychotes weddellii	**Weddell seal**	Weddelrobbe	Phoque de Weddell	Weddellsel
Hydrurga leptonyx	**Leopard seal**	Seeleopard	Léopard de mer	Leopardsel / Sjøleopard
Lobodon carcinophaga	**Crabeater seal**	Krabbenfresser	Phoque crabier	Krabbeetersel
Mirounga leonina	**Southern elephant seal**	Südlicher See-Elefant	Éléphant de mer austral	Sydlig sjøelefant / Sørlig sjøelefant
Otaria flavescens	**South American Sea Lion**	Mähnenrobbe	Lion de mer d'Amérique du Sud	Søramerikansk sjøløve



Thanks for your participation!