



Science & Education Report

MS Roald Amundsen 2025



MS Roald Amundsen

Highlights of Antarctica

11 Mar 2025 — 21 Mar 2025





Science & Education Program

From Ushuaia to the vast white expanse of Antarctica, the Science and Education Team journeyed with you, uncovering the wonders of this remote world.

Through lectures, hands-on workshops, and cultural visits ashore, we explored the resilience of wildlife, the region's storied history, and the dynamic forces shaping this frozen frontier.

We hope these moments—watching penguins waddle along icy shores or listening to the distant crack of calving glaciers—have deepened your appreciation for Antarctica and inspired a lasting curiosity for the natural world.



Science & Education Program

Aboard HX vessels, we are guests in Antarctica—but through citizen science, you've become part of something bigger. Science is for everyone, happening everywhere, every day, and your participation makes a difference.

By observing, collecting data, and contributing to global research, you've gained a deeper connection to the natural world—one that sustains us all. This journey doesn't end here. The tools are in your hands to continue exploring, documenting, and protecting nature wherever you go.

Together, we can turn curiosity into action, ensuring a future where people and the planet thrive.

History

History is not something that simply happens to you—it is something you create. And this journey has been proof of that. You are now part of the **0.00008 percent** of humanity to have set foot in Antarctica. That is no small feat, but with it comes a responsibility: it is up to you to keep the stories you have heard alive.

Throughout our expedition, we have encountered a remarkable array of historical sites and monuments—plaques weathered by time, abandoned bases frozen in history, silent relics of past expeditions. We have reflected on the struggles and triumphs of those who came before us, peeling back the layers of Antarctica's past. In this stark, inhospitable landscape, these very human elements stand as a testament to resilience, grit, and the relentless drive to explore the unknown.

Thanks to the passion and expertise of our onboard historians, you may have found yourself immersed in stories you had never considered before—perhaps the significance of cultural heritage in the far south, or the realization that Shackleton's legendary journey was far from an isolated event.

So whatever you do, give history the attention it deserves. Because the past is never just the past—it is the foundation upon which the present, and the future, is built.

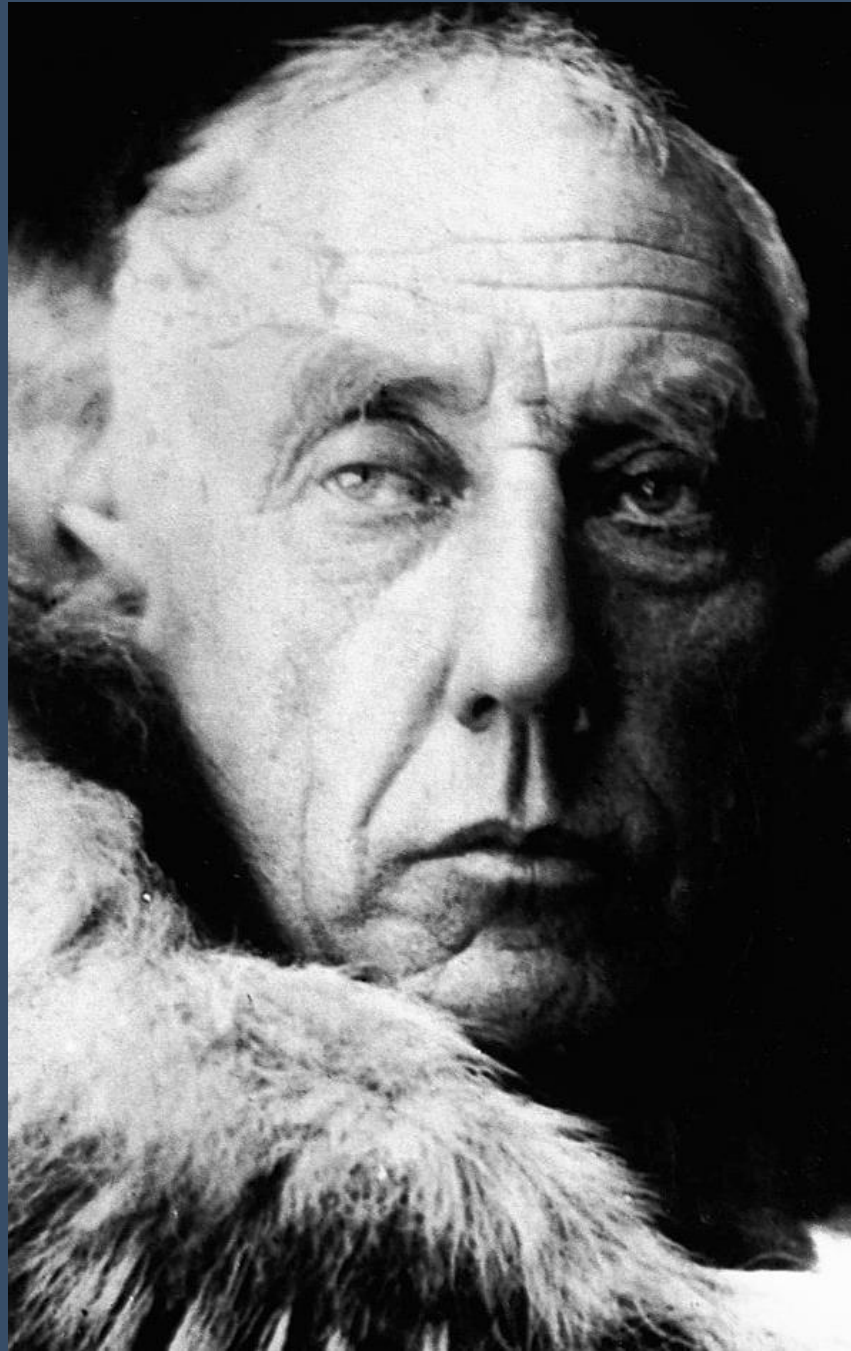


Explorers

What is it about explorers that captivates us? Is it their skill, their determination, their resilience—or is it simply that they look effortlessly cool? No matter who you are, every exploration story holds something to inspire, challenge, or ignite curiosity.

Throughout this journey, we've retraced the footsteps of legendary figures like Amundsen and Shackleton, but we've also uncovered the stories of lesser-known pioneers, such as Jackie Ronne—the first woman to spend an entire winter in Antarctica. Yet, in sharing these tales, we have only scratched the proverbial tip of the iceberg. Our hope is that, when you return home, you will continue the adventure—diving deeper into the extraordinary stories from the golden age of exploration.

And when you do, remember this: you are now part of that legacy. You have faced the Antarctic challenge head-on and emerged (mostly) unscathed. We are proud to have stood alongside you in the winter wilderness of the far south, and we can't wait to join you on your next great expedition.



Ernest H. Shackleton
Coat of Arms

Your inner explorer

Sometimes, a journey is about more than just admiring the places you visit. It's about feeling the raw power of nature, marvelling at the wildlife, and embracing the thrill of adventure. But in a place like Antarctica, it's almost impossible not to find yourself contemplating something deeper: *Why did I come here? What drives people to venture into these frozen landscapes, to challenge themselves against the extremes?*

We believe that every journey leaves its mark. It may not be obvious at first, but once you return home, the memories of the Seventh Continent will begin to shift the way you see the world. One day, you might be walking through a supermarket, lost in thought, when—just for a moment—you glimpse something familiar: the endless, silent slopes of the far south. And in that instant, you'll remember that the world is still wild... and you have seen that wilderness with your own eyes.

Our memories are among our most precious possessions. They shape us, define us, and remind us of who we truly are. We are simply honoured to have been part of your journey, and to have witnessed your transformation into a true explorer.



Geology

The Antarctic Peninsula is a testament to the power of deep time, its geology dominated by ancient igneous and metamorphic rocks. This dramatic landscape was forged between 201 and 66 million years ago, when the oceanic Phoenix Plate plunged beneath Gondwana's eastern margin, driving the subduction that shaped the region.

Today, the legacy of that fiery past is revealed in the exposed Antarctic Peninsula Batholith—a massive body of intrusive igneous rock that cooled and solidified over millions of years. Erosion has since stripped away the overlying layers, unveiling striking formations diorite gabbro and granite of Damoy point.

Every towering peak, every polished shoreline, every rock beneath your feet tells a story of deep Earth processes that continue to shape our planet today. By understanding Antarctica's geology, we gain insight not only into its past but also into the forces still at work across the globe—reminding us that the world beneath us is always shifting, always evolving, and always worth exploring.



Credit: Lois Fleming

Cryosphere

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

Yet, as we admire its beauty, we cannot ignore the signs of change. Climate shifts are altering this frozen world at an alarming rate, threatening not only polar ecosystems but global weather patterns and sea levels. Understanding the cryosphere is not just about studying Antarctica—it's 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've seen, and become an advocate for the ice that sustains life on Earth.



Arts, Crafts & Creativity

Antarctica's beauty is more than something to be seen—it's something to be felt, interpreted, and expressed. Through bottle decorating, species ID painting, clay modelling and origami you transformed inspiration into art, capturing the essence of this remote and breathtaking world.

No prior experience was needed—just an open mind and a willingness to explore creativity in new ways. From delicate brushstrokes to sketches drawn from memory, each creation became a personal tribute to the landscapes and wildlife that surrounded us.

More than just an artistic escape, these sessions provided a space to connect—sharing stories, laughter, and quiet moments of reflection as the icy world drifted by. May these creations serve as reminders of this journey, sparking inspiration long after you've returned home.





Wildlife Watch

As we sailed through the icy waters of Antarctica, you were invited to step onto the deck and take in the breathtaking scenery—an ever-changing panorama of towering glaciers, sculpted icebergs, and endless ocean. But the true magic came in the moments of discovery, as we scanned the horizon for signs of life.

Together, we spotted a remarkable array of wildlife, from the soaring South Polar skuas to the bustling colonies of Gentoo and Chinstrap penguins. The ocean revealed its giants as well—graceful humpback whales, elusive Antarctic minke, and Crabeater seals resting on drifting ice.

Each sighting was a reminder that Antarctica is anything but empty; it is alive, dynamic, and teeming with stories waiting to be observed. May these moments stay with you, inspiring a deeper appreciation for the fragile and extraordinary life of the Southern Ocean.



Science Boat

In six science boat sessions, we ventured beyond observation, diving into hands-on exploration of the Antarctic Ocean. With each drop of a net, each measurement taken, and each sample collected, we weren't just witnessing science—we were part of it.

Using a plankton net, we revealed the tiny, drifting organisms that sustain Antarctica's entire marine ecosystem. A CTD device helped us uncover the hidden world beneath the surface, measuring the ocean's temperature, salinity, and depth. And with a simple Secchi disk, we gauged water clarity, offering insights into the abundance of phytoplankton—the foundation of this fragile food web. These sessions weren't just about data collection; they were about curiosity, discovery, and connection. Science isn't something distant—it's a way of seeing, questioning, and understanding the world around us. As you return home, may this journey inspire you to keep exploring, keep asking questions, and never stop being amazed by the natural world.

FjordPhyto

Science in Antarctica isn't just for researchers—it's for all of us. Through **FjordPhyto**, you stepped into the role of a scientist, helping to uncover how glacial melt is shaping the Antarctic marine ecosystem.

Armed with a plankton net, you carefully towed the waters, gathering samples teeming with microscopic life. Using a filtration system, you concentrated phytoplankton onto filters—tiny organisms that fuel the entire food web. These samples, now bound for microscopic and DNA analysis, will contribute to ongoing research on how climate change is altering phytoplankton communities.

During our voyage, we collected samples from **Orne** and **Neko Harbours**, each site offering a unique snapshot of Antarctic fjord ecosystems. Your participation in this project wasn't just an activity—it was a meaningful step in understanding and protecting this fragile environment. Science thrives on curiosity, and by taking part, you've helped advance knowledge that reaches far beyond these icy waters.



Secchi Disk

Gazing into the Antarctic waters, it's easy to forget they are full of hidden life. With a simple tool—the **Secchi Disk**—you helped reveal what the eye alone cannot see. By lowering the disk into the water and noting the depth at which it disappeared, you measured clarity, offering clues about plankton abundance and shifting ocean conditions.

Sometimes, strong currents made measurements impossible—a reminder that nature sets the terms here. But on calmer days, each reading became part of something bigger: a global effort to track water transparency and a key addition to FjordPhyto's research on Antarctic fjords. What may have felt like a simple act—watching a disk sink into the depths—was a moment of discovery. By taking part, you helped scientists better understand a changing ocean, one measurement at a time.





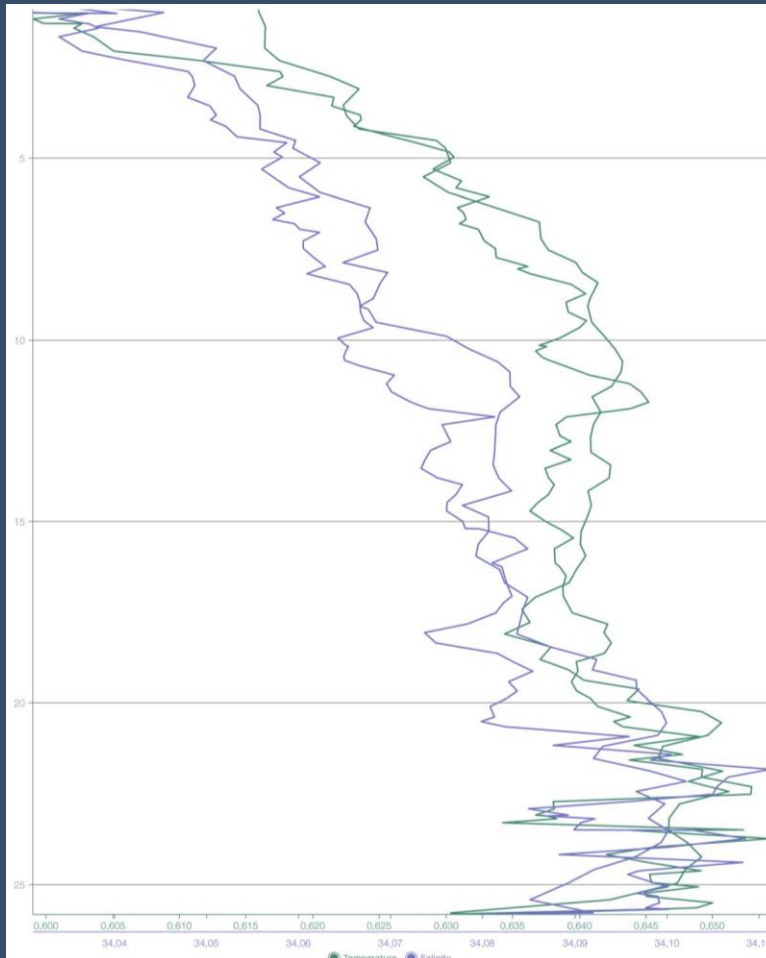
CTD

Beneath the surface, the ocean holds stories of change—stories revealed through science. With the CTD device, you helped uncover key details about Antarctic waters, measuring **salinity, temperature, and depth** to paint a picture of ocean conditions.

Lowered on a tethered line, the CTD captured water column profiles, offering insights into how glacial melt shapes fjords, how currents mix the sea, and where phytoplankton thrive. These data are not just numbers—they are puzzle pieces in understanding a changing climate. Each measurement taken adds to a growing body of research, helping scientists track long-term shifts in Antarctic ecosystems. By participating, you've played a role in unravelling the mysteries of these remote waters—one drop at a time.

Depth Profile: Damoy Point, Wiencke Island

Depth (m)



Temperature (°C)
Salinity (PSU)

Our CTD profile from Damoy shows an increasing salinity which we expect since salt water is more dense than freshwater. But the temperature also increases despite cold water being more dense than warm water. This is because salinity 'trumps' temperature, so this is likely due to cold, fresh water melt from glaciers or icebergs.

When looking at the scale bars we can see these are relatively small changes, suggesting a well-mixed water column. This allows nutrients to be replenished to the surface waters for phytoplankton to use in photosynthesis.

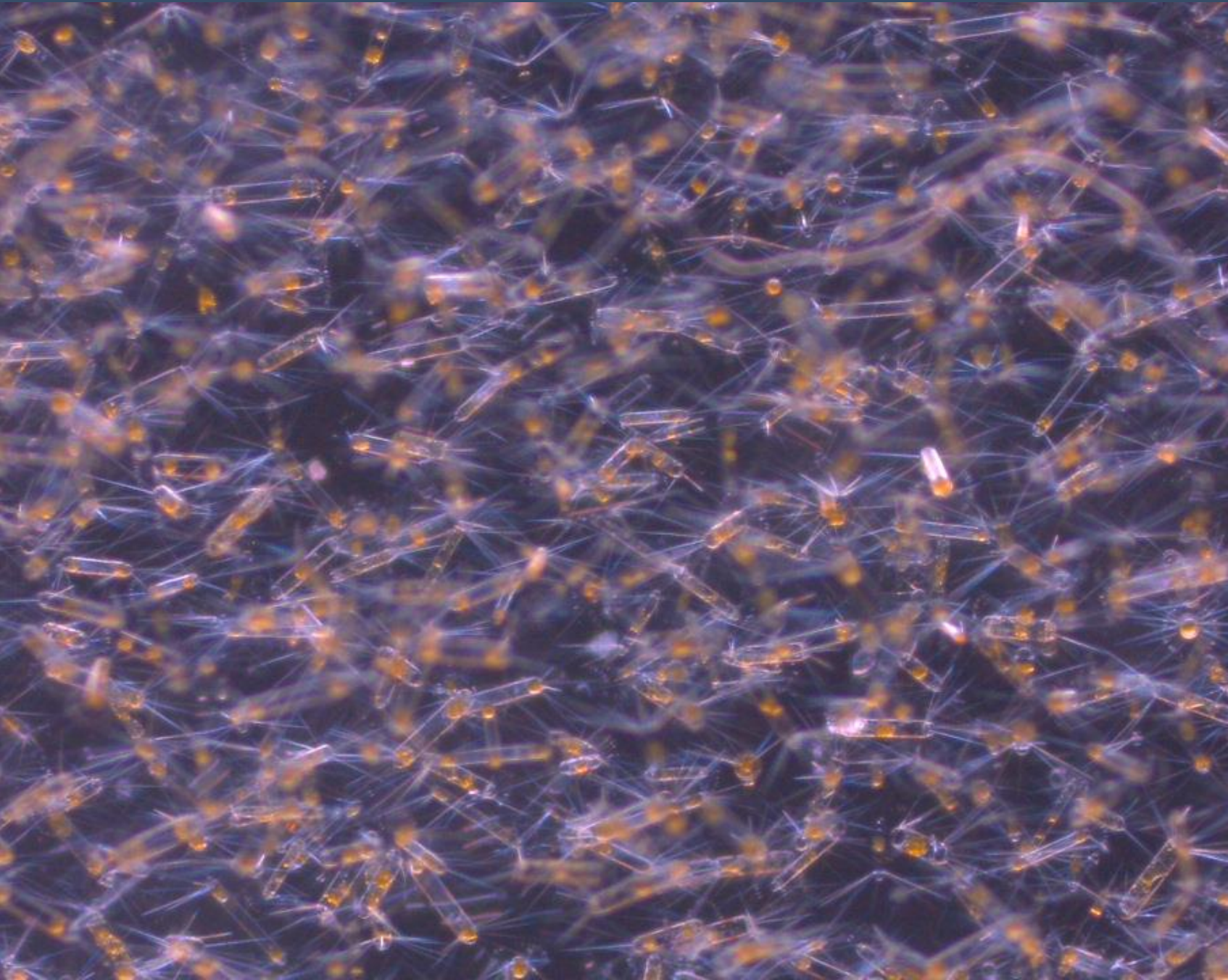
Water Sampling

During our expedition, we collected water samples from two different sites: Pleneau Island and Damoy Point.

From the science boat, we deployed **plankton nets**, towing them through the water for 5–10 minutes to capture these drifting life forms. The **phytoplankton net** (20 μ m mesh) gathered microscopic plant-like organisms, while the **zooplankton net** (200 μ m mesh) caught tiny marine animals, each playing a vital role in the Antarctic food web.

Every tow provided a glimpse into the hidden world beneath the surface, helping us understand how these foundational species sustain life in the Southern Ocean.





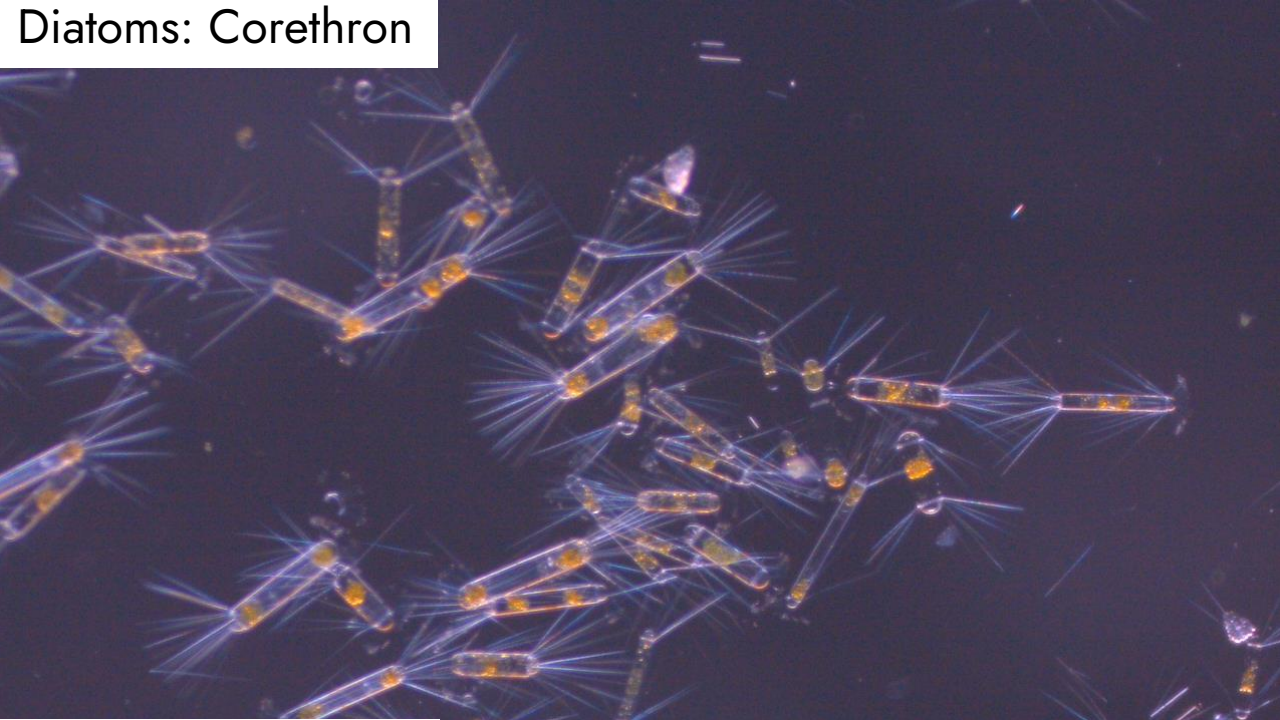
Plankton Samples

Back in the science centre, we brought the ocean into focus—examining our water samples under the microscope to uncover the hidden world of **phytoplankton** and **zooplankton**.

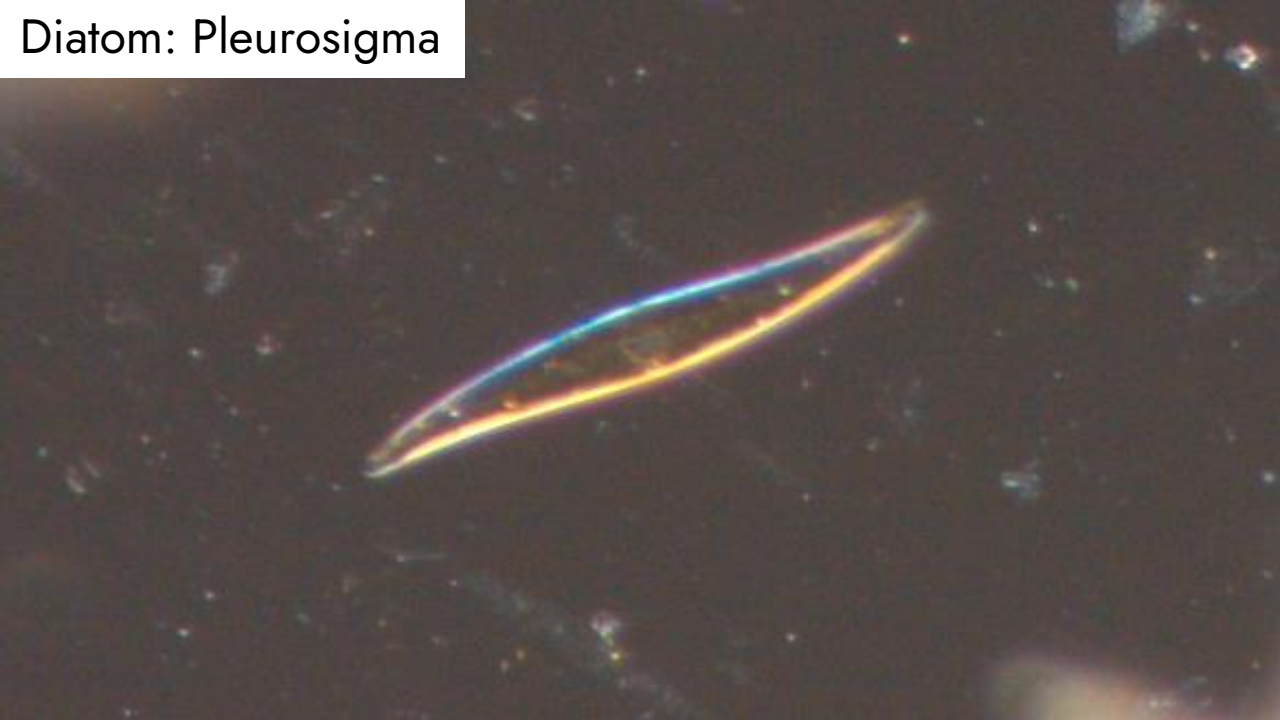
Using microscopes, we projected magnified images onto the screen, allowing everyone to see the intricate details of these tiny organisms. Smaller binocular microscopes offered a hands-on experience, inviting you to search for life in each drop of water.

The samples revealed a world dominated by diatoms, a type of phytoplankton that forms the foundation of the Antarctic food web. What seemed invisible to the eye became a vivid reminder that even the smallest life forms shape this vast and wild ecosystem.

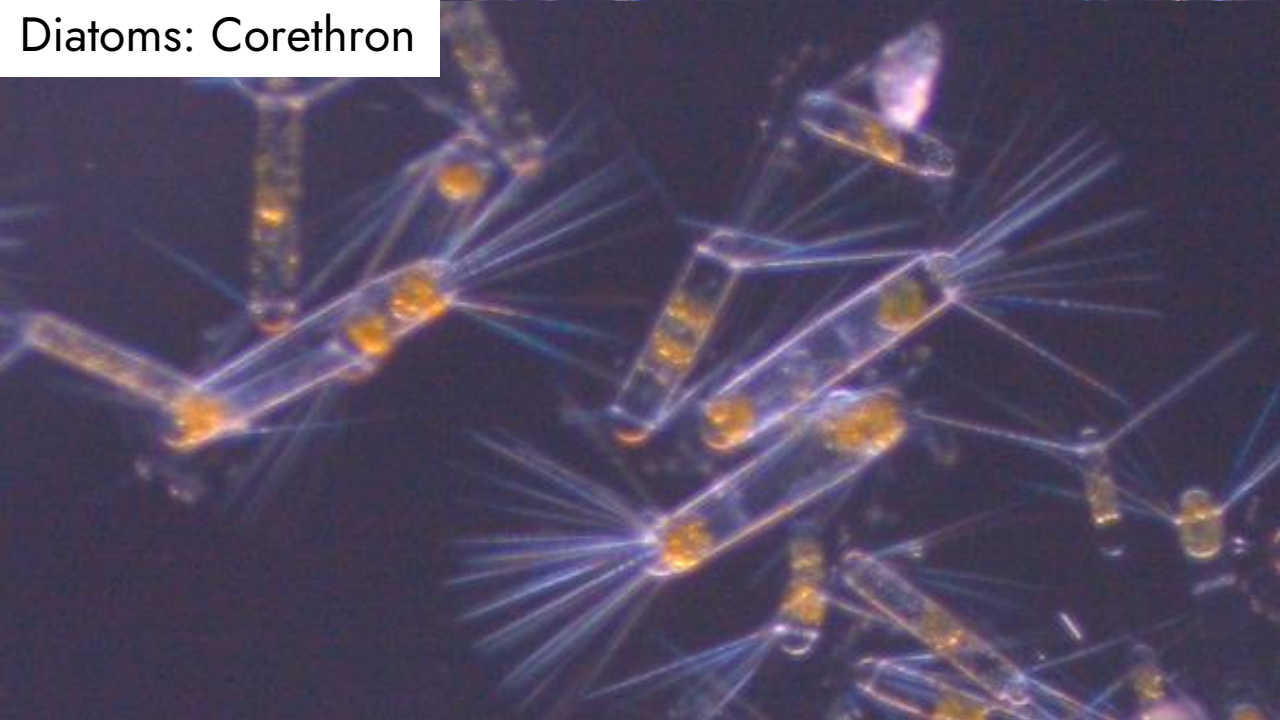
Diatoms: Corethron



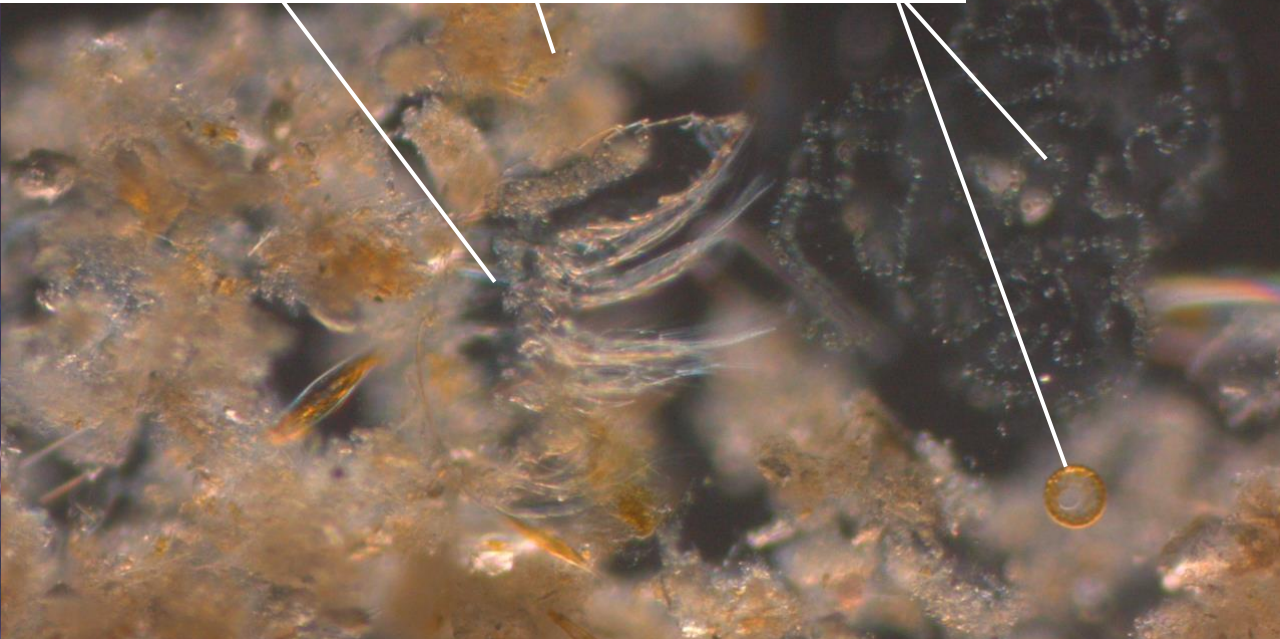
Diatom: Pleurosigma



Diatoms: Corethron



Shell of a crustacean, marine snow, diatoms



iNaturalist

Throughout this voyage, you played a vital role in documenting the incredible biodiversity of Antarctica. By capturing and submitting images of wildlife and plant life, you contributed to a global effort to track species distribution and monitor ecosystems in one of the most remote places on Earth.

Together, we gathered at least:

173 Observations

48 Species Identified

15 Observers Participating

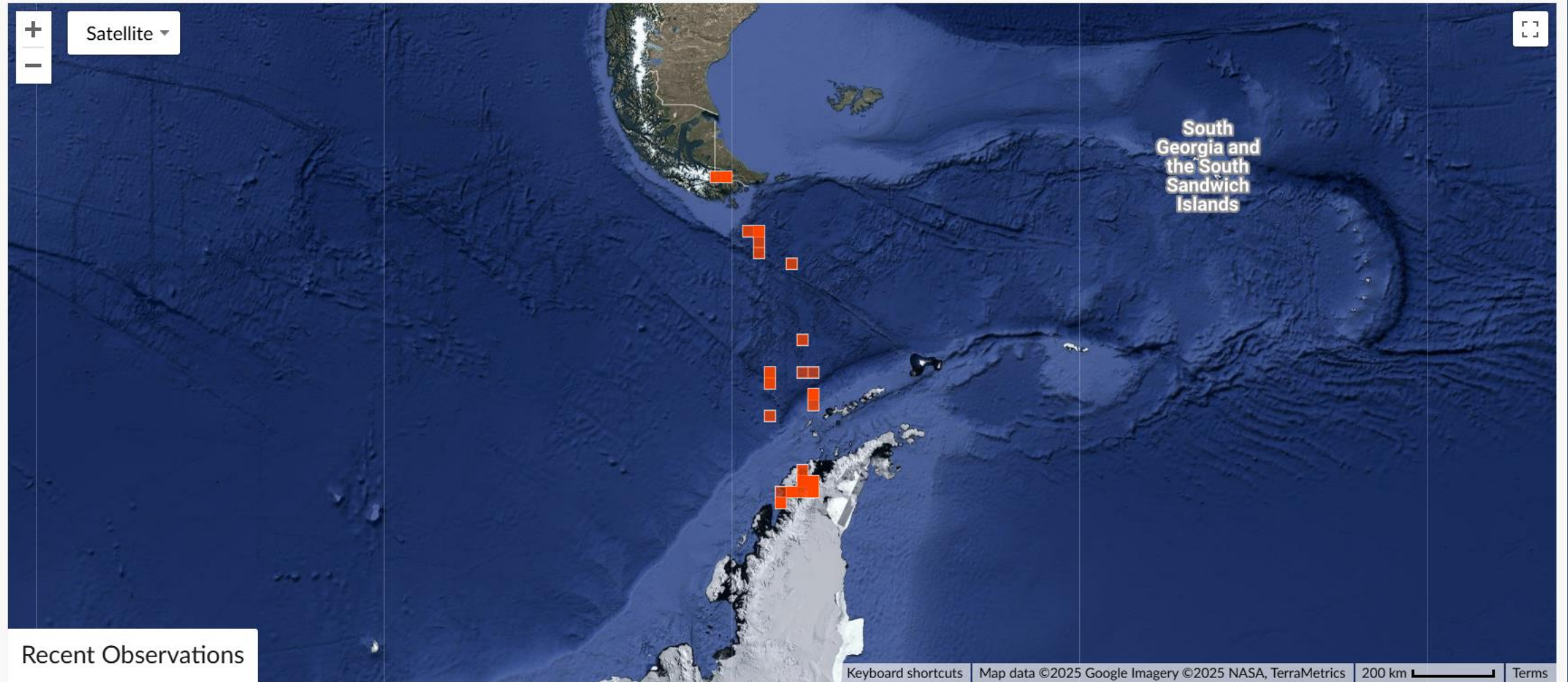
Each observation helps scientists build a clearer picture of biodiversity in polar regions. Want to explore our findings? Scan the **QR code** to view our collective data and see the impact of your contributions:



Photo: Brendan Murtha

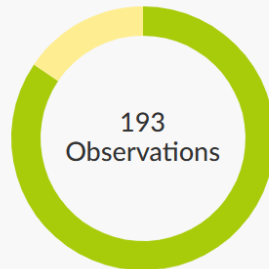
2025 Mar 11 - Mar 21: MS Roald Amundsen - Highlights of Antarctica (AMANT2505)

Map of Observations

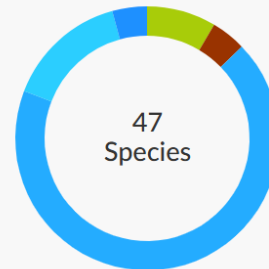


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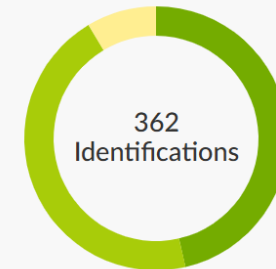
Stats



● Research Grade
● Needs ID
● Casual



● Unknown
● Protozoans
● Fungi
● Plants
● Chromista
● Mollusks
● Insects
● Arachnids
● Ray-Finned F...
● Amphibians
● Reptiles
● Birds
● Mammals
● Other Animals



● Improving
● Supporting
● Leading
● Maverick

Recent Observations →

[View All](#)



Salpa thompsoni



1 3d



Leopard Seal · Leopardseal
· Seeleopard
Hydrurga leptonyx



2 5d



Gentoo Penguin ·
Bøylepingvin ·
Eselspinguin
Pygoscelis papua



3 5d



Crested Penguins ·
Toppingviner ·
Haubenpinguine
Genus *Eudyptes*



1 6h



eBird

Bird-watching isn't just a hobby—it's a powerful tool for science. eBird, a global citizen science platform, allows bird enthusiasts to record and share sightings, contributing valuable data for research and conservation.

During our voyage, our onboard ornithologists conducted 9 wildlife watches, completing 55 checklists and recording 34 bird species along the way. Every entry adds to a growing database that helps scientists track migration patterns, monitor populations, and understand bird behaviour in remote regions like Antarctica. Scan the QR code to explore our data and see how your observations contribute to a global effort in avian research:



AMANT2505 - Highlights of Antarctica on the Amundsen (3/11-3/21/2025)

11 – 21 Mar 2025 (11 days) Public

Antarctica | Argentina | Chile Subregions

Brendan Murtha, Ingvild Riska, Jeannine Winkel

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Narrative

Owners and editors of a Trip Report may write a narrative.

[Add narrative](#)

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

34
Species Observed
+9 other taxa

55
Checklists

7
Species with Photos

Species Observed

[Show all details](#)

7	Snowy Sheathbill <i>Chionis albus</i>	2
38	Chilean Skua <i>Stercorarius chilensis</i>	3

Happywhale

We have uploaded multiple pictures of humpback whale flukes to Happywhale, out of which 1 has already been identified in the Happywhale catalogue.

These findings are a valuable contribution to science, helping to enhance our understanding of whale populations on a global scale.

Guests from this trip are also encouraged to submit their own photos of individual whales to Happywhale, contributing to their worldwide catalogue of identified whales.

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

<https://happywhale.com/user/11890;svy=120599>



Credit: Matthew Gledhill

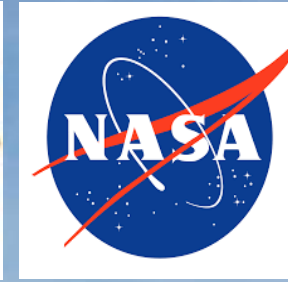
Guest Scientists

Snow algae

Antarctica's icy landscape may seem inhospitable, but even here, life finds a way. The Snow Algae Project investigates microscopic algae that thrive in melting snow, turning it shades of red, green, or orange. These blooms, primarily from the *Chlamydomonas* genus, flourish in nutrient-rich meltwater, creating vibrant streaks across the frozen terrain.

Beyond their striking colours, snow algae play a vital role in polar ecosystems. They influence biogeochemical cycles, provide nutrients to microbial communities, and even impact surface albedo—the ability of snow to reflect sunlight. As climate change accelerates melting, these algae may further contribute to ice loss, creating a feedback loop that scientists are eager to understand.

Through field sampling and lab analysis, researchers are uncovering how these tiny organisms survive in extreme conditions and what their presence reveals about Antarctica's changing environment. Every snow sample collected brings us closer to understanding the delicate balance of life in one of the harshest places on Earth.



Snow Algae

We collected and filtered...

What's next?

- Wet lab processing:
 - Nutrients in snow
 - Trace metals in snow
 - Snow algae cell density and pigmentation
- Model albedo using the SNICAR model
- Compare results to our snow algae studies in Alaska and Washington, USA



10 snow samples
2 rBC samples



4 snow samples
2 rBC samples

8 snow samples
2 rBC samples



Damoy Point

Neko Harbor

Pléneau Island

Conflicted
otherworldly
melting ice
once in a lifetime
wilderness whales
unknown
penguins
environment
enriching
hostile
too many tourists
isolated
south pole
wildlife
cold
ice
remote
snow
unique

What understanding do
you get out of visiting
Antarctica that you
couldn't otherwise?

Citizen Science Poems

Happywhale

Whether ringed with barnacles,
raked with scars, speckled
white on black or black on white,
when picked out like faces in a crowd
we find in each perfectly framed
fluke an individual. We know them
only as they leave but with our
clumsy tongues, we name them.

Fjord Phyto

i)
The Secchi disk measures
like a magic trick:
now you see a white dot;
now you don't.

ii)
One line is lowered
then drawn back up:
the same line;

the same speed.
Then on the screen
black V for depth,

downward nudge
in temperature,
trailed by salinity.

Wildlife List - Birds



Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<i>Chionis albus</i>	Snowy Sheathbill	Weißgesicht-Scheidenschnabel	Chionis blanc	白鞘嘴鸥
<i>Stercorarius chilensis</i>	Chilean Skua	Chileskua	Labbe du Chili	智利贼鸥
<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>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
<i>Spheniscus magellanicus</i>	Magellanic Penguin	Magellanpinguin	Manchot de Magellan	南美企鹅
<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>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

Wildlife List — Birds

Scientific Name	English	Deutsch	Francais	Chinese
<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>Thalassoica antarctica</i>	Antarctic Petrel	Antarktiksturmvogel	Pétrel antarctique	南极鹱
<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
<i>Pterodroma mollis</i>	Soft-plumaged Petrel	Weichfeder-Sturmvogel	Pétrel soyeux	柔羽圆尾鹱
<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>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	岩鸬鹚
<i>Leucocarbo atriceps</i>	Imperial Shag	Kaiserscharbe	Cormoran impérial	蓝眼鸬鹚
<i>Leucocarbo bransfieldensis</i>	Antarctic Shag	Antarktikscharbe	Cormoran antarctique	南极鸬鹚
<i>Theristicus melanopis</i>	Black-faced Ibis	Schwarzzügelibis	Ibis à face noire	黑脸鹮



Southern fulmar (*Fulmarus glacialoides*)

Credit: Ted Gatlin/HX

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>Arctocephalus gazella</i>	Antarctic fur seal	Antartischer Seebär	Otarie à fourrure antarctique	南极毛皮海狮
<i>Leptonychotes weddellii</i>	Weddell seal	Weddelrobbe	Phoque de Weddell	韦德尔氏海豹
<i>Hydrurga leptonyx</i>	Leopard seal	Seeleopard	Léopard de mer	豹海豹
<i>Lobodon carcinophaga</i>	Crabeater seal	Krabbenfresser	Phoque crabier	食蟹海豹
<i>Mirounga leonina</i>	Southern elephant seal	Südlicher See-Elefant	Eléphant de mer austral	南象海豹
<i>Otaria byronia</i>	South American sea lion	Mähnenrobbe	Lion de mer d'Amérique du Sud	南海狮
<i>Balaenoptera borealis</i>	Sei whale	Seiwal	Rorqual de Rudolphi	塞鲸
<i>Lagenorhynchus australis</i>	Peale's dolphin	Peale-Delfin	Lagénorhynque de Peale	皮氏斑纹海豚
<i>Lagenorhynchus cruciger</i>	Hourglass dolphin	Stundenglasdelfin	Lagénorhynque sablier	沙漏斑纹海豚
<i>Arctocephalus australis</i>	South American fur seal	Südamerikanischer Seebär	Otarie à fourrure australe	南美毛皮海狮



Antarctic fur seal (*Arctocephalus gazella*)



IX

**Connect With Your
Inner Scientist**

