
Documenting species and biodiversity in Chilean Patagonia

A close-up photograph of a seal, likely a South American sea lion, resting on a light-colored, textured rock surface. The seal is facing towards the right of the frame, its head turned slightly upwards and to the left. Its dark brown, mottled fur is visible, along with its long, pinkish-brown foreflippers. In the background, more seals are visible on the rocks under a clear blue sky.

Blue Marine Foundation and Patagonia Projects

Project overview - June 2020



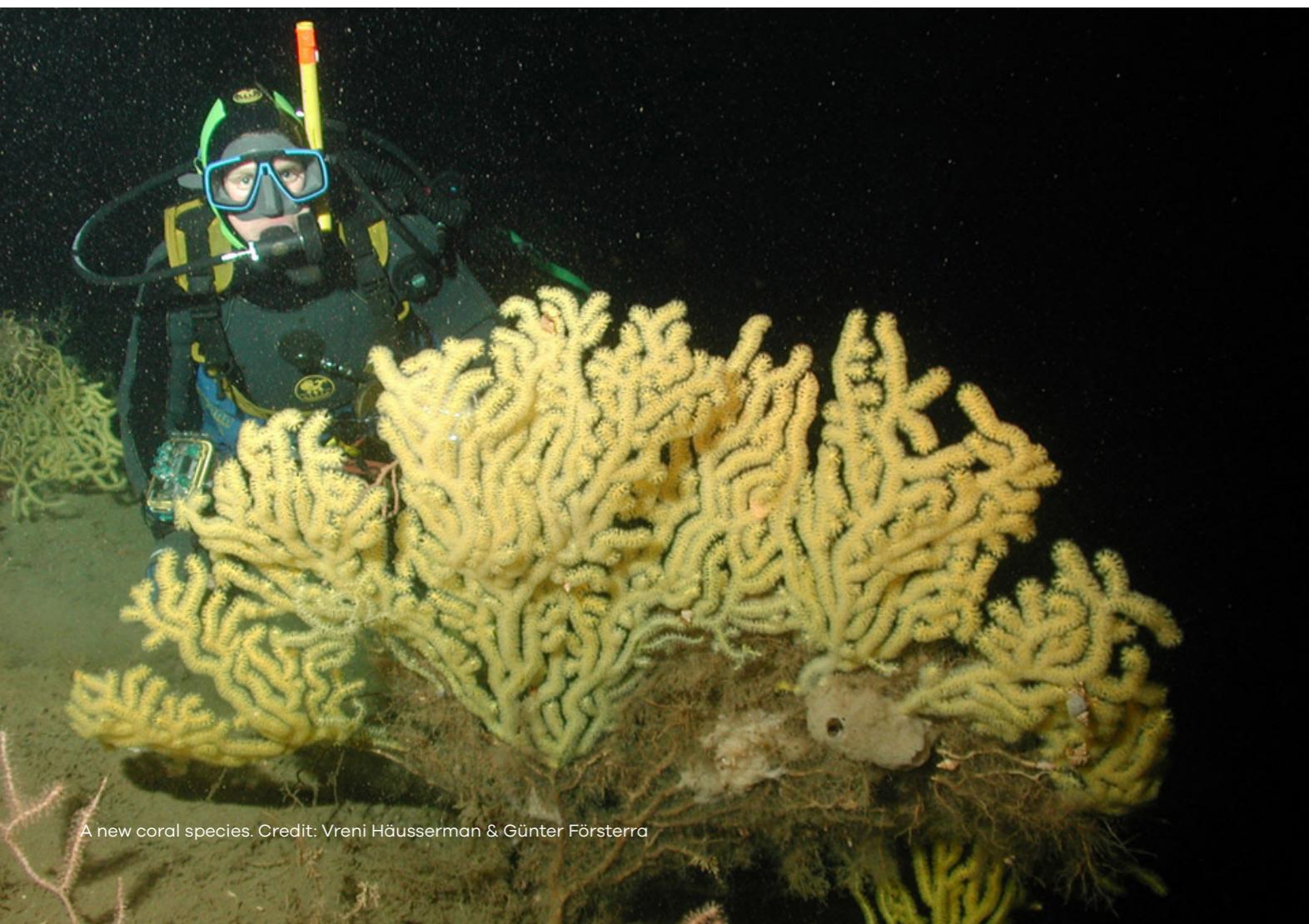
BLUE MARINE
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Headlines

- High biodiversity is a sign of a healthy ecosystem.
- The species diversity in the Golfo de Penas has hardly been studied: we don't know exactly what species are there.
- Patagonia Projects scientist Dr Vreni Häusserman has discovered more than 100 new benthic species (sea floor) in Chilean Patagonia.
- Through their studies on the Mass Mortality of sei whales in the Golfo de Penas, Patagonia Projects believe that the area may be a feeding hotspot for the endangered sei whale.
- In 2018 Patagonia Projects documented the first blue whale seen in the area



Story

The waters and surrounding environment of the Golfo de Penas constitutes one of the most remote and understudied regions of the world. Therefore part of Patagonia Projects work is facilitating the documenting of species that live in this area, whether at the water's surface or below. This is key to establishing a biodiversity baseline, against which to monitor climate change and more direct anthropogenic impacts. Findings of species not seen before in this area, or even totally new species, have been a common event since the start of Patagonia Project's work. In November 2018, the Patagonia Projects team observed a blue whale feeding in the inner fjords of the Golfo de Penas: the first time this endangered species had been observed in the area. High-quality photographs of the whale's dorsal and flukes allowed us to establish that it was in fact an individual that also visits the Isla de Chiloe feeding ground, around 500km north of Golfo de Penas. These findings have allowed us to propose the Golfo de Penas region as a new feeding location for the largest animals on the planet.

Dr Vreni Häussermann from the Huinay Foundation has been collaborating with Patagonia Projects since 2015 and has discovered dozens of completely new species of benthic (sea floor) corals and invertebrates each year. Other discoveries of known species' behaviour in this region also contribute to our understanding of the biodiversity: for example, Dr Häussermann published observations of hummingbirds bathing in hot springs in the Valdivian rainforests on the shores of the Chilean fjords, something which has not been documented anywhere else in the world. Another example is the study by Dr Carlos Hermosilla (another Patagonia Projects collaborator), Dr Häussermann and others who studied South American sea lions (*Otaria flavescens*) in Chilean Patagonia and found that they host many parasite species as well as several anthropozoonotic pathogens. They may act as "reservoirs" for these pathogens, and therefore the findings have implications for public health policy as well as conservation.

- Vreni Häussermann, Rolex Awards Laureate, 2016: <https://www.youtube.com/watch?v=eJWz8t9kQ2U>
- Vreni Häussermann, CNN article July 2020 <https://www.cnn.com/2020/07/15/world/vreni-haussermann-c2e-spc-scn-int/index.html>

Papers

Directly from Patagonia Projects expeditions:

- Krapp-Schickel, T., Häussermann, V., & Vader, W. (2015). A new Stenothoe species (Crustacea: Amphipoda: Stenocephalidae) living on Boloceropsis platei (Anthozoa: Actiniaria) from Chilean Patagonia. *Helgoland Marine Research*, 69(2), 213-220.
- Ceseña, F., Meyer, R., Mergl, C. P., Häussermann, V., Försterra, G., McConnell, K., & Melzer, R. R. (2016). Decapoda of the Huinay Fiordos-expeditions to the Chilean fjords 2005-2014: Inventory, pictorial atlas and faunistic remarks. *Spixiana*, 39(2), 153-198.
- Clegg, I. L. K., Pashuk, K., Greg Landreth, G., Darwin, W., Espanol, S., Galletti Vernazzani, B., Häussermann, V. (Manuscript in preparation). "Blue whale observation within the fjords of the Golfo de Penas, Chilean Central Patagonia and connectivity with Isla de Chiloé sightings: another mid-latitude feeding site for Chilean blue whales?"

From Patagonia Projects scientists on the same topic:

- Häussermann, V., Spano, C., Thiel, M. and Lohrmann, K. (2015): First record of the sea anemone *Diadumene lineata* (Verrill, 1869) (Cnidaria: Anthozoa: Actiniaria) from the Chilean coast. *Spixiana* 38 (1): 39-42.
- Schlatter, R., Häussermann, V., & Försterra, G. (2015). Some like it hot—hummingbirds making use of hot springs in Chilean Patagonia. *Spixiana* 38 (1): 48.
- Hermosilla, C., Hirzmann, J., Silva, L. M., Scheufen, S., Prenger-Berninghoff, E., Ewers, C., ... & Taubert, A. (2018). Gastrointestinal parasites and bacteria in free-living South American sea lions (*Otaria flavescens*) in Chilean Comau Fjord and new host record of a *Diphyllobothrium scoticum*-like cestode. *Frontiers in Marine Science*, 5, 459.

Activities

- Scuba diving biodiversity transects (down to 30m) of the benthic zones around the Golfo de Penas region and Canal Messier.
- Remotely Operated Vehicle (ROV) biodiversity transects of benthic zones at 500m around the Golfo de Penas region and Canal Messier.
- Invertebrate species sampling to define geographic distribution.
- Cetacean observation transects, recording of behaviour.
- Documenting all observed mammal and bird species on each Patagonia Projects trip.

Targets

- Biodiversity baseline for the area: record of species present in the area, and estimated abundance.
- Publications on any new species or on new findings of known species.

Outcomes

- Effective conservation policy based on established biodiversity baseline.
- Protection of some coral species on the IUCN Red List.
- Increased public awareness and stakeholder engagement regarding biodiversity in area.



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