

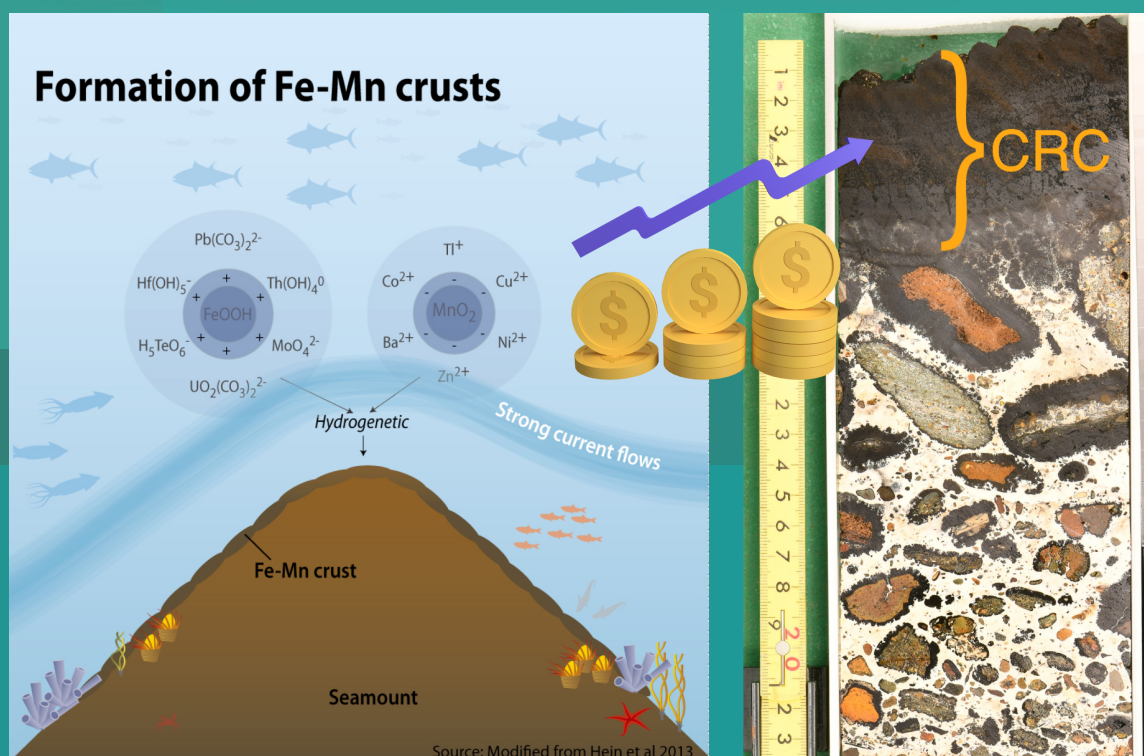
PROTECT
THE

O'HIGGINS SEAMOUNT (CHILE)

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WHY SEAMOUNTS ARE IN DANGER?



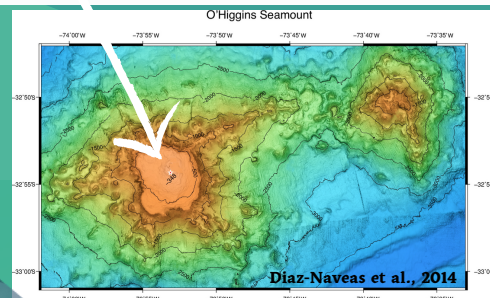
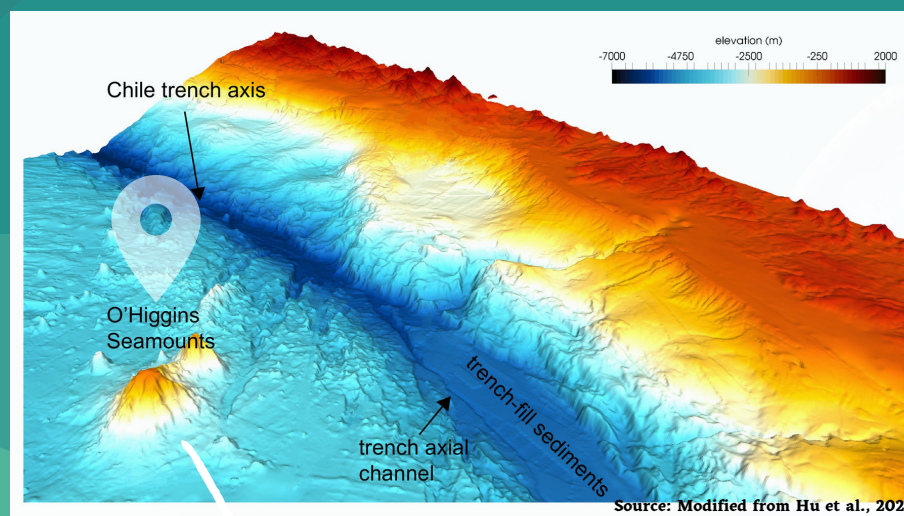
Today, seamounts are not only **threatened by trawling** around the world (a technique that destroys unique habitats for often endemic species), but are now also under threat from future **deep-sea mining**, as due to the scarcity of mineral resources on land (such as cobalt), mining companies are setting their sights on the ocean to obtain these precious resources.

Over the past few decades it has been discovered that these seamounts are covered by mineral-rich crusts, including cobalt, a metal that is increasing in value on the stock market to unprecedented levels. These cobalt-rich ferromanganese crusts (**CRC**) precipitate from the cold ambient (hydrogenic) waters of the seafloor onto the surface of the seamounts (Hein et al., 2013). CRC are usually found in guyots (a top-flat seamount) at depths of 400-3000 m and are a promising seafloor resource because they contain large amounts of cobalt, nickel, manganese and other metals that could exceed the content of terrestrial deposits. However, their extraction requires machines to separate the material from the substrate (i.e., ripping or drilling; Bollmann et al., 2010), which could lead to the extinction of many species due to habitat loss.

Metals in seamount crusts include cobalt, nickel, copper, and titanium, as well as minor elements such as molybdenum, tellurium, platinum, zirconium, niobium, bismuth, and REE. This makes CRC a potential resource for some metals used in emerging high-tech and green technology applications, , but **are we willing to put hundreds of species, often unknown to science, at risk of extinction?**

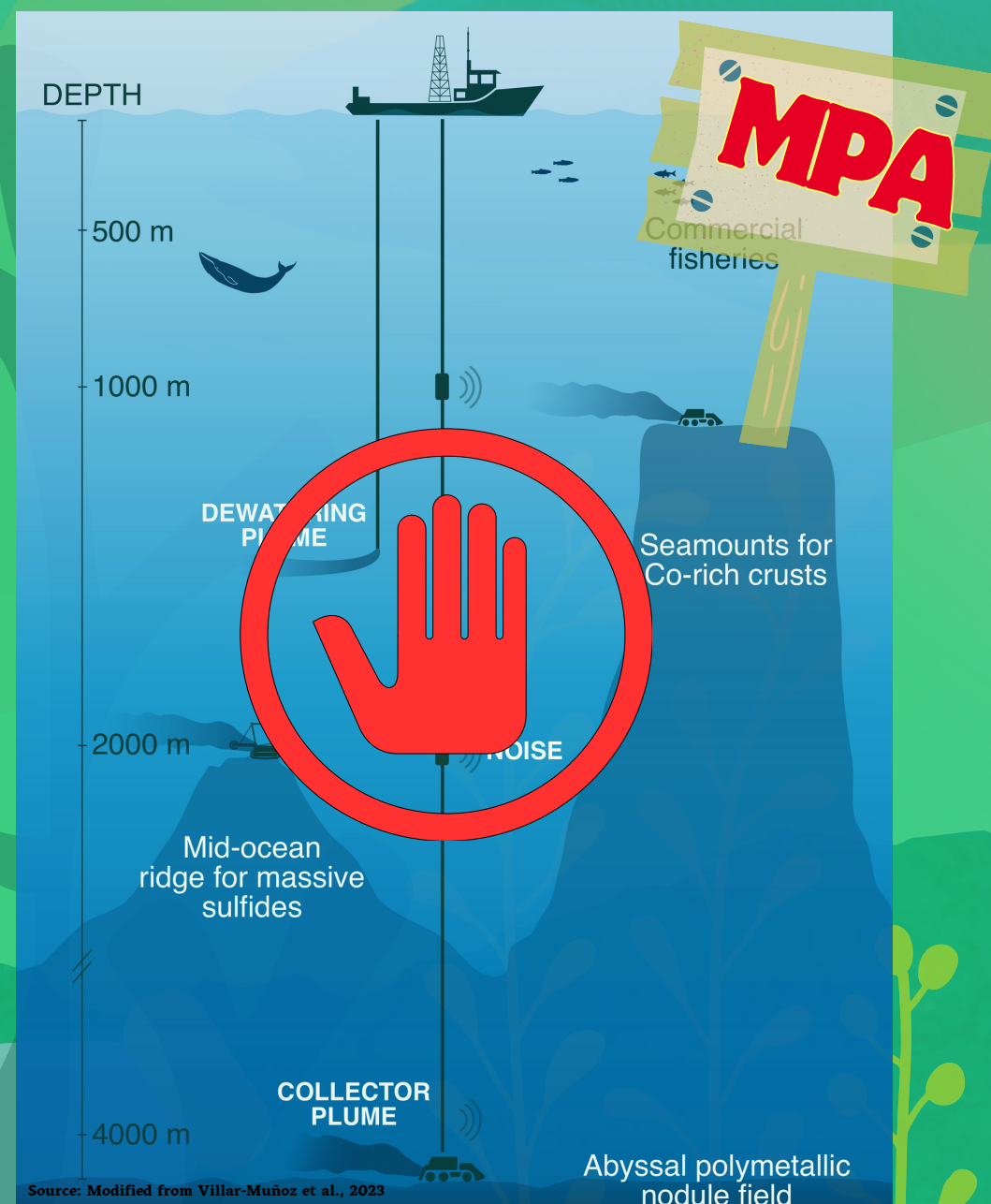
WHERE IS THE O'HIGGINS SEAMOUNT LOCATED?

Thanks to new bathymetric data obtained in Chile, it was possible to identify the existence of more than ten seamounts between Valparaíso and the Juan Fernandez Archipelago, which reach their maximum point between 300 and 3000 m depth. One of the main guyot (flat-top) in the **Chilean EEZ** is the **O'Higgins seamount (8.5-9.3 Ma in age), located 120 miles (approximately 200 km) from Valparaíso (33° S)**. This guyot appears to be CRC prone and, in the near future, could be a target for deep-sea mining. On the other hand, this seamount also presents a high biodiversity described as a benthic community formed by an assemblage of four species of **cold-water corals** at the margin of the O'Higgins seamount plateau (Cañete & Häussermann, 2012). Furthermore, the same study demonstrates that this deep-sea coral assemblage provides **critical habitat for the nylon shrimp (*Heterocarpus reedi*)**, a crustacean of fisheries importance. In addition, being close to the continental coast, this guyot is of **fisheries importance** (pelagic fishes) and is also considered an important **migratory route for cetaceans** (e.g. blue and fin whales; Johnson et al., 2022) and **sea turtles** (e.g. leatherback turtles). *The O'Higgins Seamount, as a pristine habitat for important and endangered marine species, had remained almost intact for thousands of years, however, it was never more threatened than today, by the fishing industry and future seabed mining.*



WHAT WE PROPOSE?

Because the **O'Higgins seamount is one of the most pristine environments that provides habitat for critical species**, and it contains rare and vulnerable benthic species such as unique cold-water corals that live for up to 1000 years, breeding grounds and habitats for benthic species (e.g. nylon shrimp), and also it is a migratory route for other marine species (such as turtles and cetaceans); **we propose to create an Marine Protected Area (MPA)** in this seamount to preserve these extraordinary species, which would be in accordance with the future of the "Turquoise Foreign Policy" ("**Política Exterior Turquesa**") promoted by the Chilean Government. To safeguard the O'Higgins seamount we suggest the category of MPA of **Marine Park**, since this is an area **destined to preserve ecological units of high interest for science and as natural heritage**, safeguarding the maintenance and diversity of hydrobiological species and their habitat. This proposal will require a General Management Plan (GMP). No activities may be carried out in this new MPA, except those authorized for observation and research purposes, under the supervision of the National Fisheries and Aquaculture Service (SERNAPESCA). The fragility of its habitat, associated with its slow process of coral formation in its deep waters, its high endemism and the slow population dynamics of the species make the O'Higgins seamount suitable for the creation of a Marine Park. The main reasons (Gubbay, 2003), for this proposal are: i) The high species diversity of this areas includes many species new to science, and the probability that the number of species present is greater than the number of species currently recorded; ii) The highly localized distribution of many seamount-species with a high percentage of potential endemic species; iii) The critical nature of the seamounts for certain species that congregate in these areas to mate and spawn; iv) The demonstrated coupling between human activity and decline in biodiversity in the seamounts; v) The apparent limited dispersal among the seamounts, the extreme longevity, the slow recruitment of the species, and the restricted habitat, make the fauna of the seamounts sensitive to the impacts of any industry and the probability of recovery is very long-term; vi) The high levels of threat to mountain fauna due to fishing activity and the future deep-sea mining.



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