



Australia Protects Vast Area in Southern Ocean

Macquarie Island Marine Park shows how world-class conservation and sustainable fishing can work hand in hand

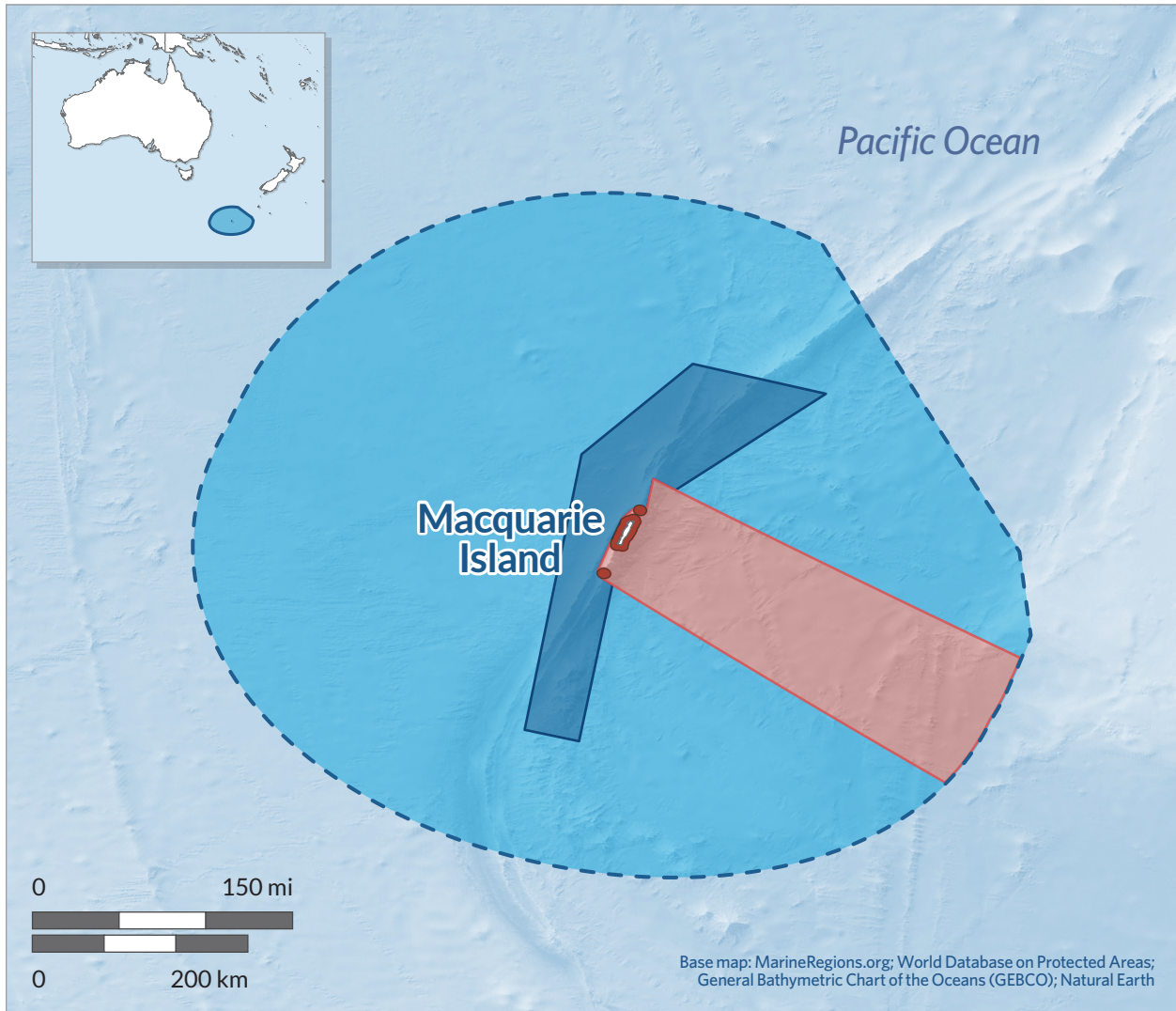
Overview

Located in the remote and frigid waters of the Southern Ocean between Tasmania and Antarctica, Australia's Macquarie Island is one of the most important marine areas in the world for biodiversity. It is home to an astonishing array of wildlife, including many threatened and endemic species – creatures found nowhere else on Earth.

Macquarie Island provides crucial habitat for penguins, seals, whales, fish and migratory seabirds, and was recognised as a UNESCO World Heritage site in 1997. Acknowledging the global significance and potential threats from a changing climate and human activity, the Australian government expanded and strengthened marine protections in July 2023 to include all the sovereign waters surrounding the island – an area larger than Germany. During the government's 2-month public consultation process, which was developed with input from The Pew Charitable Trusts and its partners, more than 99% of the nearly 15,000 submissions from scientists, the Australian public, industry and other groups interested in the region were supportive.¹

Australia's Macquarie Island Marine Park Encompasses More Than 475,000 Square Kilometres (183,000 Square Miles)

Frigid waters support incredible wildlife diversity, including penguins, fish, seals and whales



- Sanctuary zone (IUCN Category Ia – strict nature reserve)
- National park zone (IUCN Category II – national park)
- Habitat protection zone (IUCN Category IV – habitat management area)
- Tasmania State Marine Park (fully/highly protected)
- — Australia exclusive economic zone boundary

Source: Australian Department of Climate Change, Energy, the Environment and Water

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A remarkable and globally significant marine ecosystem

Macquarie Island is a unique part of Australia and the world. The entire Australian exclusive economic zone (EEZ) – the ocean area under Australia’s jurisdiction – is significant for its geology, oceanography and ecology. Macquarie Island is the exposed crest of the Macquarie Ridge, an undersea mountain range running more than 1,600 kilometres (nearly 1,000 miles) formed by the uplifting of 2 oceanic plates. This is one of the only north-south features impeding the eastern flow of the Antarctic Circumpolar Current, which creates important physical and biological oceanography to the west and to the east of the ridge.

The region supports an incredible diversity of marine life, including 57 species of seabirds. Twenty-five of these species breed on Macquarie Island, including 4 penguin species and 4 albatross species. The royal penguin and the Macquarie Island imperial shag are endemic to Macquarie Island. The wandering albatross is classified as vulnerable under the Environmental Protection and Biodiversity Conservation Act 1999, and the island is listed as a critical habitat for this species. This albatross is also classified as endangered under Tasmania’s Threatened Species Protection Act 1995. Additionally, 8 seabird species are listed as endangered; 13 seabird species are threatened or vulnerable.

The Macquarie Island EEZ also hosts 3 species of fur seals and 13 species of dolphins, whales and porpoises. Furthermore, the population of southern elephant seals that breed on Macquarie Island represents around 10% of the global population. Much of this marine life has been recorded foraging widely across the Macquarie Island EEZ.

The need for (and benefits of) marine protected areas

Ocean health is essential to all life on Earth. Phytoplankton – microscopic plants that inhabit the sunlit surface waters of nearly all oceans – produces about half of the planet’s oxygen.² The complex interplay between the ocean and the atmosphere regulates Earth’s climate.³ Yet human activities are driving the decline of the oceans, causing the collapse of fisheries, the loss of biodiversity and the acidification of seawater.⁴ The evidence suggests that to halt this downward slide, more of the world’s ocean must be protected.⁵

A marine protected area (MPA) or marine park is a defined geographical area of water that is managed to achieve the long-term conservation of nature.⁶ Research shows that large, fully protected MPAs can help conserve valuable biodiversity and reverse many of the detrimental impacts caused by humans.⁷

In addition to protecting vital habitats for nesting penguins and other seabirds, the creation of MPAs benefits fisheries. Over time, fully protected areas can result in more and bigger fish and greater biodiversity.⁸ These benefits accrue in different climates and have been observed in tropical and temperate regions.⁹

Thriving populations of fish within fully or strongly protected areas are more likely to supply adult and larval fish to outside areas.¹⁰ The spillover of animal life from the MPA then sustains or increases the nearby fisheries’ catch.¹¹ One study found that the waters surrounding the Ross Sea MPA in Antarctica supported higher catches of toothfish than did unprotected areas.¹² The study also found that fishing effort was greater in the waters surrounding the MPA than in unprotected areas.

A separate study found that expansion of 2 of the world’s largest MPAs, the Papahānaumokuākea Marine National Monument and the Marianas Trench Marine National Monument, had no negative impact on catch rates in the Hawaii longline fishery.¹³ In fact, catch rates were slightly higher in the years after the MPAs were expanded, according to the study.

Mounting scientific research indicates that fully protected marine areas can also help build resilience against the effects of climate change. For example, they can provide areas of reduced stress that can improve marine life's ability to adapt to climate change impacts.¹⁴ These impacts are far-reaching and include rising sea surface temperatures, decreased ocean productivity, shifts in species distribution and changes to fisheries.¹⁵

Protecting the Southern Ocean

As the primary mixing zone between the world's major oceans, the Southern Ocean plays an important role in the global circulation of water, supporting fish populations around the world. It also plays a key role in regulating Earth's climate through its currents and seasonal sea ice, and by absorbing heat and carbon dioxide from the atmosphere. Throughout the region, temperatures are rising and ice loss is rapidly accelerating, with the ocean's rich wildlife struggling to adapt to these changes. Marine sanctuaries, which ban extractive industries such as mining and fishing, play a crucial role in conserving biodiversity and helping ecosystems survive climate impacts.

The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the body created by the Antarctic Treaty, has agreed to create a network of marine parks around Antarctica. While CCAMLR has designated 2 MPAs, geopolitical challenges have delayed additional protections of 4 more MPAs, which would collectively add more than 4.5 million square kilometres (1.7 million square miles) of protection. With subantarctic environments in their jurisdictions in need of conservation, countries such as Australia, France, New Zealand, South Africa and the United Kingdom must become global leaders in Southern Ocean protection by taking decisive action to protect their own subantarctic islands and to strengthen the push for a marine parks network in the Southern Ocean.

Some of those countries have stepped up and expanded their subantarctic marine sanctuaries. In February 2022, the French government expanded marine protections across the French Southern and Antarctic Lands by approximately 1 million square kilometres (386,102 square miles) and more than doubled the country's total area of highly protected waters. In February 2024, the United Kingdom vastly expanded marine protections for the waters surrounding South Georgia and the South Sandwich Islands – providing full protection for more than 166,000 additional square kilometres (64,093 square miles) of the South Atlantic Ocean.

Macquarie Island Marine Park

Australia has demonstrated significant conservation progress at Macquarie Island. The Macquarie Island Marine Park now encompasses more than 475,000 square kilometres (about 183,000 square miles), an area about twice the size of the United Kingdom. Fishing, mining and other extractive activities are strictly prohibited across about 93%, or 385,000 square kilometres (about 149,000 square miles), of the park. The marine park continues to accommodate a small footprint of an existing responsibly managed, sustainable toothfish fishery in a zone that bans more damaging fishing activities, such as bottom trawling.

Through the development of this expanded marine park, the Australian government has adopted a precautionary principle, ensuring the protection of this globally significant marine environment before it is damaged by potential changes, such as expanded open-sea fishing or mining operations.¹⁶

There is now an opportunity for Australia to build on this strong ocean conservation legacy to expand and upgrade its existing Southern Ocean marine park around Heard and McDonald Islands, as part of the 10-year marine park review in 2024. This action will provide a significant global contribution to the Southern Ocean's health.

Existing Macquarie Island toothfish fishery

Located in the waters surrounding Macquarie Island, the Australian fishery focuses on Patagonian toothfish, also known as Chilean seabass. Patagonian toothfish are slow-growing, long-lived (more than 50 years), late-maturing deep-water predators capable of reaching 2.3 metres (7.5 feet) in length and weighing more than 100 kilograms (220 pounds). In the 1996 to 1997 fishing season, catch levels peaked at over 1,700 metric tonnes but have been reduced following stock assessments, resulting in a catch level of 410-555 metric tonnes since 2011.¹⁷

Fishing in the area began with trawling before transitioning to longlining in the mid-1990s. Only 2 fishing companies have access rights to the fishery; they pool their quota allocation, with a single longline vessel taking the entire catch each season.



A Patagonian toothfish, also known as Chilean seabass. *Australian Fisheries Management Authority*

The fishery's ecological impacts on the waters around Macquarie Island are relatively well understood in large part due to the considerable research and monitoring that have been undertaken on the fishery since its inception.¹⁸ This has included tagging of Patagonian toothfish caught in the fishery, which has led to more robust estimates of stock size and depletion. A 100% level of observer coverage of fishing operations has contributed to an increased understanding of bycatch (the portion of a commercial fishing catch that consists of marine animals caught unintentionally), and interactions with protected and threatened species. Researchers have also studied the food chain with the removal of Patagonian toothfish and the potential impact on marine mammals and seabirds, as well as interactions of fishing gear with sea floor habitats and species.¹⁹

Conclusion

In expanding the Macquarie Island Marine Park, Australia seized the rare opportunity to boost marine protections without disrupting existing activities, a move that could benefit conservation and support the continuation of a well-managed and sustainable fishery. The additional safeguards can help to protect biodiversity and vital habitats and strengthen ecosystem resilience.

Extension of the Macquarie Island Marine Park also sends a strong signal about the government's willingness to protect Australia's special places – particularly those that are home to threatened species – for future generations. The marine park's design, with its high levels of full protection and zoning to accommodate a well-managed fishery, also showcases how world-class conservation and sustainable fishing can work hand in hand in marine parks.

Endnotes

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For more information, please visit:

<https://www.pewtrusts.org/en/projects/protecting-australias-nature>

The Pew Charitable Trusts

Contact: Tim Norton, manager, communications

Email: tnorton@pewtrusts.org

Project website: <https://www.pewtrusts.org/en/projects/protecting-australias-nature>

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