CHAPTER SIX

MARINE PROTECTED AREAS IN THE SOUTHERN OCEAN

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INTRODUCTION

Antarctica and the Southern Ocean have been described as being among the last great wildernesses.\(^1\) Overall, the region benefits from a relatively small human footprint\(^2\) with the Ross Sea region considered the “least impacted of any open ocean, marine area on Earth.”\(^3\) There are currently over 8,200 species listed on the Register of Antarctic Marine Species\(^4\) but it is estimated that there could be as many as 17,000 species located in the Antarctic marine environment.\(^5\) A large number of those species are endemic\(^6\) and the Southern Ocean comprises dynamic habitats including ice, hydrothermal vents, seeps and mud volcanoes.\(^7\) Whilst the Southern Ocean has been largely protected from human impact by its remote location and hostile weather and sea conditions, it is by no means pristine. Early human impacts in the Antarctic were all marine focused and populations of Antarctic fur seals, southern elephant seals, king penguins, marbled rockcod, mackerel ice-fish and the great whales were significantly depleted by overfishing.

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5. Ibid., 6.
6. Ibid., 5.
7. Ibid., 7.
during the nineteenth and twentieth centuries. The Patagonian toothfish fishery began in the 1970s and stocks of toothfish have been declining since 2000, under the current regulatory framework, toothfish biomass will decrease by fifty percent compared to pre-exploitation levels by 2031. Concern has been expressed over the potential impact of a reduction in toothfish on top predators in the region, such as Weddell seals, particularly in light of recent research which suggests that over-exploitation of demersal fish in the 1970s and 1980s has had a significant long-term impact on the overall ecology of the Southern Ocean. Other impacts on the Southern Ocean—actual and potential—include pollution, tourism, invasive species, climate change and ocean acidification. In contrast to the Arctic however, impacts associated with coastal development, extractive industries and commercial shipping are minimal or non-existent.

In order to restrict the (relatively) small human footprint in the Southern Ocean, states party to the Antarctic Treaty and its associated instruments, including the Madrid Protocol and the CAMLR Convention have individually and collectively sought to develop a regime for the protection of the marine environment and the sustainable utilization and conservation of biodiversity.

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10 Ibid., 240. The current regulatory framework is provided by the CAMLR Convention (Convention on the Conservation of Antarctic Marine Living Resources of 20 May 1980 (1329 UNTS 47). See further Serdy, chapter 10, this volume.

11 Ibid., 325.

12 D.G. Ainley and L.K. Blight “Ecological repercussions of historical fish extraction from the Southern Ocean” (2009) 10 Fish and Fisheries 13–38. The authors note that there are challenges in reaching definitive conclusions as to the impact of overfishing owing to a lack of ecosystem data from prior to the onset of commercial fishing.

13 The oil spill from the Bahia Paraiso in 1989 off the coast of Western Antarctica covered an area of more than 3 km² and is the largest recorded spill to date. See Tin et al., note 8 at 5.

14 The most serious incident to date is the sinking of the MS Explorer south of King George’s Island in November 2007. However, there have been a series of accidents involving tourist ships, fishing vessels and protest vessels in the Antarctic over the last five years. See further K.N. Scott “Safety of shipping in the Southern Ocean” (2010) 16 Journal of International Maritime Law 21–44 and Boone, chapter 9, this volume.


17 Antarctic Treaty of 1 December 1959 (402 UNTS 71).


19 Note 10.