

Patagonian Toothfish (2020)

Dissostichus eleginoides



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth	Heard Island and McDonald Islands	Sustainable	Spawning stock biomass, projected biomass
Commonwealth	Macquarie Island	Sustainable	Spawning stock biomass, projected biomass

STOCK STRUCTURE

Genetic studies have found that Patagonian Toothfish at Macquarie Island, and at Heard Island and the McDonald Islands, are two distinct biological stocks [Appleyard et al. 2002]. However, there is some level of exchange between the Heard Island and McDonald Islands stock and the Kerguelen Plateau stock [Welsford et al. 2012]. The stock structure of toothfish on the Kerguelen Plateau is being further investigated in collaboration with French scientists so that population models of toothfish in the area can be refined and management can be improved across the Kerguelen Plateau [Péron et al. 2016].

Here, assessment of stock status is presented at the management unit level—Heard Island and McDonald Islands; and at the biological stock level—Macquarie Island.

STOCK STATUS

Heard Island and McDonald Islands

The Heard Island and McDonald Islands Fishery (Commonwealth) (HIMIF) falls within the Convention Area of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). This international organisation was established to conserve and manage the Southern Ocean Antarctic ecosystem. CCAMLR employs precautionary harvest strategies that consider the role of target species within the larger ecosystem. For Patagonian Toothfish, the CCAMLR harvest strategy reference points require that the median escapement of the spawning biomass at the end of a 35 year projection period be 50 per cent of median pre-exploitation level and that the probability of the spawning biomass dropping below 20 per cent of the pre-exploitation median level is less than 10 per cent. Although the HIMIF falls within the CCAMLR area,

the HIMIF is an Australian territory and is fished by Australian vessels only.

The most recent assessment of HIMIF Patagonian Toothfish estimated that biomass in 2019 was 51 per cent of pre-exploitation levels [Ziegler 2019]. The management unit is not considered to be recruitment overfished [CCAMLR 2019a, Patterson and Steven 2020a]. A catch limit of 3 030 tonnes (t), which meets the CCAMLR harvest strategy requirements, was recommended by CCAMLR for the 2019–20 and 2020–21 fishing seasons [CCAMLR 2019a, CCAMLR 2019b]. It was estimated that the projected biomass will not fall below 50 per cent of the pre-exploitation level after a 35 year projection period under that catch limit. This level of fishing mortality is unlikely to cause the stock to become recruitment overfished [Ziegler 2019, Patterson and Steven 2020a].

Based on the evidence provided above, the Heard Island and McDonald Islands management unit is classified as a **sustainable stock**.

Macquarie Island

Macquarie Island is an Australian territory that lies adjacent to, but not within, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) area. Although not under CCAMLR jurisdiction, for consistency the Macquarie Island Toothfish Fishery (Commonwealth) is managed using the CCAMLR harvest strategy with the same decision rules used in the Heard Island and McDonald Islands Fishery (Commonwealth).

The most recent assessment [Hillary and Day 2019a,b] of Macquarie Island Patagonian Toothfish used a custom-designed model, revised growth parameters [Hillary 2019a] and a revised maturity-at-length relationship that was estimated using the maturity information from the extensive tagging data [Hillary 2019b]. This model estimated that biomass at the start of 2019 was 85 per cent of pre-exploitation levels [Hillary and Day 2019b]. The biological stock is not considered to be recruitment overfished [Patterson and Steven 2020b]. The CCAMLR decision rules were used to calculate the catch limit for the 2021–22 and 2022–23 fishing seasons. This ensures that the projected biomass is not below 50 per cent after a 35-year projection period under that catch limit. This level of fishing mortality is unlikely to cause the stock to become recruitment overfished [Hillary and Day 2019b, Patterson and Steven 2020b].

Based on the evidence provided above, the Macquarie Island biological stock is classified as a **sustainable stock**.

BIOLOGY

Patagonian Toothfish biology [Collins et al. 2010, Welsford et al 2012,]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Patagonian Toothfish	~50 years, ~2 000 mm TL	11–15 years (males), 12–17 years (females) ~915 mm TL (males), 1000+ mm TL (females)

DISTRIBUTION



Distribution of reported commercial catch of Patagonian Toothfish

TABLES

Fishing methods	
	Commonwealth
Commercial	
Demersal Longline	✓

Management Methods	
	Commonwealth
Commercial	
Area restrictions	✓
Catch limits	✓
Individual transferable quota	✓

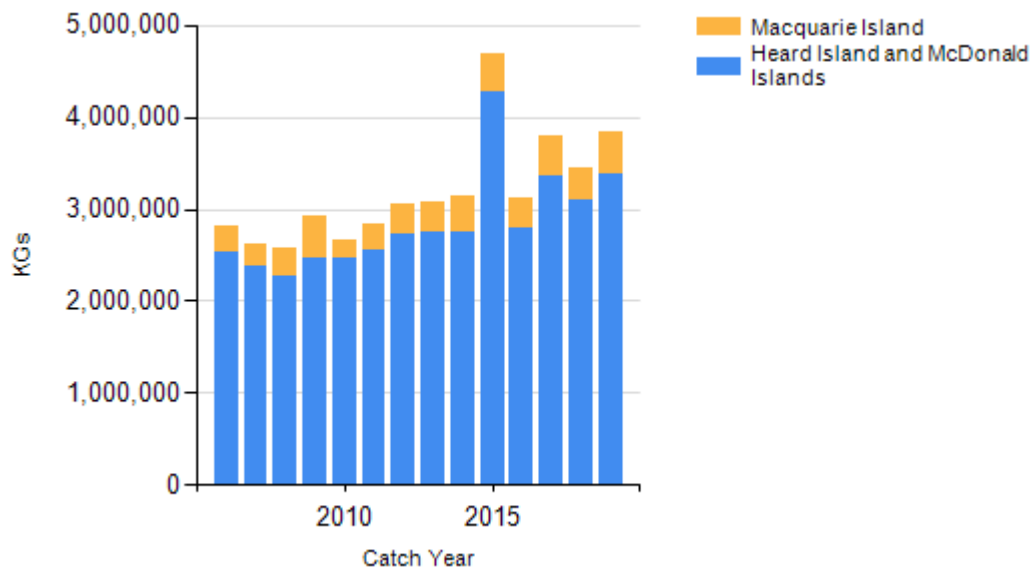
Catch	
	Commonwealth
Commercial	3838 t

Commonwealth – Recreational There is no recreational fishing for Patagonian Toothfish. The

Australian Government does not manage recreational fishing in Commonwealth waters. Recreational fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters, under its management regulations. **Commonwealth – Commercial (catch)** The most recent data available for the Heard Island and McDonalds Islands Fishery (HIMIF) is for the 2017–18 fishing season. The most recent data available for the Macquarie Island Toothfish Fishery (MITF) is for the 2017–18 fishing season. **Commonwealth – Indigenous** There is no Indigenous fishing for Patagonian Toothfish.

The Australian Government does not manage non-commercial Indigenous fishing in Commonwealth waters, with the exception of the Torres Strait. In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters.

CATCH CHART



Commercial catch of Patagonian Toothfish - note confidential catch not shown

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