

Swordfish (2018)

Xiphias gladius



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth	Indian Ocean	IOTC, WTBF	Sustainable	Spawning stock biomass, fishing mortality
Commonwealth	South-West Pacific Ocean	ETBF, WCPFC	Sustainable	Spawning stock biomass, fishing mortality

ETBF Eastern Tuna and Billfish Fishery (CTH), IOTC Indian Ocean Tuna Commission (CTH), WCPFC Western and Central Pacific Fisheries Commission (CTH), WTBF Western Tuna Billfish Fishery (CTH)

STOCK STRUCTURE

Swordfish in the Indian and Pacific Oceans are considered to be two distinct biological stocks and are managed as such under separate regional fisheries management organisations. In the Indian Ocean, genetic research has not indicated more than a single biological stock [Muths et al. 2013]. In the Pacific Ocean, genetic studies have suggested the presence of several biological stocks [Takeuchi et al. 2017], although the degree of genetic variation among these stocks is low [Kasapidis et al. 2008]. Electronic tagging has indicated that there may be limited connectivity between eastern and western parts of the Tasman and Coral Seas [Evans et al. 2012, Sharma and Herrera 2014]. Although considered to be a single biological stock, two sub-stocks are currently assessed in the Pacific Ocean: the South-west Pacific stock and the North Pacific stock. Only the South-west Pacific stock is fished by Australian fishers. The Indian Ocean biological stock falls under the jurisdiction of the Indian Ocean Tuna Commission; and the western and central Pacific Ocean stock falls under the jurisdiction of the Western and Central Pacific Fisheries Commission. These two commissions are intergovernmental organisations established to manage a number of highly migratory fish species.

Here, status is presented at the biological stock level—Indian Ocean; and at the management unit level—South West Pacific Ocean.

STOCK STATUS

Indian Ocean The Indian Ocean biological stock of Swordfish is fished by Australian fishers endorsed to fish in the Western Tuna and Billfish Fishery (Commonwealth), and members of the Indian Ocean Tuna Commission. The assessments undertaken by the Indian Ocean Tuna Commission take into account information from all jurisdictions.

In the Indian Ocean, the most recent assessment [IOTC 2017] estimates that biomass in 2015 was 31 per cent of the unfished level (range 26–43 per cent). The biological stock is not considered to be recruitment impaired [Williams et al. 2018]. This assessment estimated that fishing mortality in 2013 was below the level associated with maximum sustainable yield (MSY) (76 per cent of fishing mortality at MSY; range 41–104 per cent). This level of fishing mortality is unlikely to cause the biological stock to become recruitment impaired [Williams et al. 2018].

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

South-West Pacific Ocean The South-west Pacific Ocean management unit of Swordfish is fished by Australian fishers endorsed to fish in the Eastern Tuna and Billfish Fishery (Commonwealth), and members of the Western and Central Pacific Fisheries Commission. The assessments undertaken for the Western and Central Pacific Fisheries Commission (WCPFC) take into account information from all jurisdictions.

At the time of the most recent assessment [Takeuchi et al. 2017], median spawning biomass across the uncertainty grid of the Swordfish management unit was 35 per cent and ranged from 29–43 per cent of initial unfished spawning biomass. There was a very low probability that the recent spawning biomass has breached the limit reference point [WCPFC 2017]. The management unit is therefore not considered to be recruitment impaired [Larcombe et al. 2018, WCPFC 2018].

The median recent fishing mortality was 86 per cent of the level of fishing associated with MSY [Takeuchi et al. 2017], with a range of 51–123 per cent. There was an approximately 32 per cent probability that the recent level of fishing mortality was above the level that results in MSY [WCPFC 2017]. The assessment of the current level of fishing pressure is therefore considered unlikely to cause the management unit to become recruitment impaired [Larcombe et al. 2018].

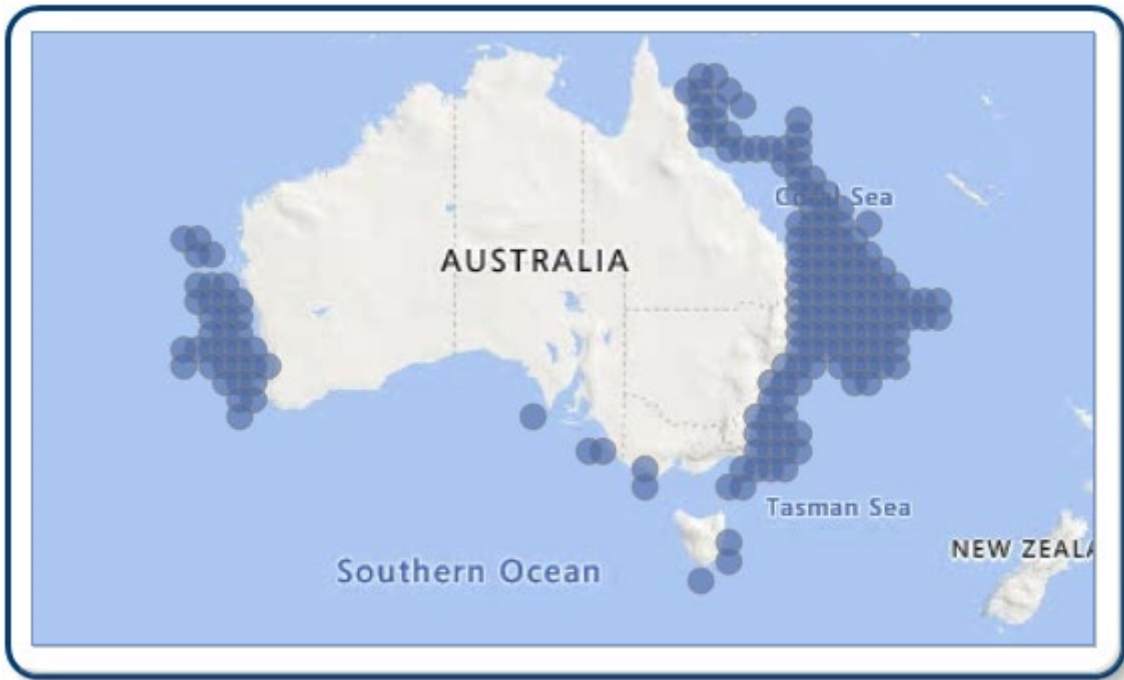
Based on the evidence provided above, the South-West Pacific Ocean management unit is classified as a **sustainable stock**.

BIOLOGY

Swordfish biology [Farley et al. 2016, Froese and Pauly 2009]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Swordfish	30+ years, 4 550 mm FL	Females: ~4.4 years, ~1 815 mm FL Males: ~1 years, ~1 200 mm FL (Fork length is measured from the lower jaw for Swordfish)

DISTRIBUTION



Distribution of reported commercial catch of Swordfish

TABLES

Commercial Catch Methods	Commonwealth
Beach Seine	✓
Danish Seine	✓
Fish Trap	✓
Gillnet	✓
Hand Line, Hand Reel or Powered Reels	✓
Handline	✓
Hook and Line	✓
Pelagic Longline	✓
Purse Seine	✓
Rod and reel	✓
Trawl	✓
Trolling	✓
Unspecified	✓
Various	✓

Fishing methods	Commonwealth
Commercial	
Danish Seine	✓
Handline	✓
Hook and Line	✓
Pelagic	✓

Longline	
Purse Seine	✓
Various	✓
Recreational	
Hook and Line	✓

Management Methods	
	Commonwealth
Commercial	
Area restrictions	✓
Catch limits	✓
Gear restrictions	✓
Individual transferable quota	✓
Limited entry	✓
Recreational	
Bag limits	✓

Active Vessels	
	Commonwealth
	39 Vessels in ETBF, 3 Vessels in WTBF,

ETBF Eastern Tuna and Billfish Fishery(CTH)

WTBF Western Tuna Billfish Fishery(CTH)

Catch	
	Commonwealth
Commercial	1175t in ETBF, 53490.8t in IOTC, 20817t in WCPFC, 166t in WTBF,
Indigenous	Unknown
Recreational	Unknown

ETBF Eastern Tuna and Billfish Fishery (CTH), IOTC Indian Ocean Tuna Commission (CTH), WCPFC Western and Central Pacific Fisheries Commission (CTH), WTBF Western Tuna Billfish Fishery (CTH),

Commonwealth Commercial (catch) Catches reported for the Indian Ocean Tuna Commission and Western and Central Pacific Fisheries Commission are for 2016, the most recent year available; data for Eastern Tuna and Billfish Fishery and Western Tuna Billfish Fishery are for 2017. Western and Central Pacific Fisheries Commission catches are for the entire South Pacific Ocean (south of the equator).

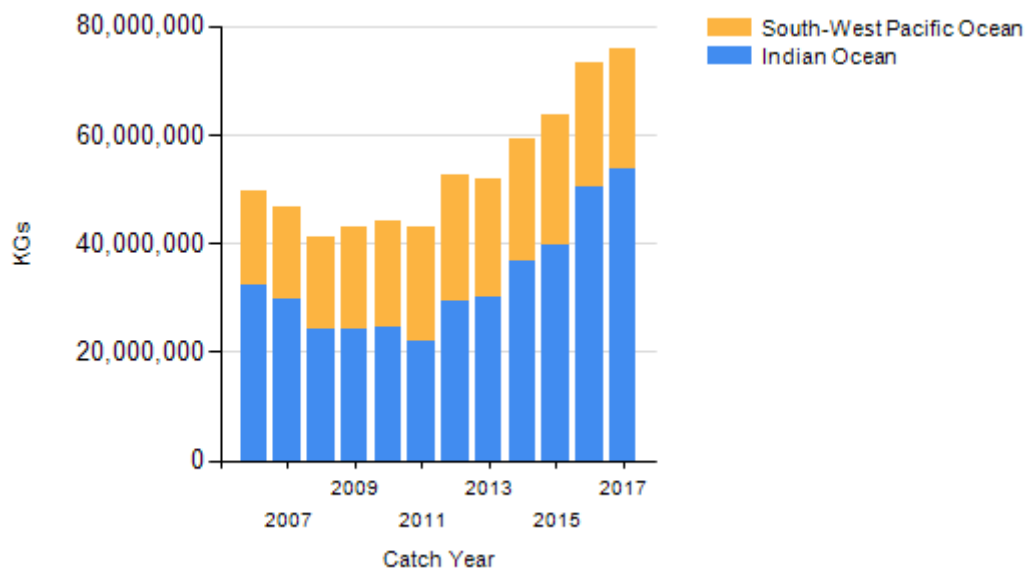
Commonwealth – Recreational The Australian Government does not manage recreational

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 – Recreational and Indigenous Recreational and Indigenous fishing sectors in the Indian Ocean are South Australia, Victoria and Western Australia. Recreational sectors in the Pacific Ocean are New South Wales, Queensland and Tasmania. Measures listed here exist in at least one of these jurisdictions.

Commonwealth – Indigenous 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 Swordfish - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Swordfish

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