Bigeye Tuna (2018)

Thunnus obesus

Heather Patterson: Australian Bureau of Agricultural and Resource Economics and Sciences

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth	Indian Ocean	IOTC, WTBF	Sustainable	Spawning stock biomass, fishing mortality
Commonwealth	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

Bigeye Tuna in the Indian Ocean and Pacific Ocean are considered to be two distinct biological stocks and are managed by separate regional fisheries management organisations. In the Indian Ocean, tagging and genetic studies have not resulted in evidence of more than a single biological stock [Chiang et al. 2008, IOTC 2017]. Genetic studies have also indicated a single biological stock across the Pacific Ocean [Grewe and Hampton 1998]. The Indian Ocean biological stock falls under the intergovernmental organisations established to manage a number of highly migratory fish species.

Here, stock status is presented at the biological stock level—Indian Ocean and Pacific Ocean.

STOCK STATUS

Indian Ocean

The Indian Ocean biological stock 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 spawning stock biomass in 2015 was 38 per cent of the unfished level. The biological stock is not considered to be recruitment impaired [Williams et al. 2018]. This assessment also estimated that the current fishing mortality was below the level associated with maximum sustainable yield (MSY) (76 per cent of fishing mortality at MSY). This level of fishing mortality is unlikely to cause the biological stock to become recruitment impaired [Williams et al. 2018].

On the basis of the evidence provided above, the Indian Ocean biological stock

is classified as a **sustainable stock**.

Pacific Ocean

The Pacific Ocean biological stock 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 take into account information from all jurisdictions.

In the Pacific Ocean, the most recent assessment in 2017 [McKechnie et al. 2017] estimates that the recent median spawning biomass was 32 per cent of the unfished level (range 15–41 per cent). There was a roughly 16 per cent probability that the recent spawning biomass breached the limit reference point [WCPFC 2017]. The biological stock is not considered to be recruitment impaired [WCPFC 2017, Larcombe et al. 2018]. This assessment also estimated that the median recent fishing mortality was 83 per cent of the level associated with MSY (80 per cent confidence interval 61–131 per cent). This level of fishing mortality is unlikely to cause the biological stock to become recruitment impaired [Larcombe et al. 2018, WCPFC 2017].

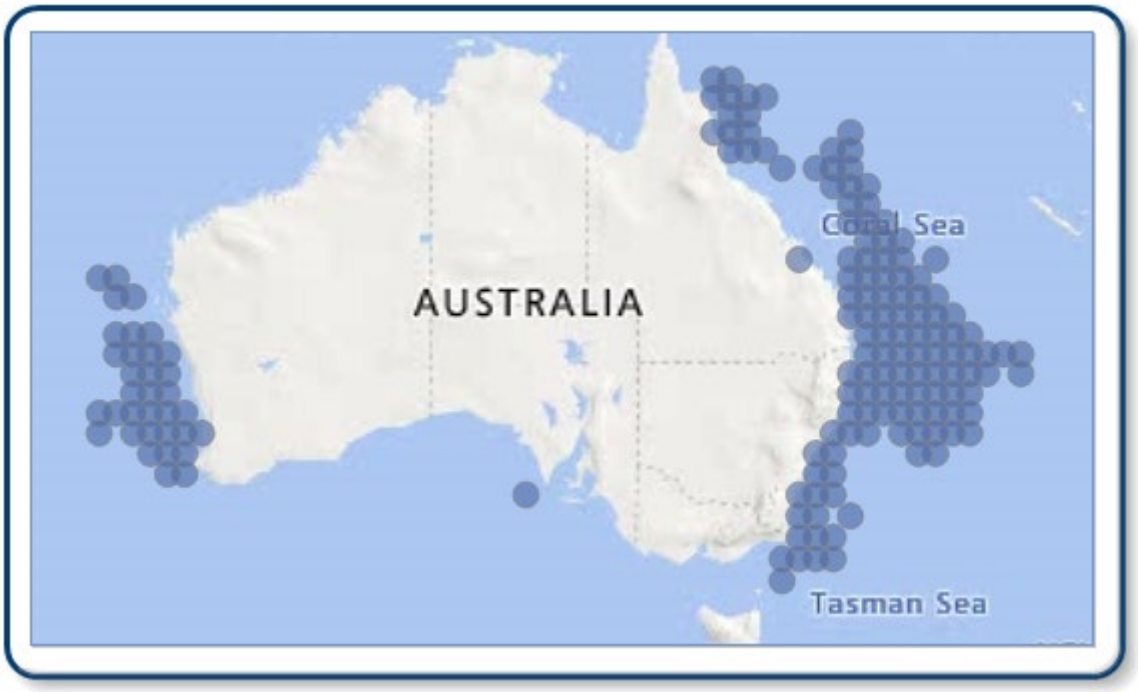
On the basis of the evidence provided above, the Pacific Ocean biological stock is classified as a **sustainable stock**.

BIOLOGY

Bigeye Tuna biology [Farley et al. 2006, 2017, 2018, Froese and Pauly 2009]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Bigeye Tuna	~16 years, ~2000 mm FL	~3 years, ~1000 mm FL

DISTRIBUTION



Distribution of reported commercial catch of Bigeye Tuna

TABLES

Commercial Catch Methods	Commonwealth
Beach Seine	✓

Danish Seine	✓
Gillnet	✓
Hand Line, Hand Reel or Powered Reels	✓
Handline	✓
Hook and Line	✓
Lift nets	✓
Net	✓
Pelagic Longline	✓
Pole and Line	✓
Purse Seine	✓
Rod and reel	✓
Trawl	✓
Trolling	✓
Unspecified	✓
Various	✓

Fishing methods	
	Commonwealth
Commercial	
Beach Seine	✓
Gillnet	✓
Hand Line, Hand Reel or Powered Reels	✓
Handline	✓
Pelagic Longline	✓
Pole and Line	✓
Purse Seine	✓
Rod and reel	✓
Trawl	✓
Trolling	✓
Unspecified	✓
Various	✓
Recreational	
Handline	✓
Spearfishing	✓

Management Methods	
	Commonwealth

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

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

ETBF Eastern Tuna and Billfish Fishery(CTH)

WTBF Western Tuna Billfish Fishery(CTH)

Catch	
	Commonwealth
Commercial	449t in ETBF, 88196.7t in IOTC, 213141t in WCPFC, 67t 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),

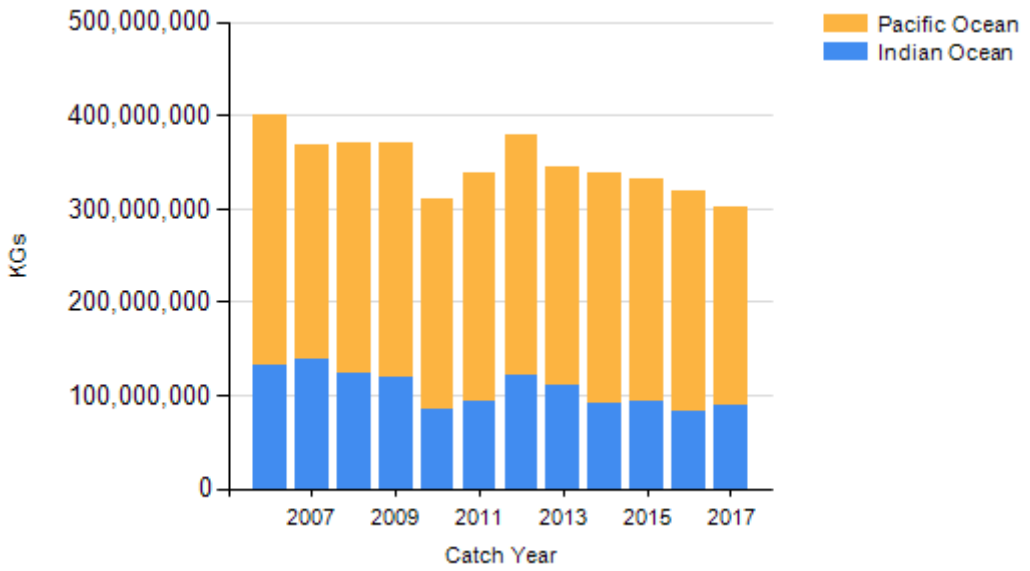
Commonwealth – Commercial (catch) Catches reported for the Indian Ocean Tuna Commission and Western and Central Pacific Fisheries Commission are for 2016, the most recent year available; data for the Eastern Tuna and Billfish Fishery and Western Tuna Billfish Fishery are for 2017.

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 Western Australia, South Australia and Victoria; recreational sectors in the Pacific Ocean are Queensland, New South Wales and Tasmania. Measures listed here exist in 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 Bigeye Tuna - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Bigeye Tuna

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