

Bigeye Tuna (2016)

Thunnus obesus



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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	Pacific Ocean	ETBF, WCPFC	Overfished	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 indicated a single biological stock[1,2]. Genetic studies have also indicated a single biological stock across the Pacific Ocean[3]. The Indian Ocean biological stock falls under the jurisdiction of the Indian Ocean Tuna Commission; and the 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, assessment of 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 numerous international jurisdictions. The assessments undertaken by the Indian Ocean Tuna Commission take into account information from all jurisdictions.

In the Indian Ocean, the most recent assessment[1] estimates that biomass in 2012 was 40 per cent of the unfished level. The biological stock is not considered to be recruitment overfished[4]. This assessment also estimated that

the current (2012) fishing mortality was below the level associated with maximum sustainable yield (MSY) (42 per cent of mortality at MSY). This level of fishing mortality is unlikely to cause the biological stock to become recruitment overfished[4].

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 numerous international jurisdictions. 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[5] estimates that biomass in 2012 was 16 per cent of the unfished level. The biological stock is considered to be recruitment overfished[6]. This assessment also estimated that current fishing mortality was well above the level associated with MSY (157 per cent of fishing mortality at MSY; range 127–195 per cent). This level of fishing mortality is expected to prevent the stock recovering from a recruitment overfished state[6].

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

BIOLOGY

Bigeye Tuna biology[7,8]

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

DISTRIBUTION



Distribution of reported commercial catch of Bigeye Tuna

TABLES

Commercial Catch Methods	Commonwealth
Danish Seine	✓
Demersal Longline	✓
Gillnet	✓
Hand Line, Hand Reel or Powered Reels	✓
Hook and Line	✓
Lift nets	✓
Pelagic Gillnet	✓
Pelagic Longline	✓
Pole and Line	✓
Purse Seine	✓
Trolling	✓
Unspecified	✓
Various	✓

Fishing methods	Commonwealth
Commercial	
Gillnet	✓
Hand Line, Hand Reel or Powered Reels	✓
Pelagic Longline	✓
Pole and Line	✓
Purse Seine	✓
Trolling	✓
Various	✓
Recreational	
Hand Line, Hand Reel or Powered Reels	✓
Spearfishing	✓

Management Methods	
	Commonwealth
Commercial	
Area restrictions	✓
Catch limits	✓
Gear restrictions	✓
Individual transferable quota	✓
Limited entry	✓
Recreational	
Bag limits	✓
Active Vessels	
	Commonwealth
	39 Vessel in ETBF, 2 Vessel in WTBF,

ETBF Eastern Tuna and Billfish Fishery(CTH)

WTBF Western Tuna Billfish Fishery(CTH)

Catch	
	Commonwealth
Commercial	785t in ETBF, 92565t in IOTC, 133897t in WCPFC, 109t 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),

a 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.

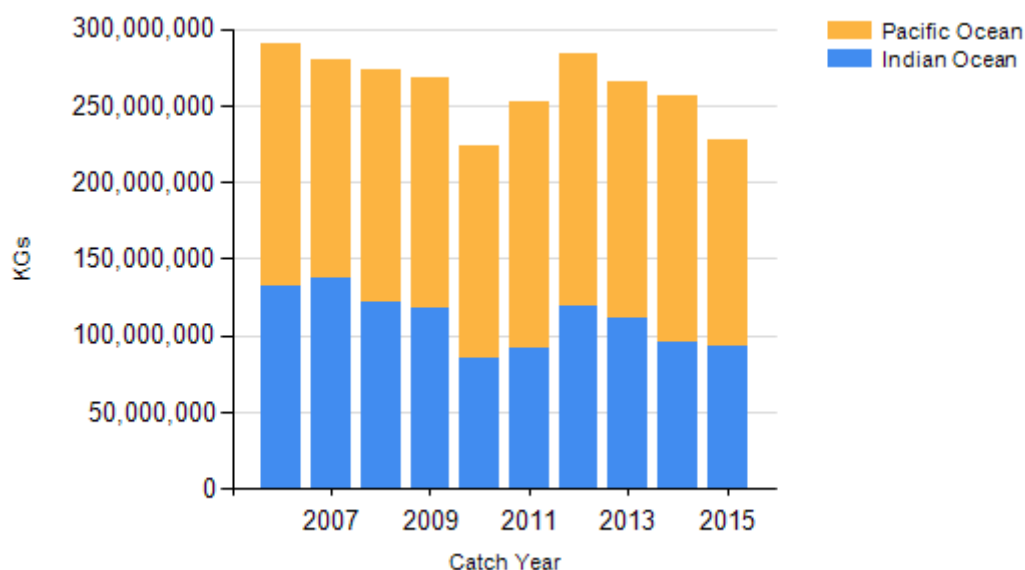
b Commonwealth – Recreational Recreational and Indigenous fishing sectors in the Indian Ocean are Western Australia, South Australia and Victoria; recreational sectors in the Pacific Ocean are Queensland, New South Wales and Tasmania. A tick indicates that a measure exists in one of these jurisdictions.

c 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.

d Commonwealth – Commercial (catch) Catches reported for the Indian Ocean Tuna Commission and Western and Central Pacific Fisheries Commission are for 2014 (the most

recent year available).

CATCH CHART



Commercial catch of Bigeye Tuna - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- Following completion of environmental risk assessments (levels 1–3) in the Western Tuna and Billfish Fishery (Commonwealth) (WTBF), no species were identified as high risk[9]. In the Eastern Tuna and Billfish Fishery (Commonwealth) (ETBF), nine species were identified as high risk or precautionary high risk. This is the priority list of species for attention under the Eastern Tuna and Billfish Fishery ecological risk management strategy; it includes two species of sunfish, four species of shark, two species of cetacean and one species of marine turtle[10,11].
- No target species, ecological communities or habitats were assessed to be at high risk from the effects of fishing in the ETBF or the WTBF[9,10,11].
- Australia implements regulations to minimise the environmental impact of fisheries for tuna and tuna-like species on pelagic ecosystems; specifically on seabirds, sea turtles and sharks[12,13].
- Australia has prohibited shark finning in longline fisheries managed by the Commonwealth, and has also prohibited the use of wire leaders in these fisheries, to reduce fishery impacts on sharks[12,13].
- Both the Indian Ocean Tuna Commission[14] and the Western and Central Pacific Fisheries Commission[15] have passed conservation and management measures that are broadly consistent with each other and with Australia’s domestic requirements.

ENVIRONMENTAL EFFECTS on Bigeye Tuna

- The distribution and abundance of tuna can be affected by environmental factors[16,17]. For example, seasonal changes in the abundance of Bigeye and Yellowfin Tuna on the east coast of Australia are linked to the expansion and contraction of the East Australian Current[18].

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