

Sandbar Shark (2016)

Carcharhinus plumbeus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia, Northern Territory	Western Australia	JASDGDMF, ONLF, WCDGDLIMF	Transitional-recovering	Catch, CPUE, fishing mortality
Queensland, New South Wales	Eastern Australia	ECIFFF, OTLF	Undefined	Catch

OTLF Ocean Trap and Line (NSW), ONLF Offshore Net and Line Fishery (NT), ECIFFF East Coast Inshore Fin Fish Fishery (QLD), JASDGDMF Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Zone 1 & Zone 2) (WA), WCDGDLIMF West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery (WA)

STOCK STRUCTURE

Sandbar Shark (*Carcharhinus plumbeus*) occurs primarily off both the east and west coasts of Australia, from approximately latitude 17–32°S off the east coast, and latitude 13–36°S off the west coast[1,2]. The species is also encountered off the northern Australian coast, although in much lower numbers. In addition to genetic analysis that suggests limited gene flow between eastern and western Sandbar Shark stocks[3], there are limited recorded catches in the Gulf of Carpentaria and southern Australia. Thus, the species is considered to be represented by separate Eastern and Western biological stocks in Australian waters.

Here, assessment of stock status is presented at the biological stock level—Western Australian and Eastern Australian.

STOCK STATUS

Eastern Australia In New South Wales, whaler sharks (*Carcharhinus* spp.), including Sandbar Shark (*C. plumbeus*), have historically not been adequately identified and reported at a species level in commercial catch data. However, observer data indicate that Sandbar Shark represents the largest single-species component of catches in the Ocean Trap and Line Fishery (New South Wales), at 35 per cent of the overall shark catch between 2008 and 2009[9]. Since the introduction of

new logbooks in 2009, fishers are required to report all landed sharks to species level. However, insufficient information is available to determine status for any of the whaler shark species in New South Wales, including Sandbar Shark[10]. The net fishery of the East Coast Inshore Fin Fish Fishery (Queensland) contributes minimal quantities (less than 1 t per year) to the overall eastern Australian harvest of Sandbar Shark. There is insufficient information available to confidently classify the status of this stock.

On the basis of the evidence provided above, the Eastern Australian biological stock is classified as an **undefined stock**.

**Western
Australia**

In Western Australia, Sandbar Shark is targeted by the West Coast Demersal Gillnet and Demersal Longline Fishery, and taken in lesser quantities by the Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery[4]. It was also previously targeted by the Western Australian North Coast Shark Fishery[5]. The Western Australian stock assessment uses current and historical data from all of these fisheries. Minor catches historically reported from the Offshore Net and Line Fishery (Northern Territory) are assumed to be from the Western Australian biological stock, as is an unquantified catch from the Memorandum of Understanding Box Shark Fishery[6]. These are not explicitly included in assessments of this stock.

Given the longevity of Sandbar Shark (30–40 years) and the age-specific nature of targeted fishing mortality (mostly between 2 and 10 years of age), a sufficiently long time-series of catch per unit effort data is not yet available for dynamic stock assessment modelling. Assessment of this stock has therefore been undertaken using empirically derived estimates of fishing mortality between 2001 and 2004, and demographic modelling techniques[7,8]. Demographic modelling indicated that combined levels of fishing mortality in Western Australian targeted shark fisheries, non-target commercial fisheries and the recreational fishing sector became increasingly unsustainable between 2001 and 2004 (when catches peaked at 918 tonnes [t]) and had probably exceeded sustainable levels since 1997–98. These conclusions are supported by fishery-independent survey data that indicated declining breeding stock abundance between 2002 and 2005[5,7].

Since 2010, Sandbar Shark catches have remained well below the levels that will allow a gradual recovery of the breeding stock[4]. The expected reductions in recruitment from previously excessive exploitation of the breeding stock are likely to be ameliorated by significant reduction in targeted fishing effort. Therefore, although the breeding stock is considered to be close to the minimum acceptable limit (40 per cent of unfished biomass), current levels of fishing are considered suitably precautionary to ensure the recovery of this biological stock[4].

The above evidence indicates that this stock was subjected to overfishing. However, since 2010 these indicators suggest a recovering stock. In addition, the above evidence indicates that the current level of fishing pressure should allow the stock to recover[4].

On the basis of the evidence provided above, the Western Australian biological stock is classified as a **transitional–recovering stock**.

BIOLOGY

Sandbar Shark biology[2,11,12]

Species	Longevity / Maximum Size	Maturity (50 per cent)
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Sandbar Shark	30–40 years; 1 660 mm <u>FL</u> ; 2 150 mm <u>TL</u>	Females: 16.2 years; 1 360 mm <u>FL</u> Males: 13.8 years; 1 270 mm <u>FL</u>
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DISTRIBUTION



Distribution of reported commercial catch of Sandbar Shark

TABLES

Commercial Catch Methods	New South Wales	Northern Territory	Queensland	Western Australia
Demersal Longline	✓	✓		
Gillnet		✓	✓	
Line			✓	
Various				✓

Fishing methods	New South Wales	Northern Territory	Queensland	Western Australia
Commercial				
Demersal Longline	✓			
Gillnet		✓	✓	
Various				✓
Recreational				
Hand Line, Hand Reel or Powered Reels	✓	✓	✓	✓

Management Methods				
	New South Wales	Northern Territory	Queensland	Western Australia
Commercial				
Effort limits	✓	✓		✓
Gear restrictions	✓	✓	✓	✓
Limited entry	✓	✓	✓	✓
Possession restrictions			✓	✓
Processing restrictions	✓	✓	✓	✓
Spatial closures	✓	✓	✓	✓
Total allowable catch			✓	
Vessel restrictions	✓	✓	✓	
Indigenous				
Bag limits	✓			
Gear restrictions	✓	✓	✓	✓
Section 31 (1)(c1), Aboriginal cultural fishing authority	✓			
Recreational				
Bag limits	✓	✓		✓
Gear restrictions	✓	✓	✓	✓
Possession limit			✓	
Active Vessels				
	New South Wales	Northern Territory	Queensland	Western Australia
	217 Vessel in OTLF,	0 license in ONLF,	1 License in ECIFFF,	21 License in JASDGLMF, 5 License in WCDGDLIMF,

OTLF Ocean Trap and Line(NSW)

ONLF Offshore Net and Line Fishery(NT)

ECIFFF East Coast Inshore Fin Fish Fishery(QLD)

JASDGLMF Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Zone 1 & Zone 2)(WA)

WCDGDLIMF West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery(WA)

Catch				
	New South Wales	Northern Territory	Queensland	Western Australia
Commercial	1.17076t in OTLF,		0.5t in ECIFFF,	19.967t in JASDGDMF, 28.3914t in WCDGDLIMF,
Indigenous	Unknown but likely to be negligible	Unknown but likely to be negligible	Unknown but likely to be negligible	Unknown but likely to be negligible
Recreational	Unknown but likely to be negligible	Unknown but likely to be negligible	Unknown but likely to be negligible	<10 t retention of all whaler sharks caught from boats, Shore-based catches are likely to be negligible

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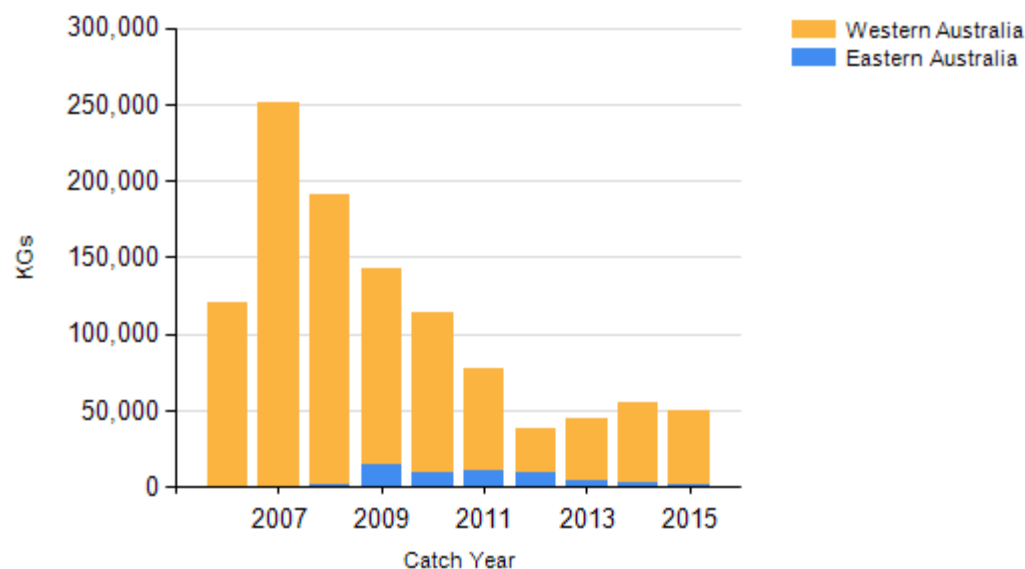
a Queensland – Indigenous Under the Fisheries Act 1994 (Qld), Indigenous fishers in Queensland are able to use prescribed traditional and non-commercial fishing apparatus in waters open to fishing. Size and possession limits, and seasonal closures do not apply to Indigenous fishers. Further exemptions to fishery regulations may be applied for through permits.

b New South Wales – Indigenous (management methods) The Aboriginal Fishing Interim Access Arrangement - allows an Indigenous fisher in New South Wales to take in excess of a recreational bag limit in certain circumstances, for example, if they are doing so to provide fish to other community members who cannot harvest themselves.

c New South Wales – Indigenous (management methods) The Aboriginal cultural fishing authority is the authority that Indigenous persons can apply to take catches outside the recreational limits under the Fisheries Management Act 1994 (NSW), Section 37 (1)(c1), Aboriginal cultural fishing authority.

d Indigenous (management methods) Subject to the defence that applies under Section 211 of the Native Title Act 1993 (Cth), and the exemption from a requirement to hold a recreational fishing licence, the non-commercial take by indigenous fishers is covered by the same arrangements as that for recreational fishing.
e Recreational and Indigenous (catch) Given the offshore distribution of Sandbar Shark, near-shore catches are likely to be negligible.

CATCH CHART



Commercial catch of Sandbar Shark - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- Recent analysis of potential changes in ecosystem structure of finfish in the South and West Coast Bioregions of Western Australia[14] found no evidence of any systematic change in species diversity or richness, or trophic index, indicating that this fishery is not having a material impact on the food chain or trophic structure.
- The demersal gillnets used to catch Sandbar Shark in Western Australia are deployed infrequently over a small proportion of the target fisheries' operational area. Under normal circumstances, the physical impact of the gear on the bottom is minimal[3].
- Demersal gillnets are known to interact with a number of threatened and protected species in areas where they are used to catch Sandbar Shark. However, such interactions occur at a very low frequency, and have been assessed as posing low to negligible risks to these populations[4].

ENVIRONMENTAL EFFECTS on Sandbar Shark

- Climate change and climate variability have the potential to impact fish stocks in a range of ways, including influencing their geographic distribution (for example, latitudinal shifts in distribution). However, the impact of environmental changes on Sandbar Shark stocks is unknown.

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