

Sandbar Shark (2018)

Carcharhinus plumbeus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia, Northern Territory	Western Australia	JASDGLMF, JASDGLMF WCDGLIMF, ONLF, WCDGLIMF	Recovering	Catch, CPUE , fishing mortality
Queensland, New South Wales	Eastern Australia	ECIFFF, N/A, OTF, OTLF	Undefined	Catch

N/A Not Applicable (NSW), OTF Ocean Trawl Fishery (NSW), OTLF Ocean Trap and Line Fishery (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), WCDGLIMF West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery (WA), JASDGLMF || WCDGLIMF Various Fisheries combined due to 3 boat rule (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 [Last and Stevens 2009, McAuley et al. 2007]. 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 [Portnoy et al. 2010], 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 Australia and Eastern Australia.

STOCK STATUS

Eastern Australia In New South Wales, whaler sharks (*Carcharhinus* spp.), including Sandbar Shark, 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 [Macbeth et al. 2009]. Since the introduction of new logbooks in 2009, fishers are required to report all landed sharks to species level with improved reliability of species identification following development of a species identification guide and at-sea education via an observer program [Macbeth et al. 2018]. However, insufficient information is available to determine status for any of the whaler shark species in New South Wales, including Sandbar Shark [Rowling et al. 2010]. The net fishery component of the East Coast Inshore Fin Fish Fishery (Queensland) contributes minimal quantities (less than 1 t per year since 2011) 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 Australia 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 [McAuley et al. 2015]. It was also previously targeted by the Western Australian North Coast Shark Fishery [McAuley and Rowland 2012]. The Western Australia 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 Australia biological stock, as is an unquantified catch from the Memorandum of Understanding Box Shark Fishery [Marshall et al. 2016]. 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 [McAuley et al. 2005, McAuley et al. 2007]. In addition, a risk-based weight of evidence (WoE) approach has been adopted using all available lines of evidence, including simulated biomass trajectories derived from a combination of demographic modelling and catch-only stock reduction analysis [Braccini et al. in prep.]. 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 [McAuley and Rowland 2012, McAuley et al. 2005].

Since 2010, Sandbar Shark catches have remained well below the levels that will allow a gradual recovery of the breeding stock [McAuley et al. 2015]. 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 [McAuley et al. 2015].

The recent WoE assessment estimated a “Medium” current risk level for the sandbar shark stock, with 62 per cent, 83 per cent and 99 per cent of the simulated current (2015–16) relative total biomass trajectories being above the target, threshold and limit biomass reference points, respectively, and biomass projections indicating continued stock rebuilding under current fishing and management settings [Braccini et al. in prep.].

The above evidence indicates that the biomass of this stock is likely to be depleted and that recruitment is likely to have been impaired. However, available indicators suggest a recovering stock. The current level of fishing mortality should allow the stock to recover from its recruitment impaired state.

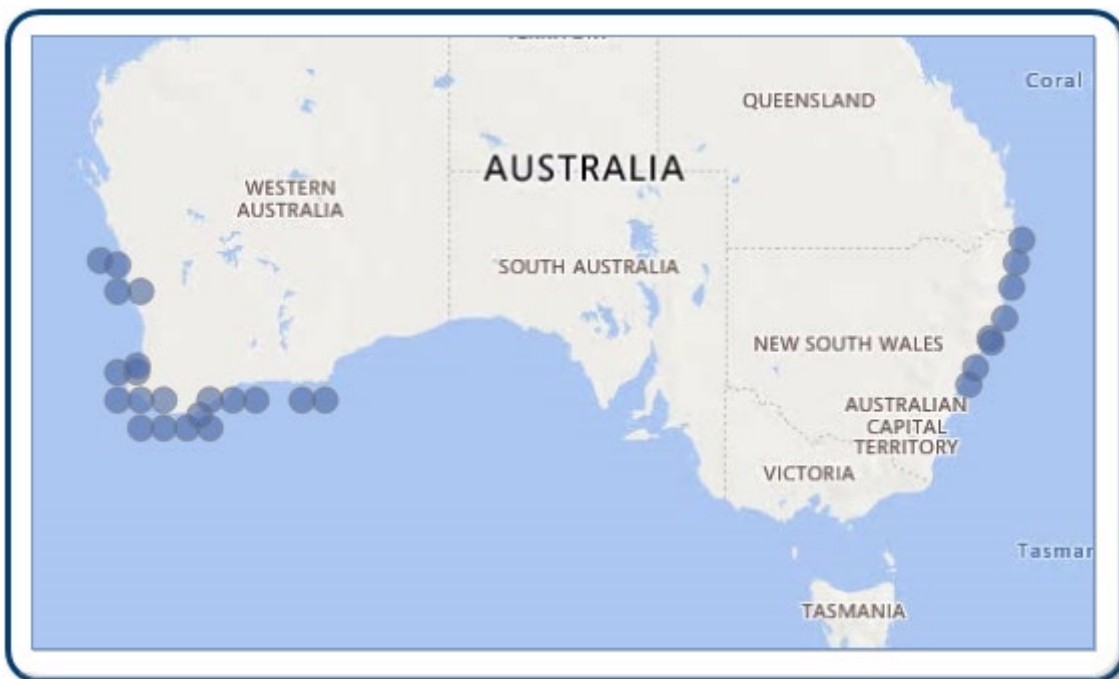
On the basis of the evidence provided above, the Western Australia biological stock is classified as a **recovering stock**.

BIOLOGY

Sandbar Shark biology [Geraghty et al. 2013, McAuley et al. 2007, McAuley et al. 2006]

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

DISTRIBUTION



Distribution of reported commercial catch of Sandbar Shark

TABLES

Commercial Catch Methods	New South Wales	Northern Territory	Queensland	Western Australia
Demersal Longline	✓	✓		
Gillnet				✓
Hand Line, Hand Reel or Powered Reels				✓
Hook and Line			✓	
Longline (Unspecified)				✓
Net			✓	
Otter Trawl	✓			

Pelagic Gillnet		✓		
Trotline	✓			
Unspecified	✓			✓
Fishing methods				
	New South Wales	Northern Territory	Queensland	Western Australia
Commercial				
Demersal Longline	✓			
Gillnet				✓
Hook and Line			✓	
Longline (Unspecified)				✓
Net			✓	
Otter Trawl	✓			
Pelagic Gillnet		✓		
Trotline	✓			
Unspecified	✓			✓
Recreational				
Hook and Line	✓	✓	✓	✓
Management Methods				
	New South Wales	Northern Territory	Queensland	Western Australia
Charter				
Gear restrictions			✓	
Possession limit			✓	
Size limit			✓	
Commercial				
Effort limits	✓	✓		✓
Gear restrictions	✓	✓	✓	✓
Limited entry	✓	✓	✓	✓
Possession restrictions			✓	✓
Processing restrictions	✓	✓	✓	✓
Spatial closures	✓	✓	✓	✓
Total allowable catch			✓	
Vessel restrictions	✓	✓	✓	

Indigenous				
Bag limits	✓			
Gear restrictions		✓		✓
Native Title	✓			
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority	✓			
Recreational				
Bag and possession limits				✓
Bag limits	✓	✓		✓
Gear restrictions	✓	✓	✓	✓
Licence				✓
Possession limit			✓	
Size limit			✓	
Spatial closures				✓

Active Vessels			
	New South Wales	Queensland	Western Australia
	13 Fishing Business in OTF,	0 in ECIFFF, 0 in ECIFFF,	10 in JASDGLMF, 5 in WCDGLIMF, 3 in Charter,

OTF Ocean Trawl Fishery(NSW)

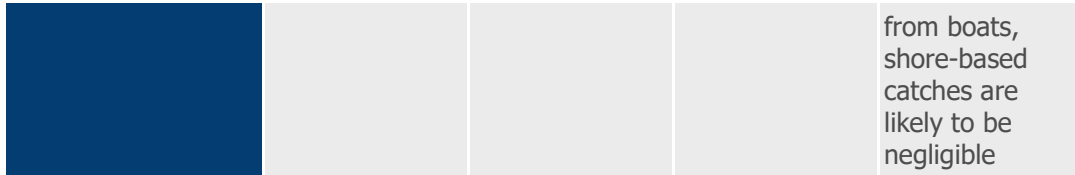
ECIFFF East Coast Inshore Fin Fish Fishery(QLD)

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

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

Charter Tour Operator(WA)

Catch				
	New South Wales	Northern Territory	Queensland	Western Australia
Charter				0.06 t
Commercial	3.22t in N/A,		0t in ECIFFF,	19.5404t in JASDGLMF WCDGLIMF,
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



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Western Australia – Recreational (Management methods) A recreational fishing from boat licence is required for recreational fishing from a powered vessel in Western Australia.

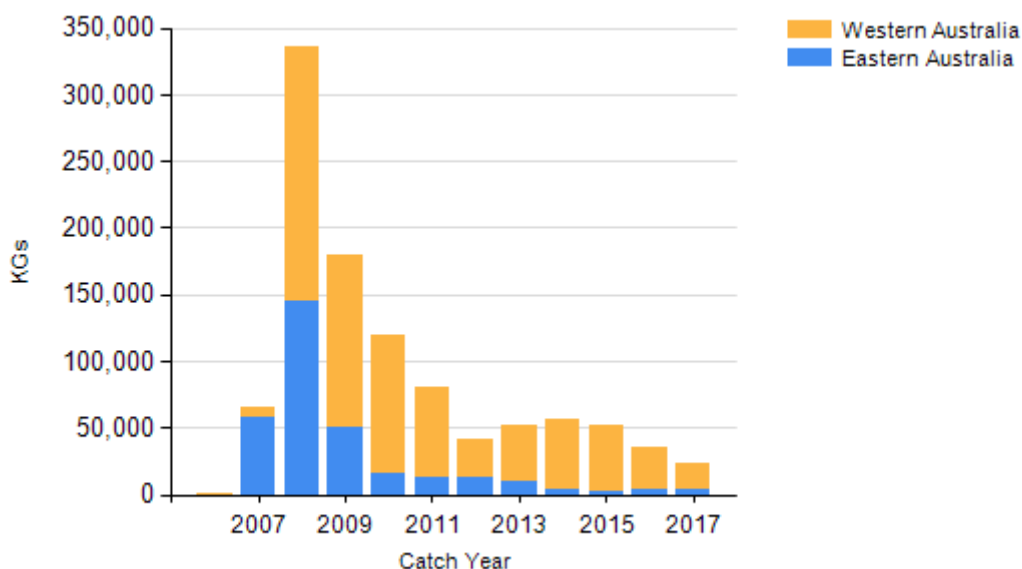
Queensland – Indigenous Under the *Fisheries Act 1994* (Qld), Indigenous fishers in Queensland are able to use prescribed traditional and non-commercial fishing apparatus in waters open to fishing. Size and possession limits, and seasonal closures do not apply to Indigenous fishers. Further exemptions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

New South Wales – Indigenous (Management Methods) (a) Aboriginal Cultural 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 for themselves, (b) 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 (1d)(3)(9), Aboriginal cultural fishing authority, and (c) In cases where the *Native Title Act 1993* (Cth) applies fishing activity can be undertaken by the person holding native title in line with S.211 of that Act, which provides for fishing activities for the purpose of satisfying their personal, domestic or non-commercial communal needs. In managing the resource where native title has been formally recognised, the native title holders are engaged with to ensure their native title rights are respected and inform management of the State's fisheries resources

New South Wales commercial fisheries with less than seven active fishers are not presented due to the Privacy Act.

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

ENVIRONMENTAL EFFECTS on Sandbar Shark

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