

Australian Blacktip Shark (2023)

Carcharhinus tilstoni



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia, Northern Territory	North Western Australia	Sustainable	Biomass, fishing mortality, catch, catch rate
Northern Territory, Queensland	Gulf of Carpentaria	Undefined	Catch
Queensland, New South Wales	East Coast Queensland	Sustainable	Biomass, MSY, catch

STOCK STRUCTURE

Australian Blacktip Shark (*Carcharhinus tilstoni*) are distributed within the waters of Northern Australia. Genetic studies have identified two biological stocks of Australian Blacktip Shark. A western stock extending from the western Northern Territory into northern Western Australia, and an eastern stock extending from the Gulf of Carpentaria to the east coast of Queensland and New South Wales [Ovenden et al. 2007]. The stock boundary between the North Western Australia and the North Eastern Australia biological stocks is uncertain. Geographic separation caused by Torres Strait most likely results in limited movement between the Queensland east coast and the Queensland side of the Gulf of Carpentaria, consequently, this species has been assessed as two management units in this state.

Australian Blacktip Shark are similar in appearance to Common Blacktip Shark (*C. limbatus*). Previously, taxonomic differentiation of these species was only possible by genetic analyses, precaudal vertebral counts or, in certain size classes, differences in size at maturity [Harry et al. 2011]. A new identification technique, utilising body measurements and pelvic fin colouration, has been developed and may assist in distinguishing between these two species [Johnson et al. 2017]. However, accurate field identification remains difficult and is not practical during fishing operations [Johnson et al. 2017]. Hybridisation between the species has also been

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Australian Blacktip Shark (2023)

recorded and while a new investigation is helping to understand the prevalence and dynamics of this phenomenon [Queensland Department of Agriculture and Fisheries, 2021], current knowledge regarding its implications for fisheries assessment and management is limited [Harry et al. 2012; Johnson 2017; Morgan et al. 2011]. Consequently, Australian Blacktip Shark and Common Blacktip Shark are often reported as a species complex in commercial logbooks. For the purpose of these assessments a portion of the combined blacktip shark catch for each jurisdiction has been attributed to Australian Blacktip Shark using relative abundance ratios determined from onboard observer programs and published research [Johnson 2017, Ovenden 2007].

Here, assessment of stock status for Australian Blacktip Shark is presented at the biological stock level—North Western Australia—and the management unit level—Gulf of Carpentaria (Northern Territory and Queensland) and East Coast (Queensland and New South Wales).

STOCK STATUS

East Coast Queensland The East Coast management unit straddles two jurisdictions: Queensland, east of Cape York, and northern New South Wales.

The last Queensland stock assessment for the Australian Blacktip Shark was completed in 2015 and was based on data up to and including 2013 [Leigh 2015]. This report produced Maximum Sustainable Yield (MSY) estimates for Australian Blacktip Sharks on the Queensland east coast ranging from 144 to 670 tonnes (t). The lower bound of the MSY estimate range is highly conservative and was included in the assessment in response to concerns surrounding the quantity and quality of the available data on shark harvests [Leigh 2015]. In recent years, the annual harvest of Australian Blacktip Shark has remained below the lower extent of the MSY estimates [Leigh 2015]. In 2021–22 the annual commercial harvest was 8 t, below the 10-year average of 49 t (range = 8 t to 106 t).

Observed declines in the annual harvest of shark are attributed to poor market demand for shark products, declining effort and management reforms targeted at the commercial net fishery as opposed to declining biomass. The most significant reforms were implemented in 2009 and included the introduction of a combined 600 t Total Allowable Commercial Catch (TACC) limit for retained sharks and rays. In 2021, this limit was reduced to 400 t (not including Hammerhead Sharks) as part of a broader reform program for the East Coast Inshore Fishery (ECIF); the primary source of regional shark product. These reforms included a transition of the ECIF to regional management and establishing a fishery-specific harvest strategy. This harvest strategy, includes reference points, trigger limits and other measures to guide the long-term management of sharks harvested on the Queensland east coast [Queensland Department of Agriculture and Fisheries, 2020]. One of the primary objectives of these changes is to minimise the long-term overexploitation risk.

Historic catch data for Blacktip Sharks have several limitations, particularly with respect to species identifications and the quantity and reliability of available catch data. Species differentiation for the Blacktip Shark complex has improved with the introduction of a new Shark and Ray logbook on 1 January 2018 that limits the 'Blacktip Whaler' category to *C. limbatus* and *C. tilstoni* only. As part of this process, new requirements were introduced that require operators to report shark discards. These changes were supported by monitoring programs that examined the composition, biology and genetic diversity of the shark catch [Queensland Department of Agriculture and Fisheries 2021]. These changes will

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Australian Blacktip Shark (2023)

assist in terms of quantifying harvest rates for Australian Blacktip Shark on the Queensland east coast.

Outside of the commercial fishing sector, the catch of Australian Blacktip Sharks is low to negligible. The Queensland Shark Control Program typically reports the capture of less than five individuals per year [Queensland Government, 2023]. No recreational data is available for this species [Teixeira et al. 2021]. However, recreational harvest is limited by a one shark in possession limit and a maximum legal size limit of 1.5 m total length.

In New South Wales, Australian Blacktip Shark are not differentiated in commercial logbooks; however, observations on commercial fishing vessels indicate that the amount of Australian Blacktip Shark caught is likely less than 0.1% of total shark catch [Macbeth et al, 2009] and therefore represents a negligible proportion of catch for this biological stock. Although Australian Blacktip Shark have been reported in the NSW Shark Meshing Program off Sydney [Boomer et al. 2010], the low number of 'Blacktip Whaler' sharks caught in the SMP [Dalton et al., 2023] imply this is a negligible proportion of overall catch for this species.

Overall the information provided by both jurisdictions indicates that the East Coast management unit is not considered to be depleted and that recruitment is unlikely to be impaired. Furthermore, the level of fishing mortality is also unlikely to cause the management unit to become recruitment impaired.

On the basis of the evidence provided above, Australian Blacktip Shark in the East Coast management unit is classified as a **sustainable stock**.

**Gulf of
Carpentaria**

The Gulf of Carpentaria management unit straddles two jurisdictions: The Northern Territory, east of the Wessel Islands-Queensland border and Queensland, west of Cape York to the Northern Territory border. Most Australian Blacktip Sharks in this management unit are caught by Queensland Fisheries (Queensland 34 t; Northern Territory 1.4 t). Harvest has declined in recent years, however this is due to poor market demand for shark products and is unlikely to be related to biomass declines.

The Offshore Net and Line Fishery (ONLF) is responsible for the majority of the Australian Blacktip Shark harvest in the Northern Territory. Australian Blacktip Shark harvest in the Northern Territory portion of the Gulf of Carpentaria has ranged from 0.7 to 15 t, at an annual average of 3.4 t, in the last 10 years (2012/13-2021/22). Changing operational practices in the Northern Territory Offshore Net and Line Fishery has have greatly reduced the take of Australian Blacktip Shark in the Northern Territory. There has been little to no shark-targeted fishing occurring in the Northern Territory since 2012 as a result of declining shark fin prices and the increasing value of Grey Mackerel (*Scomberomorus semifasciatus*), which is currently the main target species of this fishery.

The last Queensland stock assessment for Australian Blacktip Shark was completed in 2015 and based on data up until 2013 [Leigh 2015]. This assessment produced Maximum Sustainable Yield (MSY) estimates for the Gulf of Carpentaria ranging from 95 t to 513 t. The higher bound of the MSY estimate sits well above the annual commercial harvests reported in the Gulf of Carpentaria Inshore Fishery (GoCIF); the primary fishery accessing this species in the Gulf of Carpentaria. In 2021–22 the commercial harvest of Australian Blacktip Shark was 34 t, below the 10-year harvest average of 121 t (*range* =

34 to 220).

While noting the above, historic catch data for this management unit has poor species resolution and deficiencies exist in terms of the catch composition and the quantity/quality of the available data. Reporting and datasets for the Blacktip Shark complex have improved in Queensland with the introduction of a Shark and Ray specific logbook on 1 January 2018, and biological monitoring programs [Queensland Department of Agriculture and Fisheries, 2021]. However, there remains a degree of uncertainty in the level of fishing pressure exerted on Australian Blacktip Shark in the Gulf of Carpentaria. This uncertainty makes it difficult to accurately classify the status of the management unit.

On the basis of the evidence provided above, Australian Blacktip Shark in the Gulf of Carpentaria management unit is classified as an **undefined stock**.

North Western Australia

The North Western Australia biological stock straddles two jurisdictions: The Northern Territory, west of the Wessel Islands–Western Australian border; and Western Australia. Domestic catches of Australian Blacktip Shark peaked in 2012 but have subsequently declined to relatively low levels. Changing operational practices in the Northern Territory Offshore Net and Line Fishery have greatly reduced the take of Australian Blacktip Shark in the Northern Territory. There has been little to no shark-targeted fishing occurring in the Northern Territory since 2012 as a result of declining shark fin prices and the increasing value of Grey Mackerel (*Scomberomorus semifasciatus*), which is currently the main target species of this fishery. In this circumstance, the decline in catch has provided opportunity for the population of Australian Blacktip Shark to recover. Although there is uncertainty regarding species composition and the magnitude of historical catches of Blacktip Sharks from Western Australia, harvests of Australian Blacktip Shark in this jurisdiction have been negligible since April 2009 [Molony et al. 2013; Braccini et al. 2021]. These negligible harvests are expected to allow for increasing biomass levels. In addition, recreational catches are negligible [Ryan et al 2019.]

A stock assessment was undertaken for the North Western Australia biological stock of Australian Blacktip Shark utilising a stochastic Stock Reduction Analysis (SRA) model. The assessment estimated that in 2021 the harvest rate for Australian Blacktip Shark less than 3% of that required to reach MSY and that biomass was approximately 89% of unfished levels [Northern Territory Government, unpublished]. The results of this assessment are supported by mark-recapture research undertaken for all species of Blacktip Shark in Northern Territory waters [Bradshaw et al. 2013]. This stock is not considered to be depleted and the current level of fishing is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, the North Western Australia biological stock of Australian Blacktip Shark is classified as a **sustainable stock**.

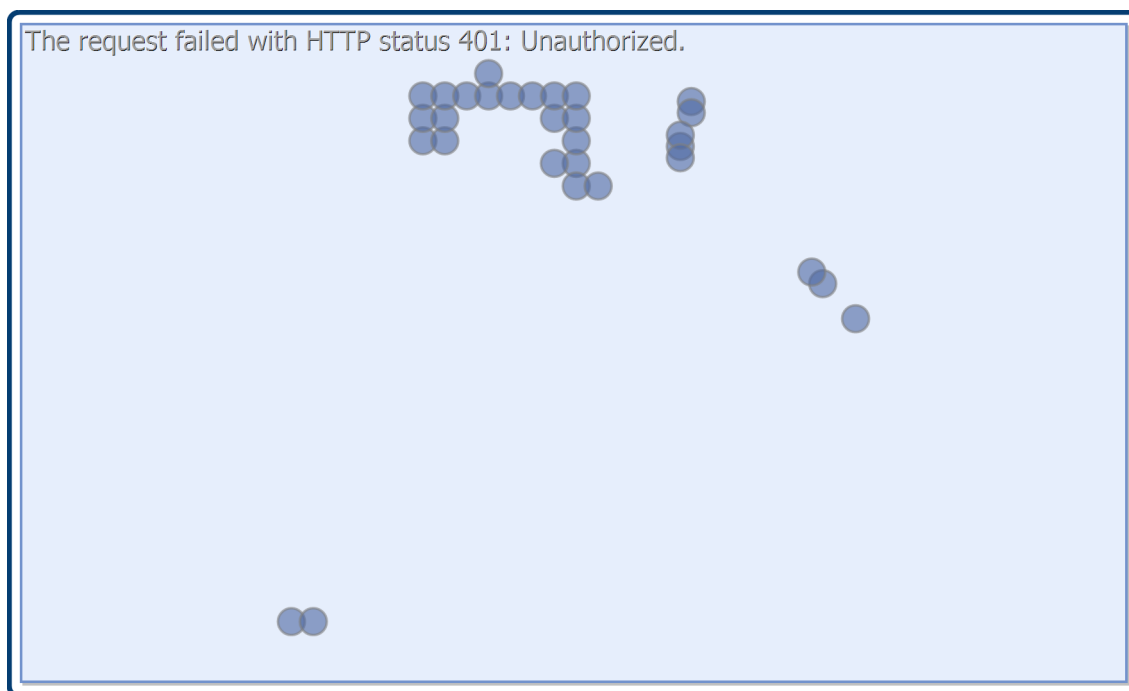
BIOLOGY

[Harry, 2011; Harry et al. 2012; Last and Stevens 2009]

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Australian Blacktip Shark (2023)

Species	Longevity / Maximum Size	Maturity (50 per cent)
Australian Blacktip Shark	Females 15 years, males 13 years; 2,000 mm TL	5–6 years; females 1,350–1,400 mm, males 1,200 mm TL

DISTRIBUTION



Distribution of reported commercial catch of Australian Blacktip Shark

TABLES

Fishing methods	New South Wales	Northern Territory	Queensland	Western Australia
Charter				
Hook and Line		✓	✓	✓
Commercial				
Gillnet		✓		
Line			✓	
Net			✓	
Unspecified	✓	✓		
Recreational				
Hook and Line		✓	✓	✓

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Australian Blacktip Shark (2023)

Management Methods				
	New South Wales	Northern Territory	Queensland	Western Australia
Charter				
Bag limits				✓
Boat limits			✓	
Gear restrictions		✓	✓	
Licence (boat-based sector)				✓
Possession limit		✓		✓
Processing restrictions			✓	
Seasonal or spatial closures			✓	
Size limits			✓	
Spatial closures		✓		✓
Commercial				
Bag/possession limits			✓	
Catch limits				✓
Effort limits	✓			
Effort limits (individual transferable effort)				✓
Gear restrictions		✓	✓	✓
Harvest Strategy			✓	
Limited entry	✓		✓	✓
Processing restrictions	✓	✓	✓	
Quota		✓		
Seasonal or spatial closures			✓	
Size limits			✓	
Spatial closures	✓	✓		✓

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Australian Blacktip Shark (2023)

Total allowable catch		✓	✓	
Vessel restrictions			✓	
Recreational				
Bag and boat limits	✓			
Bag limits				✓
Bag/possession limits			✓	
Gear restrictions	✓	✓	✓	✓
Licence (boat-based sector)				✓
Possession limit		✓		
Processing restrictions			✓	
Seasonal or spatial closures			✓	
Size limits			✓	
Spatial closures		✓		✓

Catch	New South Wales	Northern Territory	Queensland	Western Australia
Charter		Unknown	Unknown	Unknown
Commercial	0 t	10.8693 t	42.0203 t	0 t
Indigenous	Unknown	Unknown	Unknown	Unknown
Recreational	Unknown	Unknown	Unknown	No Australian Blacktip Shark caught from boats [Ryan et al. 2019], shore-based catches are undetermined

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

Queensland – Commercial (Catch). Queensland commercial and charter data have been sourced from the commercial fisheries logbook program. Due to low confidence in species-specific reporting caused by challenges in distinguishing between *C. limbatus* and *C. tilstoni*, catch for this species has been derived by combining harvest across the multiple blacktip shark reporting categories and applying a latitudinal split following Leigh [2015] and Ovenden et al. [2007]. Further information available through the Queensland Fisheries Summary Report <https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-research/data/queensland-fisheries-summary-report>

Queensland – Recreational Fishing (Catch). Data with high uncertainty (Residual Error >50 %) have been excluded and listed as unknown. More information available at: <https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-research/monitoring-reporting/statewide-recreational-fishing-surveys>

Queensland – Indigenous (management methods). for more information see <https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing>

Queensland – Commercial (Management Methods). Harvest strategies are available at: <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>

Queensland – Indigenous (management methods) for more information see <https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing>

New South Wales – Indigenous (Management Methods)
<https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>

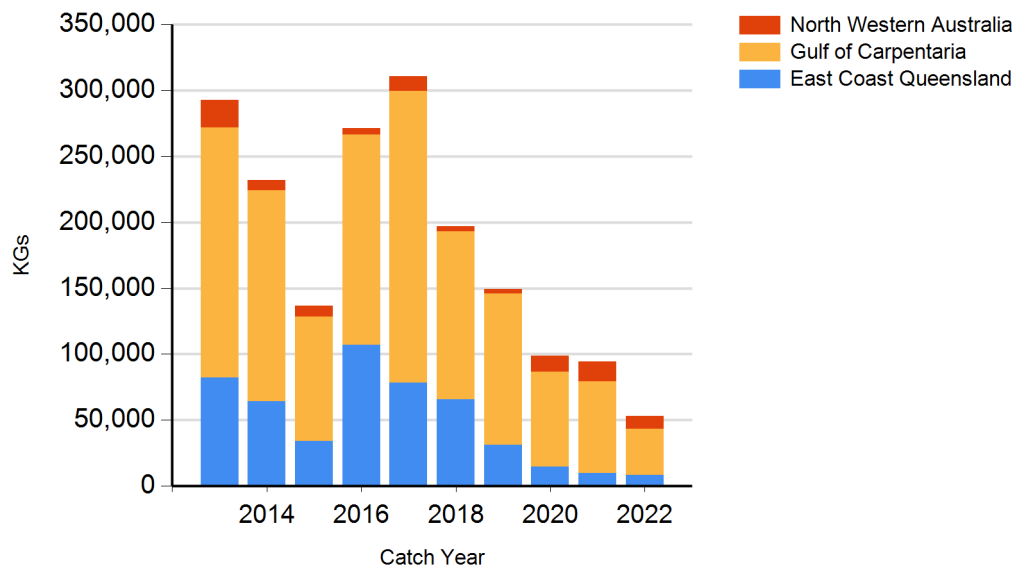
New South Wales - Recreational and Indigenous (catch). Given the distribution of Australian Blacktip Shark, catches are likely to be negligible.

Northern Territory - Indigenous (management methods). The *Fisheries Act 1988* (NT), specifies that: “Unless expressly provided otherwise, nothing in this Act derogates or limits the right of Aboriginal people who have traditionally used the resources of an area of land or water in a traditional manner to continue to use those resources in that area in that manner.”

Northern Territory — Charter (Management methods). In the Northern Territory, charter operators are regulated through the same management methods as the recreational sector but are subject to additional limits on license and passenger numbers.

CATCH CHART

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Australian Blacktip Shark (2023)



Commercial catch of Australian Blacktip Shark - note confidential catch not shown

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STATUS OF AUSTRALIAN FISH STOCKS REPORT
Australian Blacktip Shark (2023)

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