

# Blue-eye Trevalla (2018)

*Hyperoglyphe antarctica*



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## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth, Queensland, New South Wales, Tasmania	Eastern Australia	OTLF, RRFFF, SESSF (CTS), SESSF (GHTS), SF	Sustainable	Catch, CPUE, fishing mortality
Western Australia	Western Australia	WCDSIMF, WCDSIMF    WL (SC), WL (SC)	Sustainable	Catch, fishing mortality

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector) (CTH), OTLF Ocean Trap and Line Fishery (NSW), RRFFF Rocky Reef Fin Fish Fishery (QLD), SF Scalefish Fishery (TAS), WCDSIMF West Coast Demersal Scalefish (Interim) Managed Fishery (WA), WL (SC) Open Access in the South Coast (WA), WCDSIMF || WL (SC) Various Fisheries combined due to 3 boat rule (WA)

## STOCK STRUCTURE

Recently, three lines of evidence, based on phenotypic variation in age and growth, otolith chemistry and potential larval dispersal, suggest spatial patterns that may delineate natural subpopulations of Blue-eye Trevalla [Williams et al. 2017]. This research identified four geographically distinct subpopulations around the Australian coast: West, South, East and Seamounts-Lord Howe.

The results of the study by Williams et al. [2017] have not been implemented into management. Given that a single biological stock of Blue-eye Trevalla has been assumed for eastern Australian waters for the purposes of stock assessment and management, assessment of stock status is presented here at the biological stock level—Eastern Australia and Western Australia.

## STOCK STATUS

**Eastern Australia** Catches of the Eastern Australia biological stock of Blue-eye Trevalla are currently taken in the Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector), Deep Water Fin Fish Fishery (Queensland)

(DWFFF), Southern and Eastern Scalefish and Shark Fishery (Gillnet, Hook and Trap Sector) (Commonwealth) (SESSF [GHTS]) and Ocean Trap and Line Fishery (New South Wales) (OTLF). Prior to 1998, catches were also taken in the Scalefish Fishery (Tasmania). Total catch in these fisheries was around 450 tonnes (t) in 2017. Commonwealth fisheries (primarily the SESSF [GHTS]) have made 85–95 per cent of the historical catch. Assessment of this stock is therefore based primarily on stock assessments for the SESSF (GHTS) fishery.

Blue-eye Trevalla caught off south-east Queensland are at the northern-most limit of their distribution [Kailola et al. 1993]. They were a key species in the DWFFF until 2012 and have since been incidentally harvested in the Rocky Reef Fin Fish Fishery. Commercial catch and effort for Blue-eye Trevalla has been highly variable since 2005 ranging from a peak of 58 t and 168 fishing days in 2009 to 1 t and 23 days' effort in 2015 [QDAF 2018]. Commercial catch in 2017 remained low at 1.2 t. No recreational harvest of Blue-eye Trevalla has been reported in recent surveys [Webley et al. 2015].

Catches in excess of 90 t per year were made in the OTLF in the late-1900s. The total commercial catch of Blue-eye Trevalla peaked at about 120 t in 1999. Since then, total commercial catches have declined steadily to about 13 t in 2016–17. Recreational and Indigenous catches of Blue-eye Trevalla in New South Wales are unknown. Surveys of recreational and Indigenous catches have either not specified catches of Blue-eye Trevalla [West et al. 2015] or reported them into a broader 'finfish - other' category [Henry and Lyle 2003]. No separate assessments have been conducted for New South Wales Blue-eye Trevalla.

Blue-eye Trevalla caught in the south-eastern region of the Eastern Australia biological stock's distribution (Commonwealth fishing zones 10–50) constitute most of the catch of this stock. This stock component is assessed as a Tier 4 stock under the Southern and Eastern Scalefish and Shark Fishery Harvest Strategy Framework using catch and effort data for the auto-longline and dropline fisheries. The most recent assessment for this stock was in 2017 using data from 1997 to 2016 [Haddon 2017]. The data included total catches, total discards and standardised catch-per-unit-effort (CPUE). The catch data used were from the Commonwealth Trawl Sector (zones 20 to 50 and the eastern seamounts), but excluded catches from the Great Australian Bight Trawl Sector (zones 84 and 85). The CPUE time series was a combination of catch-per-hook from dropline data (1997 to 2006) and auto-longline data (2002 to 2016).

There are various sources of uncertainty in the assessment. Two factors may potentially influence catch rates and fishing behaviour, which may result in CPUE being biased low: the presence of killer whales (*Orca—Orcinus orca*) near fishing operations, and exclusions from historical fishing grounds following closures implemented to rebuild gulper shark stocks [AFMA 2014]. The 2016 assessment did not detect large effects on catch rates due to the closures, but there remains uncertainty concerning the effect of whale depredations on CPUE.

The 2017 assessment indicates a decrease in CPUE from 2014 to 2016. Most of the catch is now caught by only a few vessels; consequently, the CPUE is currently more sensitive to changes in the fishing behaviour of these vessels. This is expected to increase the variance of the CPUE [Haddon 2016].

The 2017 assessment [Haddon 2017] indicates that recent average CPUE is between the limit and the target reference level, indicating that the stock is not recruitment impaired. For the 2017–18 fishing season, the Total Allowable Catch (TAC) was 458 t and the recommended biological catch (RBC) was 526 t. The 2017–18 landed catch by the Commonwealth fisheries was below the RBC at 327 t.

The above evidence indicates that the stock biomass is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, current fishing mortality is unlikely to result in the stock becoming recruitment impaired.

There is insufficient evidence to independently classify the status of the New South Wales and Queensland components of the Eastern Australia biological stock, although these make a small contribution to the overall catch and are unlikely to significantly affect determination of stock status for the entire Eastern Australia stock.

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

### Western Australia

Stock assessment for Blue-eye Trevalla in the Western Australia biological stock is based on assessment of fishing mortality derived from catch curve analysis of representative samples of the age structure in the state-managed demersal fisheries (West Coast Demersal Scalefish Interim Managed Fishery, Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery and Wet Line Fishery [South Coast, Western Australia]). These fishing mortality based assessments use reference levels (target, threshold and limit) based on ratios of natural mortality (M) for each species ( $F_{target} = 2/3M$ ,  $F_{threshold} = M$  and  $F_{limit} = 3/2M$  [DPIRD 2017]). Recent fishing mortality based assessments indicated that the estimated fishing mortality rate on Blue-eye Trevalla in this biological stock was stable at close to the threshold level in 2011 and 2014. This indicates that current fishing pressure is not having an unacceptable impact on the age structure of the population. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

Blue-eye Trevalla catches from the state-managed demersal fisheries (Western Australia biological stock) from 1999–2017 ranged between 1.3 and 19.0 t, with catches over the last 10 year period from 2008–2017, averaging 5.0 t per year. The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

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

## BIOLOGY

**Blue-eye Trevalla biology** [Baelde 1995, Stobutzki et al. 2009]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Blue-eye Trevalla	Eastern Australia: 42 years, 1 400 mm TL Western Australia: 65 years, 1 300 mm TL	Males 620 mm TL, females 720 mm TL Males 8–9 years, females 11–12 years

## DISTRIBUTION



Distribution of reported commercial catch of Blue-eye Trevalla

**TABLES**

<b>Commercial Catch Methods</b>	<b>Commonwealth</b>	<b>New South Wales</b>	<b>Queensland</b>	<b>Tasmania</b>	<b>Western Australia</b>
Danish Seine	✓				
Demersal Gillnet	✓				
Demersal Longline	✓				
Dropline	✓	✓			✓
Gillnet					✓
Hand Line, Hand Reel or Powered Reels					✓
Handline (mechanised)	✓				
Hook and Line	✓	✓	✓		✓
Longline (Unspecified)					✓
Midwater Trawl	✓				
Otter Trawl	✓				
Pole and Line	✓				
Rod and reel	✓				
Trotline	✓				
Unspecified		✓		✓	✓
<b>Fishing methods</b>					
	<b>Commonwealth</b>	<b>New South Wales</b>	<b>Queensland</b>	<b>Tasmania</b>	<b>Western Australia</b>
<b>Charter</b>					

Handline					✓
<b>Commercial</b>					
Demersal Longline	✓				
Dropline	✓	✓			✓
Hand Line, Hand Reel or Powered Reels					✓
Handline (mechanised)	✓				
Hook and Line		✓	✓		
Otter Trawl	✓				
Unspecified		✓		✓	✓
<b>Indigenous</b>					
Handline		✓			
<b>Recreational</b>					
Handline		✓	✓	✓	✓
Setline				✓	
<b>Management Methods</b>					
	<b>Commonwealth</b>	<b>New South Wales</b>	<b>Queensland</b>	<b>Tasmania</b>	<b>Western Australia</b>
<b>Charter</b>					
Bag limits					✓
Limited entry					✓
Passenger restrictions					✓
Spatial closures					✓
Spatial zoning					✓
<b>Commercial</b>					
Gear restrictions	✓	✓	✓	✓	✓
Limited entry	✓	✓	✓	✓	✓
Spatial closures	✓	✓	✓		✓
Spatial zoning					✓
Total allowable catch	✓				✓
Vessel restrictions					✓
<b>Indigenous</b>					
Laws of general application					✓

<b>Native Title</b>		✓			
<b>Section 37 (1d)(3)(9), Aboriginal cultural fishing authority</b>		✓			
<b>Recreational</b>					
<b>Bag limits</b>		✓		✓	✓
<b>Licence</b>		✓		✓	
<b>Licence (Recreational Fishing from Boat License)</b>					✓
<b>Spatial closures</b>		✓		✓	✓
<b>Trigger limits</b>		✓		✓	

<b>Active Vessels</b>	<b>New South Wales</b>	<b>Queensland</b>	<b>Western Australia</b>
	19 Fishing Business in OTLF,	8 in RRFFF,	3 in WCDSIMF, 16 in WL (SC), & 3 in Charter,

**OTLF** Ocean Trap and Line Fishery(NSW)

**RRFFF** Rocky Reef Fin Fish Fishery(QLD)

**WCDSIMF** West Coast Demersal Scalefish (Interim) Managed Fishery(WA)

**WL (SC)** Open Access in the South Coast(WA)

**Charter** Tour Operator(WA)

<b>Catch</b>	<b>Commonwealth</b>	<b>New South Wales</b>	<b>Queensland</b>	<b>Tasmania</b>	<b>Western Australia</b>
<b>Charter</b>					2.03 t
<b>Commercial</b>	51.037t in SESSF (CTS), 275.994t in SESSF (GHTS),	13.02t in OTLF,	1.216t in RRFFF,	0.14988t in SF,	10.0467t in WCDSIMF    WL (SC),
<b>Indigenous</b>	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Recreational</b>	Unknown	Unknown	Unknown	12.5 t (2011–12)	1.38 t ± 0.93 t se

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector) (CTH), OTLF Ocean Trap and Line Fishery (NSW), RRFFF Rocky Reef Fin Fish Fishery (QLD), SF Scalefish Fishery (TAS), WCDSIMF West Coast Demersal Scalefish (Interim) Managed Fishery (WA), WL (SC) Open Access in the South Coast (WA), WCDSIMF || WL (SC) Various Fisheries combined due to 3 boat rule (WA),

**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 – 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.

**Western Australia – Recreational (Catch)** Boat-based recreational catch is from 1 September 2015–31 August 2016. These data are derived from those reported in Ryan et al. 2017.

**Western Australia – Recreational (Management Methods)** A Recreational Fishing from Boat License is required for the use of a powered boat to fish or to transport catch or fishing gear to or from a land-based fishing location.

**Western Australia – Indigenous** 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.

**New South Wales – Commercial** Dropline cannot be automated in New South Wales.

**New South Wales – Indigenous (Management Methods)** (a) 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 (b) 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.

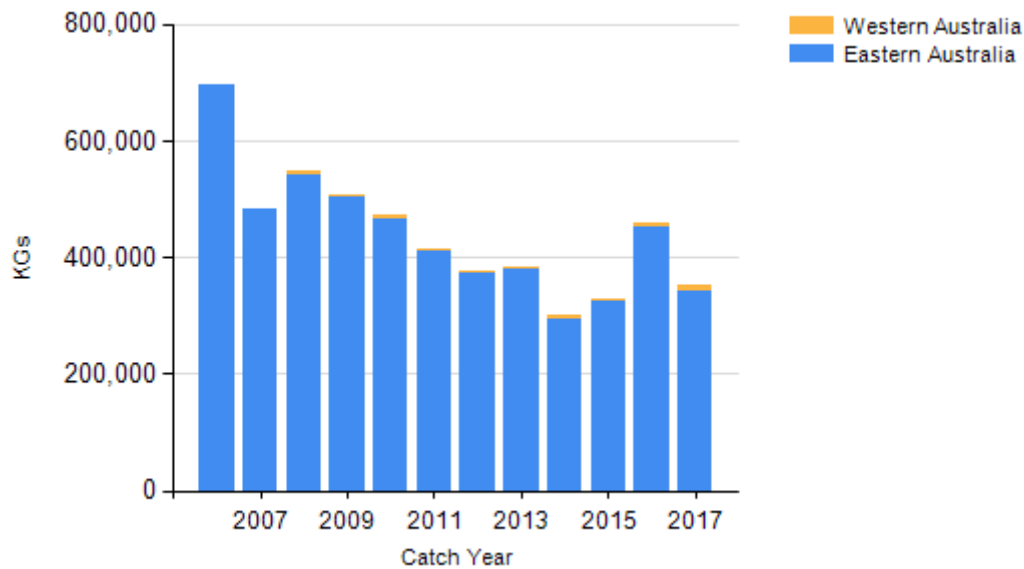
**Queensland – Indigenous (Management Methods)** In Queensland, under the *Fisheries Act 1994* (Qld), Indigenous fishers are able to use prescribed traditional and non-commercial fishing apparatus in waters open to fishing. Size and possession limits, and seasonal closures do not apply to Indigenous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

**Tasmania – Recreational (Management Methods)** In Tasmania, a recreational licence is required for fishers using dropline or longline gear, along with nets, such as gillnet or beach seine.

**Tasmania – Charter (management Methods)** In New South Wales there are four charter boat endorsement categories (Estuarine Fishing; Nearshore Bottom Fishing and Sportfishing; Gamefishing; and Deep Sea Bottom Fishing). The different categories have limitations on the species of fish they can access.

**Tasmania – Indigenous (Management Methods)** In Tasmania, aborigines engaged in aboriginal fishing activities in marine waters are exempt from holding recreational fishing licences, but must comply with all other fisheries rules as if they were licensed. Additionally, recreational bag and possession limits also apply. If using pots, rings, set lines or gillnets, Aborigines must obtain a unique identifying code (UIC). The policy document Recognition of Aboriginal Fishing Activities for issuing a UIC to a person for Aboriginal Fishing activity explains the steps to take in making an application for a UIC.

## CATCH CHART



Commercial catch of Blue-eye Trevalla - note confidential catch not shown.

## EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

### ENVIRONMENTAL EFFECTS on Blue-eye Trevalla

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