Blue-eye Trevalla (2020)

Hyperoglyphe antarctica

Timothy Emery: Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), **Anthony Roelofs**: Department of Agricutlture and Fisheries, Queensland, **Amy Smoothey**: NSW Department of Primary Industries, **Fabian Trinnie**: Department of Primary Industries and Regional Development, Western Australia, **Corey Wakefield**: Department of Primary Industries and Regional Development, Western Australia, **Jeremy Lyle**: Institute for Marine and Antarctic Studies, University of Tasmania

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, Queensland, New South Wales, Tasmania	Eastern Australia	Sustainable	Catch, CPUE, fishing mortality
Western Australia	Western Australia	Sustainable	Catch, fishing mortality

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’ – comprising continental slope fishing grounds off Western Australia, South Australia and western Victoria to western Tasmania; ‘South’ – continental slope grounds around Tasmania and north eastwards to eastern Bass Strait; ‘East’ – fishing grounds on the NSW continental slope and Tasmanian seamounts; and ‘Offshore’ – fishing grounds on the Lord Howe Rise [Williams et al. 2017].

The results of the study by Williams et al. [2017] led to separate analyses and recommended biological catches (RBCs) being determined for the slope and seamount stocks in eastern Australian waters but a global Total Allowable Catch (TAC) applied. Stock status is presented here at the management unit level - Eastern Australia and Western Australia.

STOCK STATUS

Eastern Australia

Catches of Blue-eye Trevalla in the Eastern Australia management unit are currently taken in the Commonwealth Trawl and Gillnet, Hook and Trap sectors of the Southern and Eastern Scalefish and Shark Fishery (CTS and GHTS) (SESSF), the Deep Water Fin Fish Fishery (Queensland) (DWFFF) and the Ocean Trap and Line Fishery (New South Wales) (OTLF). Prior to 1998, catches were

also taken in the Scalefish Fishery (Tasmania).

Commonwealth fisheries (primarily the SESSF) have taken 85–95 per cent of the historical catch. Status is therefore based primarily on stock assessments for the SESSF 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 DWFFF and the Rocky Reef Fin Fish Fishery (RRFFF). 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 [QFISH 2020]. Commercial catch in 2019 remained low at 0.4 t. No recreational harvest of Blue-eye Trevalla has been reported in recent surveys [Webley et al. 2015].

Catches more than 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 14.8 t in 2019 [NSWDPI Unpublished]. 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, Murphy et al. 2020] 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 management unit constitute most of the catch of this stock. Within this management unit, the slope and seamount stocks are assessed as Tier 4 and 5 stocks respectively, under the SESSF Harvest Strategy Framework [AFMA, 2019]. Analyses by Sporcic [2018], Haddon & Sporcic [2018a] and Haddon & Sporcic [2018b] informed the management of the stock for the 2019–20 fishing season.

The most recent analyses (2018 as outlined above), split the Eastern Australia management unit into slope and seamount stocks for the purposes of analyses and the production of RBC advice. This delineation was based on recent evidence of stock structuring presented by Williams et al. [2017]. A Tier 4 analysis was completed for the slope stock and a Tier 5 analysis was completed for the seamount stock (due to unreliable CPUE data) [AFMA 2018a].

The Tier 4 analysis in 2018 for the slope stock used landed catch from 1997 to 2017 [Sporcic 2018]. The reference period chosen was 1997 to 2006. This analysis suggested that the previous steep decline in CPUE (2013–2016) had levelled out and remained between the target and limit reference points [Sporcic 2018]. As previously noted by Haddon [2016] the Tier 4 analysis has various sources of uncertainty. Two factors that could influence catch rates and fishing behaviour (since the reference period), resulting in a recent low bias for CPUE, include the presence of killer whales (orcas—*Orcinus orca*) near fishing operations and resulting depredation, and exclusions from historical fishing grounds following closures implemented to rebuild gulper shark stocks [AFMA 2014]. The previous analysis by Haddon [2016] did not detect large effects on CPUE due to the closures, but uncertainty remains about the effect of killer whale depredation on CPUE.

The Tier 5 analysis for the seamount stock consisted of a catch-MSY analysis [Haddon and Sporcic, 2018a] and an age-structured stock reduction analysis [Haddon and Sporcic, 2018b]. The age-structured stock reduction analysis predicted that constant catches of around 25 t for lower productivity scenarios and 48 t for higher productivity scenarios would lead to relative stability in depletion levels. The catch-MSY analysis (although highly uncertain) predicted that constant catches of 40 t over five years would lead to the mean and median depletion levels remaining stable (AFMA 2018b, c).

The application of the SESSF Tier 4 harvest control rule to the outputs of the

standardised CPUE series for the slope stock generated a single-year RBC of 439 t. South East Resource Assessment Group (SERAG) agreed to an RBC of 36 t for the eastern seamount populations, based on the output of the age-structured stock reduction analysis and catch-MSY analysis. This resulted in a combined RBC of 475 t for the 2019–20 fishing season (AFMA 2018b,c). Commonwealth landed catch was 215.5 t in the 2019–20 fishing season (373.6 t in 2018-19 fishing season). Discards have been estimated to be 0.1 t based on the weighted average of the previous four calendar years (2015 to 2018) [Burch et al. 2019]. The Commonwealth landed catch and discards was therefore below the combined RBC in the 2019-20 fishing season.

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.

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

Western Australia

The stock assessment for Blue-eye Trevalla in the Western Australia management unit is based on an 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 (*F)* based assessments use reference levels (target, threshold and limit) based on ratios of natural mortality (M) for each species (Ftarget = 2/3M, Fthreshold = M and Flimit = 3/2M [DPIRD 2017]). Recent fishing mortality based assessments indicate 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 [DPIRD unpubl.]. This indicates that the 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 management unit) over the last 10-year period (2010–2019), ranged from 1.3–10.0 t, with a mean annual catch of 5.5 t per year [Gaughan and Santoro 2020]. 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 management unit 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

Fishing methods					
	Commonwealth	New South Wales	Queensland	Tasmania	Western Australia
Charter					
Hand Line, Hand Reel or Powered Reels		✓			
Hook and Line			✓		
Rod and reel					✓
Commercial					
Demersal Longline	✓				
Dropline	✓	✓			✓
Hand Line, Hand Reel or Powered Reels					✓
Handline (mechanised)	✓				
Line			✓		
Otter Trawl	✓				
Pelagic Longline	✓				
Rod and reel	✓				
Unspecified				✓	

Various		✓			
Recreational					
Handline		✓		✓	✓
Hook and Line			✓		
Setline				✓	

Management Methods					
	Commonwealth	New South Wales	Queensland	Tasmania	Western Australia
Charter					
Bag limits		✓			✓
Gear restrictions		✓			
In possession limits		✓			
License		✓			
Limited entry					✓
Marine park closures		✓			
Passenger restrictions					✓
Possession limit		✓			
Size limit		✓			
Spatial closures		✓			✓
Spatial zoning					✓
Commercial					
Gear restrictions	✓	✓	✓	✓	✓
Limited entry	✓	✓	✓	✓	✓
Marine park closures	✓				
Quota	✓				
Spatial closures	✓	✓	✓		✓
Spatial zoning					✓
Total allowable catch	✓				✓
Vessel restrictions					✓
Recreational					
Bag limits		✓		✓	✓
Gear restrictions		✓			
Licence		✓		✓	

Licence (Recreational Fishing from Boat License)					✓
Spatial closures		✓		✓	✓
Trigger limits		✓		✓	

Catch					
	Commonwealth	**New South Wales**	**Queensland**	**Tasmania**	**Western Australia**
Commercial	390.271 t	14.8378 t	0.4273 t	0 t	9.7993 t
Indigenous		Unknown	Unknown	Unknown	Unknown
Recreational		Unknown	Unknown	12.5 t (2011–12)	Insufficient data

Commonwealth – Commercial (Management Methods/Catch) Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2018-19 financial year.

Commonwealth – Recreational The Commonwealth 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 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 2017–31 August 2018. These data are derived from those reported in Ryan et al. 2019.

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 (management methods) Subject to application of 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 – Recreational (Catch) Murphy et al. [2020].

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

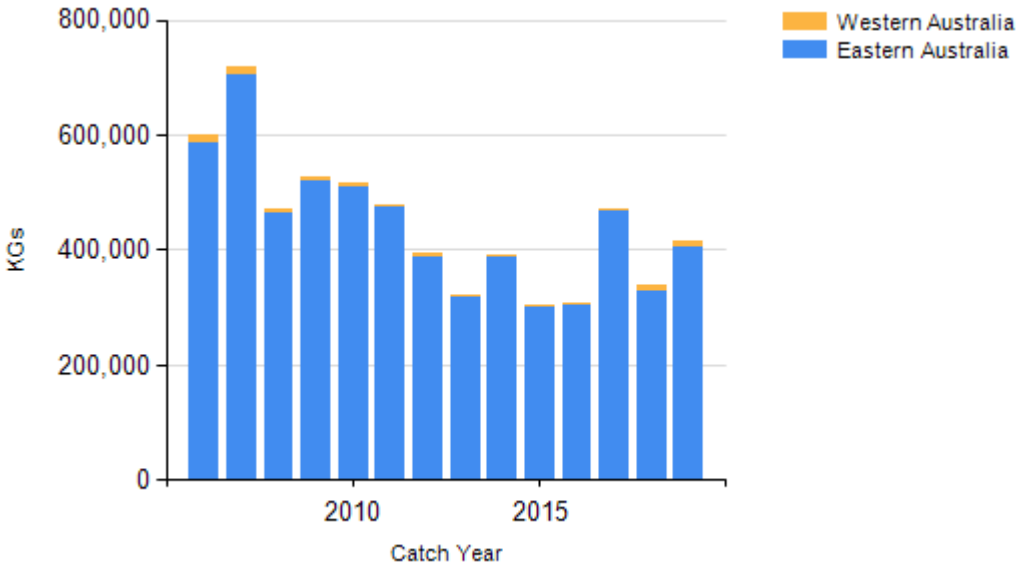
Queensland – Indigenous (management methods) for more information see https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing

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.

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