

Blue Morwong (2020)

Nemadactylus valenciennesi



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth	Commonwealth	Undefined	
Western Australia	Western Australia	Sustainable	Catch, catch distribution, catch rates, biology, length and age composition, fishing mortality, index of spawning stock biomass.
New South Wales	New South Wales	Negligible	
Tasmania	Tasmania	Undefined	
South Australia	South Australia	Negligible	

STOCK STRUCTURE

Blue Morwong's natural distribution is throughout the southern coastal waters of Australia's mainland. The stock structure is largely unknown. Its family, the Cheilodactylidae, typically have a pelagic larval phase lasting several months, facilitating transport over substantial distances. For Western Australia Coulson et al. [2010] suggested that as juveniles grow, substantial numbers move from the south coast to the lower west coast where they soon mature and spawn. Larvae are then transported south and then eastwards to the south coast, which is a juvenile nursery. Here assessment of stock status is presented at the jurisdictional level—Commonwealth, New South Wales, South Australia, Tasmania and Western Australia.

STOCK STATUS

Commonwealth In Commonwealth Waters, Blue Morwong are largely taken in the area of the Great Australian Bight by sectors of the Southern and Eastern Scalefish and Shark Fishery (SESSF). An average of around 27 tonnes (t) of Blue Morwong has been caught annually over the last ten years. In 2018–19, 21.4 t were caught.

No formal stock assessment has been conducted for this species in Commonwealth waters, however risk assessments undertaken indicate that the species is at low risk from fishing. The stock status for this species is consequently undefined.

- New South Wales** Stock status of Blue Morwong in New South Wales is reported as **Negligible** due to historically low catches in this jurisdiction and the stock has not been subject to targeted commercial fishing and the species is not a major component of recreational landings. Fishing is unlikely to be having a negative impact on the stock.
- South Australia** Stock status of Blue Morwong in South Australia is reported as **Negligible** due to historically low catches in this jurisdiction and the stock has not been subject to targeted fishing. South Australia's commercial catch of Blue Morwong over the past 20 years has averaged 1.2 t per annum, and the species is not a major component of recreational landings. Fishing is unlikely to be having a negative impact on the stock.
- Tasmania** In Tasmanian waters, catches of Blue Morwong are recorded by state authorities and the Commonwealth. Total catches average only about 0.1 t per year, primarily representing records for the Tasmanian Scalefish Fishery and indicating that the species is not actively targeted but largely a by-product of gillnet fishing operations on the northern end of the east coast. The maximum recorded total commercial catch was below 0.4 t in the 1999–00 season. The species is unlikely to be targeted by recreational fishers and species-specific estimates of recreational catches are not available. Overall minor catches suggest that the species is at low risk from fishing, but no formal stock assessment has yet been conducted. The status of the Tasmanian stock of Blue Morwong is consequently undefined.
- Western Australia** In Western Australia, Blue Morwong are taken mainly by the commercial demersal gillnet sector off the lower west and south coasts. The size selectivity of the net, coupled with the larger size reached by males, results in a higher level of fishing mortality for males. Catch-at-age sampling of 2,621 south coast Blue Morwong from the demersal gillnet and recreational sectors from 2012 to 2014 suggested regular and consistent recruitment for the previous two decades [Norriss et al. 2016]. The demersal gillnet sample ($n = 1,234$) from the eastern sub-region of the south coast was considered the most representative for an age based stock assessment. Two alternative methods were used to generate median estimates of female spawning potential ratio (SPR, the reproductive potential of the stock at the current level of fishing mortality compared to that at an unfished level, \pm 95 per cent CI): $SPR1 = 0.58$ (0.46–0.71) and $SPR2 = 0.54$ (0.41–0.68), with an almost zero chance of breaching the threshold reference point ($SPR=0.30$) for either method. There was a 7 per cent and 25 per cent chance, respectively, of breaching the threshold reference point ($SPR=0.30$). For males, $SPR1 = 0.36$ (0.25–0.51) and $SPR2 = 0.34$ (0.23–0.50) with a 19% and 31% chance of breaching the threshold reference point, respectively. There was an almost zero chance of males breaching the limit reference point ($SPR=0.20$). Estimates of natural mortality M (i.e. all sources of mortality other than fishing) were 0.22 (0.18–0.26) and fishing mortality $F_{year[-1]}$ were $F_{females} = 0.106$ (0.072–0.137) and $F_{males} = 0.180$ (0.123–0.231), giving a point estimates of F/M of 0.49 and 0.84 for females and males respectively. The probability of F breaching the threshold level ($F/M = 1$) was almost zero for females and 25% for males, and almost zero for either sex breaching the limit ($F/M = 1.5$).

The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. The above evidence also 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 Australian jurisdictional stock is classified as a **sustainable stock**.

BIOLOGY

Blue Morwong from the south of Western Australia reach a maximum age of 24 years, are gonochorists (do not functionally change sex) with onset of sexual maturity at age 3 to 8 years at about 40 to 60 cm FL for females and 50 to 65 cm FL for males, with moderately fast growth (at age 5 years average total length was 55 cm for females and 58 cm for males) [Coulson et al. 2010, Norriss et al. 2016].

Species	Longevity / Maximum Size	Maturity (50 per cent)
Blue Morwong	24 years, 98 cm total length	Females: 3–8 years, 400–600 mm FL. Males 3–7 years, 500–650 mm FL.

DISTRIBUTION



Distribution of reported commercial catch of Blue Morwong.

TABLES

Fishing methods	Commonwealth	New South Wales	South Australia	Tasmania	Western Australia
Charter					
Hook and Line					✓
Rod and reel					✓
Commercial					

Demersal Gillnet	✓				
Demersal Longline	✓				
Dropline					✓
Fish Trap		✓			✓
Gillnet					✓
Hand Line, Hand Reel or Powered Reels					✓
Line		✓			✓
Longline (Unspecified)					✓
Otter Trawl	✓				
Unspecified			✓	✓	
Various		✓			
Recreational					
Rod and reel					✓
Spearfishing					✓

Management Methods			
	Commonwealth	Tasmania	Western Australia
Charter			
Bag limits			✓
License			✓
Limited entry			✓
Marine park closures			✓
Spatial closures			✓
Temporal closures			✓
Commercial			
Effort limits			✓
Effort limits (individual transferable effort)			✓
Gear restrictions		✓	✓
Licence		✓	
License			✓
Limited entry	✓	✓	✓
Marine park			✓

closures			
Size limit		✓	✓
Spatial closures			✓
Spatial zoning			✓
Recreational			
Bag and possession limits		✓	✓
Fishing gear and method restrictions		✓	
Licence (Recreational Fishing from Boat License)			✓
Marine park closures		✓	
Size limit		✓	✓
Spatial closures			✓
Temporal closures			✓

Catch	Commonwealth	New South Wales	South Australia	Tasmania	Western Australia
Charter					2 t
Commercial	21.3767 t	0.85655 t	0 t	0 t	44.5937 t
Recreational					14 t (2017/18)

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

New South Wales – Recreational (Catch) Murphy et al. [2020].

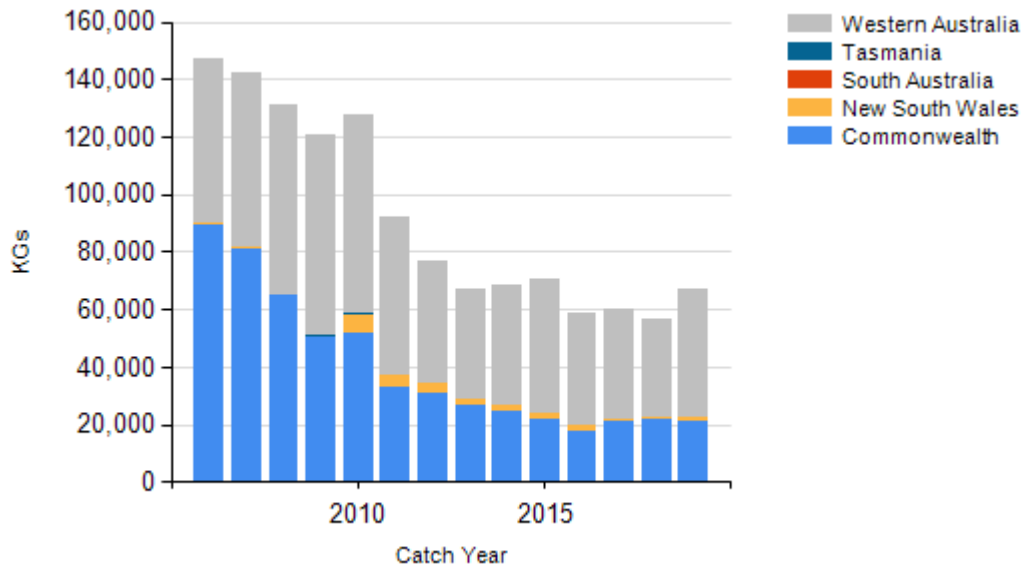
Tasmania – Commercial (catch) Catches reported for the Tasmanian Scalefish Fishery are for the period 1 July to 30 June the following year. The most recent assessment available is for 2018/19.

Tasmania – Recreational (management methods) A recreational licence is required for fishers using dropline or longline gear, along with nets, such as gillnet or beach seine. A minimum size limit of 250 mm is in place for all Morwong species other than Banded Morwong in Tasmanian waters. A bag limit of 10 fish and a possession limit of 20 fish (all Morwong species other than Banded Morwong) are also in place.

Tasmania – Indigenous (management methods) In Tasmania, Indigenous persons engaged in traditional 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. For details, see the policy document "Recognition of Aboriginal Fishing Activities"

(<https://dpiwwe.tas.gov.au/Documents/Policy%20for%20Aboriginal%20tags%20and%20alloting%20an%20UIC.pdf>).

CATCH CHART



Commercial catch of Blue Morwong - note confidential catch not shown.

References	
Norriss et al. 2016	Norriss JV, Fisher EA, Hesp SA, Jackson G, Coulson PG, Leary T, and Thomson AW. 2016. Status of inshore demersal scalefish stocks on the south coast of Western Australia. NRM Project 12034 Final Report. Fisheries Research Report, No. 276. Department of Fisheries, Western Australia, 116 pp.
Coulson et al. 2010	Coulson, P.G., Hesp, S.A., Hall, N.G. and Potter, I.C. (2010). Life cycle characteristics of the Blue Morwong <i>Nemadactylus valenciennesi</i> , compared with those of other species of Cheilodactylidae. <i>Marine and Freshwater Research</i> , 61: 104-118.
Murphy et al. 2020	Murphy, J.J., Ochwada-Doyle, F.A., West, L.D., Stark, K.E. and Hughes, J.M., 2020. The NSW Recreational Fisheries Monitoring Program - survey of recreational fishing, 2017/18. NSW DPI - Fisheries Final Report Series No. 158.