Grey Morwong (2020)

Nemadactylus douglasii

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, Queensland, New South Wales	Eastern Australia	Depleted	Catch, catch rates, size structure, age structure, fishing mortality

STOCK STRUCTURE

Grey Morwong is distributed along the south-eastern Australian coastline from southern Queensland to central Victoria and south to Tasmania in continental shelf waters typically shallower than 100 m [Kailola et al. 1993]. The stock structure of Grey Morwong has not been formally examined through genetics. However, based on their reasonably limited distribution, the prevailing influence of the East Australian Current along the east coast out to 150 m depth and an extended pelagic larval phase [Vooren 1972, Lowry and Cappo 1999], it is likely to constitute a single biological stock.

Here, assessment of stock status is presented at the biological stock level—Eastern Australia.

STOCK STATUS

Eastern Australia

This biological stock occurs in Commonwealth, Queensland and New South Wales waters, with little or no recorded catch for Victoria and Tasmania. Information is provided for each jurisdiction, with overall status determined based on the information presented for NSW.

In **Commonwealth** waters, Grey Morwong is taken as a bycatch or byproduct species in the Commonwealth Trawl and Gillnet Hook and Trap sectors of the Southern and Eastern Scalefish and Shark Fishery (SESSF)(CTS and GHTS) and to a lesser extent in the Coral Sea Fishery (CSF) in some years. Catches in the GHTS since 2003 have ranged from 2 kg to 888 kg. Catches in the CTS are down from a peak of ~58 tonnes (t) in 2005, to an average of just over 20 t over the last three years. Catch in the CSF has been sporadic, with last recorded catch in 2018 (16 kg). There is currently no stock assessment for Grey Morwong in Commonwealth waters and no TAC is set. The Level 2 Ecological Risk

Assessment (Wayte et al. 2007) for the CTS classified Grey Morwong as "medium" risk. There is insufficient information available to classify the Commonwealth part of the stock.

Grey Morwong caught off the south-east coast of **Queensland** are at the northern-most limit of their distribution [Kailola et al. 1993]. They are a non-target by-product species in the Rocky Reef Fin Fish Fishery (RRFFF). Catch and effort data for Grey Morwong in Queensland are reported as part of a mixed species category, 'Morwongs' and are therefore not considered reliable. The catch of Morwongs taken by Queensland-managed fishers averaged less than 1 t per year since 2004 [QFISH 2020] with a maximum catch of 1.6 tonnes in 2005. The recreational catch of Grey Morwong in Queensland is unknown as the species is recorded in a 'Morwong and Sweetlip – unspecified' category [Webley et al. 2015]. Notwithstanding the poor reporting reliability, these low catch levels constitute a negligible proportion of the total annual catch taken from the stock.

In **New South Wales**, results of modified Catch-MSY analyses [Martell and Froese 2013, Haddon et al. 2018] using NSW commercial catch data from 1945 to 2018 indicated that the biomass declined rapidly from the 1970s and fell below Blim of 0.2 during the mid-1990s [Stewart 2020]. An age-structured production model using data from 1997 to 2018 indicated that the Grey Morwong biomass may have been depleted to around 0.15 of B0 in 1997 and has declined further since then [Stewart 2020]. Standardized catch rates indicate that the available biomass of Grey Morwong has declined substantially since 1997 and during 2018–19 was approximately 40 per cent of the 1997–98 levels. The sizes of Grey Morwong in commercial landings have declined substantially since the 1970s and 1980s, with the size compositions in recent years (since 1997) having relatively low median lengths [Stewart and Hughes 2009, Stewart 2020]. Grey Morwong in current New South Wales charterboat catches also do not contain many fish larger than 400 mm FL [Gray and Kennelly 2017].

Commercial landings have declined steadily since the 1970s and are currently at historically low levels (19.5 t in 2018–19) [Stewart 2020]. The New South Wales recreational harvest of Grey Morwong has also declined from an estimated 156 t in 2000–01 to 29 t in 2013–14 [West et al. 2015] to 22 t in 2017–18 [Murphy et al. 2020] indicating that the availability of this species to recreational fishers has declined. These trends indicate that the Grey Morwong population was fished down substantially during the 1970s and 1980s and has not yet shown evidence of recovery. The above evidence indicates that the biomass of this part of the stock is likely to be depleted and that recruitment is likely to be impaired.

Results of the modified Catch-MSY analyses suggest that the estimated mean harvest rates exceeded Ftarg between the 1970s and early 2000s, with landings exceeding the MSY estimate generated from commercial catch data [Stewart 2020]. Grey Morwong was classified as Overfished in New South Wales in 2008 based on 2005–06 data [Stewart et al. 2015] and since that time the only management changes aimed at reducing fishing mortality have been an increase in the minimum legal length from 280 to 300 mm TL, a decrease in the recreational bag limit from 20 to 10 fish in 2007, and the introduction of escape panels in demersal fish traps in 2008. Landed catch and effort directed towards Grey Morwong are at historically low levels in New South Wales; however it is not known whether these reduced levels are low enough to allow for recovery of the stock. Continued dominance of small fish in landed Grey Morwong since the late 1990s suggests no recovery of the relative abundance of large (> 350 mm FL) fish in the population. The age composition of Grey Morwong in landed commercial catches show that they are fully recruited at an age of approximately four years [Stewart and Hughes 2009] and that the fishery exhibits age class truncation, with old fish missing from catches [Stewart 2011]. Three years of age sampling (2005–06, 2011–12 and 2015–16) show similar distributions, with variable recruitment evident during some periods and no signs of rebuilding of older fish in the population [Stewart 2020]. Estimates of mortality rates from these age compositions suggest that in recent years F has

approximated M; however F exceeded M during the most recent year [Stewart 2020]. The weight of evidence is that fishing mortality was excessive during the 1970s to early 2000s. Since that time fishing mortality has declined, however possibly not to a level that would allow the biomass to recover to above the limit reference point. The above evidence indicates that current fishing mortality levels are expected to be preventing the stock from recovering from a recruitment impaired state.

The only indicators of the status of this stock come from New South Wales. As such, the status of the entire biological stock of Grey Morwong is based on information emanating from the New South Wales assessments.

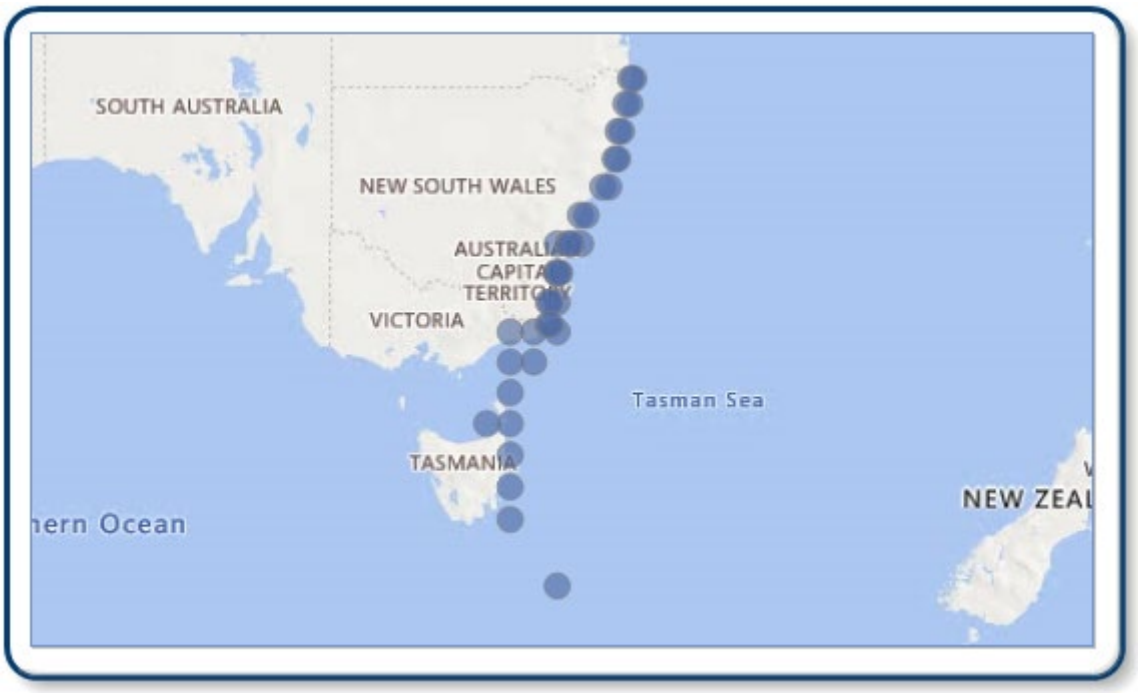
On the basis of the evidence provided above, the biological stock is classified as a **depleted stock**.

BIOLOGY

Grey Morwong biology [Hutchins and Swainston 1999, Stewart and Hughes 2009]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Grey Morwong	22 years or longer, 810 mm TL (approximately 670 mm FL)	3 years, 240 mm FL

DISTRIBUTION



Distribution of reported commercial catch of Grey Morwong

TABLES

Fishing methods			
	Commonwealth	New South Wales	Queensland
Charter			
Hook and Line		✓	

Commercial			
Danish Seine	✓		
Demersal Gillnet	✓		
Fish Trap		✓	
Line		✓	✓
Net			✓
Otter Trawl	✓	✓	
Various		✓	
Recreational			
Hook and Line		✓	✓
Spearfishing		✓	✓

Management Methods			
	Commonwealth	New South Wales	Queensland
Charter			
Bag and possession limits		✓	
Gear restrictions		✓	✓
Licence		✓	
Marine park closures		✓	
Size limit		✓	
Spatial closures		✓	✓
Commercial			
Gear restrictions	✓	✓	✓
Limited entry	✓	✓	✓
Marine park closures		✓	
Size limit		✓	
Spatial closures	✓	✓	✓
Temporal closures			✓
Vessel restrictions		✓	✓
Recreational			
Bag and possession limits		✓	
Gear restrictions		✓	✓

Licence		✓	
Marine park closures		✓	
Size limit		✓	
Spatial closures		✓	✓

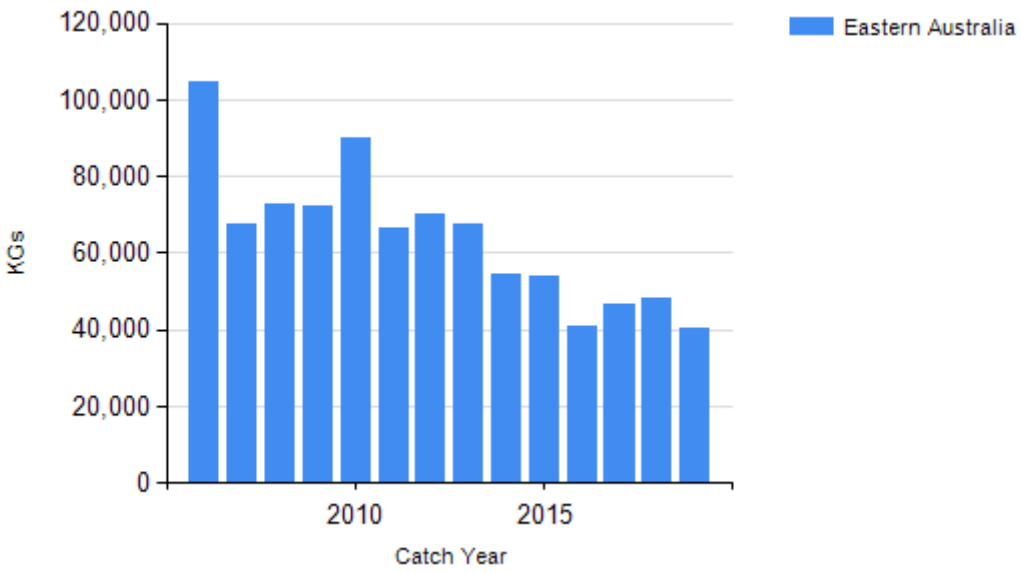
Catch			
	Commonwealth	**New South Wales**	**Queensland**
Commercial	20.61 t	19.4536 t	0.4459 t
Indigenous		Unknown	Unknown
Recreational		21.8 t (2017–18)	Unknown

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

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

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

CATCH CHART



Commercial catch of Grey Morwong - note confidential catch not shown

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