

Grey Morwong (2018)

Nemadactylus douglasii



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth, Queensland, New South Wales	Eastern Australia	CSF, N/A, OTF, OTLF, RRFFF, SESSF (CTS), SESSF (GHTS)	Depleted	Catch, Catch rates, size structure, age structure, fishing mortality

CSF Coral Sea Fishery (CTH), 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), N/A Not Applicable (NSW), OTF Ocean Trawl Fishery (NSW), OTLF Ocean Trap and Line Fishery (NSW), RRFFF Rocky Reef Fin Fish Fishery (QLD)

STOCK STRUCTURE

Grey Morwong is distributed along the south eastern Australian coastline from southern Queensland south to Tasmania in continental shelf waters typically shallower than 100 m deep [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 [Lowry and Cappo 1999, Vooren 1972], 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 cross-jurisdictional stock has components in the Commonwealth, Queensland and New South Wales waters. Each jurisdiction assesses that part of the biological stock that occurs in its waters. The status presented here for the entire biological stock has been established using evidence from all three jurisdictions. However, the bulk of the catch has historically come from New South Wales, so stock status classification is primarily based on evidence from that jurisdiction.

In **Commonwealth** waters, Grey Morwong is taken as a bycatch or byproduct species in the Commonwealth Trawl Sector (CTS) and Gillnet Hook and Trap

Sector (GHTS) and to a lesser extent in the Coral Sea Fishery (CSF). Catches since 2007 have either been limited; ranging from 2 kg to 605 kg in the GHTS; or have declined such as those in the CTS which have averaged just under 20 tonnes (t) in the last three years after averaging 31 t in the preceding eight years. CTS effort over this time has also decreased. There is currently no stock assessment for Grey Morwong in Commonwealth waters and no TAC for this jurisdiction for 2017. 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 bycatch species in the Rocky Reef Fin Fish Fishery (RRFFF). Catch and effort data for Grey Morwong in Queensland are not considered reliable as catches are not reported specifically, but included as part of a species mix reported as a 'Morwongs' category. However, reported catches of morwongs average less than 1 t per annum since 2004 [QDAF 2018]. 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]. Although the catch of Grey Morwong remains low, there is insufficient evidence to confidently classify the Queensland part of the stock.

In **New South Wales**, 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, NSW DPI unpublished]. Grey Morwong in current New South Wales charterboat catches also do not contain many fish larger than 400 mm FL [Gray and Kennelly 2017]. These data indicate that the Grey Morwong population was fished down substantially during the 1970s and 1980s and has not yet shown evidence of recovery. Commercial landings have declined steadily since the 1970s and are currently at historically low levels (23.8 t in 2016–17). The New South Wales resident recreational harvest of Grey Morwong has also declined from an estimated 156 t in 2000–01 to an estimated 29 t in 2013–14 [West et al. 2015] indicating that the availability of this species has declined considerably. Standardised commercial catch rates using the method of fish trapping have declined steadily since 1997–98, and in 2016–17 were approximately 35 per cent of the 1997–98 level [NSW DPI unpublished]. Under the assumption that the Eastern Australia stock of Grey Morwong was already substantially depleted by 1997–98, based on the observed truncation in size composition being landed by that time, the current biomass is likely well below a limit reference level of 20 per cent of unfished biomass given the 35 per cent decline in catch rates since that time. 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.

Grey Morwong was classified as Overfished in New South Wales in 2008 based on 2005–06 data [Stewart et al. 2015]. Since that time the only management changes aimed at reducing fishing mortality was 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 [NSW DPI unpublished].

Catch curves fitted to age composition data for ages 4–16 estimate Total

Mortality (Z) at 0.23, 0.27 and 0.39 during 2004–05, 2011–12 and 2015–16 respectively [NSWDPI unpublished]. The most likely estimate of Natural Mortality (M) is 0.14 based on the assumption that 5 per cent of the population attain the maximum observed age of 22 years [Hoenig 1983]. A second estimate based on Then et al. [2014] and assuming that Grey Morwong longevity is potentially as much as other Cheilodactylids of >= 40 years was similar at 0.17. These estimates indicate that currently Fishing Mortality (F) exceeds M and that total mortality is too great to allow stock recovery. The above evidence indicates that current fishing mortality levels are expected to prevent the stock recovering from a recruitment impaired state.

New South Wales has historically landed the largest proportion of the total catch of Grey Morwong, and is the only jurisdiction that has sufficient information to assess the status of the stock. Therefore the status of the entire biological stock of Grey Morwong is based on the New South Wales assessment.

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 2008]

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

DISTRIBUTION



Distribution of reported commercial catch of Grey Morwong

TABLES

Commercial Catch Methods	Commonwealth	New South Wales	Queensland
Danish Seine	✓		
Demersal Gillnet	✓		

Demersal Longline	✓		
Dropline	✓		
Fish Trap		✓	
Handline (mechanised)	✓		
Hook and Line		✓	✓
Midwater Trawl	✓		
N/A			✓
Otter Trawl	✓	✓	
Unspecified		✓	

Fishing methods			
	Commonwealth	New South Wales	Queensland
Charter			
Hook and Line		✓	
Commercial			
Danish Seine	✓		
Demersal Gillnet	✓		
Dropline	✓		
Fish Trap		✓	
Handline (mechanised)	✓		
Hook and Line		✓	✓
Otter Trawl	✓	✓	
Unspecified		✓	
Indigenous			
Hook and Line		✓	✓
Spearfishing		✓	✓
Recreational			
Hook and Line		✓	✓
Spearfishing		✓	✓

Management Methods			
	Commonwealth	New South Wales	Queensland
Charter			
Bag and possession limits		✓	
Bag 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		✓	✓
Indigenous			
Bag limits		✓	
Native Title		✓	
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority		✓	
Recreational			
Bag and possession limits		✓	
Bag limits		✓	
Gear restrictions		✓	✓
Licence		✓	
Marine park closures		✓	
Size limit		✓	
Spatial closures		✓	✓
Active Vessels			
	Commonwealth	New South Wales	Queensland

	1 Vessels in CSF, 15 Vessels in SESSF (CTS), 7 Vessels in SESSF (GHTS),	8 Fishing Business in NSWRLF, 37 Fishing Business in OTF, 98 Fishing Business in OTLF,	2 in RRRFF,
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CSF Coral Sea Fishery(CTH)

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)

NSWRLF New South Wales Lobster Fishery(NSW)

OTF Ocean Trawl Fishery(NSW)

OTLF Ocean Trap and Line Fishery(NSW)

RRFFF Rocky Reef Fin Fish Fishery(QLD)

Catch	Commonwealth	New South Wales	Queensland
Commercial	0.016t in CSF, 19.01t in SESSF (CTS), 0.483t in SESSF (GHTS),	1.707t in N/A, 1.236t in OTF, 20.883t in OTLF,	0.54153t in RRRFF,
Indigenous		Unknown	Unknown
Recreational		29 t (in 2013–14)	Unknown

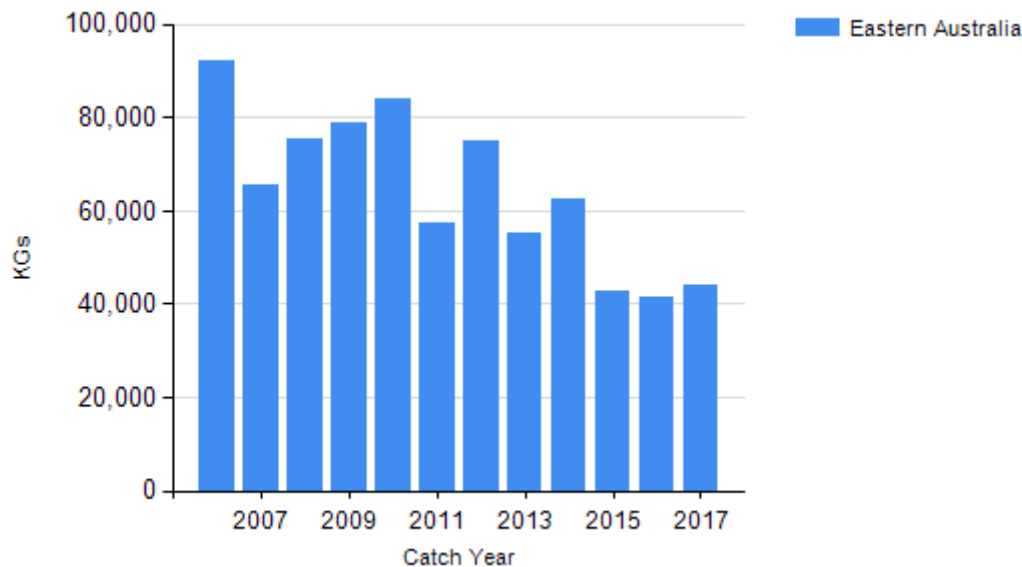
CSF Coral Sea Fishery (CTH), SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector) (CTH), N/A Not Applicable (NSW), OTF Ocean Trawl Fishery (NSW), OTLF Ocean Trap and Line Fishery (NSW), RRRFFF Rocky Reef Fin Fish Fishery (QLD),

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.

New South Wales – Recreational (Catch) West et al. [2015] estimate of approximately 30 000 fish retained by NSW residents with the average weight retained [NSWDPI Unpublished data]. This estimate includes the recreational charter catch.

New South Wales – Indigenous (management methods) (a) Aboriginal Cultural Fishing Interim Access Arrangement—allows an Indigenous fisher in New South Wales to take in excess of a recreational bag limit in certain circumstances; for example, if they are doing so to provide fish to other community members who cannot harvest for themselves; (b) 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 (c) 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.

CATCH CHART



Commercial catch of Grey Morwong - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Grey Morwong

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