

# Banded Morwong (2016)

*Cheilodactylus spectabilis*



**Klaas Hartmann:** Institute for Marine and Antarctic Studies, University of Tasmania, **Corey Green:** Department of Economic Development, Jobs, Transport and Resources, Victoria, **James Andrews:** Department of Economic Development, Jobs, Transport and Resources, Victoria, **Jeremy Lyle:** Institute for Marine and Antarctic Studies, University of Tasmania

## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Victoria	Victorian Banded Morwong Fishery	VBMF	Undefined	Catch, <u>CPUE</u>
Tasmania	Tasmanian Banded Morwong Fishery	TBMF	Transitional-depleting	Stock assessment

TBMF Tasmanian Banded Morwong Fishery (TAS), VBMF Victorian Banded Morwong Fishery (VIC)

## STOCK STRUCTURE

Banded Morwong is large temperate reef fish species that is targeted by gillnets for the domestic live fish trade. The species is distributed around south-eastern Australia, including southern New South Wales, and eastern Victoria and Tasmania, as well as occurring off north-eastern New Zealand. It is relatively common in depths of less than 50 m. There is currently no information available regarding the biological stock structure. However, once settled after a relatively long oceanic larval phase, they show a high degree of site fidelity[1–3], suggesting that the exploited Victorian and Tasmanian populations are likely to represent distinct populations.

Here, assessment of stock status is presented at the management unit level—Victorian Banded Morwong Fishery and and Tasmanian Banded Morwong Fishery.

## STOCK STATUS

**Tasmanian Banded Morwong Fishery** Mature biomass has declined steadily since the early-2000s, the most recent assessment estimates that biomass in 2014–15 was 24 per cent (south-east coast region) to 32 per cent (south-east coast region) of the unfished (1990)

level[4].

The above evidence indicates that the biomass of this stock is not likely to be recruitment overfished. For the period from the commencement of the fishery in the 1990s–2015 the biomass declined, but the stock is not yet considered to be in a recruitment overfished state.

The stock is not yet considered to be recruitment overfished, however the stock assessment indicates that fishing pressure at current (pre-2016) levels will continue to deplete the stock resulting in it becoming recruitment overfished in the near future[4]. As a result, reductions in catch quotas have been progressively applied to halt the biomass decline. Modelling indicates that the most recent catch reduction for the 2016–17 quota season should halt the biomass decline, however a positive increase in biomass resulting from previous catch reductions has not yet been observed[4].

The above evidence indicates that the current level of fishing pressure is likely to cause the stock to become recruitment overfished.

On the basis of the evidence provided above, the Tasmanian Banded Morwong Fishery management unit is classified as a **transitional–depleting stock**.

**Victorian  
Banded  
Morwong  
Fishery**

The most recent assessment (undertaken in 2012) has not been published because of the limited number of operators and concerns about confidentiality. This work examined catch data from 2002–12 and concluded that there was a clear downward trend in biomass since the mid-2000s. The standardised catch per unit effort may have fallen by up to 48 per cent from the peak. However, data from only two operators contributes to high levels of uncertainty. The total catch is currently less than 2.5 tonnes per year (catches are now limited to 625 fish per operator); some fish are also landed as byproduct from the Victorian Ocean Fishery. Insufficient information is available to confidently classify the status of this stock. There is insufficient information available to confidently classify the status of this stock.

On the basis of the evidence provided above, the Victorian Banded Morwong Fishery management unit is classified as an **undefined stock**.

**BIOLOGY**

Banded Morwong biology[5,6]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Banded Morwong	96 years; 578 mm <u>FL</u>	2.5 years; 320 mm <u>FL</u>

**DISTRIBUTION**



Distribution of reported commercial catch of Banded Morwong

**TABLES**

Commercial Catch Methods	Tasmania	Victoria
Gillnet	✓	
Line		✓
Mesh Net		✓
Traps and Pots		✓
Various	✓	

Fishing methods	Tasmania	Victoria
<b>Commercial</b>		
Mesh Net		✓
Various	✓	
<b>Recreational</b>		
Gillnet	✓	
Spearfishing	✓	

Management Methods	Tasmania	Victoria
<b>Commercial</b>		
Effort limits	✓	✓
Limited entry	✓	✓
Seasonal	✓	✓

closures		
Size limits	✓	✓
Spatial closures		✓
Total allowable catch	✓	✓
<b>Indigenous</b>		
Customary fishing permits		✓
<b>Recreational</b>		
Bag limits	✓	✓
Seasonal closures	✓	✓
Size limit	✓	✓
<b>Active Vessels</b>		
	<b>Tasmania</b>	<b>Victoria</b>
	22 Quota in TBMF,	

TBMF Tasmanian Banded Morwong Fishery(TAS)

<b>Catch</b>		
	<b>Tasmania</b>	<b>Victoria</b>
<b>Commercial</b>	32.7101t in TBMF,	
<b>Indigenous</b>	Nil	Nil
<b>Recreational</b>	0.5 t (2012/13)	Unknown

TBMF Tasmanian Banded Morwong Fishery (TAS), VBMF Victorian Banded Morwong Fishery (VIC),

**a Victoria – Indigenous (management methods)** In Victoria, regulations for managing recreational fishing are also applied to fishing activities by Indigenous people. Recognised Traditional Owners (groups that hold native title or have agreements under the Traditional Owner Settlement Act 2010 [Vic]) are exempt (subject to conditions) from the requirement to hold a recreational fishing licence, and can apply for permits under the Fisheries Act 1995 (Vic) that authorise customary fishing (for example, different catch and size limits or equipment). The Indigenous category in Table 3 refers to customary fishing undertaken by recognised Traditional Owners. In 2015, there were no applications for customary fishing permits to access Banded Morwong.**b 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.

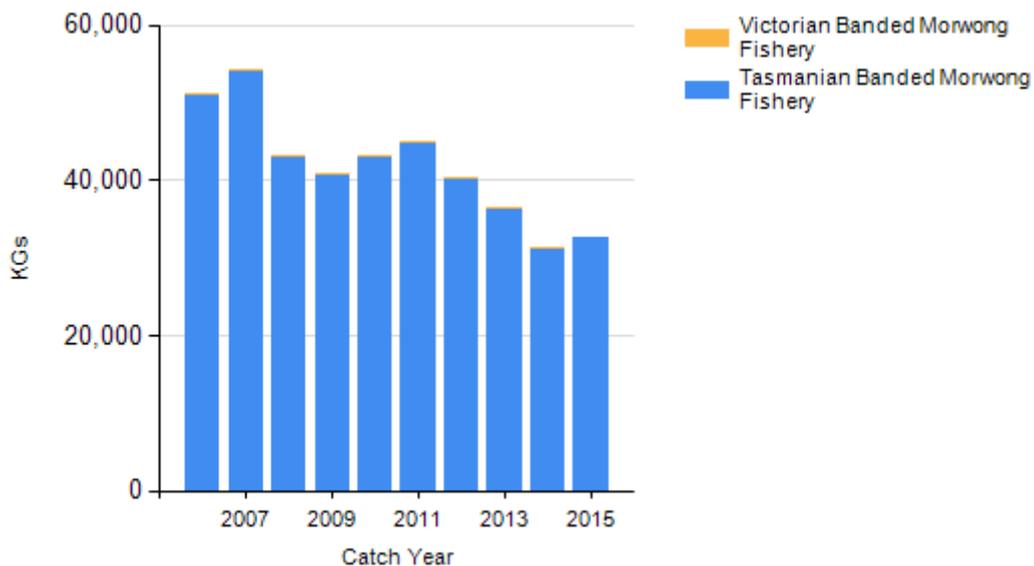
**c Victoria – Indigenous (management methods)** Subject to the defence that applies under Section 211 of the Native Title Act 1993 (Cth), and the exemption from a requirement to hold a Victorian recreational fishing licence, the non-commercial take by indigenous fishers is covered by the same arrangements as that for recreational fishing.

**d 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 Unique Identifying Code (UIC) to a person for

Aboriginal Fishing activity explains the steps to take in making an application for a UIC.

**e Victoria – Commercial (catch)** Victorian Banded Morwong Fishery data cannot be reported due to confidentiality clauses when fewer than five fishers are operating within a given fishery.

## CATCH CHART



Commercial catch of Banded Morwong - note confidential catch not shown

## EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- Banded Morwong are solely targeted by fishers using large mesh gillnets. Nearly 100 species are taken as bycatch or byproduct, including threatened, endangered and protected species that include seabirds, marine mammals and sygnathids (seahorses and pipefishes), albeit in very low quantities[7].
- The fish bycatch is dominated by four species: Draughtboard Shark (*Cephaloscyllium laticeps*), Marblefish (*Aplodactylus arctidens*), Bluethroat Wrasse (*Notolabrus tetricus*) and Longsnout Boarfish (*Pentaceropsis recurvirostris*). All but one of these (Bluethroat Wrasse) display high post-release survival[7].
- When targeting Banded Morwong, gillnets occasionally interact with sessile invertebrates, typically sea tulips (*Pyura spp.*) and macro-algae, although such interactions very rarely result in entire organisms being dislodged[7].

## ENVIRONMENTAL EFFECTS on Banded Morwong

- The impact of environmental factors on Banded Morwong stocks is unknown. However, there is evidence that ocean warming is affecting growth at the northern extreme of the distribution[8]. Banded Morwong have a 6–9 month oceanic larval phase, and there is potential for changing oceanographic patterns to lead to increased variability in recruitment success. Since the Tasmanian fishery is now heavily reliant on newly recruited fish[4], and hence recruitment success, this will need to be monitored closely. Further, the formation of reef barrens due to algal grazing by the Long-spined Sea Urchin (*Centrostephanus rodgersii*) in both Victorian and Tasmanian waters, a phenomenon that is linked to climate change[9], represents a potential threat for Banded Morwong populations through the reduction of suitable reef habitat.

## References

- 1 Buxton, CD, Semmens, JM, Forbes, E, Lyle, JM, Barrett, NS and Phelan, MJ 2010, *Spatial management of reef fisheries and ecosystems: Understanding the importance of movement*,

	Tasmanian Aquaculture and Fisheries Institute and Fisheries Research and Development Corporation, Hobart.
2	Murphy, RJ and Lyle, JM 1999, <i>Impact of gillnet fishing on inshore temperate reef fishes, with particular reference to Banded Morwong</i> , Tasmanian Aquaculture and Fisheries Institute, Hobart.
3	Ziegler, PE, Haddon, M and Lyle, JM 2006, <i>Sustainability of small-scale, data-poor commercial fisheries: developing assessments, performance indicators and monitoring strategies for temperate reef species</i> , Marine Research Laboratories, Hobart.
4	Emery, TJ, Lyle, JM and Hartman, K 2016, <i>Tasmanian Scalefish Fishery 2014–15</i> , Institute for Marine and Antarctic Studies, Hobart.
5	Ewing, GP, Lyle, JM, Murphy, R, Kalish, JM and Ziegler, PE 2007, <i>Validation of age and growth in a long-lived temperate reef fish using otolith structure, oxytetracycline and bomb radiocarbon methods</i> , <i>Marine and Freshwater Research</i> , 58: 944–955.
6	Ziegler, PE, Lyle, JM, Haddon, M and Ewing, G 2007, Rapid changes in life-history characteristics of a long-lived temperate reef fish, <i>Marine and Freshwater Research</i> , 58: 1096–1107.
7	Lyle, JM, Bell, JD, Chuwen, BM, Barrett, N, Tracey, SR and Buxton, C 2014, <i>Assessing the impacts of gillnetting in Tasmania: implications for by-catch and biodiversity</i> , Institute for Marine and Antarctic Studies, University of Tasmania, Hobart.
8	Neuheimer, AB, Thresher, RE, Lyle, JM and Semmens, JM 2011, Tolerance limit for fish growth exceeded by warming waters, <i>Nature Climate Change</i> , 1: 110–113.
9	Ling, SD, Johnson, CR, Ridgway, KR, Hobday, AJ and Haddon, M 2009, Climate-driven range extension of a sea urchin: inferring future trends by analysis of recent population dynamics, <i>Global Change Biology</i> , 15: 719–731.