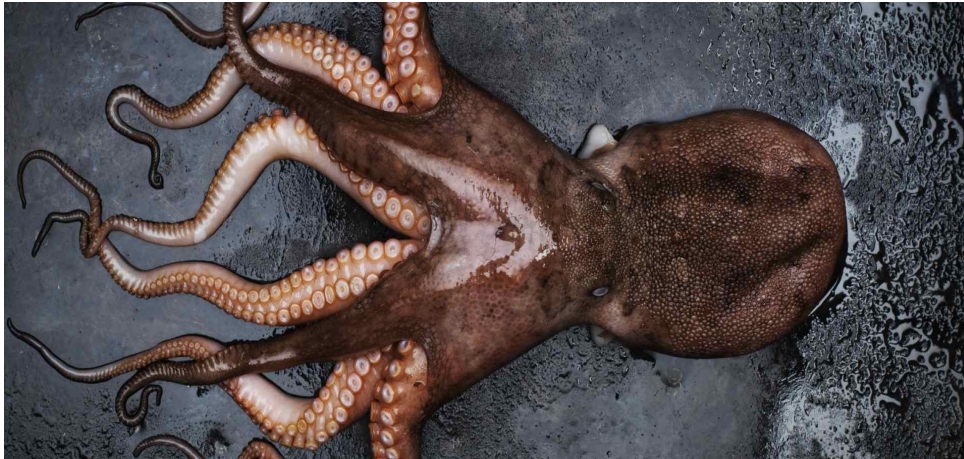


Pale Octopus (2018)

Octopus pallidus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
New South Wales	New South Wales	N/A	Negligible	
Victoria	Victoria	CIF, ITF, OF, PPBWPF, VRLF	Undefined	Catch
Tasmania	Tasmania	TOF	Sustainable	Catch, effort, CPUE, potlift surveys
South Australia	South Australia	N/A	Negligible	

N/A Not Applicable (NSW), N/A Not Applicable (SA), TOF Tasmanian Octopus Fishery (TAS), CIF Corner Inlet Fishery (VIC), OF Ocean Fishery (VIC), PPBWPF Port Phillip Bay and Western Port Bay Fishery (VIC), ITF Inshore Trawl Fishery (VIC), VRLF Victorian Rock Lobster Fishery (VIC)

STOCK STRUCTURE

Pale Octopus is distributed from the Great Australian Bight around Tasmania to southern New South Wales. There is evidence to suggest that Pale Octopus shows complex biological stock structure, with a number of discrete subpopulations in Bass Strait (less than 100 km apart) due to limited dispersal and isolation by distance [Doubleday et al. 2008, Higgins et al. 2013]. However, further information is required to confirm the overall stock structure across southern Australia.

Here, assessment of the stock status is presented at the jurisdictional level—New South Wales, Victoria, Tasmania and South Australia.

STOCK STATUS

New South Wales Stock status for the New South Wales stock is reported as Negligible due to historically low catches in this jurisdiction and the stock has generally not been subject to targeted fishing [Hall 2015]. Pale Octopus is taken as byproduct in several commercial fisheries. The New South Wales commercial catch in 2010–17 averaged less than 2.5 tonnes (t) per annum, and Pale Octopus is unlikely to

be a major component of recreational landings [NSW DPI unpublished]. Fishing is unlikely to have a negative impact on the stock.

South Australia

South Australian commercial fishers who target octopus do not report catches at the species level. Historical State-wide catches, which have rarely exceeded 10 t, are comprised of multiple octopus species including Maori Octopus (*O. maorum*), Pale Octopus (*O. pallidus*) and Southern Octopus (*O. australis*). Pale Octopus comprises an unknown proportion of the total South Australian octopus catch. Total annual commercial catches of octopus within South Australia have averaged < 11 t over the past five years (2011–16). Stock status for the South Australian Pale Octopus Fishery is reported as Negligible due to historically low catches in this jurisdiction. Octopus is not a major component of recreational landings. Fishing is unlikely to be having a negative impact on the stock.

Tasmania

In Tasmania, stock status of Pale Octopus is assessed using commercial catch and catch per unit effort (CPUE ; octopus per pot-lift). These are used as indicators of biomass and fishing mortality. A 50-pot sampling program has been conducted in the fishery since November 2004, whereby fishers are required to collect data on all octopuses caught in 50 randomly selected pots from a single line. This represents about 10 per cent of a standard commercial line.

Catch of Pale Octopus in the Tasmanian Octopus Fishery (TOF) has fluctuated around 60–100 t since 2005–06, reaching a high of 124.7 t in 2012–13. Catches of Pale Octopus were 84 t in 2016–17, consistent with the long-term average. Effort has fluctuated around 287 800 (\pm 21 420) pot-lifts between 2006–07 and 2011–12, before reaching a historical high of 448 000 pot-lifts in 2012–13. Effort in 2017 was largely consistent with the long-term average for the fishery, with 296 500 pot lifts recorded [Bradshaw et al. 2018].

Standardised CPUE in the TOF, calculated using a general linear model from the total commercial catch and random 50-pot sampling program, has fluctuated at around 60–80 per cent of the reference period since 2012–13 [Bradshaw et al. 2018]. In the 2016–17 fishing year, CPUE from the commercial catch was approximately 66 per cent of the reference period, while the 50-pot sample CPUE was approximately 77 per cent of the reference period, the second-highest value since 2011–12.

The relative stability in catches, effort and catch rates over almost a decade indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, Pale Octopus in Tasmania is classified as a **sustainable stock**.

Victoria

In Victoria, Octopus spp. were predominantly a byproduct species caught across various fisheries. Pale Octopus is not differentiated from other octopus species in catch and effort reporting in Victoria, making it difficult to apply stock assessment methods or catch rate indicators. Maori Octopus (*Octopus maorum*) are likely to be caught in the Victorian Rock Lobster Fishery (VRLF); whereas Pale Octopus and Gloomy Octopus (*Octopus tetricus*) are caught within the Inshore Trawl Fishery (ITF), Ocean Fishery (OF), Corner Inlet Fishery (CIF) and the Port Phillip and Westernport Bay Fishery (PPWPBF). Targeting octopus using 'shelter traps' within the OF off Lakes Entrance significantly increased in 2016 and 2017. The average catch during this period was ten times greater compared with the average catch taken from 2006–15 [Victorian Fisheries Authority, unpublished data]. However, actual catch quantities are confidential as less than five operators reported catch during this time. In the VRLF and ITF over the last decade up to 89 fishers have reported landing mixed octopus species with catches averaging 26.2 t per year. In 2017, the landed catch of mixed octopus

species was 10.1 t and 9.4 t in the VRLF and ITF, respectively. There is insufficient information available to confidently classify the status of this stock.

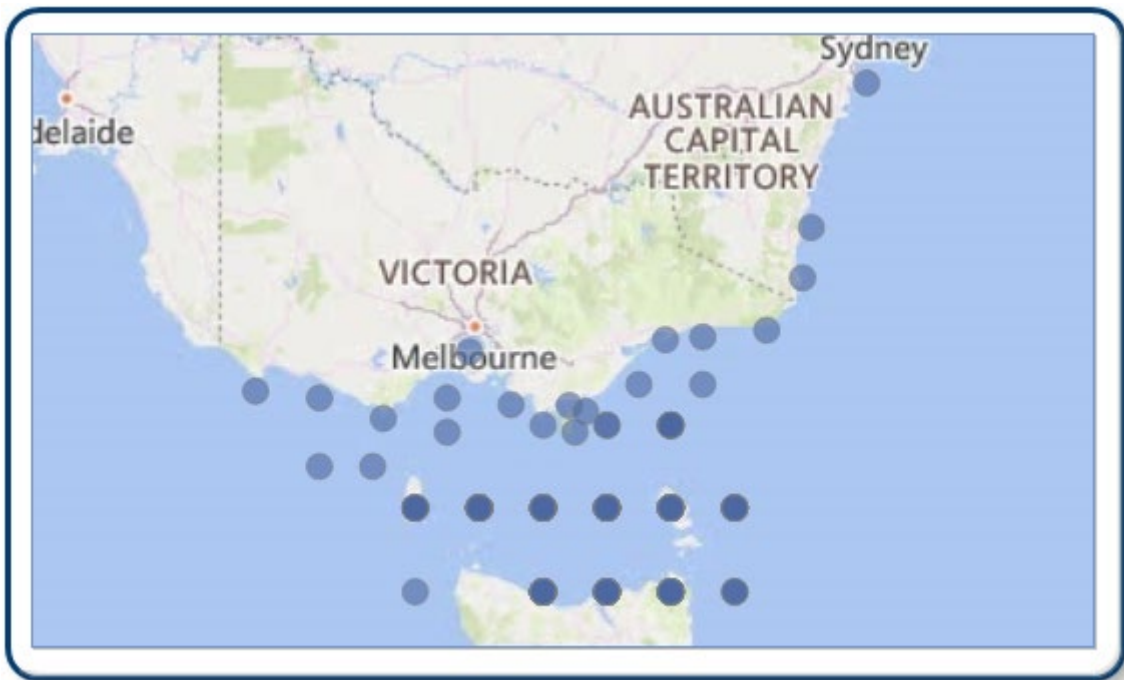
On the basis of the evidence provided above, Pale Octopus in Victoria is classified as an **undefined stock**.

BIOLOGY

Pale Octopus biology [Leporati et al. 2007, Leporati et al 2008a, Leporati et al 2008b]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Pale Octopus	1.5 years, 1200 g	Females 473 g, Males < 250 g

DISTRIBUTION



Distribution of reported commercial catch of Pale Octopus

TABLES

Commercial Catch Methods	New South Wales	South Australia	Tasmania	Victoria
Dredges				✓
Hook and Line				✓
N/A	✓	✓		
Net				✓
Octopus Traps And Pots			✓	
Traps and Pots				✓
Unspecified				✓

Fishing methods		
	Tasmania	Victoria
Commercial		

Net		✓
Octopus Traps And Pots	✓	
Traps and Pots		✓
Unspecified		✓
Indigenous		
Coastal, Estuary and River Set Nets	✓	
Hand collection	✓	
Rock Lobster And Crayfish Traps And Pots	✓	
Spearfishing	✓	
Recreational		
Coastal, Estuary and River Set Nets	✓	
Diving		✓
Hand collection	✓	
Hand held-Implements		✓
Rock Lobster And Crayfish Traps And Pots	✓	
Spearfishing	✓	
Management Methods		
	Tasmania	Victoria
Commercial		
Effort limits		✓
Gear restrictions	✓	✓
Licence		✓
Limited entry	✓	✓
Spatial closures		✓
Indigenous		
Bag and possession limits	✓	
Bag limits	✓	
Customary		✓

fishing permits		
Recreational		
Bag and possession limits	✓	
Bag limits	✓	✓
Gear restrictions		✓
Licence		✓
Spatial closures		✓

Active Vessels	New South Wales	Tasmania	Victoria
	13 Fishing Business in EGF,	2 Vessels in TOF,	1 Licence Holders in CIF, 3 Licence Holders in OF, 1 Licence Holders in PPBWPF, 10 Licence Holders in ITF, 56 Licence Holders in VRLF,

EGF Estuary General Fishery(NSW)

TOF Tasmanian Octopus Fishery(TAS)

CIF Corner Inlet Fishery(VIC)

OF Ocean Fishery(VIC)

PPBWPF Port Phillip Bay and Western Port Bay Fishery (VIC)

ITF Inshore Trawl Fishery(VIC)

VRLF Victorian Rock Lobster Fishery(VIC)

Catch	New South Wales	South Australia	Tasmania	Victoria
Commercial			83.978t in TOF,	0t in CIF, 0t in ITF, 0t in OF, 0t in PPBWPF, 0t in VRLF,
Indigenous			Unknown	Unknown (No catch under permit)
Recreational			1 143 unspecified octopus landed in 2012–13	Confidential

N/A Not Applicable (NSW), N/A Not Applicable (SA), TOF Tasmanian Octopus Fishery (TAS), CIF Corner Inlet Fishery (VIC), OF Ocean Fishery (VIC), PPBWPF Port Phillip Bay and Western Port Bay Fishery (VIC), ITF Inshore Trawl Fishery (VIC), VRLF Victorian Rock Lobster Fishery (VIC),

Victoria – Commercial (catch) Pale Octopus is not differentiated from other octopuses caught in Victorian commercial fisheries.

Victoria – Indigenous In Victoria, regulations for managing recreational fishing may not apply to fishing activities by Indigenous people. Victorian traditional owners may have rights under the Commonwealth's *Native Title Act 1993* to hunt, fish, gather and conduct other cultural activities for their personal, domestic or non-commercial communal needs without the need to obtain a licence. Traditional Owners that have agreements under the *Traditional Owner Settlement Act 2010* (Vic) may also be authorised to fish without the requirement to hold a recreational fishing licence. Outside of these arrangements, Indigenous Victorians can apply for permits under the *Fisheries Act 1995* (Vic) that authorise fishing for specific Indigenous cultural ceremonies or events (for example, different catch and size limits or equipment). There were no Indigenous permits granted in 2017 and hence no Indigenous catch recorded.

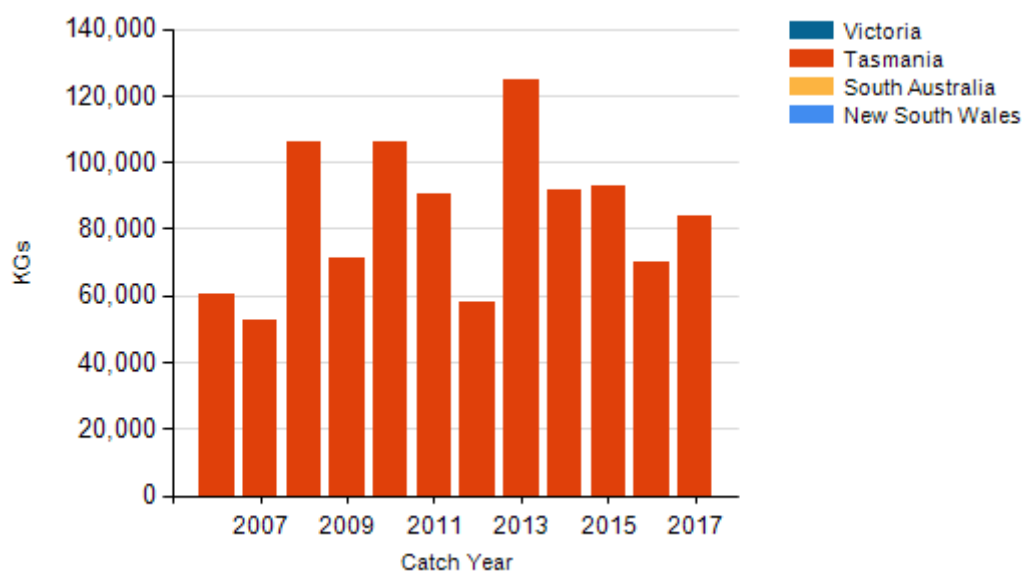
Tasmania – Commercial (catch) Catches reported for the Tasmanian Octopus Fishery are for the period 1 March to end of February the following year. The most recent assessment available is for 2016–17.

Tasmania – Commercial (management methods) A possession limit of 100 kg of octopus per day (all species combined) is in place for holders of a fishing licence (personal) and a scalefish licence.

Tasmania – Recreational (management methods) In Tasmania, a recreational licence is required for fishers using rock lobster pots, along with nets, such as gillnet or beach seine. A bag limit of five octopus and a possession limit of ten octopus (all species combined) is in place for recreational fishers.

Tasmania – Indigenous In Tasmania, Indigenous persons 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, Indigenous fishers 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 Pale Octopus - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Pale Octopus

References	
1190	Bradshaw, S, Moore, B and Hartmann, K 2018, Tasmanian Octopus Fishery Assessment 2016/17, University of Tasmania, Institute for Marine and Antarctic Studies, Hobart, Tasmania.
1191	Doubleday, ZA, Pecl, GT, Semmens, JM and Danyushevsky, L 2008, Stylet elemental signatures indicate population structure in a holobenthic octopus species, <i>Octopus pallidus</i> , <i>Marine Ecology Progress Series</i> , 371: 1–10.
1192	Hall, KC 2015, Octopus (<i>Octopus</i> spp.), in Stewart, J, Hegarty, A, Young, C, Fowler, AM and Craig, J (ed.s), Status of fisheries resources in NSW 2013–14, NSW Department of Primary Industries, Mosman, pp 231–234.
1193	Higgins, KL, Semmens, JM, Doubleday, ZA and Burrridge, CP 2013, Comparison of population structuring in sympatric octopus species with and without a pelagic larval stage, <i>Marine Ecology Progress Series</i> , 486: 203–212.
1194	Leporati, SC, Pecl, GT and Semmens, JM 2007, Cephalopod hatchling growth: The effects of initial size and seasonal temperatures, <i>Marine Biology</i> , 151: 1375–1383.
1195	Leporati, SC, Pecl, GT and Semmens, JM 2008a, Reproductive status of <i>Octopus pallidus</i> , and its relationship to age and size, <i>Marine Biology</i> , 155: 375–385.
1196	Leporati, SC, Semmens, JM and Pecl, GT 2008b, Determining the age and growth of wild octopus using stylet increment analysis, <i>Marine Ecology Progress Series</i> , 367: 213–222.
1197	NSW DPI unpublished, NSW stock status summary 2018: Octopuses (<i>Octopus australis</i> , <i>Macroctopus maorum</i> , <i>O. tetricus</i> and <i>O. pallidus</i>), NSW Department of Primary Industries, Coffs Harbour.