

Pale Octopus (2016)

Octopus pallidus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Victoria	Victoria	ITF, OF, PPBF, VRLF	Undefined	Catch
Tasmania	Tasmania	TOF	Sustainable	Catch, effort, CPUE, potlift surveys
South Australia	South Australia	MSF, NZRLF, SZRLF	Negligible	

MSF Marine Scalefish Fishery (SA), NZRLF Northern Zone Rock Lobster Fishery (SA), SZRLF Southern Zone Rock Lobster Fishery (SA), TOF Tasmanian Octopus Fishery (TAS), OF Ocean Fishery (VIC), PPBF Port Phillip 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 suggesting that Pale Octopus shows complex biological stock structure, with a number of discrete subpopulations in Bass Strait (less than 100 km apart) because of limited dispersal and isolation by distance[1,2]. However, further information is required to confirm the overall population structure across southern Australia.

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

STOCK STATUS

South Australia Stock status for South Australia is reported as negligible due to low or zero catches by this jurisdiction. *Octopus* spp. catch from the Marine Scalefish Fishery in 2015 was 10.5 t. Average catch in the past 10 years was 13.3 t.

Tasmania In Tasmania, where most of the total commercial catch of Pale Octopus is taken, stock status is assessed using commercial catch (t) and catch per unit effort

(CPUE; octopus per pot-lift). These are used as an indicator of biomass and fishing mortality, and are compared to the reference periods: 2000–01 to 2009–10 for catch and 2004–05 to 2009–10 for CPUE (2004–05 corresponding to the start of a 50 pot sampling program)[3]. A 50 pot sampling program has been conducted in the fishery since November 2004, where 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.

In the Tasmanian Octopus Fishery (TOF), catch has fluctuated around 84 (\pm 6) t since 2005–06, reaching a historical high of 116 t in 2012–13, before declining to 70 t in 2015–16. Effort has fluctuated around 299 900 (\pm 14 250) pot-lifts between 2005–06 and 2011–12, reaching a historical high of 440 000 pot-lifts in 2012–13, before declining to 279 500 pot-lifts in 2015–16[3]. This recent level of fishing effort was below the long-term average over the last decade and was the lowest since 2010–11.

Large variations in CPUE observed over the last decade may be related to the biology of the species, which is inherently linked to environmental conditions[4]. The Pale Octopus is a semelparous species, dying shortly after reproducing, and is often characterised by non-overlapping generations, reducing the stock's resilience to recruitment failure[5,6]. The production of a few large eggs results in well-developed benthic hatchlings (holobenthic life history) that are able to forage immediately after hatching, resulting in a highly structured stock with discrete subpopulations, increasing the potential for localised depletion[1,2].

Standardised CPUE for the TOF, calculated using a general linear model from the random 50 pot sampling program and fishery logbook data, has fluctuated around 60–70 per cent of the 2004–05 reference year since 2011–12[3]. In 2015–16, the 50 pot sample CPUE declined by 12 per cent over the reference level, but remained higher (0.45 octopuses per pot-lift) than the lower end of the range of CPUE for the historical reference period (0.39 octopuses per pot-lift between 2004–05 and 2009–10)[3]. The above evidence indicates that the biomass of the stock is unlikely to be recruitment overfished and that the current level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

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

Victoria

In Victoria, *Octopus* spp. are a byproduct species caught across various fisheries, but primarily in the Rock Lobster Fishery. During the last decade up to 94 fishers have reported landing mixed octopus species, but catches have remained low, averaging 22.9 tonnes (t) per year over the period. In 2015, the landed catch of mixed octopus species was 21.8 t. Pale Octopus is not differentiated from other octopus species in Victoria, making it difficult to apply stock assessment methods or catch rate indicators. 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[5,7,8]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Pale Octopus	1.5 years, 1.2 kg	Females 473 g, males <250 g

DISTRIBUTION



Distribution of reported commercial catch of Pale Octopus

TABLES

Commercial Catch Methods	South Australia	Tasmania	Victoria
Coastal, Estuary and River Set Nets			✓
Dredges			✓
Haul Seine			✓
Line			✓
Mesh Net			✓
Octopus Traps And Pots		✓	✓
Otter Trawl			✓
Unspecified	✓		✓

Fishing methods	South Australia	Tasmania	Victoria
Commercial			
Octopus Traps And Pots		✓	✓
Otter Trawl			✓
Unspecified	✓		
Recreational			

Coastal, Estuary and River Set Nets		✓	✓
Hand collection		✓	✓
Spearfishing		✓	✓

Management Methods	Tasmania	Victoria
Commercial		
Gear restrictions	✓	✓
Limited entry	✓	✓
Indigenous		
Bag and possession limits	✓	✓
Recreational		
Bag and possession limits	✓	✓
Active Vessels		
	Tasmania	Victoria
	2 Vessel in TOF,	3 Vessel in OF, 5 Vessel in PPBF, 57 Vessel in VRLF, 10 Vessel in ITF,

TOF Tasmanian Octopus Fishery(TAS)

OF Ocean Fishery(VIC)

PPBF Port Phillip Bay Fishery(VIC)

ITF Inshore Trawl Fishery(VIC)

VRLF Victorian Rock Lobster Fishery(VIC)

Catch	South Australia	Tasmania	Victoria
Commercial		61.769t in TOF,	
Indigenous		Unknown	Unknown
Recreational		1143 unspecified octopus landed in 2012–13	Unknown

MSF Marine Scalefish Fishery (SA), NZRLF Northern Zone Rock Lobster Fishery (SA), SZRLF Southern Zone Rock Lobster Fishery (SA), TOF Tasmanian Octopus Fishery (TAS), OF Ocean Fishery (VIC), PPBF Port Phillip Bay Fishery (VIC), ITF Inshore Trawl Fishery (VIC), VRLF Victorian Rock Lobster Fishery (VIC),

a Victoria – Indigenous 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 Pale Octopus.

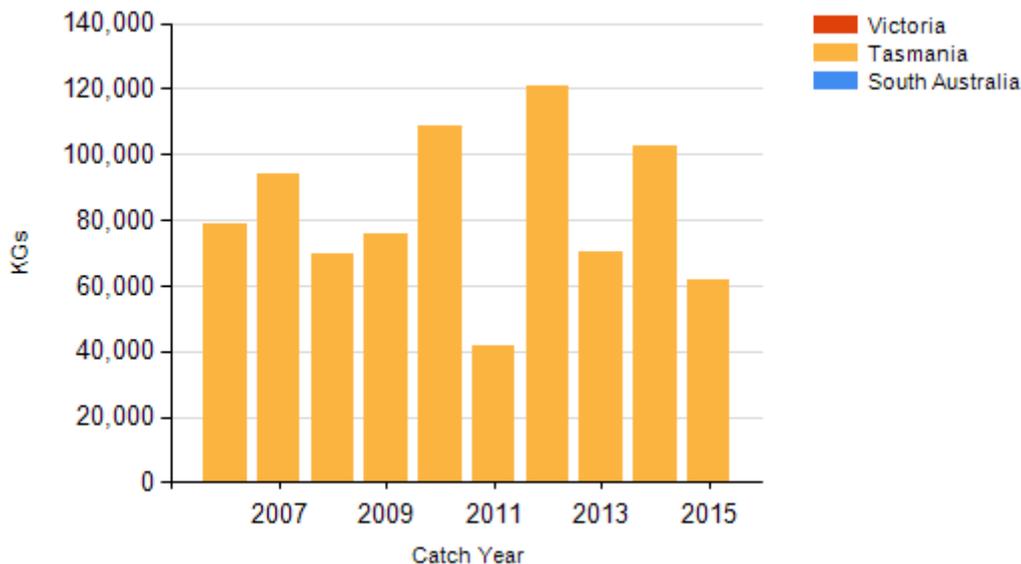
b Tasmania – Commercial In 2015 there were two developmental fishing permit applications to catch Pale Octopus south of 41 degrees latitude along the east and south-east coast of Tasmania. The Department of Primary Industries, Parks, Water and the Environment (DPIPWE) has approved one operator to use up to 100 unbaited pots to catch 10 t of octopus per annum and another permit remains under consideration to use up to 4000 baited pots with no associated catch limit per annum.

c Victoria – Indigenous 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 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) Pale Octopus is not differentiated from other octopuses caught in Victorian commercial fisheries.

CATCH CHART



Commercial catch of Pale Octopus - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- In Tasmania, the fishing vessels that target Pale Octopus do not operate at night and there is no bait used in the pots, so they do not attract seabirds[3]. Surface gear is minimal, encompassing two buoys and ropes for each surface line so there is less likelihood of entanglement by marine mammals compared to rock lobster fisheries, which set more buoys and ropes[3]. The pots are lightweight and set on sandy bottom,

and have been found to have little impact on benthic assemblages[9].

- Bycatch in the Tasmania Octopus Fishery is low and interactions with protected species are minimal, with seals the only species reported interacting with this fishery. Seal interactions are relatively rare (28 interaction records since 2000–01) and result in lost catch and gear damage[3]. Entanglement of migrating whales in pot fisheries has been reported in Western Australia, but no interactions have been reported with whales in Tasmania, despite Bass Strait covering part of the migratory route of Southern Right Whales[3].
- The 2012–13 ecological risk assessment of the Tasmanian Scalefish Fishery[10] determined that octopus potting had negligible impact on by-product and bycatch species due to low historical catches (less than 1 t) of both and was a very low risk to habitat caused by the gear interacting with the seafloor. Although octopuses are a key predator and an important prey species, due to low catches, the fishery was considered a low risk to the community structure of the ecosystem.

ENVIRONMENTAL EFFECTS on Pale Octopus

- Octopus species are known for having high individual growth plasticity,[11] short life spans (less than 2 years)[12] and biological processes (including growth and egg production) that are strongly influenced by environmental factors such as seasonal temperature[5,7]. If environmental conditions are unfavourable during the optimal spawning period (late summer–early autumn), significant declines in recruitment can occur as a result of suboptimal growth, and reduced egg production and fecundity[5,7]. Conversely, Pale Octopus hatched during summer and autumn may grow faster and mature earlier, with potentially higher fecundity due to warmer temperatures, than those hatched during winter and spring[5,7].
- Pale Octopus productivity and distribution is strongly influenced by environmental factors, such as temperature, which can impact reproduction and recruitment[5,7]. Studies on cephalopods throughout the world have shown that populations can proliferate in a warming environment combined with the removal of predators[13].

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