

Hammer Octopus (2020)

Octopus australis



Karina Hall: NSW Department of Primary Industry, **Anthony Roelofs:** Department of Agriculture and Fisheries, Queensland

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Queensland	Queensland	Undefined	Catch, effort
New South Wales	New South Wales	Sustainable	Catch, effort, standardised CPUE

STOCK STRUCTURE

The Hammer Octopus has a limited east coast distribution, from central Queensland to southern New South Wales [Reid 2016]. The stock structure of Hammer Octopus is currently unknown. However, on the basis of the relatively large size of mature eggs (8–12 mm, equating to 13.7–21.4 per cent of dorsal mantle length), the species is likely to be holobenthic [Boletzky 1974; Stranks and Norman 1992]. Holobenthic octopuses typically have large benthic rather than pelagic hatchlings, with limited dispersal capacity, and show finer scale population structuring across their distributions [e.g., Pale Octopus, Doubleday et al. 2008; Higgins et al. 2013]. Therefore, it is unlikely that Hammer Octopus forms a single biological stock across its geographic distribution. Furthermore, there is no joint stock assessment for this species, so stock status is reported here at the jurisdictional level.

STOCK STATUS

New South Wales The Hammer Octopus is a small, short-lived species that is found in coastal waters and bays on sand and mud substrates in depths between 3 and 140 m [Stranks and Norman 1992]. In NSW, combined octopus are an important byproduct species group, with most of the commercial catch taken by the prawn trawl sector of the Ocean Trawl Fishery in northern NSW, and smaller amounts reported from the fish trawl sector along the central coast [Hall 2020].

In NSW, total annual commercial catches of combined octopus are available from 1979–80 to 2008–09 and for separate species from 2009–10 to present [Hall 2020]. Commercial catches of combined octopus steadily increased from around 200 tonnes (t) in the late 1970s to a peak of 783 t in 1997–98. Catches then rapidly declined over 2 years to 277 t in 1999–00, briefly returned to over

500 t in 2000–01 and have since fluctuated at lower levels (76–256 t since 2004–05). Separate species catch data since 2009–10 suggest that Hammer Octopus typically dominates commercial catches, accounting for 84.2–94.6 per cent of total catches [Hall 2018]. The total commercial catch of Hammer Octopus in 2018–19 was 151 t.

The most recent estimate of the recreational harvest of combined octopus species in New South Wales was approximately 1 145 octopus during 2017–18, with an additional 2 700 octopus caught and released [Murphy et al. 2020]. The proportion of Hammer Octopus in this estimate is unknown. The estimate was based on a survey of Recreational Fishing Licence (RFL) households, comprised of at least one fisher possessing a long-term (1 or 3 years duration) fishing licence and any other fishers resident within their household. The equivalent estimated recreational harvest in 2013–14 was 1.6 times larger at around 1 877 octopus, with an additional 5 227 octopus caught and released [Murphy et al. 2020]. Relative to the commercial catch, these recreational catches are very small (<1 per cent of the total state harvest). A survey of Aboriginal cultural fishing in the Tweed River catchment identified octopus as a common component of the marine invertebrate catches [Schnierer and Egan 2016]; however, statewide estimates of the annual Aboriginal harvest of octopus in New South Wales are unknown.

There is strong evidence to suggest that the bulk of the historical combined octopus catches taken by the Ocean Trawl Fishery are likely to have comprised Hammer Octopus. Historical combined octopus catch rates from monthly records (standardised catch-per-unit-effort, CPUE, in kg per day) for the prawn and fish trawl sectors indicate widely fluctuating trends (between 14.6–50 kg per day), with gradual increases over several years, followed by a sudden rapid decrease over one or a few years (e.g., from 42.4 kg per day in 1998 to 17.2 kg per day in 1999 and back up to 40.0 kg per day in 2004) [Hall 2020]. This pattern of abundance corresponds to anecdotal evidence from fishers indicating that after several good years, combined octopus catches suddenly decrease in trawl landings.

Recent standardised CPUE (in kg per hour) for Hammer Octopus from daily records for both the fish trawl and prawn trawl sectors, which have been recorded since 2009, indicate a return to near-average levels (of 3.2 kg per hour) after a significant decrease (by over 50 per cent) between 2010 and 2013 [Hall 2020]. Recent trends in CPUE, combined with historical levels for combined species dominated by Hammer Octopus, suggest that although the biomass of this stock fluctuates considerably, it is unlikely to be depleted and that recruitment is unlikely to be impaired. However, this assessment involves considerable uncertainty given the monthly and combined species reporting prior to 2009 and reliance on catch-rate analyses for a non-target species.

Current levels of fishing effort in the prawn trawl and fish trawl sectors of the Ocean Trawl Fishery (5 518 and 810 days fished, respectively) are much lower than historical levels (18 000 and 3 054 days fished in the early 2000s) due to a reduced number of operators [Hall 2020]. While no current fishing mortality estimates are available for the species, the current level of fishing mortality is considered unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, Hammer Octopus in New South Wales is classified as a **sustainable stock**.

Queensland In Queensland, Hammer Octopus is taken as a permitted by-product species in the East Coast Trawl Fishery. The take of Hammer Octopus is not reported specifically in logbooks, however the species is one of the more common octopus species encountered in the fishery [Courtney et al. 2007]. Commercial harvest of all octopus species reached a peak of 42 t in 1997–98 [QFISH 2020]. Catches of all octopus species have been relatively stable since this peak, averaging about 15 t per year. An ecological risk assessment of the East Coast

Trawl Fishery identified Hammer Octopus to be at a low to intermediate risk from fishing impacts [Jacobsen et al. 2018]. There is no estimate of recreational harvest of Hammer Octopus in Queensland.

There are no sustainability concerns for Hammer Octopus given the low catches and low to intermediate ecological risk profile, however there is insufficient evidence to confidently classify the status of this stock. On the basis of the evidence provided above, Hammer Octopus in Queensland is classified as an **undefined stock**.

BIOLOGY

[Nuttall 2009]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Hammer Octopus	Lifespan up to 11 months in NSW waters, 49.9 cm maximum total length	Unknown

DISTRIBUTION



No distribution data are provided for Queensland as Hammer Octopus is not separately identified in East Coast Trawl Fishery logbooks.

TABLES

Fishing methods	New South Wales	Queensland
Commercial		
Crab Trap		✓
Danish Seine		✓

Midwater Trawl		✓
Net		✓
Trawl	✓	✓
Recreational		
Various	✓	✓

Management Methods		
	New South Wales	Queensland
Commercial		
Effort limits	✓	
Gear restrictions	✓	✓
Limited entry	✓	
Marine park closures	✓	✓
Possession limit		✓
Spatial closures	✓	✓
Vessel restrictions	✓	
Recreational		
Bag limits	✓	
Gear restrictions	✓	
Licence	✓	
Marine park closures	✓	
Spatial closures	✓	

Catch		
	New South Wales	Queensland
Commercial	151.042 t	18.6305 t
Indigenous	Unknown	Unknown
Recreational	1 145 mixed octopus (in 2017–18)	

New South Wales – Recreational (catch totals) Estimate from Murphy et al. [2020], based on

a survey of Recreational Fishing Licence households.

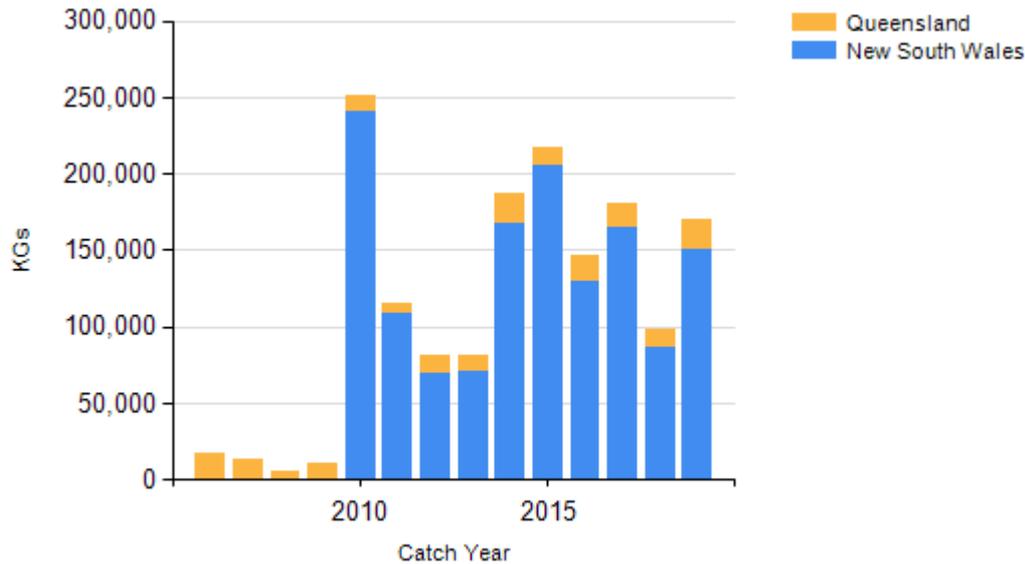
New South Wales – Indigenous (Management Methods)

<https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>.

Queensland – Indigenous (management methods) for more information see

<https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing>

CATCH CHART



New South Wales - Combined octopus species catches that included Hammer Octopus occurred in NSW waters prior to 2010, but are not shown in the chart. Separate species catch data for Hammer Octopus are only available since 2010.

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STATUS OF AUSTRALIAN FISH STOCKS REPORT
Hammer Octopus (2020)

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