

Western Rock Octopus (undescribed) (2020)

Octopus sp.



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STOCK STATUS OVERVIEW

| Jurisdiction | Stock | Stock status | Indicators |
|-------------------|-------------------|--------------|-----------------|
| Western Australia | Western Australia | Sustainable | CPUE Biomass |

STOCK STRUCTURE

Octopus djinda (Subfamily Octopodinae), or the Western Rock Octopus, is endemic to the temperate waters of Western Australia from Shark Bay to Esperance. It is closely related to the cosmopolitan *Octopus vulgaris* species complex, and to *Octopus tetricus* on the east coast of Australia and New Zealand, but has been conclusively identified as a separate species through genetic and morphometric studies [Guzik et al. 2005, Amor et al. 2014],

STOCK STATUS

Western Australia

Harvest of Western Rock Octopus in Western Australia is managed by a formal harvest strategy, as defined in the Octopus Resource of Western Australia Harvest Strategy 2018–22 [DPIRD 2018]. The main index of abundance is standardised catch per unit effort (CPUE) based on the catch rate of octopus from specialised traps [Hart et al. 2019]. The standardised catch per unit effort (CPUE) in the Western Rock Octopus resource in 2020 was 0.7, which was 45 per cent above the target of 0.48. The units of CPUE are kg/trap. Western Rock Octopus was subject to a recent comprehensive resource assessment which addressed biology, fishing efficiency and stock abundance and distribution [Hart et al. 2018]. The overall conclusion was that the stock is highly productive, with an average maximum age of 1.5 years, as well as abundant and widely distributed along the west and south Coast of Western Australia. The estimated area of fished habitat in 2019 was 1500 km² and this was a minor percentage (7 per cent) of the total estimated habitat area on the West Coast of 20 073 km² [Hart et al. 2019]. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

The above evidence also indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

Based on the evidence provided above, the Western Australian Western Rock Octopus management unit is classified as a **sustainable stock**.

BIOLOGY

The biological characteristics of Western Rock Octopus include rapid growth, short lifespan and early maturity [Leporati and Hart 2015, Leporati et al. 2015]. This highly productive species has a relatively low vulnerability to fishing. This species spawns year-round, has sperm storage, and males are far more likely to enter the octopus traps. Males and females are usually a similar size, and maximum weight recorded is a 4.5 kg female [Leporati et al. 2015].

| Species | Longevity / Maximum Size | Maturity (50 per cent) |
|------------------------------------|--|--|
| Western Rock Octopus (undescribed) | Maximum age 1.5 years. maximum recorded weight 4.5 kg | Males: mature at 6 months. Females: mature at 12 months |

DISTRIBUTION



TABLES

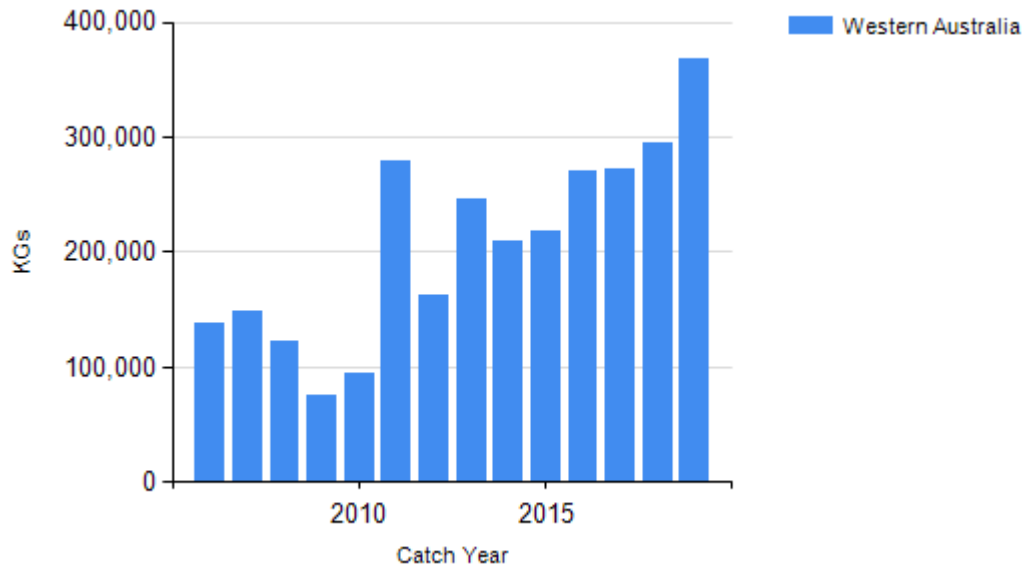
| Fishing methods | |
|-------------------------|-------------------|
| | Western Australia |
| Commercial | |
| Crab Trap | ✓ |
| Gillnet | ✓ |
| Hand Line, Hand Reel | ✓ |

| | |
|-------------------------------|---|
| or Powered Reels | |
| Haul Seine | ✓ |
| Octopus Traps And Pots | ✓ |
| Otter Trawl | ✓ |
| Squid Jigging | ✓ |
| Traps and Pots | ✓ |
| Recreational | |
| Pots and Traps | ✓ |

| | |
|---------------------------|--------------------------|
| Management Methods | |
| | Western Australia |
| Commercial | |
| Effort limits | ✓ |
| Gear restrictions | ✓ |
| Limited entry | ✓ |
| Recreational | |
| Gear restrictions | ✓ |

| | |
|---------------------|--------------------------|
| Catch | |
| | Western Australia |
| Charter | < 0.5 t |
| Commercial | 368.708 t |
| Recreational | 3 t (2017–18) |

CATCH CHART



| References | |
|------------------------|---|
| Amor et al. 2014 | Amor, M. D., Norman, M. D., Cameron, H. E., and Strugnell, J. M. 2014. Allopatric speciation within a cryptic species complex of Australasian octopuses. <i>PLoS One</i> , 9: e98982–13. |
| Hart et al. 2019 | Hart, A. M., Murphy, D., Hesp, S. A., & Loporati, S. (2019). Biomass estimates and harvest strategies for the Western Australian Octopus aff. <i>tetricus</i> fishery. <i>ICES Journal of Marine Science</i> , 76(7), 2205-2217. |
| Hart et al. 2018 | Hart, A. M., Murphy, D. M., Harry, A. V. and Fisher, E. A. (2018). Western Australian Marine Stewardship Council Report Series No. 14: Resource Assessment Report Western Australian Octopus Resource. Department of Primary Industries and Regional Development, Western Australia. 114pp. |
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| Guzik et al. 2005 | Molecular phylogeny of the benthic shallow-water octopuses (Cephalopoda: Octopodinae). <i>Molecular Phylogenetics & Evolution</i> 37, 235–248. |
| Loporati and Hart 2015 | Loporati, SC, Hart AM (2015). Stylet weight as a proxy for age in a merobenthic octopus population. <i>Fisheries Research</i> . 161: 235-243 |
| Loporati et al. 2015 | Loporati, SC, Hart AM, Larsen R, Franken LE, De Graaf MD (2015). Octopus life history relative to age, in a multi-gear developmental fishery. <i>Fisheries Research</i> 165: 28-41 |