

Ornate Rock Lobster (2020)

Panulirus ornatus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, Northern Territory, Queensland	North-Eastern Australia	Sustainable	Biomass, fishing mortality
Western Australia	Western Australia	Negligible	

STOCK STRUCTURE

Ornate Rock Lobster populations in northern Queensland (managed by Queensland), the Coral Sea (managed by the Commonwealth) and the Torres Strait (managed by the Torres Strait Protected Zone Joint Authority) are thought to comprise a single North-Eastern Australia biological stock, as a result of mixing of larvae in the Coral Sea [Pitcher et al. 2005]. Water movement models in Torres Strait predict that larvae are likely to be transported into the Gulf of Carpentaria [Wolanski et al. 2013], indicating that the north-eastern stock encompasses this region as well. Stock assessments have not been carried out for the complete biological stock, but have been conducted on the various parts of it.

Although Ornate Rock Lobster is also present in northern Western Australia, biological stock structures in this region have not been studied and the relationship with the North-eastern Australian stock is unknown.

Here, assessment of stock status is presented at the biological stock level—North-Eastern Australia; and at the jurisdictional level—Western Australia.

STOCK STATUS

North-Eastern Australia Stock status for the entire Ornate Rock Lobster biological stock has been established using evidence from the Torres Strait, Queensland and Coral Sea parts of the biological stock.

For the Torres Strait part of the biological stock, the assessment by Plagányi et al. [2019] was used to inform total allowable catch (TAC) setting for the 2018–19 fishing season. This assessment estimated the 2018 spawning biomass to be 1 969 t (90% confidence interval 1 260–2 678 t), or 46% of the estimated unfished (1973) level (0.46SB1973) [Plagányi et al. 2019], suggesting an RBC of 641 t (90% confidence interval 426–857 t). AFMA subsequently set a TAC of 641 t for the 2018–19 fishing season. In 2019, an additional stock assessment was undertaken by Plagányi et al. [2020], which suggested the stock had recovered following the period of low recruitment in the fishery [AFMA 2019, Plagányi et al. 2020]. The model estimated the 2019 spawning biomass to be approximately 4 467 t or 93% of the estimated unfished (1973) level (0.93SB1973), which is well above the target reference point (0.65SB1973) [Plagányi et al. 2020]. This part of the stock is not considered to be recruitment impaired. The model-generated nominal TAC for the 2018–19 fishing season was 641 tonnes (t), of which 583 t (91 per cent) was caught, [Emery et al., 2020]. This level of fishing mortality is unlikely to cause this part of the stock to become recruitment impaired.

For the Queensland part of the biological stock, the most recent stock assessment [DEEDI 2011] estimated that biomass at the start of 2008 was 60–70 per cent of the unfished (1988) level. A TAC of 195 t was introduced for the commercial fishery in 2009. The TAC was based on a conservative 80 per cent of the estimated maximum sustainable yield for the Queensland portion of the stock. The commercial catch since 2009 has been below the TAC [QFISH 2020]. Catch rates (kg per day and kg per tender day) in 2019 have decreased since 2017 and were near the historical lows [QFISH 2020]. Bleaching of coral habitat in the main body of the fishery has been severe in recent years with reported substantial loss of coral cover [AIMS 2018]. It is unclear if this will have longer-term impacts on Ornate Rock Lobster productivity. This part of the biological stock is not considered to be recruitment impaired, and this level of fishing mortality is unlikely to cause this stock to become recruitment impaired.

No quantitative stock assessments have been carried out for the Coral Sea part of the biological stock, but there is only limited targeting of Ornate Rock Lobster in this area and catches have been very low. Estimates of density on Coral Sea reefs, inferred from fishers' catch rates, suggest that lobster abundance is likely to be many times higher than would be required to support the total historical catch (less than 10 t) [Chambers 2015]. This part of the stock is not considered to be depleted and recruitment is unlikely to be impaired. Additionally, no commercial catch was recorded in the 2018–19 fishing season. Therefore, this level of fishing mortality is unlikely to cause this part of the biological stock to become recruitment impaired.

Only small annual catches (less than 200 kg) of Ornate Rock Lobster have been recorded in the Northern Territory under a developmental permit in the Gulf of Carpentaria. However, there has been no activity in this fishery since 2016. Additionally, there have been low reported catches (less than 6 kg) by Fishing Tour Operators but there was no catch recorded by any fishery in 2019. There has never been a targeted fishery for this species in this jurisdiction, and the small catches recorded are highly unlikely to influence the biomass of this stock. Available evidence indicates the biomass of the stock in this region is unlikely to be depleted and recruitment is unlikely to be impaired. The current level of fishing mortality is unlikely to cause recruitment to become impaired.

On the basis of the evidence provided above, the North-Eastern Australia

biological stock is classified as a **sustainable stock**.

Western Australia

Stock status for Western Australia is reported as Negligible as a result of low catches and fishing is unlikely to be having a negative impact on the stock. No commercial catch is taken from Western Australia. Very small catches are taken by charter operators (less than 50 individuals year^[-1]) and recorded in recreational surveys (~500 in 2017/18) [Ryan et al. 2019].

BIOLOGY

Ornate Rock Lobster biology [MacFarlane and Moore 1986, Kailola et al. 1993, Skewes et al. 1997]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Ornate Rock Lobster	3–5+ years, > 150 mm CL	2–3 years, ~100 mm CL

DISTRIBUTION



Distribution of reported commercial catch of Ornate Rock Lobster

TABLES

Fishing methods	Commonwealth	Northern Territory	Queensland	Western Australia
Charter				
Diving				✓
Commercial				
Diving	✓			
Rock Lobster And			✓	

Crayfish Traps And Pots				
Unspecified		✓		
Recreational				
Diving	✓	✓	✓	✓

Management Methods			
	Commonwealth	Northern Territory	Queensland
Charter			
Gear restrictions			✓
In possession limits			✓
Limited entry		✓	
Passenger restrictions		✓	
Prohibition on take of egg-bearing and tar-spot females			✓
Seasonal closures			✓
Size limit			✓
Spatial closures			✓
Commercial			
Gear restrictions	✓	✓	✓
Limited entry	✓	✓	✓
Prohibition on take of egg-bearing and tar-spot females		✓	✓
Seasonal closures	✓		✓
Size limit	✓		✓
Spatial closures	✓	✓	✓
Total allowable catch	✓		✓

Vessel restrictions	✓		✓
Recreational			
Gear restrictions		✓	✓
In possession limits			✓
Possession limit		✓	
Prohibition on take of egg-bearing and tarpot females		✓	✓
Seasonal closures			✓
Size limit			✓
Spatial closures		✓	✓

Catch				
	Commonwealth	Northern Territory	Queensland	Western Australia
Charter		0 t		Insufficient data
Commercial	582.6 t	0 t	109.841 t	0 t
Indigenous	Unknown	Unknown	13 000 lobsters (in 2001)	
Recreational		Unknown	Unknown	Insufficient data

Commonwealth – Commercial (Management Methods/Catch) Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2018-19 financial year.

Commonwealth – Recreational The Commonwealth does not manage recreational fishing in Commonwealth waters. Recreational fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters, under its management regulations.

Commonwealth – Indigenous (Management Methods) The Australian Government does not manage non-commercial Indigenous fishing in Commonwealth waters, with the exception of the Torres Strait. In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters. In the Torres Strait, both commercial and non-commercial Indigenous fishing is managed by the Torres Strait Protected Zone Joint Authority (PZJA) through the Australian Fisheries Management Authority (Commonwealth); the Department of Agriculture, and Fisheries (DAF) (Queensland); and the Torres Strait Regional Authority. The PZJA also manages non-Indigenous commercial fishing in the Torres Strait.

Commonwealth - Indigenous (Catch Totals) This specifically refers to non-commercial Indigenous catch. Commercial Indigenous catch in the Torres Strait is included under

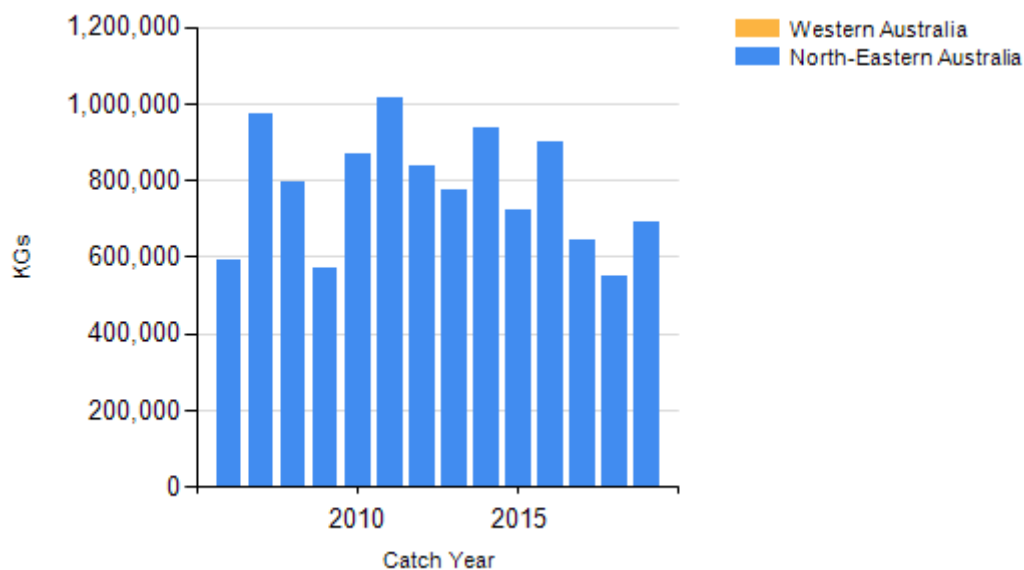
‘commercial’

Northern Territory — Charter (Management Methods) In the Northern Territory, charter operators are regulated through the same management methods as the recreational sector but are subject to additional limits on license and passenger numbers.

Northern Territory – Indigenous (Management Methods) The *Fisheries Act 1988* (NT), specifies that “...without derogating from any other law in force in the Territory, nothing in a provision of this Act or an instrument of a judicial or administrative character made under it limits the right of Aboriginals who have traditionally used the resources of an area of land or water in a traditional manner from continuing to use those resources in that area in that manner”.

Queensland – Indigenous (Management Methods) In Queensland, under the *Fisheries Act 1994*, Indigenous fishers are able to use prescribed traditional and non-commercial fishing apparatus in waters open to fishing. Size and possession limits, and seasonal closures do not apply to Indigenous fishers. Further exemptions to fishery regulations may be applied for through permits.

CATCH CHART



Commercial catch of Ornate Rock Lobster - note confidential catch not shown

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