

Royal Red Prawn (2023)

Haliporoides sibogae



Daniel Wright: Australian Bureau of Agricultural and Resource Economics and Sciences, **Ian Jacobsen:** Department of Agriculture and Fisheries, Queensland, **Matthew D. Taylor:** New South Wales Department of Primary Industries

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, New South Wales	South Eastern Australia	Sustainable	CPUE, catch
Queensland	Queensland	Negligible	

STOCK STRUCTURE

Royal Red Prawn is widely distributed, occurring in depths of 350 m to 550 m in the Indian and western Pacific oceans. In Australia, the main geographic distribution is from Sydney on the east coast, around southern Australia to Perth on the west coast, with some occurrence as far north as Moreton Bay, Queensland [Kailola et al. 1993]. On the east coast, Royal Red Prawn is mainly distributed between 26°S and 36°S with few records at 40°S. Commercial catches are mainly taken between Sydney and Ulladulla [Rowling 1995]. Little is known of the stock structure in eastern Australia and the northern limit of the stock is unknown but is considered to lie north of the current boundary of the fishery at Barrenjoey Point, 35° 35'S [Rowling 1995].

There is evidence of a size related latitudinal distribution with larger prawns (spawners) towards the northern end of the range and juveniles (< 20 mm length) towards the south [Baelde 1992; Tilzey 1994; Rowling 1995]. Royal Red Prawn have two spawning seasons each year, resulting in two annual recruitment pulses, in February–April and again in July–August [Tilzey 1994; Rowling 1995]. Royal Red Prawns are relatively slow growing and longer lived than shallow water penaeid prawns [Tilzey 1994].

Here, assessment of stock status is presented at the biological stock level—South Eastern Australia; and jurisdictional level—Queensland.

STOCK STATUS

Queensland Royal Red Prawn occur in Queensland waters [Potter and Dredge 1985], although little is known about their distribution or potential biomass. While Royal Red Prawns are retained in the East Coast Otter Trawl Fishery, catch and effort levels are comparatively small. Royal Red Prawn catch and effort peaked in 1989–90 at 30 tonnes (t) and 116 effort days respectively. Following this peak, harvest levels declined markedly with the species reporting annual catches of less than 0.5 t and annual effort levels of less than 10 days fished [Helidoniotis et al. 2018]. It is unlikely that fishing pressures exerted on this stock within Queensland will impair long-term recruitment. The species is not targeted within the current fishing environment and catches remain low to negligible.

On the basis of the evidence provided above, Royal Red Prawn in Queensland is classified as a **negligible stock**.

**South
Eastern
Australia**

Royal Red Prawn in South Eastern Australia is caught in the Commonwealth Trawl Sector (CTS) of the Southern and Eastern Scalefish and Shark Fishery (SESSF) and in New South Wales. The stock status classification reported here is based on analyses undertaken for the SESSF, which includes available state catches.

Catch of Royal Red Prawn fluctuated around 500 t per year during the 1990s and early 2000s, before declining to stabilise at between 100 t and 200 t in recent years. However, in the 2020–21 fishing season, Commonwealth landed catch decreased to 33 t, but NSW landed catch increased to ~197 t. Catch has not approached the total allowable catch (TAC) in recent years. This is understood to be the result of limited availability of processing facilities for this species and low market demand.

Royal Red Prawn in Commonwealth fisheries is managed as a Tier 4 stock under the SESSF Harvest Strategy Framework [AFMA 2021]. A tier 4 analysis in 2020 [Sporcic 2020] informed the management of the stock for the 2021–22 fishing season.

Standardised catch-per-unit-effort (CPUE) for this stock is considered to be compromised by fisher behaviour: targeting of Royal Red Prawn is market driven and predominantly conducted by a few vessels [AFMA 2022]. This issue was also raised when reviewing the 2020 tier 4 analysis [Sporcic 2020], which indicated that CPUE had significantly increased over the past 4 years (2016–19), with the 2019 estimate being the highest in the series. The recent average CPUE was well above the target reference point and the limit reference point, producing an recommended biological catch (RBC) of 870 t. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

Commonwealth-landed catch in 2021–22 was 1.7 t, and NSW landed catch was 62.3 t, based on catch disposal records. The weighted average of 4 calendar years (2017 to 2020) was calculated and used to estimate discards of 5.2 t [Althaus et al. 2021]. For the 2021–22 fishing season, total catch and discards were estimated to be 69.2 t. Total catch and discards are estimated to be below the RBC of 870 t for the 2021–22 fishing season [Emery et al. 2022]. The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

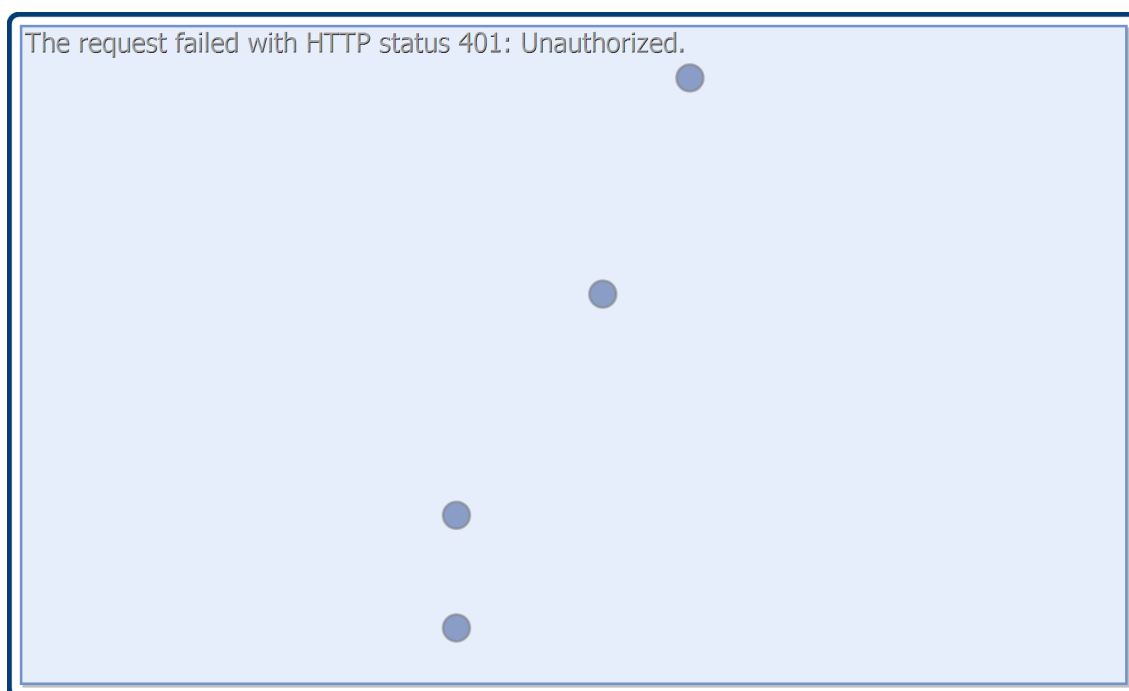
On the basis of the evidence provided above, the South Eastern Australia biological stock is classified as a **sustainable stock**.

BIOLOGY

Royal Red Prawn biology [Holthuis 1980; Graham and Gorman 1985; Potter and Dredge 1985; Kailola et al. 1993; Baelde 1994; Tilzey 1994; Rowling 1995]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Royal Red Prawn	3–4 years, Females: 200 mm TL, 49 mm CL Males: 165 mm TL, 33.5 mm CL	Females 25–30.8 mm CL Males: 21–25.8 mm CL

DISTRIBUTION



Distribution of reported commercial catch of Royal Red Prawn

TABLES

Fishing methods	Commonwealth	New South Wales	Queensland
Commercial			
Otter Trawl	✓	✓	✓

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Royal Red Prawn (2023)

Management Methods			
	Commonwealth	New South Wales	Queensland
Commercial			
Area restrictions		✓	
Effort limits (individual transferable effort)			✓
Gear restrictions	✓	✓	✓
Harvest Strategy			✓
Limited entry	✓	✓	✓
Marine park closures	✓	✓	
Mesh size regulations		✓	
Processing restrictions			✓
Quota	✓		
Seasonal or spatial closures			✓
Spatial closures	✓		
Total allowable catch	✓		
Vessel restrictions		✓	✓

Catch			
	Commonwealth	New South Wales	Queensland
Commercial	1.43571 t	62.34 t	0 t

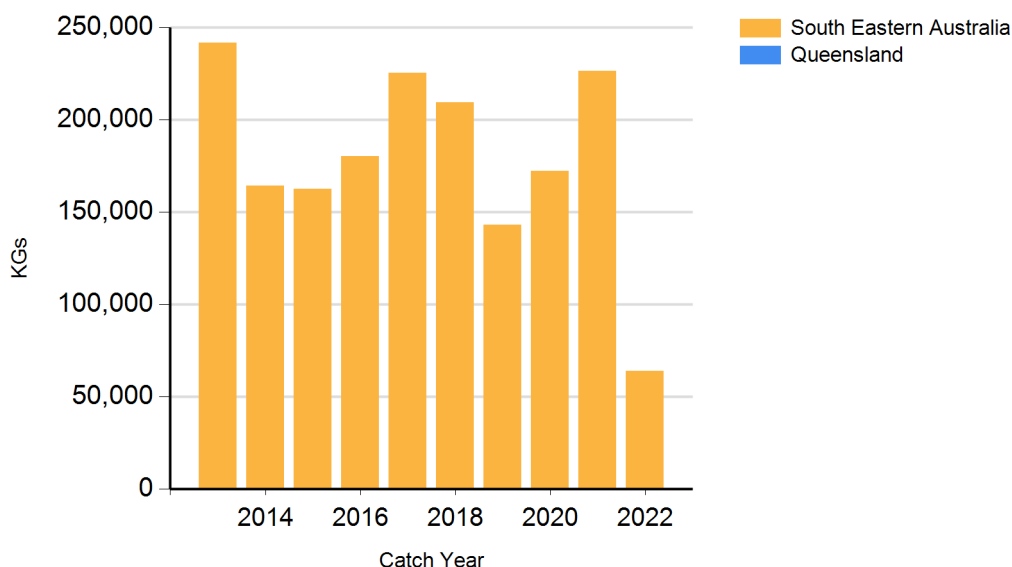
Commonwealth – Commercial (Management Methods/Catch). Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2021–22 financial year.

Commonwealth – Recreational. The Australian government 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. The Australian government does not manage non-commercial Indigenous fishing in Commonwealth waters, with the exception of Torres Strait. In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters.

Queensland – Commercial (Management Methods). Harvest strategies are available at: <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>

CATCH CHART



Commercial catch of Royal Red Prawn - note confidential catch not shown

References	
Kailola et al. 1993	Kailola, PJ, Williams, MJ, Stewart, PC, Reichelt, RE, McNee, A and Grieve, C 1993, Australian Fisheries Resources. Australian Bureau of Resource Sciences, Canberra.
Holthuis 1980	Holthuis, LB 1980, FAO species catalogue. Volume 1-Shrimps and prawns of the world, An annotated catalogue of species of interest to fisheries (No. 125).
Potter and Dredge 1985	Potter, MA and Dredge, MCL 1985, Deepwater prawn resources off southern and central Queensland. In Second Australian National Prawn Seminar, pp. 221–229.
Baelde 1992	Baelde, P 1992, Reproductive biology of commercially exploited deep-water royal red prawns (<i>Haliporoides sibogea</i> , Solenoceridae), Australia, Marine Biology, 113: 447–456.
Baelde 1994	Baelde, P 1994, Growth, mortality and yield-per-recruit of deep-water royal red prawns (<i>Haliporoides sibogae</i>) off eastern Australia, using the length based MULTIFAN method, Marine Biology, 118: 617–625.

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Royal Red Prawn (2023)

Graham and Gorman 1985	Graham, KJ and Gorman, TB 1985, New South Wales deepwater prawn fishery research and development, Second Australian National Prawn Seminar, pp. 231–243.
Rowling 1995	Rowling, K 1995, Royal Red Prawn 1994, Stock Assessment Report, South East Fishery Assessment Group. Australia Fisheries Management Authority, Canberra.
Tilzey 1994	Tilzey, RDJ 1994, The South East Fishery: a scientific review with particular reference to quota management, Bureau of Resource Science Bulletin.
Helidoniotis et al. 2018	Helidoniotis, F, Albury, L and Taylor, M 2018, Royal Red Prawn, <i>Haliporoides sibogae</i> , in Stewardson, C, Ashby, C, Haddon, M, Hartmann, K, Hone, P, Horvat, P, Mayfield, S, Roelofs, A, Sainsbury, K, Saunders, T, Stewart, J, Nicol, S and Wise, B (eds), Status of Australian fish stocks reports 2018, Fisheries Research and Development Corporation, Canberra.
AFMA 2021	AFMA 2021, Harvest strategy framework for the Southern and Eastern Scalefish and Shark Fishery: amended (2021), Australian Fisheries Management Authority, Canberra.
AFMA 2022	AFMA 2022, Southern and Eastern Scalefish and Shark Fishery species summaries 2022, Australian Fisheries Management Authority, Canberra.
Sporcic 2020	Sporcic, M 2020, Draft tier 4 assessments for selected SESSF species (data to 2019), CSIRO Oceans and Atmosphere, Hobart.
Althaus et al. 2021	Althaus, F, Thomson, R and Sutton, C 2021, Southern and Eastern Scalefish and Shark Fishery catches and discards for TAC purposes using data until 2020, CSIRO Oceans and Atmosphere, Hobart.
Emery et al. 2022	Emery, T, Wright, D, Davis, K, Keller, K, Woodhams, J and Curtotti, R 2022, Commonwealth Trawl and Scalefish Hook sectors, in Patterson, H, Bromhead, D, Galeano, D, Larcombe, J, Timmiss, T, Woodhams, J and Curtotti, R (eds), Fishery status reports 2022, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.