

# Giant Crab (2023)

*Pseudocarcinus gigas*



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## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia	Sustainable	CPUE, catch, effort, proportion of habitat unexploited
Victoria	West of Bass Strait	Depleted	CPUE, catch, effort, proportion of spawning stock protected by minimum size limits
Tasmania	Eastern Tasmania	Undefined	catch, effort
South Australia	South Australia	Depleting	CPUE, catch, effort, mean weight, pre-recruit abundance, sex ratio, spawning female abundance

## STOCK STRUCTURE

Giant Crab is continuously distributed across its range from Western Australia to East of Tasmania. Movement of giant crab post-settlement is limited. Planktonic larval duration is around 50 days, with larval release occurring along the edge of the continental shelf. The shelf is a high current area, facilitating dispersal, and oceanographic modelling has indicated that Giant Crab dispersal occurs over reasonably large spatial scales [Gardner 1998; Gardner and Quintana 1998; Williams et. al. 2009]. However, given the large spatial scale of the distribution and features that disrupt dispersal (such as the Bass Strait) the species is likely to consist of a series of local populations with moderate connectivity within the meta population. An FRDC project is currently underway which will provide further clarification on stock structure for future assessments (FRDC Project 2021-025 Resolving the biological stock structure of Southern Ocean crab fisheries).

Fishing occurs in four spatial clusters which are sufficiently separated that each cluster is likely to be fishing a local stock that has a low level of connectivity with the other stocks. The stock "West of Bass Strait" is fished by both Victoria and Tasmania. This stock previously had differing assessments for the two jurisdictions which resulted in an assessment on a jurisdictional basis. However, these differences have now been resolved. Consequently, assessment of stock status is presented here at the biological-stock level—Eastern Tasmania, South Australia, West of Bass Strait, and Western Australia.

## STOCK STATUS

### Eastern Tasmania

Giant crab catches on the East Coast of Tasmania averaged 20 tonnes (t) from 2000 to 2011 [Emery et. al. 2015]. Reductions in the statewide total allowable commercial catch (TACC), in conjunction with fleet changes resulted in a disproportionate reduction of catch on the East Coast. Catches have been less than 11 t since 2012, and less than 1 t in the last two years.

The reductions in catch per unit effort (CPUE) across Tasmania that led to TACC reductions from 2012 onwards were also observed for the Eastern Tasmanian stock. Consequently during this period, the stock was depleting and possibly depleted. In recent years insufficient fishing has taken place for the Eastern Tasmanian CPUE to provide a meaningful indicator of stock status. The same input controls are in place for the Eastern Tasmanian stock as for the Tasmanian fishery West of Bass Strait. In conjunction with low catches this indicates that recovery from the reduced stock observed in the years following 2010 is possible, however there is no evidence to indicate whether recovery has taken place and due to the long generational time of giant crab this can be a slow process.

Due to the lack of available information the Eastern Tasmanian Giant Crab biological stock is classified as an **undefined stock**.

### South Australia

The South Australian Giant Crab Fishery comprises three commercial fishing sectors: (1) the Miscellaneous Fishery sector; (2) the South Australian Rock Lobster Fishery (SARLF) quota sector (RL-quota); and (3) the SARLF by-product sector (RL by-product). Fishing mortality in South Australia is managed through Total Allowable Commercial Catches (TACCs) and a minimum legal size (MLS) (150 mm carapace length) to protect females up to spawning size. The management policy for the fishery guides the classification of stock status relative to limit, trigger and target reference points for a CPUE-based performance indicator relating to relative stock biomass measured from 2000–01 to 2009–10 (a relatively stable period of data collection from Giant Crab catch logbooks). The five-year average commercial CPUE of legal-size Giant Crab calculated from data collected from targeted fishing in the Miscellaneous Fishery and RL-quota sectors is the primary indicator for biomass and fishing mortality [PIRSA 2018; McLeay 2023].

The most recent assessment was based on data to the end of the 2022–23 season (1 October 2022–31 May 2023) [SARDI unpublished data]. In 2022–23, 7,604 potlifts caught a total of 13.3 t of Giant Crab, comprising 60.2 per cent of the TACC of 22.1 t in that season.

Commercial CPUE increased from 2.32 kg/potlift at the start of the time series in 2004–05 to reach a peak of 3.05 kg/potlift in 2008–09. CPUE then decreased to

2.25 kg/potlift in 2013–14. Average CPUE over the period 2004–13 was 2.62 kg/potlift, and above the target of 2.60 kg/potlift. Since 2014–15, CPUE levels have declined, but remained above the trigger level of 1.95 kg/potlift and at approximately 82 per cent of the target level until 2021–22 [McLeay 2023]. In 2022–23, commercial CPUE declined further to below the trigger level and was 1.88 kg/potlift. The above evidence indicates that the biomass of this stock is not yet depleted, and recruitment is not yet impaired but fishing mortality is too high and moving the stock in the direction of becoming recruitment impaired. On the basis of the evidence presented above, Giant Crab in South Australia is classified as a **depleting stock**.

### **West of Bass Strait**

The stock West of Bass Strait is fished by both the Victorian and Tasmanian fisheries. Both fisheries are regulated through a TACC and minimum legal lengths of 140 mm for males and 150 mm for females. The size limit was supported by a length-based model which was developed for the Tasmanian fishery with size limits affording protection to mature female crabs, which are also protected whilst berried and through female spawning closures [Gardner et al. 2007]. In Victoria the size limit aims to ensure that egg production remains at no less than 40% of unfished levels [McGarvey et al. 1999]. However, there is considerable uncertainty around the growth rates and sizes at maturity of larger females and hence in the degree of protection provided by these limits.

The standardised CPUE in the Tasmanian fishery on this stock declined by approximately 75% from the fishery's inception in 2000-01 to the most recent assessment in 2021–22, despite significant reductions in the statewide TACC from 103.5 t to 20.7 t. This equated to a reduction in catch for the West of Bass Strait stock from a peak of 68 t to 17 t. The stock assessment model has not been used since 2013–14 due to a lack of length-frequency data, however in that year egg production had decreased to an estimated 14% of unfished levels in 2013–14 [Emery et al. 2015]. This level of egg production is considered inadequate relative to benchmarks in most crustacean fisheries [Fogarty and Gendron 2004]. Due to its slow growth and longevity, Giant Crab is particularly susceptible to becoming recruitment overfished.

The Victorian fishery is smaller and despite an initial peak of over 200 t in 1992–93 [Fisheries Victoria 2010] has been at or below 10 t for the last ten years. Standardised CPUE for this fishery is a less reliable indicator of abundance due to the small size of the fishery and changing operator characteristics over time – notably a shift from rock lobster vessels taking some Giant Crab to a single dedicated Giant Crab operator in recent years. A re-evaluation of CPUE has indicated that CPUE in the last eight years was lower than previously thought and may have been at the limit reference point during this period [VFA 2020]. Previous evidence indicates that the biomass of this stock is likely to be depleted and that recruitment is likely to be impaired.

Significant ongoing catch reductions have taken place in both jurisdictions, resulting in a decrease from 82 t in 2000–01 to 22 t in 2020–21. Despite these reductions the standardised CPUE continued to fall in Tasmania and in Victoria after a period of higher levels in the 2000s returned to record low levels. This ongoing lack of response in CPUE to significant catch reductions over the last decade led to a high level of concern, particularly in Tasmania where this reduction was more pronounced. In both the Tasmanian and Victorian fisheries there has been an increase in CPUE in the most recent year (2021–22). However, in both assessments there is concern about the reliability of standardised CPUE due to the small number of operators. Consequently, there is not yet definitive evidence to indicate recovery is taking place. The above

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evidence indicates that current fishing mortality is constrained by management to a level that should allow the stock to recover from its recruitment impaired state; however measurable improvements are yet to be detected.

On the basis of the evidence presented above, the Giant Crab Fishery (Victoria/Tasmania) management unit is classified as a **depleted stock**.

**Western  
Australia**

Historically, limited data were available for Giant Crab targeted fishing in Western Australia, with catches being generally either a by-product of Southern Rock Lobster fishing, or part of a combined catch of other deep-sea crabs. Recently, logbook data for target Giant Crab catches have become available. Catches of Giant Crabs in Western Australia fluctuated, increasing from 4.8 t in 2009–10 to 14.6 t 2012–13, before generally remaining around 10 t from the 2014–15 to 2019–20 seasons. In the 2021–22 fishing season, the South Coast Crustacean Managed Fishery, which lands most Giant Crab in Western Australia, was transitioned to individual transferrable quotas. The total allowable catch across the four fishing zones for Giant Crab has initially been set conservatively at 6.4 t. Current landings are taken across a wide geographic range when compared to other jurisdictions, and there are large portions of the stock in Western Australia (particularly east of longitude 125°E) that are not being exploited. The above evidence indicates that the biomass of this stock is unlikely to be depleted, that locally sourced recruitment is unlikely to be impaired, and that the current level of fishing pressure is unlikely to cause the stock to become recruitment impaired.

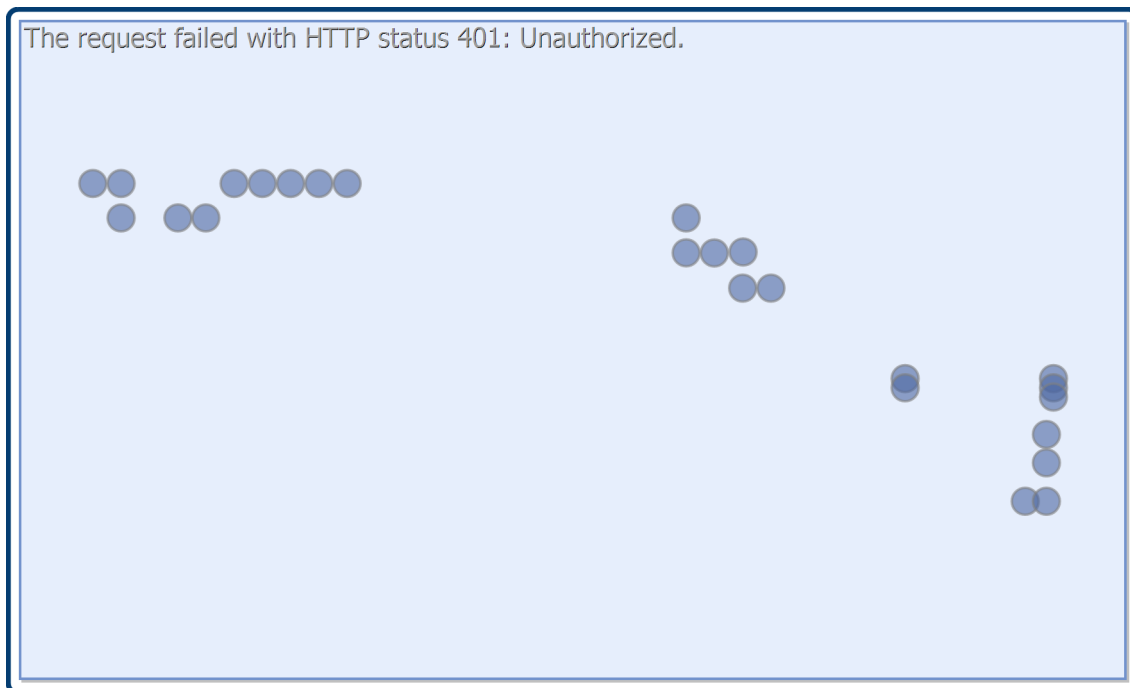
On the basis of the evidence presented above, Giant Crab in Western Australia is classified as a **sustainable stock**.

**BIOLOGY**

**Giant Crab biology** [Gardner 1998; McGarvey et. al. 1999; Williams et. al. 2009,]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Giant Crab	at least 30 years, greater than 200 mm CL , approximately 10 kg	125–140 mm CL, depending on region

**DISTRIBUTION**



Distribution of reported commercial catch of Giant Crab

**TABLES**

<b>Fishing methods</b>	<b>South Australia</b>	<b>Tasmania</b>	<b>Victoria</b>	<b>Western Australia</b>
<b>Commercial</b>				
Giant Crab Trap	✓			
Octopus Traps And Pots				✓
Pots and Traps		✓		
Traps and Pots			✓	✓
<b>Recreational</b>				
Giant Crab Trap	✓	✓		
Traps and Pots				✓
Unspecified				✓

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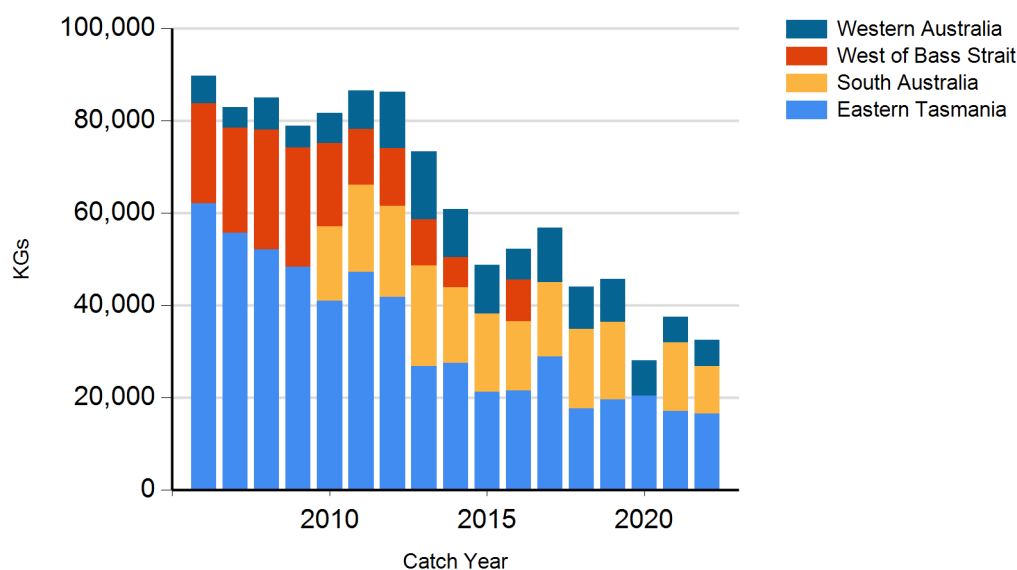
Management Methods				
	South Australia	Tasmania	Victoria	Western Australia
<b>Commercial</b>				
Limited entry	✓	✓	✓	✓
Quota	✓	✓	✓	✓
Size limit	✓	✓	✓	✓
Spatial closures	✓	✓	✓	✓
Temporal closures	✓	✓	✓	✓
<b>Recreational</b>				
Possession limit		✓		
Size limit	✓	✓		✓
Temporal closures	✓	✓		✓

Catch				
	South Australia	Tasmania	Victoria	Western Australia
<b>Commercial</b>	10.3307 t	16.532 t	0 t	5.67926 t
<b>Indigenous</b>	Negligible	Negligible	Unknown (No catch under permit)	Zero
<b>Recreational</b>	Negligible	Negligible	Unknown	Negligible

South Australian data are from quota holders in the 2016–17 fishing season (October 2016–May 2017), Victorian data are for the 2021–22 fishing season (November 2021–September 2022), Tasmanian data are for the 2022-23 fishing season (March 2022 – February 2023) and South Coast Crustacean Managed Fishery (Western Australia) data are for the 2019–20 financial year.

**Victoria – Indigenous (Management Methods).** A person who identifies as Aboriginal or Torres Strait Islander is exempt from the need to obtain a Victorian recreational fishing licence, provided they comply with all other rules that apply to recreational fishers, including rules on equipment, catch limits, size limits and restricted areas. Traditional (non-commercial) fishing activities that are carried out by members of a traditional owner group entity under an agreement pursuant to Victoria’s *Traditional Owner Settlement Act 2010* are also exempt from the need to hold a recreational fishing licence, subject to any conditions outlined in the agreement. Native title holders are also exempt from the need to obtain a recreational fishing licence under the provisions of the Commonwealth’s *Native Title Act 1993*.

**CATCH CHART**



Commercial catch of Giant Crab - note confidential catch not shown

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