

Fisheries

Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2024/25



L. McLeay

**SARDI Publication No. F2011/000332-15
SARDI Research Report Series No. 1281**

**SARDI Aquatic and Livestock Sciences
PO Box 120 Henley Beach SA 5022**

February 2026

Fishery Status Report to PIRSA Fisheries and Aquaculture

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We ensure the land, sea, water and sky are healthy for future generations and strive to better understand their spiritual and cultural significance for Aboriginal people across the state.

In the spirit of reconciliation, our commitment is to build progressive and trusting relationships, to share knowledge and learn from each other.

We recognise and own a difficult past, and together we will walk forward.

We acknowledge the many Aboriginal people of this Country as the oldest continuous living culture in the world.

This publication may be cited as:

McLeay, L. (2026). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2024/25. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2011/000332-15. SARDI Research Report Series No. 1281. 21pp.

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Author(s): L. McLeay

Reviewer(s): B. Stobart, A. Barbosa Martins (SARDI) and A. Banks (PIRSA)

Approved by: S. Mayfield
Program Leader - Fisheries

Signed: 

Date: 24 February 2026

Distribution: PIRSA Fisheries and Aquaculture, SARDI Aquatic and Livestock Sciences, Parliamentary Library, State Library and National Library

Circulation: OFFICIAL

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South Australian Research and Development Institute - Aquatic and Livestock Sciences

2 Hamra Avenue West Beach SA 5024

PO Box 120 Henley Beach SA 5022

P: (08) 8207 5400

E: pirsa.sardiaquatics@sa.gov.au

W: <http://www.pir.sa.gov.au/sardi>

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ACKNOWLEDGEMENTS

Funds for this research were obtained through licence fees managed by Primary Industries and Regions South Australia (PIRSA). Dr John Feenstra (SARDI) provided catch data through data extraction procedures run from the South Australian Rock Lobster (SARL) database. We thank Dr Kevin Mark for the development of statistical procedures relating to CPUE. Kylie Howard (SARDI) provided valuable and timely administrative support to data entry and management required in the SARL database. The report was formally reviewed by Dr Ana Barbosa Martins (SARDI) and Dr Ben Stobart (SARDI) and approved for release by Dr Stephen Mayfield (Program Leader, Fisheries, SARDI).

EXECUTIVE SUMMARY

This report provides an assessment of the status of the South Australian Giant Crab Fishery (GCF) using data to the end of the 2024 fishing season that extends from 1 October 2024 to 31 May 2025 (references to a fishing season refer to the year the fishing season started (e.g. data reported in 2024 for the Northern Zone (NZ) includes data from 1 November 2024 to 31 May 2025 and in the Southern Zone (SZ) from 1 October 2024 to 30 April 2025). It includes fishery-dependent data collected from two management zones, the NZ and SZ, and from three commercial fishing sectors: (1) Miscellaneous Fishery sector; (2) South Australian Rock Lobster Fishery (SARLF) quota sector (RL-quota); and (3) SARLF by-product sector (RL by-product - non-targeted).

The long-lived and slow-growth life-history characteristics of the Giant Crab render the species susceptible to recruitment overfishing and constrain the rate at which their populations respond to management changes. Catch declines have been reported across core areas of the species' distribution in Victoria and Tasmania, despite multiple total allowable commercial catch (TACC) reductions in these states. In South Australia, historically low levels in catch, and catch per unit effort (CPUE) and pre-recruit abundance resulted in the stock being classified as 'depleting' at a statewide level in 2022, and in both the NZ and SZ in 2023.

Reductions in TACC in both zones since 2023 have reduced fishing mortality relative to historic levels. In 2024, the total catch was 6.8 t, of which 3.7 t was caught in the NZ and 3.1 t in the SZ. In the NZ, the catch comprised 95% of the TACC (3.9 t), and in the SZ the catch was 3% above the TACC (3.0 t). Pre-recruit abundance estimates were among the lowest on record in both zones between 2019–2022 (Range: 0.30–0.59 pre-recruits/potlift) and were at similar historically low levels in 2024 (NZ: 0.58 pre-recruits/potlift; SZ: 0.33 pre-recruits/potlift).

The key performance indicator (PI) in the harvest strategy is the 3-year average standardised CPUE of legal-size Giant Crab. This PI is an indicator of the relative abundance of adult Giant Crab. In the NZ, this PI has declined since 2010 and was below the Trigger Reference Point (RP_{trig}) defined in the harvest strategy in the last two annual assessments (NZ RP_{trig}: >2.03 kg/potlift). In 2024, the 3-year average standardised CPUE of legal-size Giant Crab in the NZ was **1.84 kg/potlift**. This was 9% higher than in 2023, the second lowest estimate on record and 9% below the RP_{trig}. The declines in the relative abundance of adult Giant Crab to below RP_{trig} in 2023 and 2024 indicate that Giant Crab spawning biomass remains at historically low levels and is likely contributing to the low levels of recruitment observed. Consequently, the status of the Giant Crab stock in the NZ in 2024 was classified as '**depleting**' using the National Fishery Stock Status Reporting Framework (NFSRF) (Flood *et al.*, 2012, 2014; Piddocke *et al.* 2021; Roelofs *et al.* 2024).

In the SZ, the 3-year average standardised CPUE of legal-size Giant Crab has declined since 2005 and was below the RP_{trig} defined in the harvest strategy in the last five annual

assessments (SZ RP_{trig}: >1.85 kg/potlift). In 2024, this PI was **1.72 kg/potlift**, which was 9% higher than in 2023, the fifth lowest estimate on record and 7% below the RP_{trig}. The declines in this PI to below RP_{trig} since 2020 indicate that Giant Crab spawning biomass in the SZ is also at historically low levels and contributing to the low levels of recruitment observed. Consequently, the status of the Giant Crab stock in the SZ was classified as '**depleting**' using the NFSRF.

Table 1. Giant Crab Fishery statistics between 2021/22 and 2024/25. **Bold:** 3-year average commercial CPUE of legal-size Giant Crab is the primary biological performance indicator (PI) listed in the management policy for the GCF (PIRSA 2024). ****Status** was determined at a statewide level (both management zones combined) under the previous GCF management policy (PIRSA 2018). Note, estimates of 3-year average standardised CPUE will differ in each annual assessment due to statistical model updates.

Statistic	2021/22		2022/23		2023/24		2024/25	
	NZ	SZ	NZ	SZ	NZ	SZ	NZ	SZ
Total Allowable Commercial Catch (TACC)(t)	13.4 t	8.7 t	13.4 t	8.7 t	6.7 t	2.61 t	3.9 t	3.0 t
Total catch (t)	7.6 t	3.3 t	8.8 t	4.9 t	4.6 t	2.4 t	3.7 t	3.1 t
% of TACC caught	57%	38%	66%	56%	69%	92%	95%	104%
Target effort (potlifts)	3,512	2,571	4,740	2,864	2,732	1,480	1,801	1,694
3-year average standardised CPUE (kg/potlift)	2.34	1.52	2.13	1.53	1.69	1.58	1.84	1.72
Pre-recruit abundance (pre-recruits/potlift)	0.48	0.32	0.31	0.32	0.80	0.76	0.58	0.33
Mean weight (kg)	3.23 kg	3.03 kg	3.26 kg	3.05 kg	3.18 kg	3.04 kg	3.04 kg	3.19 kg
Sex ratio (N _♀ /N _(♀+♂))	0.55	0.66	0.55	0.62	0.54	0.55	0.53	0.50
Status	**Sustainable		**Depleting		Depleting	Depleting	Depleting	Depleting

Keywords: Giant Crab, King Crab, *Pseudocarcinus gigas*, fishery, South Australia.

1. INTRODUCTION

1.1. Overview

This status report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery (GCF) updates previous stock assessment and status reports for this species (Currie and Ward 2005; Currie *et al.* 2006; Currie 2008; Currie and Ward 2009; Currie 2010; Currie 2011a, b; Chick 2013; Stobart 2014; McLeay 2015; 2016; 2018; 2019; 2020; 2021; 2022; 2023; 2024; 2025) and is part of SARDI Aquatic and Livestock Sciences' assessment program for the fishery. The report provides a synopsis of the information available for the GCF collected from commercial logbook returns from 1 November 1986 to 31 May 2025, identifies uncertainty associated with the assessment, and assesses the status of the Giant Crab resource in South Australia in the 2024 fishing season (1 October 2024 – 31 May 2025).

1.2. Biology

Giant Crab, also known as King Crab, is endemic to southern Australian waters and distributed from southern Western Australia to central New South Wales (Kailola *et al.* 1993). Giant Crab is considered a single biological stock across southern Australia (Levings *et al.* 2001). They are a long-lived (>30 years), slow growing xanthoid crab, reaching over 10 kg in weight with males growing to at least twice the size of females. While they occur at depths ranging from 20 to 600 m, the highest population densities are found at the edge of the continental shelf at depths of approximately 140 to 270 m (Levings *et al.* 1995). Mating occurs from June to July and females carry eggs for approximately four months before hatching from October to November. Larval duration is approximately 50 days.

1.3. Management arrangements, harvest strategy and stock status

A detailed description of the history and management arrangements for the fishery is provided in Sloan (2002; 2003), PIRSA (2018), and previous stock assessment and status reports (Currie and Ward 2005; Currie *et al.* 2006; Currie 2008; Currie and Ward 2009; Currie 2010; Currie 2011a, b; Chick 2013; Stobart 2014; McLeay 2015; 2016; 2018; 2019; 2020; 2021; 2022; 2023; 2024; 2025; [Publications and reports - PIRSA](#)).

In summary, targeted fishing for Giant Crab began in South Australia in 1992 under Commonwealth licence arrangements. In 1997, management of the GCF was transferred solely to the Government of South Australia and separated into two zones, the Southern Zone (SZ) and Northern Zone (NZ), which are consistent with those designated for the South Australian Rock Lobster Fishery (SARLF). In 1999, an annual Total Allowable Commercial Catch (TACC) of 26 t was implemented for the GCF (NZ: 13.4 t and SZ: 12.6 t). In 2000, the TACC was reduced to 22.1 t (NZ: 13.4 t and SZ: 8.7 t) and remained

at that level until 2023. In 2023, in response to declines in fishery performance, the TACC was reduced to 9.31 t (NZ: 6.70 t; SZ: 2.61 t). A review of the management policy for the GCF was undertaken in 2024, and a new management policy and harvest strategy were implemented for 2024 (PIRSA 2024). The harvest strategy developed for the fishery is consistent with the South Australian Harvest Strategy Policy and Guidelines (PIRSA 2015a, b) and the National Harvest Strategy Guidelines (Sloan *et al.* 2014). In 2024, based on the 2024 harvest strategy, the TACC was further reduced to 6.9 t (NZ: 3.9 t; SZ: 3.0 t).

Commercial access to the Giant Crab resource is limited to licence holders in the South Australian Miscellaneous Fishery (Miscellaneous Fishery) and the SARLF. Within the SARLF, Giant Crab quota is allocated to some licence holders as a unit holding (RL-quota). In 2024, the TACC was allocated among 16 licence holders: one in the Miscellaneous Fishery and 15 in the SARLF. A total of 5% of the quota in each zone is reserved for SARLF fishers with no Giant Crab quota to account for Giant Crab taken as by-product ('RL by-product' - non-targeted).

The Giant Crab fishing season is between 1 October and 31 May (NZ: 1 November to 31 May; SZ: 1 October to 30 April). Fishing in each zone is managed via a mix of input and output controls (refer to Table 1 in PIRSA 2024). Fishers use a maximum of 100 steel-framed pots that must comply with pot-dimension specifications. A minimum legal-size limit of 150 mm carapace length is set for the GCF and females with external eggs are protected and must be returned to the water as soon as possible following capture.

A National Fishery Stock Status Reporting Framework (NFSRF) was developed to enable the consistent assessment of the status of Australian fish stocks (Flood *et al.*, 2012, 2014; Piddocke *et al.* 2021; Roelofs *et al.* 2024). The system combines information on both the current stock size and level of catch into a single classification for each stock using defined biological reference points. Each stock is then classified as 'sustainable', 'recovering', 'depleting', 'depleted', 'undefined' or 'negligible' (Table 2) ([FRDC 2023](#)). PIRSA has adopted this classification system to determine the status of all South Australian fish stocks (PIRSA 2015a).

Table 2. Stock status terminology for the status of key Australian fish stocks reports (Roelofs *et al.* 2024).

STOCK STATUS	DESCRIPTION	POTENTIAL IMPLICATIONS FOR MANAGEMENT OF THE STOCK
Sustainable	Biomass (or proxy) is at a level sufficient to ensure that, on average, future levels of recruitment are adequate (i.e. recruitment is not impaired) and for which fishing mortality (or proxy) is adequately controlled to avoid the stock becoming recruitment impaired (overfishing is not occurring).	Appropriate management is in place
Depleting	Biomass (or proxy) is not yet depleted and recruitment is not yet impaired, but fishing mortality (or proxy) is too high (overfishing is occurring) and moving the stock in the direction of becoming recruitment impaired	Management is needed to reduce fishing pressure and ensure that the biomass does not become depleted
Recovering	Biomass (or proxy) is depleted and recruitment is impaired, but management measures are in place to promote stock recovery, and recovery is occurring	Appropriate management is in place, and there is evidence that the biomass is recovering
Depleted	Biomass (or proxy) has been reduced through catch and/or fishing effects, such that recruitment is impaired. Current management is not adequate to recover the stock, or adequate management measures have been put in place but have not yet resulted in measurable improvements	Management is needed to recover this stock; if adequate management measures are already in place, more time may be required for them to take effect
Undefined	Not enough information exists to determine stock status	Data required to assess stock status are needed
Negligible	Catches are so low as to be considered negligible and inadequate information exists to determine stock status	Assessment will not be conducted unless catches and information increase

A review of the GCF management policy and harvest strategy was undertaken in collaboration with GCF industry members in 2024 (PIRSA 2024). The harvest strategy identifies 3-year average standardised Catch Per Unit Effort (CPUE) of legal-size Giant Crab as the primary biological PI, with reference points for this PI based on targeted catch and effort information from 2000/01 to 2012/13 (PIRSA 2024). To inform the harvest strategy for determining TACCs in the following fishing season, standardised annual estimates of commercial CPUE of legal-size Giant Crab are calculated for each zone. The 3-year average standardised CPUE of legal-size Giant Crab is then calculated as the moving average from the current and previous two fishing seasons. Decision rules within the harvest strategy are linked to defined Limit, Trigger and Target Reference Points for this PI to determine stock status and guide management arrangements in each zone (Tables 3 and 4 below, and Tables 4 and 5, respectively in [PIRSA 2024](#)).

Table 3. Decision matrix for the Northern Zone of the GCF for 3-year average standardised index of relative abundance (PIRSA 2024). * *classified as 'Recovering' when 3-year average standardised index of relative abundance is higher than the previous year.*

Standardised Index of Relative Abundance Bands	TACC (t)	Stock status	
>2.92 +	13.4	Sustainable	Target Reference Point (2.70)
>2.70 to 2.92	10	Sustainable	
>2.48 to 2.70	8.5	Sustainable	
>2.26 to 2.48	7.2	Sustainable	Trigger Reference Point (2.03)
>2.03 to 2.26	6.1	Sustainable	
>1.80 to 2.03	4.9	Depleting / Recovering*	
>1.57 to 1.80	3.9	Depleting / Recovering*	Limit Reference Point (1.35)
>1.35 to 1.57	3.1	Depleting / Recovering*	
0 to 1.35	0	Depleted (fishery closed)	

Table 4. Decision matrix for the Southern Zone of the GCF for 3-year average standardised index of relative abundance (PIRSA 2024). * *classified as 'Recovering' when 3-year average standardised index of relative abundance is higher than the previous year.*

Standardised Index of Relative Abundance Bands	TACC (t)	Stock status	
>2.68 +	8.7	Sustainable	Target Reference Point (2.46)
>2.46 to 2.68	7.6	Sustainable	
>2.26 to 2.46	6.5	Sustainable	
>2.06 to 2.26	5.5	Sustainable	Trigger Reference Point (1.85)
>1.85 to 2.06	4.7	Sustainable	
>1.64 to 1.85	3.7	Depleting / Recovering*	
>1.43 to 1.64	3.0	Depleting / Recovering*	Limit Reference Point (1.23)
>1.23 to 1.43	2.4	Depleting / Recovering*	
0 to 1.23	0	Depleted (fishery closed)	

2. METHODS

2.1. Sources of data

Fishery-dependent data have been collected from the three commercial fishing sectors that have access to the Giant Crab resource (Miscellaneous Fishery, RL-quota and RL by-product) since 1986. Data are unavailable to identify SARLF licence holders that held Giant Crab quota between 1999 and 2005. Data within this period were allocated to the RL-quota sector by referencing SARLF licence holders who held Giant Crab quota in 2006, and an additional SARLF licence holder (between 1999 and 2002). From 2006, PIRSA has provided information to SARDI to identify licence holders among each fishing sector with Giant Crab entitlement. All other fishery-dependent data from SARLF licence holders without allocated Giant Crab quota are assigned to the RL by-product sector.

Prior to 2000, data relating to Giant Crab catch were reported via a mandatory daily logbook program implemented for the SARLF. From 2000, a separate logbook reporting system was implemented for the GCF. Data from quota holders (Miscellaneous Fishery, RL-quota sectors) are reported through this system. Data from Rock Lobster fishers who catch Giant Crab incidentally (RL by-product sector) are reported through the logbook program in the SARLF. Data for Giant Crab catch recorded by the Miscellaneous Fishery and RL-quota sectors since 2000 are considered the most robust in assessing the stock status of the GCF, as they capture targeted fishing effort towards Giant Crab more accurately (McLeay 2018).

All data are entered into a database and maintained by PIRSA. Data are checked for errors during data entry and further validated during data entry and reporting operations. PIRSA staff contact licence holders to correct any errors or missing information identified in the quality assurance process. All references to a fishing season in this report refer to the year the fishing season started (e.g. data reported in 2024 for the NZ includes data from 1 November 2024 to 31 May 2025 and in the SZ from 1 October 2024 to 30 April 2025). All means are reported $\pm$ standard error (SE).

2.2. Primary Performance Indicator

The primary biological PI for the GCF is the 3-year average standardised CPUE of legal-size Giant Crab (kg/potlift) (PIRSA 2024). The PI is an index of the relative abundance of adult Giant Crab and uses statistical procedures applied to CPUE data relating to targeted fishing collected through catch logs recorded by the Miscellaneous Fishery and RL-quota sectors in the NZ and SZ since 2000. For each zone, CPUE data are 'standardised' using the yearly season effects (or regression coefficients) estimated from a lognormal regression model that controls for factors potentially influencing CPUE: month, licence, Marine Fishing Area and depth (e.g., Kimura 1981). Then, 3-year average standardised CPUE of legal-size Giant Crab (kg/potlift) is calculated as the

moving average of annual 'standardised' CPUE from the current and previous two fishing seasons.

2.3. Additional Performance Indicators

Catch (total and % of TACC), effort, pre-recruit abundance, sex ratio and mean weight are additional indicators that provide context for assessing future performance of the GCF and reported using data from targeted fishing for Giant Crab in the Miscellaneous Fishery and RL-quota sectors since 2000. Catch of Giant Crab includes all catch reported through both GCF and SARLF logbook programs and consequently includes non-targeted catch of Giant Crab by non-quota holders in the SARLF (RL by-product sector).

3. RESULTS

3.1. Total catch

State-wide catches of Giant Crab were negligible prior to 1992. Thereafter, catches increased but varied annually, averaging 20.8 ± 4.1 t between 1992 and 1998, including a historical high of 34.1 t in 1997 (Figure 1). Following introduction of a TACC in 1999, catches remained relatively stable up until 2012, ranging from 18.0 t in 2003 to 27.0 t in 1999. From 2000 onwards, catches generally decreased, reaching 10.9 t and 13.7 t in 2021 and 2022, respectively, under a TACC of 22.1 t. In 2024, the total catch of 6.8 t comprised 99% of the reduced 6.9 t TACC.

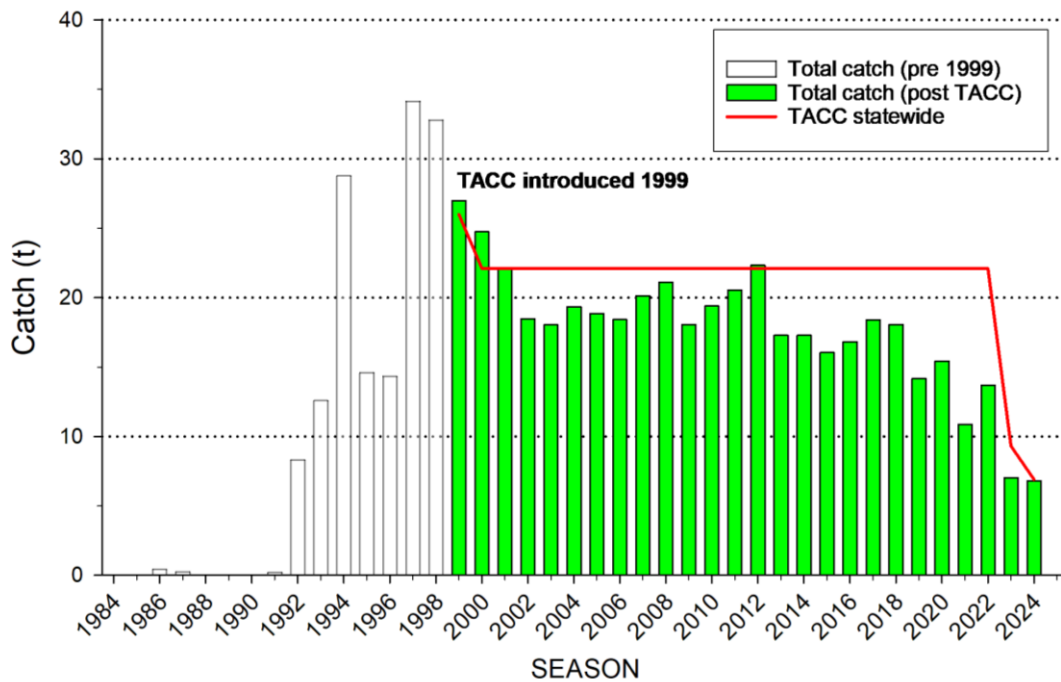


Figure 1. Statewide total catch and TACC (red line) of Giant Crab in the GCF between 1986 and 2024.

3.2. Total Catch in the Northern and Southern Management Zones

From 1991 to 1998, catches in the NZ increased reaching a historical high of 25 t in 1997 (Figure 2). Following introduction of a 13.4 t TACC in 1999, NZ catches remained relatively stable up until 2020, ranging from 9.5 t in 2005 to 16.4 t in 1999. In 2024, the NZ catch was 3.7 t, comprising 95% of the 3.9 t TACC.

In the SZ, prior to TACC implementation in 1999, catches reached a historical high of 18.8 t in 1994 (Figure 2). Following the reduction of the TACC from 12.6 t in 1999 to 8.7 t in 2000, SZ catches remained relatively stable up until 2012, ranging from 6.6 t in 2004 to 9.6 t in 2000. Catches in the SZ then declined from 2012. In 2024, the catch was 3.1 t, which was 4% above the 3.0 t TACC.

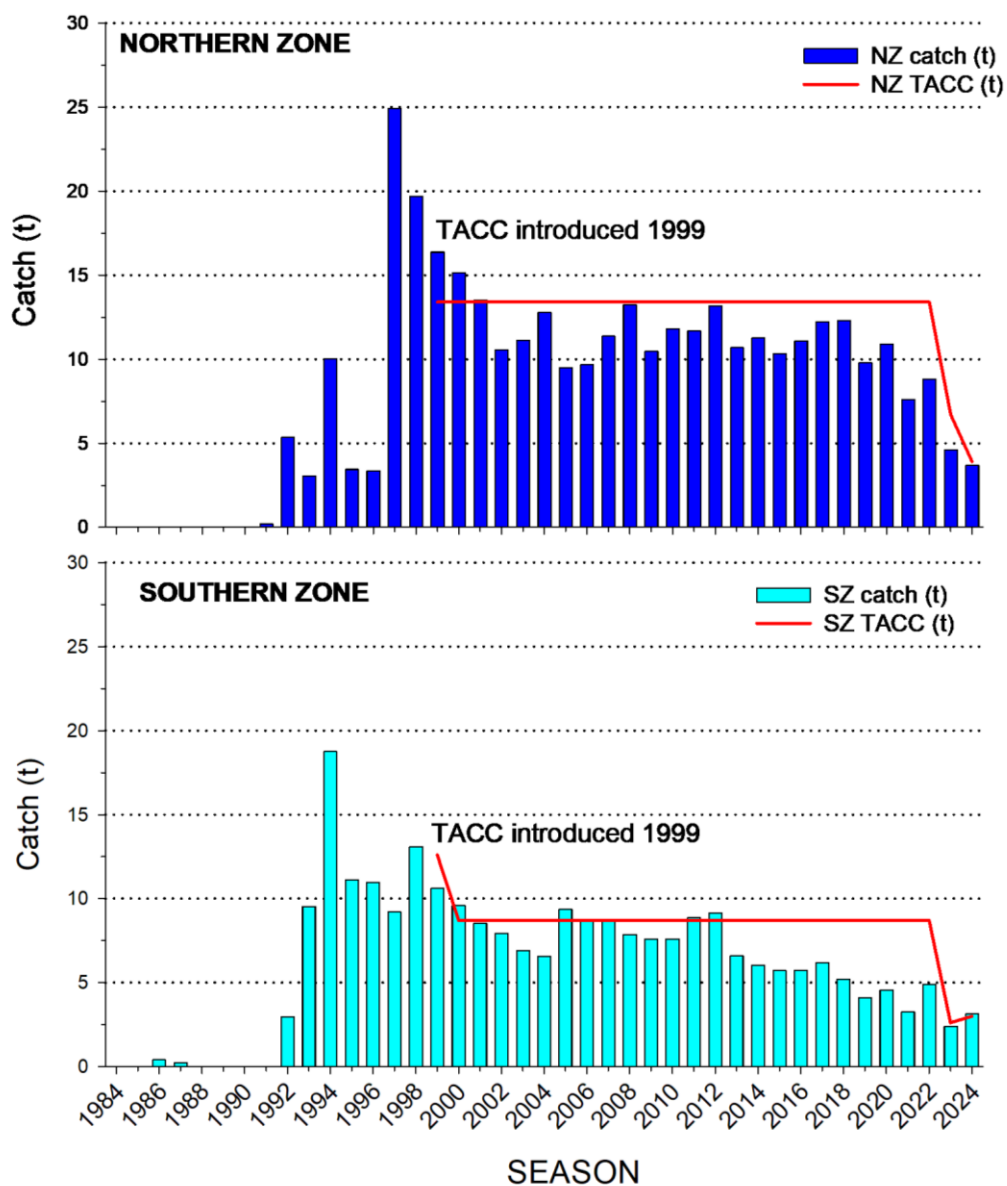


Figure 2. Total catch and TACC (red line) of Giant Crab in the Northern Zone (NZ; top) and Southern Zone (SZ; bottom) of the GCF between 1986 and 2024.

3.3. Targeted catch and effort

Targeted catch of Giant Crab landed by quota holders within the Miscellaneous Fishery and RL-quota sectors represented 91.2% of the total catch reported in the GCF since 2000 (Table 5). In 2024, targeted catch comprised 87.7% (3.2 t) and 96.8% (3.1 t) of the total catch landed in the NZ and SZ, respectively.

Table 5. Target catch versus total catch of Giant Crab in the Northern Zone and Southern Zone between 2000 and 2024.

	Target catch (t)	Target catch (t)	Total catch (t)	Total catch (t)	Target catch (% of Total)	Target catch (% of Total)
Season	NZ	SZ	NZ	SZ	NZ	SZ
2000	13.2	8.5	15.2	9.6	86.8	89.1
2001	10.7	6.9	13.5	8.5	79.2	81.2
2002	8.9	7.2	10.6	7.9	84.3	90.4
2003	9.4	6.4	11.1	6.9	84.5	92.6
2004	8.2	6.3	12.8	6.6	64.1	96.3
2005	8.3	8.9	9.5	9.3	87.0	95.4
2006	9.0	8.6	9.7	8.7	92.7	98.1
2007	8.5	7.9	11.4	8.8	74.6	89.6
2008	11.0	7.1	13.2	7.9	83.0	90.7
2009	9.3	6.8	10.5	7.6	89.3	89.4
2010	11.4	7.5	11.8	7.6	96.4	98.7
2011	11.3	8.5	11.7	8.9	96.3	95.5
2012	13.0	8.8	13.2	9.2	98.9	96.0
2013	10.2	6.3	10.7	6.6	95.0	94.9
2014	11.0	5.9	11.3	6.0	97.7	98.7
2015	9.8	5.3	10.3	5.7	94.6	92.6
2016	11.0	5.6	11.1	5.7	98.8	97.3
2017	11.4	5.8	12.2	6.2	93.6	93.5
2018	11.5	4.8	12.3	5.2	93.2	91.6
2019	9.5	4.0	9.8	4.1	96.8	97.2
2020	10.3	4.5	10.9	4.5	95.0	99.3
2021	7.1	3.2	7.6	3.3	93.2	99.1
2022	8.5	4.8	8.8	4.9	96.5	98.5
2023	4.2	2.3	4.6	2.4	90.5	95.6
2024	3.2	3.0	3.7	3.1	86.5	96.8

Since 2000, with the exception of 2006 and 2024, targeted fishing effort has been 17–132% higher in the NZ than the SZ (Figure 3). In the NZ, the average annual targeted fishing effort was $4,361 \pm 216$ potlifts per season. In the SZ, the average annual targeted fishing effort was $2,769 \pm 149$ potlifts per season. In 2023 and 2024, in response to reductions in TACC in both zones, targeted fishing effort reduced (Figure 2). In 2024, a total of 1,801 and 1,694 potlifts were recorded in the NZ and SZ, respectively.

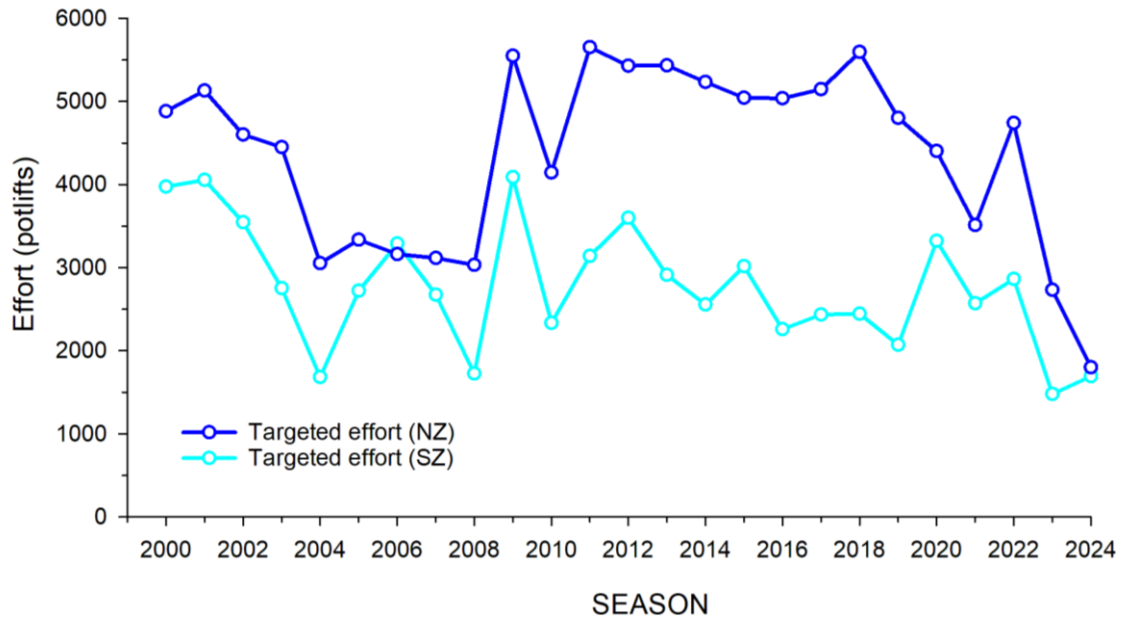


Figure 3. Targeted fishing effort (potlifts) in the NZ and SZ of the GCF between 2000 and 2024.

3.4. Catch per unit effort (CPUE)

Trends in the estimates of annual nominal commercial CPUE and 3-year average standardised CPUE of legal-size Giant Crab in the NZ and SZ between 2000 and 2024 are shown in Figure 4. Annual trends in nominal commercial CPUE and 3-year average standardised CPUE are similar in both zones with declines in 3-year average standardised CPUE evident in the NZ since 2010 and in the SZ since 2005.

In the Northern Zone in 2024, the 3-year average standardised CPUE of legal-size Giant Crab was 1.84 kg/potlift, which is 9% below the Trigger Reference Point (RP_{trig}) of >2.03 kg/potlift defined for this PI in the harvest strategy. The 2024 estimate is (1) the second lowest on record; (2) 9% higher than 2023; and (3) 45% lower than the maximum estimate of 3.34 kg/potlift in 2010 (Figure 4).

In the Southern Zone in 2024, the 3-year average standardised CPUE of legal-size Giant Crab was 1.72 kg/potlift, which is 7% below the Trigger Reference Point (RP_{trig}) of >1.85 kg/potlift defined for this PI in the harvest strategy. The 2024 estimate is (1) the fifth

lowest on record, (2) 9% higher than 2023; and (3) 41% lower than the maximum estimate in 2005 (Figure 4).

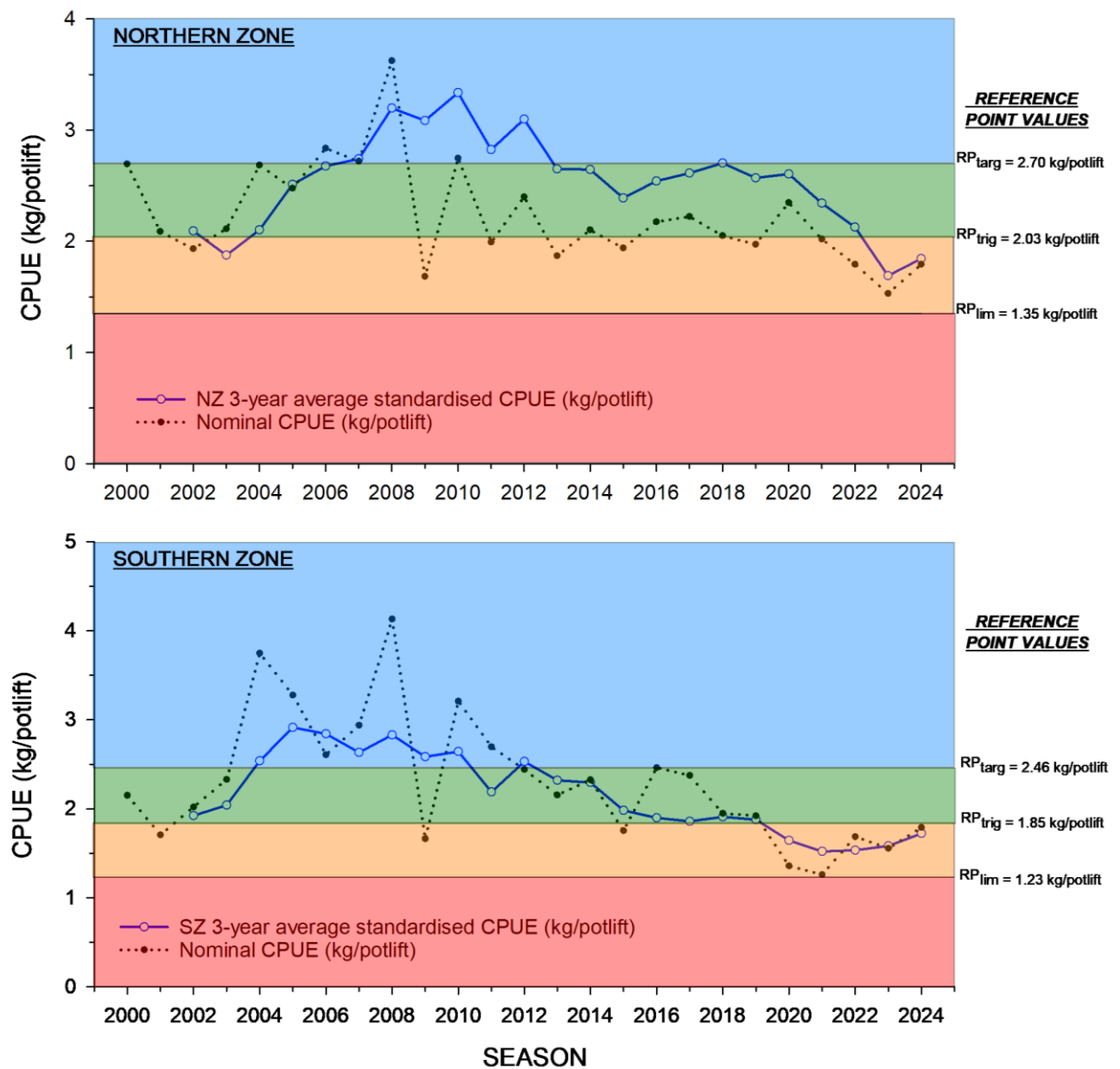


Figure 4. Annual nominal commercial CPUE (dashed black line) and 3-year average standardised CPUE (solid blue line) of legal-size Giant Crab in the NZ (above) and SZ (below) of the GCF between 2000 and 2024.

3.5. Pre-recruit abundance

Trends in annual estimates of pre-recruit (undersize Giant Crab) abundance are similar in both the NZ and SZ (Figure 5). In the NZ, estimates of pre-recruit abundance declined since 2008 reaching the lowest estimate on record in 2022 (0.31 pre-recruits/potlift). In the SZ, estimates of pre-recruit abundance declined since 2004, reaching the lowest estimate on record in 2019 (0.30 pre-recruits/potlift). Pre-recruit abundance estimates were among the lowest on record in both zones between 2019–2022 (Range: 0.30–0.59 pre-recruits/potlift). In 2023, estimates of pre-recruit abundance increased in both zones but then decreased in 2024 to 0.58 pre-recruits/potlift in the NZ and 0.33 pre-recruits/potlift in the SZ (Figure 5).

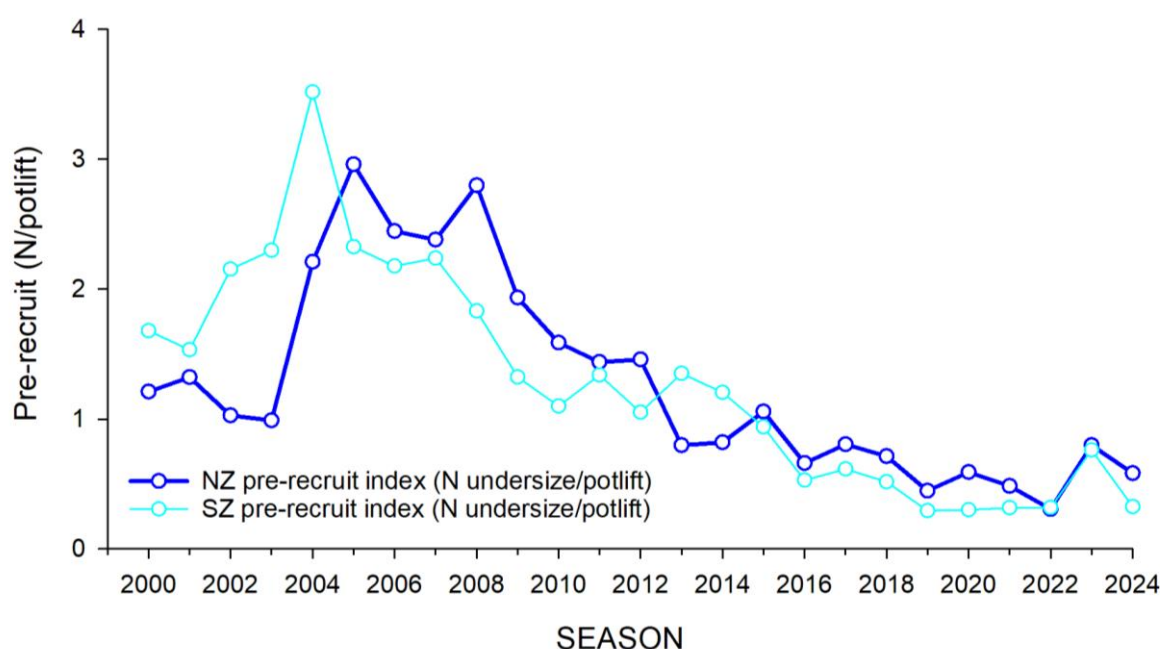


Figure 5. Trends in the CPUE of Giant Crab pre-recruits caught in the NZ and SZ of the GCF between 2000 and 2024.

3.6. Sex ratio

Since 2000, the proportion of females present in the catch averaged 0.5 ± 0.01 in the NZ and 0.6 ± 0.02 in the SZ. The highest number of females in the catch in the NZ was recorded in 2012 (0.68) and in the SZ in 2001 (0.76) (Figure 6).

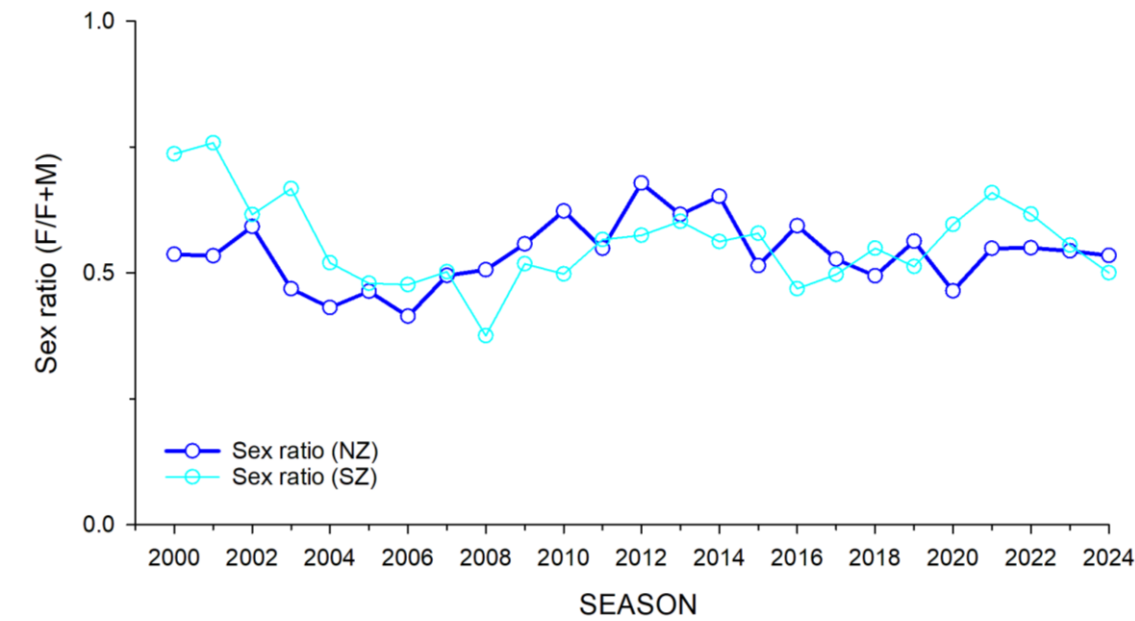


Figure 6. Trends in the sex ratio of Giant Crab caught in the in the NZ and SZ of the GCF between 2000 and 2024. A sex ratio of 0.5 equates to 50% of females in the catch. F = Female; M = Male.

3.7. Mean weight

Since 2000, annual estimates of the mean weight of legal-size Giant Crab ranged between 2.79 and 3.33 kg per crab in the NZ (average: 3.05 ± 0.03 kg) and between 2.69 and 3.42 kg per crab in the SZ (average: 3.00 ± 0.03 kg) (Figure 7). In 2024, the estimate of mean weight of legal-size Giant Crab was 3.04 kg in the NZ and 3.19 kg in the SZ.

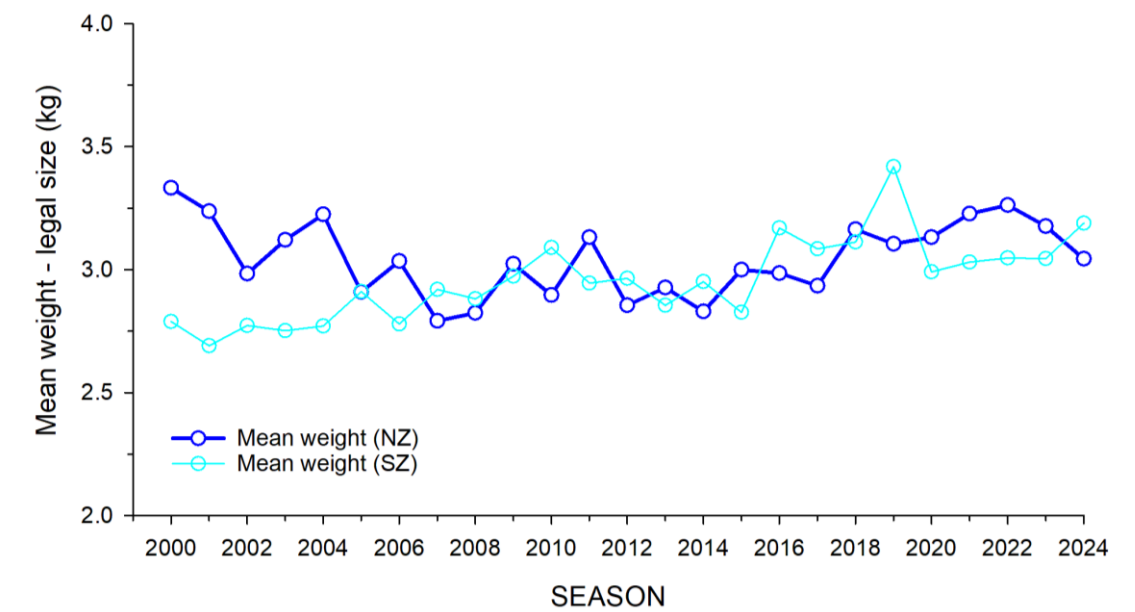


Figure 7. Trends in the mean weight of legal-size Giant Crab caught in the NZ and SZ of the GCF between 2000 and 2024.

4. SUMMARY

4.1. Context of the assessment and stock status

The 2024 assessment of the South Australian Giant Crab stock updates previous stock assessments for this species ([Publications and reports - PIRSA](#)) and is supported by information on the species' biology and stock structure (Levings *et al.* 2001). The assessment uses 3-year average standardised Catch Per Unit Effort (CPUE), which is a proxy for stock abundance, as the primary biological PI. This PI is estimated from data collected from commercial logbooks for the GCF in the SZ and NZ.

Some uncertainty in the assessment remains due to the small scale of the fishery. The assessment relies on fishery-dependent data, which are subject to inherent limitations and potential biases associated with fisher behaviour, gear type, and changes in technology and management over time, and therefore may not reflect true stock abundance. In 2024, statistical procedures were implemented to account for factors influencing CPUE and to derive a standardised index of relative Giant Crab abundance. These procedures are considered best practice, particularly where stock status is informed by a single performance indicator (Campbell *et al.* 2017).

In addition, the primary PI, 3-year average standardised CPUE, is based on data collected since 2000 to inform stock status classification within each management zone. While this approach is necessary due to less reliable data reporting prior to 2000, it excludes the period immediately preceding the introduction of the TACC, when catches were higher. As a result, the current assessment is referenced against a CPUE or stock biomass baseline that may differ from pre-2000 conditions.

The long-lived and slow-growth life-history characteristics of the Giant Crab render the species susceptible to recruitment overfishing and constrain the rate at which their populations respond to management changes. Catch declines have been reported across core areas of the species' distribution in Victoria and Tasmania, despite multiple TACC reductions in these states (Piddock *et al.* 2020). In South Australia, since the introduction of a TACC in 1999, the annual TACC has frequently not been taken, with landings between 2013 and 2023, ranging from 49.2% to 83.3% of the available TACC. This was due to declines in catches from 2012 to the lowest and second lowest catch levels on record in 2021 and 2022, respectively.

Reductions in TACC in both zones since 2023 have reduced fishing mortality relative to historic levels. In 2024, in the NZ, the 3.7 t catch comprised 95% of the TACC (3.9 t), and in the SZ, the 3.1 t catch was 4% above the TACC (3.0 t). Pre-recruit abundance estimates were among the lowest on record in both zones between 2019–2022 (Range: 0.30–0.59 pre-recruits/potlift). Although pre-recruit abundance increased in both the NZ and SZ in 2023, estimates returned to historically low levels in 2024 (NZ: 0.58 pre-recruits/potlift; SZ: 0.33 pre-recruits/potlift).

The key performance indicator (PI) is the 3-year average standardised CPUE of legal-size Giant Crab. This PI is an indicator of the relative abundance of adult Giant Crab. In the NZ, this PI has declined since 2010 and was below the Trigger Reference Point (RP_{trig}) of >2.03 kg/potlift defined in the harvest strategy in the last two annual assessments. In 2024, the 3-year average standardised CPUE of legal-size Giant Crab in the NZ was **1.84 kg/potlift**. This was 9% higher than in 2023, the second lowest estimate on record and 9% below the RP_{trig}. The declines in the relative abundance of adult Giant Crab in the NZ to below RP_{trig} in 2023 and 2024 indicate that Giant Crab spawning biomass is at historically low levels and likely contributing to the low levels of recruitment observed. Consequently, the status of the Giant Crab stock in the NZ in 2024 is classified as **‘depleting’** using the National Fishery Stock Status Reporting Framework (NFSRF) (Flood *et al.*, 2012, 2014; Piddocke *et al.* 2021; Roelofs *et al.* 2024).

In the SZ, the 3-year average standardised CPUE of legal-size Giant Crab has declined since 2005 and was below the RP_{trig} defined in the harvest strategy in the last five annual assessments (SZ RP_{trig}: >1.85 kg/potlift). In 2024, this PI was **1.72 kg/potlift**, which was 9% higher than in 2023, the fifth lowest estimate on record and 7% below the RP_{trig}. The declines in this PI to below RP_{trig} indicate that Giant Crab spawning biomass is also at historically low levels in the SZ and contributing to the low levels of recruitment observed. Consequently, the status of the Giant Crab stock in the SZ is classified as **‘depleting’** using the NFSRF.

4.2. Future research needs

Many of the sources of uncertainty identified in previous assessments as future research needs were addressed in the review of the GCF management policy and harvest strategy in 2024. Collection of fishery independent data in the GCF is made difficult by the relatively high costs associated with observer-based monitoring programs in a fishery that operates long distances from port for fishing periods that can last over a week. Future stock assessments may be enhanced through the implementation of cost-effective methods that yield additional data (e.g. length, sex, survival) that can be used in population models to assess stock size. Vessel-based camera methods to collect this information are being developed under FRDC Project 2019/114 - *Giant Crab Enhanced Data Collection - Innovative approaches to enhance data collection in the Victorian, South Australian and Tasmanian Giant Crab fisheries*. The potential impacts of climate change on oceanographic conditions in waters of the continental slope, where the GCF operates, are also unknown, and warrant further investigation. Data sourced from Australia’s Integrated Marine Observing System ([IMOS](#)) are available to model hydrodynamic and climatic changes in the environment of the South Australian continental slope and any potential effects of these changes on the GCF (IMOS 2024).

5. REFERENCES

- Campbell, R.A., Zhou, S., Hoyle, S.D., Hillary, R., Haddon, M. and Hall, S. (2017). Developing innovative approaches to improve CPUE standardisation for Australia's multispecies pelagic longline fisheries. Final report for project 2014-021 to the Fisheries Research Development Corporation, Canberra, Australia.
- Chick, R.C (2013). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery. Status Report 2011/2012. Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-3. SARDI Research Report Series No. 691. 20p.
- Currie, D.R. and Ward, T.M. (2005). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery. Fisheries Assessment Report to PIRSA. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. RD04/0215-2. 27p.
- Currie, D.R., Mayfield, S., McGarvey, R. and Gardner, C. (2006). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery. Fisheries Assessment Report for PIRSA. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. RD04/0215-3. SARDI Research Report Series 137.
- Currie, D.R. (2008). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery. Status Report for PIRSA Fisheries. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2008/000067-1. SARDI Research Report Series 268.
- Currie, D.R. and Ward, T.M. (2009). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery. Fisheries Assessment Report for PIRSA. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2007/000698-2. SARDI Research Report Series 345.
- Currie, D.R. (2010). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery Status Report 2008/09. Status Report to PIRSA Fisheries. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2007/000698-3. SARDI Research Report Series 427.
- Currie, D.R. (2011a). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery Status Report 2009/10. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-1. SARDI Research Report Series 568.
- Currie, D.R. (2011b). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery Status Report 2010/11. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-2. SARDI Research Report Series 591.
- Flood, M., Stobutzki, I., Andrews, J., Begg, G., Fletcher, W., Gardner, C., Kemp, J., Moore, A., O'Brien, A., Quinn, R., Roach, J., Rowling, K., Sainsbury, K., Saunders, T., Ward, T., and Winning, M. (eds) (2012). Status of key Australian fish stocks reports 2012, Fisheries Research and Development Corporation, Canberra.
- Flood, M., Stobutzki, I., Andrews, J., Ashby, C., Begg, G., Fletcher, R., Gardner, C., McDonald, B., Moore, A., Roelofs, A., Sainsbury, K., Saunters, T., Smith, T., Stewardson, C., Stewart, J., and Wise, B. (2014). Status of key Australian fish stock reports 2014. Fisheries Research and Development Corporation, Canberra.

FRDC (2023). How are the Status of Australian Fish Stock Reports done? <https://www.fish.gov.au/about/how-are-the-status-of-australian-fish-stock-reports-done>. Accessed 15/02/2023.

IMOS (2024). Integrated Marine Observing System. Accessed 14 March 2025.

Kailola, P.J., Williams, M.J., Stewart, P.C., Reichelt, R.E., McNee, A. and Grieve, C. (1993). Australian Fisheries Resources. Bureau of Resource Science and Fisheries Research and Development Corporation, Canberra. p. 422.

Kimura, D.K. (1981). Standardized measures of relative abundance based on modelling log (c.p.u.e), and their application to Pacific ocean perch (*Sebastes alutus*). *ICES Journal of Marine Science*, 39(3): 211-218.

Levings, A., Mitchell, B. D., Heeren, T., Austin, C. and Matheson, J. (1995). Fisheries Biology of the Giant Crab (*Pseudocarcinus gigas*, Brachyura, Oziidae) in Southern Australia. In: High Latitude Crabs: Biology Management and Economics. University of Alaska Sea Grant College Program Report No.96-02, Alaska. pp. 126-151.

Levings, A., Mitchell, B.D., McGarvey, R., Mathews, J., Laurenson, L., Austin, C., Heeron, T., Murphy, N., Miller, A., Rowsell, M. and Jones, P. (2001). Fisheries Biology of the Giant Crab *Pseudocarcinus gigas*. Final report to the Fisheries Research and Development Corporation, Australia, for projects 93/220 & 97/132. Deakin University.

McLeay, L. (2015). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery Status Report 2013/14. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-5. SARDI Research Report Series No. 834. 17pp.

McLeay, L. (2016). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery Status Report 2014/15. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-6. SARDI Research Report Series No. 895. 16pp.

McLeay, L. (2018). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2016/17. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-7. SARDI Research Report Series No. 976. 19pp.

McLeay, L. (2019). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2017/18. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-8. SARDI Research Report Series No. 1009. 19pp.

McLeay, L. (2020). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2018/19. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-9. SARDI Research Report Series No. 1050. 19pp.

McLeay, L. (2021). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2019/20. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences),

Adelaide. SARDI Publication No. F2011/000332-10. SARDI Research Report Series No. 1090. 20pp.

McLeay, L. (2022). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2020/21. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-11. SARDI Research Report Series No. 1123. 20pp.

McLeay, L. (2023). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2021/22. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-12. SARDI Research Report Series No. 1173. 19pp.

McLeay, L. (2024). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2022-23. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2011/000332-13. SARDI Research Report Series No. 1212. 17pp.

McLeay, L. (2025). Stock Status Report for the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery in 2023/24. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2011/000332-14. SARDI Research Report Series No. 1257. 19pp.

Piddocke, T. Ashby, C., Hartmann, K., Hesp, A. Hone, P., Klemke, J., Mayfield, S., Roelofs, A., Saunders, T., Stewart, J., Wise, B. and Woodhams, J. (eds) (2021). Status of Australian fish stocks reports 2020, Fisheries Research and Development Corporation, Canberra. www.fish.gov.au/about/what-are-the-status-of-australian-fish-stock-reports.

PIRSA (2009). Ecological Assessment of the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery. Re-assessment report prepared for Commonwealth Department of the Environment, Water Heritage and the Arts, for the purposes of part 13 and 13 (A) of the *Environment Protection and Biodiversity Conservation Act* 1999.

PIRSA (2015a). South Australian Fisheries Harvest Strategy Policy. Primary Industries and Regions South Australia. Adelaide, Australia.

PIRSA (2015b). Guidelines for implementing the South Australian fisheries harvest strategy policy. Primary Industries and Regions South Australia. Adelaide, Australia.

PIRSA (2018). Management Policy for the South Australian Commercial Giant Crab Fishery. Primary Industries and Regions South Australia. Adelaide, Australia.

PIRSA (2024). [Policy for the management of the South Australian Commercial Giant Crab Fishery. Primary Industries and Regions South Australia. Adelaide, Australia.](#)

Roelofs, A., Piddocke, T., Ashby, C., Conron, S., Hartmann, K., Hesp, A. Hone, P., Jacobsen, I., Jesson-Kerr, M., Mayfield, S., Stewart, J., Usher, M., Woodhams, J., and Wright, D., (eds) (2024), Status of Australian Fish Stocks Reports 2024, Fisheries Research and Development Corporation, Canberra. [What are the Status of Australian Fish Stock Reports](#)

Sloan, S. (2002). A report prepared for Environment Australia on the Management of the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery. For the purposes of section 303FN (Approved Wildlife Trade Operation) of the *Environment Protection and Biodiversity Conservation Act 1999*.

Sloan, S. (2003). Ecological Assessment of the South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery. Assessment Report prepared for the Commonwealth Department of the Environment and Heritage, against the 'Guidelines for the ecologically sustainable management of fisheries'. For the purposes of Part 13 and 13(A) of the *Environment Protection and Biodiversity Conservation Act 1999*.

Sloan, S.R., Smith, A.D.M, Gardner, C., Crosthwaite, K., Triantafillos, L., Jeffries, B. and Kimber, N. (2014). National Guidelines to Develop Fishery Harvest Strategies. FRDC Report – Project 2010/061. Primary Industries and Regions, South Australia, Adelaide.

Stobart, B. (2014). South Australian Giant Crab (*Pseudocarcinus gigas*) Fishery Status Report 2012/13. Fishery Status Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000332-4. SARDI Research Report Series No. 763. 15p.