

Algal bloom impact on key fish stocks in South Australia's gulfs

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Source: SARDI Aquatic and Livestock Sciences

Overview

Since March 2025, a large algal bloom caused by *Karenia* species has affected the waters of Gulf St Vincent, Spencer Gulf, Kangaroo Island and nearby areas. The bloom has resulted in widespread marine life deaths, impacting fish, shellfish and other sea life.

As part of the extensive SARDI Algal Bloom Response, fisheries and fish stocks are being assessed to understand the impact of the algal bloom on commercial fish species. This Fact Sheet outlines how the algal bloom is affecting key quota-managed species — King George Whiting, Southern Calamari, Southern Garfish, Western King Prawn, Blue Swimmer Crab, Southern Rock Lobster and Abalone — in Gulf St Vincent/Kangaroo Island (GSV/KI) and Spencer Gulf (SG), where the bloom has been most widespread (Figure 1). It also provides a summary report on 17 non-quota species in both gulfs.

Methods

This assessment uses both commercial fishing and independent survey data. Specifically, the assessment combines:

1. Analysis of commercial fishing data.
2. Scientific (fishery-independent) surveys.
3. Targeted fishing surveys with commercial operators.
4. Bycatch and species sampling.
5. Routine fishery stock assessment surveys for prawns, crabs, lobsters and abalone.

For all species, the assessment relies heavily on spatial and temporal analyses of commercial logbook data across all fishing sectors. To quantify fishery impacts, monthly catch and catch rate (expressed as catch per unit effort; CPUE) during the algal bloom period (March 2025 onwards), were compared against the 3-year monthly average (baseline) from February 2022 – February 2025 for each species. This allows quantification of a “before” and “after” algal bloom impact.

The GSV/KI zone was closed to commercial fishing on 01 November 2025. Consequently, all catch data from this zone from October onwards are based on targeted fishery-dependent surveys. Indices are categorised as having changed by <50% of 3-year monthly average; 50–80% of 3-year monthly average, or >80% of 3-year monthly average. Where available, logbook data were supported by fishery-independent surveys, targeted fishing, bycatch sampling and stock assessment surveys.

Results

King George Whiting

Data sources: [Commercial logbook, fishery-dependent research and post-settlement surveys.](#)

Monthly catches and catch rates from GSV/KI during the algal bloom period from March–August 2025 remained broadly within recent ranges. The total catch in September and October 2025 declined sharply, as did catch rates from targeted fishing from November 2025 to February 2026 (Figure 2). Both are now >80% below baseline at both zonal (Table 1; Table 2) and regional spatial scales (Table 3; Table 4). SG catch and catch rate have remained consistent with historical averages (Figure 2; Table 1; Table 2).

Post settlement surveys of King George Whiting were undertaken across GSV and SG in 2025. Across the 18 locations sampled, post-settled King George Whiting densities were at their lowest levels on record, with declines of 37–97% since the most recent survey in 2017. The greatest reductions occurred in Lower Eyre Peninsula, Northern GSV and Southern GSV, while Southern SG was the only region to show an increase.

Southern Calamari

Data sources: [Commercial logbook, fishery-dependent research and fishery-independent dive surveys.](#)

Commercial logbook and targeted fishing data from GSV/KI show marked declines, with catch and CPUE from July 2025 to February 2026 negligible relative to the 3-year average (Figure 3). Both are now >80% below baseline at both zonal (Table 1; Table 2) and regional spatial scales (Table 3; Table 4). In SG, catch and CPUE remained broadly consistent with previous years until August 2025 (Figure 3). From October 2025 to February 2026, catch declined to >80% below baseline, while CPUE decreased consecutively from 56% to 72% below baseline from December 2025 to February 2026 (Table 1; Table 2). Declines are widespread across both northern and southern SG regions (Table 5; Table 6).

Five fishery-independent diver surveys of Southern Calamari egg masses have been completed to date: four in GSV and one in SG. In GSV, no eggs were observed at either location during October to December 2025 surveys, compared with the ~7,000–10,500 eggs recorded each month in 2005–06. In SG, first-time surveys across four exploratory sites recorded four small egg masses (154 strands) in clear water with normal fauna, suggesting low Southern Calamari abundance rather than localised effects of the algal bloom.

Southern Garfish

Data sources: [Commercial logbook, fishery-dependent research and fishery-independent surveys.](#)

For Southern Garfish, logbook data from GSV/KI indicate strong negative impacts of the algal bloom. From May 2025 to February 2026, catches and CPUE were consistently below the previous 3-year average (Figure 4). Both are now >80% below baseline at the zonal level (Table 1, Table 2). At finer spatial scales,

the most pronounced declines have been observed in northern and southern GSV (Table 3; Table 4), consistent with fisher reports of a near-total absence of Southern Garfish throughout most of this zone. For SG, however, catches and CPUE were largely consistent with historical baseline data (Figure 4; Table 1; Table 2).

Fishery independent abundance surveys of Southern Garfish abundance were conducted in November 2025 at Glenelg and North Haven and in February 2026 at Middle Beach and Edithburgh. Compared to similar surveys undertaken in 2016 and 2018, total catch declined by 61% at Glenelg, 88% at North Haven, 84% at Middle Beach and 25% at Edithburgh. Most of the observed Southern Garfish were small and few other species were observed. These surveys were the first in the series to be performed monthly during the new moon, and data must be considered with caution.

Western King Prawn

[Data sources: Commercial logbook and fishery-independent surveys](#)

Monthly logbook catch and catch rate data for Western King Prawn in SG indicated no negative impact from the algal bloom on Western King Prawn biomass (noting that fishing is not undertaken in SG from July to September; Figure 5). However, in GSV, both catch and CPUE were >80% below baseline from October to December 2025, except for CPUE in November.

In GSV, five algal bloom fishery-independent surveys were carried out from August to December 2025. CPUE showed a consistent decline of 72% during this period. Importantly, no elasmobranchs or Southern Calamari were observed as bycatch during the GSV surveys.

Three fishery-independent surveys were carried out in SG in August/September, October/November 2025 and February 2026. There was no evidence to suggest a negative impact from the algal bloom on Western King Prawn in SG, with CPUE 38% above the previous 10-year annual mean. Analyses of bycatch in these surveys indicated that bycatch of Southern Calamari was at the lowest level since 2020, with a 46% decrease since the previous October/November fishery-independent survey in 2024.

Blue Swimmer Crab

[Data sources: Commercial logbook and fishery-independent surveys](#)

Monthly logbook catch and catch rate data for GSV show clear negative impacts of the algal bloom on Blue Swimmer Crab. Catches and CPUE have declined rapidly since March 2025. From August to October 2025, both were >80% below baseline. In contrast, there was no evidence of negative impacts of the algal bloom on Blue Swimmer Crabs in SG.

Three fishery-independent surveys for the algal bloom response were undertaken in GSV from 31 August to 03 September 2025 (Trip 1), 25 September to 01 October 2025 (Trip 2) and 27 January–05 February 2026 (Trip 3), sampling consistent sites along Yorke Peninsula and the Metropolitan and Northern

coastlines. Across the three trips, total catch from 1,243 pots was 2,847 kg (8,936 legal-size crabs), though catches varied widely by time and location. Trip 1 catch rates were very low (0.1–0.2 kg or 0.5–0.6 crabs/pot), while Trip 2 had higher catch rates (0.7–0.9 kg or 2.7–3.3 crabs/pot). However, in Trip 3 (27 January–05 February 2026), catch rates were 6.4 kg/pot, well above the long-term January average (3.1 kg/pot). Research-pot undersize catch rates during Trips 2 and 3 (0.2–1.2 kg/pot) were also within the expected March–April survey range (0.1–3.5 kg pot).

Southern Rock Lobster

[Data sources: Commercial logbook and fishery-independent surveys](#)

Based on monthly logbook catch and catch rates in both the Northern and Southern Zones, there was no evidence of a negative impact from the algal bloom on Southern Rock Lobster (Figure 6). The latest fishery-independent survey was undertaken in the Southern Zone in August/September 2025. In 2025, the catch rate of legal and undersized Southern Rock Lobsters were 81% and 194% higher than 2024 estimates, respectively.

Abalone

[Data sources: fishery-independent surveys](#)

Fishery-independent dive surveys were undertaken to the West (Corny Point, Hardwicke Bay, Port Victoria and Tiparra Reef) and East (Stansbury and Edithburgh) of Yorke Peninsula between August and November 2025.

The surveys at Corny Point and Tiparra Reef had the highest number of legal sized Greenlip Abalone since surveys began in 2015 and 1990, respectively. For Hardwicke Bay, counts of both legal- and sub-legal-sized Greenlip Abalone were higher in 2025 than the most recent survey in 2023, and similar to counts from surveys in 2019 and 2021. At Port Victoria, counts of Greenlip Abalone were similar to those recorded in the previous 2023 survey. From the 11 transects completed at Tiparra Reef, counts were the highest on record. Consequently, there was no evidence of algal bloom impacts on Greenlip Abalone in SG.

In contrast, at all sites surveyed by divers at Stansbury and Edithburgh, there was evidence that the algal bloom has impacted abalone in GSV. At Stansbury, divers observed unwell, dying or dead abalone of all three species (*Haliotis laevis*, *H. scalaris*, *H. cyclobates*). Samples of these three species (n = 10) were collected and tested for Abalone Viral Ganglioneuritis (AVG), with all tests returning a negative result. Some live abalone were observed at this location, and abundance varied among sites (Mean 1.075 Greenlip Abalone/min). There are no previous surveys for temporal comparison but estimates from all four dive sites suggested 70% to 90% of Greenlip Abalone were unwell or dead, and almost all other abalone species were dead. At Edithburgh, there was also evidence of impact from the algal bloom, but these

appeared to be less severe than those observed at Stansbury. Overall, however, there was strong evidence of algal bloom impacts on Greenlip Abalone in GSV.

Non-quota species

Data sources: [Commercial logbook](#).

A total of 17 species or species groups from the Marine Scalefish Fishery were assessed. The low monthly catches for many species limited the ability to detect potential impacts of the algal bloom; consequently, the assessment presented was based on qualitative interpretation rather than quantitative analysis.

Among the 17 species assessed in 2026, eleven (Yellowfin Whiting, Western Australian Salmon, Australian Herring, Whaler Sharks, Snook, Yellow-eye Mullet, Bluethroat Wrasse, Leatherjackets, Cuttlefish, Gummy Shark, School Shark) were considered to have experienced negative impacts from the algal bloom in Gulf St Vincent/Kangaroo Island, three (Silver Trevally, Rays and Skates, Black Bream) showed no apparent impact, and data were insufficient for three (Sand Crab, Mulloway, Ocean Leatherjacket) species. In Spencer Gulf, ten (Western Australian Salmon, Australian Herring, Whaler Sharks, Sand Crab, Yellow-eye Mullet, Bluethroat Wrasse, Silver Trevally, Leatherjackets, Gummy Shark, School Shark) species were similarly assessed as negatively affected, five (Yellowfin Whiting, Snook, Ocean Leatherjacket, Rays and Skates, Cuttlefish) showed no impact, and two (Mulloway, Black Bream) lacked sufficient data.

Main findings

Gulf St Vincent/Kangaroo Island

- **King George Whiting:** Evidence of recent declines with widespread indication of post-settlement failure.
- **Southern Calamari and Southern Garfish:** Severely affected with additional evidence of egg mass/juvenile declines.
- **Western King Prawn:** Strong evidence from scientific surveys of low catches and very little bycatch.
- **Blue Swimmer Crab:** Catches have been impacted but estimates from recent targeted surveys indicate that abundances have improved.
- **Abalone:** High mortality observed in parts of the gulf.

Spencer Gulf

- **King George Whiting and Southern Garfish:** Generally stable
- **Southern Calamari:** Evidence of catch declines across broad spatial scales.
- **Western King Prawn and Blue Swimmer Crab:** Catches remain within normal ranges.
- **Southern Rock Lobster:** Found mostly outside the affected areas – no sign of impact.

What this means

- The algal bloom has had the **strongest negative effects in Gulf St Vincent**, where several key fish species have declined sharply.
- **Spencer Gulf fisheries appear to be less affected**, except for Southern Calamari.
- Results will continue to be updated as more fishing and survey data become available.

Next steps

- SARDI continues to collect and analyse data to track impacts and provide further advice to PIRSA and industry.
- Updates will be shared as new information becomes available.

Figures

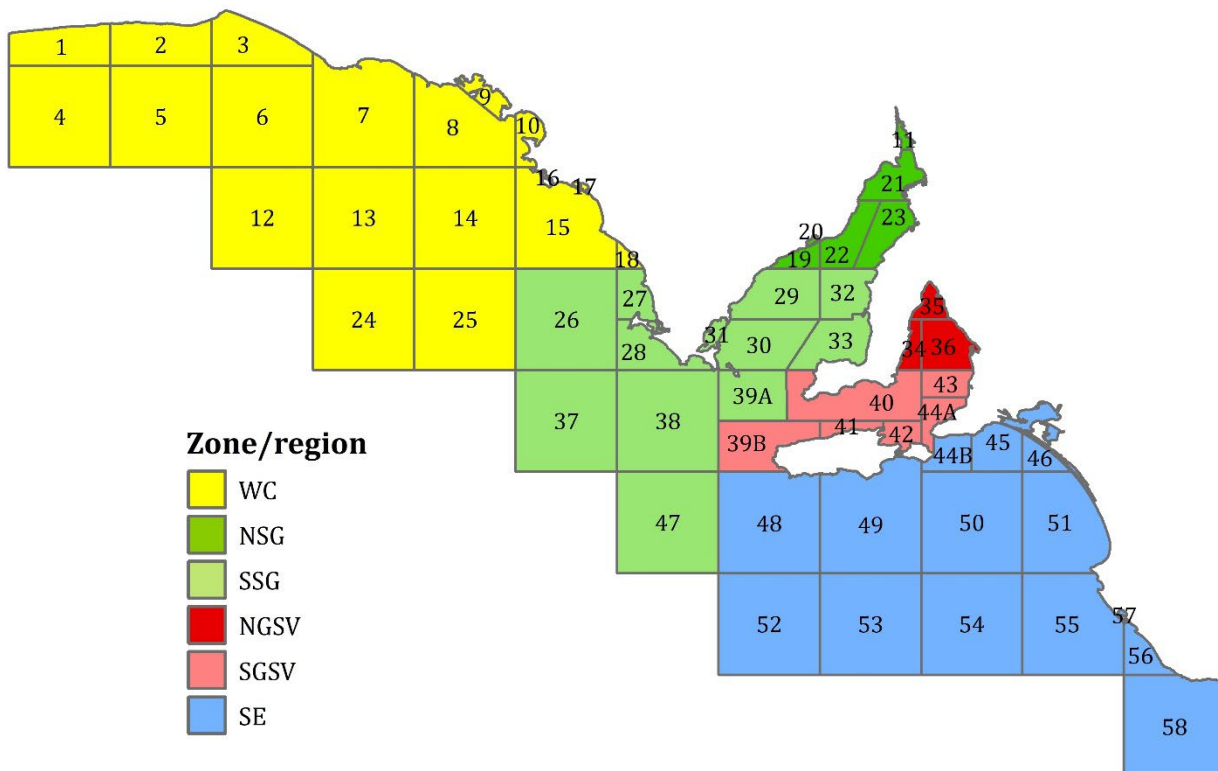


Figure 1. Management zones and marine fishing areas (blocks) in the Marine Scalefish Fishery. Abbreviations for management zones: WC, West Coast; NSG, Northern Spencer Gulf; SSG, Southern Spencer Gulf; NGSV, Northern Gulf St Vincent; SGSV, Southern Gulf St Vincent; SE, South East.

King George Whiting

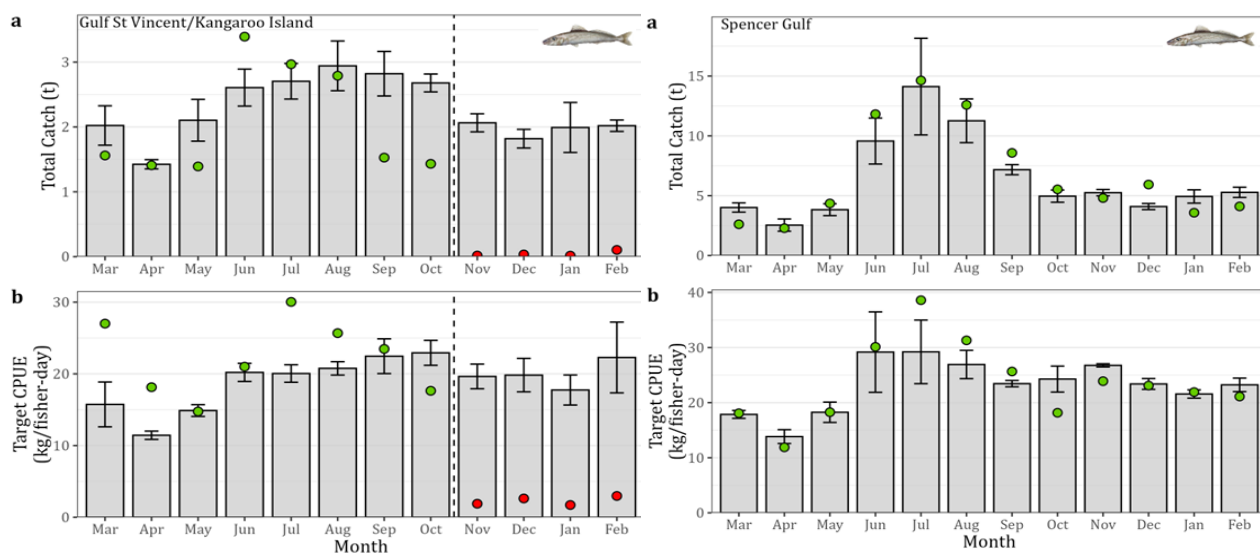


Figure 2. Commercial Fishery statistics for King George Whiting in the Gulf St Vincent/Kangaroo Island and Spencer Gulf fishing zones. A) Total catch (t) and B) Targeted CPUE (kg/fisher-day) during the algal bloom period (March 2025 onwards; dot) compared to the 3-year monthly average (February 2022 – February 2025; grey bars). Error bars indicate standard error. Green dot indicates change in catch/CPUE <50% of 3-year monthly average; orange dot indicates change in catch/CPUE of 50-80% of 3-year monthly average, red dot indicates change in catch/CPUE >80% of 3-year monthly average. Dashed line indicates closure of commercial fishery in Gulf St Vincent/Kangaroo Island fishing zone from 01 November 2025. Data from November 2025 onwards (GSV/KI) from targeted fishing program only.

Southern Calamari

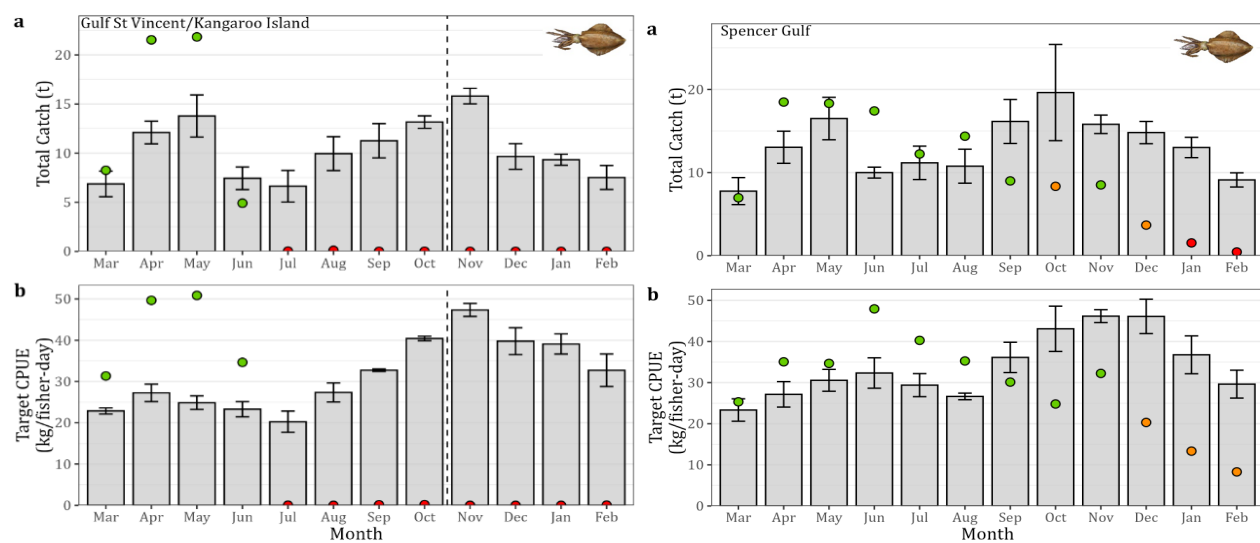


Figure 3. Commercial Fishery statistics for Southern Calamari in the Gulf St Vincent/Kangaroo Island and Spencer Gulf fishing zones. A) Total catch (t) and B) Targeted CPUE (kg/fisher-day) during the algal bloom period (March 2025 onwards; dot) compared to the 3-year monthly average (February 2022 – February 2025; grey bars). Error bars indicate standard error. Green dot indicates change in catch/CPUE <50% of 3-year monthly average; orange dot indicates change in catch/CPUE of 50-80% of 3-year monthly average, red dot indicates change in catch/CPUE >80% of 3-year monthly average. Dashed line indicates closure of commercial fishery in Gulf St Vincent/Kangaroo Island fishing zone from 01 November 2025. Data from November 2025 onwards (GSV/KI) from targeted fishing program only.

Southern Garfish

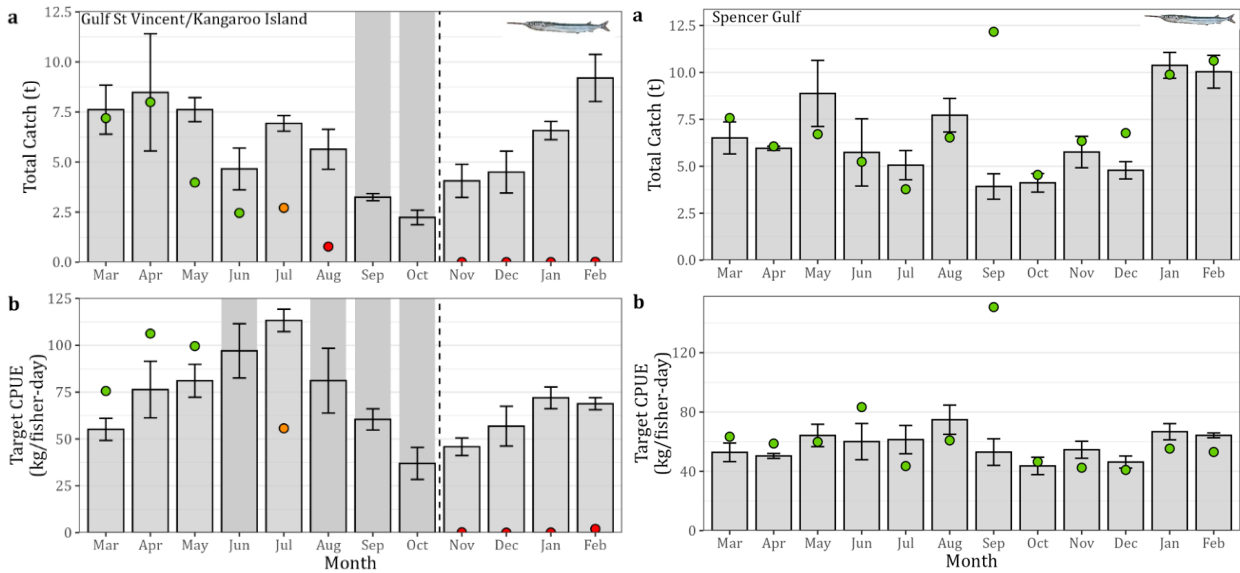


Figure 4. Commercial Fishery statistics for Southern Garfish in the Gulf St Vincent/Kangaroo Island and Spencer Gulf fishing zones. A) Total catch (t) and B) Targeted CPUE (kg/fisher-day) during the algal bloom period (March 2025 onwards; dot) compared to the 3-year monthly average (February 2022 – February 2025; grey bars). Error bars indicate standard error. Green dot indicates change in catch/CPUE <50% of 3-year monthly average; orange dot indicates change in catch/CPUE of 50–80% of 3-year monthly average, red dot indicates change in catch/CPUE >80% of 3-year monthly average. Dashed line indicates closure of commercial fishery in Gulf St Vincent/Kangaroo Island fishing zone from 01 November 2025. Data from November 2025 onwards (GSV/KI) from targeted fishing program only. Grey bars indicate months where data were removed due to confidentiality (< 5 licences).

Western King Prawn

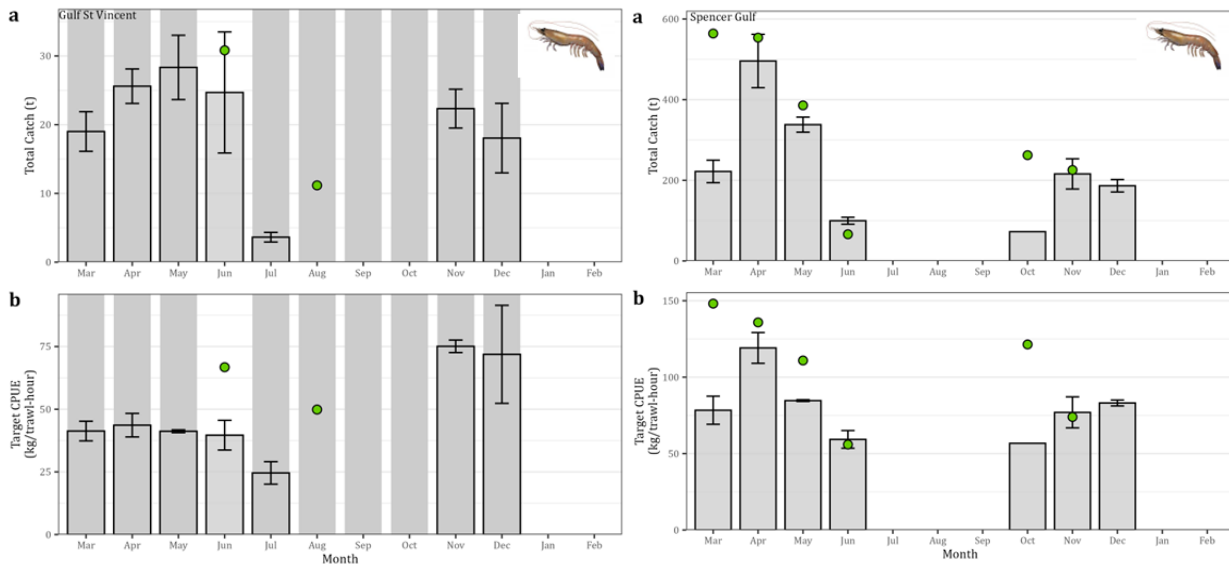


Figure 5. Commercial Fishery statistics for Western King Prawn in the Gulf St Vincent/Kangaroo Island and Spencer Gulf fishing zones. A) Total catch (t) and B) Targeted CPUE (kg/rawl-hour) during the algal bloom period (March 2025 onwards; dot) compared to the 3-year monthly average (February 2022 – February 2025; grey bars). Error bars indicate standard error. Green dot indicates change in catch/CPUE <50% of 3-year monthly average; orange dot indicates change in catch/CPUE of 50–80% of 3-year monthly average, red dot indicates change in catch/CPUE >80% of 3-year monthly average. Grey bars indicate months where data were removed due to confidentiality (< 5 licences).

Southern Rock Lobster

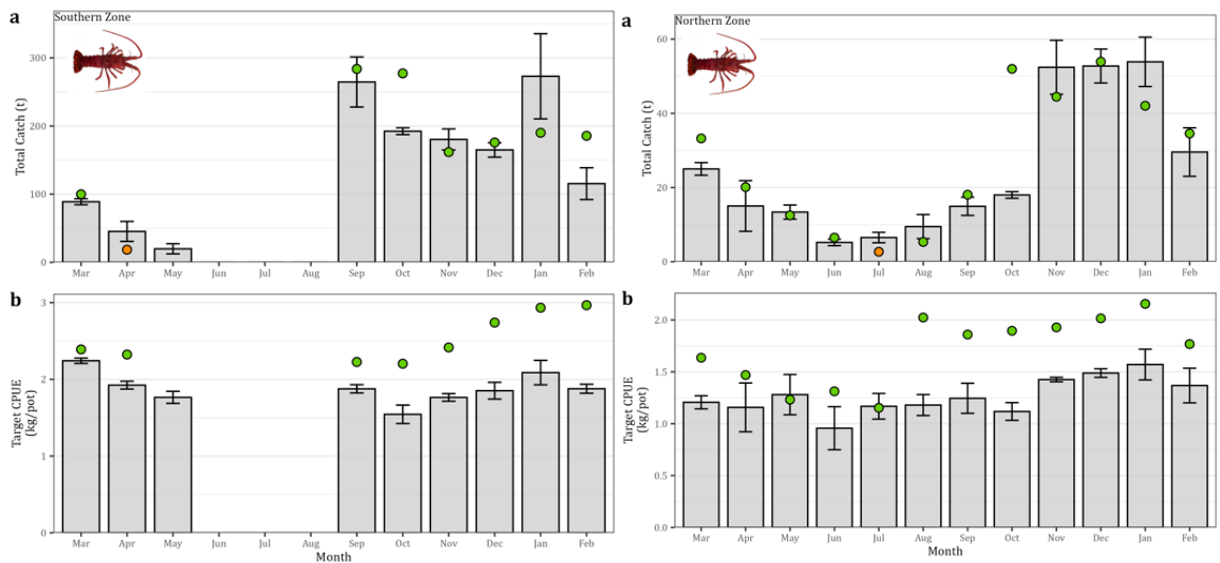


Figure 6. Commercial Fishery statistics for Southern Rock Lobster in the Southern and Northern fishing zones. A) Total catch (t) and B) Targeted CPUE (kg/haul) during the algal bloom period (March 2025 onwards; dot) compared to the 3-year monthly average (February 2022 – February 2025; grey bars). Error bars indicate standard error. Green dot indicates change in catch/CPUE <50% of 3-year monthly average; orange dot indicates change in catch/CPUE of 50–80% of 3-year monthly average, red dot indicates change in catch/CPUE >80% of 3-year monthly average.

