

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 Summary Report 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 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 (March 2022 – February 2025) for each species. This allows quantification of a “before” and “after” algal bloom impact. Where available, logbook data were supported by fishery-independent surveys, targeted fishing, bycatch sampling and stock assessment surveys.

Current data should be considered preliminary. Any uncertainty will reduce as additional data become available. In addition, commercial logbook data are provisional, particularly for the most recent months.

Results

King George Whiting

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

At the scale of the two gulfs, commercial logbook data show no clear evidence of decline in catch or CPUE compared to the three-year historic average (March 2022–February 2025). Monthly catches and catch rates from GSV/KI during the algal bloom period (March–August 2025) remained broadly within recent ranges (Figure 2), and SG exhibited similar stability.

While stock levels appear stable across the broader spatial scales in both Gulfs, early targeted fishing surveys suggest significant localised declines in GSV/KI and southern SG at finer scales. The targeted fishing study began on 29 September 2025, and results are still preliminary. The overall understanding of stock status will continue to improve as further data become available.

Southern Calamari

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

In GSV/KI, commercial logbook records demonstrate clear and pronounced declines with catches and CPUE in July and August 2025 compared to the three-year average (Figure 3). By contrast, in SG, catch and CPUE remained broadly consistent with previous years, although the total catch in September 2025 declined sharply.

At a finer spatial scale, catches, supported by industry observations, indicate a near-total absence of Southern Calamari in southern GSV and around KI, and some reductions throughout southern SG.

Southern Garfish

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

For Southern Garfish, logbook data from GSV/KI indicate strong negative impacts of the algal bloom. From May–August 2025, catches and CPUE were consistently below the previous three-year average (Figure 4). For SG, however, catches and CPUE appear stable.

At finer spatial scales, the most pronounced declines have been observed in northern and southern GSV, consistent with fisher reports of a near-total absence of Southern Garfish throughout most of this zone.

Western King Prawn

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

Based on monthly logbook catch and catch rates in both GSV and SG, there is no evidence to suggest a negative impact from the algal bloom on Western King Prawn at the broader gulf scale (noting that

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fishing is not undertaken in SG from July to September; Figure 5). In GSV, fishers reported that catches were limited to deeper, more southern regions of the gulf. Fishers also reported that catches from more shallow grounds were much lower than expected.

Fishery-independent surveys for the algal bloom response were carried out in GSV over four nights (30–31 August and 20–21 September 2025), with a total of 45 trawl shots completed. In total, 290 kg of prawns were recorded, which would be considered low from an overall catch perspective. Importantly, no elasmobranchs or Southern Calamari were observed as bycatch during the GSV surveys.

Fishery-independent surveys for the algal bloom response were carried out in SG over three nights (30 August to 1 September 2025), with a total of 32 trawl shots completed. In total, 811 kg of prawns were recorded, along with bycatch/byproduct that included elasmobranchs and Southern Calamari.

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. In July and August 2025, both were negligible compared to the three-year average. In contrast, there was no evidence of negative impacts of the algal bloom on Blue Swimmer Crabs in SG.

Two fishery-independent surveys for the algal bloom response were undertaken in GSV from 31 August to 3 September 2025 and from 25 September to 1 October 2025, sampling consistent sites along Yorke Peninsula and the Metropolitan and Northern coastlines. Across both trips, total catch from 860 pots was 414 kg (1,554 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). Despite this improvement, catch rates remained well below the mean catch rate during September over the past 10 years of 3.4 kg/pot. Catches of undersized Blue Swimmer Crabs were minimal, with 129 individuals recorded. Overall, catches were higher at Yorke Peninsula than along the Metropolitan and Northern coastlines of GSV, with catch rates in all regions remaining well below historical values.

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 in August and September 2025.

The surveys at Corny Point had the highest number of legal sized Greenlip Abalone since surveys began in 2015. 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 laevigata*, *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 (Table A4; 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 2025, eleven (Yellowfin Whiting, Western Australian Salmon, Australian Herring, Whaler Sharks, Snook, Yellow-eye Mullet, Bluethroat Wrasse, Cuttlefish, Black Bream Gummy Shark, School Shark) were considered to have experienced negative impacts from the algal bloom in Gulf St Vincent/Kangaroo Island, three (Silver Trevally, Leatherjackets, Rays and Skates) 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, Silver Trevally, Leatherjackets, Ocean Leatherjacket, Gummy

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Shark, School Shark) species were similarly assessed as negatively affected, five (Yellowfin Whiting, Snook, Bluethroat Wrasse, 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:** Broadly stable catches overall, but sharp local declines reported in many areas.
- **Southern Calamari and Southern Garfish:** Severely affected – fishers report near total absence in many places.
- **Western King Prawn:** Commercial catches remain steady overall, but prawns now found mostly in deeper southern waters. Scientific surveys recorded low catches and very little bycatch.
- **Blue Swimmer Crab:** Catches are very low, well below historical levels.
- **Abalone:** High mortality observed in parts of the gulf.

Spencer Gulf

- **King George Whiting, Southern Calamari, Southern Garfish:** Some localised declines in the south, but generally stable across the gulf.
- **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**, though continued monitoring is needed.
- Early results will 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

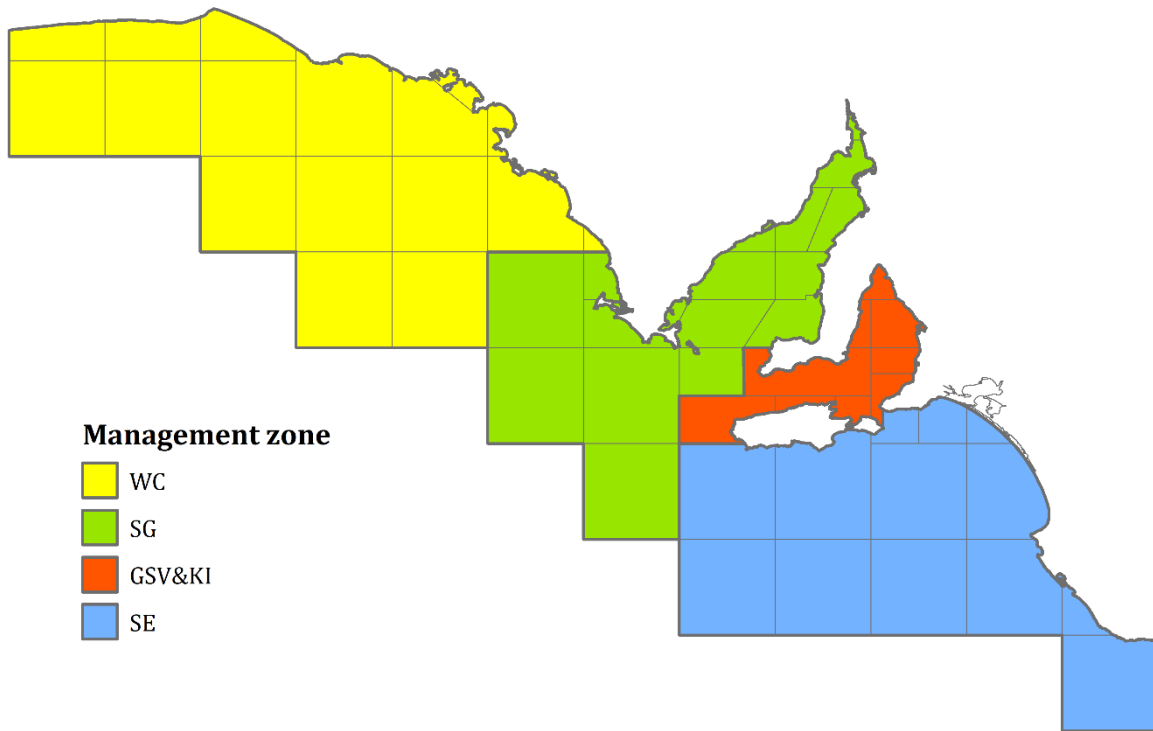


Figure 1. Management zones and marine fishing areas (blocks) in the Marine Scalefish Fishery. Abbreviations for management zones: WC, West Coast; SG, Spencer Gulf; GSV&KI, Gulf St Vincent/Kangaroo Island; SE, South East.

King George Whiting

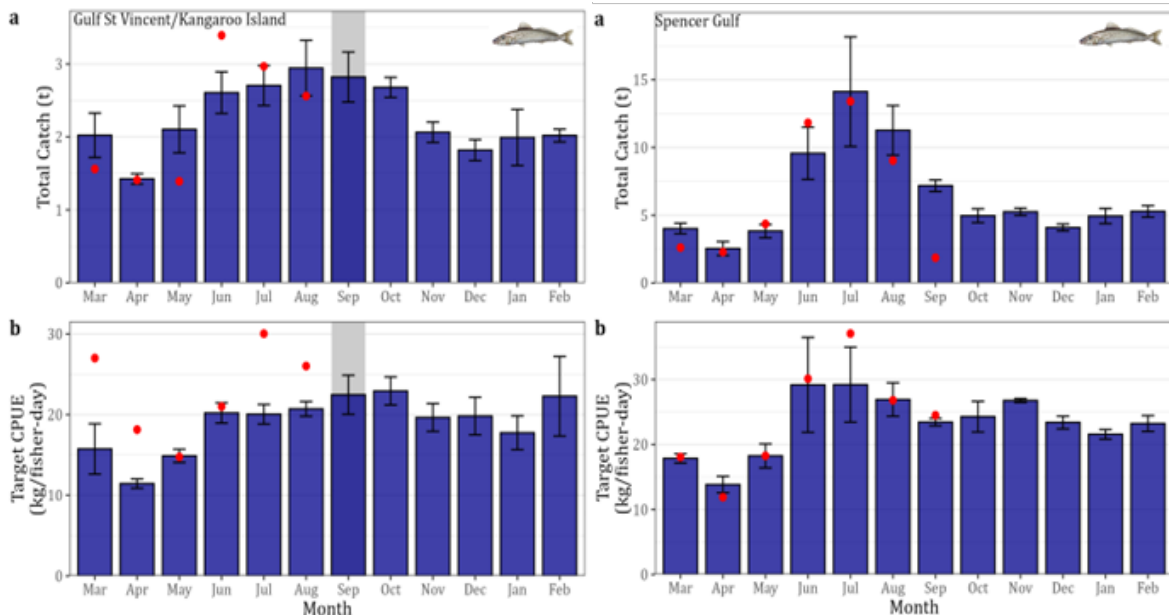


Figure 2. Commercial Fishery statistics for King George Whiting in Gulf St Vincent/Kangaroo Island and Spencer Gulf fishing zones. A) Total catch (t) and B) targeted CPUE (kg/fisher-day) during the algal bloom period (March 2025 onwards; red dot) compared to the 3-year monthly average (March 2022 – February 2025; blue bars). Error bars indicate standard error. Grey bars indicate months where data were removed due to confidentiality (less than 5 licences).

Southern Calamari

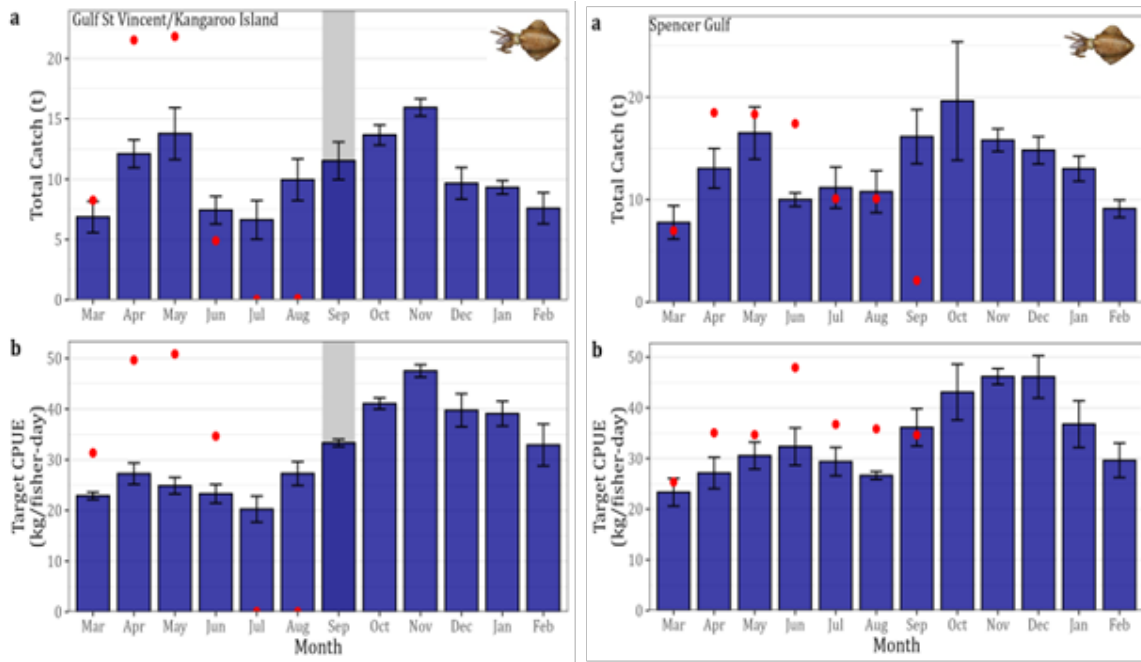


Figure 3. Commercial Fishery statistics for Southern Calamari in the Gulf St Vincent/Kangaroo Island and Spencer Gulf fishing zones. A) Total catch (t) and B) targeted CPUE (kg/fisher-day) during the algal bloom period (March 2025 onwards; red dot) compared to the 3-year monthly average (March 2022 – February 2025; blue bars). Error bars indicate standard error. Grey bars indicate months where data were removed due to confidentiality (less than 5 licences).

Southern Garfish

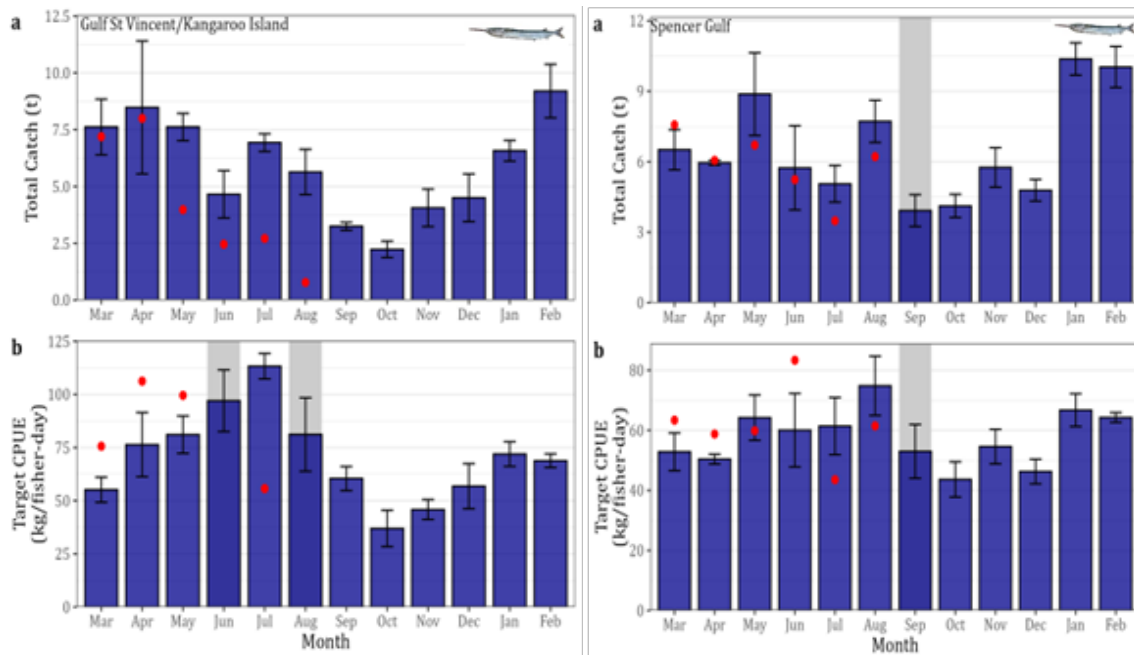


Figure 4. Commercial Fishery statistics for Southern Garfish in Gulf St Vincent/Kangaroo Island and Spencer Gulf fishing zones. A) Total catch (t) and B) targeted CPUE (kg/fisher-day) during the algal bloom period (March 2025 onwards; red dot) compared to the 3-year monthly average (March 2022 – February 2025; blue bars). Error bars indicate standard error. Grey bars indicate months where data were removed due to confidentiality (<less than 5 licences).

Western King Prawn

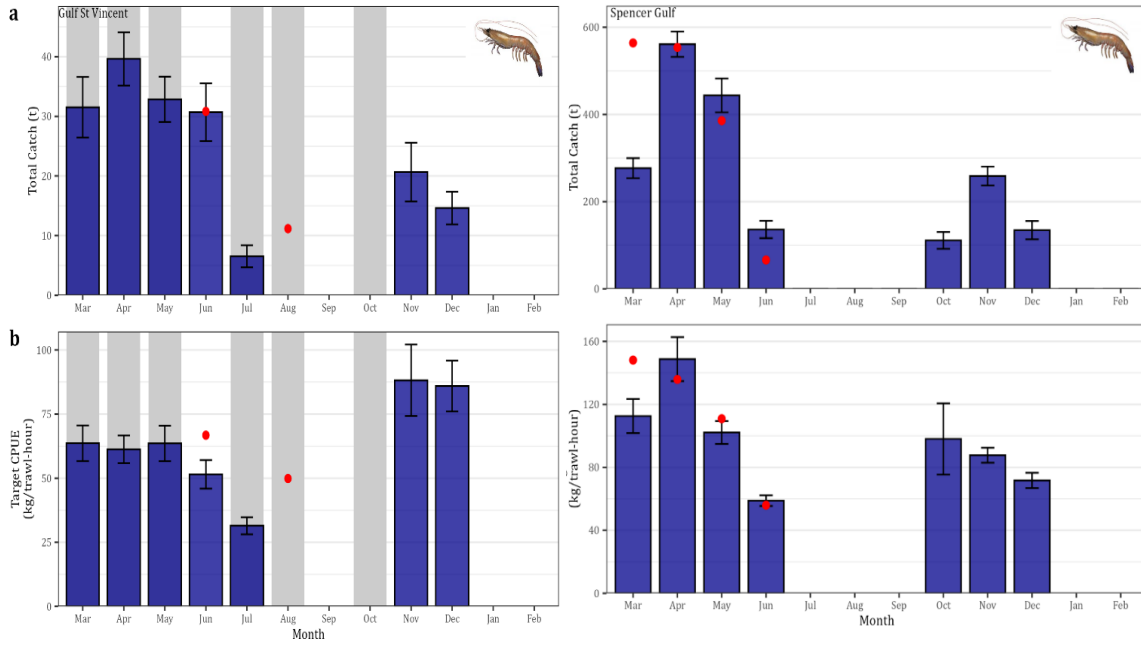


Figure 5. Commercial Fishery statistics for Western King Prawn in the Gulf St Vincent and Spencer Gulf fishing zones. A) Total catch (t) and B) Targeted CPUE (kg/haul-hour) during the algal bloom period (March 2025 onwards; red dot) compared to the 10-year monthly average (March 2015 – February 2025; blue bars). Error bars indicate standard error. Grey bars indicate months where data were removed due to confidentiality (<5 licences).

Southern Rock Lobster

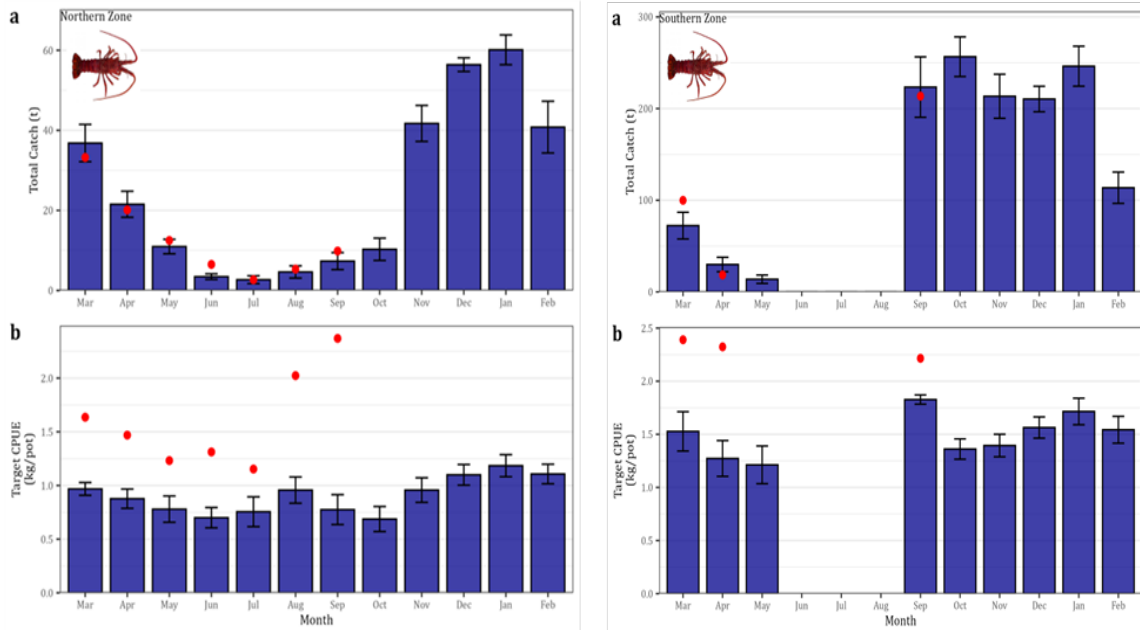


Figure 6. Commercial Fishery statistics for Southern Rock Lobster in the Northern and Southern fishing zone. A) Total catch (t) and B) Targeted CPUE (kg/potlift) during the algal bloom period (March 2025 onwards; red dot) compared to the 10-year monthly average (March 2015 – February 2025; blue bars). Error bars indicate standard error.