

**ADVICE TO:** PIRSA FISHERIES AND AQUACULTURE

**FROM:** SARDI AQUATIC AND LIVESTOCK SCIENCES

**SUBJECT:** GULF ST VINCENT PRAWN FISHERY: 2026 FISHERY-INDEPENDENT SURVEY RESULTS

**DATE:** 13 MAY 2026

## KEY ISSUES

- The harvest strategy within the Management Plan for the South Australian Commercial Gulf St Vincent Prawn Fishery (GSVVPF) uses two performance indicators (PIs) to assess stock status:
  - standardised annual commercial Catch Per Unit Effort (CPUE); and
  - standardised Fishery Independent Survey (FIS) CPUE.
- Impacts of South Australia's harmful algal bloom (HAB) on the Western King Prawn stock in Gulf St Vincent were detected in November and December 2025, leading to closure of the Gulf St Vincent Prawn Fishery until 30 June 2026.
- Calculation of the 2025/26 standardised annual commercial CPUE PI is impeded by a lack of data due to the GSVVPF closure.
- To assess ongoing effects of the HAB on the Western King Prawn stock in GSV, PIRSA Fisheries and Aquaculture have requested an Advice Note that reports on the March 2026 FIS results including:
  - trends in CPUE, including standardised FIS CPUE (kg/trawl-shot), using the method described in Section 9.4.3 of the Management Plan.
  - spatial and temporal patterns in prawn size relative to historical size-class distributions.
- In March 2026, nominal FIS CPUE was  $26.8 \pm 4.9$  kg/trawl-shot, which was 8% lower than March 2025 ( $29.0 \pm 3.5$  kg/trawl-shot) and similar to the 2005–2025 average ( $26.6 \pm 2.4$  kg/trawl-shot).
- The standardised FIS CPUE in 2026 was  $26.4$  [16.8–39.3, 95% CI] kg/trawl-shot. This estimate was 5% lower than 2025 ( $27.7$  kg/trawl-shot) and 19% above the Target Reference Point ( $22.2$  kg/trawl-shot).
- 'Small' and 'extra-small' prawns ('new recruits', 20+ grade prawns/lb) comprised 72% of the survey catch in March 2026. This was reflected in estimated mean prawn size, which was  $61.1 \pm 3.5$  (SE) prawns/kg, the smallest prawn size on record and a 56% reduction since March 2025.
- Overall, patterns in prawn abundance and size from the March 2026 FIS show large aggregations of new recruits from northern GSV nursery areas and the absence of larger, 'fishable' size classes. This indicates a potential recovery phase for the Western King Prawn stock in GSV following HAB impacts in 2025. Under favourable conditions of growth and survival, March 2026 recruits may reach fishable size in 1–2+ years.
- Further FISs in 2027 are recommended to monitor stock recovery.

## BACKGROUND

The Gulf Saint Vincent Prawn Fishery (GSVVPF) targets Western King Prawn (*Penaeus (Melicertus) latisulcatus*) in waters of Gulf St Vincent, South Australia. The performance of the fishery has varied since fishing commenced in 1967, with catches ranging annually between 6 and 630 tonnes (t) since 1968, and two periods of season-closure occurring between 1991/92 and 1992/1993, and 2012/13 and 2013/14. The fishery re-opened in 2014/15, and in 2024/25 the total commercial harvest was 203 t (PIRSA Advice Note, 30 September 2025).

Impacts of South Australia's Harmful Algal Bloom (HAB) on the Western King Prawn stock in GSV were detected in November and December 2025 (PIRSA Advice Note, 22 December 2025). The GSVVPF was subsequently closed to fishing until 30 June 2026.

Catch Per Unit Effort (CPUE) is used as an indicator of relative prawn abundance. Calculation of the standardised annual commercial CPUE PI in 2025/26 is impeded by a lack of commercial fishing data due to closure of the GSVVPF.

To assess ongoing effects of the HAB on the Western King Prawn stock in GSV, PIRSA Fisheries and Aquaculture, have requested an Advice Note that reports on the March 2026 FIS results including:

- 1) trends in CPUE, including standardised FIS CPUE (kg/trawl-shot), using the method described in section 9.4.3 of the Management Plan for the fishery (PIRSA 2022).
- 2) spatial and temporal patterns in prawn size relative to historical size-class distributions.

## METHODS

To facilitate ongoing stock assessment of the GSVVPF, Fishery Independent Surveys (FIS) were planned in March and April 2026 to assess spatial and temporal patterns in prawn abundance and size. The March survey was completed. Commercial fishing vessels were unavailable to undertake the April survey.

Section 9.4.3 of the GSVVPF Management Plan (PIRSA 2022) provides guidelines for estimating standardised FIS CPUE PI when either the March or April/May FIS have not been completed. Where only one FIS is completed, the FIS CPUE performance indicator will be calculated based on the relationship between historical March and April/May FIS CPUE.

A FIS was undertaken on the nights of 17–18 March 2026. Using the commercial prawn fishing vessels, *Zadar*, *Miss Jenny*, *Anna Pearl* and *Josephine-K*, a total of 84 trawl 'shots' of 30 minutes duration were completed using a double-rigged demersal otter trawl at pre-defined survey sites among 10 regions of the GSVVPF (Appendix, Figure A-1). For the FIS, one side of the trawl was rigged as per current commercial fishing operations with a bycatch reduction grid and T-90 mesh cod-end. The second side of the trawl was rigged as per trawl configurations used historically in FIS and comprised a 51 mm diamond mesh cod-end and no grid (Appendix, Figure A-2).

One observer from SARDI Aquatic and Livestock Sciences was on each vessel to record all data from each trawl shot and cod-end type including: shot location, total catch, total catch of each prawn-size grade, trawl duration, tide direction, and the number of prawns in a 7 kg bucket (bucket count). Following the survey, all data were entered and validated according to established protocols.

Annual estimates of standardised FIS CPUE (kg/trawl-shot) were calculated from the average of predicted monthly CPUE estimates for March and April/May FISs using data collected from diamond mesh cod-ends. A Generalised Linear Model (GLM) was used to standardise FIS CPUE data for the effects of year-survey (month), region, vessel, depth and sea surface temperature (PIRSA 2022). For years when either March or April/May surveys were not undertaken, FIS CPUE was calculated based on the relationship between historical March and April/May FIS CPUE as per the GSVVPF Management Plan guidelines (PIRSA 2022). Estimates of standardised FIS CPUE will differ from those previously reported as new data from the latest season (e.g. 2026) are added to the GLM.

Mean prawn size (N prawns/kg) was estimated from the 7 kg subsample collected from diamond-mesh codends, with higher estimates representing smaller mean prawn size and lower estimates representing larger mean prawn size. Historical trends in prawn size measured in March FIS since 2005 were then assessed.

Commercial prawn fishing operations sort catches according to grade-size criteria (GSVFP Code of Practice 2022; Appendix, Table A1). Grade-size data collected during the March FIS provided insight into the relative abundance of different prawn size classes across the survey area. The catch rate (CPUE) of 'medium' to 'extra-large' prawn grades (<20 prawns/lb; <34–44 prawns/kg) was compared to that of 'small' to 'extra-small' prawns (new recruits) (20+ prawns/lb; >45–66 prawns/kg) since 2005. New recruits are those prawns recently entering the fishing grounds from coastal nursery habitats following the summer spawning period.

In 2022, the GSVFP updated its fishing strategy guidelines with respect to prawn size and catch rate criteria. Noting that these guidelines are an industry initiative to maximise yield per recruit and profit, and are not regulated by PIRSA, areas classified as 'fishable' within the guidelines are characterised by:

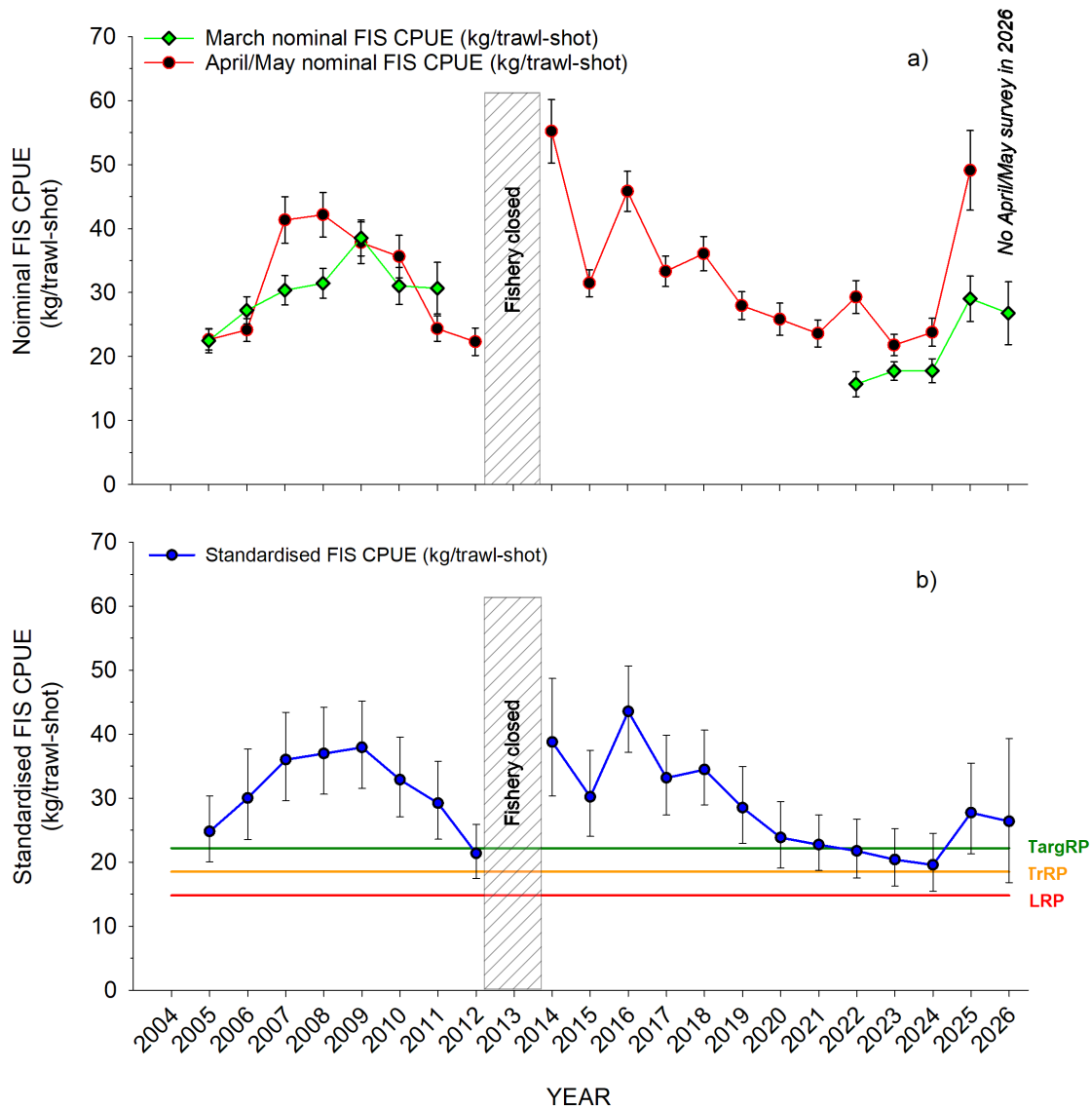
- a size of  $\leq 224$  prawns/ 7 kg bucket (equating to  $\leq 32$  prawns/kg).
- a catch rate that is:
  - $\geq 0.5$  kg/min/net (equating to nominal FIS CPUE of  $\geq 30$  kg/trawl-shot and a commercial fishing 'trigger' limit of 480 kg/8 hours fishing).
  - $\geq 0.75$  kg/min/net (equating to nominal FIS CPUE of  $\geq 45$  kg/trawl-shot and a commercial fishing 'target' level of 720 kg/8 hours fishing).

The GPS locations of each survey site were used to map prawn abundance (CPUE) and size across GSV in 2026 relative to historical data and in relation to the above criteria. All reported means are presented with standard error (SE), except standardised FIS CPUE, which is presented with 95% confidence intervals (CI).

## RESULTS/DISCUSSION

In March 2026, nominal FIS CPUE was  $26.8 \pm 4.9$  kg/trawl-shot (Figure 1a). This estimate was 8% lower than the March 2025 nominal FIS CPUE estimate of  $29.0 \pm 3.5$  kg/trawl-shot and <1% above the average estimate of nominal March FIS CPUE recorded between 2005 and 2025 ( $26.6 \pm 2.4$  kg/trawl-shot).

The 2026 estimate of standardised FIS CPUE was  $26.4$  [16.8–39.3, 95% CI] kg/trawl-shot (Figure 1b). This estimate was 5% lower than the standardised FIS CPUE estimate of  $27.7$  [21.3–35.5, 95% CI] kg/trawl-shot in 2025.

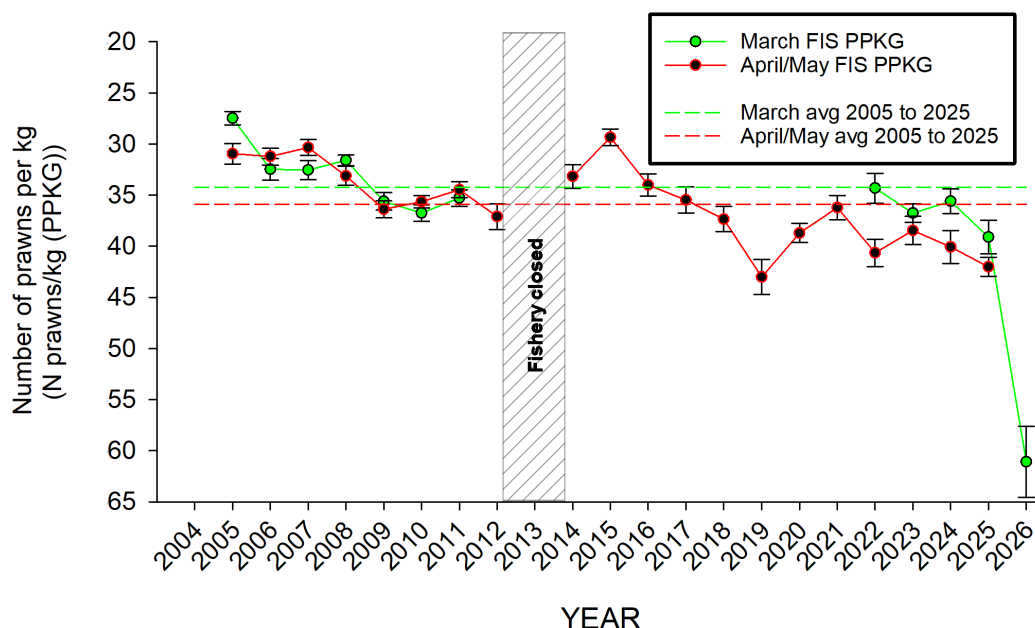


**Figure 1.** a) Nominal March and April May FIS CPUE (kg/trawl-shot) between 2005 and 2026. b) Standardised FIS CPUE (kg/trawl-shot) between 2005 and 2026. Note, the fishery was closed in the 2012/13 and 2013/14 fishing seasons, and a reduced survey (n=45 shots) was undertaken in 2014. No March surveys were undertaken from 2012–2021 and no April/May survey was undertaken in 2026. Data for these surveys are predicted from the relationship between March and April/May surveys in other years. Error bars = standard error for nominal FIS CPUE and upper and lower 95% confidence intervals for Standardised FIS CPUE.

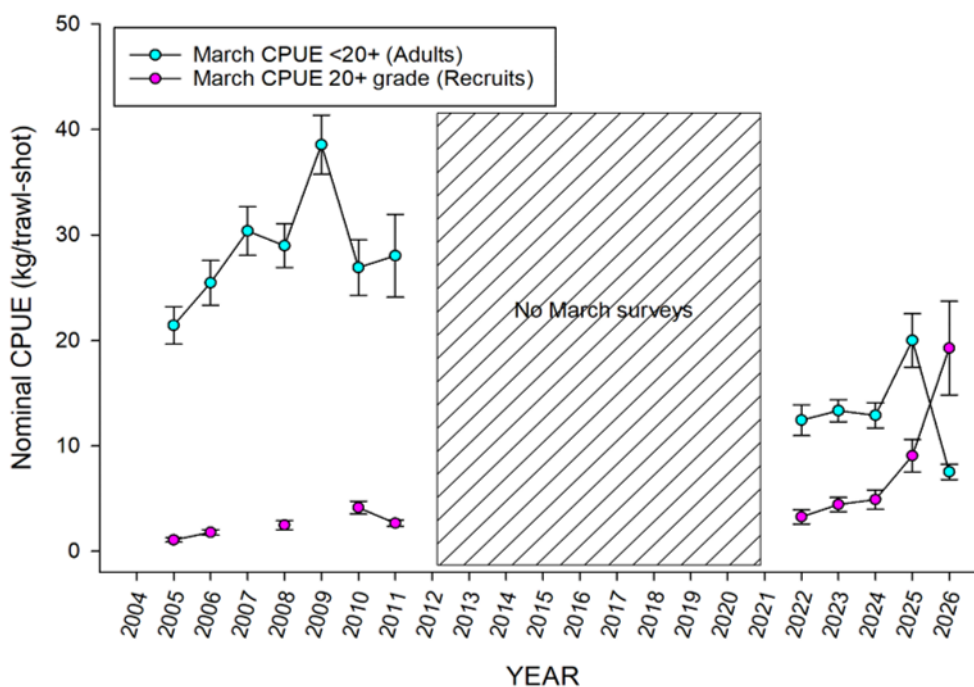
Mean prawn size (N prawns/kg (PPKG)) has a negative relationship with the number of prawns per kg (i.e. smaller mean prawn size = more prawns per kg). In March FISs from 2005 to 2011, mean prawn size decreased from  $27.5 \pm 0.6$  to  $35.3 \pm 0.8$  prawns/kg before the fishery was closed in the 2012/13 fishing season (Figure 2). Mean prawn size in recent March FISs between 2022 and 2025 ranged from  $34.3 \pm 1.5$  to  $39.1 \pm 1.6$  prawns/kg. In the March 2026 FIS, mean prawn size was  $61.1 \pm 3.5$  prawns/kg, the smallest mean prawn size on record for either March or May FISs, and a 56% reduction in mean prawn size since March 2025 (Figure 2).

‘Small’ and ‘extra-small’ (‘new recruits’, 20+ prawns/lb) prawns comprised 72% of the total nominal March FIS CPUE (Figure 3). Nominal CPUE of ‘small’ and ‘extra-small’ (‘new recruits’, 20+ prawns/lb) prawns was  $19.3 \pm 4.5$  kg/trawl-shot (Figure 3). This was the highest estimate on record, over double that in March 2025 ( $9.1 \pm 1.5$  kg/trawl-shot) and 4.1 times greater than the March average since 2005 ( $3.8 \pm 0.8$  kg/trawl-shot). In contrast, the nominal estimate of CPUE of ‘large’ and ‘extra-large’ prawns (‘adults’ <20+ prawns/lb) in the March 2026 FIS was

the lowest on record ( $7.5 \pm 0.7$  kg/trawl-shot), indicating relatively low abundance of adult prawns.



**Figure 2.** Prawn size estimated as the mean number of N prawns per kilogram (N prawns/kg) calculated from diamond-mesh codends during March (green) and April/May surveys (red) between 2005 and 2026. Note, no March surveys were undertaken from 2012–2021 and no April/May survey was undertaken in 2026.



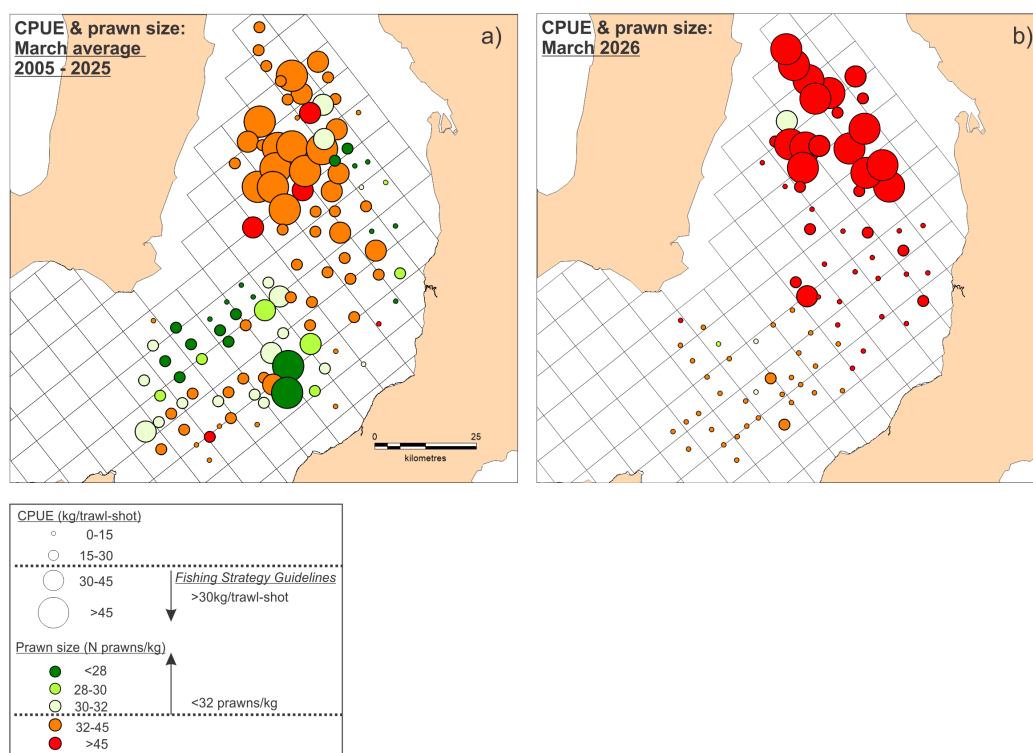
**Figure 3.** Nominal CPUE (kg/trawl-shot) of <20+grade prawns (adults) and 20+grade prawns (recruits) in March FIS between 2005 and 2026. Note, no March surveys were undertaken from 2012–2021.

Mean estimates of prawn size and relative abundance (CPUE) recorded across survey sites in March between 2005 and 2025 were compared with those in March 2026 (Figure 4a and Figure 4b). Spatial patterns from 2005–2025 are generally indicative of smaller prawns ( $\geq 32$ -45 prawns/kg) entering northern GSV from northern coastal nursery areas, and relatively larger prawns in southern parts of GSV (Figure 4a).

In March 2026, aggregations of smaller prawns were also evident in northern GSV. However, in contrast to the patterns observed between 2005 and 2025, survey sites in this region were comprised of prawns  $\geq 45$  prawns/kg, which is indicative of recent recruitment as well as a low abundance of larger prawn size classes. One of 84 sites surveyed during the March 2026 FIS was characterised by prawn aggregations within fishable criteria (i.e.  $\leq 32$  prawns/kg and CPUE  $\geq 30$  kg/trawl-shot)(Figure 4b).

Overall, the patterns in prawn abundance (CPUE) and size observed in the March 2026 FIS are indicative of 1) the presence of large aggregations of newly recruited prawns from northern GSV nursery areas; and 2) the absence of larger prawns of fishable criteria. This indicates a potential recovery phase for the Western King Prawn stock in GSV following HAB impacts observed in November/December 2025 (PIRSA Advice Note, 22 December 2025). Under optimal conditions of growth and survival, the recruitment recorded in the March 2026 FIS may translate to larger 'fishable' size classes in approximately 1–2+ years.

Further FISs in 2027 are recommended to monitor the status of the GSV Western King Prawn stock.



**Figure 4.** Spatial patterns in mean prawn size (N prawns/kg) and CPUE (kg/trawl-shot): a) March FIS average 2005–2025; b) March FIS 2026.

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## **Disclaimer**

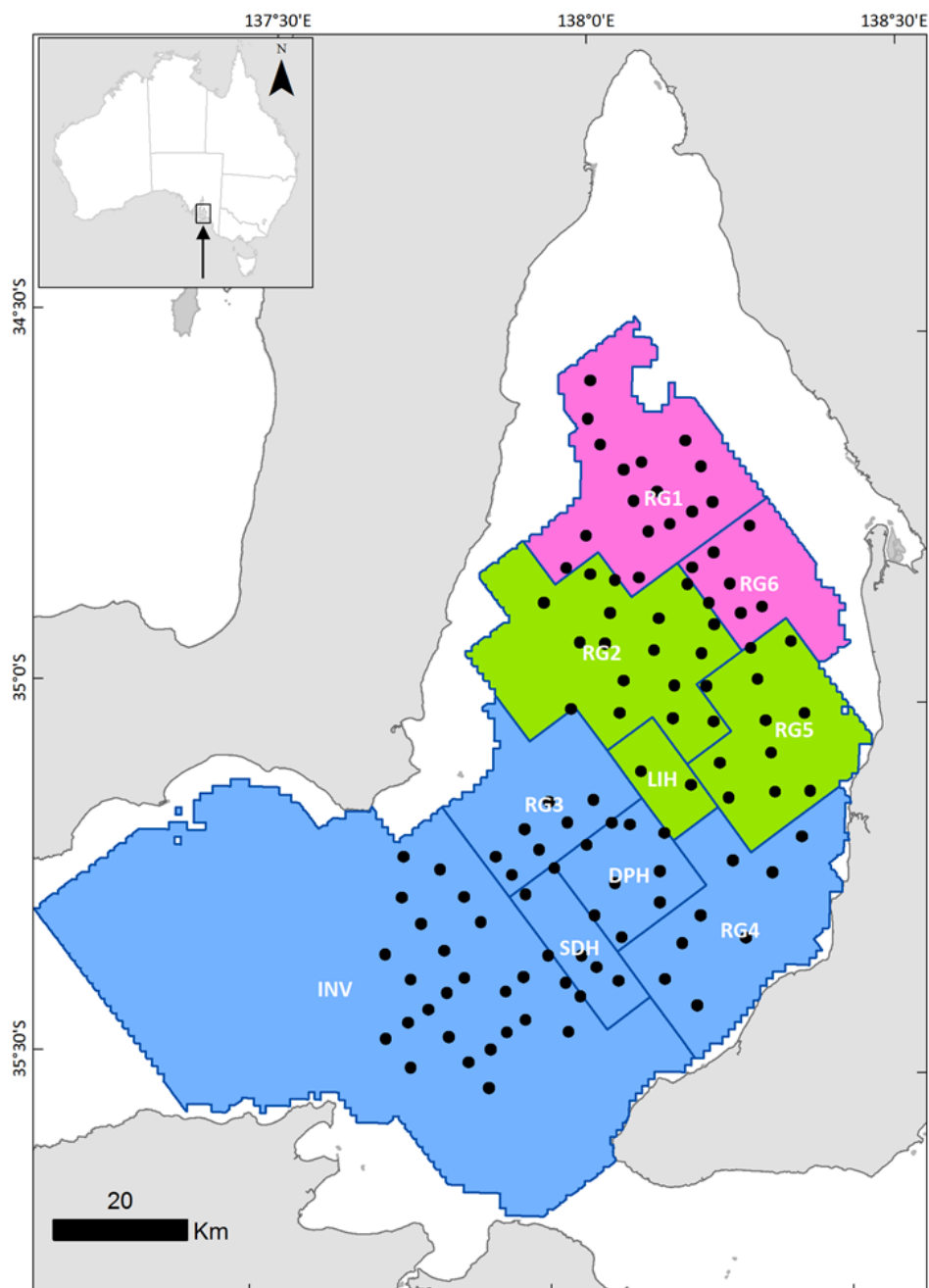
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## **REFERENCES**

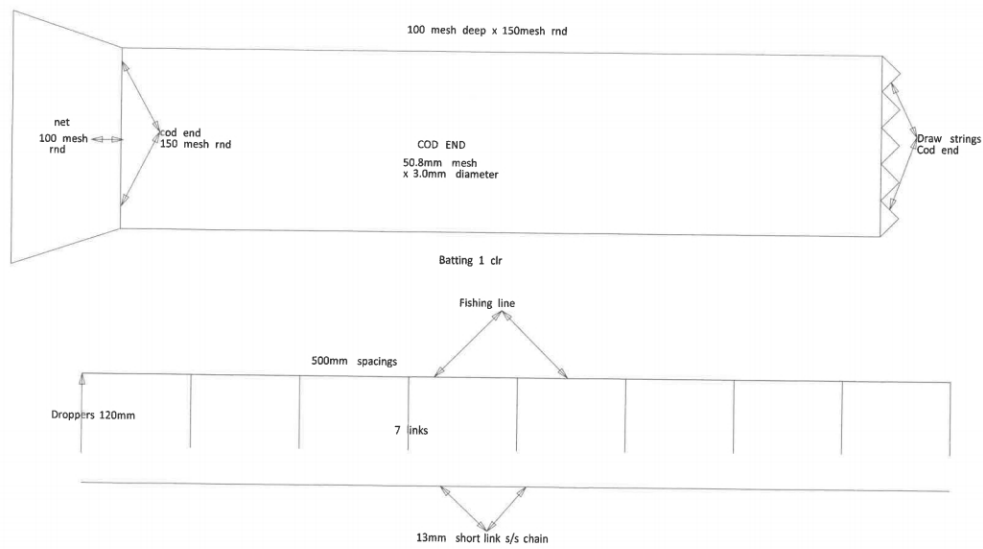
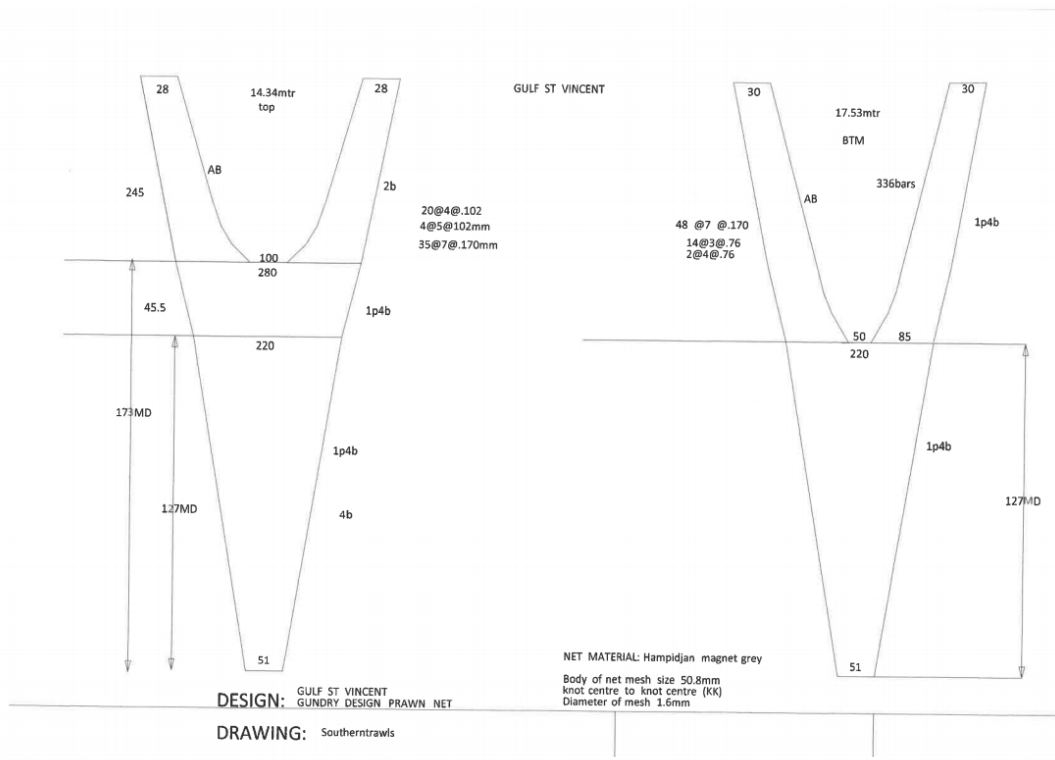
McLeay, L.J and Hooper, G. E. (2024). Gulf St Vincent Prawn *Penaeus (Melicertus) latisulcatus* Fishery 2023/24. Fishery Assessment Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2007/000782-14. SARDI Research Report Series No. 1235. 51pp.

PIRSA (2022). Management Plan for the South Australian Commercial Gulf St Vincent Prawn Fishery (2022).

## APPENDIX



**Figure A-1.** The 109 survey stations specified in the Management Plan for the South Australian Gulf St Vincent Prawn Fishery. The northern gulf (pink) includes region (RG) 1 and RG6, the central gulf (green) includes RG2, RG5 and little hole (LIH), and the southern gulf (blue) includes deep hole (DPH), southern deep hole (SDH) and Investigator Strait (INV).



DESIGN:

DRAWING: Southerntrawls

GULF ST VINCENT COD END

**Figure A-2.** Diagram of trawl configuration specifications for 51 mm diamond mesh cod-end (no grid) used in FIS' in the GSVPF since 2005.

**Table A1.** Standard Size Grading (taken from the Gulf Saint Vincent Prawn Fishery Code of Practice for Responsible Fishing, Issued February 2022).

Size	Prawns/lb	Prawn/kg	Weight range(g) per prawn	Supermarket grading
Extra large / Jumbo	U8	18	55	Jumbo-U10 Extra large - 10/15
	6/8	14	55-75	
Large	U10	U/22	>45/46	10/20
	10/20	22-44	22/23-44	
	10/15	22-33	30-44	
	9/12	20	38-54	
Medium	U15	U/33	30/32/33	20/30
	U20	U/44	22	
	13/15		30-37	
	16/20	34-44	23-29	
Small	21/30	45-66	15-22	30/40
	U25	55	18	
	U30	66	20/22	
Extra Small	31/40	U67-88	<15	
	30+	66 +	15, 14/16-18/20	
	31/50 or U50	67-110	10-14	