

**ADVICE TO:** PIRSA FISHERIES AND AQUACULTURE

**FROM:** SARDI AQUATIC AND LIVESTOCK SCIENCES

**SUBJECT:** BLUE CRAB FISHERY: 2026 FISHERY-INDEPENDENT SURVEY RESULTS

**DATE:** 08 APRIL 2026

## KEY ISSUES

- The latest fishery-independent surveys (FIS) for the Blue Crab Fishery (BCF) were conducted in Spencer Gulf (SG) and Gulf St Vincent (GSV) during March 2026.
- A total of 540 commercial pots and 60 research pots were sampled in each gulf, noting 3 commercial pots malfunctioned in GSV so were excluded from the analysis
- For SG, the performance indicator of research pot catch-per-unit-effort (CPUE) of legal-size crabs was  $8.1 \pm 0.4$  (SE) kg.potlift<sup>-1</sup>.
- For GSV, the research pot CPUE of legal-size crabs was  $5.6 \pm 0.4$  (SE) kg.potlift<sup>-1</sup> in 2026.

## BACKGROUND

Fishery-independent surveys (FIS) have been conducted by SARDI since 2002 to monitor Blue Crab stocks in Spencer Gulf (SG) and Gulf St Vincent (GSV) (Figure 1). Originally undertaken in June/July, surveys shifted to March/April between 2015 and 2018 to better align with quota setting. Research pots, with consistent design and smaller mesh, were used to provide a standardised index of abundance. Earlier performance indicators (PIs) included CPUE of legal-size and pre-recruit crabs, but following a review, legal-size CPUE became the primary PI. Paired surveys were used to update RPs for the revised timing.

In 2022, research pot numbers were reduced from five to one per site (while using nine commercial pots to maintain the integrity of the traditional 5-paired-lines configuration per site) based on advice showing that this level of sampling was sufficient to obtain CPUE trends indicative of the stock in SG. This decision, to analyse CPUE trends using one research pot per site (60 in total), was primarily made to address industry concerns relating to high levels of Blue Crab mortality in research pots, and therefore reduce mortality by limiting the number of research pots. These changes, detailed in the 2022/23 Blue Crab Fishery Assessment Report (Beckmann & Hanamseth 2024), support a more efficient and standardised monitoring framework.

This Advice Note provides a summary of the 2026 FIS results. This Advice Note also includes updated analysis of the relationship between commercial and research pot CPUE, with the additional data acquired from the 2026 FIS. All CPUE calculations have been performed using the updated length-weight relationship for March/April.

## RESULTS/DISCUSSION

The 2026 FIS took place in SG from 2–7 March and in GSV from 17–22 March. In each gulf, 540 commercial pots and 60 research pots were sampled, noting 3 commercial pots malfunctioned in GSV so were excluded from the analysis. Data were entered and validated according to established protocols. Data are presented as mean  $\pm$  standard error (SE). Sex- and gulf-specific weight conversions for each crab length measured were undertaken using the length-weight relationship developed for March/April. Nominal FIS CPUE was calculated as the mean weight of legal-size (Table 1) and pre-recruit crabs per potlift (kg.potlift<sup>-1</sup>). The research pot CPUE of legal-size crabs was plotted against the March/April RPs for legal-size CPUE in the HS (Figures 2 and 3).

Research and commercial pot CPUE (kg.potlift<sup>-1</sup>) was plotted for legal-size crabs (Figures 4 and 5), and a linear regression was used to model the relationship (Figures 6 and 7). Reference points were re-calculated where a significant relationship between research and commercial pot CPUE was identified, considering the strength of the relationship as indicated by the R<sup>2</sup> value (Table 2).

In SG, a strong and statistically significant relationship was observed between commercial and research pot CPUE (R<sup>2</sup> = 0.781, P < 0.001) (Figure 6), indicating that commercial pot CPUE provides a reliable indicator of research pot CPUE. The comparatively low limit and target RP values estimated for 2026 arise from applying this linear commercial–research CPUE relationship, which included very low research pot CPUE values. This represents extrapolation beyond the primary range of the fitted data, which resulted in underestimate of the 2026 limit and target RPs when expressed in commercial CPUE terms. Importantly, observed commercial CPUE remains well above the target RP, indicating that the low 2026 limit and target values reflect the RP transformation at low research CPUE rather than a decline in observed commercial CPUE.

In GSV, the relationship between commercial and research pot CPUE was statistically significant (P = 0.014), with a moderate level of explanatory power (R<sup>2</sup> = 0.506) (Figure 7). This suggests that while research pot CPUE accounts for approximately 50% of the variation in commercial pot CPUE, a substantial proportion of the variation remains unexplained. Therefore, caution is warranted in interpreting this relationship as strongly predictive.

Where R<sup>2</sup> is <0.6 (i.e. indicating substantial variance unexplained) a corresponding RP for the commercial pots has not been provided, as a more robust approach is required. Multivariate analysis using the full dataset (rather than aggregated annual means), along with additional explanatory variables, may help explain differences and clarify the relationship between commercial and research pot CPUE. Even when R<sup>2</sup> is high, this approach remains valuable for testing the robustness of the relationship and accounting for confounding or interacting factors.

### Spencer Gulf

In March 2026, the research pot CPUE of legal-size crabs was 8.1  $\pm$  0.4 kg.potlift<sup>-1</sup> (Table 1), reflecting an increase of 56% from the March 2025 value of 5.2  $\pm$  0.3 kg.potlift<sup>-1</sup> (Figure 2a), and a 40% increase from the 3-year average (5.8  $\pm$  1.1 kg.potlift<sup>-1</sup>, Table 3). In 2026, the commercial pot CPUE of legal-size crabs was 11.7  $\pm$  0.2 kg.potlift<sup>-1</sup> (Figure 4, Table 1). This represented a 98% increase compared to 2025 (5.9  $\pm$  0.1 kg.potlift<sup>-1</sup>) and a 109% increase from the 3-year average (5.6  $\pm$  0.8 kg.potlift<sup>-1</sup>, Table 3).

The research pot CPUE of pre-recruit crabs was 2.3  $\pm$  0.2 kg.potlift<sup>-1</sup>, a 4% decrease compared to March 2025 (2.4  $\pm$  0.2 kg.potlift<sup>-1</sup>) (Figure 2b).

### Gulf St Vincent

In March 2026, the research pot CPUE of legal-size crabs was 5.6  $\pm$  0.4 kg.potlift<sup>-1</sup> (Table 1), reflecting, 75% increases from both 2025 (3.2  $\pm$  0.3 kg.potlift<sup>-1</sup>; Figure 3a) and the 3-year average (3.2  $\pm$  0.73 kg.potlift<sup>-1</sup>, Table 3). The commercial pot CPUE of legal-size crabs was

5.8 ± 0.1 kg.potlift<sup>-1</sup> (Table 1), which represents a 18% increase from 2025 (4.9 ± 0.1 kg.potlift<sup>-1</sup>), and a 61% increase from the 3-year average (3.6 ± 0.9 kg.potlift<sup>-1</sup>, Table 3).

The research pot CPUE of pre-recruit crabs was 2.3 ± 0.2 kg.potlift<sup>-1</sup> in 2026, which was a 183% increase compared to March 2025 (0.1 ± 0.1 kg.potlift<sup>-1</sup>, Figure 3b).

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#### **References**

Beckmann, C. L. and Hanamseth, R. (2024). Blue Crab (*Portunus armatus*) Fishery 2022/23. Fishery Assessment Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2007/000729-20. SARDI Research Report Series No. 1227. 55 pp.

PIRSA (2024). Management Plan for the South Australian Commercial BCF. South Australian Fisheries Management Series. Adelaide, Australia: Primary Industries and Regions South Australia (Fisheries and Aquaculture). Paper number: 88. 36 pp.

Table 1. Summary of catch-per-unit-effort (CPUE) statistics for the March 2026 Gulf St. Vincent (GSV) and Spencer Gulf (SG) fishery-independent surveys (FISs) using research and commercial pots. SE, Standard error.

Gulf	Pot type	Potlifts	CPUE (legal-size crabs, kg.potlift <sup>-1</sup> )
SG	Research	60	8.1 ± 0.4 (SE)
	Commercial	540	11.7 ± 0.2 (SE)
GSV	Research	60	5.6 ± 0.4 (SE)
	Commercial	537	5.8 ± 0.1 (SE)

Table 2. Summary of Reference Points (RPs) for the Gulf St Vincent (GSV) and Spencer Gulf (SG) zones of the Blue Crab Fishery as presented in the Harvest Strategy (PIRSA 2024) for research pot catch-per-unit-effort (CPUE) and re-calculated for SG commercial pot CPUE using the linear equation. RPs not re-calculated for GSV due to low R<sup>2</sup>.

Zone	Pot type	RPs (CPUE, legal-size crabs kg.potlift <sup>-1</sup> )		
		Limit	Trigger	Target
SG	Research	1.0	2.4	3.7
	Commercial	0.7	2.4	4.0
GSV	Research	0.8	1.7	2.5
	Commercial	*	*	*

Table 3. Fishery-independent survey statistics for Blue Crab in Gulf St Vincent/Kangaroo Island and Spencer Gulf Fishing zones. Data are Catch Per Unit Effort during March/April 2026 surveys compared to the 3-year March/April survey average (2023–2025). Percentage change is also provided.

GSVKI				
		3-yr Avg (23-25)	2026	% DIFF
CPUE - legal kg.potlift <sup>-1</sup>	R	3.2 ± 0.73	5.6 ± 0.4	+75.00
	C	3.6 ± 0.9	5.8 ± 0.1	+61.11
SG				
		3-yr Avg (23-25)	2026	% DIFF
CPUE - legal kg.potlift <sup>-1</sup>	R	5.8 ± 1.1	8.1 ± 0.4	+39.66
	C	5.6 ± 0.8	11.7 ± 0.2	+108.93

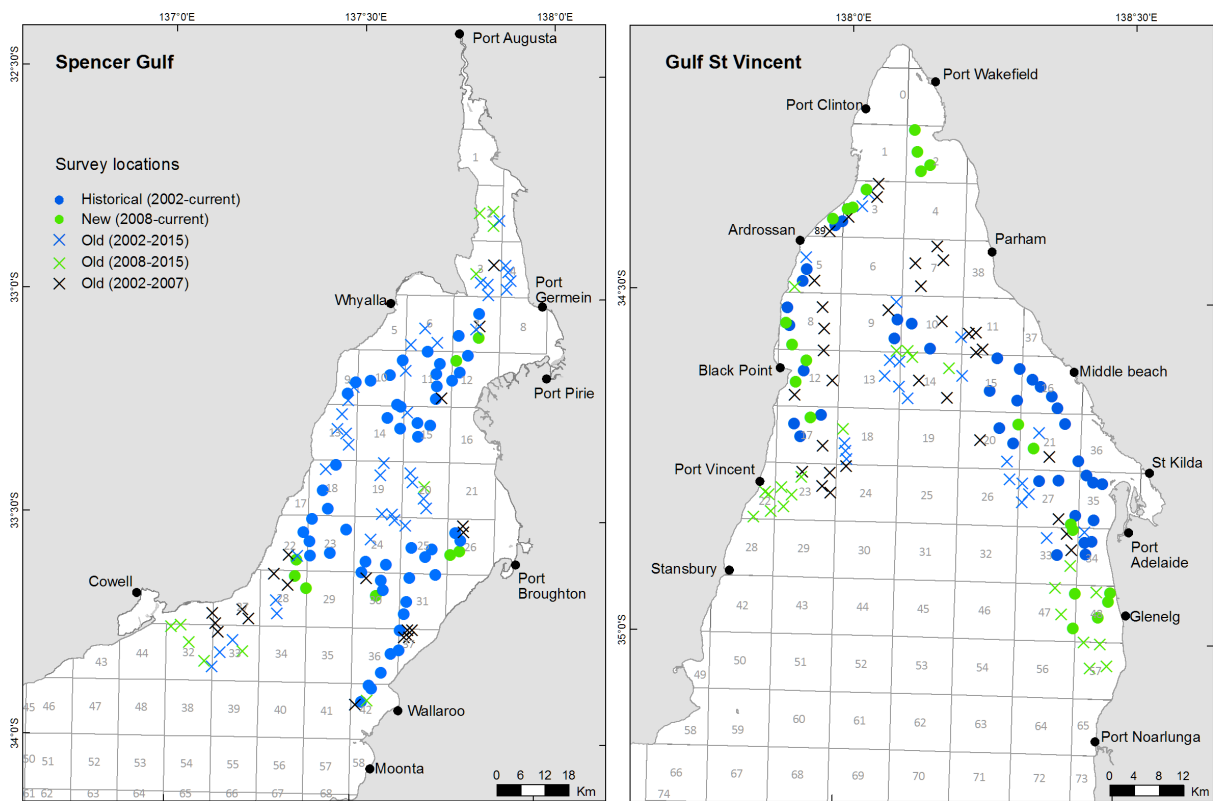


Figure 1. Research blocks (grid) and fishery-independent survey locations in the Spencer Gulf and Gulf St Vincent zones of the Blue Crab Fishery. Circles represent the 60 sites chosen for the draft interim HS (green sampled since 2008, blue sampled since 2002), crosses represent standard sites removed from the design from 2016. Old sites sampled from 2002-07 not shown. Figure reproduced from Beckmann and Hanamseth (2024).

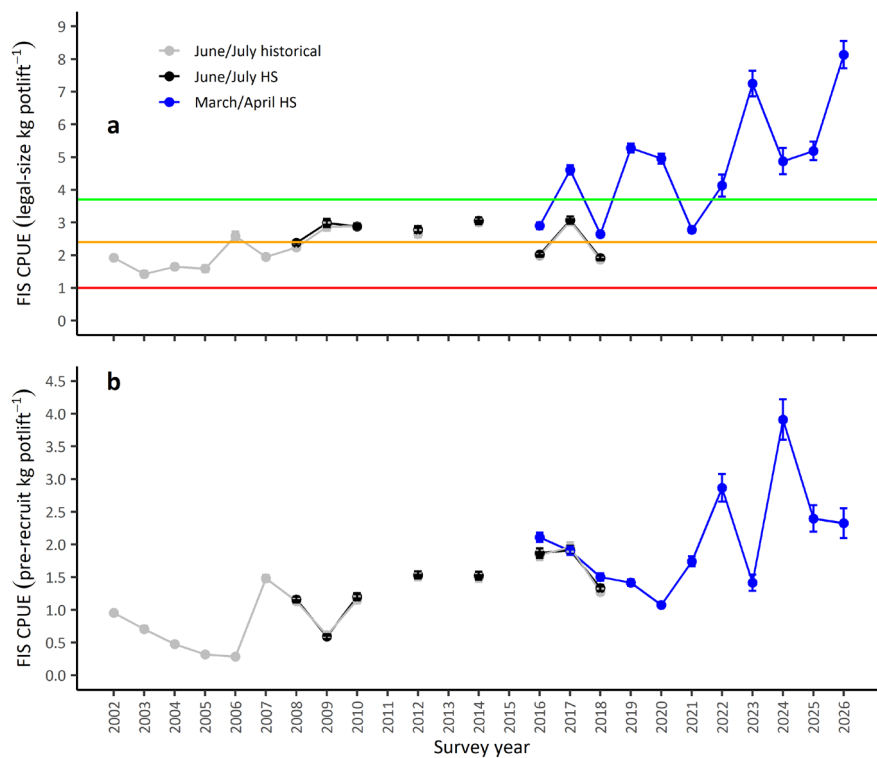


Figure 2. Annual fishery-independent survey (FIS) catch-per-unit-effort (CPUE) from research pots in Spencer Gulf by weight of (a) legal-size crabs ( $\text{kg.potlift}^{-1}$ ) from, and (b) pre-recruit crabs ( $\text{kg.potlift}^{-1}$ ). Historical sites refer to the 52 sites which have not changed since 2003 (excludes new sites) and harvest strategy (HS) sites refer to the subset of 60 sites sampled since 2008 (includes new sites). Green, yellow, and red lines represent the target, trigger and limit reference points (RPs) for March/April identified in the HS. Error bars, standard error. Note. June/July FIS were not conducted in 2011, 2013, 2015, or from 2019.

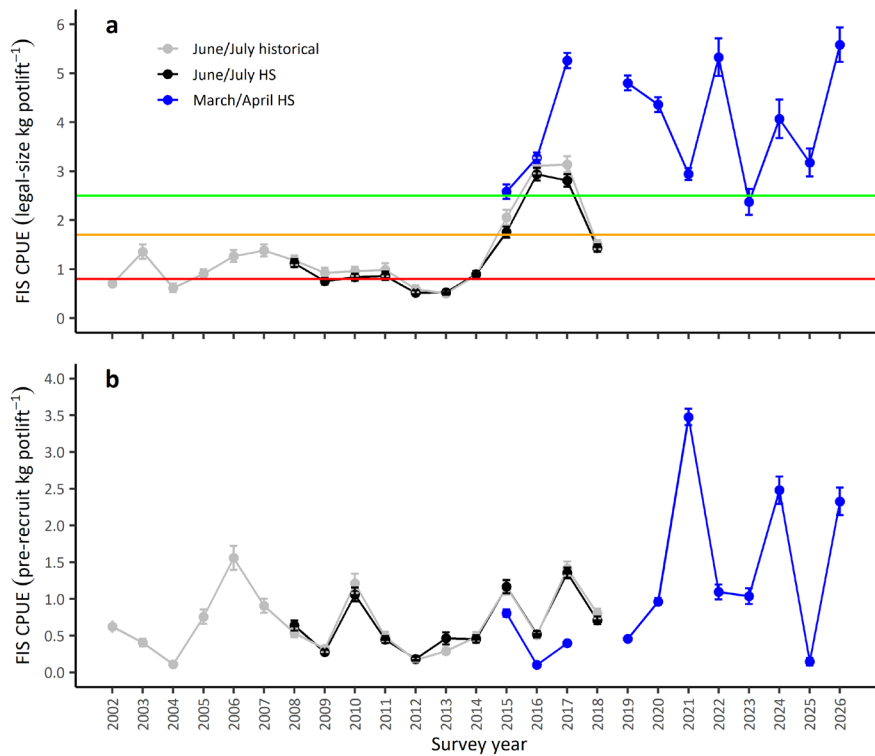


Figure 3. Annual fishery independent survey (FIS) catch-per-unit-effort (CPUE) from research pots in Gulf St Vincent by weight of (a) legal-size crabs (kg.potlift<sup>-1</sup>) from, and (b) pre-recruit crabs (kg.potlift<sup>-1</sup>). Historical sites refer to 37 sites which have not changed since 2003 (excludes new sites) and harvest strategy (HS) sites refer to the subset of 60 sites sampled since 2008 (includes new sites). Green, yellow, and red lines represent the target, trigger and limit reference points (RPs) for March/April identified in the HS. Error bars, standard error. Note: no FIS was conducted in March/April 2018 or from June/July 2019.

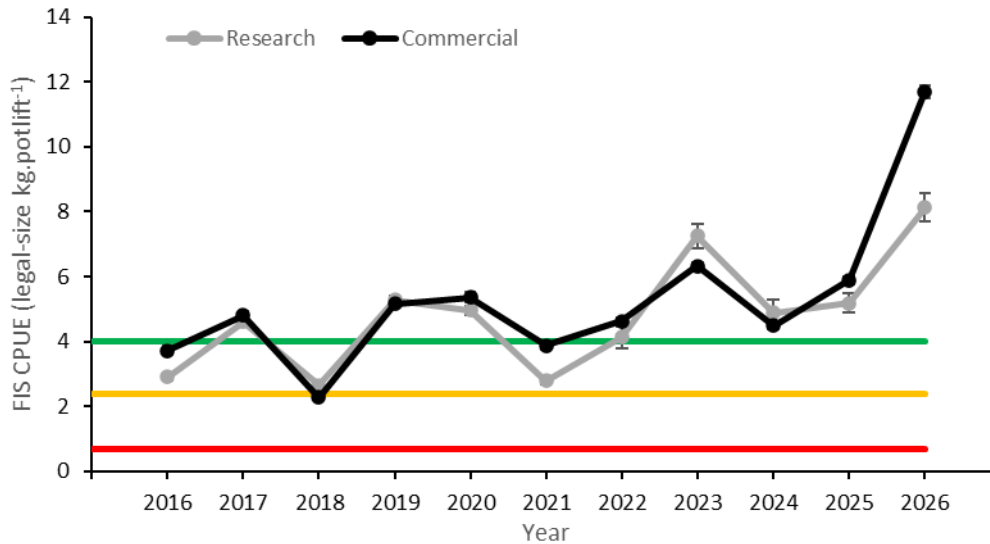


Figure 4. Annual commercial and research pot catch-per-unit-effort (CPUE) of legal-size crabs (kg.potlift<sup>-1</sup>) from fishery independent surveys undertaken during March/April in Spencer Gulf. Green, yellow, and red lines represent the target, trigger and limit reference points (RPs) calculated from the linear relationship in 2026 (Figure 8). Error bars, standard error.

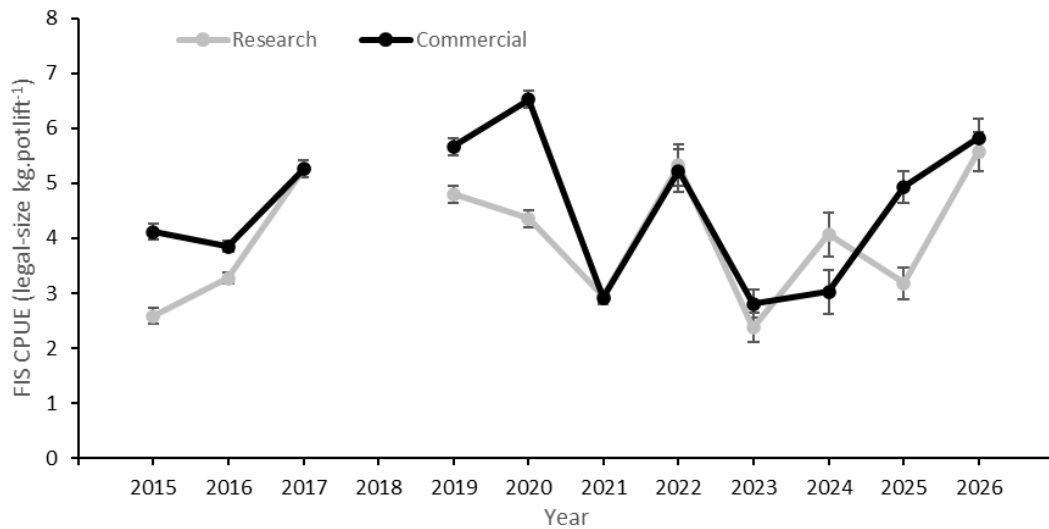


Figure 5. Annual commercial and research pot catch-per-unit-effort (CPUE) of legal-size crabs (kg.potlift<sup>-1</sup>) from fishery independent surveys (FIS) undertaken during March/April in Gulf St Vincent. Error bars, standard error. Reference points (RPs) not provided due to low R<sup>2</sup>.

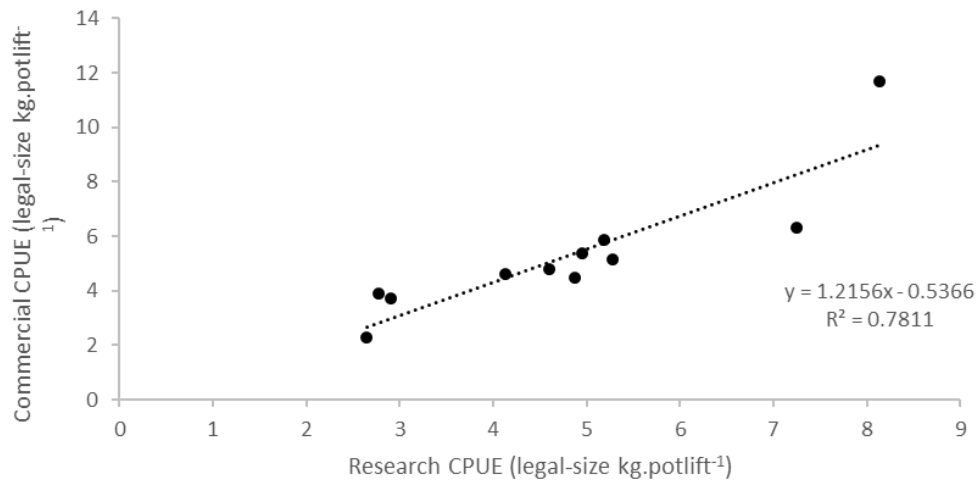


Figure 6. Linear relationship ( $P = <0.001$ ) between commercial and research pot annual catch-per-unit-effort (CPUE) of legal-size crabs from March/April fishery-independent surveys (FIS) in Spencer Gulf.

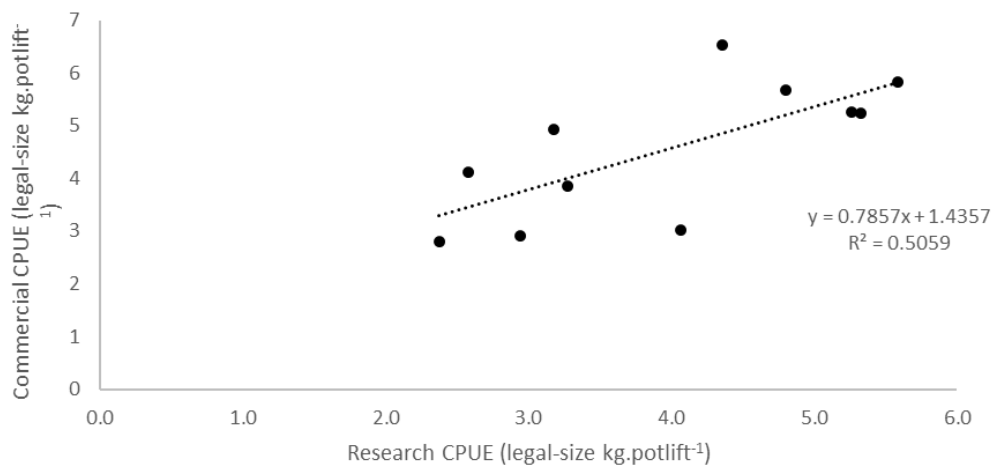


Figure 7. Linear relationship ( $P = 0.014$ ) between commercial and research pot annual catch-per-unit-effort (CPUE) of legal-size crabs from March/April fishery-independent surveys (FIS) in Gulf St Vincent.