Harvest strategy overview
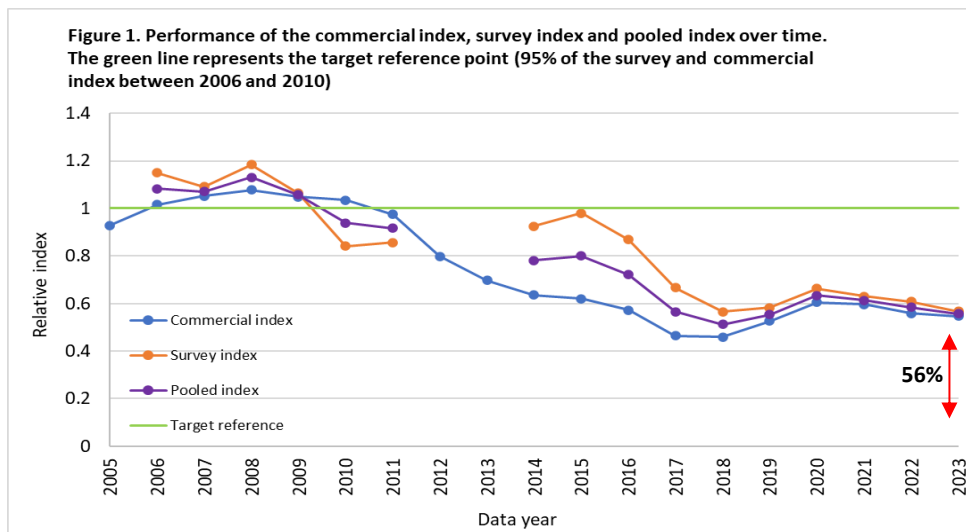
The spanner crab harvest strategy 2020 – 2025 falls under the *Queensland Sustainable Fisheries Strategy: 2017–2027*. The harvest strategy sets out reference points and decision rules to determine appropriate levels of harvest based on the performance and status of the east coast spanner crab stock.

Because there is no spanner crab stock assessment, commercial fisher catch per unit effort (CPUE) and fishery independent survey (FIS) data are used to infer the status of the stock and inform the total allowable commercial catch (TACC). The decision rules are set based on evaluation testing and modelling and are consistent with the approach taken in many other data-poor fisheries for which a stock assessment is not possible. The TACC is set to rebuild the spanner crab stock to the target reference point proxy for 60% of the unexploited biomass.

Harvest strategy decision rule 1.1 states that the TACC is adjusted up when the pooled index has reached the target reference point of one and is above the previous year index (positive trend).

Conversely, rule 2.1 states that the TACC is adjusted down when the pooled index is below the target reference point of one and is trending below the previous year's index.

Figure 1. Performance of the commercial index, survey index and pooled index over time. The green line represents the target reference point (95% of the survey and commercial index between 2006 and 2010)

Harvest strategy targets and reference points

The targets in the harvest strategy are based on data from the reference period of 200 to 2010. The harvest strategy aims to return spanner crab biomass to the level experienced during this reference period. This period represents a time when spanner crab stocks were assumed to be at 60% biomass, meeting the target in the *Queensland Sustainable Fisheries Strategy: 2017–2027*.

Spanner crab targets (2023 data)	FIS	CPUE
95% of 2006-2010 average catch rate	10.4346	1.3803

Performance indicators

The harvest strategy uses averages of the CPUE and FIS from two years and converts them into the 'stock index' (by dividing them by the respective target), which is then averaged into a 'pooled index'. This is used to inform the TACC in decision years.

|	CPUE	FIS
2021	0.765	5.972
2022	0.779	6.737
2023	0.729	5.089
2021 - 2022 mean	0.772	6.355
2022 - 2023 mean	0.754	5.913
2021 - 2022 mean stock index	0.559	0.609
2022 - 2023 mean stock index	0.546	0.567
2022 pooled index	0.584	
2023 pooled index	0.556	

The 2022–2023 pooled index was 0.56 (average of the commercial index 0.57 and the survey index 0.54). A pooled index of 0.56 means that the fishery is at **56% of its target** in 2023.

Indicator one: commercial index

The standardised commercial catch rate (sCPUE) decreased from 0.779 to 0.729 kg per dilly lift in 2023. The catch rate standardisation takes into account all regions, seasons and other effects (like the number of active fishers and the number of dillies used by each operator), and is considered a reliable indicator of the status of spanner crab stocks.

A negative trend since 2021 indicating it moving closer to the limit reference point (0.5kg per dilly lift) than the target reference point (1.34kg per dilly lift).

Figure 2. Performance of the sCPUE over time compared to the target reference (green line) and limit reference (red line).
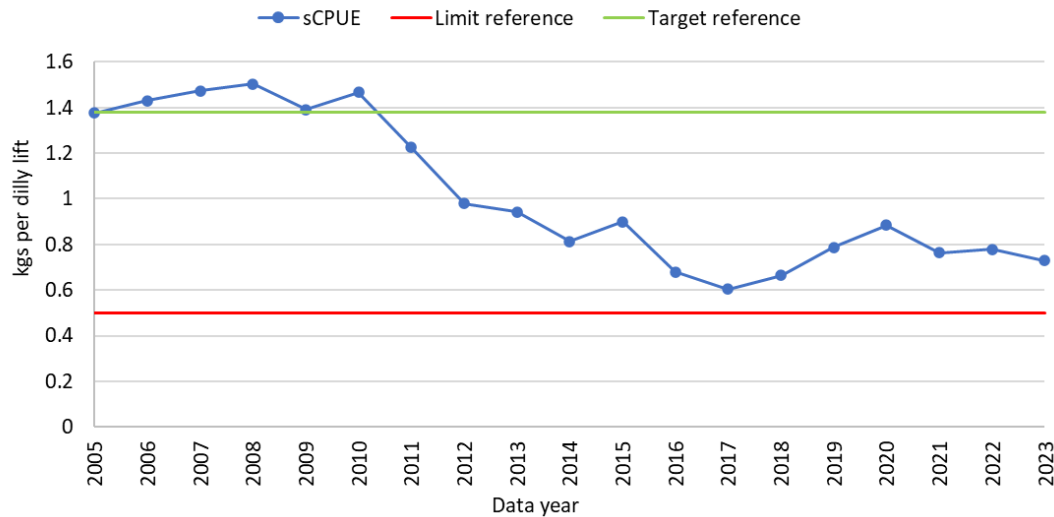
Indicator two: survey index

The standardised fisheries independent survey (sFIS) is the longest running fishery independent data set for a Queensland commercial fishery. The survey has run every year since 2000 (except 2004 and 2012). Due to COVID-19, the FIS was not completed in 2020 however, the 2022 working group agreed to use the proportional method (red circle) to calculate the result.

The sFIS decreased from 6.737 to 5.089 legal-sized crabs per ground line in 2023. The negative trend in sFIS showing it moving further from the target reference point (10.435).

Figure 3. Performance of the sFIS over time compared to the target reference (green line)
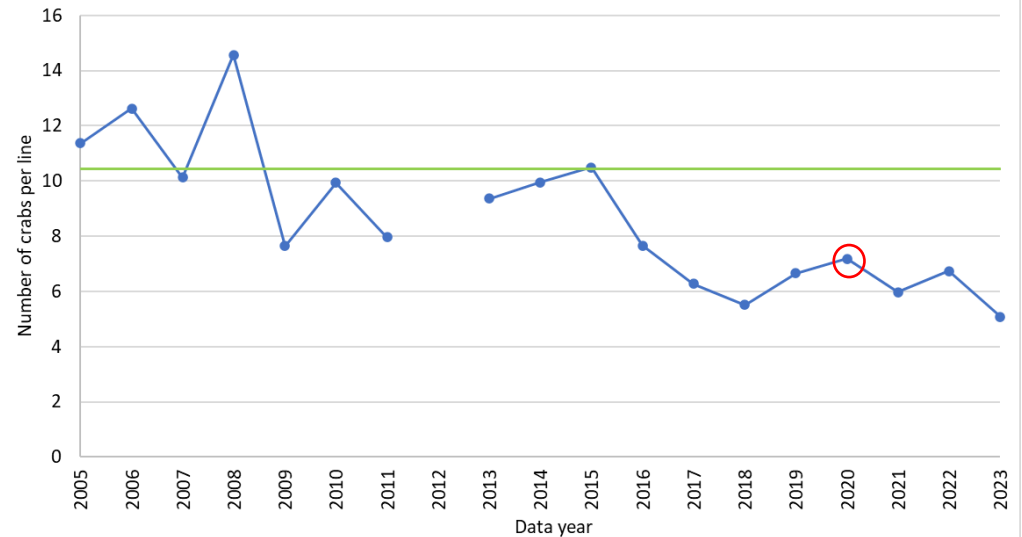
Setting the TACC

Assessing the fishery performance against the harvest strategy decision rules informs the TACC for the 2024–25 season. The following table provides a summary of the assessment.

Decision rules to set the TACC

Rule	Description	Assessment
Rule 1.1	The TACC is increased when the pooled index is greater than 1 and the current index is above the previous year index	X
Rule 3.1	The TACC will reduce to zero if the average sCPUE is less than 0.5 kg per dilly lift	X
Rule 2.1	The TACC is decreased when the pooled index is less than 1 and the current index is below the previous year index	✓
Rule 4.1	TACC remains unchanged if rules 1.1, 2.1 or 3.1 are **not** met	✓

Review triggers

Rule	Description	Assessment
Rule 5.1	If the pooled index has either increased or decreased consecutively over each of the three most recent years and no change to the TACC has occurred, the TACC for the forthcoming year must be adjusted by 50 tonnes to reflect the recent trend. **OR**	✓
Rule 5.2	If the commercial index in any monitoring region is 40% or more below the previous year's index, it must be determined why the decline occurred and whether further management intervention is required to reduce the risk of localised depletion. **OR**	X
Rule 5.3	If any new information becomes available indicating that the assessment and TACC-setting arrangements are not consistent with the sustainable management of the fishery, the decision rules must be reviewed and, if appropriate, the reference points must be adjusted.	X
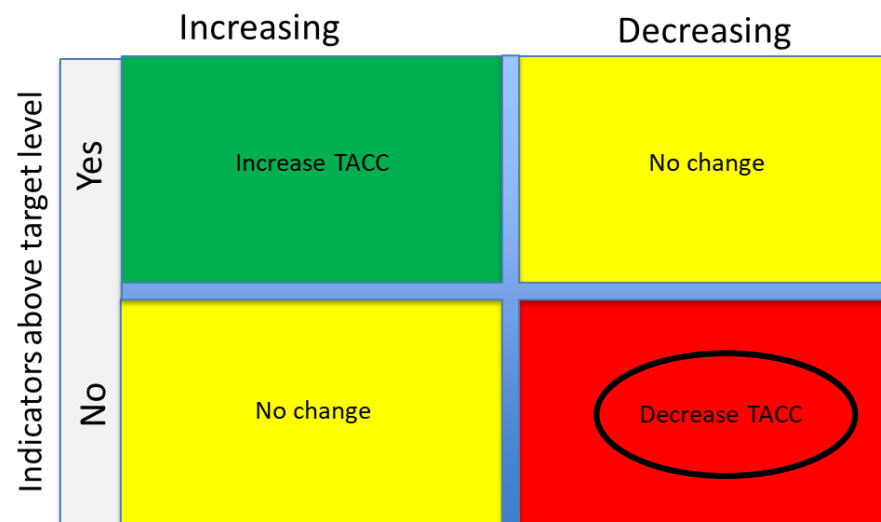
Note: For more information on how the decision rules work in the spanner crab fishery harvest strategy, see the diagram on the following page.

More information

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SPANNER CRAB HARVEST STRATEGY DECISION RULES

Primary indicators	Harvest rule	Buffer	Limits	New TACC

Commercial index below lower limit reference point (0.5) — Yes → **Close Fishery**

No ↓

Pooled index above 1 and the current index is above the previous year's index — Yes → **TACC increase proportional to pooled index change** — Yes → **recommended change inside of buffer range** — Yes → **new TACC is below the TACC upper limit** — Yes → **Issue recommended increase**

new TACC is below the TACC upper limit — No → **TACC = TACC upper limit**

recommended change inside of buffer range — No → (to New TACC) **Is proposed change less than 50t**

No ↓

Pooled index below 1 and the current index is below the previous year's index — Yes → **TACC decrease proportional to pooled index change** — Yes → **Recommended change inside of buffer range (50 to 200 tonnes)** — Yes → **new TACC is above the TACC lower limit** — Yes → **Issue recommended decrease**

new TACC is above the TACC lower limit — No → **TACC = TACC lower limit**

Pooled index below 1... — No → **No change**

Is proposed change less than 50t — Yes → **No change**

Is proposed change less than 50t — No → **Issue 200t change**

Triggers?

✓ If the pooled index has either increased or decreased consecutively over each of the three most recent years and no change to the TACC has occurred, adjust the TACC by 50t

If the commercial index in any region is 40% or more below the previous year's index

If and when any new information becomes available indicating that the assessment and TACC-setting arrangements are not consistent with the sustainable management of the fishery

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