



Trawl fishery (southern offshore A and B regions) harvest strategy: 2021–2026

Business area owner Management & Reform

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Enquiries and feedback regarding this document can be made as follows:

Email: info@daf.qld.gov.au

Telephone: 13 25 23 (Queensland callers only)
(07) 3404 6999 (outside Queensland)

Monday, Tuesday, Wednesday and Friday: 8 am to 5 pm, Thursday: 9 am to 5 pm

Post: Department of Agriculture and Fisheries GPO Box 46 BRISBANE QLD 4001 AUSTRALIA

Website: daf.qld.gov.au

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What the harvest strategy is trying to achieve

This harvest strategy has been developed in line with the *Queensland harvest strategy policy* to manage the harvest of trawl fishery resources within the southern offshore trawl region. The region is divided into areas A and B – area B can be accessed by T2 symbol holders with concessional trawl effort units. Current stock levels for key prawn species in the southern offshore trawl region are sustainable; however, effort is likely to be at or above levels associated with maximum sustainable yield (MSY). While the southern offshore trawl region is a multi-species fishery, eastern king prawns are recognised as the principal target species that controls fishing effort.

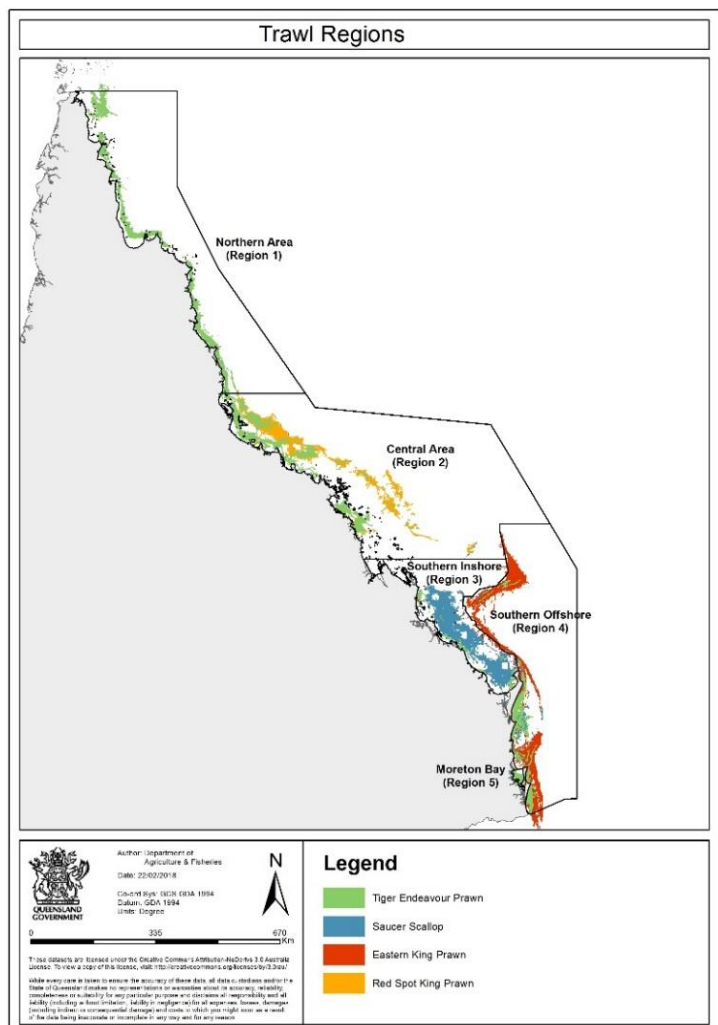
The aim of this harvest strategy is to manage fishing mortality through setting sustainable effort at a level that allows the stock to achieve its biomass targets. For all other retained species, effort triggers have been designed to monitor changes in fishing behaviour or stock trends. This aims to optimise economic yield, while at the same time being precautionary in detecting changes in species composition within historic catch levels. Other management tools (e.g. size limits, spawning closures etc.) may also be used to support the sustainable management of stocks under this harvest strategy.

Fishery overview

Eastern king prawns (*Melicertus plebejus*) are endemic to Australia. It occurs on the eastern Australian coast between Hayman Island in Queensland and north-eastern Tasmania (20–42° south), and exhibits strong stock connectivity throughout its range.

Undertaking northward migrations into deeper water as they grow, eastern king prawns utilise the East Australian Current to disperse larvae southward after spawning in offshore areas. Eastern king prawns are harvested in Queensland and New South Wales fisheries and are considered a single multi-jurisdictional biological stock. There are two contiguous management units for the stock – one from 22–28° south in Queensland and another along the whole New South Wales coast (28–37.5° south).

A comprehensive stock assessment of the eastern Australia biological stock was completed in 2020. The most recent assessment estimates that biomass in 2019 was 62% of the unfished 1958 levels. MSY was estimated at 2,423 tonnes. The 2019 catch was 2,738 tonnes (2160 tonnes in Queensland, 593 tonnes in New South Wales), which is above the estimate of MSY but within the range of the estimate.



For the Queensland component of the stock, standardised monthly regional catch rates were mostly above MSY catch rate reference points for the 2019 fishing year, indicating the level of biomass was sufficient to sustain catches above MSY. Catch rates exceeded MSY catch rate reference points in all New South Wales regions for the majority of the 2019 fishing year. Fishery-independent surveys of recruit abundance in Queensland show variable recruitment to the fishery with no discernible trend over 10 years. Indices of recruit abundance display peaked in 2009 and 2013.

Stocks covered by the harvest strategy

While eastern king prawns are the primary target species, this harvest strategy also manages a number of other permitted species that can be retained through trawling while operating under a T1 licence. Table 1 provides a summary of fish stocks covered by this harvest strategy.

Table 1: Summary of fish stocks covered by this harvest strategy

Feature	Details
Target species (tier 1)	Eastern king prawns (<i>Melicertus plebejus</i>)
Secondary species (tier 2)	Tiger prawns (<i>Penaeus esculentus</i> and <i>Penaeus semisulcatus</i>) Saucer Scallop (<i>Amusium balloti</i>) Moreton Bay bugs (<i>Thenus</i> spp.) Balmain bugs (<i>Ibacus</i> spp.)
By-product species (tier 3)	Permitted trawl species: <ul style="list-style-type: none"> • blue swimmer crabs • cuttlefish • mantis shrimps • octopus • pipefish • red champagne lobsters • slipper lobsters • threadfin bream • three-spotted crabs
Biology	Undertaking northward migrations into deeper water as they grow, eastern king prawns utilise the East Australian Current to disperse larvae southward after spawning in offshore areas during winter months

Management units for the harvest strategy

The single management unit for this harvest strategy is the waters from Swain Reefs south to the Queensland–New South Wales border, excluding the area of the southern inshore trawl region. The fishery area is defined by the Fisheries (Commercial Fisheries) Regulation 2019.

There are two adjacent management units for the eastern king prawn stock – one from in Queensland (latitude 22–28° south) that is managed by Fisheries Queensland and another along the whole New South Wales coast (latitude 28–37.5° south) that is managed by the New South Wales Department of Primary Industries. This harvest strategy manages the Queensland part of the eastern king prawn stock.

Summary of management information

A summary of the management arrangements for the southern offshore trawl region is set out in Table 2. Fishers may access copies of fisheries legislation at legislation.qld.gov.au or visit fisheries.qld.gov.au for the latest information on fishing rules.

Table 2: Summary of management arrangements for the southern offshore trawl region

Feature	Details
Commercial access	Primary commercial fishing licence with a T1 or T2 fishery symbol
Relevant fisheries legislation	<p><i>Fisheries Act 1994</i></p> <p>Fisheries (General) Regulation 2019</p> <p>Fisheries (Commercial Fisheries) Regulation 2019</p> <p>Fisheries Declaration 2019</p> <p>Fisheries Quota Declaration 2019</p>
Other relevant legislation	<p><i>Great Barrier Reef Marine Park Act 1975</i> and Great Barrier Reef Marine Park Regulations 2019 (Cwlth)</p> <p><i>Marine Parks Act 2004</i></p> <p><i>Environment Protection and Biodiversity Conservation Act 1999</i> and Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth)</p>
Regional harvest strategy workshop	<p>Southern offshore region harvest strategy workshops are held at least annually</p> <p>Further advice on proposed management arrangement and fishery performance will be shared with the trawl fishery working group</p> <p>Terms of reference and communiques are available at fisheries.qld.gov.au</p>
Gear	<p>Otter trawl apparatus may be used</p> <p>Refer to fisheries legislation for gear requirements</p>
Main management methods	<p>Primary management method is individual effort units and a total allowable effort cap for the region</p> <p>Other management methods include:</p> <ul style="list-style-type: none"> • Limited access through primary commercial fishing boat licences • 20 m maximum vessel length • hull unit (HU) limit of 120 HU • gear restrictions such as net length and mesh size • spatial and temporal closures including small prawn closed areas (20 September – 1 March)
Fishing year	20 October –19 October

Feature	Details
Stock status	<p>Stock status is assessed using the nationally agreed Status of Australian Fish Stocks (SAFS) classification framework – eastern king prawns listed as ‘sustainable’ (SAFS 2018)</p> <p>*Note: The classification system used as part of the SAFS reporting is assessed against a 20% biomass sustainability criteria. Therefore, although a species may be classified as ‘sustainable’ under SAFS, this does not mean that the biomass is meeting the targets set out in the <i>Queensland Sustainable Fisheries strategy: 2017-2027</i>. For more specific species biomass estimates, consult the relevant stock assessment for that species.</p>
Accreditation under the Environment Protection and Biodiversity Conservation Act 1999	<p>Part 13: Accredited (expires 2021)</p> <p>Part 13A: Accredited (expires 2021)</p> <p>Visit environment.gov.au</p>

Fishery objectives

The objective of the harvest strategy is to manage the fishery in accordance with the objectives of the *Fisheries Act 1994* and the *Queensland Sustainable Fisheries Strategy: 2017–2027*.

Fishery objectives set out the aspirations and operational direction for the management of this fishery. The primary objective of the southern offshore trawl region is to:

- maintain the target species at, or returned to, a target spawning biomass level that aims to maximise economic yield (MEY) for the fishery.

In pursuing the primary objective, the harvest strategy aims to:

- minimise and mitigate any unacceptable ecological risks arising from fishing-related activities
- maximise economic performance of the commercial sector
- monitor the broader social and economic benefits of the fishery to the community.

Catch shares

This harvest strategy aims to maintain the existing catch shares between sectors. The resource allocation arrangements set out in Table 3 (overleaf) ensure that catch shares among sectors are maintained in response to changes in the total allowable commercial effort (TACE). The existing resource allocation arrangements (as at 2018) are set out in Table 3 and this harvest strategy will aim to maintain the existing catch shares between the sectors.

The traditional fishing rights of Aboriginal peoples and Torres Strait Islanders are protected under native title legislation and relate to harvest for domestic, communal and non-commercial purposes. Accordingly, traditional and customary fishing is recognised in Queensland and is not a defined allocation.

Aboriginal peoples and Torres Strait Islanders and their communities continue to express a desire to have more economic opportunities through fishing, particularly in their own sea country. The *Aboriginal and Torres Strait Islander commercial fishing development policy* provides for an Indigenous fishing permit to be issued, on a case-by-case basis and in accordance with section 54 of the Fisheries (General) Regulation 2019, to provide opportunities to take part in fishing-related business.

Table 3: Resource allocation arrangements for the southern offshore trawl region

Species	Commercial fishing*	Recreational fishing** (including charter)
Eastern king prawns	99%	1%

* Commercial catch data is based on the existing total commercial catches.

** Recreational catch share includes charter fishing and is based on information from statewide recreational fishing surveys.

Managing the performance of the fishery

Key indicators measure the fishery’s performance. The indicators relate to the objectives and use reference points to establish acceptable performance (Table 4 overleaf). The indicators measure the relative amount of fish biomass of key stock(s) against target and other reference points. The default biomass reference points identified in this harvest strategy are:

- a biomass target reference point (*B_{targ}*) of 60% of the unfished spawning biomass being the relative biomass level the harvest strategy aims to achieve for tier 1 species and some tier 2 species within the fishery – this is also considered a proxy for achieving biomass maximum economic yield (*B_{me}*).
- a biomass limit reference point of 20% of the unfished spawning biomass (*B_{lim}*) being the biomass level that the harvest strategy aims to avoid. If the stock is assessed to be below *B_{lim}*, the risk to the stock is unacceptably high and the stock is defined as ‘overfished’.

For key stocks, performance indicators and sustainable harvests for all sectors will be estimated from a stock assessment. The aim is to measure the capability for the stock to attain the target biomass level (*B_{targ}* 60%), and at which point the harvest strategy will be considered as meeting its fishery objectives.

The decision rules for setting a sustainable harvest in the southern offshore trawl region harvest strategy are based on a ‘hockey stick’ approach. This is where the TACE is set based on a linear relationship between *B_{lim}*, where the level of fishing mortality (F) is equal to zero, and *B_{targ}*, where the exploitation rate and TACE are set at the level to achieve MEY (Figure 1 overleaf).

The decision rule takes into account the current biomass level of the stock for determining the TACE to achieve the *B_{targ}*. The recommended TACE is calculated by applying the rate of fishing mortality to achieve *B_{targ}* to the current spawning biomass level. As a result, the recommended TACE represents the total catch from all sectors (including discards) that can be harvested in the next three years, to move the current biomass level towards the target level. A discount factor may also be included to account for uncertainty and to reduce the risk of a fishery not achieving its objectives.

If the spawning biomass falls below *B_{lim}*, targeted fishing of the stock must cease and a rebuilding strategy be developed to rebuild the spawning biomass above *B_{lim}* within a biologically reasonable timeframe (e.g. based on mean generation time¹) and as informed by the *Queensland Harvest Strategy Policy*.

¹ a generation is defined as the average age of full maturity for the fish species.

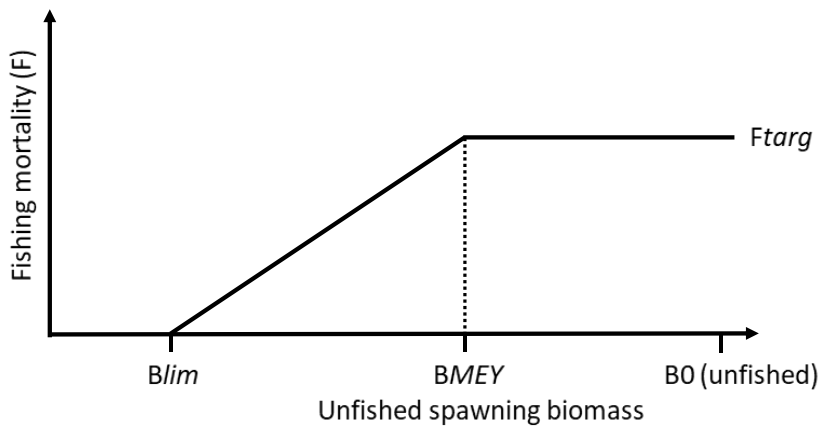


Figure 1: Showing the 'hockey stick' rule – *Blim* is limit reference point, *Bmey* is the biomass at MEY, *B0* is the unfished biomass at 100%, *F* is fishing mortality and *Ftarg* is the level of fishing mortality for *Bmey*

Setting total allowable commercial effort

The effort cap in the southern offshore trawl region (combined total of southern offshore A and B effort units) was set at levels to achieve the target biomass based on a bio-economic model for the eastern king prawn stock completed in 2021. Queensland provides approximately 80% of the catch of eastern king prawns, with New South Wales providing the remaining 20%. The recommended effort to achieve the target biomass for eastern king prawns in the southern offshore trawl region is 13 160 days or 845 266 effort units.

The effort cap is set based upon the proportional historic catch of Queensland and New South Wales. When reviewing an effort cap, the previous year's New South Wales catch will be considered and the effort cap for Queensland adjusted (up or down) to ensure the shared stock is fished to target levels. When applying the process used to set the initial cap in future years, consideration may need to be given to using a five-year rolling average between the two states to limit the effect of any drastic increases or decreases on the shared catches.

The harvest strategy is also designed to adjust the TACE based on new regional fishing power estimates. Fishing power is updated periodically as part of each stock assessment. When an updated stock assessment becomes available that indicates the average level of fishing power has changed, then the TACE will be set at a level to achieve *Btarg*.

Management of secondary commercial and by-product species

If biomass is not available as a primary indicator for secondary (tier 2) and by-product species (tier 3), commercial catch will be monitored to assess changes in fishing mortality. Annual commercial catch triggers are used to assess changes in fishing mortality when compared to historic catch levels.

Secondary species (tier 2) are important species that aren't always targeted by fishers. These species have historical commercial catch ranges set and annual commercial catch is monitored against these. Historical commercial catch ranges from 2010 to 2019 were used to set the indicator values (Table 4). As the level of exploitation changes outside of historic levels, species will be elevated to higher levels of monitoring, assessment and management.

By-product species (tier 3) are sometimes retained by fishers and have trip limits or no-catch limits in place. Annual commercial catch of by-product species will be monitored against a two-year mean of commercial catch to detect changes in fishery behaviour that may represent unacceptable risk to sustainability. Mean commercial catch from 2017 to 2019 was used to set the reference point for by-product species.

Table 4: Performance indicators and reference points for the southern offshore trawl region

Species	Performance indicator	Reference point / buffer	Reference level
Eastern king prawns	Spawning biomass	Target (<i>B_{targ}</i>)	60% spawning biomass
Eastern king prawns	Spawning biomass	Limit reference point (<i>B_{lim}</i>)	20% spawning biomass
Secondary and by-product species (if available) (tier 2 and tier 3)	Biomass	Target (<i>B_{targ}</i>)	60% biomass
Secondary and by-product species (if available) (tier 2 and tier 3)	Biomass	Limit reference point (<i>B_{lim}</i>)	20% biomass
Secondary species (tier 2)	Annual commercial logbook catch	Commercial catch range	2010–2019
By-product species (tier 3)	Annual commercial logbook catch	2-year mean commercial catch	2017–2019

Management of target species

1.0 Decision rules for eastern king prawns

The decision rules provide guidance to set the TACE based on estimates of biomass being available. The decision rules use the outputs of the stock assessment and aim to achieve the target biomass (B_{targ}) of 60%.

- 1.1 If the biomass is at or above B_{targ} , set the TACE at a level that maintains biomass at B_{targ} .
- 1.2 If biomass is below B_{targ} and above B_{lim} , the TACE should be set as inferred by the hockey stick approach, where fishing mortality is reduced to the rate that allows the biomass to increase effectively back to B_{targ} .
- 1.3 If biomass is at or below B_{lim} , there will be no targeted fishing for that species, and a rebuilding strategy will be developed to increase the stock biomass to above B_{lim} within a biologically reasonable timeframe and as informed by the *Queensland Harvest Strategy Policy*.
- 1.4 If any new information becomes available indicating that the assessment and TACE-setting arrangements are not consistent with the sustainable management of the fishery, decision rules must be reviewed and, if appropriate, the reference points or timeframes should be adjusted.

Notwithstanding that:

- 1.5 The rate of fishing mortality should not exceed the level of fishing mortality required to maintain a stock at MSY at equilibrium.
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2.0 Decision rules for fishing power adjustments

To ensure that the TACE reflect current fishing power in the southern offshore trawl region, the decision rules allow for adjustment to the TACE if a new fishing power estimate becomes available. The new fishing power estimate will be calculated as the mean change in the most recent five years of fishing power estimates.

- 2.1 If no new estimate of fishing power is available, then the existing estimate is applied to the TACE. If the fishing power estimate is to be applied at regular intervals between scheduled stock assessment years, the TACE will be set to adjust accordingly.
 - 2.2 When a new estimate of fishing power becomes available, generally every three years through the scheduled stock assessment, then the TACE will be adjusted to the new estimate of fishing power (i.e. an increase in fishing power will result in a proportional decrease in the TACE).
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Management of secondary and by-product species

3.0 Decision rules for secondary commercial species

The secondary species are classified as tier 2 species in this fishery and do not have catch limits. The harvest control rules below monitor effort shift to ensure there is no unacceptable levels of fishing pressure for tier 2 species (e.g. tiger prawns, scallops and Moreton Bay bugs). The harvest strategy also includes decision rules to allow management arrangements to be implemented if updated biomass estimates become available.

- 3.1 If the annual catch is between 30 and 120 tonnes for tiger prawns, 35 and 85 tonnes for Balmain bugs, 12 and 58 tonnes for Moreton Bay bugs or 20 and 100 tonnes for saucer scallops, then no management action is required.
 - 3.2 If the harvest for two consecutive years is outside of the catch range of 30–120 tonnes for tiger prawns, 35–85 tonnes for Balmain bugs or 12–58 tonnes for Moreton Bay bugs, or if the annual harvest is outside the catch range of 20–100 tonnes for saucer scallops, a review is to be undertaken to understand the reason for the increased harvest, assess the risks and ensure catch of a species does not increase more than 20% above the upper catch range. If rule 4.2 is triggered, management action must be in place for the following fishing season until a detailed review is completed (e.g. trip limits, size limits or spatial/temporal closures). If the review identifies that a species is of increasing importance, the species may be considered for further stock assessment, monitoring or management action. If the review identifies sustainability is at risk, a stock assessment for this species is required within three years.
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4.0 Decision rules for by-product species

By-product species are classified as tier 3 species in this fishery and do not have catch limits. The following harvest control rules are to ensure that fishing does not result in unacceptable levels of fishing pressure on tier 3 species (e.g. blue swimmer crabs, cuttlefish). The harvest strategy also includes decision rules to allow management arrangements to be implemented if updated biomass estimates become available.

- 4.1 If the three-year average harvest of any species is no more than 10% above the average catch from 2017 to 2019, then no management action is required.
 - 4.2 If the three-year average commercial catch of any species is more than 10% above average catch from 2017 to 2019, a review is to be undertaken to understand the reason for the increased harvest and assess the risks and ensure catch of a species does not exceed 10% above average catch from 2017 to 2019. If catch of a species exceeds more than 10% above average catch from 2017 to 2019, management action must be in place for the following fishing season until a detailed review is completed (e.g. trip limits, size limits or spatial/temporal closures). If the review identifies sustainability is at risk, a stock assessment this species is required within three years.
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5.0 Breakout rules for secondary and by-product species

- 5.1 If a biomass estimate is available through a stock assessment for secondary or by-product species that indicates a reduction in fishing mortality is required to achieve a *B_{target}* or avoid *B_{lim}*, then management action must be taken (e.g. trip limits, size limits or spatial/temporal closures) to pursue the fishery objectives.
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Management of ecological risks from fishing

The foundation of sustainable fisheries management is managing the impact of fishing activities on non-target species and the broader marine ecosystem. Ecological risk assessments (ERA) identify and measure the ecological risks of fishing activity and identify issues that must be further managed under harvest strategies. The decision rules below are in place to minimise and mitigate high ecological risks arising from fishing.

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- 6.1 If an ERA identifies fishing impacts that result in an unacceptable level of risk to any ecological component, a review is triggered to investigate the reason for the risk, and appropriate management action taken to reduce the risk to an acceptable level.
 - 6.2 If the southern offshore trawl region trawl footprint in any given year is greater than the 2019 effort footprint, a review will be undertaken to understand the reason for the increased effort footprint and identify appropriate management strategies to reduce the risk, including options that reduce the permitted area that can be trawled. If the review identifies sustainability is at risk, management action is required within two years.
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The most recent ERA was completed in 2012 through a collaborative project between the Great Barrier Reef Marine Park Authority, Fisheries Queensland and the Queensland Seafood Industry Association. The ERA was for the entire Great Barrier Reef Marine Park area; however, the key findings for the southern offshore trawl region are as follows:

- Risks from trawling have reduced in the Great Barrier Reef since the introduction of a fishery management plan in 1999 and subsequent management actions.
 - Marine park zoning has been important in reducing risks from trawling.
 - Commercial fishers have been proactive in seeking and using better fishing practices to reduce trawling impacts.
 - Current risk levels from trawling activities are generally low. Under current practices and based on 2009 effort levels, the overall ecological risks from trawling to harvested species, as well as the broader environmental values and integrity, are low.
 - Risks are ongoing around some species of sharks and rays, Balmain bugs and a deepwater habitat in this region.
 - Trawl fishing effort is a key driver of ecological risk. Real risks will be addressed through harvest strategies and the fishery working group, taking into account the factors contributing to high-risk ratings, the adequacy of current management regime and, if applicable, strategies to reduce and mitigate the risk to the environment. Measures may include regional trawl effort caps under harvest strategies, further reductions in trawl bycatch, high compliance with rules, and accurate information from ongoing risk monitoring.
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For more information about the ERA for the east coast otter trawl fishery in the Great Barrier Reef Marine Park, refer to the [summary report](#) or the [full technical report](#).

Fisheries Queensland developed the [Ecological risk assessment guideline](#) to assess ecosystem impacts of fishing activities. Future risk assessments will be undertaken in line with the guideline to reassess any current or new ecological risks that may arise in the fishery. ERAs can be undertaken more frequently if there are significant changes identified in fishery operations, management activities or controls that are likely to result in a change to previously assessed risk levels.

Monitoring social and economic performance

The *Queensland Sustainable Fisheries Strategy: 2017–2027* outlines the target to set sustainable catch limits based on achieving maximum economic benefits of the resource, taken initially to correspond to around 60% of spawning biomass. This is to support the most economically efficient use of the resource, improve the fishing experience for all sectors and promote a resilient system that can bounce back from other adverse environmental conditions (e.g. floods). The harvest strategy rules have been set up to maintain the stock to this target biomass level.

The objectives and performance indicators in Table 5 (overleaf) will be used to monitor the social and economic performance of this fishery. The management options outlined are intended to provide some guidance on the options that could reasonably be considered alongside the decision rules if fishery trends are of concern.

Table 5: Social and economic indicators for the southern offshore trawl fishery

Objective	Performance indicators	Management options
Maximise economic performance of the commercial sector	Potential indicators to monitor include: <ul style="list-style-type: none"> • capacity utilisation • catch per unit effort (average per day) • costs, earnings and net financial and economic profit • net economic returns, gross state product, gross value of production • sale and lease price • profit decomposition (using profit or lease price) to determine impacts of prices, costs and stock/catch rates on changes in profits 	Consider regulatory and non-regulatory options Adjust management as needed Options include minimum holding, latent effort review
Monitor the broader social and economic benefits of the fishery to the community	Potential indicators to monitor include: <ul style="list-style-type: none"> • fisher satisfaction (with their fishing experience – commercial and recreational) • Recreational fisher participation and economic information • percentage of unit/licenses that are owned (rather than leased) • Gini coefficient of unit owner (measure of concentration) • percentage of total costs/inputs purchased from local businesses/residents • income generated (crew plus profit – gross value added) • proportion of catch sold locally • fish prices • number of platforms / number of active licenses / total capacity • community satisfaction (with their fisheries and the way in which they are managed) 	Consider regulatory and non-regulatory options Adjust management as needed
Maintain Wildlife Trade Operation (WTO) accreditation under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>	Number of conditions met as required through WTO accreditation	Amend fisheries legislation or implement other measures as required to align with best practice and maintain accreditation
Maintain United States turtle exclusion device inspection program and Section 609 United States export accreditation	United States inspection report	Amend management and fisheries legislation as required to align gear controls with accreditation requirements

Data collection, validation and assessment

Fishery-dependent data (self-reported)

Catch and effort data is obtained through commercial logbook returns and real-time landing reports. The catch and effort data required to determine the standardised commercial catch rate for key species are obtained from catch and effort logbook returns and vessel tracking data. Commercial catch rates are standardised to account for fishing power, along with a range of potential influencing variables. The trawl logbook is available at business.qld.gov.au.

Fishers are also required to report any interactions with protected species in a mandatory threatened, endangered and protected animal logbook.

Fishery-dependent data (independent validation)

All commercial fishing vessels are required to have vessel tracking systems installed and active on their vessels. Vessel tracking data is used to verify effort information reported in commercial fishing logbooks. As an effort-managed fishery, compulsory effort unit deductions provide an accurate record of fishing activity.. Queensland Boating and Fisheries Patrol undertake routine and intelligence-based at-sea and landing (unload) inspections to check compliance and validate reported information.

Fishery-independent information

Fisheries Queensland conducts an annual fishery-independent pre-recruit trawl survey.

The survey samples juvenile eastern king prawns in four important areas of southern Queensland during the months they are recruiting. Survey results are used in routine stock status assessments and periodic quantitative stock assessments. The modelled catch rate of recruit prawns found in a survey year strongly correlates with the inshore eastern king prawn fishery catch rates of that fishing year.

Scientific assessment of stock

A bioeconomic stock assessment was completed in 2021 and provided MSY and MEY catch and effort estimates for eastern king prawns in the fishery.

Information and research priorities

Key information and research priorities have been identified in Table 6 to help meet the objectives of this harvest strategy. These will be reviewed and updated as required through the harvest strategy workshop.

Table 6: Information and research priorities for the southern offshore trawl region

Project description	Explanation of need	Priority
Regular periodical fishing power surveys	Collect information to improve catch rate standardisation	Medium
Bycatch reduction device (BRD) testing and evaluation program to support continued innovation	To support continued innovation of trawl BRDs	High

Schedule of performance monitoring, assessment and review

Annual performance monitoring and assessment

The fishery’s performance will be monitored against this harvest strategy **annually**. This will include an annual harvest strategy workshop to provide operational advice on the fishery’s performance and any matters that may need addressing.

The primary performance measure is spawning biomass, which will be used to review the TACE every three years. In the intervening years, fishing power estimates will be applied to the TACE, thus reducing the allowable effort proportionally. Refer to the most current [stock assessment](#).

While harvest strategies provide certainty and transparency in terms of management decisions in response to certain fishery information, there must also be flexibility to allow new information or changing circumstances to be appropriately considered. There may be instances in which a stock assessment may need to be available prior to, or delayed beyond, the scheduled date. Any change to the stock assessment schedule should be considered by the harvest strategy workshop and decided on by the chief executive based on the below conditions:

- If during the period between scheduled stock assessments the chief executive is concerned that a performance indicator (e.g. stock status, standardised commercial catch rate, total harvest) suggests the stock is not performing in a way that will achieve the target biomass level, the chief executive may decide that a stock assessment will be undertaken before the scheduled timeframe.
- If the chief executive is satisfied that (1) indicators for the stock suggest it is achieving, or rebuilding to, target biomass levels, and that there is a low ecological risk to the stock under the current management arrangements, or (2) if resourcing requirements prohibit the ability for an assessment to be delivered in the scheduled timeframe, the chief executive may decide that a scheduled stock assessment will be delayed.

Table 7: Information and research priorities for the southern offshore trawl region

	Year 1	Year 2	Year 3	Year 4	Year 5
Assessment program	Modelled stock assessment	Catch and effort monitoring	Catch and effort monitoring	Modelled stock assessment	
Management program	Review TACE, reference points and fishing rules Fishing power adjustment is required	Review of catch and effort data Adjust TACE for fishing power Bring forward management decisions if needed	Review of catch and effort data Adjust TACE for fishing power Bring forward management decisions if needed	Review TACE, reference points and fishing rules Fishing power adjustment is required	Harvest strategy review

Harvest strategy review

This harvest strategy will remain in place for a period of five years, after which time it will be fully reviewed in accordance with the *Fisheries Act 1994*. The harvest strategy may also be subject to further review and amendment as appropriate within the five-year period if any of the following circumstances arise:

- there is new information that substantially changes the status of a fishery, leading to improved estimates of indicators relative to reference points
- drivers external to management of the fishery increase the risk to fish stock/s
- it is clear the strategy is not working effectively and the intent of the harvest strategy policy is not being met.

For more information on the processes for amending harvest strategies, refer to the [Queensland harvest strategy policy](#).

Acronyms and definitions

Acronym/term	Definition
Biomass	Total weight or volume of a stock or component of a stock (e.g. spawning stock biomass would refer to all adult (reproductively mature) fish in a population)
Biomass at maximum economic yield (<i>B_{mey}</i>)	The average biomass which corresponds to maximum economic yield
Biomass limit reference point (<i>B_{lim}</i>)	The point beyond which the risk to the stock is regarded as unacceptably high
Biomass target (<i>B_{targ}</i>)	The desired biomass of the stock
BRD	Bycatch reduction device
Bycatch	A species that is incidentally either: <ul style="list-style-type: none"> • taken in a fishery and returned to the sea • killed or injured as a result of interacting with fishing equipment in the fishery, but not taken Bycatch can include protected species
By-product	Any part of the catch that is kept or sold, but is not the target species By-product makes some contribution to the value of the catch in a fishery but less than that of key commercial species
Catch-per-unit-effort	The number or weight of fish caught by a unit of fishing effort Can be used as an index of relative abundance or indicator of change in the fishery
Ecological risk assessment (ERA)	An assessment process that evaluates the relative risk posed by fishing on species, habitats and communities within a fishery
F	Fishing mortality
<i>F_{targ}</i>	Fishing mortality target
Maximum economic yield (MEY)	Sustainable level of harvest that allows net economic returns (profit) to be maximised
Maximum sustainable yield (MSY)	The maximum average sustainable annual fishing mortality that can occur on a stock over an indefinite period under prevailing environmental conditions
SAFS	Status of Australian Fish Stocks
Total allowable commercial catch (TACC)	The harvest limit set for the commercial fishing sector usually achieved through setting TACC, but sometimes through input controls
Total allowable commercial effort (TACE)	The annual effort limit set for a stock, species or species group, used to control commercial fishing mortality within a fishery