

Queensland blue swimmer crab fishery
harvest strategy: 2021–2026
CONSULTATION DRAFT

Business Unit Owner Management & Reform

Endorsed by Deputy Director General (Fisheries & Forestry) in accordance with delegated powers under Part 2, Division 1 (Harvest Strategies) of the *Fisheries Act 1994*

Approved by Minister responsible for fisheries in accordance with section 16 of the *Fisheries Act 1994*

Revision history

Version no.	Approval date	Comments
1.0	September 2020	Draft harvest strategy for consultation

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What the harvest strategy is trying to achieve

This strategy has been developed to manage the harvest of Queensland's blue swimmer crab resource. The harvest of blue swimmer crabs is currently considered sustainable with the risk of fishing considered low due to the management controls in place such as single sex harvest and minimum size limits. However, the fishery has displayed a reduction in commercial harvest for the last two consecutive fishing seasons (2017-18 and 2018-19). The Blue Swimmer Crab fishery (BSCF) is currently under a period of transition from that with high potential effort and no effective catch limits, to a quota managed fishery.

The aim of this harvest strategy is to manage the fishing mortality of blue swimmer crabs through the setting of a total allowable catch (TAC) at a level that allows the stock to achieve specified biomass targets. Through the transition to quota management, improved catch and effort data from all sectors will build confidence in a biomass based management approach in the future. The strategy's decision rules are designed to set catch at levels appropriate for achieving a 60% biomass target for blue swimmer crab as well as to maintain resource shares between commercial (pot and trawl), recreational and traditional fishing sectors.

Fishery overview

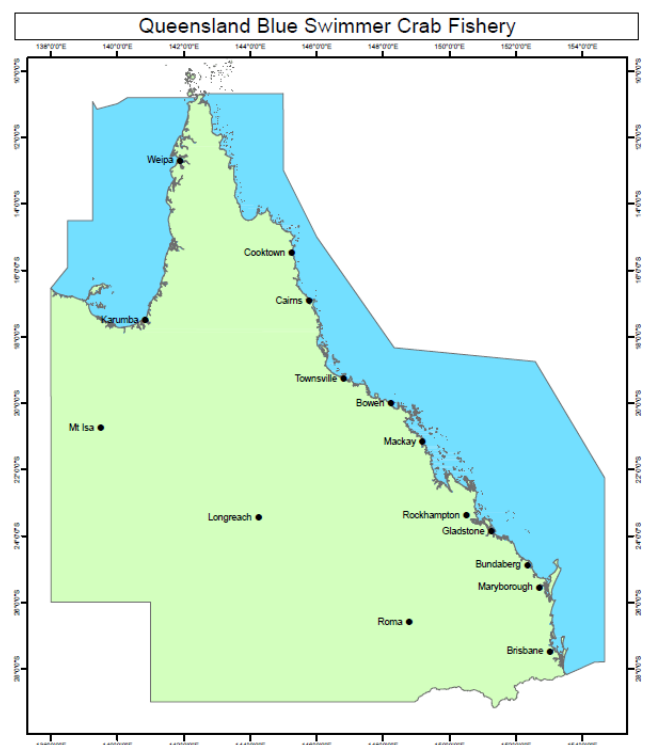
The BSCF includes commercial, recreational and traditional fishing that target blue swimmer crabs. The blue swimmer crab stock currently experiences high local pressure in Moreton Bay, the Sunshine Coast and Hervey Bay from commercial fishers, while recreational fishing is more concentrated in the Moreton Bay region. These regions account for around 95% of the reported commercial pot harvest in Queensland.

The total commercial pot catch of blue swimmer crabs in recent years has been between 350 - 400 tonnes in recent years, with the lowest recorded catch of 215 tonnes in 2018, indicating the stock may be in decline. This is significantly lower than historical harvest levels of around 1300 tonnes in 2003 and 2004.

Blue swimmer crabs are also harvested in Queensland's east coast trawl fishery as a permitted by-product species. The take in this fishery is variable, averaging around 50 tonnes per year over the last decade. This was considerably higher prior to 2004, when catches exceeded 100 tonnes in most years.

The take of blue swimmer crabs by the recreational sector has been estimated to be around 36 tonnes per year, although this is likely to be below actual recreational harvest levels, as there was no possession limit prior to 2019, and effort is unrestricted. As part of the recreational boat ramp survey program, it has been estimated that ~90% of recreational fishers surveyed (over 1000 surveys) caught six or fewer crabs.

While catch and effort in the indigenous fishing sector is the least understood, it is assumed this sector has comparatively low levels of effort in comparison to other sectors.



Stocks covered by the harvest strategy

Blue swimmer crabs are distributed from the south coast of Western Australia, north to the Northern Territory, across Queensland, down the east coast and to the New South Wales–Victoria border. They are also found in the warmer waters of the South Australian gulfs.

Stock structure on the east coast of Australia is uncertain, involving overlapping stocks or a semi-continuous stock. Due to the geographic separation between the major fishing grounds for blue swimmer crab in New South Wales and Queensland, they are managed as two separate biological stocks. Blue swimmer crabs in the Gulf of Carpentaria are also managed as part of the Queensland stock.

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

Feature	Details
Target species	Blue swimmer crabs (<i>Portunus armatus</i>).
Biology	<p>Blue swimmer crabs are fast growing benthic carnivores and scavengers. They mature early (~1 year) and are a highly fecund species that exploit a broad ecological niche.</p> <p>Mating occurs throughout most of the year when the female crab is in the early post-moult. Female egg-bearing crabs occur throughout the year with the proportion of females bearing egg masses being greatest during early spring (August-October). Blue swimmer crab longevity is between 3 and 4 years.</p>

Management units for the harvest strategy

Defining the fishery to which a harvest strategy applies is a critical step in determining its scope. The management unit for this harvest strategy is as defined by the *Fisheries (Commercial Fisheries) Regulation 2019*:

- all Queensland waters.

Summary of management information

A summary of the management arrangements for the BSCF are set out in the table below. Fishers should consult the relevant fisheries legislation for the latest and detailed fishery rules or visit www.fisheries.qld.gov.au.

Table 2: Summary table of BSCF management arrangements

Feature	Details
Commercial access	Primary Commercial Fishing Licence with a “C1” fishery symbol
Relevant fisheries legislation	<p><i>Fisheries Act 1994</i></p> <p><i>Fisheries (General) Regulation 2019</i></p> <p><i>Fisheries (Commercial Fisheries) Regulation 2019</i></p> <p><i>Fisheries Declaration 2019</i></p>

Feature	Details
Other relevant legislation	<p><i>Great Barrier Reef Marine Park Act 1975 and Regulation 2019</i></p> <p><i>Marine Parks Act 2004</i></p> <p><i>Environment Protection and Biodiversity Conservation Act 1999 and Regulation 2000</i></p>
Working Group	<p>Crab Fishery Working Group</p> <p>Terms of Reference and meeting communiques are available online</p>
Gear	<p>The following apparatus are currently permitted for use within the Crab Fishery:</p> <p><i>Commercial:</i> crab pot, collapsible trap or dilly. Pots can be arranged along a trotline (excluding some areas). Commercial fishers are limited to a maximum 50 pots, traps, or dillies per C1 fishery symbol. 100 pots can be used where a commercial fishing boat licence has two C1 fishery symbols attached. 150 pots are used in some offshore waters in blue swimmer crab fishery where three C1 fishery symbols are attached.</p> <p><i>Recreational:</i> wire-mesh traps, trawl-mesh crab pots, and hoop/dilly (with restrictions). Recreational fishers are limited to a maximum of 4 pots/dillies per person.</p>
Main management methods	<p><i>Commercial</i></p> <p>The main management methods under the harvest strategy are:</p> <ul style="list-style-type: none"> • Individual Transferable Quota (ITQ) and associated total allowable commercial catch (TACC) • Limited access by restricting the number of Commercial Fishing Boat Licences issued • Maximum vessel size (20m) • the abovementioned gear restrictions <p><i>Recreational</i></p> <ul style="list-style-type: none"> • The main management methods under the harvest strategy are in possession limits. • The above mentioned gear restrictions <p><i>Other management methods include:</i></p> <ul style="list-style-type: none"> • Minimum size limit • No take of female crabs • Trip limit for the east coast trawl fishers
Fishing year	1 July – 30 June

Feature	Details
Stock Status	<p>Blue swimmer crab is currently listed as 'Sustainable' SAFS 2018</p> <p>https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-compliance/data/sustainability-reporting/stock-status-assessment</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' in SAFS, this does not mean that the biomass is meeting the targets set out in the Sustainable Fisheries Strategy 2017-2027.</p>
Accreditation under the Environment Protection and Biodiversity Conservation Act 1999	<p>Part 13: Accredited (expires 2022)</p> <p>Part 13A: Accredited (expires 2022)</p> <p>https://www.environment.gov.au/marine/fisheries/qld/blue-swimmer-crab</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 *Sustainable Fisheries Strategy 2017-2027*.

The primary objective is to:

- Maintain the blue swimmer crab resource at, or returned to, a target exploitable biomass level that aims to maximise economic yield (MEY) for the fishery.

While:

- Minimising and mitigating high ecological risks arising from fishing related activities
- Maintaining sectoral allocations for the blue swimmer crab fishery resource
- Maximising profitability for the commercial sector
- Managing excess capacity to improve social and economic benefits
- Monitoring the 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 are set out in the Table 3 to ensure that catch shares among sectors can be maintained in response to changes in the TAC.

Catch share arrangements will be formalised by the end of the first harvest strategy, taking into account results from the 2019/20 state-wide recreational fishing survey, any other available information relating to recreational harvest, and validated commercial catch over corresponding years. Table 3 outlines *indicative* catch shares (rounded to nearest 5%) for all sectors for blue swimmer crab, based on available data up to 2018.

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

Aboriginal Peoples and Torres Strait Islanders also desire more economic opportunities through fishing, particularly in their own sea country. In line with the Indigenous Commercial Fishing Development Policy, up to 10 tonnes will be set aside to provide access through an Indigenous Fishing Permit, issued in accordance with section 54 of the *Fisheries (General) Regulation 2019*, to provide opportunities for communities to take part in fishing-related business.

Table 3: Resource allocation arrangements for the BSCF

Sector	Commercial fishing [@]		Recreational fishing [*]
Proportion of total harvest	85%		15%
Within Sector Proportions	Pot Fishing	Trawl fishing [†]	N/A
	90%	10%	
Indigenous Commercial Fishing Development	10 tonnes		

[@] Commercial catch information collected through commercial logbook requirements.

^{*} The indicative recreational harvest range is based on the 2013 recreational harvest estimate plus or minus 2 x 25% being the reported standard error¹.

^{*} The recreational range is based on the estimated harvest from the 2013 State-wide Recreational Survey (36 tonnes) plus or minus 50%. The blue swimmer crab recreational estimate has a high level of uncertainty (around 25%) compared with many other recreational estimates.

[†]Trawl fishery percent target is based on the maintaining around 10% of the total commercial harvest (i.e. commercial pot and commercial trawl).

¹ Webley, J., McInnes, K., Teixeira, D., Lawson, A. and Quinn, R. (2015) *Statewide Recreational Fishing Survey 2013–14*. Technical Report. State of Queensland, Brisbane, Queensland. <http://era.daf.qld.gov.au/id/eprint/6513/>

Managing the performance of the fishery

Key indicators measure how healthy the fishery is performing. The indicators relate to the objectives, and use reference points to establish acceptable performance (Table 4). 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 target reference point (B_{targ}) of 60% of the exploitable biomass (for key target species) being the relative biomass level the harvest strategy aims to achieve. This is also considered a proxy measure of B_{mey} for the purposes of this harvest strategy;
- A limit reference point (B_{lim}) of 20% of the exploitable biomass being the 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 “depleted”.

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 objectives.

The decision rules for setting a sustainable harvest in the blue swimmer crab harvest strategy are based on a ‘hockey stick’ approach for setting the TAC. This is where the TAC 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 TAC is set at the level to achieve MEY (Figure 1). The decision rule takes into account the current biomass level of the stock for determining the TAC to achieve the B_{targ} . The recommended TAC is calculated by applying the rate of fishing mortality to achieve B_{targ} to the current exploitable biomass level. As a result, the recommended TAC represents the total catch from all sectors (including discards) that can be harvested in the following years, to move the current biomass level towards the target level.

If the exploitable biomass falls below the limit reference point (B_{lim} 20%), there will be no more targeted fishing of the stock until a rebuilding strategy is developed to increase the exploitable biomass above the limit within three generations (where a generation is defined as the average age of full maturity for the fish species). The rebuilding timeframe of three generations takes into account the productivity and life span of the fish species.

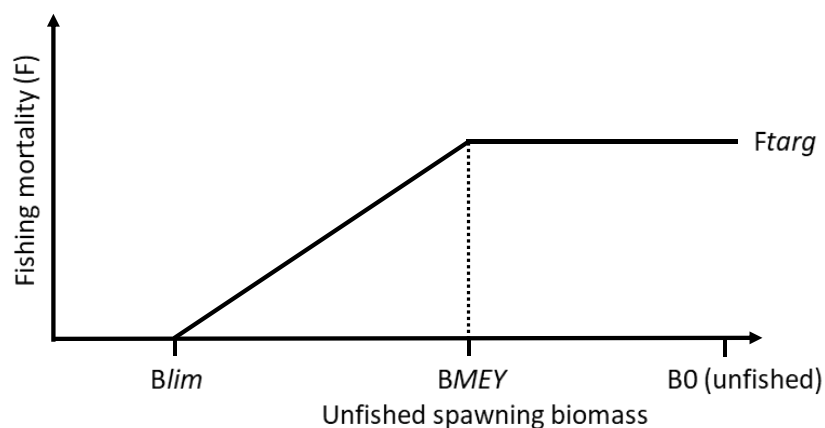


Figure 1: showing the “hockey stick” rule, B_{lim} is limit reference point, B_{mey} is the biomass at MEY, B_0 is the unfished biomass at 100%, F is fishing mortality and F_{targ} is the level of fishing mortality for B_{mey} .

To meet the objectives of the fishery, the harvest strategy will also act to constrain all sectors within their allocated catch share. Should a new estimate of recreational harvest or catch from charter fishing logbooks indicate that a sector has increased their catch share outside of their allocated proportion for any TAC species, then adjustment will be made to constrain harvest within this share. Adjustments to the recreational fishing limits may be undertaken if large changes are made to the TAC for a species.

To account for the catch of blue swimmer crabs by the trawl sector a separate set of rules has been developed to ensure that the commercial trawl sector are maintained within the 10% allocated commercial trawl catch share. Trawl trip limits will be adjusted if the sector is found to be catching outside of their allocation and the amount of the change to trip limits will be informed by an assessment that takes account a range of factors including the location of the catch, catch rates, likely mortality rates of trawl caught harvest, modelling to indicate the level of the reduction required, and other relevant information to make an informed decision.

Table 4: Performance indicators and reference points for the BSCF

Performance indicator	Type of reference point	Reference level
Blue swimmer crab biomass	Target (B _{targ})	60% exploitable biomass
Blue swimmer crab biomass	Limit Reference Point (B _{lim})	20% exploitable biomass
Commercial trawl harvest	Target harvest	< 12% of commercial catch
Commercial trawl harvest	Maximum change buffer	20 crabs in Moreton Bay / 100 Crab on the East Coast
Estimated recreational harvest	Target harvest	2013 Recreational survey ± 2SE
Recreational limit	Upper limit	20 crabs in possession
	Lower limit	5 crab in possession
Estimated recreational harvest	Maximum change buffer	5 crabs

Management of target species

Decision rules for the commercial harvest of blue swimmer crab (BC1)

The decision rules specified in this harvest strategy have been designed to provide clear guidance on the TACC setting process for the blue swimmer crab commercial fishery by defining how advice should be developed and implemented in response to results from quantitative stock assessments (see Appendix A). The TACC will be used to set the quota for pot take of blue swimmer crabs, as well as determining the annual catch limits for the trawl sector.

- 1.1 If the biomass is at or above *B_{targ}*, set the TACC at a level that maintains biomass at *B_{targ}*.
- 1.2 If biomass is below *B_{targ}* and above *B_{lim}*, the TACC should be set at a level where fishing mortality is reduced to the rate that allows the biomass to increase effectively back to *B_{targ}*
- 1.3 If biomass is below *B_{lim}*, there will be no further targeted fishing for that species, and a rebuilding strategy will be developed to increase the stock biomass to above *B_{lim}* within three generations.
- 1.4 If any new information becomes available indicating that the assessment and TACC-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 that required to achieve *B_{targ}* (i.e. F_{60}) ; and
 - 1.6 The TAC should not exceed the level of fishing mortality required to maintain a stock at MSY .
-

Decision rules for the east coast trawl harvest of blue swimmer crab

The East Coast Trawl Fishery primarily controls the trawl harvest of blue swimmer crabs on a regional basis. The decision rules used in this harvest strategy aims to maintain sectoral shares between the commercial pot and trawl and includes a process for adjusting the catch of blue swimmer crabs in the east coast trawl fishery, which is based on maintaining the trawl fishery within its historical catch share of 10% of commercial catch. A change in the allowable trawl harvest may be triggered through a change in the TACC for the commercial fishery, or through an increase in reported trawl harvest.

- 2.1 If the average trawl harvest of blue swimmer crabs over three consecutive years is no more than 2% above the commercial trawl sector catch proportion then no management action is required.
 - 2.2 If the average trawl harvest of blue swimmer crabs over three consecutive years exceeds the commercial trawl sector catch proportion by greater than 2% the trawl trip limit will be decreased to return catch to allocated proportions, **and notwithstanding that**
 - 2.3 In any given year the trip limit must not change by more than 20 crabs in the Moreton Bay trawl fishery and by no more than 100 crabs in the east coast trawl fishery. **AND**
 - 2.4 If management action is triggered to return the trawl sector catch of blue swimmer crabs to within its allocated catch range more than once during this harvest strategy, then the trawl harvest of blue swimmer crab will be limited by a competitive TACC based on the commercial trawl sector catch proportion.
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Decision rules for the recreational and charter sector harvest of blue swimmer crab

To ensure that no one fishing sector is increasing its catch share at the expense of another, the harvest strategy has been designed to include decision rules for maintaining catch shares between sectors. As the commercial catch of blue swimmer crab is limited through a TACC, the recreational in-possession limit will serve to constrain the recreational (and charter) catch. The below decision rules inform changes in recreational possession limit based on harvest levels from the state-wide recreational fishing survey and charter fishing logbooks.

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- 3.1 If a recreational harvest estimate is no more than 15% above the allocated recreational catch proportion then no management action is required.
 - 3.2 If an estimate of recreational harvest exceeds the catch share by greater than 10% the recreational in possession limit will be decreased to return catch to allocated proportions.
 - 3.3 If a stock assessment recommends an increase in the TACC to a level that would increase the commercial catch share by 25% or more then the recreational in possession limit will be increased to return catch shares to allocated proportions, **and notwithstanding that**
 - 3.4 The new recreational limit must not change by more than five crabs in any given year and if the TACC is equal to zero the fishery will be closed for all sectors.
-

Management of bycatch, protected species interactions and ecological risks from fishing.

A 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 require further management. The below decision rules are in place to minimise and mitigate high ecological risks arising from fishing related activities.

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- 4.1 If an Ecological Risk Assessment (ERA) identifies fishing impacts that are considered to generate an undesirable level of risk to any secondary or byproduct species' populations, (i.e. high risk) a review is triggered to investigate the reason for the increased risk. Appropriate management action should be taken to reduce the risk to acceptable level.
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A whole-of-fishery Level 1 Ecological Risk Assessment for the crab fishery (mud and blue swimmer crab) was completed in 2019 and identified two ecological components/sub-components at higher risk; target & byproduct species and marine turtles (available at: <http://era.daf.qld.gov.au/id/eprint/6965/>). These components have been progressed to a species-specific Level 2 ERA.

Fisheries Queensland's Ecological Risk Assessment Guideline is published online at <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable-fisheries-strategy/ecological-risk-assessment-guidelines>.

Future risk assessments will be undertaken periodically to reassess any current or new issues that may arise in the fishery. Risk assessments 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.

Social and economic performance

The Sustainable Fisheries Strategy 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 exploitable 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 following objectives are to support 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 if fishery trends are of concern.

Table 5: social and economic indicators for the BSC

Objective	Performance indicators	Management options
Maximising profitability for the commercial sector	<p>Potential indicators to monitor include:</p> <ul style="list-style-type: none"> • Capacity utilization • CPUE (average per day) • Costs, earnings and net financial and economic profit • Quota 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 	<p>Consider regulatory and non-regulatory options. Adjust management as needed. Options include minimum quota holding, latent effort review.</p>
Monitor the broader social and economic benefits of the fishery to the community	<p>Potential indicators to monitor include:</p> <ul style="list-style-type: none"> • Fisher satisfaction (with their fishing experience – commercial and recreational) • Percent of quota/licences that are owned (rather than leased) • Gini coefficient of quota owner (measure of concentration) • Percent 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) 	<p>Consider regulatory and non-regulatory options. Adjust management as needed</p>

Monitoring and assessment

The catch and effort data required to determine the standardised commercial catch rate for harvested crab species is obtained through commercial logbook returns, which are compulsory for all commercial and charter fishers. The BSCF logbook is at <https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/monitoring-reporting/requirements/logbooks>

As the BSCF moves to quota-management; real-time reporting and catch disposal records are also required to provide an accurate record of the catch. All boats in the BSCF are required to have vessel tracking installed and operational to verify fishing effort reported in commercial fishing logbooks.

Harvest, effort and trends in the recreational sector will be monitored through the State-wide Recreational Fishing Survey and boat ramp surveys.

Fishery-independent information

Fisheries Queensland has been undertaking fisheries independent trawl surveys of eastern king prawns, blue swimmer crabs and snapper since 2006 and, although the objectives and logistics of the sampling have changed over time, there has been a relatively consistent sampling in November and December each year, using beam trawl apparatus.

Data from the survey was used in the 2015 blue swimmer crab stock assessment model as an index of relative abundance in the fishery and is an important component of blue swimmer crab monitoring. Ideally, the Fisheries Queensland pre-recruit trawl survey could inform quota increases in the future (or an in season 'boom trigger'), however a mechanism to enable this to occur has yet to be developed.

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 updated as required.

Table 6: Information and research priorities for the BSCF

Project Description	Explanation of Need	Priority	Funding
Updated target reference points	Use of recent economic data to inform maximum economic yield based target reference points.	High	Fisheries Queensland
Development of a pre-recruit index	Research to establish whether the independent trawl survey can be used as an effective pre-recruit index to inform TAC setting for blue swimmer crabs.	High	Undetermined

Schedule of performance assessment and review

The performance of the BSCF will be reviewed against this harvest strategy annually. This review will include convening the Crab Working Group in February/March to provide operational advice on the fishery’s performance and any matters that may need addressing. The primary performance measure will be exploitable biomass, which will be reviewed biennially, with a review of catch and effort data in intervening years. Table 7 summaries the key review and decision points for the BSCF.

Table 7: Anticipated performance schedule for the BSCF

	Year 1- 2021/22	Year 2 -2022/23	Year 3- 2023/24	Year 4- 2024/25	Year 5- 2025/26
Monitoring and assessment Activity	Catch and effort monitoring	Catch and effort monitoring	Modelled Assessment	Catch and effort monitoring	Catch and effort monitoring
Management activity	Review of catch and effort data and bring forward TAC decision if needed	Review of catch and effort data and bring forward TAC decision if needed	Review of TAC and in-possession limits, declaration made if required	Review of catch and effort data and bring forward TAC decision if needed	Review harvest strategy and reset reference points and TAC if required

The above schedule outlines the expected timeframes that assessment information will be available to inform management action. There may be instances where an assessment may need to be available prior to, or delayed beyond the scheduled date. Any change to the schedule should be considered by the working group 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, length frequency distributions, standardised commercial catch rates, total harvest, age distributions etc.) suggests that 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 suggests that it is achieving, or rebuilding to, target biomass levels, and that there is a low ecological risk to the stock under the current management arrangement (i.e. TAC levels); (2) or 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.

Schedule of review

This harvest strategy will remain in place for a period of five years, after which time it will need to be fully reviewed in accordance with the *Fisheries Act 1994*.

While harvest strategies provide certainty and transparency in terms of management decisions in response to fishery information, there needs to be flexibility to allow new information or changing circumstances to also be considered. Consequently, the harvest strategy may be subject to further review and amendment as appropriate within the five year period if 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; or
- Drivers external to management of the fishery increase the risk to fish stock/s; or
- A new recreational harvest estimate becomes available that suggests the defined sectorial catch shares may have been set incorrectly or may be unrepresentative; or
- It is clear the harvest strategy is not working effectively and the intent of the Queensland Harvest Strategy Policy is not being met.

Further explanation and information on the processes for amending harvest strategies can be found in the Queensland Harvest Strategy Policy published at <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable-fisheries-strategy/harvest-strategy>.

Appendix A: Flow diagram of decision rules for blue swimmer crabs

