A decorative graphic at the top of the page features several stylized fish swimming in waves. The fish are rendered in a light blue, line-art style, and the waves are represented by fine, overlapping lines. The background is a gradient of blue, with a darker teal triangle in the top-left corner and a lighter blue triangle in the bottom-right corner.

Reef line fishery  
harvest strategy: 2020–2025  
CONSULTATION DRAFT



Queensland  
Government

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	October 2019	Draft harvest strategy for consultation

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## What the harvest strategy is trying to achieve

This harvest strategy has been developed to manage all coral reef fin fish species of Queensland, as part of the Reef Line Fishery (RLF). All coral reef fin fish stocks are considered sustainable (noting that many species are undefined) with the risk of fishing on sustainability considered low due to the existing management framework and marine park zoning. The RLF is a multi-species fishery, however, coral trout (*Plectropomus spp.*) are recognised as the principal commercial species that drives fishing effort, and the species can be targeted without high co-harvest of non-target species.

The aim of this harvest strategy is to manage fishing mortality through setting sustainable catch limits at a level that allows the stock to achieve defined biomass targets. If biomass estimates are available for a species, decision rules are designed to set catch limits at levels appropriate for achieving and maintaining spawning biomass at 60%, and maintaining catch shares amongst commercial, recreational, charter and traditional fishing sectors. If biomass estimates are not available for a species, precautionary catch triggers have been designed to allow for controlled expansion of fishing, and hence optimising economic yield, while monitoring changes in catch and effort within historic catch levels.

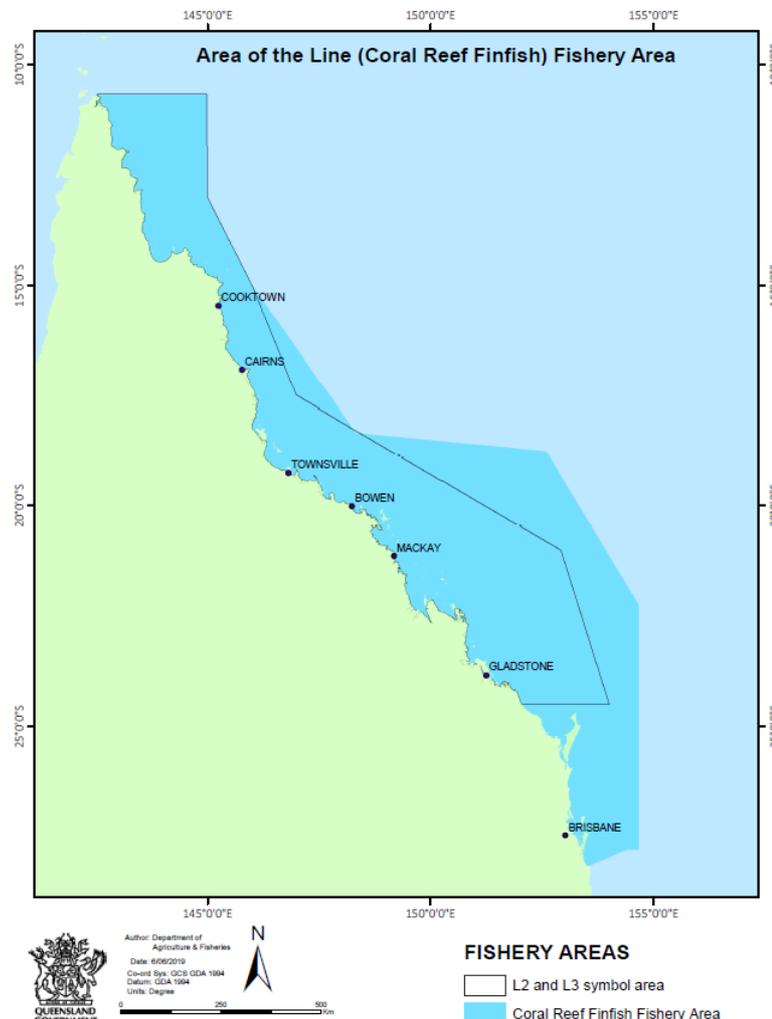
## Fishery overview

The RLF is a line-only fishery targeting a range of bottom-dwelling reef fish. The commercial fishery operates predominantly within the Great Barrier Reef Marine Park (GBRMP), with a small amount of catch and effort reported from outside this area. Operators target high-value coral trout for live-export, as well red throat emperor and a wide range of coral reef fin fish species sold domestically.

Commercial fishing operations generally consist of a number of smaller tender boats (dories) and a larger primary fishing vessel. However, there is a degree of variability within RLF, which encompasses smaller operations undertaking single day trips through to larger vessels with multiple dories operating over a two-week period.

Recreational fishers access the fishery via private recreational vessels or as paying customers on offshore charter operations (both single and multi-day charters). Recreational fishers target a wide range of coral reef fin fish species with significant social interest in coral trout, emperor and tropical snapper species which feature prominently in the Queensland State-wide Recreational Fishing Survey.

In addition to the recreational and commercial fishing sectors, the RLF also includes traditional catch. Catch and effort in the indigenous fishing sector remains the least understood of all sectors. However, it is assumed that this sector has comparatively low levels of effort with fishing activities aligning closely with the recreational fishing sector.



## Fish stocks covered by the harvest strategy

Coral trout is the primary species group targeted. There are a number of species of coral trout regularly caught in the fishery including common coral trout (*Plectropomus leopardus*), barcheek coral trout (*P. maculatus*) and blue-spotted coral trout *P. laevis*, with the common coral trout making up the majority of commercial harvest. A genetic study of coral trout on the Great Barrier Reef (GBR) found no spatial separation of stocks.

Red throat emperor (*Lethrinus miniatus*) is Queensland's second most important reef fish by commercial catch weight, and is also a popular target fish for recreational fishers. Research on the stock structure of red throat emperor concluded that there was no evidence for distinct genetic stocks on the GBR. Table 1 outlines the fish stocks covered by this harvest strategy.

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

Feature	Details
Target species	Coral trout ( <i>P. leopardus</i> , <i>P. maculatus</i> & <i>P. laevis</i> )
Secondary and byproduct species	Red throat emperor ( <i>L. miniatus</i> ) Other species: red emperor, stripey snapper, saddletail snapper, crimson snapper, goldband snapper, and spangled emperor.
Species biology	Longevity for coral trout spp: <i>P. leopardus</i> : 17 years, ~650 mm fork length / <i>P. maculatus</i> : 13 years, 650 mm FL / <i>P. laevis</i> : 16 years, ~1150 mm  All species are protogynous hermaphrodites (individuals are born female and later become male).  Size at maturity and sex change also vary by location; <i>P. leopardus</i> : female ~280 mm fork length, male ~500 mm fork length (~4 years of age), <i>P. maculatus</i> : female ~300 mm fork length, male ~440 mm fork length, <i>P. laevis</i> : female ~450 mm fork length, male ~870 mm fork length.  Longevity for red throat emperor: 20 years, 650 mm TL. Age at 50% maturity: females: 1.2 years, 280 mm FL, 310 mm TL

## Management units for this harvest strategy

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

- Stocks:
  - Coral trout including all seven species
  - Red throat emperor
  - Other coral reef species (as defined by the Fisheries (general) Regulations 2019) – multiple stocks
- Fishing under the reef line fishery is permitted within the following fishery areas: **L1, L2, L3 and L8 fishery areas.**

## Summary of management information

A summary of the management arrangements for the RLF are set out Table 2. Fishers should consult the relevant fisheries legislation for the latest and detailed fishery rules or visit [www.fisheries.qld.gov.au](http://www.fisheries.qld.gov.au).

Table 2: Summary of management arrangements for the RLF

Feature	Details
<b>Commercial access</b>	Primary Commercial Fishing Licence with one of the following fishery symbols: L1 - Line fishing south of 24°30'S; L2 & L3 - line fishing north of 24°30'S in GBRMP; L8 - Multi hook deep line in waters greater than 200m <i>Quota / Access symbols</i> – RQ
<b>Relevant Fisheries Legislation</b>	<i>Fisheries Act 1994</i> <i>Fisheries (General) and (Commercial Fisheries) Regulations 2019</i> <i>Fisheries Declaration and Fisheries Quota Declaration 2019</i>
<b>Other relevant legislation</b>	<i>Great Barrier Reef Marine Park Act 1975 and Regulation 2019</i> <i>Environment Protection and Biodiversity Conservation Act 1999</i> <i>Marine Parks Act 2004</i>
<b>Working Group</b>	Reef Line Fishery Working group Terms of Reference and meeting communiques are available online
<b>Gear</b>	The following apparatus are permitted for use: Hook and line apparatus. Recreational fishers may use hook and line, rods and reels and spearfishing gear (excluding. Hookah/SCUBA).
<b>Main management methods</b>	Spawning closures, Minimum and maximum size limits, No take species, Gear restrictions <b>Commercial only</b> Limited Access through Commercial Fishing Boat Licences, Species-specific Individual Transferable Quotas (ITQ) for Coral Trout & Red Throat Emperor; Combined / basket ITQ for Other Species (OS), Vessel & tender restrictions <b>Recreational only</b> In-possession and size limits along with a total possession limit of 20
<b>Fishing year</b>	Quota season 1 July – 30 June
<b>Stock Status</b>	Coral trout listed as ' <b>Sustainable</b> ' by SAFS 2018 Red throat emperor listed as ' <b>Sustainable</b> ' by SAFS 2018 All other species are listed as ' <b>Undefined</b> ' by SAFS 2018 Australian fish stocks (SAFS) <a href="http://www.fish.gov.au">www.fish.gov.au</a>
<b>Accreditation under the Environment Protection and</b>	Part 13: Accredited (expires 6 March 2020) Part 13A: Accredited (expires 6 March 2020) <a href="https://www.environment.gov.au/marine/fisheries/qld/coral-reef-fin-fish">https://www.environment.gov.au/marine/fisheries/qld/coral-reef-fin-fish</a>

Feature	Details
<b><i>Biodiversity Conservation Act 1999</i></b>	

## Fishery objectives

Fishery objectives set out the direction and aspirations to achieve in the long term. The objectives for this fishery are to:

- Ensure that all species in the reef line fishery are maintained at, or returned to, a target spawning biomass level of 60% (as a proxy for Maximum Economic Yield).

While:

- Ensuring no unacceptable risk from fishing to species in the Other Species quota group
- Maintain sectoral allocations for all coral reef fin fish species
- Minimising and mitigating high ecological risks arising from fishing related activities
- Maximising profitability for the commercial and charter sector
- 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 (as at 2018) are set out in Table 3 to ensure that catch shares among sectors are maintained in response to changes in the Total Allowable Catch (TAC). Catch shares for secondary and byproduct species will be established if a species is escalated to a higher level of management (i.e. requiring a TAC).

These indicative resource allocation arrangements may only be updated if new information becomes available from the 2019 state-wide recreational fishing survey that indicates the defined sectoral proportions are no longer consistent with effective management of the fishery. An update of the resource sharing arrangements would only be undertaken in this instance to ensure that catch shares are based on the most recent and reliable information for all sectors. Post 2021, only approved resource reallocations would adjust the catch shares within this harvest strategy.

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 desire more economic opportunities through fishing, particularly in their own sea country. In line with the Indigenous Commercial Fishing Development Policy, up to 5 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 RLF

Species	Commercial fishing <sup>@</sup>	Recreational fishing* including Charter
Coral trout	80%	20%
Red Throat Emperor	60%	40%
Indigenous Commercial Fishing Development	5 tonnes	

<sup>@</sup> Commercial catch share for CT is informed by the 2019 coral trout stock assessment and RTE the 10-year average of catch reported in the quota monitoring system.

\* Recreational catch share is informed by state-wide recreation fishing survey's 2010-2013.

## Managing performance of the fishery

Suitable performance indicators have been selected to describe fishery performance in relation to the objectives, with associated reference points identified to established acceptable performance (Table 4). The primary performance indicator used to evaluate the stock status in the RLF is spawning biomass. Reference points have been set that are consistent with Queensland Government targets outlined in the Sustainable Fisheries Strategy 2017-2027.

The RLF harvest strategy uses a target reference point of 60% spawning biomass (*B<sub>targ</sub>*), a proxy for achieving Maximum Economic Yield (MEY). A biomass related trigger reference point of 40% (*B<sub>MSY</sub>*) a proxy for Maximum Sustainable Yield (MSY) is a point at which additional fishing effort may lead to decreased catch and profits and triggers additional action. A limit reference point of 20% (*B<sub>lim</sub>*) below which the risk to the stock is unacceptably high and the stock is defined as "overfished". The recommended maximum level of fishing mortality (F) is defined as *F<sub>60</sub>*, and represents the point above which the removal rate from a stock is considered too high to achieve *B<sub>targ</sub>*. This value represents the fishing mortality rate that corresponds to the target spawning biomass level of 60% known as *B<sub>targ</sub>* (the default proxy for MEY). These reference points are guided by information set out in the Queensland harvest strategy policy and guidelines.

Setting of a total allowable catch (TAC) for all sectors will be informed using a stock assessment with the aim of achieving the target biomass, and at which point the harvest strategy will be considered as meeting its fishery objectives. If spawning biomass falls below the trigger reference point (*B<sub>MSY</sub>* 40%) additional population modelling will be undertaken along with management changes to increase the spawning biomass above the trigger level. If the spawning biomass falls below the limit reference point (*B<sub>lim</sub>* 20%) the fishery will be closed until a rebuilding strategy can be developed to increase the spawning biomass above the limit level the lesser of either one generation or 10 years (where a generation is defined as the average age of a spawning individual within the population, or 4 years for *P. leopardus*).

The rebuilding timeframe of 1 generation takes into account the productivity and life span of the stock (and differences in recovery times). The generation timeframe represents a shorter and biologically relevant rebuilding time, but should not be more than the maximum timeframe of 10 years. The harvest control rules are designed to encourage the projection of multiple rebuilding strategies, for example projecting rebuilds to both *B<sub>lim</sub>* or *B<sub>MSY</sub>* if the stock was below the limit reference point to enable the most appropriate strategy to be determined.

For secondary target species where the primary performance indicator (biomass) is not available (e.g. those in the 'other species' quota grouping), triggers are used to manage increases in fishing mortality:

1. If the annual logbook catch exceeds 20t for an individual species, and
2. If the annual logbook catch has increased to 1.5 or 2 times above historical levels (from the defined reference period)

An annual catch level of 20 tonnes per species has been determined as the point at which increasing catches may present an increased risk to the sustainability of any given species. Given this a catch trigger has been developed where species may be subject to increased management if increases in fishing mortality are detected above this point. The trigger will be used to detect shifts in fishing effort by comparing annual catches against the average catch level from the reference period of 2011-2015. This reference period represents a stable period of operation, which includes weather events such as cyclones, fishing effort and number of licences and has been evaluated for its use as a reference period using retrospective analysis.

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 the recreational sector have increased their catch share outside of their allocated proportion for any TAC species then adjustments will be made to constrain them within this share. Adjustments to the recreational fishing limits may also be undertaken if large changes are made to the TAC for a species.

*Table 4. Performance indicators and reference points for the reef line fishery*

Species	Performance indicator	Type of reference point	Reference level
Coral Trout	Biomass	Target (B <sub>targ</sub> )	60% spawning biomass
Coral trout	Biomass	BMSY	40% spawning biomass
Coral Trout	Biomass	Limit Reference Point (B <sub>lim</sub> )	20% spawning biomass
Coral Trout	Change in commercial harvest	Minimum change	2% change in biomass
Coral Trout	Change in commercial harvest	Maximum change	200 tonnes
All species	Maximum level of fishing mortality	Limit reference point	F <sub>60</sub>
All species	Change in recreational in possession limit	Maximum change	2 fish
RTE and OS Species (when available)	Biomass	Target	60% spawning biomass
RTE and OS Species (when available)	Biomass	Lower limit	20% spawning biomass
RTE and OS Species	logbook catch	Average catch 2011-2015 Reference period	1.5 x reference period
RTE and OS Species	logbook catch	TACC	2 x reference period

## Management of target species

### Decision rules for commercial coral trout

The decision rules below are designed to provide clear guidance to setting the TACC. The decision rules for coral trout use the outputs of the Coral Trout Stock Assessment and aim to achieve a target biomass (*B<sub>targ</sub>*) of 60%. To allow for variability in the stock assessment and minimise small changes between TACC settings, the TACC will only increase or decrease when the biomass increases or decreases by 2% or more. The TACC is set biannually in year 1, year 3 and year 5 of the harvest strategy.

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- If the biomass is at or above *B<sub>targ</sub>*, set the TACC at a level that maintains biomass at 60%.
- If biomass level is below *B<sub>targ</sub>*, the TACC should be set to limit fishing mortality to a rate that allows the stock to increase to *B<sub>targ</sub>*.
- If biomass is below *B<sub>MSY</sub>*, the TACC should be set to limit fishing mortality to a rate that allows the stock to increase to above *B<sub>MSY</sub>*.
- If biomass is below *B<sub>lim</sub>*, 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<sub>lim</sub>* within the lesser of one generation or 10 years.

#### Notwithstanding that:

- The rate of fishing mortality should not exceed that required to achieve *B<sub>targ</sub>* (i.e. F60); AND
  - If the spawning biomass estimate is above *B<sub>MSY</sub>* and within 2% of the previous spawning biomass estimate the TACC should remain unchanged; AND
  - The new TACC must not change by more than 200 tonnes in any given year unless the spawning biomass is below 20%.
- 

### Review of TACC or decision rules

- 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, decision rules must be reviewed and, if appropriate, the reference points or timeframes should be adjusted.
- 

### Decision rules for secondary and byproduct species

The following decision rules are designed to ensure that fishing does not result in unacceptable levels of fishing pressure on secondary and byproduct species without biomass estimates. The harvest strategy also includes rules to allow TAC adjustment to red throat emperor if an updated biomass estimate becomes available. Refer to Appendix B Secondary and byproduct species, reference period catches and trigger levels.

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- If the commercial annual harvest of any species is less than 1.5 times the average reference period catch (2011 - 2015), **or** the annual harvest is less than 20 tonnes, then no management action is required.
  - If the commercial annual harvest of any species is greater than 1.5 times the average reference period catch (2011 - 2015), **and** the annual harvest is more than 20 tonnes, a stock assessment is required to inform the appropriate catch levels for this species.
  - If the annual harvest of any species is greater than 2 times the average reference period catch (2011-2015), **and** the annual catch is more than 20 tonnes, an interim competitive TACC will be set at 2 times the reference period catch level and a stock assessment will be undertaken.
-

## Break out rules

- Where a stock assessment becomes available for secondary target species that indicates a reduction in fishing mortality is required in order to achieve a *Btarg* (60%), *BMSY* (40%) or *Blim* (20%) reference points, then management action will be undertaken (i.e. set the TAC for red throat emperor) to rebuild the stock.
  - 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, the harvest control rules must be reviewed and, if appropriate, the reference points must be adjusted.
- 

## Decision rules for recreational and charter sector management

To ensure the recreational fishing sector is not increasing their catch share at the expense of the commercial sector the harvest strategy has been designed to include decision rules for maintaining catch shares between sectors. Should a new estimate of recreational harvest or catch from charter fishing logbooks indicate that the recreational sector has increased their catch share outside of their formalised proportion for any TAC species then adjustments will be made to constrain them within this share. Adjustments to the recreational fishing limits may also be undertaken if large changes are made to the TAC for a species. These decision rules only apply once a TACC is in place and catch shares have been formalised. Refer to Appendix C. Recreational possession limits can increase or decrease based on new figures from Recreational survey or revised stock assessment.

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- If a recreational harvest estimate for coral trout is no more than 5% **or** for all other coral reef fin fish species no more than 10% above the allocated recreational catch proportion, then no management action is required.
  - If a recreational harvest estimate exceeds the catch share by greater than 5% for coral trout **or** 10% for all other coral reef fin fish species, the recreational in possession limit will be decreased to return catch to allocated proportions.
  - If a stock assessment recommends an increase in the TACC to a level that would increase the commercial catch share for coral trout by 5% and for all other coral reef fin fish species by 10% or more then the recreational in possession limit will be increased to return catch shares to allocated proportions, if necessary **and notwithstanding that;**
  - The new recreational limit must not be increased or decreased by more than two fish in any given year and if the TACC is equal to zero the species will be no take for all sectors.
- 

## Review triggers

A review will be undertaken to understand whether further assessment or management is needed if:

- the recreational harvest, including charter harvest, for a species is greater than 50 tonnes and has increased or decreased by greater than 30% from the previous estimate **or**
  - the retained charter catch for a species is greater than 20 tonnes and has increased or decreased by greater than 30% from the previous calendar year.
-

## Minimise 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 below decision rules are in place to minimise and mitigate high ecological risks arising from fishing related activities.

- If an ERA identifies fishing impacts that are considered to generate an undesirable level of risk to any secondary or bycatch 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.

A whole-of-fishery Level 1 Ecological Risk Assessment for the CRF was completed in 2019 and identified two ecological components/sub-components at higher risk; target and byproduct species (OS category) and protected teleosts (SOCl only) (available at: <http://era.daf.qld.gov.au/id/eprint/6971/>). These components have been progressed to a species-specific Level 2 ERA, which is due for completion in 2020.

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

## Monitoring social and economic performance

The Sustainable Fisheries Strategy outlines the target to set sustainable catch limits based on achieving Maximum Economic Yield (MEY), usually around 60% of unfished biomass, to support the most economically efficient use of the resource, and improve the fishing experience for all sectors. The harvest strategy has been developed to maintain the biomass at, or return it to target level.

The objectives and performance indicators in Table 5 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 if fishery trends are of concern.

Table 5: social and economic indicators for the RLF

Objective	Performance indicators	Management options
Maximise economic performance of the commercial sector	Fishing capacity (i.e number of platforms)	Consider non-regulatory and regulatory options to address relevant issues. Adjust management as needed.
Maximise the broader social and economic benefits of the fishery to the community	Economic and social impact Fishing satisfaction	Consider non-regulatory and regulatory options to address relevant issues. Adjust management as needed.
Maintain Wildlife Trade Operation (WTO) accreditation under the EPBC Act	WTO accreditation conditions	Amend management and fisheries legislation as required.

## Monitoring and assessment

The catch and effort data required to inform harvesting of coral reef fin fish species is obtained through commercial logbook returns. The reef line logbook is at <https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/monitoring-reporting/requirements/logbooks>

As the RLF is a quota-managed fishery, real-time reporting and catch disposal records are also required to provide an accurate record of the catch. All boats in the RLF are required to have vessel tracking installed and operational on all primary and tender vessels to verify fishing effort reported in commercial fishing logbooks.

Commercial catch rates are standardised to account for a range of potential influencing variables. The current catch rate standardisation considers: fishing years, regions, months, as well as the main effects of individual vessels, and their fishing effort. The standardised commercial catch rates are based on the performance over the quota year.

Surveys of recreational fishers at boat ramps and the state-wide recreational fishing and logbook program data help provide important information on recreational fishing. Charter operators also record catch information in logbooks which are included as recreational harvest.

Fisheries Queensland has committed to collecting biological information on seven key coral reef fish species to address the emerging knowledge requirements. These seven species are:

- A. Common Coral Trout (from July 1 2019)
- B. Red Throat Emperor (from July 1 2019)
- C. Crimson Snapper (2017)
- D. Saddletail Snapper (2017)
- E. Stripey Snapper (2017)
- F. Red Emperor (2017)
- G. Spangled Emperor (2017).

Biological information collected includes length, age and sex of fish being retained. Biological sampling of coral reef fish is separated into distinct regions along Queensland's east coast to account for any substantial variations in the population characteristics of the species over the whole region.

The coral trout stock assessment uses an age-structured model with a yearly time step based on financial years. Data on the abundance of coral trout within green zones is estimated using data from the Australian Institute of Marine Science Underwater Visual Surveys.

## 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 RLF

Project description	Explanation of Need	Priority
Red throat emperor stock assessment	An update to the 2006 RTE stock assessment is required to inform an appropriate TAC for the fishery.	High
Coral trout and red throat emperor monitoring	Length and age data is needed to improve the stock assessments. Previous assessments have recommendations to include length, sex and age information.	High

## Schedule of performance assessment and review

The fishery's performance will be reviewed against this harvest strategy annually. This review will include convening the Reef Line Working Group in February/March to provide operational advice on the fishery's performance and any matters that may need addressing. Performance will be measured through ERA along with catch and effort data.

Table 7: Anticipated performance schedule for the RLF

	Year 1 - 2020	Year 2 - 2021	Year 3 - 2022	Year 4 - 2023	Year 5 - 2024
<b>Monitoring &amp; Assessment activity</b>	Coral trout stock assessment Catch and effort monitoring	RTE Stock Assessment Catch and effort monitoring	Coral trout stock assessment Catch and effort monitoring	Catch and effort monitoring	Coral trout & RTE stock assessments Catch and effort monitoring
<b>Management Action</b>	Review of management and adjust TAC's if required	Monitoring catch levels and adjust TAC's if required	Review of management and adjust TAC's if required	Review of catch and effort data	Review, of harvest strategy, Assessment & TACC decision Monitoring catch levels

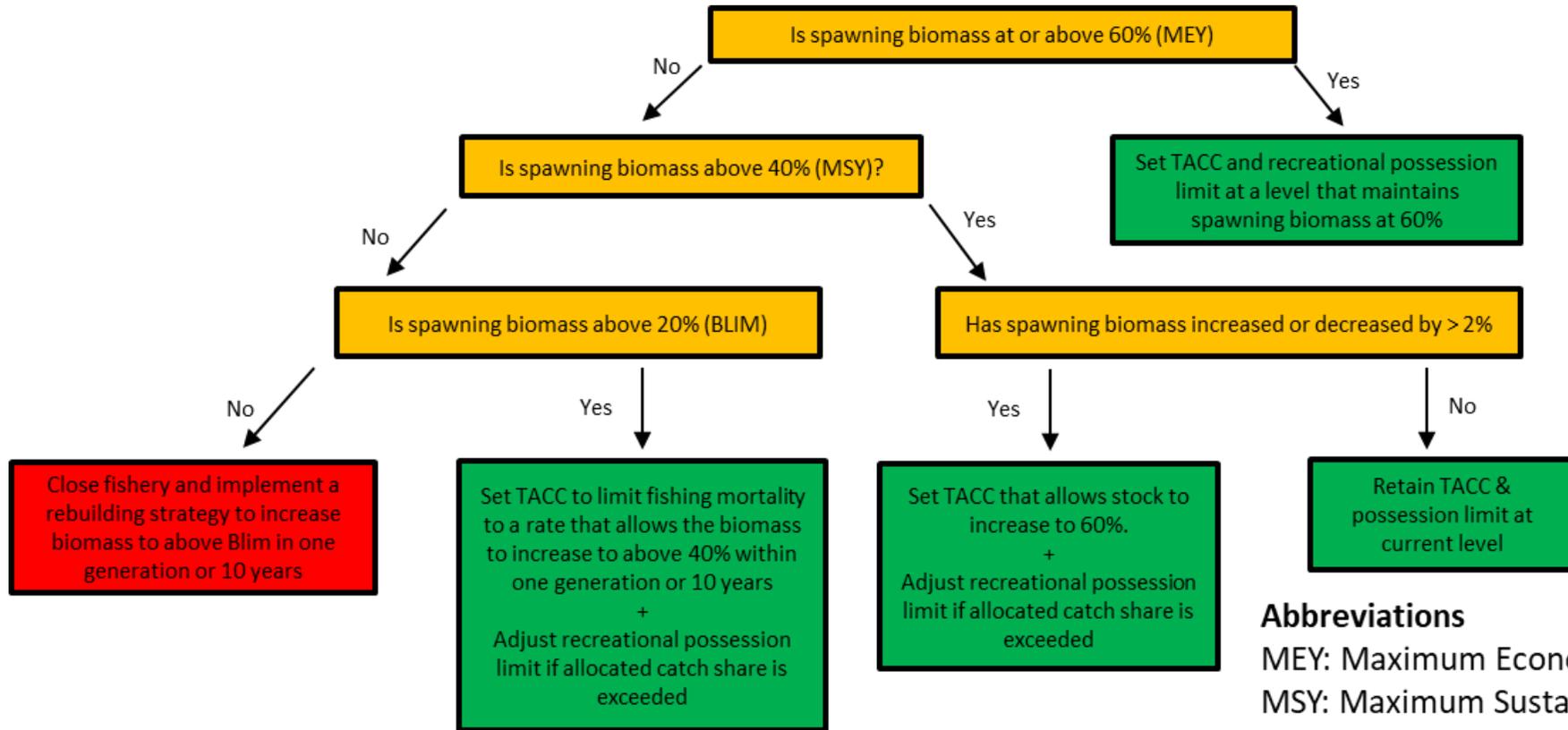
This harvest strategy will remain in place for a period of five years, after which time it will need to be fully reviewed in accordance with the *Fisheries Act 1994*.

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;
- Drivers external to management of the fishery increase the risk to fish stock/s;
- 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 coral trout



### Abbreviations

MEY: Maximum Economic Yield

MSY: Maximum Sustainable Yield

TACC: Total Allowable Commercial Catch

BLIM: Limit Reference Point 20%

## Appendix B: Secondary and byproduct species, reference period catch and trigger levels

### Commercial

Species Group	2011	2012	2013	2014	2015	Ref Period average	Trigger x1.5 Ref Period	Cap catch at x2 the Ref period
Emperor - red	56.7	42.1	45.7	46.6	38.9	46.0	69.0	92.0
Emperor - spangled	56.8	43.6	61.6	68.2	52.2	56.5	84.7	113.0
Jobfish - gold banded	34.7	35.6	39.0	54.0	53.3	43.3	65.0	86.6
Saddletail Snapper	49.9	43.8	52.0	60.8	72.7	55.8	83.7	111.6
Stripey - spanish flag	50.6	53.3	46.5	37.8	40.3	45.7	68.6	91.4
Red throat emperor	212,366	203,422	194,994	189,195	158,572	191,710	287,565	383,420.0

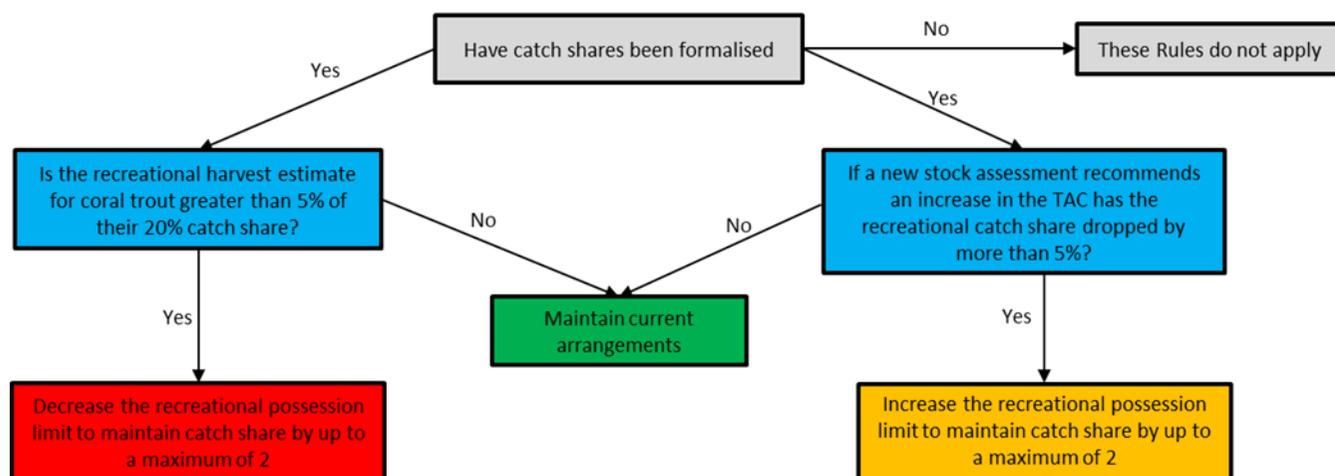
\*Note: The above species are listed based on their most recent commercial catch levels being greater than 20 tonnes, however, all species of coral reef fin fish and monitoring using the catch trigger

### Recreational

Common Name	2013 weight	Trigger level 30% higher
Red Throat Emperor	49,515	64 t
Crimson Snapper	49,665	64 t
Red Emperor	84,426	110 t
Saddletail Snapper	119,887	156 t
Spangled Emperor	48,723	63 t

\*Note: The above species are listed based on their most recent recreational harvest estimate being ~50 tonnes or greater, however, all species of coral reef fin fish and monitoring using the catch trigger

## Appendix C: Recreational possession limits can change based on recreational harvest or stock assessments.



Possession limit	Rule	Scenario
<b>No change</b>	If a recreational harvest estimate for coral trout is no more than 5% above the allocated recreational catch proportion.	If the coral trout TAC was 1320t the recreational harvest estimate from a recreational survey must <b>not exceed 329t</b> (25%) for there to be <b>no change</b> to the recreational possession limit as they are not greater than 5% above their 20% proportion.
<b>Reduction</b>	If a recreational harvest estimate exceeds the catch share by greater than 5% for coral trout, the recreational in possession limit will be decreased to return catch to allocated proportions.	If the coral trout TAC was 1320t the recreational harvest estimate would need to <b>exceed 329t</b> (25%) for the recreational possession limit to be <b>reduced</b> as it is now <b>greater</b> than 5% above their 20% proportion.
<b>Increase</b>	If a stock assessment recommends an increase in the TACC to a level that would increase the commercial catch share for coral trout by 5% or more then the recreational in possession limit will be increased to return catch shares to allocated proportions	(TACC 720t & TARC 180t) and the <b>new stock assessment increases</b> the TAC to <b>1200t</b> (TACC 960t).  The recreational share as a result of the TAC increase to 1200t would be reduced to 15% (180/1200 = 15%). In this scenario the recreational proportion has been <b>reduced by 5%</b> and an <b>increase to the recreational possession limit</b> may be undertaken in an attempt to restore the catch proportions back to a 80% / 20% catch share.
<b>Max change</b>	The new recreational limit must not be increased or decreased by more than two fish in any given year and if the TACC is equal to zero the species will be no take for all sectors.	The possession limit can only change by either 1 or 2.