

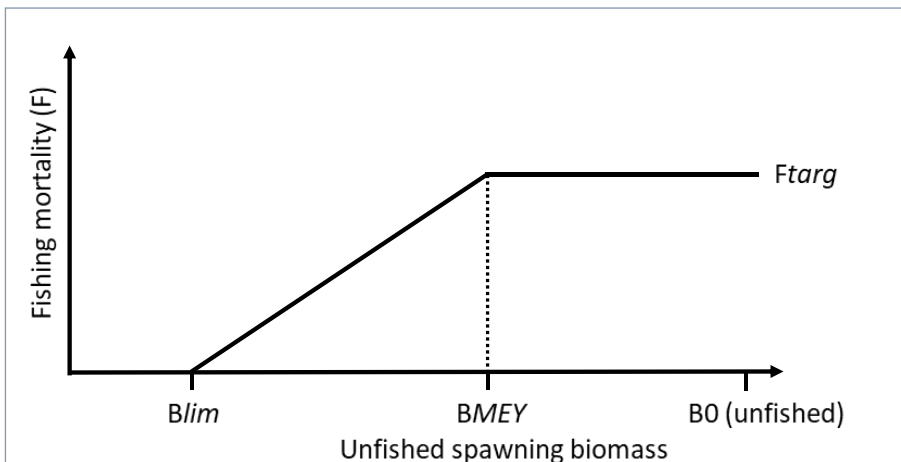
## Harvest strategy overview

The reef line fishery is one of the first fisheries to have an approved harvest strategy under the *Queensland Sustainable Fisheries Strategy 2017–2027*. The harvest strategy sets out reference points and decision rules to determine appropriate levels of harvest based on the status of stocks and risk to target and secondary species.

Stock assessment results inform the total allowable catch (TAC) for one target species at this stage—common coral trout. The TAC is set based on the estimated level required to return and maintain common coral trout stocks (factored up to include all coral trout species) to the target reference point of 60% of unfished spawning biomass using the ‘hockey stick’ harvest control rule (see Figure 1).

Currently all other species caught in the fishery are considered ‘secondary species’, which are monitored through catch triggers. If a catch trigger is exceeded, a stock assessment will inform future management and an interim competitive total allowable commercial catch (TACC) may be implemented to reduce further risk to the species.

The harvest strategy also aims to ensure that each sector (commercial, recreational and charter) does not exceed their allocated catch share. If the TACC is adjusted to manage the commercial harvest, management action may be triggered to align the recreational and charter sector harvest to within their share.



**Figure 1:** The ‘hockey stick’ rule applies to stocks with a stock assessment—*Blim* is the limit reference point, *Bmey* is the biomass at maximum economic yield, *BO* is the unfished biomass at 100%, *F* is fishing mortality and *Ftarg* is the level of fishing mortality for *Bmey*

## Harvest strategy targets and reference points

Species	Stock assessment	Reference point
<b>Coral trout</b>	2022	60% biomass
<b>Red throat emperor</b>	2021	60% biomass
<b>Other species</b>	Intermittent	Catch trigger
<b>Red emperor</b>	2022	60% biomass
<b>Saddletail snapper</b>	2021	60% biomass
<b>Crimson snapper</b>	2021	60% biomass

Where biomass estimates are not available for secondary species, the following reference points will trigger review and potential management action:

- if the annual commercial harvest exceeds 20 tonnes for an individual species;
- *and* if the annual commercial harvest has increased to 1.5 or 2 times above levels from the 2011–2015 average.

## Performance indicators

- The coral trout TACC will be reduced by 51 tonnes to 912 tonnes for the 2023-24 fishing season. Coral trout performance indicators will be next reassessed in early 2024 when the stock assessment is renewed.
- Redthroat emperor was last assessed in 2021. Performance indicators will be re assessed after the stock assessment is renewed.
- Stock assessments of secondary species indicate management action is required and public consultation is expected to be undertaken in 2023 (see [Reef Line fishery management advice 2022](#)).
- Harvest of bar rockcod exceeded the trigger reference points in 2021 and a prescribed commercial catch (PCC) will be implemented from 1 July 2023 of two times the history average (24.67 t). The PCC will remain in place until a dedicated stock assessment can provide a sustainable harvest for this stock.
- Charter fishing harvest for several species were over 20 tonnes and increased by more than 30% from the previous year. This was due to recovery of the fishery following impacts of COVID19 on the sector and no further management arrangement are considered necessary at this time.

## Primary species: coral trout

### Assessment

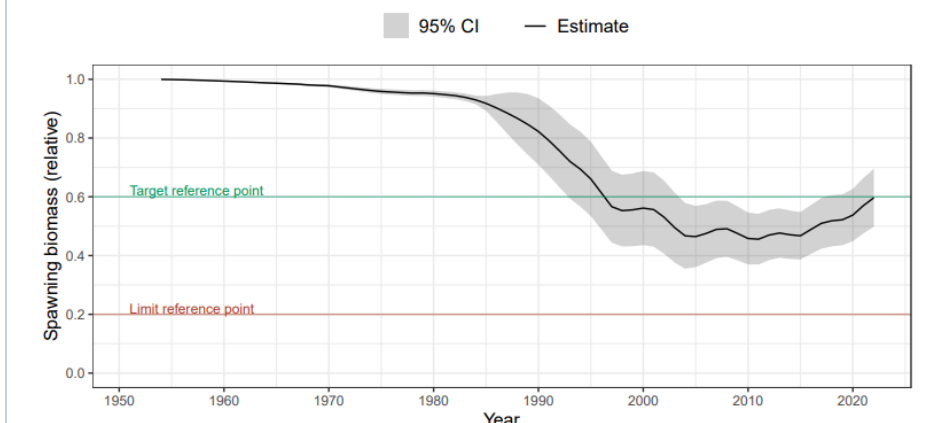
The 2022 stock assessment estimated that common coral trout abundance at the start of 2022 was most likely at 60% of unfished biomass, which is the harvest strategy target biomass level (Figure 2).

To reach and maintain the target of 60% biomass, the stock assessment 'hockey stick' harvest control rule resulted in an all sector recommended biological harvest of 1199 tonnes of common coral trout. A discount factor of 9% to account for scientific uncertainty was then applied to get a TAC of 1091 tonnes for common coral trout. The TAC for common coral trout is then scaled up by 4.5% to provide an 'all trout' species TAC of **1140 tonnes**.

### Management outcome

Applying the sectoral allocation specified in the harvest strategy of 80% commercial and 20% recreational to the TAC results in a TACC of 912 tonnes and a recreational and charter catch share of up to 228<sup>1</sup> tonnes for the 2022-23 and 2023-24 fishing seasons.

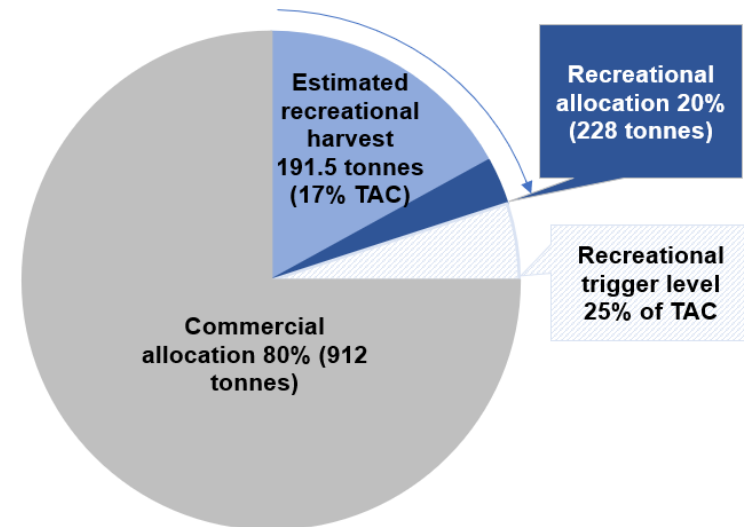
**Figure 2:** Current and predicted biomass trajectory for common coral trout, showing biomass, reference points and confidence intervals for 2022.



The recreational and charter sector did not exceed their catch share of 20% (with 5% buffer). As a result, it is within the prescribed reference point (Figure 3).

<sup>1</sup> Note the most recent (2019-20) recreation and charter harvest estimate for coral trout is 191.5 tonnes. This is based in the estimate of 87, 537 recreationally harvested fish reported using the 2019 [State-wide Recreational Fishing Survey data](#), excluding

**Figure 3:** Applying the harvest strategy catch shares to coral trout TAC of 1140 tonnes



Ongoing economic issues, including increased operating costs and variable export market access were noted as challenges for commercial fishing businesses in 2022. At the same time, increased scrutiny around the operation of fisheries within the Great Barrier Reef World Heritage Area and risks to fishing access and maintaining export approvals under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* were also considered. In balancing the issues and risks, it was decided to delay the harvest strategy decision rules until the 2023-24 fishing season.

The TACC will be reduced by 51 tonnes to 912 tonnes for the 2023-24 fishing season.

**Note:** For more information on how the harvest strategy decision rules were applied to coral trout in 2022, see the diagram on page 4.

## Secondary species: red throat emperor

Red throat emperor was assessed in 2021 and no change is expected until a new assessment is completed in 2024. for more information see the [Reef Line Management Advice for 2021](#).

charter catch, multiplied by the conversion factor of 1.565 kg (based on average recreational common coral trout size measured during [Boat Ramp Surveys from 2019-2021](#)), plus 54.4 tonnes reported in charter fishing logbooks.

## Secondary species

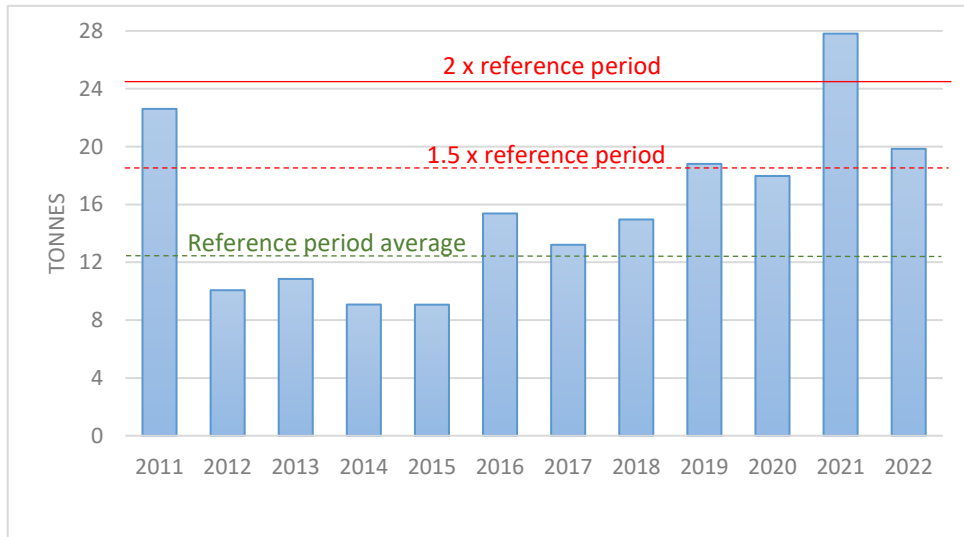
In 2021, the harvest of bar rockcod exceeded the historic average of 12.33 tonnes a year between 2011 – 2015, by more than two times the historic average and reached 27.8 tonnes (Figure 4). This triggered rule 2.3 of the Harvest Strategy which requires:

*“... an interim competitive TACC will be set at 2 times the reference period catch level and a stock assessment will be undertaken.”*

As such, an annual prescribed commercial catch (PCC) for bar rockcod will be set at 24.67 tonnes commencing from 1 July 2023.

As bar rockcod are a species within the ‘other species’ quota category with an existing TACC of ~956 tonnes, the PCC will be established within the OS quota category. That is, the PCC will not impact or reduce the total quota entitlement for “other regulated coral reef fin fish”, but will provide a catch limit on bar rockcod within that category.

Monitoring and research will now commence towards a stock assessment that provides a biomass estimate and recommended harvest limit, however, this may take some time.

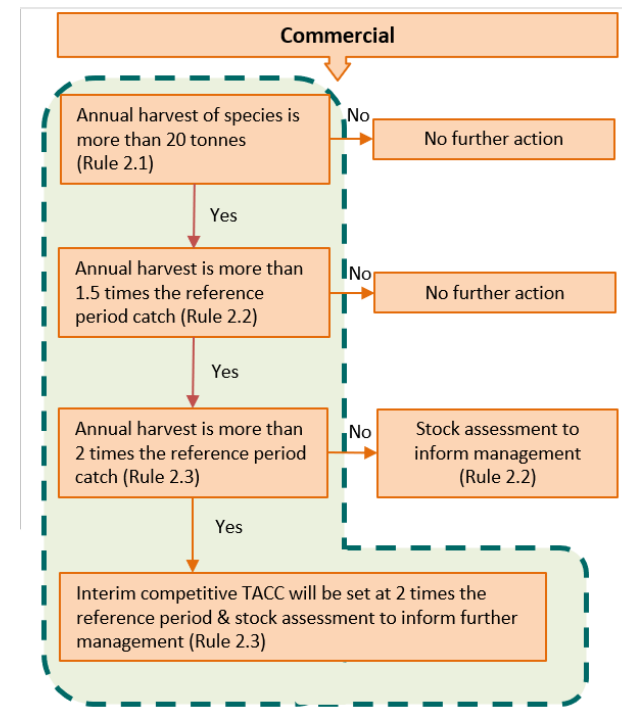


**Figure 4.** Commercial harvest of bar rockcod from 2011 – 2022 indicating the average harvest from the reference period (green dash line), 1.5 times the average harvest (red dash line) and 2 times the historic average harvest (red solid line).

Bar rockcod is the first species within the OS category to trigger this decision rule and the first PCC to be established under the OS quota category. The process to establish a competitive catch limit within the existing other regulated coral reef fin fish entitlement represents a new process in the management of this fishery. There will be a small change in the reporting requirements for the commercial fishers landing this species and authority holders will be notified of this.

## Bar rockcod decision rules

Applicable *Secondary and byproduct species management* decision rules for bar rockcod outlined in green.



## More information

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