

Management advice Reef line fishery 2020

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 decision rules to determine the appropriate level 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 common coral trout stocks (factored up to include all coral trout species) to the target of 60% biomass, based on the ‘hockey stick’ rule (see Figure 1).

At this stage, the remaining species 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 ensure stocks are not at risk.

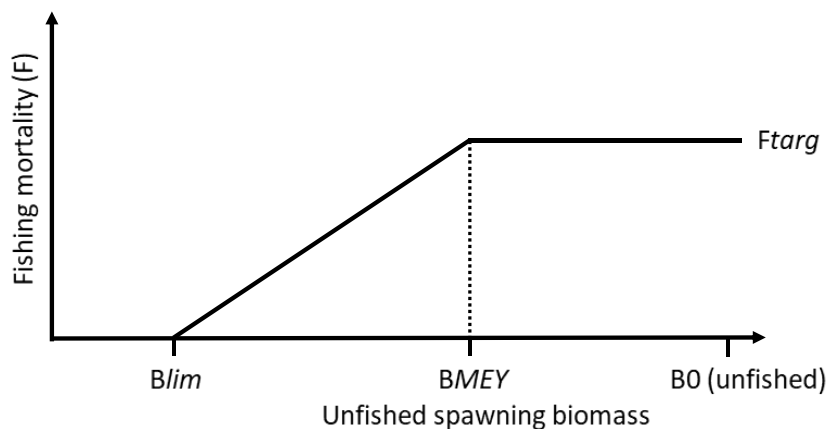


Figure 1: The ‘hockey stick’ rule applies to stocks with a stock assessment—*Blim* is the limit reference point, *Bmey* is the biomass at maximum economic yield, *B0* is the unfished biomass at 100%, *F* is fishing mortality and *Ftarg* is the level of fishing mortality for *Bmey*

The harvest strategy also aims to ensure that each sector (commercial, recreational and charter) doesn’t 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 their share.

Harvest strategy targets and reference points

Species	Stock assessment	Reference point
Coral trout	Yes ✓	60% biomass
Red throat emperor	Underway	Catch trigger
Other species	Intermittent	Catch trigger

As biomass is not available for secondary species, other reference points will trigger 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

- Coral trout biomass is at **59%** of unfished levels.
- To achieve 60% biomass, a TAC of **1081 tonnes** of coral trout is indicated.
- Recreational/charter sector coral trout harvest **did not exceed** their allocated share.
- Secondary species catch levels **did not trigger** management action.

Primary species: coral trout

Assessment

The 2020 stock assessment estimate that common coral trout abundance is at 59% of unfished biomass is close to the harvest strategy target of 60% unfished biomass (Figure 2).

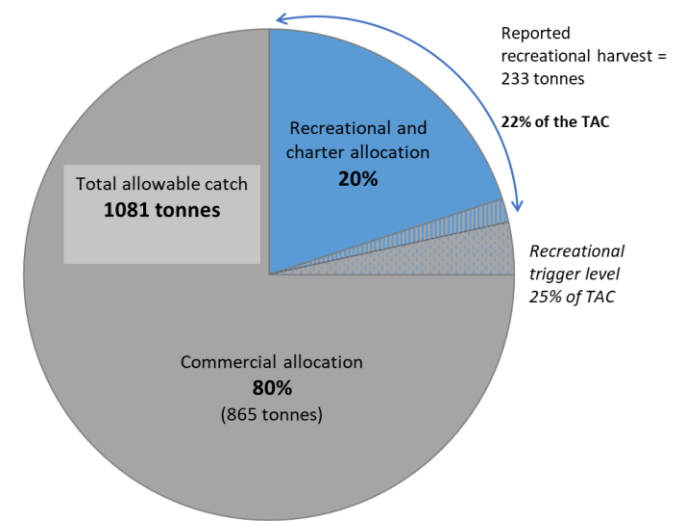
The stock assessment calculated the TAC (all sectors) at 1034 tonnes of common coral trout. The TAC for common coral trout is then scaled up by 4.5% to provide an 'all trout' TAC. To allow the stock to reach the target 60%, the 'hockey stick' rule calculated **coral trout TAC at 1081 tonnes**.

Management outcome

Applying the sectoral allocation specified in the harvest strategy of 80% commercial and 20% recreational/charter, the stock assessment estimates a 2020–21 TACC of 865 tonnes and a recommended recreational harvest of 216 tonnes.

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

Figure 3: Applying the harvest strategy catch shares to coral trout TAC of 1081 tonnes



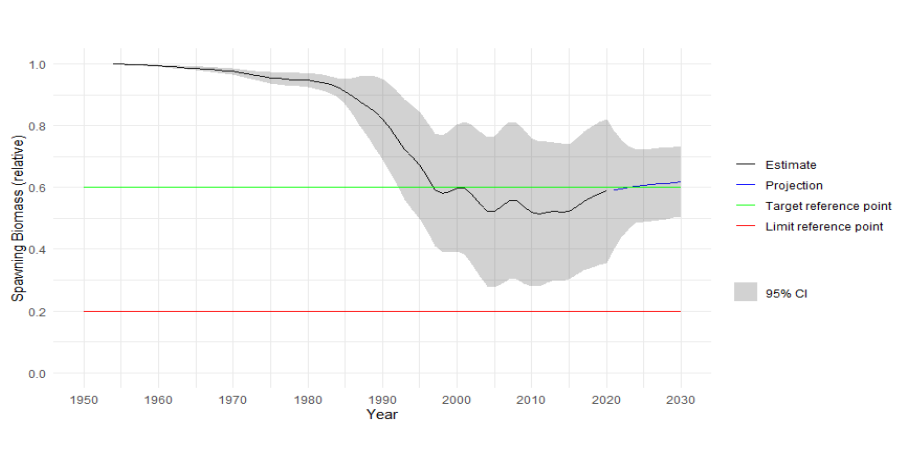
Decision rule 1.7 prevents a TACC change of more than 200 tonnes. Therefore, using the harvest strategy rules, the TACC would reduce from 1163 tonnes to 963 tonnes for 2020–21, with a second reduction of 98 to 865 tonnes for the 2021–22 season, to fully align the TACC with the stock assessment recommendation.

Due to the unprecedented and significant impacts of COVID-19 on the reef line fishery, it has been decided to set aside the harvest strategy decision rules for 2020–21 to support the social and economic performance of the fishery. The TACC will remain at 1163 tonnes for 2020–21 and will be reviewed for 2021–22.

Maintaining the TACC will not affect the sustainability of stocks, given the significant under catch of coral trout for the current season and likely ongoing depressed market demand and transport logistics faced by the commercial industry.

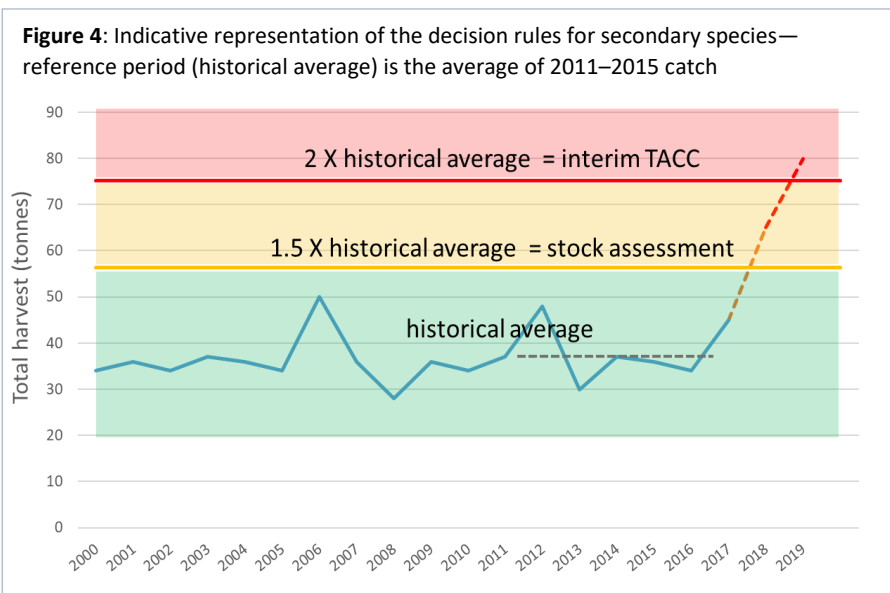
Note: For more information on how the harvest strategy decision rules were applied to coral trout in 2020, see the diagram on page 4.

Figure 2: Current and predicted biomass trajectory, showing 59% biomass for 2019



Secondary species: red throat emperor and other species

The harvest strategy specifies catch triggers for red throat emperor and other reef species, ensuring that changes in fishing behaviour do not result in unsustainable levels of harvest (Figure 4).



Assessment of commercial sector

Commercial rules	Species	Assessment
Rule 2.1 Reported catch higher than 20 tonnes	Red emperor Spangled emperor Stripey snapper	While harvest exceeded 20 tonnes, no species exceeded the 1.5 times reference levels
Rule 2.2 Harvest level more than 1.5 times the reference period	Gold band snapper Crimson snapper	

The following table lists the species for which the 2019 commercial catch exceeded 20 tonnes. No species exceeded the 1.5 or 2 times reference period average trigger.

Species All reported in tonnes	Harvest 2019	Reference period average	Trigger 1.5 x reference period	Trigger 2 x reference period	Triggered
Red emperor	34.7	46.0	69.0	92.0	No
Spangled emperor	64.1	56.5	84.7	113.0	No
Gold banded jobfish	44.9	43.3	65.0	86.6	No
Large mouth nannygai	58.0	55.8	83.7	111.6	No
Stripey	28.4	45.7	68.6	91.4	No
Red throat emperor*	128.0	198.4	297.5	396.8	No

*Current TACC is 610.88 tonnes and stock assessment is underway that will inform future TAC

Assessment of recreational and charter sector

Recreational/charter rules	Assessment
Rule 3.5 Recreational harvest exceeds 50 tonnes and has increased by more than 30%	Will be assessed when updated statewide recreational survey completed
Rule 3.6 Charter harvest is greater than 20 tonnes and has increased by more than 30%	Red throat emperor and tuskfish (unspecified) exceeded 20 tonne threshold for 2019, but did not increase by more than 30% on 2018 catch levels

Note: For more information on how the harvest strategy decision rules were applied to secondary species in 2020, see the diagram on page 5.

More information

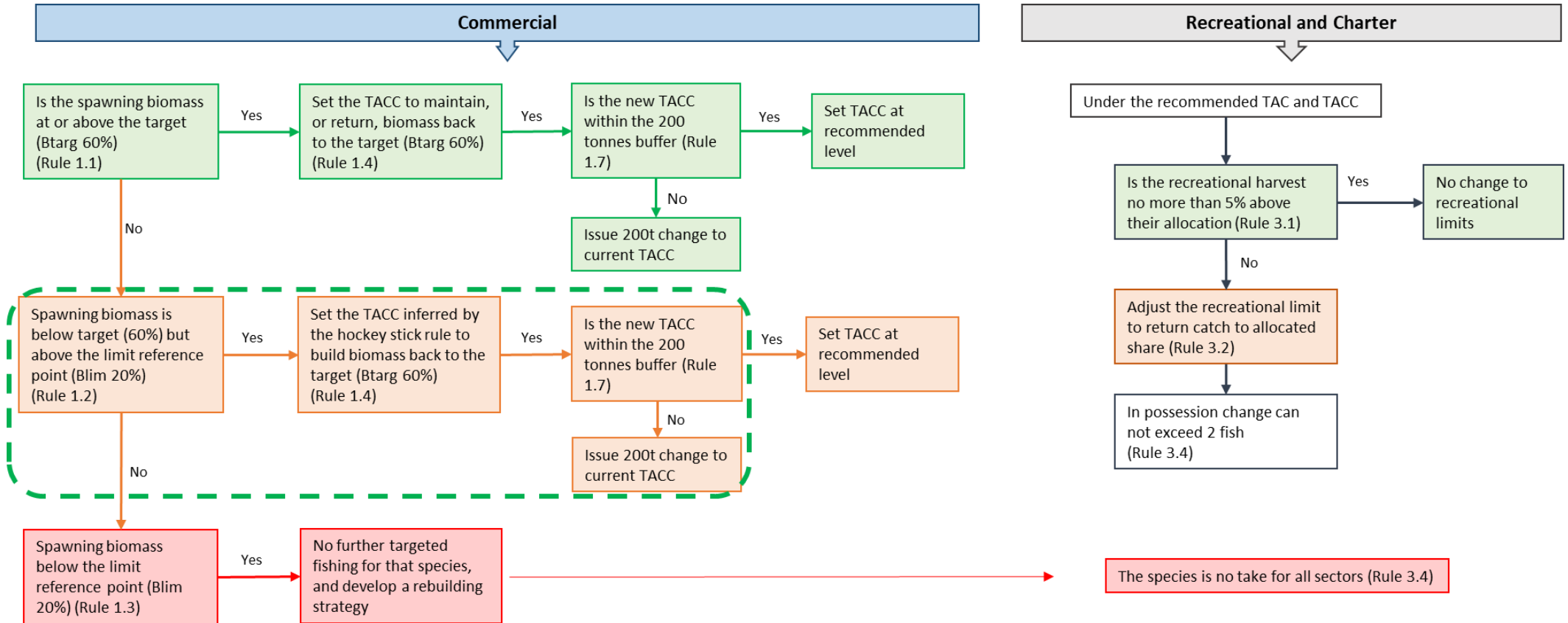
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Coral trout decision rules

Applicable coral trout decision rules for 2020 outlined in green.



Secondary species decision rules

Applicable secondary species decision rules for 2020 outlined in green.

