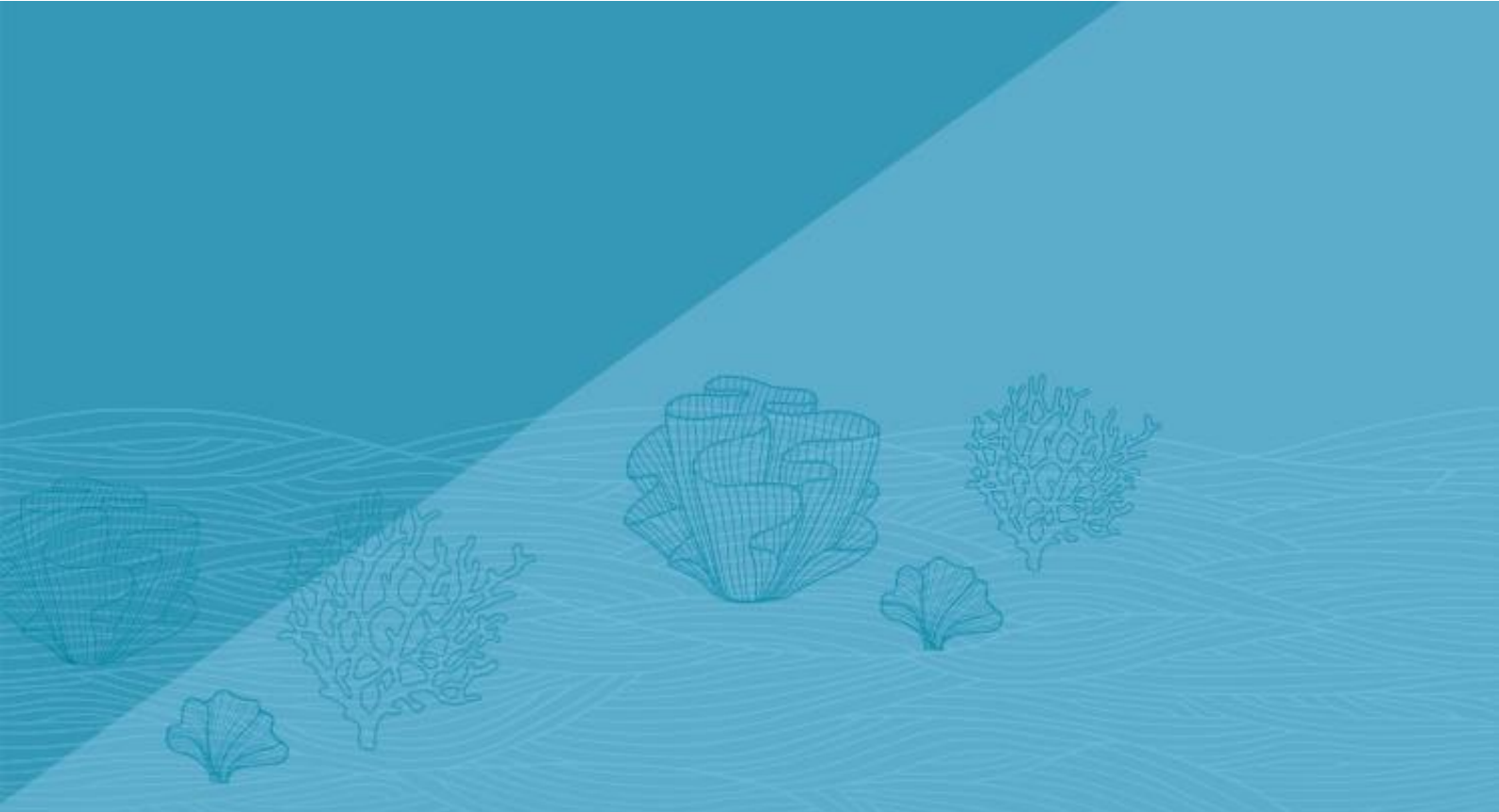


Queensland coral fishery harvest strategy: 2021–2026

CONSULTATION DRAFT

Queensland Government

Business Unit Owner	Management & Reform
Endorsed by	Deputy Director General (Fisheries and 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

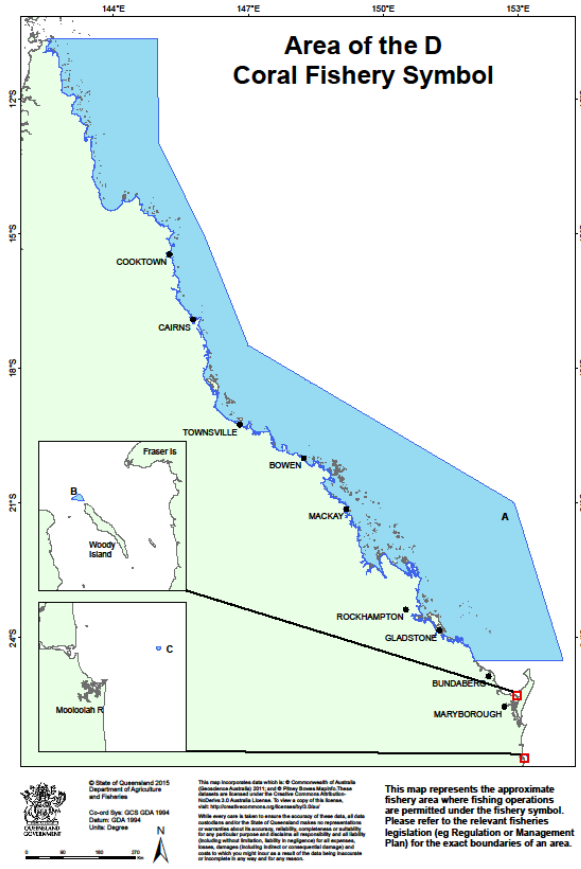
What the harvest strategy is trying to achieve

This harvest strategy has been developed to manage the coral resources of Queensland. The sustainability risk to coral stocks from harvesting are currently considered low. In addition to the substantial protection provided by marine park zoning, the hand harvesting methods used in the Queensland Coral Fishery (QCF) produce minimal bycatch and have negligible impacts on the broader ecosystem.

Primary management methods for the QCF is Individual Transferable Quotas (ITQ) for commercial fishing. The decision rules are risk-based and designed to ensure harvesting remains sustainable and monitoring harvesting trends.

Fishery overview

The QCF operates along the Queensland east coast from the tip of Cape York to the southern border of the Great Barrier Reef (GBR). Fishing can take place within permitted zones of the Great Barrier Reef Marine Park (GBRMP). Harvesting is also permitted, to some authority holders, in two small areas in South East Queensland waters.



The QCF is a hand collection fishery which includes the collection of whole and/or parts of colonies of a wide variety of corals and related Cnidarian species for the live aquarium trade, most of which is exported overseas. Operation is primarily on the GBR and licence holders are conditioned to specifically ensure sustainability of the resource. Corals are collected using hand held implements on scuba or surface-supplied air from hookah (hose) apparatus.

The QCF deals with the commercial operations of authorities to take coral under a 'D' fishery symbol. It is a small scale, quota managed, hand harvest fishery with 59 authorities. Commercially collected coral species, coral sand and rubble, and living rock are marketed domestically and internationally. There is a current Total Allowable Commercial Catch (TACC) for the fishery, which is split between two categories: 'Speciality Coral' and 'Other Coral' (live rock, coral rubble and ornamental coral).

There is no information available on the traditional or recreational harvest of coral species. Hobby aquarists do harvest some coral outside the state marine parks and the GBRMP. Recreational fishers cannot legally use SCUBA or hookah apparatus for harvesting corals, but may use a mask and snorkel.

Fish stocks covered by the harvest strategy

Corals are primitive animals that belong to the Phylum Cnidaria, which also includes hydroids, jellyfish and sea anemones. Species permitted to be taken in the fishery include those of the class Hydrozoa or Anthozoa. Most corals targeted by the fishery belong to the class Anthozoa and represent approximately 80 of over 400 coral species present on the GBR. Of these species, the market also dictates collection of a narrow range of size and appearance.

Corals targeted for the aquarium trade include a diverse range of mainly hard and soft corals as well as sea anemones. These corals are generally small colonies or large-polyped species which survive well in captivity.

Management units for this harvest strategy

Defining the fishery to which a harvest strategy 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*:

- QCF Fishery Area includes all tidal waters and foreshores south of latitude 10°41′ south and east of longitude 142°31′49″ east.

Fishery summary

A summary of the management arrangements for the QCF are set out in Table 1 below. Fishers should consult the relevant fisheries legislation for the latest and detailed fishery rules or visit www.fisheries.qld.gov.au.

Table 1: Summary of how the QCF is managed

Feature	Details
Commercial access	Primary Commercial Fishing Licence with a "D" fishery symbol
Relevant Fisheries Legislation	*Fisheries Act 1994* *Fisheries (General) and (Commercial Fisheries) Regulations 2019* *Fisheries Declaration and Fisheries Quota Declaration 2019*
Other relevant legislation	*Great Barrier Reef Marine Park Act 1975 and Regulation 2019* *Environment Protection and Biodiversity Conservation Act 1999* *Queensland Marine Parks Act 2004*
Working Group	Marine Aquarium and Coral Fisheries Working Group Terms of Reference and meeting communiques are available online
Gear	The following apparatus are permitted for use: *Commercial* - Hand collection, hand-held non-mechanical implements using underwater breathing apparatus. *Recreational* – Hand collection only (exc. Hookah/SCUBA).
Main management methods	*Commercial only* • Limited access • Individual Transferable Quotas (ITQ) • Vessel & tender restrictions • Number of divers "to take" restrictions
Stock Status	Most coral species would be listed as "undefined" Australian fish stocks (SAFS) www.fish.gov.au

	*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.
Accreditation under the *Environment Protection and Biodiversity Conservation Act 1999*	Part 13: Accredited (expires 2021) Part 13A: Accredited (expires 2021) http://www.environment.gov.au/marine/fisheries/qld/coral

Fishery objectives

Fishery objectives set out the direction and aspirations to achieve in the long term. The primary objective for the QCF is to:

- Maintain coral harvesting effort at levels that are low risk to ecological sustainability for target species;

While:

- Effectively use spatial management to reduce the risk of localised concentrations of fishing effort;
- Minimising and mitigating high ecological risks arising from fishing related activities;
- Supporting the viability of the commercial fishing sector; and
- 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 existing resource allocation arrangements (as at 2018) are set out in the below table and this harvest strategy will aim to maintain the existing catch shares between the sectors.

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 2: Resource allocation arrangements for the QCF

Species group	Commercial fishing	Recreational fishing
Speciality Coral	99%	1%
Other Coral	99%	1%

@ Commercial catch information collected through commercial logbook requirements.

Managing performance of the fishery

This harvest strategy will be managing the commercial catch at a species level and risks identified through Ecological Risk Assessments (ERA). Suitable performance indicators have been selected, where available, to describe fishery performance in relation to the fishery objectives. Catch data for coral species is used to evaluate the status and level of risk of harvesting to coral populations.

Catch triggers provide a way for controlled increases in fishing mortality providing that they are within historic catch levels. Annual catch levels are assessed against a reference period to detect changes in fishery behaviour that may represent an unacceptable risk to coral species. A reference period from 2016-2018 has been defined for this fishery. This reference period represents a stable period of operation for the QCF. As the level of exploitation increases above historic levels, species will be elevated to higher levels of monitoring, assessment and management.

ERAs are also used to inform the acceptable level of risk from harvesting for coral species. If the ecological risk to a species is increased, then species are elevated to a higher tier of monitoring and management to ensure the risk is reduced to an acceptable level. Industry and emerging science can also identify species that may be considered for monitoring and management at a higher tier. If fishing impacts were considered to generate an acceptable level of risk to the harvested coral species, then no management action would be required. However if fishing impacts are considered to generate an undesirable level of risk (moderate) then the coral species would be elevated to Tier 2 and an appropriate management response developed. If fishing impacts were considered to generate an unacceptable level of risk (high) then the coral species would be elevated to Tier 1. A management response should be developed to reduce the risk.

Table 3: Tiered management of coral species

TIER 1 – High Risk	**TIER 2 – Moderate Risk**		
Scolymia spp	*Acanthastrea lordhowensis*	*Cynarina lacrymalis*	*Trachyphyllia geoffroyi*
	Acropora echinata	*Duncanopsammia axifuga*	Anemone – *Entacmea*
	Acropora microclados	*Euphyllia ancora*	Anemone – *Magnifica*
	Other Acropora	*Euphyllia divisa*	Anemone – *Quadricolor*
	Blastomussa wellsi	*Euphyllia glabrescens*	
	Catalaphyllia jardinei	*Euphyllia parancora*	

Management of target species

1.0 Decision rules for all coral species

The decision rules have been designed to reduce the risk of localised depletion to coral species through an assessment and management of intensive fishing practices. The below harvest strategy triggers are used to identify the potential for localised depletion of any coral species and ensures that any associated management action is informed by a species specific assessment of risk.

1.1 If the annual harvest within a single 6nm grid for any species is less than half the average total harvest of that species from the reference period (2016-2018) or less than 2000 pieces in total, then no management action is required.

1.2 If the annual harvest within a single 6nm grid for any species is greater than half the average total harvest of that species from the reference period (2016-2018) and more than 2000 pieces in total, an assessment of the species (e.g. vulnerability assessment) will be undertaken to determine whether the harvest level is acceptable or unacceptable. **AND**

1.3 If the risk is determined to be unacceptable then implement management framework to reduce the risk of localised concentrations of effort (i.e. TACC, trip limits, spatial closures). **OR**

1.4 If the risk is determined to be acceptable then no management action is required.

2.0 Decision rules for Tier 1 coral species

The following harvest control rules are to ensure that fishing does not result in unacceptable levels of fishing pressure on Tier 1 coral species, such as a shift in fishing pressure due to increasing market demand.

2.1 If the two-year average harvest of any Tier 1 species is less than 80% of the average historical reference period (2016-2018) then no management action is required.

2.2 If the two-year average harvest of any Tier 1 species is above 80% of the average historical reference period (2016-2018), the species catches will be restrained (i.e. TACC, trip limits, spatial closures)

Management of secondary and byproduct

3.0 Decision rules for Tier 2 coral species

The following harvest control rules are to ensure that fishing does not result in unacceptable levels of fishing pressure on Tier 2 coral species, such as a shift in fishing pressure due to increasing market demand.

3.1 If the annual harvest of any Tier 2 species is less than 1.5 times the average historical reference period (2016-2018) or less than 2000 pieces, then no management action is required.

3.2 If the annual harvest of any Tier 2 species is greater than 1.5 times the average historical reference period (2016-2018) and more than 2000 pieces, an assessment of the species will be undertaken to determine whether the harvest level is acceptable or unacceptable. **AND**

3.3 If the risk is determined to be unacceptable then implement management framework to reduce the risk and elevate to Tier 1 (i.e. TACC, trip limits, spatial closures). **OR**

3.4 If the risk is determined to be acceptable then no management action is required.

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. ERAs identify and measure the ecological risks of fishing activity and identify issues that must be further managed under harvest strategies.

The QCF operates within the Great Barrier Reef World Heritage Area, and as a result this harvest strategy also considers the potential for management action to be taken if fishing is identified as a high risk under a Great Barrier Reef Marine Park Authority (GBRMPA) Reef Health Incident Response Plan. The below decision rules are in place to minimise and mitigate high ecological risks arising from fishing related activities.

4.1 If an ERA identifies fishing impacts that are considered to generate an acceptable level of risk to coral species, then no management action is required.

4.2 If an ERA identifies fishing impacts that are considered to generate an unacceptable level of risk (i.e. medium / high risk) to coral species management action will be taken to reduce harvest pressure to an acceptable level of risk to the species (i.e. TACC) and the species will be monitored under Tier 1 (high) or Tier 2 (medium).

4.3 If a reef event is identified under 'GBRMPA's Reef Health Incident Response Plan' a review will be led by GBRMPA and additional management action for the coral species may be considered in order reduce the risk to an acceptable level.

The most recent ERA for the coral fishery was completed in 2013.

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.

Monitoring the 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). This harvest strategy has been developed to maintain the harvesting at levels that represent a low risk and are considered ecologically sustainable, noting that ideally the QCF would like to move towards understanding biomass to inform future management.

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 4: Social and economic indicators for the QCF

Objective	Performance indicators	Management options
Maximise economic performance of the commercial sector	Potential indicators to monitor include: • 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	Consider regulatory and non-regulatory options. Adjust management as needed.
Monitor the broader social and economic benefits of the fishery to the community	Potential indicators to monitor include: • 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)	Consider regulatory and non-regulatory options. Adjust management as needed.

Monitoring and assessment

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

As the QCF 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 QCF are required to have vessel tracking installed and operational on all primary and tender vessels to verify fishing effort reported in commercial fishing logbooks.

No modelled stock assessment is currently available for the QCF. The QCF aspires to move towards understanding the biomass of key coral species to better inform management of the fishery. It is anticipated that if biomass were determinable, it would be able to inform TACC setting process at least every three years.

The Convention on International Trade in Endangered Species of Wild Fauna and Fauna (CITES) lists most hard corals as Appendix II species. This means they are not necessarily now threatened with extinction but that may become so unless trade is closely controlled. International trade of Appendix II species may be authorised by granting of an export permit or re-export certificate. No import permit is necessary for these species under CITES (although a permit is needed in some countries that have taken stricter measures than CITES requirements). Permits or certificates should only be granted if the relevant authorities are satisfied that certain conditions are met and the trade of species will not be detrimental to the survival of the species in the wild.

Information and research priorities

Key information and research priorities have been identified in Table 5 to help meet the objectives of this harvest strategy. These will be updated as required.

Table 5: Information and research priorities for the QCF

Project description	Explanation of Need	Priority
Develop an industry-based monitoring program to support understanding of stock status for Tier 1 and Tier 2 species	Inform future monitoring of target and high risk species	High
Investigate reproductive biology for Tier 1 and Tier 2 species.	Preliminary information only was used in the development of the harvest strategy	High
Develop industry code of practise for the harvest of Tier 1 & 2 species	To increase stewardship, reduce localised depletion and enhance reproduction ability of some target species	Medium
Investigate non fishery threats to Tier 1 and Tier 2 species	Inform future monitoring of target and high risk species	Medium
Understanding biomass or abundance index for target coral species	To inform future management frameworks	Medium

Schedule of performance assessment and review

The fishery's performance will be reviewed against this harvest strategy annually as outlined in Table 6. This review will include convening the Coral Fishery Working Group in September/October to provide operational advice on the fishery's performance and any matters that may need addressing. The risk based performance measure will be reviewed periodically, and other fishery data (e.g. catch and effort) will be reviewed annually.

Table 6: Anticipated performance schedule for the QCF

	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	Ecological risk assessment	Catch and effort monitoring	Catch and effort monitoring
Management activity	Review of catch and effort data and adjust management if required	Review of catch and effort data and adjust management if required	Review of catch and effort data and adjust management if required	Review of catch and effort data and adjust management if required	Review harvest strategy and reset reference points and TACC 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.

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;
- 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.