

Australian Government Australian Fisheries Management Authority

# Coral Sea Fishery Sea Cucumber Sector

Harvest Strategy

May 2025

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Version and date	Updates	Approver
1.0	Revised Harvest Strategy developed based on independent review of 2007 Harvest Strategy.	

# Glossary

Term	Description
AFMA	Australian Fisheries Management Authority
CDR	Catch Disposal Record
CHSP	Commonwealth Fisheries Harvest Strategy Policy
CPUE	Catch per unit effort
CSF	Coral Sea Fishery
CSMP	Coral Sea Marine Park
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GVP	Gross value of production
L50	Length at first maturity
LRP	Limit Reference Point
MSL	Minimum size limit
QSCF	Queensland Sea Cucumber Fishery
RZS	Rotational Zone Strategy
SCHS	Sea Cucumber Harvest Strategy
TAC	Total Allowable Catch
TSBDMF	Torres Strait Beche-De-Mer Fishery
WTO	Wildlife Trade Operation

# **1** Coral Sea Fishery Overview

The CSF is a relatively small but diverse fishery, targeting a wide range of species with line and hand collection methods. The fishing season runs from 1 July to 30 June each year. Entry to the CSF is limited to existing fishing permits across four sectors: the aquarium sector; line sector; lobster and trochus sector; and the sea cucumber sector.

The CSF extends from Cape York to Sandy Cape, Queensland (Figure 1). It is bounded on the east by the Australian Fishing Zone and on the west by a boundary line 0 to 100nm east of the eastern boundary of the Great Barrier Reef Marine Park.



Figure 1: Marine parks and fisheries boundaries in the Coral Sea

# 2 The Commonwealth Fisheries Harvest Strategy Policy

The objective of the <u>Commonwealth Fisheries Harvest Strategy Policy (2018)</u> (CHSP) is the ecologically sustainable and profitable use of Australia's Commonwealth fisheries resources (where ecological sustainability takes priority) – through the implementation of harvest strategies.

The policy provides a framework for setting sustainable harvest levels in Commonwealth fisheries using an evidence-based approach. It details the biological and economic objectives for these fisheries, incorporating ecological sustainability as the priority. The strategy emphasises the use of reference points and harvest control rules, aiming to maximise economic returns while preventing overfishing and ensuring the long-term health of fish stocks, also considering interactions with environmental legislation.

For the CSF in the absence of species-specific reference points, annual catch triggers and limits have been established based on conservative estimates of stock size that meet the sustainability objectives of the CHSP. With a harvest strategy in place, fishery managers and industry can operate with greater confidence, management decisions are more transparent, and there are fewer unanticipated outcomes necessitating ad-hoc management responses. The annual catch limits/triggers and associated management responses allow for expansion of the fishery, while at the same time ensuring the CHSP objectives are pursued.

Further detail on the CHSP is provided in the Guidelines to the Harvest Strategy Policy (*Commonwealth Fisheries Harvest Strategy Policy Guidelines 2018*).

# 3 Sea Cucumber Sector

# 3.1 Key characteristics

The sea cucumber sector is a particularly small, low participation, low catch, low profitability fishery. Related to its small scale, the CSF is a data-poor fishery in terms of annual abundance indices or surveys. Logbook catch and effort data allow nominal catch per unit effort (CPUE) to be calculated, but CPUE standardisation for vessel is not possible because of the sporadic participation and lack of temporal overlap of vessels. Historical sea cucumber abundance surveys do not provide time-series of abundance but can serve as benchmarks at the time of the survey.

This has an important consequence for design of a harvest strategy in terms of the risk-cost-catch trade-off (Section 3.5 of the CHSP). As the fishery currently operates, conducting regular biomass surveys or collection of additional data for assessments would result in significant increases to the levy costs paid by industry. These would become many times the average gross value of production (GVP) of the fishery.

Instead, AFMA implements a highly precautionary management approach in the fishery. Achieving an acceptably low risk to the stocks requires implementation of catch limits that are, based on the weight-of-evidence, highly likely to be low enough to allow harvesting on an ongoing basis without

exceeding the annual surplus production of the stocks. This is the default management approach for low information fisheries such as the CSF.

In addition to the precautionary management approach, the harvest strategy framework has provisions to increase research and monitoring levels to provide more detailed information on stock biomass/abundance, allowing the fishery to operate at a higher information, higher catch level. This would require conducting scientifically designed biomass surveys or other ongoing data collection and monitoring programs, with outputs intended to reduce uncertainty through reef-specific and/or species-specific abundance estimates, potentially allowing for higher catches.

# 3.2 Management arrangements

There is no management plan for the CSF, which is managed through a combination of input and output controls. In the sea cucumber sector, input controls include limitations on the number of tender boats associated with a primary boat, a rotational zone system (RZS), move-on provisions, and limited entry. Additional spatial closures apply within the CSF under the <u>Coral Sea Marine Park</u> <u>Management Plan 2018</u>. More details on closures can be found on the Parks Australia website <u>www.parksaustralia.gov.au</u>. Output controls include catch limits and minimum size limits (MSL).

Wildlife Trade Operation (WTO) approval requirements also apply to the CSF, including the sea cucumber sector, through the application of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). Further information about WTO requirements in the CSF can be viewed on the <u>Department of Climate Change, Energy, the Environment and Water</u> (DCCEEW) website.

While not included as part of the performance measures or decision rules to promote flexibility, the broader management arrangements support the implementation of harvest strategy objectives. Any changes to management measures do not constitute an amendment to this harvest strategy but will be considered in the context of potential impacts on its objectives.

#### 3.2.1 Limits on participation

- A maximum of two permits are issued in the CSF sea cucumber sector, allowing for the participation of two nominated fishing vessels.
- A maximum of two tender boats registered with the nominated fishing vessel may be used.
- The only fishing method permitted is hand collection<sup>1</sup> with or without underwater breathing apparatus.

### 3.2.2 Catch and effort data

Concession holders operating in the CSF sea cucumber sector are required to complete electronic logbooks and catch disposal records (CDR). These require that operators and fish receivers report the total mass of each species landed, as well as the processing method so that conversion factors can be used to convert all reported catch to a standard weight (wet, gutted and salted).

<sup>1</sup> In the sea cucumber sector, hand collection is the removal of species from the sea floor by hand into a collection net. Securing Australia's fishing future 6 of 18

## 3.2.3 Reef zones

The following zones are defined for the purposes of management of the sea cucumber sector. These include all the main fished reef areas, defined in terms of northwest and southeast coordinates of a rectangle bounding each zone, and named for the main reef within each zone (**below**). The terms 'Reef' and 'Zone' are used synonymously for these Reef Zones, so that reference to fishing within a Zone is synonymous with reference to fishing on that Reef, and *vice versa*.

Table 1. List of the main fished Reef Zones defined for the purposes of management of the CSF sea cucumber sector, with coordinates of the NW and SE corners of rectangles bounding these zones (in decimal degrees).

NameLatitudeLongitudeLatitudeLongitudeAbington Reef-18.03333149.57500-18.12500149.65000Bougainville Reef-15.47500147.08333-15.52500147.14167Cato Island Reef-23.24167155.52500-23.25833155.57500Dart Reef-17.38333148.16667-17.42500148.21667Diamond Islets-17.40000150.78333-17.68333151.11667Diane Bank-15.70000149.46667-16.30000149.75000Flinders Reefs-17.37500148.26667-17.89167148.60000Flora Reef-16.72500147.69167-16.77500147.77500
Abington Reef-18.03333149.57500-18.12500149.65000Bougainville Reef-15.47500147.08333-15.52500147.14167Cato Island Reef-23.24167155.52500-23.25833155.57500Dart Reef-17.38333148.16667-17.42500148.21667Diamond Islets-17.40000150.78333-17.68333151.11667Diane Bank-15.70000149.46667-16.30000149.75000Flinders Reefs-17.37500148.26667-17.89167148.60000Flora Reef-16.72500147.69167-16.77500147.77500
Bougainville Reef-15.47500147.08333-15.52500147.14167Cato Island Reef-23.24167155.52500-23.25833155.57500Dart Reef-17.38333148.16667-17.42500148.21667Diamond Islets-17.40000150.78333-17.68333151.11667Diane Bank-15.70000149.46667-16.30000149.75000Flinders Reefs-17.37500148.26667-17.89167148.60000Flora Reef-16.72500147.69167-16.77500147.77500
Cato Island Reef-23.24167155.52500-23.25833155.57500Dart Reef-17.38333148.16667-17.42500148.21667Diamond Islets-17.40000150.78333-17.68333151.11667Diane Bank-15.70000149.46667-16.30000149.75000Flinders Reefs-17.37500148.26667-17.89167148.60000Flora Reef-16.72500147.69167-16.77500147.77500
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Diane Bank-15.70000149.46667-16.30000149.75000Flinders Reefs-17.37500148.26667-17.89167148.60000Flora Reef-16.72500147.69167-16.77500147.77500
Flinders Reefs-17.37500148.26667-17.89167148.60000Flora Reef-16.72500147.69167-16.77500147.77500
Flora Reef -16.72500 147.69167 -16.77500 147.77500
Frederick Reefs -20.91667 154.34167 -21.03333 154.40833
Heralds Surprise -17.30833 148.43333 -17.33333 148.49167
Holmes Reef -16.37500 147.79167 -16.55000 148.10000
Kenn Reefs -21.09167 155.70000 -21.28333 155.80000
Malay Reefs -17.90000 149.28333 -18.00000 149.39167
McDermott Bank -17.17500 147.78333 -17.30000 147.92500
Moore Reefs -16.00000 149.12500 -16.05833 149.18333
Shark Reef -14.06667 146.75833 -14.20000 146.87500
Tregrosse Reefs -17.68333 150.49167 -17.80000 150.78333
Willis Islets -16.10000 149.93333 -16.31667 150.05000
Wreck Reefs -22.15833 155.15000 -22.22500 155.49167

### 3.2.4 Reef-specific effort limits

The maximum allowable effort limits listed in **below** (expressed in vessel days fished) will be applied per season to the defined Reef Zones. Under the RZS, these reefs are grouped into three groups to be fished on a rotational basis, so that each group of reefs is only fished every three seasons.

Table 2. Maximum allowable vessel days that may be fished on each of the 19 identified Reef Zones in above in any one season. Note that the RZS prescribes which of these reefs may be fished in each season.

Reef / Zone Name	Maximum vessel days fishing allowed per season
Abington Reef	2
Bougainville Reef	2
Cato Island Reef	5
Dart Reef	2
Diamond Islets	15
Diane Bank	5
Flinders Reefs	15
Flora Reef	2
Frederick Reefs	5
Heralds Surprise	2
Holmes Reef	15
Kenn Reefs	8
Malay Reefs	2
McDermott Bank	5
Moore Reefs	5
Shark Reef	2
Tregrosse Reefs	5
Willis Islets	15
Wreck Reefs	15
Total	127

Once the effort limit has been reached on a reef, all vessels will be required to move out of that zone and fish in a different zone for the remainder of the season.

These maximum allowable fishing days are allotted across all permit holders in the CSF sea cucumber sector and are to be fished on a competitive basis. It is the permit holder's joint responsibility to ensure that they do not together exceed the number of days allotted.

### 3.2.5 Rotational Zone System

A RZS is applied to fishing in the defined Reef Zones, with the objective of:

- Distributing fishing effort across different groups of reefs in different fishing seasons.
- Allowing fished reefs to recover for two years after the season in which they were fished.

The RZS is implemented by classifying the 19 identified Reef Zones into three groups, and restricting fishing to one group of reefs per season, as shown in **Error! Reference source not found.** Management Strategy Evaluation (MSE) testing concluded that implementation of the RZS

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results in substantial reduction in the risk of localised depletion of sea cucumber stocks (Plaganyi et al. 2015) and has been effective in encouraging effort spread in the sector (Penney 2025). This promotes the objectives of the harvest strategy through ensuring that sea cucumber stocks are not overexploited and that management measures are sufficiently precautionary.

Table 3. Reef Zones are designated into three rotational groups, requiring fishing to be rotated across these groups on a three-seasonal basis, with Year 1 commencing in the 2024/25 fishing season. The maximum number of days that can be fished on each reef in the designated seasons is specified in above.

Year 1	Year 2	Year 3
Wreck Reefs	Flinders Reefs	Holmes Reefs
Tregrosse Reefs	Malay Reef	Diamond Islets
Moore Reefs	Abington Reef	*Kenn Reefs
Cato Island Reef		Frederick Reefs
McDermott Bank		*Bougainville Reef
Dart Reef		Flora Reef
Heralds Surprise		
Shark Reef		
Willis Islets		
Diane Bank		
1		

\* Part of these reefs are in the National Park Zone in the Coral Sea Marine Park (CSMP), where commercial fishing is prohibited.

## 3.2.6 Species-specific catch limits

The species-specific catch limits in **below** restrict the annual catch of each species over the fishing season (1 July – 30 June) and are based on a review of available information and recommendations provided in Penney (2025) and Skewes (2023). Catch limits are specified in wet, gutted and salted weights.

These catch limits are equally divided between the two fishing licences.

Table 4. Maximum allowable seasonal catch limits or triggers (tonnes) for the key species in the sea cucumber sector.

Category	Common name	Scientific name	Catch Limit/ Trigger (t)
	White Teatfish	Holothuria fuscogilva	4
Primary species	Prickly Redfish	Thelenota ananas	12
(Catch Limit)	Black Teatfish	Holothuria whitmaei	1
	Surf Redfish	Actinopyga mauritiana	4
Secondary species	Amberfish	Thelenota anax	1
(Catch Trigger)	Lollyfish and Greenfish	Holothuria atra	10 (combined)

Blackfish	Actinopyga miliaris	5
Elephant's Trunkfish	Holothuria fuscopunctata	1
Leopardfish	Bohadschia argus	5
Selenka's Sea Cucumber	Stichopus horrens	1
Sandfish	Holothuria scabra	1
Stonefish	Actinopyga lecanora	1
Deepwater Redfish	Actinopyga echinites	5
Other species		1 each

## 3.2.7 Additional move-on rules

The following additional reef-specific move-on rules are intended to limit the maximum catch Surf Redfish and of all species (combined) that may be taken in any one Reef Zone. This intends to spread effort across the fishery and supports the objectives of the harvest strategy by reducing the risk of localised sea cucumber overexploitation at the reef level. In line with the recommendations from Penney (2025), the move on provision applies to Reef Zones rather than a 15 nautical mile radius around point of capture to ensure equivalent levels of protection for larger reefs.<sup>2</sup>

#### 3.2.7.1 Surf Redfish

During a fishing season (1 July - 30 June), no more than two (2) tonnes of Surf Redfish may be taken from any one Reef Zone across all concessions, fished on a competitive basis. AFMA monitors this catch limit during the fishing season, although in addition, operators must notify AFMA if their catches reach one (1) tonne to allow a closer level of monitoring.

#### 3.2.7.2 Combined species

During the fishing season (1 July - 30 June), no more than five (5) tonnes of any mixture of sea cucumber species may be taken from any one Reef Zone across all concessions, fished on a competitive basis. AFMA monitors this catch limit during the fishing season.

Over time, as additional species abundance data is collected, species-specific move-on rules will be developed to replace this combined species move-on rule.

## 3.2.8 Minimum size limits

Species-specific MSLs will be introduced from 1 July 2025 (**below**), to avoid the catch of undersized sea cucumbers. These MSL, where appropriate, are consistent with those in place in the Torres Strait Beche-de-mer Fishery (TSBDMF) and Queensland Sea Cucumber fishery and set at 125% of the estimated length at first maturity ( $L_{50}$ ) for each species (if known) or using a proxy from a similar species. This promotes the objectives of the harvest strategy by ensuring that sea cucumber harvest is ecologically sustainable and accounts for any potential geographical variation of  $L_{50}$  values (Skewes 2025, Pers. Comm).

<sup>&</sup>lt;sup>2</sup> Some reefs are large enough to allowing fishing on another part of the same reef that would be outside a 15 nautical mile radius.

The size limits are expressed as live, onboard length, and sea cucumbers are intended to be measured against these size limits in the dive tenders, or as soon as possible after transfer to the vessel, so that undersized sea cucumbers can be returned alive to the sea.

Table 5. Minimum size limits for sea cucumber species caught in the CSF sea cucumber sec	ctor
(compulsory from 1 July 2025).	

Common Name	Species Name	Minimum size limit
Sandfish	Holothuria scabra	18 cm
White Teatfish	Holothuria fuscogilva	40 cm
Black Teatfish	Holothuria whitmaei	30 cm
Prickly Redfish	Thelenota ananas	40 cm
Deepwater Redfish	Actinopyga echinites	20 cm
Surf Redfish	Actinopyga mauritiana	25 cm
Lollyfish	Holothuria atra	20 cm
Greenfish	Stichopus chloronotus	20 cm
Elephant's Trunkfish	Holothuria fuscopunctata	40 cm
Leopardfish	Bohadschia argus	35 cm
Amberfish	Thelenota anax	50 cm

# 3.3 Coral Sea Marine Park Zones

The CSMP zoning allows different activities dependant on the zone, from the National Park zones which prohibit any extraction activities to the habitat protection zones which permit certain fishing methods. An analysis by Skewes (2023), found that 43.8% of deep reef (20-70m) and 44.4% of shallow reef (less than 20m), is closed to sea cucumber harvest under the CSMP zoning. This means a total of 43.9% of all potential sea cucumber habitat in the CSF being closed to fishing (Skewes 2023).

At least for the central Queensland Plateau complex of reefs, the closed National Park areas probably provide recruitment to many reefs open to fishing. Modelling suggested that larval releases from Coral Sea reefs were likely to support recruitment to reef clusters on the Queensland Plateau (Skewes 2023). Hence, in combination with the conservative catch limits applied to fished reefs, these protected areas contribute to a low risk of over-exploitation of sea cucumbers in the Coral Sea. Although outside of the remit of AFMA, spatial closures promote the objectives of this harvest strategy and the CHSP by helping ensure that sea cucumber fishing is sufficiently precautionary and ecologically sustainable.

# 4 Coral Sea Fishery Harvest Strategy Framework

The first Harvest Strategy for the sea cucumber sector was implemented in 2007. The small size of the sea-cucumber sector, its low GVP, and effectiveness of existing management arrangements

justified a simple harvest strategy. The 2007 Sea Cucumber Harvest Strategy (SCHS) implemented a precautionary management approach, which included decision rules that required a management response if catch triggers or limits were reached, spatial closures and move-on provisions (due to the sessile nature of sea-cucumbers).

The revised 2025 SCHS makes important updates to reflect the broader management arrangements that currently apply to the CSF, including the following key elements:

- The current low value, low information, low catch nature of the fishery is identified as a key guiding characteristic in defining a default low-information management approach for the fishery.
- Species-specific catch limits (i.e. total allowable catch or TACs) for the key target species and catch triggers for other sea cucumber species that are likely to be caught.<sup>3</sup>
- Adoption of an aspirational proxy LRP in line with the TSBDMF of B<sub>40</sub> (40% of unfished spawning biomass).
- Retention of reef level catch limits (all species combined), with inclusion of additional reef level catch limits for some species.
- Retention of RZS, which cycles effort between reef with annual effort limits (i.e. vessel days) on each reef, with adjustments to annual reef level effort limits (i.e. vessel days) and reefs within the three rotational groups.
- Performance measures for reporting against the harvest strategy objectives are specified and described.
- Mandatory MSLs, consistent with those in place in the TSBDMF and QSCF where appropriate.

# 4.1 Objectives

This SCHS has been designed to meet the overall objective CHSP, which is:

"The ecologically sustainable and profitable use of Australia's Commonwealth commercial fisheries resources (where ecological sustainability takes priority)—through implementation of harvest strategies."

As a small, low information fishery, adequate data is not currently available to determine stock status in relation to target levels such as maximum economic yield. Due to the relatively low value and effort levels in this sector, significant investment to increase the available information is currently unfeasible. Any substantial increase to costs for fishers would make fishing unprofitable and would therefore not meet AFMA's objective to maximise net economic returns to the Australian community. As a result, a weight-of-evidence approach (taking account of all available information) is used to meet fishery specific objectives. The harvest strategy takes a low-cost and precautionary approach which is consistent with the principles of the risk-cost-catch trade off within Section 3.5 of the CHSP.

The CHSP requirements are met through setting precautionary catch limits on key target species and catch triggers for other harvested species. These are set at a level considered sufficiently

<sup>&</sup>lt;sup>3</sup> All catch limits and triggers were considered in the SCHS review, resulting in revised limits or triggers being implemented for some species based on the best available information. Securing Australia's fishing future www.afma.gov.au

precautionary<sup>4</sup> to prevent stock declines below levels that support long-term sustainable harvests. These catch limits and triggers are supplemented by management measures that impose additional precautionary limits on maximum allowable fishing effort, catch-based move-on rules and RZS to limit fishing intensity and mortality on individual reefs. The biological and ecosystem objectives for the CSF sea cucumber sector are outlined below.

## 4.1.1 Biological

- That the exploitation of sea cucumbers in the CSF is conducted in a manner consistent with the principles of ecologically sustainable development (including the exercise of the precautionary principle).
- That sea cucumber harvest in the CSF does not lead to over-exploitation.
- That where overfishing of a sea cucumber stock is identified, action is taken immediately to cease overfishing.

### 4.1.2 Ecosystem

• That management of the CSF sea cucumber sector is consistent with the EPBC Act and the Guidelines for the Ecologically Sustainable Management of Fisheries (2nd Edition).

# 4.2 Reference points

The sea cucumber sector does not currently have sufficient available information to determine sector or species specific reference points that can be applied to the SCHS.

The CHSP prescribes a minimum Limit Reference Point (LRP) proxy value of 20% of unfished spawning biomass ( $B_{20}$ ), where information isn't available to support selection of a stock-specific limit reference point. Although, there is provision for higher LRP based on the species biology and role in the ecosystem. Due to the following sea cucumber characteristics,  $B_{20}$  may be insufficiently precautionary (Skewes 2023; Skewes 2025, pers. comm.):

- Uncertain population dynamics
- Susceptibility to Allee effects
- Apparent slow recovery rates
- Important ecological role
- High conservation value

Considering this, the SCHS adopts an aspirational proxy LRP in line with the TSBDMF of B<sub>40</sub> (40% of unfished spawning biomass). The proxy LRP is classified as aspirational in recognition of the data-poor nature of the sector and associated difficulties assessing stock status against the measure.

# 4.3 Performance measures

Due to the currently low level of information available within the sea cucumber sector, the performance measures for the fishery have been developed through a weight-of-evidence

 <sup>&</sup>lt;sup>4</sup> Based on recent independent scientific reviews undertaken by Penney (2025) and Skewes (2023).
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approach, or the 'low information level'. However, there is scope within the harvest strategy to review these catch limits and triggers if biomass surveys or additional research is conducted that provides further information on species level biomass within the CSF (see **Section 4.3.2**).

#### 4.3.1 Low information level

At a low information level, the primary data sources in the CSF are the logbook data (catch and effort) and CDR landed catch data provided by industry. While this data does not currently support reporting on stock status, it does provide an adequate basis for reporting on the performance of the fishery against catch limits/triggers and determine spatial and temporal spread of fishing effort.

Annual performance measures include monitoring of:

- Landed catches (from CDR) by primary and secondary species against specified catch limits and triggers, including reef specific catch limits.
- General effort information, including number of vessels, number of days fished by reef (including reconciliation against the RZS limits.

Additional performance measures to be conducted every six years<sup>5</sup> include:

- Review of catch limits and triggers using a weight-of-evidence approach to determine that there is a very high likelihood that the sea cucumber stock is above the aspirational LRP (defined as B<sub>40</sub>). This review is to follow the same or a similar methodology to Penney (2025) and incorporate any new information introduced in between reviews and could include:
  - Nominal CPUE trend (catch kg per vessel day) for the primary and secondary species across the fishery level.
  - Alternative reef level analysis will be conducted if there are industry reports, or indications from preliminary analyses, of substantial increases or decreases in CPUE for a species, outside of recent historical ranges.

The catch (against limits and triggers) and general effort information will be included within the CSF 'Trigger Reports' (published annually on the <u>AFMA website</u> since 2018). The nominal CPUE trend by species will also be included in these reports for the species showing a substantial increase or decrease in CPUE.

### 4.3.2 Higher information level

At a higher information level, where surveys or equivalent research is conducted, performance reporting should include reporting of the species-specific density and biomass estimates for each surveyed reef and any revisions to catch limits using these survey results.

<sup>&</sup>lt;sup>5</sup> This allows two full cycles of the rotational zone system, with each reef only fished twice during this period. Securing Australia's fishing future www.afma.gov.au

## 4.3.3 Governance and reporting

AFMA publishes an annual trigger report which assesses all sectors of the CSF, including the sea cucumber sector against harvest strategy performance measures. The reports since 2017 can be found on the AFMA website at: <u>http://www.afma.gov.au/fisheries/coral-sea-fishery</u>.

# 4.4 Decision rules

# 4.4.1 Requirement to cease fishing if catch or effort limits are reached<sup>6</sup>

- 1. If the maximum allowable days fishing in any Reef Zone is reached, immediately cease fishing in that Reef Zone for the remainder of the season.
- 2. If the catch limit for any species is reached, immediately cease fishing for that species for the remainder of that fishing season.
- 3. If the catch limit for any species is exceeded up to 10%, that catch amount will be deducted from that species the next time the Reef Zone is fished.
- 4. If the catch limit for any species is exceeded by more than 10%, fishing for that species is to be closed the next time the Reef Zone is fished.
- 5. If the 2 tonne per reef limit for Surf Redfish catches in any Reef Zone is reached, immediately cease fishing for Surf Redfish in that Reef Zone for the remainder of the fishing season.
- 6. If the 5 tonne per reef limit for combined species in any Reef Zone is reached, immediately cease fishing in that Reef Zone for the remainder of the fishing season.
- 7. If a biomass survey (or equivalent) is conducted, the outcomes will be used to review catch limits and revise as appropriate. Depending on the available information from the survey, reef level catch limits/triggers may be implemented.

# 4.4.2 Review requirement if catch triggers are reached / exceeded<sup>7</sup>

- 8. If the catch triggers for any species are reached or exceeded, immediately cease fishing for that species for the remainder of the fishing season and:
  - a. Initiate discussions to identify the potential cause of the trigger being reached (i.e. potential increased abundance/availability, changes in targeting practices due to market demands etc.). Dependant on the discussion outcomes, consider whether a biomass survey (or equivalent) is required to confirm this, potentially supporting revision of catch limits based on survey results.
    - i. If no biomass survey is conducted, catch triggers remain unchanged.
    - ii. If a biomass survey is conducted, the outcomes will be used to review catch triggers and revise as appropriate. Depending on the available information from the survey,

<sup>&</sup>lt;sup>6</sup> Applies to primary species (see **Table 3**).

<sup>&</sup>lt;sup>7</sup> Applies to secondary species (see **Table 3**). Securing Australia's fishing future

species specific catch limits (rather than triggers) or reef level catch limits may be implemented.<sup>8</sup>

#### 4.4.3 Exceptional circumstances / breakout rules

- 9. If additional analyses are conducted (e.g. nominal CPUE) or other advice is received (e.g. from industry) that indicate a potentially substantial increase or decrease in the biomass of a species, outside recent historical ranges, initiate discussions regarding whether this raises concern for the state of the stock of that species, or an increase in stock size that may allow for an increased catch, and:
  - a. If a significant reduction in catch or CPUE for any species is a cause for concern (identified through performance monitoring), conducting a biomass survey (or equivalent) to determine stock levels or a catch limit reduction should be considered.<sup>9</sup>
  - b. If a significant increase in catch, effort or CPUE is identified through performance monitoring, indicating a potential increase in availability, consider conducting a biomass survey (or equivalent) to support a potential increase in the catch limit.<sup>10</sup> If no further research is conducted, the catch limit remains unchanged.
    - iii. If a biomass survey (or equivalent) is conducted, the outcomes will be used to review catch limits and revise as appropriate.

#### 4.4.4 Option to initiate surveys to provide for increased catches

Sea cucumber abundance surveys or equivalent research may be initiated at any time to provide the increased information required to increase catch limits. This may result from indications of increased biomass (i.e. nominal CPUE), or from industry desire to increase catch, perhaps in response to increase market prices or export opportunities.

# **5 Intended future improvements**

The longer-term aspiration for management of the CSF sea cucumber sector is to improve data and information about stocks of sea cucumber species by encouraging the conducting of periodic biomass surveys (or equivalent research), at least on the main fished reefs.

Periodic biomass surveys, at least of the main fished reefs, would allow for reef-specific catch limits to be set for each species, allowing for optimal exploitation harvest control rules to be developed applied, and providing for improved reporting of stock status. The intention regarding the harvest strategy is to steadily move towards a harvest strategy supported by a higher level of data and information, with indicators, reference points and decision rules updated as appropriate based on the best available information.

<sup>10</sup> A significant increase is considered to be at least a 50% or higher increase in catches, effort or CPUE compared with the previous 3-fishing seasons averages for the fishery (excluding any years with minimal or no fishing effort.
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<sup>&</sup>lt;sup>8</sup> Catch triggers are to act as catch limits while the biomass survey (or equivalent research) and review are under way. Catches of that species must be closely monitored with pre-emptive action to be taken by AFMA to mitigate risk of overexploitation if required.

 $<sup>^{9}</sup>$  A significant reduction is to be considered a cause for concern if evidence suggests that the aspirational proxy LRP of B<sub>40</sub> has been reached or there is a high likelihood that it will be reached without a change to catch limits.

# 6 **Process for review**

The SCHS will be reviewed at least once every 5 years, although can be reviewed earlier, for example if:

- Significant changes in catches or fishing behaviour, for example a 50% or higher increase in catches or effort compared with the previous 3-fishing seasons averages for the fishery.
- Available information indicates a high likelihood that the aspirational proxy LRP of  $B_{40}$  is reached or exceeded for any sea cucumber species.
- New information emerges that substantially changes understanding of the fishery, leading to revised estimates of indicators such as catch rates or nominal CPUE.
- External drivers have unexpectedly increased the risk to a fishery and fish stocks, including environmental or climate drivers that have substantially altered the productivity characteristics (growth or recruitment) of the stock.
- Performance indicators show that harvest strategies are not working effectively, and therefore that the intent of the CHSP is not being achieved.

Further details can be found in Section 9 of the CHSP guidelines at: <u>https://www.agriculture.gov.au/agriculture-land/fisheries/domestic/harvest\_strategy\_policy</u>.



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