

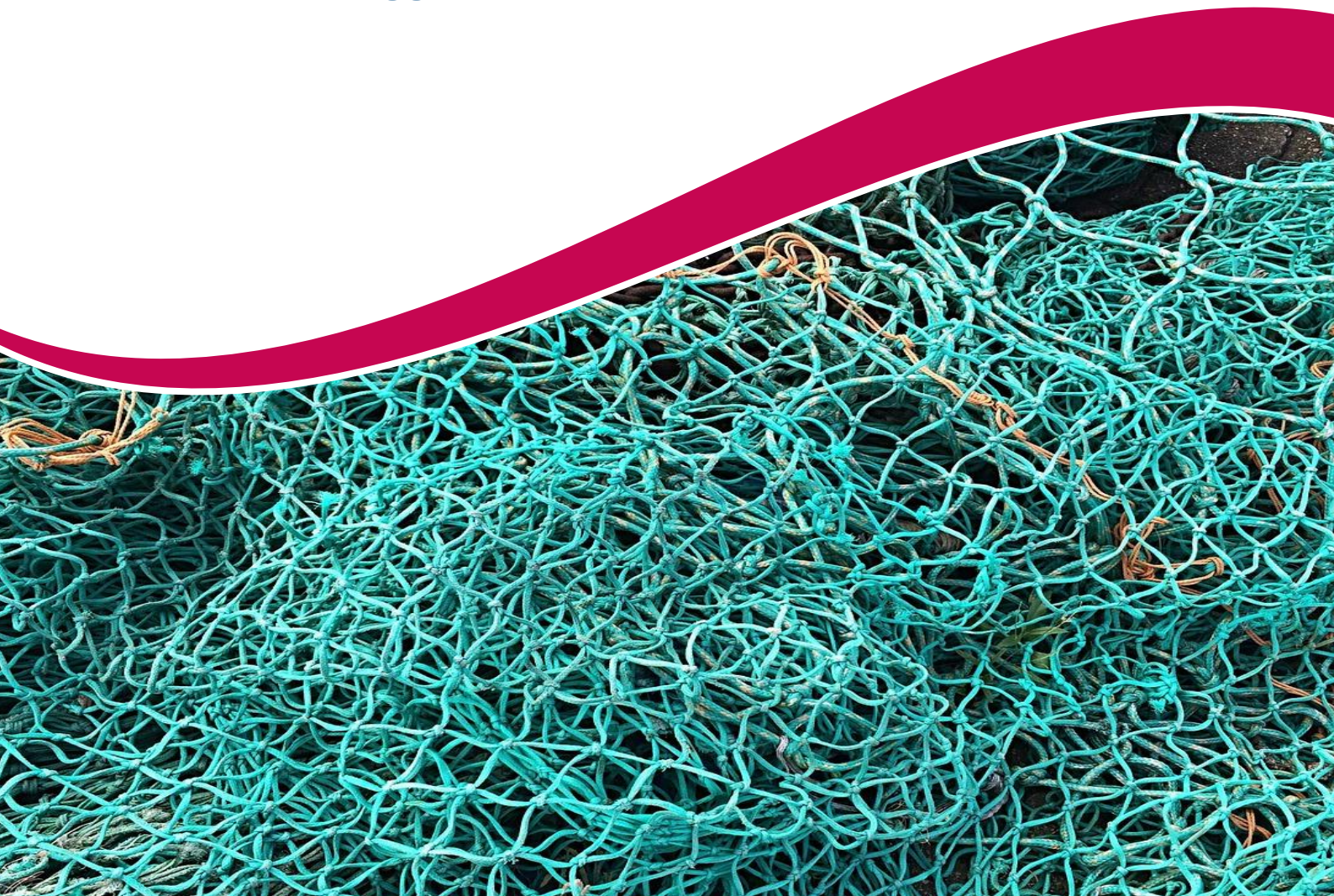


Australian Government

Australian Fisheries Management Authority

Coral Sea Fishery

2023-24 Trigger Report



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Purpose of the report

The purpose of the Trigger Report is to assess logbook catch and effort data for the Coral Sea Fishery (CSF) against the trigger limits detailed in harvest strategies for each respective CSF fishing sector. There are currently four sectors in the CSF: Line (previously Trawl, Trap and Line); Aquarium; Hand Collection (sea cucumber) and Lobster and Trochus.

For the 2023-24 fishing year, no effort occurred in the Lobster and Trochus Sector hence this sector is not included in the report. Further, from mid-2019 Trap and Trawl methods are no longer permitted methods in the fishery and consequently, are also not reported on.

Harvest strategies for the CSF sectors can be found on the AFMA website:
<https://www.afma.gov.au/sustainability-environment/harvest-strategies>.

1. Line Sector

The Line Sector of the CSF was inactive in the 2023-24 fishing year (1 July 2023 - 30 June 2024), resulting in 0 tonnes total catch, compared to 5.7 tonnes in 2022-23, and 3.1 tonnes in 2021-22.

This zero effort level in 2023-24, compares to the 73,000 hooks set in 2022-23, and 58,403 hooks set in 2021-22 (with one Line Sector fishing trip undertaken in each fishing season). Table 1 outlines the catch and effort in the Line Sector for the past three fishing seasons. The top ten species by weight for the last three seasons are listed in Table 2.

Fishing effort in the CSF is generally constrained by the long distance from shore to fishing grounds, along with weather conditions. Operators in the fishery also tend to fish the CSF as a secondary fishery, meaning effort in the CSF is dependent on how many or how few operators fish in their other primary fisheries.

Table 1. Catch and effort for the Line Sector over the past three seasons

	Catch (tonnes)			Effort (number of hook set)		
	2021-22	2022-23	2023-24	2021-22	2022-23	2023-24
Line	3.1	5.7	0	58,403	73,000	0

Table 2. The top ten species caught by weight (tonnes) in the Line Sector of the Coral Sea Fishery for 2021-22, 2022-23 and 2023-24.

2021-22		2022-23		2023-24
Species	Weight (t)	Species	Catch (t)	Catch (t)
Flame Snapper	2.017	Flame Snapper	3.189	No catch
Ruby Snapper	0.283	Ruby Snapper	0.724	
Blue-eye Trevalla	0.153	Blue-eye Trevalla	0.666	
Bar Rockcod	0.121	Amberjack	0.366	
Rosy Snapper	0.108	Bar Rockcod	0.192	
Oceanic Whitetip Shark	0.088	Ornate Jobfish	0.173	
Paddletail Seabream	0.058	Imperador	0.119	
Amberjack	0.056	Whitetip Reef Shark	0.071	
Whitetip Reef Shark	0.038	Alfonsino	0.064	
Conger eels	0.035	Conger eels	0.044	

The triggers

Triggers and the associated management response for the Line Sector are outlined in the Line, Trap and Trawl Harvest Strategy (noting the Trap and Trawl sectors no longer exist).

Overarching catch trigger

- i. *Must be less than total highest catches across the main species caught to date. A 'main species' is a species that has an average catch over 1 tonne over a five-year period.*
- ii. *Overarching Level 1 trigger for total fishery catch: 450 t*
- iii. *Overarching Level 2 trigger for total fishery catch: 1000 t*

As the Line Sector was inactive in 2023-24, none of the overarching catch triggers were reached.

Species- specific triggers (high risk/ vulnerable AND key species)

Whitetip reef shark

- i. Level 1: 2.5 tonnes (1/6 historical high catch)*
- ii. Level 2: 5 tonnes (1/3 historical high catch)*

Grey reef shark

- i. Level 1: 13 tonnes (1/2 historical high catch)*
- ii. Level 2: 26 tonnes (historical high catch)*

As the Line Sector was inactive in 2023-24, none of the species-specific triggers were reached and no protected species interactions occurred.

Triggers pertaining to changes in catch proportion

- i. If the relative catch proportion of any species changes by >30% from its historical average AND the catch of this species is greater than 1 tonne, invoke a level 1 response for the relevant species. If this is accompanied by an $\geq 50\%$ overall decline in the CPUE over the last three years, invoke a Level 2 response*
- ii. If the relative proportion of any species in the catch declines inter-annual by 10% or greater over 3 consecutive years, invoke a Level 1 response. If this accompanied by $\geq 50\%$ overall decline in CPUE over the last 3 years, invoke a Level 2 response*

As the Line Sector was inactive in 2023-24, none of the catch proportion triggers were reached.

Triggers pertaining to spatial changes

For the purposes of this report, 'hillgrids' are used to represent areas fished. Each hillgrid is a square approximately 15 nautical miles wide. Fishing effort typically occurs in only a proportion of each hillgrid and so the analysis is spatially broad.

If the following changes occur invoke a Level 1 response to determine why, with the added option of imposing spatial management measures, such a closures or move-on provisions:

- i. The percentage of areas fished increased by $\geq 40\%$ (fishery expansion), OR*
- ii. The percentage of areas fished decreases by $\geq 40\%$ (fishery contraction), OR*
- iii. If $\geq 40\%$ of the total catch is taken from a single area (fishery contraction/ undue fishing pressure on one area) OR*
- iv. If $\geq 40\%$ of once- exploited areas are no longer fished*

A summary of the spatial changes in the Line Sector for fishing seasons 2021-22 to 2023-24 are outlined in Table 3.

Table 3. Summary of hillgrid areas fished in the Line Sector of the Coral Sea Fishery between 2021-22 to 2023-24.

2021-22		2022-23			2023-24		
Areas fished (hillgrids)	Areas fished (km ²)	Areas fished (hillgrids)	Areas fished (km ²)	Change in area fished	Areas fished (hillgrids)	Areas fished (km ²)	Change in area fished
4	3,084	3	2,313	↓25%	0	0	↓100%

Note: the change in areas fished are relative to the year prior.

A Level 1 response was triggered in relation to (ii) and (iv) in 2023-24, as a result of no fishing activity occurring during the 2023-24 season. Through logbook analysis, the following was determined:

- With respect to (ii), there was a 100 per cent decrease in the number of hillgrids fished in 2023-24 (0 hillgrids) compared to 2022-23 (3 hillgrids).
- With respect to (iv), 'once exploited areas' are defined as the 'total number of individual areas fished over the past three years' for the purpose of assessing this trigger. The inactivity of the Line Sector means that 100 per cent of the 'once exploited' areas were not fished, thereby exceeding the trigger.

These triggers were reached as a result of no fishing activity during the 2023-24 season which does not present an ecological risk to the fishery and therefore no further management response was warranted. Changes in the catch and effort across the fishing areas in the fishery are consistent with the opportunistic nature of the fishery (with operators participating in other fisheries) and the variable weather conditions rather than any sustainability concerns.

- v. If any of the above triggers (i – iv) are accompanied by a ≥50% overall decline in CPUE over the last three years, invoke a Level 2 response*

A summary of logbook catches, effort and CPUE (kg per hook set) for each gear type in the Line Sector for fishing years 2021-22 to 2023-24 is provided in Table 4.

Table 4. Logbook catch, effort and CPUE (kg / hook set) for the Line Sector of the Coral Sea Fishery for fishing years 2021-22 to 2023-24.

Fishing year	Dropline hooks	Catch (t, whole weight)	CPUE (kg/hook set)
2021-22	0	0	N/A
2022-23	0	0	N/A
2023-24	0	0	N/A
Fishing year	Longline hooks	Catch (t, whole weight)	CPUE (kg/hook set)

2021-22	58,403	3.2	0.055
2022-23	73,000	5.7	0.078
2023-24	0	0	N/A

This trigger was not applicable, and no management action warranted, as there was no fishing activity in the 2023-24 fishing season.

Triggers pertaining to CPUE

- i. *If CPUE for any species shows a decline over the last 3 years, but without any of the above indicators being triggered, a Level 1 response shall be invoked if the decline is less than or equal to 50%, and a Level 2 response shall be invoked if the decline is greater than 50%*

CPUE triggers are not applicable, and no management action warranted, as no fishing activity occurred in the Line Sector during 2023-24.

Discussion

The effectiveness of CPUE-based triggers and the subsequent management controls in the CSF Line Sector Harvest Strategy have been an ongoing discussion. The CSF has high variable catch composition, with relatively low catch rates and spatial distribution of effort, meaning that these triggers are overly sensitive. The Harvest Strategy is due for an update to reflect the low effort nature of the fishery while remaining appropriately precautionary for future development of the fishery. AFMA will continue to monitor the total catch of these species over time and will review the appropriateness of CPUE based triggers as part of an upcoming review of the Line Sector Harvest Strategy.

2. Aquarium

Key family groups

For the 2023-24 season, 8,218¹ individual fish were harvested in the Aquarium Sector, which is a significant decrease from the previous 31,292¹ fish taken in 2022-23.

The revised Aquarium Sector Harvest Strategy came into effect in mid-2019. The 2019-20 trigger report was the first report where catch is assessed against the revised triggers. A summary of the catch against each trigger for the years 2021-22 to 2023-24 is provided in Table 6. No triggers were reached in the 2023-24 fishing year.

¹This number includes 'other' species

Table 5. Standing stock size estimates, catch triggers and 2021-22 to 2023-24 catch (number of individuals) for the six key commercial Family groups in the Aquarium Sector of the CSF. Note: Level 1 trigger is 0.02 per cent of the minimum stock size and the Level 2 trigger is 0.04 per cent of the minimum estimated stock size for each family group.

Standard name	Family name	Min stock estimate	Max stock estimate	Level 1 Trigger (0.02%)	Level 2 Trigger (0.04%)	2021-22 catch	2022-23 catch	2023-24 catch
Anthias	<i>Serranidae</i>	56,627,823	459,144,510	11,000	22,000	8,813	5,823	2,991
Wrasses, cleaner wrasses	<i>Labridae</i>	91,828,902	459,144,510	18,000	36,000	7,984	5,673	1,621
Damselfish	<i>Pomacentridae</i>	1,346,823,896	15,304,817,000	20,000	40,000	4,800	4,085	705
Blue tang/surgeonfish	<i>Acanthuridae</i>	168,352,987	487,917,566	20,000	40,000	3,004	4,023	573
Gobies	<i>Blenniidae & Gobiidae</i>	61,219,268	18,365,780,400	12,000	24,000	1,687	868	447
Angelfish, Pygmy Angels	<i>Pomacanthidae</i>	61,525,364	N/A	12,000	24,000	2,490	771	176

Other species

The Triggers

Level 1 Catch Trigger: Equal to the highest historical catch for all 'other' species.

Level 2 Catch Trigger: Equal to twice the highest historical catch for all 'other' species.

In the 2023-24 fishing year, the total catch for 'other' species was 1,705 individuals, well below the highest historical catch of 16,934 individuals in 2012-13 resulting in no further action being required.

Acroporidae: 40 tonnes of the coral family Acroporidae is permitted to be harvested annually from the CSF. This limit is regulated and consistent with the conditions of the CSF Wildlife Trade Operation (WTO) accreditation based on a Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Non-Detriment Finding (NDF). The NDF used estimates of density and annual production across the fishery.

Level 1 Catch Trigger: 20 tonnes.

Level 2 Catch Trigger: 40 tonnes.

In the 2023-24 fishing year, 0.25 tonne of Acroporidae was harvested. The trigger limit was not exceeded.

Live rock: 40 tonnes of live rock is permitted to be harvested annually from the CSF.

Level 1 Catch Trigger: 20 tonnes.

Level 2 Catch Trigger: 40 tonnes.

There were 1.71 tonnes of live rock collected in the 2023-24, well below the trigger and a reduction from the 2.7 tonnes collected in the 2022-23 season.

This trigger was intended to pick up a potential decrease in the catch per unit effort for live rock. However, the take of live rock is largely market driven and the low level of harvest is reflective of a low market demand.

Humphead Maori wrasse: Aquarium Sector fishing permit holders are authorised to take a total of 50 specimens during the season (25 per concession holder). Operators are required to record the number of specimens taken per trip, their size and latitude/longitude information in the 'comments' section of their logbook. The annual catch triggers have been set to review catch and effort data whenever 10 individuals are caught, or when 50 individuals are caught within a season.

Level 1 Catch Trigger: Each time 10 individuals caught (i.e., 10, 20, 30 and 40 individuals).

Level 2 Catch Trigger: 50 individuals.

In the 2023-24, eight Humphead Maori wrasses were harvested, which is below the Level 1 and 2 catch triggers.

Discussion

No catch triggers for the Aquarium Sector were exceeded in 2023-24.

3. Hand Collection (Sea Cucumbers)

The Hand Collection Sector was active for 7 days in the 2023-24 season, resulting in a total catch of 3.04 tonnes harvested over 41 dive hours. This is a decrease from the 2022-23 season, which was active for 12 days, where 6.44 tonnes were harvested over 80 dive hours.

The triggers

The trigger limits for the Hand Collection Sector apply as a Total Allowable Catch (TAC) for each of the main species, any combination of greenfish and lollyfish, any other single species, and all species of the order Holothuriida (previously classified as Aspidochirotida). Catch of these species/species groups by fishing year for the period 2021-22 to 2023-24 are presented in Table 7 below.

Table 6. Assessment of Hand Collection Sector: Sea Cucumber CDR catches against the Harvest Strategy catch limits for years 2021-22 to 2023-24.

Standard name	Scientific name	TAC/trigger limit (t)	2021-22	2022-23	2023-24
Main species					
Black teatfish	<i>Holothuria whitmaei</i>	1	0.29	0.23	0.13
White teatfish	<i>Holothuria fuscogilva</i>	4	0.13	3.41	2.28
Sand fish	<i>Holothuria scabra</i>	1	0.018	0	0
Prickly redfish	<i>Thelenota ananas</i>	20	0.20	2.15	0.35
Surf redfish	<i>Actinopyga mauritiana</i>	10	1.15	0.019	0
Other species					
Greenfish	<i>Stichopus chloronotus</i>	10 tonnes (any combination of greenfish and lollyfish)	0	0	0
Lollyfish	<i>Holothuria atra</i>		0	0	0
Any other species		5 tonnes per species	0.98	0.63	0.28
Total sea cucumbers collected for the sector					
All species of the Order Holothuriida		150 tonnes (TAC for all species in the sector)	2.77	6.44	3.04

Discussion

No trigger limits for the Hand Collection Sector were reached in the 2023-24 season.