



Australian Government

**Department of Agriculture,
Water and the Environment**

Assessment of the Coral Sea Fishery

January 2021

© Copyright Commonwealth of Australia, 2021.



Assessment of the Commonwealth Coral Sea Fishery 2021 is licensed by the Commonwealth of Australia for use under a Creative Commons By Attribution 3.0 Australia licence with the exception of the Coat of Arms of the Commonwealth of Australia, the logo of the agency responsible for publishing the report, content supplied by third parties, and any images depicting people. For licence conditions see: <http://creativecommons.org/licenses/by/3.0/au/>.

This report should be attributed as '*Assessment of the Commonwealth Coral Sea Fishery 2021*, Commonwealth of Australia 2021'.

Disclaimer

This document is an assessment carried out by the Department of Agriculture, Water and the Environment of a commercial fishery against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*. It forms part of the advice provided to the Minister for the Environment on the fishery in relation to decisions under Parts 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999*. The views expressed do not necessarily reflect those of the Minister for the Environment or the Australian Government.

While reasonable efforts have been made to ensure that the contents of this report are factually correct, the Australian Government does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this report. You should not rely solely on the information presented in the report when making a commercial or other decision.

CONTENTS

Assessment summary 1

Section 1: Assessment Summary 5

Section 2: Summary of Issues Requiring Conditions 7

 Assessment history: 14

Section 3: Detailed Analysis Against the Guidelines 15

Section 4: Assessment Against the EPBC Act 28

 Part 10 – Strategic assessments 28

 Part 12 – Identifying and monitoring biodiversity and making bioregional plans 29

 Part 13 – Species and communities 29

 Part 13A – International movement of wildlife specimens 31

 Part 16 – Precautionary principle and other considerations in making decisions 38

References 39

ASSESSMENT SUMMARY

The Commonwealth Coral Sea Fishery is a commercial fishery that harvests a wide range of species in the Coral Sea, including species listed under Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) the Humphead Maori Wrasse (*Cheilinus undulates*) and corals in the Family Acroporidae, Black Teatfish (*Holothuria whitmaei*) and White Teatfish (*H. fuscogilva*).

As a party to the Convention, Australia must apply all CITES provisions of the EPBC Act to CITES imports and exports. Specimens being exported from Australia for commercial purposes must come from an approved commercial source, such as a Wildlife Trade Operation approved under the EPBC Act.

On 4 November 2020, the Australian Fisheries Management Authority (AFMA) submitted an application for assessment of the Coral Sea Fishery (the fishery) under wildlife trade and protected species provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Department of Agriculture, Water and the Environment assessed the application against the Australian Government 'Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition' (the Guidelines) and in doing so, also considered all public comments received on the application. Public consultation on the application was undertaken from 5 November until 4 December 2020. Four public submissions were received and AFMA provided advice in response to the issues raised in the public submissions.

The key concerns raised in the public comments included:

Sea Cucumbers:

- Global declines of teatfish species and associated IUCN listings which informed the CITES listing of the species.
- Biology and life-history traits of these species not being able to sustain commercial harvest.
- The lack of information collected on numbers of individual animals harvested.
- Inclusion of the Aquarium Sector for the AFMA observer program
- Introduce a no take for the harvest of prickly redfish (*Thelenota ananas*).
- The important role Sea Cucumbers play in ecosystem health and the impacts that overfishing would have on reef health.
- Whether rising average sea temperatures and associated effects on spawning are considered in managing the fishery.
- Potential for illegal, unreported and unregulated take.

Humphead Maori Wrasse

- Availability of data on current domestic catches, including non-commercial catches in areas including the Coral Sea.
- Evidence to suggest declines in densities of the species, at least in parts of the fishery.
- Impacts associated with removal of large male specimens given the species biology.
- Lack of specific conservation action plans.
- Impacts on, and risks to spawning aggregations.
- The importance of Australian stocks for recovery of overfished stocks in the broader region.
- The importance of science in determining likely detriment to CITES-listed species.

- The likelihood that exports for exhibition purposes contribute to education about, and conservation of the species

The Department assessed the application under the EPBC Act and the Guidelines. Both the public submissions and AFMA's response were considered in the Department's assessment.

The Department's assessment forms the basis for approvals granted under Parts 13 and 13A of the EPBC Act, and also forms the basis for the Australian CITES Scientific Authority's Non-Detriment Finding for CITES species harvested in this fishery.

Description of the Fishery

The Coral Sea Fishery extends from Cape York to Sandy Cape, Queensland. It is bounded on the east by the Australian Fishing Zone and on the west by a boundary line 10 to 100 nm east of the western boundary of the Great Barrier Reef Marine Park. The fishery operates wholly within the area of the Coral Sea Commonwealth Marine Reserve.

The fishery is a diverse fishery that harvests a wide range of species in the Coral Sea. The fishery is divided into four sectors:

- Line Sector – demersal longline, trotlines, droplines, setlines and handlines
- Sea Cucumber Sector – hand collection
- Aquarium Sector – hand collection, barbless hook and line, scoop, cast and seine nets
- Lobster and Trochus Sector – hand collection

Fishery management arrangements

The fishery is managed by the Australian Fisheries Management Authority (AFMA) under the *Fisheries Management Act 1991* (CTH) and the Fisheries Management Regulations 2019 (CTH).

Target stocks

A wide range of finfish species are permitted to be taken in the fishery, as well as sharks, lobsters, trochus and sea cucumbers. The main species currently or historically harvested in each sector are outlined below.

Aquarium Sector

The majority of the harvest consists of damselfish, butterflyfish, angelfish, wrasse, anemone fish, surgeonfish, blennies and gobies, with the species targeted varying over time in response to changing market demands. Live rock (limestone encrusted with coralline algae and other encrusting species) may also be harvested.

While there are no formal stock assessments for the sector, research by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) indicates that given low historical extraction rates, the sector is unlikely to be having an adverse impact on the stock and not subject to overfishing.

The Aquarium Sector also takes Humphead Maori Wrasse and corals in the Family Acroporidae which are species listed on CITES Appendix II (take of these species is not permitted in the other sectors of the fishery).

Humphead Maori Wrasse

Advice from relevant experts (Prof. Howard Choat, 2020; IUCN Groupers and Wrasses Specialist Group, 2020) has been obtained in the process of the current assessment. This advice suggests that abundance of Humphead Maori Wrasse has seen a decline in the outer GBR by around 40 per cent. Advice has also been received that commercial catches in

Northern Territory fisheries have taken place in recent years, though the exact amount of this catch and capacity to monitor and control these catches is still being investigated by the department, numbers seem very low with estimates from the relevant management agency in NT being at 7 Humphead Maori Wrasse harvested over the last 25 years. The harvest in NT has been considered in the making of a non-detriment finding for this species to be exported from the Coral Sea Fishery.

The area available for fishing in the Coral Sea Fishery has been significantly reduced since the implementation of the Coral Sea Marine Park in 2018, however the reefs normally accessed by operators harvesting this fish remain open to fishing so this reduction is unlikely to have affected the harvest of this species.

Humphead Maori Wrasse has been subject to relatively low levels of fishing pressure in Australian waters, with an average of 7.5 fish being caught each year in the Coral Sea Fishery in recent years. In 2010 Australia's CITES Scientific Authority determined that the take of up to 50 Humphead Maori Wrasse per year by the Coral Sea Fishery was unlikely to be detrimental to the species' survival in the wild. Advice from relevant expert (Prof. Howard Choat) advised that this take is sustainable. Consistent with the trigger limits in the relevant Harvest Strategy, no more than 10 individuals can be caught without assessment of the catch. This catch assessment must be done in consultation with the CITES Scientific Authority, and has been conditioned in this approval (refer to Section 2).

Corals in the Family Acroporidae

Corals belonging to the Family Acroporidae are generally abundant and likely to be resilient to fisheries exploitation given their rapid growth, high rates of recruitment and naturally high levels of population turnover.

Limited harvest across the broad area of the Coral Sea is expected to have a negligible impact on the survival of these species in the wild. However, if fisheries activity is focussed on specific locations and/ or certain species, then it may be prudent to undertake more detailed and specific stock assessments to better determine the impacts of the fishery and guide sustainable fishery limits.

There are also significant climatic threats to coral assemblages which must be considered and monitored to ensure that harvest and management does not risk the survival of corals belonging to the Family Acroporidae in the wild.

Conditions on the wildlife trade approval, have been recommended to manage this risk. These conditions include annual catch limits and species-specific reporting to the department.

Sea Cucumber Sector

The main species harvested are White Teatfish (*Holothuria fuscogilva*), Black Teatfish (*Holothuria whitmaei*) and Prickly Redfish (*Thelenota ananas*).

The stock status of White Teatfish is considered uncertain, while Black Teatfish and Prickly Redfish are considered not overfished and not subject to overfishing ([Emery et al. 2019](#)). The introduction of the Coral Sea Marine Park in 2018 increased the area closed to fishing, including at least one reef where historically a large proportion of the catch of Black and White teatfish came from.

Black Teatfish and White Teatfish

The listing of Black Teatfish and White Teatfish under CITES Appendix II took effect on 28 August 2020. The department received a submission for assessment of Black Teatfish and White Teatfish and information to support a proposed non-detriment finding on behalf of

numerous Australian fisheries management agencies, including AFMA, in May 2020 from Dr Ian Knuckey.

The department has not received sufficient information to support a non-detriment fishing to be made in relation to the harvesting of White Teatfish from the Coral Sea Fishery. AFMA has acknowledged that the department's consideration of White Teatfish exports will need to proceed during 2021.

A total allowable take of 1 tonne has been approved for export of Black Teatfish from the fishery.

Line Sector (previously Line, Trap and Trawl Sector)

The Line Sector have operated opportunistically taking a large range of fin fish and shark species. Crustaceans have also been targeted historically. Analysis by the ABARES classify these sectors as not subject to overfishing and uncertain with regard to biomass status.

In 2018 the [Coral Sea Marine Park](#) was introduced. This significantly reduced the area available to fish and correlated with a 47 per cent reduction in fishing effort in the Line Sector. In 2019 all trap and trawl fishing permits were removed from the fishery.

Lobster and Trochus Sector

The Tropical Rock Lobster (*Panulirus ornatus*) has been the main lobster species targeted. The stock of this species is classified as not overfished and not subject to overfishing (Emery et al. 2019). There has been no effort in the Lobster and Trochus Sector for the last three fishing seasons, 2017-18 to 2019-20.

Protected species and threatened ecological communities

Under the proposed management arrangements, operators are required to take all reasonable steps to avoid the killing or injuring of protected species and the level of interaction under current fishing operations is negligible. The fishery continues to have a low impact on threatened ecological communities and bycatch species.

Ecosystem impacts

Taking into account existing management measures, fishing methods, and low effort in the fishery, the management regime for the fishery provides for fishing operations to be managed to minimise its impact on the structure, productivity, function and biological diversity of the ecosystem.

Conclusion

The Department's assessment identified risks in the fishery that often relate to the lack of information available. The Department has recommended conditions that will ensure a precautionary approach is taken to the management of these risks in the fisheries.

The Department recommends that the fishery be declared an approved WTO for a period of three years until 7 January 2024 subject to conditions and that the fishery be included on the List of Exempt Native Specimens (LENS) while a WTO approval is in place. The Department also recommends that the management arrangements for the fishery be accredited under Part 13 of the EPBC Act. Unless a specific timeframe is provided, each condition must be addressed within the period of the approved WTO declaration for the fishery.

SECTION 1: ASSESSMENT SUMMARY

Guidelines assessment	Meets	Partially meets	Does not meet	Details
Management regime	6 of 9	3 of 9		The management regime is effective. A management strategy is in place, it applies the precautionary principle and in most cases effectively deals with uncertainty and risk. The Coral Sea Fishery (the fishery) is managed by the Australian Fisheries Management Authority (AFMA). The fishery operates under the <i>Fisheries Management Act 1991</i> and Fisheries Management Regulations 2019.
Principle 1 (target stocks) 2 of 11 N/A	4 of 11	5 of 11		Target stocks are well managed although do not meet all the requirements under the Guidelines. Information on fish stocks is limited. However, management is designed to monitor fishery performance and investigate any changes and manage uncertainty and risk in a precautionary way. It is considered to be effective.
Principle 2 (bycatch and TEPS) 2 of 12 N/A	10 of 12			Interactions with bycatch and TEPS low due to fishing methods and effort. The nature of the fishery means a low risk to bycatch and likely relatively low risk to protected species. The management strategy is considered effective. It includes monitoring and risk mitigation for all species, including bycatch and EPBC Act listed species.
Principle 2 (ecosystem impacts)	1 of 5	4 of 5		Management is precautionary and designed to minimise potential impacts. It is informed by ecological risk assessments (ERAs). However these do not include habitats and communities. The ERAs are scheduled to be reviewed in 2021-2022 at which time habitats and communities will be assessed and more tailored data collection and risk mitigation can be considered. There are no listed ecological communities in the area of the fishery.

EPBC requirements	Meets	Partially meets	Does not meet	Details
Part 12	Meets			Not applicable. There are no relevant Marine Bioregional Plans for the Coral Sea Fishery.
Part 13	Meets			Impacts on EPBC listed species are low due to the low effort and fishing methods in some sectors. Two interactions with EPBC Act listed species have been reported over three fishing seasons (2017 – 20).
Part 13A	Meets			The fishery is consistent with the Objects of Part 13A. Declaration of the fishery as a Wildlife Trade Operation for three years, until 6 January 2024 is recommended, subject to conditions detailed in Section 2 of this report.
Part 16	Meets			Management is precautionary and regularly reviewed.

SECTION 2: SUMMARY OF ISSUES REQUIRING CONDITIONS

Issue	Condition
<p><u>General Management</u></p> <p>Export decisions relate to the management arrangements in force at the time of any decision(s) made under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). To ensure that the decision(s) remain valid and export approval continues uninterrupted, the Department of Agriculture, Water and the Environment (the Department) needs to be advised of any changes that are made to the management regime and make an assessment that the new arrangements are equivalent or better, in terms of ecological sustainability, than those in place at the time of the original decision(s). This includes operational and legislated amendments that may affect the sustainability of the target species or negatively impact on byproduct, bycatch, EPBC Act protected species or the ecosystem.</p>	<p>Condition 1:</p> <p>The Australian Fisheries Management Authority must ensure that operation of the Coral Sea Fishery is carried out in accordance with management arrangements defined under the <i>Fisheries Management Act 1991 (CTH)</i> and Fisheries Management Regulations 2019 (CTH).</p> <p>Condition 2:</p> <p>The Australian Fisheries Management Authority must inform the Department of Agriculture, Water and the Environment of any intended material changes to the Coral Sea Fishery’s management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p> <p>Condition 3</p> <p>The Australian Fisheries Management Authority must inform the Department of Agriculture, Water and the Environment of any intended changes to fisheries legislation that may affect the legislative instruments relevant to this approval.</p>
<p><u>Annual Reporting</u></p> <p>It is important that the Australian Fisheries Management Authority produce and present reports to the Department annually in order for the performance of the fishery and progress in implementing the conditions described in this report and other managerial commitments to be monitored and assessed throughout the life of the export approval. Annual reports should follow Appendix B to the <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i> and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fishery, status of target stock, interactions with EPBC Act protected species, impacts of the fishery on the ecosystem in which it operates and</p>	<p>Condition 4:</p> <p>The Australian Fisheries Management Authority must provide reports to the Department of Agriculture, Water and the Environment annually as per Appendix B of the <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i>.</p>

<p>progress in implementing the Department's conditions described in the previous assessment for the fishery. Electronic copies of the guidelines are available from the Department's website at http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries.</p>	
<p><u>Management of species listed in the Convention on the International Trade of Endangered Species (CITES)</u></p> <p>The Australian Fisheries Management Authority has sought approval for the collection and export of certain species listed in CITES Appendix II. These species are Humphead Maori Wrasse (<i>Cheilinus undulatus</i>), coral species belonging to the family Acroporidae and two species of Sea Cucumbers, Black Teatfish (<i>H. whitmaei</i>) and White Teatfish (<i>H. fuscogilva</i>).</p> <p>The CITES Scientific Authority of Australia has assessed the potential impact of the proposed collection for the purposes of a non-detriment finding below.</p> <p>Proposed management controls, including reporting requirements and catch limits may be reviewed as additional information becomes available, and the Department will work with AFMA to ensure that management arrangements remain practical and precautionary.</p> <p>Humphead Maori Wrasse</p> <p>Australia's CITES Scientific Authority determined that the take of up to 50 Humphead Maori Wrasse per year by the Coral Sea Fishery was unlikely to be detrimental to the species' survival in the wild in 2010. Humphead Maori Wrasse has been subject to relatively low levels of take in the Coral Sea Fishery in recent years.</p> <p>In 2018 the Coral Sea Marine Park was established and the area available for fishing in the Coral Sea Fishery has been significantly reduced. Expert opinion (Prof. Howard Choat, 2020) has suggested that the total allowable take (total of 50 animals per annum) from the Coral Sea Fishery is likely to be sustainable. Under the harvest strategy for the Aquarium Sector in the fishery, if more than 10 individuals are taken then</p>	<p>Condition 5</p> <p>The Australian Fisheries Management Authority must limit the take of species listed under the Convention on the International Trade of Endangered Species (CITES), from the area of the Coral Sea Fishery to no more than:</p> <ul style="list-style-type: none"> a) 40 tonnes per year (1 July – 30 June) of any mixture of species belonging to the family Acroporidae per year. b) 50 individual Humphead Maori Wrasse (<i>Cheilinus undulatus</i>) per year (1 July to 30 June). Consistent with the trigger limits in the relevant Harvest Strategy, no more than 10 individuals can be caught without assessment of the catch. The assessment must be done in consultation with the CITES Scientific Authority. c) 1 tonne per year of Black Teatfish (<i>H. whitmaei</i>) <p>Condition 6:</p> <p>By 1 December 2021, the Australian Fisheries Management Authority must review the science underpinning the catch limit for Humphead Maori Wrasse (<i>Cheilinus undulatus</i>). This review must include independent, expert scientific advice.</p>

an assessment of the catch must be done in consultation with the CITES Scientific Authority.

Expert advice received from the IUCN Groupers & Wrasses Specialist Group through the public consultation period for this fishery has been considered in reviewing the current management conditions for Humphead Maori Wrasse. The advice raises concerns regarding the extent to which all sources of mortality on the species in Australia are considered and managed. It highlights that, while not attributed to fishing, significant declines (approximately 40 per cent) in populations of this and other species in the outer areas of Australia's Great Barrier Reef (within at least some parts of the Coral Sea Fishery). Concerns were also raised regarding the relative abundance of certain biologically significant individuals, and risks associated with localised depletion and potential targeting of spawning aggregations (Prof. Howard Choat, 2020; IUCN Groupers and Wrasses Specialist Group, 2020).

These factors all require further investigation and as such Condition 6 review the science underpinning the catch limit for this species. Should the review conclude that a different limit or trigger point be implemented for this species, this would trigger a review of the Harvest Strategy for the Aquarium Sector of this fishery in line with page 13 of the Harvest Strategy Framework/ Hand collection sub-fishery: Aquarium Sector.

Corals belonging to the Family Acroporidae

Corals belonging to the Family Acroporidae are generally abundant and likely to be resilient to fisheries exploitation given their rapid growth, high rates of recruitment and naturally high levels of population turnover.

Limited harvest across the broad area of the Coral Sea is expected to have a negligible impact on the survival of these species in the wild. However, if fisheries activity is focussed on specific locations and/ or certain species, then it may be prudent to undertake more detailed and specific stock assessments to better determine the impacts of the fishery and guide sustainable fishery limits.

There are also significant climatic threats to coral assemblages which must be considered and monitored to ensure that harvest and

Condition 7:

As part of the annual reporting requirement referred to in Condition 4, the Australian Fisheries Management Authority must report the following to the Department of Agriculture, Water and the Environment, as the CITES Scientific Authority of Australia:

- a) the harvested weight and locations of harvest for each coral species. This reporting must be undertaken at a species-level.
- b) the number of individual Humphead Maori Wrasse, their sex, lengths and locations of harvest.
- c) any assessments, management changes or findings relevant to the management of CITES-listed species in the Coral Sea Fishery.

management does not risk the survival of corals belonging to the Family Acroporidae in the wild.

The CITES Scientific Authority of Australia has concluded that collection in accordance with the management arrangements proposed by the Australian Fisheries Management Authority for the next three years is unlikely to be detrimental to the survival of these species in the short term and while conditions are met.

Sea Cucumbers

While the overall take of White Teatfish and Black teatfish in the Coral Sea Fishery is small when compared to other Australian fisheries, a study commissioned by Parks Australia in 2017 found that densities were lower on Coral Sea reefs than on the Great Barrier Reef and Torres Strait for both species (Skewes 2017). The study found that White Teatfish was found at very low densities throughout the study area (Coral Sea) and this could be attributed (in part) to the previously high fishing effort, with the species previously making up the largest component of the sea cucumber take in the CSF (40.6% between 1997–98 and 2008–09). White Teatfish has also been the focus of recent illegal, unreported and unregulated fishing by foreign fishing vessels (FFV) in the area, making up 86% of the catch of 2 FFV apprehended on Saumarez Reef in early 2017.

While Skewes (2017) notes some possible underestimation of the White Teatfish population due to limitations on survey depth, there is currently no reliable assessments of the White Teatfish stock in the area of the CSF to determine whether the current biomass for these species in the area of the CSF can sustain any level of targeted fishing, nor are there any reliable indicators of the impact of recent and historical catches on the successful recruitment of the stock.

Skewes (2017) also noted that the density of Black Teatfish in the Coral Sea was low. However, a stock assessment of the Coral Sea Fishery undertaken as part of the Reducing Uncertainty in Stock Status (RUSS) project (a research programme carried out to try and reduce the number of Commonwealth fish stocks that classified as uncertain) found that the median biomass of Black Teatfish was greater than 99% of 1997 biomass

Condition 8:

The Australian Fisheries Management Authority must update the science underpinning the Coral Sea Fishery – Sea Cucumber Sector Harvest Strategy by December 2021, including undertaking a fishery independent survey in the area of the fishery, to ensure that the harvest strategy is supported by up to date scientific information and supports a longer-term export approval for the fishery.

Condition 9:

By 1 December 2022, the Australian Fisheries Management Authority must complete a review of the Coral Sea Fishery Harvest Strategy – Sea Cucumber Sector and develop, at a minimum:

- a) species-specific trigger limits and reference points (or proxies) for species listed under CITES;
- b) ongoing data collection and monitoring plans required to support ongoing fishing of these species.

estimates. This led to the stock being classified as not overfished and not subject to overfishing (Woodhams et al., 2015). In the 2017 survey, the population biomass estimate of 340 t liveweight (± 155 t 90% CI) was similar to the one for the same reefs by Woodhams, Chambers & Penrose (2015). The biomass status for black teatfish is therefore classified as not overfished.

ABARES (2020) also outlines that there is insufficient information available to confidently classify the status of the White Teatfish stock in the area of the CSF. While both stocks are classified as not subject to overfishing, this conclusion was based on a lack of fishing for the species in seasons relevant to the report.

Given the above, the Department considers that the current management implemented in the CSF should be reviewed. The collection and analysis of fishery dependent and independent data from the CSF, together with periodic surveys, should provide the basis for informed management decisions to promote sustainable utilisation of the resource. A data collection and monitoring plan for this fishery should consider the standard information needs for non-detriment findings such as:

1. species biology;
2. species life history characteristics;
3. species range – historic and current;
4. population structure, status and trends (nationally and in the harvest area);
5. threats;
6. species specific (or in some instances genus specific) levels of harvest/ mortality from the fishery (historic and current); and
7. estimates of species specific (or in some instances genus specific¹) levels of harvest/mortality from all sources combined.

In line with the expectations for the management of the trade in CITES-listed species, species from a fishery should be managed at the species level where possible (i.e. TACs, catch reporting, management performances, etc) and based on scientific analysis. While the current Harvest Strategy includes triggers for further management action, the current triggers are at or above the combined TAC for the two species being considered (1T and 4T).

The CSF Harvest Strategy outlines that

“Given the potential for depletion, particularly with regard to black teatfish, it is important to set conservative TACs and to carefully monitor spatial catch patterns. The existing TACs for black and white teatfish were based on the results of a research study undertaken on the adjacent Great Barrier Reef and based on extrapolation are somewhat biologically meaningful (Benzie and Uthicke, 2003). As weight and size of sea cucumber varies depending upon the degree of hydration, catch figures can be misleading. As part of the monitoring program under the harvest strategy, periodic (suggest a minimum of 1 per 3 years) fishery-independent surveys on indicator/key reefs are recommended (with indicator/key reefs to be determined within the first 12 months).”

The Department notes that there have been subsequent population surveys in the area of the fishery which appear to not have been taken into account in the setting of the current TACs for the two species and the Department further concurs with the CSF Harvest Strategy that as *part of a monitoring program under the harvest strategy, periodic (suggest a minimum of 1 per 3 years) fishery-independent surveys on indicator/key reefs are recommended*, therefore conditions have been developed to address this need. The objectives of the Commonwealth Harvest Strategy Policy (HSP) include to:

- maintain key commercial fish stocks, on average, at the required target biomass to produce maximum economic yield from the fishery
- maintain all commercial fish stocks, including byproduct, above a biomass limit where the risk to the stock is regarded as unacceptable (BLIM), at least 90 per cent of the time
- ensure fishing is conducted in a manner that does not lead to overfishing— where overfishing of a stock is identified, action will be taken immediately to cease overfishing

Where information to support selection of a stock-specific limit reference point is not available, a proxy of 0.2 times unfished biomass should be used. In all cases, the species' role in the proper functioning of the

marine ecosystem should be considered and the limit reference point must be no less than 0.2 times unfished biomass.

Reference points are generally based on indicators of either the total or spawning stock size (biomass) or the amount of harvest (fishing mortality). AFMA has a good understanding of the fishing mortality and the survey carried out as part of Condition 8 will help estimate biomass. In revising the Harvest Strategy for the Sea Cucumber sector of this fishery.

Acknowledging the challenges with deriving reference points for sea cucumber species because of the highly variable nature of their stocks, the use of a proxy reference points may be required.

For example, in the case of the Protected Zone Joint Authority's Torres Strait Beche-de-Mer fishery, a conservative value of 0.4 times unfished biomass is used for the limit reference point, nonetheless, where available, survey data are used to select a lower limit reference level (the level below which stock density is considered unacceptably low and the fishery is closed).

The same principles could help guide the revised HS for this sector of the Coral Sea Fishery.

Assessment history:

Assessment history

- 1st assessment finalised 2004 – 3 conditions; 10 recommendations.
- 2nd assessment finalised 2007 – 5 conditions.
- 3rd assessment finalised 2010 – 9 conditions; 2 recommendations.
- 4th assessment finalised 2013 – 4 conditions; 3 recommendations.
- 5th assessment finalised 2017 – 8 conditions

Fishery reporting

- **Annual reports** in accordance with the Guidelines for the Ecologically Sustainable Management of Fisheries (2nd edition) were received by the Department in 2018 and 2019.
- **Fishery status** has also been assessed and reported by the Australian Government Bureau of Agricultural and Resource Economics and Sciences:
 - [Fishery Status Reports - Coral Sea Fishery](#)

Key links

Fishery information page on agency website: <http://www.afma.gov.au/fisheries/coral-sea-fishery/>

Management plan: There is no formal management plan under the *Fisheries Management Act 1991*. Management arrangements are summarised in the Coral Sea Fishery Management Arrangements Booklet 2020: <http://www.afma.gov.au/fisheries-services/fisheries-management-plans/>

Enforcing legislation

- [Commonwealth Fisheries Management Act 1991](#)
- [Commonwealth Fisheries Management Regulations 2019](#)

Harvest Strategies

- [Harvest Strategy Framework Aquarium Sector of the Coral Sea Fishery](#)
- [Coral Sea Fishery – Lobster and Trochus Sector Harvest Strategy \(PDF\)](#)
- [Coral Sea Fishery – Sea Cucumber Sector Harvest Strategy \(PDF\)](#)
- [Coral Sea Fishery – Line Trawl and Trap Sector Harvest Strategy \(PDF\)](#)
- [Coral Sea Fishery Bycatch and Discard WorkPlan](#)

Ecological Risk Assessments

- [Aquarium Sector](#)
- [Auto Longline Sector](#)
- [Demersal Longline Sector](#)
- [Lobster and Trochus Sector](#)
- [Other Line Sector](#)
- [Sea Cucumber Sector](#)

SECTION 3: DETAILED ANALYSIS AGAINST THE GUIDELINES

Guidelines criteria	Comment
THE MANAGEMENT REGIME	
The management regime does not have to be a formal statutory fishery management plan as such and may include non-statutory management arrangements or management policies and programs. The regime should:	
Be documented, publicly available and transparent.	<p>Meets</p> <p>The Coral Sea Fishery (the fishery) management arrangements are well documented and available on the AFMA website. These arrangements are specified in the Coral Sea Fishery Management Arrangements Booklet and Coral Sea Fishery harvest strategies, as well as conditions applied to fishing permits.</p> <p>Management is consultative and transparent, although records of meetings are not published on the AFMA website.</p>
Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public.	<p>Meets</p> <p>Management arrangements are developed in consultation with fishery stakeholders. This typically occurs through annual stakeholder meetings. However, since the announcement Coral Sea Commonwealth Marine Reserve and fishing methods and areas permitted in the fishery from mid 2019 there have been no further stakeholder meetings for the fishery.</p> <p>AFMA holds two to three environmental forums annually where stakeholders can engage on any AFMA fisheries issues. There have been no environmental forums for the fishery.</p>
Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process.	<p>Meets</p> <p>The Coral Sea Fishery Stakeholder Group provides advice to AFMA on management arrangements in the fishery as required, and it may include fishery scientists, fishing industry members, environmental non-government organisation, representatives of the recreational fishing sector, and state and Commonwealth government representatives.</p>
Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured.	<p>Meets</p> <p>Harvest strategies are in place for all sectors of the fishery and detailed objectives and performance criteria by which management performance is measured. These harvest strategies are regularly reviewed and published on the AFMA website.</p>

<p>Be capable of controlling the level of harvest in the fishery using input and/or output controls.</p>	<p>Meets</p> <p>The fishery uses a mixture of input and output controls, including temporal and spatial management tools, size limits, total allowable catch (TACs), catch trigger limits, gear restrictions, and move on provisions.</p> <p>It also has a range of precautionary management triggers built into the harvest strategies for each of the fishery sectors.</p>
<p>Contain the means of enforcing critical aspects of the management arrangements.</p>	<p>Partially meets</p> <p>AFMA uses a risk-based approach to inform its monitoring and enforcement program. All vessels are required to operate approved vessel monitoring systems (VMS) at all times.</p> <p>The Line Sector has a minimum coverage level of 10 per cent of fishing effort to meet the requirements of the <i>Threat Abatement Plan for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations (2018)</i> (Threat Abatement Plan - Seabirds). There is no prescribed minimum observer coverage for the Sea Cucumber, Lobster and Trochus and Aquarium sectors.</p> <p>All fishers are required to complete logbook catch records, and all catch, except from the aquarium sector, must be unloaded to a licensed fish receiver. The fish receiver system allows logbook catch records to be verified against catch disposal records.</p> <p>Under a 2011 agreement, the Queensland Department of Agriculture and Fisheries (QDAF) provides logbook services for the Aquarium Sector of the Coral Sea Fishery. Operators submit completed daily logbooks to QDAF who then provide quarterly reports to AFMA as well as scanned copies of the logbooks.</p>
<p>Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria.</p>	<p>Partially meets</p> <p>Harvest strategies are in place for all fishery sectors but for some sectors they are outdated. Harvest strategies include a range of precautionary triggers designed to monitor and manage the performance of the fishery. Performance under the strategies is reviewed annually.</p>

<p>Be capable of assessing, monitoring and avoiding, remedying or mitigating any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates.</p>	<p>Partially meets</p> <p>Ecological risk assessments (ERAs) have been completed for all sectors but were undertaken in 2007 and are yet to be reviewed. Permit conditions and harvest strategy triggers complement AFMA’s strategy to mitigate risks to species, habitats and communities are managed in a precautionary way.</p> <p>A subsequent semi-quantitative assessment was undertaken in 2009 (for Chondrichthyan and listed protected species). This confidential assessment identified a number of species as potentially being at high risk in the line sector.</p> <p>Permit conditions and a Bycatch and Discarding Workplan seek to manage some of these risks, but not all. Compulsory logbook reporting includes provision for reporting bycatch and interactions with protected species. The Line Sector is also subject to the requirements of the Threat Abatement Plan - Seabirds which includes handline practices as well as a minimum of 10 per cent observer coverage. This allows AFMA to detect and respond to emerging issues and potential impacts.</p> <p>ERAs were expected to be reviewed in 2018–2019, however this has been pushed back to 2021-2022.</p>
<p>Requires compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy.</p>	<p>Meets</p> <p>The fishery complies with all relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, as well as bycatch action strategies developed under the policy.</p> <p>The fishery’s Bycatch and Discarding Workplan, was to be reviewed in 2012, and a new work plan developed and implemented within six months. Given the relatively low effort levels across the fishery, the Bycatch and Discarding Workplan will be updated following the updates to the ERAs scheduled to be undertaken in 2021-22.</p> <p>AFMA continues to monitor triggers under the harvest strategies.</p>

PRINCIPLE 1 - A fishery must be conducted in a manner that does not lead to over-fishing, or for those stocks that are over-fished, the fishery must be conducted such that there is a high degree of probability the stock(s) will recover.	
Objective 1 - The fishery shall be conducted at catch levels that maintain ecologically viable stock levels at an agreed point or range, with acceptable levels of probability.	
Information requirements	
1.1.1 There is a reliable information collection system in place appropriate to the scale of the fishery. The level of data collection should be based upon an appropriate mix of fishery independent and dependent research and monitoring.	<p>Partially meets</p> <p>Fishers are required to report all fishing activity in approved daily fishing logbooks. All retained catch (except that taken by the Aquarium Sector) must then be unloaded to a licensed fish receiver, and verified weights reported by the fish receiver to AFMA.</p> <p>All vessels are required to operate approved VMS at all times, which provides information on vessel location. Onboard observers are also required to be carried when requested by AFMA, and the Line Sector also has a minimum coverage level of 10 per cent of fishing effort.</p>
Assessment	
1.1.2 There is a robust assessment of the dynamics and status of the species/fishery and periodic review of the process and the data collected. Assessment should include a process to identify any reduction in biological diversity and /or reproductive capacity. Review should take place at regular intervals but at least every three years.	<p>Partially meets</p> <p>Information on species in the fishery is relatively limited. Uncertainty and risk are managed in a precautionary way through harvest strategies. These harvest strategies are designed to monitor activity and respond to changes in catch (quantity, composition and catch rates) and effort (including spatial distribution) in a precautionary way. Fishery performance under the harvest strategies is periodically reviewed and strategies are adjusted as necessary in consultation with relevant experts and other stakeholders.</p>
1.1.3 The distribution and spatial structure of the stock(s) has been established and factored into management responses.	<p>Partially meets</p> <p>Information on stocks is relatively limited.</p> <p>Harvest strategies for the fishery sectors are designed to monitor activity and manage the fishery in a precautionary way. Fishery performance under the harvest strategies is periodically reviewed and strategies are adjusted as necessary in consultation with relevant experts and other stakeholders (Trigger Reports available on AFMA's website on the Coral Sea Fishery page).</p>

<p>1.1.4 There are reliable estimates of all removals, including commercial (landings and discards), recreational and indigenous, from the fished stock. These estimates have been factored into stock assessments and target species catch levels.</p>	<p>Meets</p> <p>Daily fishing logbooks and catch disposal records provide reliable records of all commercial catch.</p> <p>A large number of species harvested in the fishery are also taken in adjacent or other regional fisheries, primarily managed by the Queensland Government. There is also considered to be a possibility of shared stocks of sea cucumber, trochus, prawn and lobster species with Torres Strait fisheries.</p> <p>There is no indigenous fishing and very limited recreational fishing in the area given its distance from the coast.</p>
<p>1.1.5 There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.</p>	<p>Partially meets</p> <p>Information on stocks is relatively limited.</p> <p>Harvest strategies for the fishery sectors are designed to monitor activity and manage the fishery in a precautionary way. Fishery performance under the harvest strategies is periodically reviewed and strategies are adjusted as necessary in consultation with relevant experts and other stakeholders (Trigger Reports available on AFMA's website on the Coral Sea Fishery page).</p>
<p>Management responses</p>	
<p>1.1.6 There are reference points (target and/or limit), that trigger management actions including a biological bottom line and/or a catch or effort upper limit beyond which the stock should not be taken.</p>	<p>Partially meets</p> <p>Harvest strategies are in place for all sectors of the fishery and include precautionary triggers and limits but not all target species have reference points identified. Fishery performance under the harvest strategies is periodically reviewed and the review published in Trigger Reports available on AFMA's website on the Coral Sea Fishery page.</p> <p>Some harvest strategies have not been updated since their inception in 2007 or since the introduction of the Coral Sea Marine Park, and the removal of some fishing methods. The Department recommends that the harvest strategy for the Line Sector be updated to reflect the removal of trap and trawl fishing sectors from the fishery and update triggers relating to species only caught in the Line Sector and include the sectors requirement to comply with the Threat Abatement Plan - Seabirds.</p> <p>Further the Department has conditioned the approval on the revision of the harvest strategy for the Sea Cucumber sector.</p>

<p>1.1.7 There are management strategies in place capable of controlling the level of take.</p>	<p>Meets</p> <p>The fishery uses a mixture of input and output controls, including temporal and spatial management tools, size limits, total allowable catch (TACs), catch trigger limits, gear restrictions, and move on provisions, and has a range of precautionary management triggers built into the harvest strategies for each of the fishery sectors.</p> <p>Fishing is also limited to some extent by the vast area, small number of licenses, significant areas closed to fishing, inclement weather and distance from the coast.</p>
<p>1.1.8 Fishing is conducted in a manner that does not threaten stocks of byproduct species.</p>	<p>Meets</p> <p>Harvest strategies are in place for all sectors of the fishery and include precautionary triggers limits, relevant to all species. Fishery performance under the harvest strategies is periodically reviewed and published in Trigger Reports (available on AFMA's website on the Coral Sea Fishery page).</p> <p>Ecological risk assessments have been completed for all sectors and did not find any byproduct species to be at high risk.</p> <p>Ecological risk assessments were last undertaken in 2007 and were expected to have been reviewed in 2018–2019. Given the relatively low and declining effort, restricted area of fishing and removal of the trawl and trap sector from the fishery, the ERAs have been re-scheduled to be undertaken in 2021-2022</p>
<p>1.1.9 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>Meets</p> <p>The fishery is small in scale and relatively data poor. However, management is precautionary and actively seeks to engage uncertainty to manage risk. The fishery has a high chance of maintaining ecologically viable stock levels due to management arrangements in place.</p>

If overfished, go to Objective 2:	
If not overfished, go to PRINCIPLE 2:	
Objective 2 - Where the fished stock(s) are below a defined reference point, the fishery will be managed to promote recovery to ecologically viable stock levels within nominated timeframes.	
Management responses	
1.2.1 A precautionary recovery strategy is in place specifying management actions, or staged management responses, which are linked to reference points. The recovery strategy should apply until the stock recovers, and should aim for recovery within a specific time period appropriate to the biology of the stock.	Not applicable No stocks are classified overfished or are subject to overfishing (Emery et al. 2019).
1.2.2 If the stock is estimated as being at or below the biological and / or effort bottom line, management responses such as a zero targeted catch, temporary fishery closure or a 'whole of fishery' effort or quota reduction are implemented.	Not applicable No stocks are classified overfished or are subject to overfishing (Emery et al. 2019).
PRINCIPLE 2 - Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.	
Objective 1 - The fishery is conducted in a manner that does not threaten bycatch species.	
Information requirements	
2.1.1 Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.	Meets Daily fishing logbooks provide reliable records of all commercial catch, including any bycatch. Onboard observers, when carried, also provide detailed information on bycatch including species composition and abundance.

Assessment

2.1.2 There is a risk analysis of the bycatch with respect to its vulnerability to fishing.

Meets – Risk analysis of bycatch vulnerability has been conducted.

[Ecological risk assessments](#) have been completed for all fishery sectors and did not find any bycatch species to be at high risk,

Ecological risk assessments were carried out in 2007 and were expected to have been reviewed in 2018–2019, however this review is now scheduled to occur in 2021-22.

Permit conditions and a [Bycatch and Discarding Workplan](#) are aimed at managing some of these risks, but not all. Compulsory logbook reporting includes provision for reporting bycatch and interactions with protected species. This coupled with observer coverage in the line sector that recorded risks allows AFMA to detect and respond to emerging issues and potential impacts. Permit conditions and harvest strategy triggers also contribute to managing the risks to all species, habitats and communities.

Management responses

2.1.3 Measures are in place to avoid capture and mortality of bycatch species unless it is determined that the level of catch is sustainable (except in relation to endangered, threatened or protected species). Steps must be taken to develop suitable technology if none is available.

Meets

Harvest strategies are in place for all sectors of the fishery and include precautionary triggers and limits, relevant to all species. These triggers and limits are regularly reviewed and results are published on [AFMA's website](#).

The Aquarium, Sea Cucumber and Lobster and Trochus and Line Sector ERA's does not identify any indicator groups of bycatch species and concludes the effect of fishing on bycatch species is negligible due to the fishing method (hand collection).

A semi qualitative risk analysis for the fishery was undertaken in 2009 (focussing on Chondrichthyan and listed protected species) and identified three main groups more at risk in the Line sector:

- Turtles;
- Bathyl Sharks; and
- Reef Sharks.

Trip limits best practice protocols for handling of sharks and other species of concern, adhering to the Threat Abatement Plan - Seabirds and move on provisions are measures used to reduce interactions with these three groups more at risk in the Line sector.

The [Coral Sea Bycatch and Discarding Workplan](#) spans 2010–2012 and was to be reviewed in 2012 to assess its effectiveness and the risk profile of the fishery. It states that a new work plan must be developed and implemented within six months (i.e. by 2013). AFMA expected to deliver an updated fishery-wide Bycatch and Discarding Workplan during 2018–2019. However, this did not occur and AFMA has advised that this will not occur until 2021-2022. In the meantime, AFMA is continuing to monitor triggers under harvest strategies, and effort has been reducing in the fishery through the introduction of the Coral Sea Marine Park in 2018 and the removal of trap and trawl methods in mid-2019.

Onboard observer coverage for the Line sector have met the 10 per cent requirement for the last three fishing seasons.

2.1.4 An indicator group of bycatch species is monitored.

Meets

While there is no specific indicator group of bycatch species monitored in the fishery, the harvest strategies monitor catches of all species within the fishery.

<p>2.1.5 There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.</p>	<p>Meets While there is no indicator group of bycatch species in the fishery, harvest strategies contain triggers that initiate further analysis and assessment when significant changes in catch, (including proportion of total catch) or effort are detected.</p>
<p>2.1.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>Meets This fishery is unlikely to threaten the sustainability of bycatch species due to the fishing method in the Aquarium, Sea Cucumber and Lobster and Trochus sectors. The Line sector has a minimum coverage level of 10 per cent of fishing effort to meet the requirements of the Threat Abatement Plan - Seabirds. Other bycatch mitigation measures in place for the Line Sector include best practice protocols for handling of sharks and other species of concern.</p>
<p>Objective 2 - The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species and avoids or minimises impacts on threatened ecological communities.</p>	
<p>Information requirements</p>	
<p>2.2.1 Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.</p>	<p>Meets All fishing activity must be reported using AFMA approved logbooks. These logbooks include provision to report protected species interactions. The line sector requires 10 percent observer coverage to meet the requirements of the Threat Abatement Plan (Seabirds). In the 2017-2018 fishing season there was one reported interaction with protected species by observers. The risk posed by the fishery has been assessed in ecological risk assessments and was found to have a low risk to protected species and ecological communities. The Line Sector requires 10 percent observer coverage to meet the requirements of the Threat Abatement Plan (Seabirds).</p>

Assessments	
2.2.2 There is an assessment of the impact of the fishery on endangered, threatened or protected species.	<p>Meets</p> <p>Ecological risk assessments were completed for all sectors of the fishery in 2007 which assessed the fishery as having a low impact on protected species.</p> <p>A further semi-quantitative assessment was undertaken in 2009 (focussing on Chondrichthyan and listed protected species) which identified a number of species as potentially being at high risk in the Line Sector.</p> <p>Ecological risk assessments were expected to be reviewed in 2018–2019, however this has been rescheduled to 2021-2022.</p>
2.2.3 There is an assessment of the impact of the fishery on threatened ecological communities.	<p>Not applicable</p> <p>No threatened ecological communities were identified in the area of the fishery.</p>
Management responses	
2.2.4 There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.	<p>Meets</p> <p>The ERAs did not identify species at risk for the fishery. The 2009 semi qualitative risk analysis identified a number of species as potentially being at high risk. Permit conditions and the Bycatch and Discarding Workplan seek to manage some of these risks, but not all. Compulsory logbook reporting includes provision for reporting bycatch and interactions with protected species. This coupled with observer coverage in the sectors that recorded risks allows AFMA to detect and respond to emerging issues and potential impacts.</p> <p>The Line Sector reported a total of two interactions with protected species in the fishery, one in the 2017-2018 and one in the 2018-2019 fishing (Interactions with protected species are made available on AFMA’s website).</p>
2.2.5 There are measures in place to avoid impact on threatened ecological communities.	<p>Not applicable</p> <p>No threatened ecological communities were identified in the area of the fishery.</p>
2.2.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	<p>Meets</p> <p>The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species.</p>

Objective 3 - The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.	
Information requirements	
2.3.1 Information appropriate for the analysis in 2.3.2 is collated and/or collected covering the fishery's impact on the ecosystem and environment generally.	Partially meets Information on the fishery's impact on the ecosystem and environment is not collected. With the removal of trawl methods in the fishery it is likely that the fishery's impact will be low.
Assessment	
2.3.2 Information is collected and a risk analysis, appropriate to the scale of the fishery and its potential impacts, is conducted into the susceptibility of each of the following ecosystem components to the fishery. 1. Impacts on ecological communities • Benthic communities • Ecologically related, associated or dependent species • Water column communities 2. Impacts on food chains • Structure • Productivity/flows 3. Impacts on the physical environment • Physical habitat • Water quality	Partially meets Although information on the fisheries impact on the ecosystem and environment is not collected, ecological risk assessments have been undertaken and included habitats and ecological communities (qualitative Level 1, Scale Intensity, Consequence Analyses). Although there is a low probability, there is a potentially high consequence associated with translocation of species in the fishery. This was classified as a major risk. With the removal of trawl methods in the fishery it is likely that the fishery's disturbance to the physical processes will be low. Ecological risk assessments were expected to be reviewed in 2018–2019. However, this has been rescheduled for 2021-2022.
Management responses	
2.3.3 Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.	Partially meets Although there is no specific ecological risk mitigation strategy for the fishery, a range of precautionary management triggers are included in the harvest strategies for the fishery. There are a total of 12 licences permitted in the fishery divided across the four sectors and very little fishing effort is undertaken each year. The fishery spans a vast area which includes significant areas closed to fishing. These factors contribute to mitigating the risk of significant ecosystems damage.

<p>2.3.4 There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a predetermined level, or where action is indicated by application of the precautionary approach.</p>	<p>Partially meets</p> <p>Although there are no specific ecosystem indicators, the harvest strategies for the fishery include a range of precautionary triggers designed to initiate further analysis and assessment. Fishery performance under these strategies is also regularly assessed.</p>
<p>2.3.5 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>Meets</p> <p>The fishery is small in scale, very diverse and operates in remote areas. These factors make information collection difficult and contribute to uncertainty in the fishery. However, the management regime is highly precautionary and actively monitors and responds to information as it becomes available. In this way it is able to minimise its impacts on the ecosystem.</p>

SECTION 4: ASSESSMENT AGAINST THE EPBC ACT

The table below is not a complete or exact representation of the EPBC Act. It is intended to show that the relevant sections and components of the EPBC Act have been taken into account in the formulation of advice on the fishery in relation to decisions under Part 13 and Part 13A.

Part 10 – Strategic assessments

Division 2 Assessment of Commonwealth-managed fisheries Section 153 Minister must make declaration if he or she endorses plan or policy	The Department's assessment of the Commonwealth Coral Sea Fishery
<p>(1) This section applies if:</p> <p>(a) the Minister makes an agreement under section 146 as required by this Division and endorses under the agreement:</p> <p>(i) a plan of management under the Fisheries Management Act 1991 (CTH) for a fishery; or</p> <p>(ii) policies of the Australian Fisheries Management Authority for managing a fishery for which there is not a plan of management under the Fisheries Management Act; or</p> <p>(iii) a plan of management under the <i>Torres Strait Fisheries Act 1984</i> (CTH) for a fishery; or</p> <p>(iii) policies for managing fishing under the Torres Strait Fisheries Act; and</p> <p>(b) the Minister accredits, under subsection 33(3) of this Act, as an accredited arrangement a management plan or regime consisting of the endorsed plan or policies.</p> <p>(2) The Minister must make a declaration under section 33 that actions approved in accordance with the accredited arrangement do not require an approval under Part 9 for the purposes of subsection 23(1), (2) or (3) or subsection 24A(1), (2), (3), (4), (5) or (6).</p>	<p>The <i>Coral Sea Fishery Statement of Management Arrangements 2004/05</i> underwent a strategic assessment under Part 10 of the EPBC Act. On 12 January 2006 the management arrangements were accredited under section 33 of the Act declaring that approval under Part 9 was not required.</p> <p>The management regime has been strengthened since this time, most recently through the implementation of the <i>Statement of Management Arrangements, Coral Sea Fishery 2007</i> and the adoption of a Harvest Strategy for each sector in the fishery which should further mitigate the risk of impacts on the environment.</p>

Part 12 – Identifying and monitoring biodiversity and making bioregional plans

Section 176 Bioregional Plans	Comment
(5) Minister must have regard to relevant bioregional plans	The Coral Sea Fishery is not subject to any existing Marine Bioregional Plans.

Part 13 – Species and communities

Accreditable plan, regime or policy (Division 1, Division 2, Division 3, Division 4)	Comment
s. 208A (1) (a-e) , s.222A (1) (a-e), s.245 (1) (a-e), s.265 (1) (a-e) Does the fishery have an accreditable plan of management, regime or policy?	Yes There is an accreditable management regime, outlined in the Coral Sea Fishery Management Arrangements Booklet 2020 .
Division 1 Listed threatened species, Section 208A Minister may accredit plans or regimes	Comment
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed threatened species (other than conservation dependent species) are not killed or injured as a result of the fishing?	Yes The management regime is precautionary and requires fishers to take all reasonable steps to mitigate risks to listed threatened species. These measures have been demonstrated to be effective.
(g) And, is the fishery likely to adversely affect the survival or recovery in nature of the species?	No Two interactions with listed threatened species was reported by observers for the Line sector, one in the 2017-2018 fishing season and one in the 2018-2019 fishing season. No further interactions have been reported.
Division 2 Migratory species, Section 222A Minister may accredit plans or regimes	Comment
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed migratory species are not killed or injured as a result of the fishing?	Yes The management regime is precautionary and requires fishers to take all reasonable steps to mitigate risks to listed migratory species. These measures have been demonstrated to be effective.

(g) And, is the fishery likely to adversely affect the conservation status of a listed migratory species or a population of that species?	No Two interactions with listed threatened species was reported by observers for the Line sector, one in the 2017-2018 fishing season and one in the 2018-2019 fishing season. No further interactions have been reported.
Division 3 Whales and other cetaceans, Section 245 Minister may accredit plans or regimes	Comment
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that cetaceans are not killed or injured as a result of the fishing?	Yes The management regime is precautionary and requires fishers to take all reasonable steps to mitigate risks to cetaceans. These measures have been demonstrated to be effective.
(g) And, is the fishery likely to adversely affect the conservation status of a species of cetacean or a population of that species?	No AFMA observer coverage for the Line sector exceeded 10 per cent for the 2017-2020 fishing seasons. One interaction with cetaceans has been reported by observers in the Line sector for the 2017-2018 fishing season. No further interactions have been reported.
Division 4 Listed marine species, Section 265 Minister may accredit plans or regimes	Comment
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed marine species are not killed or injured as a result of the fishing?	Yes The management regime is precautionary and requires fishers to take all reasonable steps to mitigate risks to listed marine species. These measures have been demonstrated to be effective.
(g) And, is the fishery likely to adversely affect the conservation status of a listed marine species or a population of that species?	No AFMA observer coverage for the Line sector exceeded 10 per cent for the 2017-2020 fishing seasons. One interaction with cetaceans has been reported by observers in the Line sector for the 2017-2018 fishing season. No further interactions have been reported.

Section 303AA Conditions relating to accreditation of plans, regimes and policies	Comment
(1) This section applies to an accreditation of a plan, regime or policy under section 208A, 222A, 245 or 265.	Accreditation under sections 208A, 222A, 245 and 265 is recommended .
(2) The Minister may accredit a plan, regime or policy under that section even though he or she considers that the plan, regime or policy should be accredited only: <ul style="list-style-type: none"> (a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with. <p>In such a case, the instrument of accreditation is to specify the period, circumstances or condition.</p>	No conditions required.

Part 13A – International movement of wildlife specimens

Section 303BA Objects of Part 13A	
(1) The objects of this Part are as follows: <ul style="list-style-type: none"> (a) to ensure that Australia complies with its obligations under CITES and the Biodiversity Convention; (b) to protect wildlife that may be adversely affected by trade; (c) to promote the conservation of biodiversity in Australia and other countries; (d) to ensure that any commercial utilisation of Australian native wildlife for the purposes of export is managed in an ecologically sustainable way; (e) to promote the humane treatment of wildlife; (f) to ensure ethical conduct during any research associated with the utilisation of wildlife; and (h) to ensure the precautionary principle is taken into account in making decisions relating to the utilisation of wildlife. 	The management arrangements for the Coral Sea Fishery have been assessed as consistent with the general guidance provided in the objects of Part 13A as: <ul style="list-style-type: none"> • there are management arrangements in place to ensure that the resource is being managed in an ecologically sustainable way (see Table 1) • the operation of the Coral Sea Fishery is unlikely to be unsustainable and threaten biodiversity within the next three years, and • the Environment Protection and Biodiversity Conservation Regulations 2000 do not specify fish as a class of animal in relation to the welfare of live specimens.
Section 303 CG Minister may issue permits (CITES species)	Comment

<p>(3) The Minister must not issue a permit unless the Minister is satisfied that:</p> <p>(a) the action or actions specified in the permit will not be detrimental to, or contribute to trade which is detrimental to:</p> <p>(i) the survival of any taxon to which the specimen belongs; or</p>	<p>Given the management arrangements in place to monitor and control the harvest of CITES-listed species, and the low level of harvest from the fishery, the Department considers that the Coral Sea Fishery will not be detrimental to the survival of any taxon to which the CITES specimen belongs in the short to medium term.</p>
<p>(ii) the recovery in nature of any taxon to which the specimen belongs; or</p>	<p>Meets</p> <p>The CITES specimens harvested from the fishery are not considered to be overfished in the Coral Sea Fishery and managements arrangements including catch limits and triggers for further assessment help ensure that harvest is ecologically sustainable.</p>
<p>(iii) any relevant ecosystem (for example, detriment to habitat or biodiversity); and</p>	<p>Meets</p> <p>The small scale and precautionary management regime in the Coral Sea Fishery means the potential for unacceptable and unsustainable impact on any relevant ecosystem is low. The Department is satisfied that the fishery is conducted in a manner that minimises the impact of fishing operations on the ecosystem generally.</p>
<p>Section 303DC Minister may amend list (non CITES species)</p>	<p>Comment</p>
<p>(1) The Minister may, by legislative instrument, amend the list referred to in section 303DB [list of exempt native specimens] by:</p> <p>(a) doing any of the following:</p> <p>(i) including items in the list;</p> <p>(ii) deleting items from the list;</p> <p>(iii) imposing a condition or restriction to which the inclusion of a specimen in the list is subject;</p> <p>(iv) varying or revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or</p> <p>(b) correcting an inaccuracy or updating the name of a species.</p>	<p>The Department recommends that specimens from the Coral Sea Fishery, other than:</p> <ul style="list-style-type: none"> • specimens that belong to species listed under Part 13 of the EPBC Act (other than a species listed in the conservation dependent category), and • specimens that belong to taxa listed under section 303CA of the EPBC Act (Australia's CITES list), <p>be included in the list of exempt native specimens while the fishery is subject to a declaration as an approved wildlife trade operation.</p>
<p>(1A) In deciding to amend the LENS, the Minister must rely primarily on outcomes an assessment under Part 10, Divisions 1 or 2</p>	<p>Meets</p> <p>The Coral Sea Fishery was assessed under Part 10 of the EPBC Act in October 2004. As a result of the assessment, the Department considered</p>

	<p>that actions taken under the management regime for the fishery would not have an unacceptable or unsustainable impact on the environment in a Commonwealth marine area. The fishery was subsequently accredited under Section 33 of the EPBC Act in January 2006. Since that time, additional management measures have been employed which should further mitigate the risk of impacts on the environment, including fishery wide ecological risk assessment and the introduction of harvest strategies for all sectors.</p> <p>The Department recommends that the LENS is amended under section 303DC(1)(a) to include product derived from the Coral Sea Fishery (excluding any CITES species) while particular CITES specimens are covered by an approved wildlife trade operation declaration under section 303FN.</p>
(1C) The above does not limit matters that may be considered when deciding to amend LENS.	<p>Meets</p> <p>The Department has considered all matters relevant to making an informed decision to amend the list of exempt native specimens to include product taken in this fishery.</p>
(3) Before amending the LENS, the Minister must consult: <ul style="list-style-type: none"> (a) other Minister or Ministers as appropriate; and (b) other Minister or Ministers of each State and self-governing Territory as appropriate; and (c) other persons and organisations as appropriate. 	<p>Meets</p> <p>The submission for assessment was available for comment on the Department’s website from 5 November to 4 December 2020.</p> <p>Four comments were received. Three of these related to the sea cucumber sector and one related to the aquarium sector of the fishery.</p>
Section 303FN Approved wildlife trade operation	Comment
(2) The Minister may, by instrument published in the <i>Gazette</i> , declare that a specified wildlife trade operation is an approved wildlife trade operation for the purposes of this section.	

<p>(3) The Minister must not declare an operation as an approved wildlife trade operation unless the Minister is satisfied that:</p> <p>(a) the operation is consistent with the objects of Part 13A of the Act; and</p> <p>(b) the operation will not be detrimental to:</p> <p>(i) the survival of a taxon to which the operation relates; or</p> <p>(ii) the conservation status of a taxon to which the operation relates; and</p> <p>(ba) the operation will not be likely to threaten any relevant ecosystem including (but not limited to) any habitat or biodiversity; and</p>	<p>Meets</p> <p>The operation of the Coral Sea Fishery is consistent with the Objects of Part 13A – see assessment above.</p> <p>The fishery will not be detrimental to the survival or conservation status of a taxon to which it relates, nor will it threaten any relevant ecosystem, within the next three years, given the management measures in place. These measures include:</p> <ul style="list-style-type: none"> • limited entry to each sector of the fishery • vessel and gear restrictions, including requirements for bycatch mitigation • species size limits • spatial controls, and • harvest strategies for each sector, which include catch-and-effort triggers, total catch limits and monitoring and review mechanisms • Non detriment findings for CITES-listed species <p>Australia’s CITES Scientific Authority has assessed the proposed harvest of certain CITES-listed species from the fishery and found the harvest is unlikely to be detrimental to the survival of any taxon to which the CITES specimens belong or any relevant ecosystem. The relevant CITES-listed species are Humphead Maori Wrasse (<i>Cheilinus undulatus</i>), coral species belonging to the family Acroporidae and Black Teatfish (<i>Holothuria whitmaei</i>).</p> <p>Conditions included on the Part 13A declaration were designed to both, limit the harvest of these species to the levels assessed in this report and to strengthen management arrangements.</p>
<p>(c) if the operation relates to the taking of live specimens that belong to a taxon specified in the regulations – the conditions that, under the regulations, are applicable to the welfare of the specimens are likely to be complied with; and</p>	<p>Not applicable</p> <p>The <i>Environment Protection and Biodiversity Conservation Regulations 2000</i> do not specify crustacea or fish as a class of animal in relation to the welfare of live specimens.</p>

<p>(d) such other conditions (if any) as are specified in the regulations have been, or are likely to be, satisfied.</p>	<p>Not applicable No other conditions are specified in relation to commercial fisheries in the EPBC Regulations.</p>
<p>(4) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) the significance of the impact of the operation on an ecosystem (for example, an impact on habitat or biodiversity); and</p>	<p>Meets The Coral Sea Fishery will not have a significant impact on any relevant ecosystem within the next three years, given the management measures in place, which include the arrangements described above at s303FN 3(b).</p>
<p>(b) the effectiveness of the management arrangements for the operation (including monitoring procedures).</p>	<p>Meets The management arrangements that will be employed for the Coral Sea Fishery as outlined in this assessment are likely to be effective.</p>
<p>(5) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) whether legislation relating to the protection, conservation or management of the specimens to which the operation relates is in force in the State or Territory concerned; and</p> <p>(b) whether the legislation applies throughout the State or Territory concerned; and</p> <p>(c) whether, in the opinion of the Minister, the legislation is effective.</p>	<p>Meets The fishery will be managed in accordance with the arrangements outlined in the <i>Fisheries Management Act 1991</i> and Fisheries Management Regulations 2019. This legislation is likely to be effective.</p>
<p>(10) For the purposes of section 303FN, an operation is a wildlife trade operation if, and only if, the operation is an operation for the taking of specimens and:</p> <p>(a) the operation is a commercial fishery.</p>	<p>Meets The Coral Sea Fishery is a commercial fishery.</p>

<p>(10A) In deciding whether to declare that a commercial fishery is an approved wildlife trade operation for the purposes of this section, the Minister must rely primarily on the outcomes of any assessment in relation to the fishery carried out for the purposes of Division 1 or 2 of Part 10.</p> <p>(10B) Subsection (10A) does not limit the matters that may be taken into account in deciding whether to declare that a fishery is an approved wildlife trade operation for the purposes of this section.</p>	<p>The Coral Sea Fishery was assessed under Part 10 of the EPBC Act in October 2004. Actions taken under the management regime were considered unlikely to have an unacceptable or unsustainable impact on the environment in a Commonwealth marine area. Additional measures have since been employed in the fishery which should further mitigate environmental risks. These include fishery-wide ecological risk assessments and mitigation strategies, and harvest strategies for all fishery sectors.</p>
Section 303FR Public consultation	Comment
<p>(1) Before making a declaration under section 303FN, the Minister must cause to be published on the Internet a notice:</p> <p>(a) setting out the proposal to make the declaration; and</p> <p>(b) setting out sufficient information to enable persons and organisations to consider adequately the merits of the proposal; and</p> <p>(c) inviting persons and organisations to give the Minister, within the period specified in the notice, written comments about the proposal.</p> <p>(2) A period specified in the notice must not be shorter than 20 business days after the date on which the notice was published on the Internet.</p> <p>(3) In making a decision about whether to make a declaration under section 303FN, the Minister must consider any comments about the proposal to make the declaration that were given in response to the invitation in the notice.</p>	<p>Meets</p> <p>A public notice, which set out the proposal to declare the Coral Sea Fishery an approved Wildlife Trade Operation and included the application from the Australian Fisheries Management Authority, was released for public comment from 5 November until 4 December 2020, for 20 business days.</p> <p>Four public submissions were received which raised concerns regarding:</p> <p>Sea Cucumbers:</p> <ul style="list-style-type: none"> • Global declines of teatfish species and associated IUCN listings which informed the CITES listing of the species. • Biology and life-history traits of these species not being able to sustain commercial harvest. • The lack of information collected on numbers of individual animals harvested. • Inclusion of the Aquarium Sector for the AFMA observer program • Introduce a no take for the harvest of prickly redfish (<i>Thelenota ananas</i>).

	<ul style="list-style-type: none"> • The important role Sea Cucumbers play in ecosystem health and the impacts that overfishing would have on reef health. • Whether rising average sea temperatures and associated effects on spawning are considered in managing the fishery. • Potential for illegal, unreported and unregulated take. <p>Humphead Maori Wrasse</p> <ul style="list-style-type: none"> • Availability of data on current domestic catches, including non commercial catches in areas including the Coral Sea. • Evidence to suggest declines in densities of the species, at least in parts of the fishery. • Impacts associated with removal of large male specimens given the species biology. • Lack of specific conservation action plans. • Impacts on, and risks to spawning aggregations. • The importance of Australian stocks for recovery of overfished stocks in the broader region. • The importance of science in determining likely detriment to CITES-listed species. • The likelihood that exports for exhibition purposes contribute to education about, and conservation of the species. <p>Copies of the public submissions and AFMA's response to the issues raised in these submissions will be provided to the decision maker with this assessment report. The public comments and AFMA's response were considered in this assessment.</p>
	<p style="text-align: center;">Comments</p>
<p>Section 303FT Additional provisions relating to declarations</p>	
<p>(1) This section applies to a declaration made under section 303FN, 303FO or 303FP.</p>	<p>A declaration for the Coral Sea Fishery will be made under section 303FN.</p>

<p>(4) The Minister may make a declaration about a plan or operation even though he or she considers that the plan or operation should be the subject of the declaration only:</p> <p>(a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with.</p> <p>In such a case, the instrument of declaration is to specify the period, circumstances or condition.</p>	<p>The standard conditions applied to commercial fishery wildlife trade operations include:</p> <ul style="list-style-type: none"> • operation in accordance with the management regime • notifying the Department of changes to the management regime, and • annual reporting in accordance with the requirements of the Australian Government Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition. <p>The wildlife trade operation instrument for the Coral Sea Fishery specifies the standard and any additional conditions applied.</p>
<p>(8) A condition may relate to reporting or monitoring.</p>	<p>One of the standard conditions relates to reporting.</p>
<p>(9) The Minister must, by instrument published in the <i>Gazette</i>, revoke a declaration if he or she is satisfied that a condition of the declaration has been contravened.</p>	

Part 16 – Precautionary principle and other considerations in making decisions

<p>Section 391 Minister must consider precautionary principle in making decisions</p>	<p>Comment</p>
<p>(1) Minister must take account of the precautionary principle in making a decision, to the extent that the decision is consistent with other provisions under this Act.</p> <p>(2) The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.</p>	<p>Meets</p> <p>Precautionary measures are in place to prevent any serious or irreversible environmental damage being caused by this fishery. The Department’s assessment has also identified certain issues that require attention by AFMA, including the need for harvest strategy reviews and TACs for CITES listed species. The conditions proposed for inclusion on the proposed Part 13A approval are designed to address these issues and represent a precautionary approach to the management of environmental uncertainty and risk.</p>

REFERENCES

Patterson, H., Noriega, R., Georgeson, L., Larcombe, J., and Curtotti, R., 2017. *Fishery status reports 2017*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra. pp47-59.

http://data.daff.gov.au/data/warehouse/9aam/fsrXXd9abm_/fsr17d9abm_20170929/03_FishStatus2017CoralSea_1.0.0.pdf. Accessed January 2021.

T Emery, I Butler and AH Steven., 2020, *Fishery status reports 2020*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

https://daff.ent.sirsidynix.net.au/client/en_AU/search/asset/1030781/4 Accessed January 2021.

Koopman, M. and Knuckey, I. (2020). Information to inform non-detriment findings of Australian fisheries for Black Teatfish and White Teatfish. Report to the Department of Agriculture, Water and the Environment. Fishwell Consulting, 52 pp. 2020 (enclosed).

Roelofs, A., Woodhams, J. and Grubert, M., 2018. Fisheries Research and Development Corporation (FRDC) Status of Australian Fish Stocks. White Teatfish (Sea Cucumber) (2018) *Holothuria fuscogilva*. [https://www.fish.gov.au/report/169-White-Teatfish-\(Sea-Cucumber\)-2018](https://www.fish.gov.au/report/169-White-Teatfish-(Sea-Cucumber)-2018). Last accessed January 2021.

Prof. Howard Choat, communications, January 2021.