



**Australian Government**

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**Department of Climate Change, Energy,  
the Environment and Water**

# **Assessment of the Western Australian Marine Aquarium Fish Managed Fishery**

**October 2022**

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This report should be attributed as *Assessment of the Western Australian Marine Aquarium Fish Managed Fishery October 2022, Commonwealth of Australia 2022*.

#### **Disclaimer**

This document is an assessment carried out by the Department of Climate Change, Energy, the Environment and Water 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 and Water or the Australian Government.

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## EXECUTIVE SUMMARY

On 24 May 2022, the Western Australian Department of Primary Industries and Regional Development (WA DPIRD) applied to the Department of Climate Change, Energy, the Environment and Water (the department) for the Western Australian Marine Aquarium Fish Managed Fishery (the fishery) to be assessed as an approved wildlife trade operation under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The fishery was assessed against the *Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition*. Public comments were sought on the application from 26 May to 1 July 2022. Two comments were received.

### The fishery

The fishery operates in Western Australian state waters and adjacent Commonwealth waters, extending along the coastline from the Northern Territory border to the South Australian border. Within this area, fishing activity predominantly occurs around the Capes region, Perth, Geraldton, Exmouth, Dampier and Broome, generally in shallow waters (under 30 metres deep).

The fishery is a low volume, high value fishery targeting live domestic and international marine aquarium markets. It is primarily dive-based, with hand-held nets and tools being used to target species and operates from small (approximately 8 metres in length) vessels. Mobile species such as fish are generally caught using hand-held nets; invertebrates are collected by hand; and live rock and corals are prised off the reef manually by hand using a metal lever.

The estimated value of the fishery is over \$2 million per annum, with the majority of the products being supplied to international marine aquarium markets. The largest importers are Asia, USA, Canada and Europe (France and Germany). There is also a domestic market for the products.

### Fishery management arrangements

In November 2018, the fishery's management arrangements were consolidated in the *Western Australia Marine Aquarium Fish Managed Fishery Management Plan* (the management plan). Around the same time, a formal harvest strategy for the fishery, the *Marine Aquarium Fish Resources of Western Australia Harvest Strategy 2018–2022* (the harvest strategy) was published and then implemented in July 2019.

The fishery is managed via a combination of input and output controls in accordance with the management plan, which was made under *Fish Resources Management Act 1994* (WA) and the *Fish Resources Management Regulations 1995* (WA). The fishery has a total of twelve licence holders. Key species groups identified as being of higher sustainability risk, or economic value, (e.g. corals, Tridacnid clams, Syngnathids and 'live rock') are managed through output controls, such as Individual Transferable Quota (ITQ) systems. The remaining non-quota species are managed via input controls, e.g. through limited entry and restrictions on permitted gear. These arrangements are described in the management plan.

In addition to overarching input and output controls, the fishery has threshold harvest levels for key coral species and genera. The latest harvest thresholds (2018–2022) are based on a doubling (100% increase) of the maximum annual harvest levels reported during a 6-year reference period (2008–2013) and range from 100 to 1,555 kg. These threshold harvest levels are administered outside of the legislated quota, through voluntary agreements with the current licence holders.

A daily electronic logbook provides near real time quota management and catch reporting. Control measures are triggered if evaluation against the operational objectives indicates the potential need for a management response (e.g., when threshold harvest levels are exceeded).

An ERA was published in 2022, which reported the risk of fishing on most key stock levels as '**low**'.

### **Target stocks**

The Marine Aquarium Fishery has a capacity to target more than 1,500 species of marine aquarium species under the management plan. Key target species include various fish (including sharks and rays), Syngnathiformes (seahorses and pipefish), hard and soft corals, live rock, algae, seagrass, tridacnid clams and non-coral invertebrates. These species are generally collected for ornamental display purposes, with some additional specimens collected for aquaculture broodstock, public aquariums and research purposes.

The number of species targeted and/or landed by the fishery varies from year to year according to changes in market demand. In practice, the fishery lands approximately 250 species for sale as live specimens to the aquarium trade, as broodstock for aquaculture operations, for use in public aquariums and supporting research purposes.

The volume of catch is considered low, due to factors including target methods (hand collection); weather (potential risk for the small vessels used); human factors (decompression considerations); and water depth suitable for diving.

Due to the large number of species captured in the fishery, and the relatively low numbers per species, there are no traditional stock assessments undertaken.

### **Protected species and threatened ecological communities**

Due to the low fishing effort and selective methods used (hand collection), threatened, endangered and protected species interactions in the fishery are reported as '**low**'.

A small take of seahorses in Western Australian state waters is permitted, as interaction with these listed marine species is not an offence under Part 13 of the EPBC Act. However, the take of Leafy sea dragons (*Phycodurus eques*) is prohibited in Commonwealth waters.

The broader risk to ecological communities and to ecosystems are both considered '**negligible**' due to the overall small scale of fishing operations, the limited size of areas fished, and fishing methods used (hand-collection).

### **Harvest of CITES listed species**

Australia is a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Australia's CITES obligations are given effect domestically by the EPBC Act.

The fishery targets several CITES listed species, including seahorses (*family Syngnathidae*), giant clams (*genus Tridacna*) and hard corals (*order Scleractinia*).

The EPBC Act requires an export permit for a CITES listed species to only be issued when the Minister for the Environment (or their delegate) are satisfied the export of the species will not be detrimental to, or contribute to trade which is detrimental to, the survival or recovery of the species, or a relevant ecosystem. This is known as a non-detriment finding (NDF).

To assist in undertaking this assessment, the department sought expert advice from a renowned coral scientist, Professor Morgan Pratchett, who is heavily engaged with the management of the fishery. Professor Pratchett finalised his analysis of the coral aspects of the fishery, which included a forensic examination of coral harvest trends and management arrangements, in September 2022.

Professor Pratchett's report found:

- Rigorous and ongoing stock assessments to establish sustainable harvest limits for all individual species of CITES-listed corals is the foremost management action that will assure positive future NDF determinations. This will require additional research and monitoring specific to each coral species. Meanwhile, precautionary limits should be maintained.
- It is difficult to justify the previous doubling of harvest limits in the fishery, especially when this is based on maximum recorded harvest levels from the 2008-2013 reference period. There is also no distinction in the application of harvest limits for species that are heavily harvested, or potentially vulnerable to over-exploitation.
- To meet NDF requirements, harvest limits need to be implemented that will constrain harvest levels relative to the sustainability concerns for individual species. For heavily harvested coral species and those subject to concern, it is suggested harvest limits should be 1.5x the mean recorded levels for the reference period, or 600kg (whichever is greater).
- To limit increases in harvest levels across a broader range of coral species, proportionate harvest limits (2.0x the average reference harvest levels) should be applied to all coral species for which there is relevant catch history information.
- To prevent the risk of localised depletion of targeted species of hard corals, monitoring of stock status and trends of these species within a 10x10m block should be implemented, if harvesting of any species of hard coral exceeds 200 kg from a 10x10m block in a single fishing season.
- To effectively respond to changes in harvest practices, as well as increasing fishery-independent threats to coral stocks (e.g. coral bleaching), management decisions must be informed by timely information regarding cumulative harvest levels across all quota categories.
- The need for consistent recording and reporting of harvest levels in the fishery. This needs to be supported through the recording of coral harvests by both weight (kg) and number of pieces (colonies or fragments); establishing the relevant taxonomic identity of major target species, and their corresponding geographic range; and the timely, transparent and open reporting of harvest levels and limits.

Professor Pratchett's final report has been drawn upon in the development of this assessment and can be found at: [www.dcceew.gov.au/environment/marine/fisheries/wa/marine-aquarium](http://www.dcceew.gov.au/environment/marine/fisheries/wa/marine-aquarium)

### **Ecosystem impacts**

The most recent ERA for the fishery was released in 2022 and covers the period 2016–2020. The ERA identified out of the 43 ecological components assessed, 39 were classified as being at low or negligible risks. Four ecological components were at medium risks, which were assessed as acceptable under the current monitoring and control measures.

The outcomes of the ERAs was used to inform the broader management of the fishery.

## Public submissions

Two public comments were received on WA DPIRD's application for export approval during the public consultation period (as required under section 303FR of the EPBC Act). One of the submissions requested the addition of two species of *Hippocampus* (*H. biocellatus* and *H. montebelloensis*) and two species of Scleractinian corals (*Heliofungia* spp. and *Acathophyllia* spp.) to the list of species included under the fishery's wildlife trade operation. The second submission supported the reaccreditation of the fishery and highlighted some of the concerns of operators with the proposed expansion of protected areas in WA and the associated impacts on the fishery's operations.

WA DPIRD provided the department with a concise response to the issues raised in the public submissions. The issues raised in the submissions, as well as WA DPIRD's response, were considered in conducting this assessment.

## Conclusion

The fishery has been found to meet the majority of the criteria set out in the Guidelines (see section 3) and the requirements of the EPBC Act (see section 4). The department considers the management regime for the fishery provides for fishing operations to be managed in a manner that minimises its impact on the structure, productivity, function and biological diversity of the ecosystem.

However, drawing on the outcomes of the assessment and the independent advice provided by Professor Pratchett, the department has identified a number of risks and uncertainties that must be managed through conditions as listed at Section 2 of this report. These conditions relate to:

- improving the reporting arrangements for hard coral species, including requiring the reporting of all coral species at the species level (except for certain species which can be reported at the genus level); by management blocks; and by weight and number of pieces
- the implementation of precautionary species-specific harvest limits that will constrain harvest levels relative to the sustainability concerns for individual species
- the implementation of localised monitoring of stock status to assess and prevent the risk of localised depletion where the catch of any species of hard coral within a management block exceeds 200 kg in a fishing season
- the requirements for revisiting or otherwise increasing the precautionary specific-specific harvest limits (including any supporting surveys, stock assessments and spatial monitoring)
- the development of supporting surveys/research to underpin future management arrangements of *Hippocampus subelongatus* stocks in the fishery.

On this basis, the department considers the declaration of the harvest operations of the fishery as an approved wildlife trade operation for three years, until 14 October 2025, is appropriate (subject to the conditions detailed in Section 2). Unless a specific time frame is provided, each condition must be addressed within the period of the approved wildlife trade operation declaration for the fishery.

## SECTION 1: ASSESSMENT SUMMARY

Guidelines assessment	Meets	Partially meets	Does not meet	Details
Management regime	8 of 9	1 of 9	0 of 9	The management arrangements are well documented, publicly available and transparent. Consultative processes involve a range of stakeholders. While the fishery has management measures in place to control harvest these do not appear to have effectively responded to significant increases in harvest of certain coral species. Neither is it clear how this could occur without enforceable species-specific catch limits. Conditions around planning for the implementation of enforceable harvest limits are included in section 2 of this report.
Principle 1 (target stocks)	2 of 11	4 of 11	3 of 11 2 N/A	No stock assessments have been conducted for the fishery and it is unclear how risk-based management can work effectively without greater species-specific data collection and more responsive ecological risk assessments. Conditions around improved data reporting and the implementation of precautionary harvest limits are included in section 2 of this report.
Principle 2 (bycatch and protected species)	6 of 12	0 of 12	6 N/A	Given the highly selective hand-collection methods used by this fishery, a low risk is posed to bycatch species. The potential for interactions with protected species is <b>'low'</b> .
Principle 2 (ecosystem impacts)	5 of 5	0 of 5	0 of 5	The risk to ecological communities and to ecosystems are both considered <b>'negligible'</b> due to the overall small scale of fishing operations, the fishing methods used (hand-collection).
Part 12	<b>Meets</b>			Given the highly selective and relatively small-scale of the fishery and given there is no evidence to suggest any systematic change to species diversity or richness caused by the fishery, the impact on marine bioregional areas is low and acceptable.
Part 13	<b>Meets</b>			This assessment considered the fishery's impact on protected species and ecological communities and finds the risk to be low and acceptable.
Part 13A		<b>Partially Meets</b>		While the fishery meets the objectives of Part 13A of the EPBC Act, there is an ongoing need to manage several issues, as summarised in sections 2 and 3 of this assessment report. Declaration of the fishery as a wildlife trade operation for three years, until 14 October 2025 is recommended, subject to the conditions detailed in Section 2 of this report.
Part 16	<b>Meets</b>			The fishery is managed in a precautionary manner. Management arrangements were found to be moderately precautionary. With WA DPIRD's agreement to implementing the conditions outlined in section 2 of this report, management measures are likely to be adequate.



## SECTION 2: SUMMARY OF ISSUES REQUIRING CONDITIONS

Part 13A Issues	Part 13A Conditions
<p><b><u>General management</u></b></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 decision(s) remain valid and export approval continues uninterrupted, the Department of Climate Change, Energy, the Environment and Water (department) needs to be advised of any changes made to the management regime.</p> <p>This will allow the department to assess whether the new arrangements are equivalent or better (in terms of ecological sustainability) to those in place at the time of the original decision. This includes operational and legislated amendments that may affect the sustainability of the target species; or negatively impact on byproduct, bycatch, protected species, or the broader ecosystem.</p>	<p><b><u>Condition 1:</u></b></p> <p>Operation of the Western Australian Marine Aquarium Fish Managed Fishery must be carried out in accordance with the management regime implemented under the <i>Fish Resources Management Act 1994</i> (WA) and the Fish Resources Management Regulations 1995 (WA).</p> <p><b><u>Condition 2:</u></b></p> <p>The Western Australian Department of Primary Industries and Regional Development must inform the Department of Climate Change, Energy, the Environment and Water of any intended material changes to the Western Australian Marine Aquarium Fish Managed Fishery management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p> <p><b><u>Condition 3:</u></b></p> <p>The Western Australian Department of Primary Industries and Regional Development must inform the Department of Climate Change, Energy, the Environment and Water of any intended changes to fisheries legislation that may affect the legislative instruments relevant to this approval.</p>
<p><b><u>Annual reporting</u></b></p> <p>It is important the Western Australian Department of Primary Industries and Regional Development (WA DPIRD) produce and present reports to the department annually on the performance of the fishery and progress in implementing the conditions and other commitments described in this report to be monitored and assessed.</p> <p>Annual reports must be prepared in accordance with Appendix B to the <i>Guidelines for the Ecologically Sustainable Management of Fisheries – 2<sup>nd</sup> 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 progress in implementing the conditions described in the current assessment for the fishery.</p>	<p><b><u>Condition 4:</u></b></p> <p>The Western Australian Department of Primary Industries and Regional Development must produce and present annual reports to the Department of Climate Change, Energy, the Environment and Water, by December as per Appendix B of the <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i>.</p>

Electronic copies of the guidelines are available from the department's website at:  
<https://www.dcceew.gov.au/environment/marine/publications/guidelines-ecologically-sustainable-management-fisheries>

**Harvest reporting of hard corals**

Access to reliable data is crucial for assessing, monitoring, and managing the impacts of fishing on target and non-target species, and for the overall health of ecosystems.

The Western Australian Marine Aquarium Fish Managed Fishery (MAFMF) harvests several species (including a range of hard coral species) listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Most of this harvest is exported to supply the international aquarium trade.

The export and international trade in CITES listed species is contingent on non-detriment findings (NDF) and supporting permits issued by Australia's CITES Scientific Authority (which sits within the Australian Government Department of Climate Change, Energy, the Environment and Water). The NDFs provide assurances the export (and corresponding harvest levels) will not be detrimental to the survival or natural distribution of the harvested species, nor adversely affect relevant habitats and ecosystems.

In preparing the NDFs and issuing supporting export permits, the CITES Scientific Authority requires suitably detailed harvest data. While the MAFMF is currently working towards eliminating broad level reporting categories and largely reports harvested corals to species or genera level (where permitted), there are still some ambiguous reporting categories being used. For example, current arrangements allow in some situations for both species and genus-level reporting to be provided for some corals (e.g *Acropora* spp. and *Dipsastrea* spp.). Establishing the taxonomic identity of major target species, and their corresponding geographic range, is critical for establishing the risk posed by harvesting.

Recent increases in coral harvest levels in the MAFMF have also highlighted the need to better understand the nature and geographical range of the harvest. While the existing harvest is relatively small when compared to the fishery's geographical area, fishing effort is not apportioned relative to species abundance, or species spatial distribution.

Currently, information about the number of coral colonies or fragments harvested in the fishery are not being reported alongside weight and location. This level of information is important to merge reported harvest levels of species or genera against export data of live corals. Currently, this is often reported as number of pieces due to logistical constraints of calculating weight of 'live' coral exports.

Advice provided to the CITES Scientific Authority during the assessment process also suggests some coral harvests (including those taken for aquaculture broodstock, public aquarium, and research purposes) are not being consistently reported to WA DPIRD. Given the potential scale of these harvests (over 10% of the Total Allowable Commercial Catch (TACC) taken in the fishery), it is important that they are consistently reported and factored into any future management arrangements.

**Condition 5:**

By 1 July 2023, the West Australian Department of Primary Industries and Regional Development must implement improved reporting requirements for coral species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The new reporting requirements must include:

- a) the recording of all coral harvests at the species level (except for those species specifically listed at genus-level in Attachment A), including any species taken for broodstock, public aquarium, or research purposes
- b) the location of all coral harvests in the fishery, reported by relevant 10 nautical mile by 10 nautical mile management block number
- c) the total weight (in kilograms) of coral by species (or genus for those species listed at that level in Attachment A) and the number of pieces that comprise the total weight.

A summary of the data collected through this process must be provided on an annual basis to the Australian Convention on International Trade in Endangered Species of Wild Fauna and Flora Scientific Authority as part of the annual report referred to in Condition 4.

<p>It is important that WA DPIRD department improved reporting for all CITES listed coral species. This should include species specific reporting (where appropriate), harvest locations, and the number of pieces harvested. To inform future NDF processes and the issuing of supporting export permits, summaries of this information should also be provided to the CITES Scientific Authority on a regular basis as part of WA DPIRD's annual reporting obligations.</p>	
<p><b><u>Specific harvest limits for hard corals</u></b></p> <p>The MAFMF is currently managed through a combination of input and output controls. Under the management plan, CITES listed species (e.g., hard corals) are managed via output controls delivered as individual transferable quota. The number of licences in the fishery is currently capped at 12, with an overall annual coral (hard and soft corals) TACC of 15,000 kg.</p> <p>In addition to these controls, the MAFMF has also implemented species threshold harvest levels for key coral species and genera. The latest harvest thresholds (2018–22) are based on a doubling of the maximum annual harvest levels reporting during a 6-year period (2008–13) and range from 100 to 1,555 kg. These limits are administered outside of the TACC through voluntary agreements with licence holders.</p> <p>Despite the very large area of operation for the MAFMF, available data suggests coral harvesting is largely concentrated in a couple of areas (primarily the tropical waters off Exmouth and the Dampier Archipelago). There are also increasing environmental pressures (linked to anthropogenic climate change) in nearshore areas of WA, which may affect the abundance or resilience of harvested coral species.</p> <p>Since the implementation of the current MAFMF management plan in July 2019, catch levels for the coral species most heavily harvested in the fishery (including <i>Fimbriaphyllia ancora</i>, <i>Euphyllia glabrescens</i>, and <i>Fimbriaphyllia paraancora</i>) have increased by over 100%. The most heavily harvested coral species (<i>Fimbriaphyllia ancora</i> and <i>Euphyllia glabrescens</i>) also accounted for 26.5% of all hard corals taken in 2020, suggesting there is significant effort being applied to a select number of corals. It is also apparent that reported harvest levels in 2019 and 2020 were above the designated threshold limits for such corals.</p> <p>These species, alongside two other vulnerable corals taken in the fishery (<i>Fimbriaphyllia paraancora</i> and <i>Duncanopsammia axifuga</i>), were all subject to a recent negative NDF opinion by the European Union (EU) Scientific Review Group (SRG). This has led to the EU banning the import of these species from Australia from January 2022. Advice from the EU has suggested trade in these species will not resume until it has improved confidence in Australia's coral management arrangements.</p> <p>Growing harvest levels of CITES listed corals has also led to greater risks. The current ERA for the MAFMF (2022) outlined increasing risks, upgrading the risk from low (ERA 2014) to medium (ERA 2022) for four species of hard corals, <i>Fimbriaphyllia ancora</i>, <i>Fimbriaphyllia paraancora</i>, <i>Catalaphyllia jardinei</i> and <i>Australophyllia wilsoni</i>.</p> <p>In mid-2021, the CITES Scientific Authority engaged an international coral expert, Professor Morgan Pratchett, to provide independent expert advice to the Authority on whether and under what</p>	<p><b><u>Condition 6:</u></b></p> <p>Consistent with the '<i>Expert Advice for the Assessment of Australian Coral Fisheries – Western Australia Marine Aquarium Fishery 2008–2020</i>' report (Pratchett 2022), the Western Australian Department of Primary Industries and Regional Development must:</p> <ol style="list-style-type: none"> <li>a) by 1 July 2023, limit the annual take of species of hard corals from the fishery, including any species taken for broodstock, public aquarium, or research purposes, as described in Attachment B</li> <li>b) by 1 July 2023, limit the annual take of hard corals from the fishery, including any species taken for broodstock, public aquarium, or research purposes, to 200% of the average harvest level taken during the 2008-2013 historical reference period, or 600 kg (whichever is greater), for all other species of hard corals with a catch history in the fishery during the reference period</li> <li>c) where the catch of any species of hard coral within a ten nautical mile by ten nautical mile management block exceeds 200 kg in a single fishing season, implement localised monitoring of stock status and trends to assess and prevent the risk of localised depletion. Within 6 months of such an event being verified, commence localised monitoring of stock status and trends for that block and species. Within 12 months of the commencement of monitoring, provide the Department of Climate Change, Energy, the Environment and Water, with a report detailing the outcomes of the localised monitoring and any associated management responses</li> <li>d) ensure these limits remain in place until the West Australian Department of Primary Industries and Regional Development provides scientifically robust data to the Convention on International Trade in Endangered Species of Wild Fauna and Flora Scientific Authority to underpin a revised Non-Detriment Finding (as set out in condition 7).</li> </ol>

circumstances it should issue an NDF for the MAFMF. Professor Pratchett's report (*Expert Advice for the Assessment of Australian Coral Fisheries – Western Australia Marine Aquarium Fishery 2008-2020*) was finalised in September 2022.

Professor Pratchett's report noted while the harvest threshold limits set in the fishery are important for constraining the catch of specific coral species, there is limited fishery-independent information to establish whether these limits are sustainable. While preliminary surveys have been conducted in several key locations to establish the local abundance and biomass of key coral species, additional information about the biology and ecology of targeted species is needed to establish sustainable harvest limits.

Rigorous and ongoing stock assessments to clearly establish and implement sustainable harvest limits for all individual species of CITES listed corals is the foremost management action that can be undertaken to provide a positive NDF determination. However, it is recognised this will require WA DPIRD to commission considerable additional research and monitoring, including comprehensive surveys to establish distribution and abundance, as well as further studies and detailed monitoring to determine population dynamics and turnover.

In the absence of such information, precautionary harvest limits need to be established and maintained until there is the necessary information to establish sustainable harvest thresholds and justify increased harvest levels. For these reasons, individual harvest limits have been recommended for 11 key CITES listed corals (outlined in Schedule 2) where there is evidence of i) rapid but recent increases in harvest levels, ii) species of concern identified in the previous 2013 NDF, or iii) endemic species. The recommended harvest levels are based on 1.5 times the mean recorded harvest levels for the 2008–13 harvest period, or 600 kg (whichever is greater).

To limit harvest levels across a broader range of coral species, it is also recommended that proportionate limits (2.0x the average reference catch) be applied to all species for which there is relevant catch history. Prescribed harvest thresholds should also be established for all corals if, or when, annual harvest levels exceed 600 kg. This provisional catch limit (600kg per year) is not intended to represent the default harvest cap, but rather provide a clear and consistent threshold above which individual harvest thresholds need to be developed and implemented for individual coral species or genera.

Moreover, Professor Pratchett's report identified a potential risk of localised depletion for several coral species. For example, 75% of *Australophyllia wilsoni* was taken from one block in 2019. The incidence of such concentrated harvest is surprisingly high, 25% of all 10x10 nautical mile blocks assessed in the report had greater than 50% of corals harvested.

With the harvests of individual species concentrated in relatively restricted geographical areas, management arrangements should be imposed at lower harvest levels, especially given that not all 10 x 10 nm blocks have suitable habitats for each species. For this reason, provisional spatial harvest thresholds of 200 kg from a single 10x10 nm block should be implemented for each given species. If this threshold is exceeded, corresponding monitoring of stock status and trends should be implemented.

<p>These precautionary limits should only be relaxed based on rigorous biological and ecological knowledge (quantitative and comprehensive data on the distribution and abundance, especially biomass, of individual species) leading to the establishment of species-specific sustainable harvest limits. Condition 7 details the level of information that would be required to give the Scientific Authority to confidence to revisit these prescribed harvest levels.</p>	
<p><b><u>Stock assessments: hard corals</u></b></p> <p>Rigorous and ongoing stock assessments to clearly establish and implement sustainable harvest limits for all individual species of CITES-listed corals is the foremost management action that can be undertaken to provide a positive NDF determination for the MAFMF.</p> <p>However, it is recognised this will require WA DPIRD to commission considerable additional research and monitoring, including comprehensive surveys to establish distribution and abundance, as well as further studies and detailed monitoring to determine population dynamics and turnover.</p> <p>In the absence of clear stock assessments underpinning the MAFMF management plan and supporting harvest strategy, the CITES Scientific Authority must consider whether the management of the fishery can adequately identify and respond to changes in harvest. This Authority’s response to this issue, including the precautionary harvest limits recommended for the fishery, is set out in Condition 6.</p> <p>As noted in Condition 6, these harvest limits are to remain in place until WA DPIRD can provide scientifically robust data to the CITES Scientific Authority to underpin a revised NDF. The level of information required to support a revised NDF is set out in Condition 7.</p>	<p><b><u>Condition 7:</u></b></p> <p>The precautionary harvest limits described in condition 6 must be maintained until there is enough information to establish sustainable harvest limits and justify any increases in harvest levels. This would need to include:</p> <ul style="list-style-type: none"> <li>a) fishery-independent surveys for the associated hard coral species, including comprehensive data on the distribution, biomass, and harvest locations to clearly identify the effects of fishing and any risks of localised depletion</li> <li>b) implementation of arrangements to improve spatial monitoring in the fishery to ensure the harvest strategy and stock assessments are supported by up-to-date scientific information</li> <li>c) robust stock assessments for the associated hard coral species.</li> </ul>
<p><b><u>Specific stock surveys: seahorses (<i>Hippocampus subelongatus</i>)</u></b></p> <p><i>Hippocampus subelongatus</i> (Western Australian seahorse) is a CITES listed species endemic to the west coast of WA. The harvest of <i>H. subelongatus</i> has fluctuated significantly over the years. For the last fifteen years the level of take has varied between highs of over 1,400 individuals per year, down to less than 100 in some years. High harvest years have generally been followed by periods of limited or significantly reduced harvest.</p> <p>A current threshold catch limit of 2,000 specimens of <i>H. subelongatus</i> is in place. This limit was established in the MAFMF’s current harvest strategy and based on doubling the maximum historical catch taken between 2008 – 2013 (the reference period). The same protocol is applied for all retained species in the MAFMF.</p> <p>Between 2016 and 2020, catches of <i>H. subelongatus</i> in the MAFMF have averaged around 158 specimens per annum. Most of the <i>H. subelongatus</i> are taken from one 10 x 10 nm block in waters around the Perth metropolitan region. Given this limited geographical spread of effort, there is the potential for localised stock depletions. This risk is exacerbated by several <i>Hippocampus</i> spp. characteristics, which are largely monogamous and have restricted population distributions.</p>	<p><b><u>Condition 8:</u></b></p> <p>The Western Australian Department of Primary Industries and Regional Development must:</p> <ul style="list-style-type: none"> <li>a) by 1 December 2024, undertake and deliver a fishery independent survey of the commercially fished area of <i>Hippocampus subelongatus</i> to produce biomass data, identify key harvest locations and identify any risks of localised depletion</li> <li>b) by 1 July 2025, identify and publish any required changes to the management arrangements for <i>Hippocampus subelongatus</i>, including harvest limits, based on the data collected from the fishery independent survey.</li> </ul>

To date, no stock surveys have been completed for *H. subelongatus*. While the state government and industry members have previously committed to conducting population surveys for seahorses in the MAFMF as part of the planned ERA process, the department is not aware of any surveys being published.

With increasing international scrutiny on Australia's trade in CITES listed species, it is important any future harvests of *H. subelongatus* are guided by suitable science and data. For this reason, the department considers an independent survey of *H. subelongatus* should be undertaken within the term of the upcoming WTO. This should collect suitable data on the distribution, biomass, and harvest locations of *H. subelongatus* to help identify the effects of fishing on the stock and any risks of localised depletion. The information gathered through this process should be used to inform the further development of sustainable catch limits and other management measures to mitigate against any identified localised depletion.

Part 13 Issue	Part 13 Conditions
<p><b><u>Specific stock surveys: seahorses (<i>Hippocampus subelongatus</i>)</u></b></p> <p><i>Hippocampus subelongatus</i> (Western Australian seahorse) is a CITES listed species endemic to the west coast of WA. The harvest of <i>H. subelongatus</i> has fluctuated significantly over the years. For the last fifteen years the level of take has varied between highs of over 1,400 individuals per year, down to less than 100 in some years. High harvest years have generally been followed by periods of limited or significantly reduced harvest.</p> <p>A current threshold catch limit of 2,000 specimens of <i>H. subelongatus</i> is in place. This limit was established in the MAFMF’s current harvest strategy and based on doubling the maximum historical catch taken between 2008 – 2013 (the reference period). The same protocol is applied for all retained species in the MAFMF.</p> <p>Between 2016 and 2020, catches of <i>H. subelongatus</i> in the MAFMF have averaged around 158 specimens per annum. Most of the <i>H. subelongatus</i> are taken from one 10 x 10 nm block in waters around the Perth metropolitan region. Given this limited geographical spread of effort, there is the potential for localised stock depletions. This risk is exacerbated by several <i>Hippocampus</i> spp. characteristics, which are largely monogamous and have restricted population distributions.</p> <p>To date, no stock surveys have been completed for <i>H. subelongatus</i>. While the state government and industry members have previously committed to conducting population surveys for seahorses in the MAFMF as part of the planned ERA process, the department is not aware of any surveys being published.</p> <p>With increasing international scrutiny on Australia’s trade in CITES listed species, it is important any future harvests of <i>H. subelongatus</i> are guided by suitable science and data. For this reason, the department considers an independent survey of <i>H. subelongatus</i> should be undertaken within the term of the upcoming WTO. This should collect suitable data on the distribution, biomass, and harvest locations of <i>H. subelongatus</i> to help identify the effects of fishing on the stock and any risks of localised depletion. The information gathered through this process should be used to inform the further development of sustainable catch limits and other management measures to mitigate against any identified localised depletion.</p>	<p><b><u>Condition A:</u></b></p> <p>The Western Australian Department of Primary Industries and Regional Development must:</p> <ul style="list-style-type: none"> <li>a) by 1 December 2024, undertake and deliver a fishery independent survey of the commercially fished area of <i>Hippocampus subelongatus</i> to produce biomass data, identify key harvest locations and identify any risks of localised depletion</li> <li>b) by 1 July 2025, identify and publish any required changes to the management arrangements for <i>Hippocampus subelongatus</i>, including harvest limits, based on the data collected from the fishery independent survey.</li> </ul>

Hard coral (order Scleractinia) taxa where identification to genus level is acceptable but should be identified to species level where feasible. All other hard corals should be recorded to species.

- *Acropora*
- *Alveopora*
- *Astreopora*
- *Balanophyllia*
- *Barabattoia*
- *Blastomussa*
- *Caulastraea*
- *Coscinaraea*
- *Cycloseris*
- *Cyphastrea*
- *Dendrophyllia*
- *Echinophyllia*
- *Echinopora*
- *Echinopora*
- *Favites*
- *Fungia*
- *Goniastrea*
- *Goniopora*
- *Hydnophora*
- *Leptastrea*
- *Leptoseris*
- *Lobophyllia*
- *Montastrea*
- *Montipora*
- *Oxypora*
- *Pachyseris*
- *Pavona*
- *Pectinia*
- *Platygyra*
- *Pocillopora*
- *Porites*
- *Psammocora*
- *Seriatopora*
- *Stylophora*
- *Symphyllia*
- *Turbinaria*



Harvest limits (kg) for coral species of concern.

Taxa	Annual Harvest limit (kg)
<i>Fimbriaphyllia ancora</i>	707
<i>Euphyllia glabrescens</i>	600
<i>Fimbriaphyllia paraancora</i>	600
<i>Lobophyllia hemprichii</i>	600
<i>Micromussa</i> cf. <i>lordhowensis</i>	600
<i>Homophyllia</i> cf. <i>australis</i>	600
<i>Duncanopsammia axifuga</i>	760
<i>Trachyphyllia geoffroyi</i>	836
<i>Catalaphyllia jardinei</i>	600
<i>Moseleya latistellata</i>	600
<i>Australophyllia wilsoni</i>	600

### **Assessment history:**

Information on previous assessments for the Queensland Coral Fishery is available on the Department's website at [www.dcceew.gov.au/environment/marine/fisheries/wa/marine-aquarium](http://www.dcceew.gov.au/environment/marine/fisheries/wa/marine-aquarium)

- **1st assessment finalised October 2005** – four conditions and nine recommendations.
- **2nd assessment finalised October 2008** – four conditions and seven recommendations.
- **3rd assessment finalised December 2012** – six conditions (with one Part 13 condition).
- **4th assessment finalised December 2013** – five conditions and one recommendation.
- **5th assessment finalised October 2016** – five conditions (with one Part 13 condition).
- **6th assessment finalised October 2019** – six conditions (with one Part 13 condition).

The fishery was issued a declaration of an approved wildlife trade operation under the EBPC Act (Part 13 and 13A) in October 2005. Renewals were issued in 2008, 2012, 2013, 2016 and 2019.

The 2008 wildlife trade operation approval lapsed in October 2011. From October 2011 to 1 January 2013, the fishery was only able to harvest for the domestic market. This was due to insufficient information being provided by WA DPIRD on historic harvest levels of CITES-listed species in the fishery.

In 2012, NDFs were made based on precautionary harvest levels for 6 species of hard corals (*Catalaphyllia jardinei*, *Duncanopsammia axifuga*, *Fimbriaphyllia ancora* (*Euphyllia ancora*), *Euphyllia glabrescens*, *Trachyphyllia geoffroyi*, *Moseleya latistellata*), giant clams (*Tridacna maxima* and *T. squamosa*) and seahorses (*Hippocampus* spp.) that supported a short term (12-month) WTO for the fishery due to uncertainties in the identification of *Hippocampus* species, the threat of local depletion (concentrated harvest) and limited biological data available.

Three species of seahorse, *Hippocampus* (*H. angustus*, *H. subelongatus* and *H. tuberculatus*), were subsequently removed from the fishery's wildlife trade operation accreditation in December 2012. The harvest of seahorses continued for the domestic market under an Exemption for non-export purposes only. These three species were added in the 2013 WTO and have remained in all WTOs since then. The current WTO expires on 14 October 2022.

### **Key links:**

#### **Fishery Information**

Agency website [www.fish.wa.gov.au/Fishing-and-Aquaculture/Commercial-Fishing/Pages/default.aspx](http://www.fish.wa.gov.au/Fishing-and-Aquaculture/Commercial-Fishing/Pages/default.aspx)

Agency website, fisheries publications page [www.fish.wa.gov.au/About-Us/Publications/Pages/default.aspx](http://www.fish.wa.gov.au/About-Us/Publications/Pages/default.aspx)

WA DPIRD submission for reassessment of the Marine Aquarium Fish Managed Fishery 2022 (the fishery submission) [www.dcceew.gov.au/environment/marine/fisheries/wa/marine-aquarium/application-2022](http://www.dcceew.gov.au/environment/marine/fisheries/wa/marine-aquarium/application-2022)

#### **Management plan**

Marine Aquarium Fish Managed Fishery Management Plan 2018 [www.wa.gov.au/system/files/2021-08/Marine%20Aquarium%20Fish.pdf](http://www.wa.gov.au/system/files/2021-08/Marine%20Aquarium%20Fish.pdf)

### ***Harvest strategy***

Marine Aquarium Fish Resources of Western Australia Harvest Strategy 2018-2022 (available in Submission, as Appendix 5) [www.fish.wa.gov.au/Documents/management\\_papers/fmp292.pdf](http://www.fish.wa.gov.au/Documents/management_papers/fmp292.pdf)

### ***Enforcing legislation***

*Fish Resources Management Act 1994 (WA)*

[www.legislation.wa.gov.au/legislation/statutes.nsf/main\\_mrtitle\\_345\\_homepage.html](http://www.legislation.wa.gov.au/legislation/statutes.nsf/main_mrtitle_345_homepage.html)

*Fish Resources Management Regulations 1995 (WA)*

[www.legislation.wa.gov.au/legislation/statutes.nsf/main\\_mrtitle\\_1458\\_homepage.html](http://www.legislation.wa.gov.au/legislation/statutes.nsf/main_mrtitle_1458_homepage.html)

Prohibition on Fishing (Coral, Live Rock and Algae) Order 2007 (WA) [www.wa.gov.au/system/files/2021-08/Prohibition\\_Fishing\\_Coral\\_Live\\_Rock\\_and\\_Algae\\_Order\\_2007\\_Order\\_11\\_of\\_2007.pdf](http://www.wa.gov.au/system/files/2021-08/Prohibition_Fishing_Coral_Live_Rock_and_Algae_Order_2007_Order_11_of_2007.pdf)

### ***Ecological risk assessment***

Ecological Risk Assessment for the Marine Aquarium Fish Resource – May 2022

[www.fish.wa.gov.au/Documents/research\\_reports/frr323.pdf](http://www.fish.wa.gov.au/Documents/research_reports/frr323.pdf)

### ***Annual report***

Status Reports of the Fisheries and Aquatic Resources of Western Australia [www.fish.wa.gov.au/About-Us/Publications/Pages/State-of-the-Fisheries-report.aspx](http://www.fish.wa.gov.au/About-Us/Publications/Pages/State-of-the-Fisheries-report.aspx)

### ***Other***

Map of the Marine Aquarium Fish Managed Fishery – available on Page 9 of the fishery submission.

### SECTION 3: DETAILED ANALYSIS AGAINST THE GUIDELINES

Guidelines criteria	Comment
<b>THE MANAGEMENT REGIME</b>	
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><b>Meets</b></p> <p>In managing the Western Australia Marine Aquarium Fish Managed Fishery (the fishery), the Western Australian Department of Primary Industries and Regional Development (WA DPIRD) publish all management documents relevant to the fishery.</p> <p>All governing legislation (<a href="#">Fish Resources Management Act 1994 (WA)</a> and <a href="#">Fish Resources Management Regulations 1995 (WA)</a>), annual <a href="#">Status reports of the fisheries and aquatic resources of Western Australia, Marine Aquarium Fish Managed Fishery Management Plan 2018</a>, <a href="#">Marine Aquarium Fish Resource of Western Australia Harvest Strategy 2018 – 2022</a>, <a href="#">Ecological Risk Assessment for the Marine Aquarium Fish Resource – May 2022</a> and general information describing the management regime is publicly available on WA DPIRD’s website.</p>
Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public.	<p><b>Meets</b></p> <p>WA DPIRD is required by legislation to seek public consultation with industry and government agencies on management arrangements for the fishery. Documents published for public consultation are available on WA DPIRD’s website.</p> <p>The fishery has a management advisory committee with representatives from the commercial sector, recreational and charter sectors which is convened by the West Australian Fishing Industry Council (WAFIC) under a Service Level Agreement with WA DPIRD. Representatives from Government agencies, the conservation sector, non-government organisations, statutory advisory committees, and other affected/interested parties, are also consulted by WA DPIRD in accordance with the WA <a href="#">DPIRD Stakeholder Engagement Guideline</a>.</p> <p>Key fishery-specific documents such as harvest strategies, recovery plans and bycatch action plans are subjected to both formal key stakeholder consultation and public consultation processes.</p>

<p>Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process.</p>	<p><b>Meets</b></p> <p>Management arrangements are decided through consultation between WA DPIRD, WAFIC and all licence holders in the fishery. The fishery has a management advisory committee with representatives from the commercial sector, recreational and charter sectors which is convened by the WAFIC under a Service Level Agreement with WA DPIRD. Representatives from Government agencies, the conservation sector, non-government organisations, statutory advisory committees, and other affected/interested parties, are also consulted by WA DPIRD in accordance with the WA DPIRD Stakeholder Engagement Guideline.</p>
<p>Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured.</p>	<p><b>Meets</b></p> <p>The legislation contains objectives and performance criteria to measure the fishery against. The objectives of Ecologically Sustainable Development (ESD) are reflected in the objects of Section 3 of the <i>Fish Resources Management Act 1994</i> (WA) (the FRM Act), and Clause 9 of the <i>Aquatic Resources Management Act 2016</i> (WA) (the ARM Act), which will replace the FRM Act once enacted.</p> <p>The fishery uses a risk-based ecosystem-based fisheries management framework to assess the impacts of fishing on all parts of the marine environment, including the sustainability risks of retained species, bycatch, protected species, habitats, and the ecosystem.</p> <p>The management regime is periodically reviewed to check its effectiveness against the objectives in the legislation. Control rules define what management actions should be taken based on the value of each performance indicator relative to the limit, threshold or target levels, considering uncertainties in the estimation.</p>

Be capable of controlling the level of harvest in the fishery using input and/or output controls.

#### Partially Meets

Target levels, threshold levels and limit levels, form part of the management arrangements to measure and manage performance in the fishery. Control rules are used to determine appropriate management actions where necessary.

The *Marine Aquarium Fish Resources of Western Australia Harvest Strategy 2018-2022* (the harvest strategy) outlines the resource specific objectives, as well as the various control rules and measures in place for the fishery, such as: spatial closures, size limits, reporting and control rules and performance indicators with triggers.

The *Marine Aquarium Fish Managed Fishery Management Plan 2018* (the management plan) outlines the following:

- Output controls – Individual Transferable Quota (ITQ) – for four high conservation value species groups. This includes those species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), including hard and soft corals, tridacnid clams, Syngnathiformes and ‘live rock’
- Input controls (limited entry, gear restrictions, restrictions – numbers of vessels, collectors) – for other non-quota species.

The output controls or Total Allowable Commercial Catch (TACC) limits (in place since 1 July 2019) for the key conservation species groups are:

- Hard and soft corals = 15,000 kg
- Tridacnid clams = 2,400 individuals
- Syngnathiformes = 2,000 individuals
- Live rock = 60,000 kg.

The increase in catch limits introduced under the current harvest strategy (e.g. from 10,502 kg to 15,000 kg of coral (hard and soft corals)) was intended to encourage industry expansion and was supported by an Ecological Risk Assessment (ERA) finalised in 2014.

The harvest strategy defines voluntary threshold levels for a range of quota and non-quota species. These threshold harvest levels are administered outside of legislated quota (TACCs), through voluntary agreements with the current licence holders. These voluntary catch limits were calculated based on a doubling (100% increase) of the maximum annual harvest levels reported during a 6-year reference period (2008–2013) (outlined in the harvest strategy).

While the harvest of most of these species has been within the thresholds, catches of 7 coral species subject to the previous wildlife trade operation export accreditation exceeded individual threshold levels in the 2019 and 2020 seasons. This included *Fimbriaphyllia ancora* (previously *Euphyllia ancora*), for which reported catches were significantly higher than the threshold for both the 2018/19 and 2019/20 licensing periods.

	<p>The department considers it is important WA DPIRD has controls in place to effectively limit the annual take of species of hard corals from the fishery, particularly for heavily harvested coral species and those subject to concern (as described in Schedule 2). The department has proposed a condition to address this issue (see Section 2).</p>
<p>Contain the means of enforcing critical aspects of the management arrangements.</p>	<p><b>Meets</b></p> <p>An Operational Compliance Plan (OCP) is in place to ensure management arrangements are enforced, which is outlined in the harvest strategy for the fishery.</p> <p>The current management plan includes an electronic reporting system (for fishing nominations and statutory catch reporting) aimed at ensuring timely and accurate fishery data reporting, as well as enhanced ITQ monitoring and compliance.</p> <p>Management arrangements are enforced under a compliance risk assessment that is reviewed every 1-2 years. Among the compliance strategies and activities used are land and sea patrols, aerial surveillance, inspections in port, monitoring vessel movements, intelligence gathering and investigations.</p> <p>Compliance statistics included in the 2022 ERA demonstrate the effectiveness of the fishery compliance strategy, where the highest number of offences in 5 years were registered in 2018/19 (total of 31 offences, 87% warnings) and the lowest, zero offences, reported in the following year 2019/20.</p>
<p>Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria.</p>	<p><b>Meets</b></p> <p>Performance indicators for the fishery are annually assessed against the management reference levels set out in the harvest strategy.</p> <p>The covering legislation contains objectives and performance criteria to measure against the fishery. The objectives of ESD are reflected in Section 3 of the FRM Act and Clause 9 of the ARM Act, which will replace the FRM Act once enacted.</p> <p>The fishery uses a risk-based ecosystem-based fishery management framework to assess the impacts of fishing on all parts of the marine environment, including the sustainability risks of retained species, bycatch, protected species, habitats and the ecosystem.</p> <p>The management regime is periodically reviewed to check its effectiveness against the objectives in the legislation. Control rules define what management actions should be taken based on the value of each performance indicator relative to the limit, threshold, or target levels, considering uncertainties in the estimation.</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><b>Meets</b></p> <p>Decision-making processes can be triggered following the identification of new or potential issues as part of the regular ecological risk assessment process, which is conducted every 3–5 years.</p> <p>According to the harvest strategy, a review of the reference levels (harvest limits) will be triggered if the annual catch for each target species (or species groups) exceeds the threshold level. However, during the 2019 and 2020 fishing seasons, the fishery did exceed the threshold harvest limits for several species of hard corals. There are no signs the reference levels were reviewed as a result of this.</p> <p>The management arrangements are enforced under a Compliance Risk assessment conducted for the fishery that is reviewed every 1–2 years. Among the compliance strategies and activities used are land and sea patrols, aerial surveillance, inspections in port, monitoring vessel movements, intelligence gathering and investigations.</p> <p>The <i>Marine Bioregional Plan for the South-west Marine Region 2012</i> and the <i>Marine Bioregional Plan for the North-west Marine Region 2012</i> have identified there are key ecological features present in the area of the fishery, including the Commonwealth marine environments within and adjacent to the west coast inshore lagoons and adjacent to Ningaloo Reef. However, there is no evidence to suggest any systematic change to species diversity or richness caused by the fishery, indicating fishing effort is not having a material impact on the food chain or trophic structure.</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><b>Meets</b></p> <p>The fishery is compliant with relevant plans/policies. As the fishery is classified as sustainable-adequate based on the size and number of the vessels, selective nature of fishing (hand collection), there is no bycatch in the fishery.</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.

**Partially meets**

The management regime for the fishery requires electronic reporting (daily logbook), ensuring real-time quota monitoring and statutory catch reporting.

Under the harvest strategy (WA DPIRD 2018), commercial fishers are required to report all retained species catch (kilograms, litres, or number of individuals), alongside the effort (time fished), location (10x10 nm blocks) and all protected species interactions. Catch data is reported via electronic daily logbooks.

The information collection is considered to be appropriate to the scale of the fishery, taking into account the fishery is primarily dive-based (handheld nets/tools used), with fishery operations largely dependent on weather and human constraints (waves/swell, and decompression).

However, Professor Pratchett’s report identified the need for more consistent recording and reporting of harvest levels in the fishery. This included a need for the reporting of coral harvests by both weight (kg) and number of pieces (colonies or fragments); establishing the relevant taxonomic identity of major target species, and their corresponding geographic range; and the timely, transparent and open reporting of harvest levels and limits. The department has proposed a condition to address this issue (see Section 2).

**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.

**Does Not Meet**

WA DPIRD reports annually on the status of the fishery, through the *Status Reports of the Fisheries and Aquatic Resources of Western Australia*. The *Statewide Marine Aquarium Fish and Hermit Crab Resources Status Report 2020/21* includes general stock status information from 2016 to 2020.

Traditional stock assessments are not conducted in the fishery due to the large number of species caught, and low numbers of individuals per species. Annual monitoring of catch (based on lowest taxonomic level) is achieved through fisher returns.

The dynamics and status of the species/fishery is assessed as part of the ERA process. The latest ERAs were conducted in 2014 and 2021 (published in 2018 and 2022). However, the ERAs did not include robust scientific information about population sizes and special distribution of any of the CITES-listed species or species of concern.

Hard corals are exposed to increasing external (fishery-independent) threats, and mostly notably, environmental changes (Pratchett et al., 2020). Heatwaves, and episodes of mass coral bleaching have been observed in WA coral reefs since 2010 (Gilmour et al., 2019; Babcock et al., 2020). Moreover, coral bleaching has been reported in major harvesting areas, e.g., Dampier Archipelago and Exmouth Gulf (Babcock et al., 2020; Evans et al., 2020).

A recent study also reported heavily harvested coral species such as *Cataphyllia jardinei*, *Trachyphyllia geoffroyi*, *Duncanopsammia axifuga*, *Euphyllia glabrescens* *Homophyllia* as susceptible to heat-induced bleaching (Pratchett et al., 2020). *T. geoffroyi* also appears to have a low population productivity, based on its slow growth rates. This makes this species more vulnerable to over-exploitation. It is difficult to estimate the risks (to the survival) of harvesting of targeted vulnerable species when there is a lack of stock assessments or robust biological and ecological surveys.

In his assessment of the fishery, Professor Pratchett (2022) noted there is limited fishery-independent information available to establish whether current coral harvest limits in the fishery are sustainable. Preliminary surveys have been conducted in key locations to establish the local abundance and biomass of key coral species, but additional information about the biology and ecology of targeted species is needed to establish sustainable harvest limits.

Rigorous and ongoing stock assessments to clearly establish and implement sustainable harvest limits for all individual species of CITES-listed corals is the foremost management action that will assure harvest limits are sustainable. This will, however, require additional research and monitoring specific to each coral species, involving comprehensive surveys to establish distribution and abundance, as well as experimental studies and detailed monitoring to determine population dynamics and turnover.

A similar issue was observed for *Hippocampus* spp., especially for the endemic species *Hippocampus subelongatus*. Specimens of *H. subelongatus* are taken from one localised area, the Perth Metropolitan Region. In the last 6 years, the annual harvest of *Hippocampus subelongatus* has averaged 158 individuals, but has experienced significant fluctuations over the fishery's history. No data is available on the distribution and abundance of *the species*

The department has proposed several conditions to address this issue (see Section 2).

<p><b>1.1.3</b> The distribution and spatial structure of the stock(s) has been established and factored into management responses.</p>	<p><b>Does Not Meet</b></p> <p>Traditional stock assessments are not conducted in the fishery due to the large number of species caught, and low numbers of individuals per species. The understanding of the spatial structure and distribution of stocks is limited.</p> <p>Comprehensive stock assessments of heavily and vulnerable coral species are lacking. The analysis undertaken by Professor Pratchett (2022) showed high concentrations of harvest within the fishery. For many coral species, the fishery extracted &gt;50% of the annual catch from a single 10X10 nm spatial block.</p> <p>The risk of the potential localised depletion of other CITES-listed species, e.g. <i>Hippocampus</i> spp., have also been noted in the fishery. This is true especially for the endemic species <i>Hippocampus subelongatus</i>. Specimens of <i>H. subelongatus</i> are almost exclusively taken from one localised area, the Perth Metropolitan Region. In the last 6 years, the annual harvest of <i>Hippocampus subelongatus</i> is on average 158 individuals, but has experienced significant fluctuations over the fishery's history. No data is available the distribution and abundance of <i>H. subelongatus</i>.</p> <p>The department has proposed several conditions to address this issue (see Section 2).</p>
<p><b>1.1.4</b> 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><b>Partially Meets</b></p> <p>The most recent data available on the level of harvest in the fishery is reported in the <i>Statewide Marine Aquarium Fish and Hermit Crab Resources Status Report 2020/2021</i>. This indicates:</p> <ul style="list-style-type: none"> <li>• Total commercial catch = 89,925 individuals (finfish); 32.12 tonnes of corals, living rock and living sand (where 11.91 tonnes were of hard corals); and less than 20 litres of marine plants and live feed</li> <li>• Recreational catch = N/A. The level of take is believed to be negligible.</li> <li>• Indigenous = There is no known Indigenous catch</li> </ul> <p>WA DPIRD also allows for a maximum of 750 kg of hard and soft corals to be annually harvested for aquaculture broodstock purposes, with another 750 kg of hard and soft corals allowed for public aquarium displays. The right to harvest for these purposes are provided through Exemptions delivered under section 7 of the FRM Act. As part of the Exemption conditions, records of all collected species are required to be submitted to WA DPIRD. This should include data on retained species catches (kilograms, litres, or number of individuals), effort (time fished), location (10x10 nm blocks) and all protected species interactions (harvest strategy). However, there is evidence that this data has not been recently collected.</p> <p>It is important that WA DPIRD implement improved reporting requirements for all CITES listed coral species. This should include species specific reporting (where appropriate), harvest locations, and the number of pieces harvested. To inform future NDF processes and the issuing of supporting export permits, summaries of this information should also be provided to the department on a regular basis as part of WA DPIRD's annual reporting obligations.</p> <p>The department has proposed a condition to address this issue (see Section 2).</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.

**Does not meet**

Traditional stock assessments are not conducted in the fishery due to the large number of species caught, and low numbers of individuals per species. Instead, the fishery relies on the risk assessments delivered through the ERA process and decision-making frameworks through the harvest strategy to manage the risk of overharvesting the resource.

Assessments of indicator species inform the management of the fishery. The most recent assessment of indicator species was conducted in 2021 resulting in a classification of '**adequate**'. This included an assessment of Syngnathids, hard coral, soft coral, other invertebrates, living rock and living sand, sponges, algae and seagrasses. The results are reported annually in the *Status Reports of the Fisheries and Aquatic Resources of Western Australia*. While these assessments are undertaken, there is no ongoing estimates of the productivity of the stocks harvested in the fishery.

The report (Pratchett 2022) noted coral harvesting is highly concentrated in certain areas and rigorous biological and ecological studies (more specifically, quantitative and comprehensive data on the distribution and abundance, especially biomass, of individual species) need to be conducted in the fishery for the establishment of sustainable harvest limits for individual species. A similar issue is observed for *Hippocampus* spp., especially for the WA endemic species *Hippocampus subelongatus*, where no scientific data is available.

The department has proposed several conditions to address this issue (see Section 2).

**Management responses**

<p><b>1.1.6</b> 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><b>Meets</b></p> <p>Reference points are outlined in the fishery’s harvest strategy (WA DPIRD 2018). The threshold harvest limits are species specific and have been calculated from commercial catches observed during the reference period (2008–13) as being twice the maximum reported catch over the reference period.</p> <p>When a threshold or limit reference level is breached, management responses are likely to vary depending on the extent and circumstances related to the variation. The ability to, and timeframe for, implementing these changes depends on the legal instrument under which the management measure occurs.</p> <p>The output and input controls outlined in the management plan are:</p> <ul style="list-style-type: none"> <li>• Output controls – ITQ – for four high conservation value species groups. This includes all CITES listed species harvested in the fishery – hard and soft corals, tridacnid clams, Syngnathiformes and ‘live rock’.</li> <li>• Input controls (limited entry, gear restrictions, numbers of vessels and collectors) – for non-quota species.</li> </ul> <p>The output controls or TACC limits (in place since 1 July 2019) for the key conservation species groups are Hard and soft corals = 15,000 kg; Tridacnid clams = 2,400 individuals; Syngnathiformes = 2,000 individuals; and Live rock = 60,000 kg.</p> <p>The harvest strategy defines voluntary harvest threshold levels for a range of quota and non-quota species.</p>
<p><b>1.1.7</b> There are management strategies in place capable of controlling the level of take.</p>	<p><b>Partially Meets</b></p> <p>The fishery has a well-established management regime in place. It includes ITQ arrangements applied to high economic/high conservation value species (coral, ‘live rock’, giant clams and Syngnathiformes), and an electronic reporting system, ensuring real-time quota monitoring and statutory catch reporting.</p> <p>The fishery’s harvest strategy defines voluntary threshold levels for a range of quota and non-quota species. These threshold harvest levels are administered outside of legislated quota (TACCs), through voluntary agreements with licence holders. These voluntary catch limits were calculated based on a doubling (100% increase) of the maximum annual harvest levels reported during a 6-year reference period (2008–2013) (outlined in the harvest strategy).</p> <p>While the harvest of most of these species has been within the thresholds, catches of 7 coral species subject to the previous wildlife trade operation export accreditation exceeded individual threshold levels in the 2019 and 2020 seasons. This included <i>Fimbriaphyllia ancora</i> (previously <i>Euphyllia ancora</i>), for which reported catches were significantly higher than the threshold for both the 2018/19 and 2019/20 licensing periods.</p> <p>The department considers it is important WA DPIRD has controls in place to effectively limit the annual take of species of hard corals from the fishery, particularly for heavily harvested coral species and those subject to concern (as described in Schedule 2). The department has proposed a condition to address this issue (see Section 2).</p>

<p><b>1.1.8</b> Fishing is conducted in a manner that does not threaten stocks of byproduct species.</p>	<p><b>Meets</b></p> <p>Due to the highly selective harvest method (hand collection), there is no incidental catch of byproduct, non-targeted or bycatch species. This minimises risk to non-targeted species and habitats. All captured species are retained.</p> <p>The harvest strategy also requires licence holders to report all retained species catch (kilograms, litres, or number of individuals), alongside the effort (time fished), location (10x10 nm blocks) and all protected species interactions. Catch data is reported via electronic daily logbooks.</p> <p>Divers typically try to ensure target species such as corals, seagrass and live rock where epifauna and epifloral can be associated, are free of any other species prior to returning to the vessel. The risk of retaining non-targeted species is 'negligible'.</p>
<p>(Guidelines 1.1.1 to 1.1.7 should be applied to byproduct species to an appropriate level)</p>	
<p><b>1.1.9</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p><b>Partially Meets</b></p> <p>According to the ERA (2022), the monitoring of indicator species (which reflect the characteristics of the broader exploited stocks) is used to determine whether there is any risk to the various species fished. The harvest strategy also requires management responses to be developed when risks are identified as being high.</p> <p>There are no stock assessments or scientifically robust population surveys. The harvest strategy defines voluntary harvest threshold levels for a range of quota and non-quota species based on the catch history during the reference period of 2008 and 2013 for individual species of corals, Tridacnid clams, and finfish. These threshold harvest levels are administered outside of legislated quota (TACCs), through voluntary agreements with the current licence holders.</p> <p>The fishery's harvest strategy defines voluntary threshold levels for a range of quota and non-quota species. These threshold harvest levels are administered outside of legislated quota (TACCs), through voluntary agreements with licence holders. These voluntary catch limits were calculated based on a doubling (100% increase) of the maximum annual harvest levels reported during a 6-year reference period (2008–2013) (outlined in the harvest strategy).</p> <p>While the harvest of most of these species has been within the thresholds, catches of 7 coral species subject to the previous wildlife trade operation export accreditation exceeded individual threshold levels in the 2019 and 2020 seasons. This included <i>Fimbriaphyllia ancora</i> (previously <i>Euphyllia ancora</i>), for which reported catches were significantly higher than the threshold for both the 2018/19 and 2019/20 licensing periods.</p> <p>The department considers it is important WA DPIRD has controls in place to effectively limit the annual take of species of hard corals from the fishery, particularly for heavily harvested coral species and those subject to concern (as described in Schedule 2). The department has proposed a condition to address this issue (see Section 2).</p>
<p><b>If overfished, go to Objective 2:</b>  <b>If not overfished, go to PRINCIPLE 2:</b></p>	

**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**

Concerns exist surrounding harvest trends regarding uncertainty of the upper limits for harvest to be considered sustainable. However, no stocks have been identified as requiring a recovery strategy.

**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**

Concerns exist surrounding harvest trends regarding uncertainty of the upper limits for harvest to be considered sustainable. However, no stocks have been identified as requiring a recovery strategy.

<b>PRINCIPLE 2</b> – Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.	
<b>Objective 1</b> – The fishery is conducted in a manner that does not threaten bycatch species.	
<b>Information requirements</b>	
<b>2.1.1</b> Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.	<b>Not applicable – This fishery is highly selective, there is no bycatch.</b> Due to the gear used and the highly selective nature of the fishery it is unlikely that bycatch species will be impacted. Data collection in this regard is considered to be adequate given the nature of the fishery.
<b>Assessment</b>	
<b>2.1.2</b> There is a risk analysis of the bycatch with respect to its vulnerability to fishing.	<b>Not applicable – This fishery is highly selective, there is no bycatch.</b> Due to the gear used and the highly selective nature of the fishery it is unlikely that bycatch species will be impacted. The lack of a risk analysis of bycatch species is considered to be adequate.
<b>Management responses</b>	
<b>2.1.3</b> 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.	<b>Not applicable– This fishery is highly selective, there is no bycatch.</b> Due to the gear used and the highly selective nature of the fishery it is unlikely that bycatch species will be impacted. Management responses are considered to be adequate.
<b>2.1.4</b> An indicator group of bycatch species is monitored.	<b>Not applicable – This fishery is highly selective, there is no bycatch.</b> Monitoring of an indicator group of bycatch species is not necessary, due to the low risk posed by the harvesting method.
<b>2.1.5</b> There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.	<b>Not applicable – This fishery is highly selective, there is no bycatch.</b> There are no specific decision rules in place that trigger additional management measures - which is appropriate given the low risk posed to bycatch species.



**2.1.6** The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.

**Not applicable– This fishery is highly selective, there is no bycatch.**

Due to the gear used and the highly selective nature of the fishery it is unlikely that bycatch species will be impacted.

**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.

**Information requirements**

**2.2.1** Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.

**Meets**  
 Since 2005/2006, all commercial fishers in Western Australia have been required to report any interactions with protected species in their statutory fishing returns logged with WA DPIRD. A summary of all interactions is published annually on WA DPIRD’s website. The fishery’s operators have reported no interactions with Part 13 protected species in Commonwealth waters.  
 There are no reported protected species interactions with the fishery. Due to the highly selective harvest method (hand collection) there is a low risk of incidental catch of protected species.

**Assessments**

**2.2.2** There is an assessment of the impact of the fishery on endangered, threatened or protected species.

**Meets**  
 Due to the highly selective harvest method (hand collection) there is a low risk of incidental catch of protected species.  
 As indicated in the ‘*Status Reports of the Fisheries and Aquatic Resources of Western Australia 2020/21*’, due to the highly selective fishing method (hand-collection) and, given the low fishing effort and small areas fished each trip, the potential for interactions with protected species is ‘**low**’.

**2.2.3** There is an assessment of the impact of the fishery on threatened ecological communities.

**Meets**  
 There is the potential for impacts on the World Heritage values of the Shark Bay region of WA, which is an area of major zoological importance, and is renowned for its marine fauna. Shark Bay is also an important nursery ground for larval stages of crustaceans, fishes and jellyfish.  
 The *Prohibition on Commercial Fishing (Shark Bay Marine Park) Order 2004, No. 7 of 2004*, specifies the WA Marine Aquarium Fish Managed Fishery may only take specimens (which are within the Shark Bay Marine Park) from the park’s ‘general use’ areas.  
 The department considers an action taken by an individual fisher acting in accordance with the fishery’s management regime, would not be expected to have a significant impact on the World Heritage matter protected by the EPBC Act.

<b>Management responses</b>	
<b>2.2.4</b> There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.	<p><b>Meets</b></p> <p>Due to the highly selective harvest method (hand collection) there is a low risk of incidental catch of protected species.</p> <p>As indicated in the <i>Status Reports of the Fisheries and Aquatic Resources of Western Australia 2020/2</i>, due to the highly selective fishing method (hand-collection) and, given the low fishing effort and small areas fished each trip, the potential for interactions with endangered, threatened or protected species is '<b>low</b>'.</p>
<b>2.2.5</b> There are measures in place to avoid impact on threatened ecological communities.	<p><b>Meets</b></p> <p>Various management arrangements are in place, to avoid the risk of impact of fishing on any threatened ecological communities.</p> <p>The <i>Prohibition on commercial fishing (Shark Bay Marine Park) order 2004, No. 7 of 2004</i>, specifies the WA Marine Aquarium Fish Managed Fishery may only take specimens (which are within the Shark Bay Marine Park) from waters within the park's 'general use' areas.</p>
<b>2.2.6</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	<p><b>Meets</b></p> <p>The fishery is conducted in a way that is likely to be effective in avoiding impacts to endangered, threatened or protected species, and threatened ecological communities.</p>
<b>Objective 3</b> – The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.	
<b>Information requirements</b>	
<b>2.3.1</b> 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.	<p><b>Meets</b></p> <p>Impacts of fishing on the <i>Marine Bioregional Plan for the South-west Marine Region</i> and the North-west marine region are assessed annually, through WA DPIRD's ecosystem-based fisheries management framework and reported publicly in the annual status reports.</p>

**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

**Meets**

Regular ERAs are conducted through the Western Australian Government’s ecosystem-based fisheries management framework. The ERAs produced as part of this process consider the risks of fishing on stocks, the removal of target species from the ecosystem, as well as impacts on physical habitat and marine ecosystems. The calculation of risk in the context of a fishery is usually determined within a specified period, which for the current assessment covers the period leading up to the end of 2025.

The current ERA (2022) for the fishery evaluated the impact of fishing on retained species, threatened, endangered, and protected species, habitats, and the broader environment. Forty-three ecological components were scored for risks posed by the fishery. The risks are assessed based on the likelihood of an impact to happen causing a consequence to the biota and the environment (Fletcher, 2005).

The majority (39) of ecological components were evaluated as low or negligible risks, which do not require any specific control measures. There were four medium risks which were assessed as acceptable under the monitoring and control measures already in place. This ERA did not yield any high risks.

<b>Management responses</b>	
<b>2.3.3</b> Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.	<p><b>Meets</b></p> <p>The risks to the ecosystem were assessed as negligible to low, particularly given the harvest methods (hand collection) prescribed in the management arrangements.</p>
<b>2.3.4</b> 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><b>Meets</b></p> <p>Impacts on the ecosystem were assessed as low or acceptable in the fishery.</p> <p>The fishery's management regime has decision rules that require management responses if risks to the survival of a species or ecosystem are considered high. The harvest strategy outlines control rules assisting to protect the ecological importance of healthy populations of the target species and the ecosystem.</p> <p>The ERA (2002) identifies the likely management action to risk levels from negligible to severe. Under the current management plan and harvest strategy, specific monitoring and reporting are required when risk levels are medium, and increased management activities when risks are high.</p>
<b>2.3.5</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	<p><b>Meets</b></p> <p>The management response appears likely to be effective in minimising the impact of the fishery 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 12 – Identifying and monitoring biodiversity and making bioregional plans

Section 176 Bioregional Plans	Comment
(5) Minister must have regard to relevant bioregional plans	<p><b>Meets</b></p> <p>The Marine Bioregional Plans: <a href="#">Marine Bioregional Plan for the South-West Marine Region 2012</a> and <a href="#">Marine Bioregional Plan for the North-West Marine Region 2012</a> have identified key ecological features present in the area of the fishery (including the Commonwealth marine environments within and adjacent to the west coast inshore lagoons, and adjacent to Ningaloo Reef). Key features include:</p> <p><u>South-west region</u></p> <ul style="list-style-type: none"> <li>• West Coast Canyons and adjacent shelf break</li> <li>• Diamantine Fracture Zone (seafloor feature)</li> <li>• Albany Canyons Group (feeding aggregations, seafloor feature)</li> <li>• Kangaroo Island canyons (productivity; feeding, breeding aggregations, seafloor feature)</li> <li>• Kangaroo Island Pool and Eyre Peninsula upwellings</li> <li>• meso-scale eddies in various locations</li> <li>• Naturaliste Plateau (unique seafloor feature)</li> <li>• Commonwealth waters surrounding Houtman Abrolhos Islands (high biodiversity) and around/within Geographe Bay (benthic productivity, high biodiversity, feeding, resting, breeding and nursery aggregation)</li> <li>• Commonwealth Waters around the Recherche Archipelago (high biodiversity, breeding, resting and aggregations)</li> </ul>

- Commonwealth waters adjacent to the Head of Bight (high productivity – pelagic, high biodiversity, feeding and resting aggregations)
- Western Rock Lobster – species of high ecological importance
- small pelagic fish – species of high ecological importance
- demersal slope fish communities of the Central Western Province – high importance to diversity
- benthic invertebrate communities of the eastern Great Australian Bight – communities with high species diversity.

North-west region

- carbonate banks in the Joseph Bonaparte Gulf – unique seafloor feature
- limestone pinnacles in the Bonaparte Depressions - unique seafloor feature
- canyons on the slope between Agro Abyssal Plain and Scott Plateau - unique seafloor feature, enhanced biological productivity and aggregations of marine life
- ancient coastline at 125 m contour - unique seafloor feature, enhanced biological productivity
- Exmouth Plateau - unique seafloor feature
- canyons and slope between Cuvier Abyssal Plain and Cape Range Peninsula - unique seafloor feature, enhanced biological productivity and aggregations of marine life
- Wallaby Saddle - unique seafloor feature.

However, the fishery is highly selective and relatively small-scale, there is no evidence to suggest any systematic change to species diversity or richness caused by the fishery, indicating fishing effort is not having a material impact on the food chain or trophic structure.

Large areas within the fishery boundaries are marine protected areas and closed to fishing, and the remaining areas have limited access for the small vessels used in the fishery. Therefore, the areas where fishing activity could potentially impact the ecosystem are limited.

**Part 13 – Species and communities**

Accreditable plan, regime or policy (Divisions 1, 2, 3, and 4)	Comment
<p>s. 208A (1) (a-e) , s.222A (1) (a-e), s.245 (1) (a-e), s.265 (1) (a-e)</p> <p>Does the fishery have an accreditable plan of management, regime or policy?</p>	<p><b>Meets</b></p> <p>Yes, there is an accreditable management regime. The fishery will be managed under licence conditions in force under the <i>Fish Resources Management Act 1994</i> (WA) and the Fish Resources Management Regulations 1995 (WA). The <i>Aquatic Resources Management Act 2016</i> (WA) will replace the FRM Act once enacted.</p>
Division 1 Listed threatened species, Section 208A Minister may accredit plans or regimes	Comment
<p>(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?</p>	<p><b>Meets</b></p> <p>Yes, there are specific measures in place to mitigate the risk to listed threatened species. The department considers that the management arrangements continue to require persons engaged in fishing under the plan to take all reasonable steps to ensure that listed threatened species are not killed or injured because of fishing.</p>
<p>(g) And, is the fishery likely to adversely affect the survival or recovery in nature of the species?</p>	<p><b>Meets</b></p> <p>No, due to the low fishing effort (hand-collection by divers) and the limited size of areas fished during a trip, protected species interactions in the fishery are reported as 'low' in the <i>Status reports of the Fisheries and Aquatic Resources of Western Australia 2020/2021</i>.</p> <p>The only reported interaction reported by divers is the interaction with sea snakes that are attracted by the harvesting process. Sea snakes are pushed or lured away from the area with fish while divers are working. Sea snakes are not harmed during the process.</p> <p>Additionally, a small take of Syngnathids is allowed under a WTO in state waters. The take of Leafy Sea Dragons is prohibited in commonwealth waters in accordance with Part 13 of the EPBC Act.</p> <p>Given the above, the department considers the current operation of the fishery is unlikely to adversely affect the survival or recovery in nature of any threatened species.</p>



	<p>The department therefore recommends that the management regime for the fishery be reaccredited under Part 13 of the EPBC Act.</p>
<p><b>Division 2 Migratory species, Section 222A Minister may accredit plans or regimes</b></p>	<p><b>Comment</b></p>
<p>(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?</p>	<p><b>Meets</b></p> <p>Yes, there are specific measures in place to mitigate the risk to listed migratory species. The department considers that the management arrangements continue to require persons engaged in fishing under the plan to take all reasonable steps to ensure that listed migratory species are not killed or injured because of fishing.</p>
<p>(g) And, is the fishery likely to adversely affect the conservation status of a listed migratory species or a population of that species?</p>	<p><b>Meets</b></p> <p>No, there have been no interactions with migratory species listed under Part 13 (e.g., migratory species or a population of that species).</p> <p>In WA commercial fishers are required (since 2005/06) to report any interactions with protected species (including listed migratory species) in their statutory fishing returns that are lodged with the Department. The Department publishes a summary of all fishery-protected species interactions annually.</p> <p>Due to the low fishing effort (hand-collection by divers) and the limited size of areas fished during a trip, protected species interactions in the fishery are reported as 'low',</p>

	<p>as indicated in the <i>Status reports of the Fisheries and Aquatic Resources of Western Australia 2020/2021</i>.</p> <p>The department considers the current operation of the fishery is not likely to adversely affect the conservation status of a listed migratory species or a population of that species.</p> <p>The department therefore recommends that the management regime for the fishery be reaccredited under Part 13 of the EPBC Act.</p>
<b>Division 3 Whales and other cetaceans, Section 245 Minister may accredit plans or regimes</b>	<b>Comment</b>
(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?	<p><b>Meets</b></p> <p>Yes, there are specific measures in place to mitigate the risk to cetaceans. The department considers that the management arrangements continue to require persons engaged in fishing under the plan to take all reasonable steps to ensure that listed migratory species are not killed or injured because of fishing.</p>
(g) And, is the fishery likely to adversely affect the conservation status of a species of cetacean or a population of that species?	<p><b>Meets</b></p> <p>No. There have been no reported interactions with cetaceans in the fishery.</p> <p>Due to the low fishing effort (hand-collection by divers) and the limited size of areas fished during a trip, protected species interactions in the fishery are reported as 'low', as indicated in the <i>Status reports of the Fisheries and Aquatic Resources of Western Australia 2020/2021</i>. The department considers the current operation of the fishery is not likely to adversely affect the conservation status of a species of cetacean or a population of that species.</p> <p>The department therefore recommends that the management regime for the fishery be reaccredited under Part 13 of the EPBC Act.</p>

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?	<p><b>Meets</b></p> <p>Yes, there are specific measures in place to mitigate the risk to listed marine species. The department considers that the management arrangements continue to require persons engaged in fishing under the plan to take all reasonable steps to ensure that listed migratory species are not killed or injured because of fishing.</p>
(g) And, is the fishery likely to adversely affect the conservation status of a listed marine species or a population of that species?	<p><b>Meets</b></p> <p>No. Due to the low fishing effort (hand-collection by divers) and the limited size of areas fished during a trip, protected species interactions in the fishery are reported as 'low', as indicated in the <i>Status reports of the Fisheries and Aquatic Resources of Western Australia 2020/2021</i>.</p> <p>However, the fishery does harvest <i>Hippocampus subelongatus</i> (Western Australian seahorse), which is a listed marine species. A current threshold catch limit of 2,000 specimens of <i>H. subelongatus</i> is in place. Most of the <i>H. subelongatus</i> are taken from one 10 x 10 nm block in waters around the Perth metropolitan region. Given this limited geographical spread of effort, there is the potential for localised stock depletions. This risk is exacerbated by several <i>Hippocampus</i> spp. characteristics, which are largely monogamous and have restricted population distributions.</p> <p>With increasing international scrutiny on Australia's trade in CITES listed species, it is important any future harvests of <i>H. subelongatus</i> are guided by suitable science and data. For this reason, the department considers an independent survey of <i>H. subelongatus</i> should be undertaken within the term of the upcoming wildlife trade operation.</p> <p>The department therefore recommends that the management regime for the fishery be reaccredited under Part 13 of the EPBC Act, but subject to the Part 13 condition recommended in section 2 of this report.</p>

Section 303AA Conditions relating to accreditation of plans, regimes and policies	Comment
<p>(1) This section applies to an accreditation of a plan, regime or policy under section 208A, 222A, 245 or 265.</p>	<p><b>Meets</b></p> <p>The department recommends the fishery’s management regime be reaccredited under sections 208A, 222A, 245 and 265, subject to the Part 13 condition outlined in section 2 of this report.</p>
<p>(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:</p> <ul style="list-style-type: none"> <li>(a) during a particular period; or</li> <li>(b) while certain circumstances exist; or</li> <li>(c) while a certain condition is complied with.</li> </ul> <p>In such a case, the instrument of accreditation is to specify the period, circumstances or condition.</p>	<p><b>Meets</b></p> <p>The management plan for the fishery was implemented in July 2019, and while the management arrangements have not significantly changed since this accreditation, the department has identified potential gaps in the fishery’s management arrangements regarding the harvest of <i>H. subelongatus</i> stocks (a listed marine species).</p> <p>The department considers that accreditation of the fishery should be subject to the Part 13 condition recommended in section 2 of this report.</p>
<p>(7) The Minister must, in writing, revoke an accreditation if he or she is satisfied that a condition of the accreditation has been contravened.</p>	<p><b>Not applicable.</b></p>

## Part 13A – International movement of wildlife specimens

Section 303BA Objects of Part 13A	
<p>(1) The objects of this Part are as follows:</p> <p>(a) to ensure that Australia complies with its obligations under CITES and the Biodiversity Convention;</p> <p>(b) to protect wildlife that may be adversely affected by trade;</p> <p>(c) to promote the conservation of biodiversity in Australia and other countries;</p> <p>(d) to ensure that any commercial utilisation of Australian native wildlife for the purposes of export is managed in an ecologically sustainable way;</p> <p>(e) to promote the humane treatment of wildlife;</p> <p>(f) to ensure ethical conduct during any research associated with the utilisation of wildlife; and</p> <p>(h) to ensure the precautionary principle is taken into account in making decisions relating to the utilisation of wildlife.</p>	<p><b>Meets</b></p> <p>The management arrangements for the fishery have been assessed as generally consistent with the general guidance provided in the objects of Part 13A as:</p> <ul style="list-style-type: none"> <li>the fishery has been assessed as meeting the Non-Detriment Finding requirements for species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) for the three-year term of accreditation, subject to conditions.</li> <li>there are management arrangements in place to ensure that the resource is being managed in an ecologically sustainable way</li> <li>the operation of the fishery is unlikely to be unsustainable and threaten biodiversity within the three-years</li> <li>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.</li> </ul>
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><b>Meets</b></p> <p>Given the fishery’s management arrangements in place to monitor and control the level of harvest of CITES species, the department considers the action or actions specified in the permit will not be detrimental to the survival of most taxa to which the specimen belongs. However, the department is concerned with some aspects of the management of CITES listed hard corals and <i>H. subelongatus</i> stocks in the fishery. These concerns have prompted the imposition of several conditions on this fishery.</p> <p>Only in the context of the three-year export accreditation and with the implementation of these conditions does the department consider the risk to CITES listed species sufficiently low to consider the fishery not to be detrimental to the survival of these species.</p> <p>Regular updates on progress toward these conditions and catch figures and trends is vital to monitor the status of CITES listed specimens harvested by the fishery.</p>

<p>(ii) the recovery in nature of any taxon to which the specimen belongs; or</p>	<p><b>Meets</b></p> <p>None of the CITES species harvested from the fishery are currently considered to be overfished. However, the department is concerned with the management of several species which have had their catch limits exceeded in the last two fishing seasons (2019/20 and 2020/21) - after the implementation of new management plan in July 2019.</p> <p>However, the department is concerned with some aspects of the management of CITES listed hard corals and <i>H. subelongatus</i> stocks in the fishery. These concerns have prompted the imposition of several conditions on this fishery.</p> <p>Only in the context of the three-year export accreditation and with the implementation of these conditions does the department consider the risk to CITES listed species sufficiently low to consider the fishery not to be detrimental to the survival of these species.</p> <p>Regular updates on progress toward these conditions and catch figures and trends is vital to monitor the status of CITES listed specimens harvested by the fishery.</p>
<p>(iii) any relevant ecosystem (for example, detriment to habitat or biodiversity); and</p>	<p><b>Meets</b></p> <p>Recognising the low-impact nature of the harvest, gear used (hand-held nets, hand-held instruments), and the small scale of the fishery, the potential for the fishery to impact unacceptably and unsustainably on any relevant ecosystem generally, is considered 'low'.</p>
<p><b>Section 303FN Approved wildlife trade operation</b></p>	<p><b>Comment</b></p>
<p>(2) The Minister may, by instrument published in the <i>Gazette</i>, declare that a specified wildlife trade operation is an <b>approved wildlife trade operation</b> for the purposes of this section.</p>	<p>Yes, the instrument to declare the fishery as an approved wildlife trade operation with Conditions, under section 303FN, will be registered on the Federal Register of Legislation and a link to the instrument made available through the department's website. Under subsection 56(1) of the <i>Legislation Act 2003</i> (CTH), registration on the FRL meets the requirements for gazettal.</p>
<p>(3) The Minister must not declare an operation as an approved wildlife trade operation unless the Minister is <b>satisfied</b> that:</p> <p>(a) the operation is consistent with the objects of Part 13A of the Act; and</p>	<p><b>Meets</b></p> <p>The fishery operation is consistent with Objects of 13A – see above assessment against the Guidelines.</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><b>Meets</b></p> <p>The fishery is consistent with Objects of 13A and unlikely to be detrimental to the survival or conservation status of a taxon to which it relates, nor will it threaten any relevant</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>ecosystem, within the next three years, given the management measures in place and agreed conditions in section 2 of this report.</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><b>Meets</b></p> <p>The Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations) do not specify fish or invertebrates as a class of animal in relation to the welfare of live specimens.</p> <p>Permits authorising the export of live fish or marine invertebrates harvested in the fishery will be issued with the inclusion of a permit condition relating to transport of live fish or marine invertebrates. Whilst this is not explicitly provided for under the EPBC Regulations, this decision would be consistent with the Objects of Part 13A of the EPBC Act. It would also meet the requirements stipulated by CITES Article III, IV and V and Resolution Conf. 10.21 (Rev. CoP16) on Transport 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><b>Meets</b></p> <p>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 <b>regard</b> 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><b>Meets – WTO Subject to conditions</b></p> <p>The fishery will not have a significant impact on any relevant ecosystem within the next three years, given the management measures currently in place.</p>
<p>(b) the effectiveness of the management arrangements for the operation (including monitoring procedures).</p>	<p><b>Meets</b></p> <p>The management arrangements that are employed for the fishery, as outlined in the assessment against the guidelines (above), are reasonably effective. When operating in accordance with the conditions outlined in section 2 of this report, the management arrangements are likely to be acceptable in the context of a three-year WTO.</p> <p>To increase the effectiveness of the management responses, the department considers the implementation of Conditions 5 to 8. These Conditions will reduce potential threats to the survival of harvested species until scientific robust information is obtained about the population abundance and distribution.</p>

<p>(5) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have <b>regard</b> 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><b>Meets</b></p> <p>The fishery is managed under the fishery’s management plan, the harvest strategy, under the state legislation <i>Fish Resources Management Act 1994</i> and the Fish Resources Management Regulations 1995. The <i>Aquatic Resources Management Act 2016 (WA)</i> will replace the existing Act once enacted.</p> <p>The <i>Fish Resources Management Act 1994</i> applies throughout WA waters.</p> <p>The department considers that the legislation is likely to be effective relating to the protection, conservation, or management of the specimens to which the operation relates is in force in the State or Territory concerned.</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><b>Meets</b></p> <p>The fishery is a commercial fishery.</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><b>Meets</b></p> <p>A public notice which sets out the proposal to declare the fishery an approved wildlife trade operation, and included the application from WA DPIRD, was released for public comment on 26 May 2022 to 1 July 2022 (over 20 business days).</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><b>Meets</b></p> <p>Two public comments on the proposal were received during the public consultation period. The first public comment from a fishing industry member expressed interest in adding 4 species (2 species of seahorses and 2 genus of hard corals) to the fishery's wildlife trade operation accreditation. This included the seahorse species - <i>Hippocampus montebelloensis</i>; <i>Hippocampus biocellatus</i>; and hard coral genus - <i>Heliofungia</i> spp. and <i>Acathophyllia</i> spp. They also indicated their support for the re-accreditation of the fishery as a wildlife trade</p> <p>The second submission was from a peak industry body, which supported the continued export approval of the fishery, while also seeking to highlight the overall sustainability of current harvest levels.</p> <p>The department's assessment has considered the public comments received on the submissions and addressed the concerns and requests.</p>
<p><b>Section 303FT Additional provisions relating to declarations</b></p>	<p><b>Comment</b></p>
<p>(1) This section applies to a declaration made under section 303FN, 303FO or 303FP.</p>	<p><b>Meets</b></p> <p>A declaration for the 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</p> <p>(b) while certain circumstances exist; or</p> <p>(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><b>Meets</b></p> <p>The standard conditions applied to commercial fishery wildlife trade operations include:</p> <ul style="list-style-type: none"> <li>• operation in accordance with the management regime</li> <li>• notifying the department of changes to the management regime</li> <li>• annual reporting in accordance with the requirements of the Australian Government <i>Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition</i>.</li> </ul> <p>The wildlife trade operation instrument for the fishery, specifies the standard and any additional conditions applied, over the specified period of three years. Further conditions specific to this wildlife trade operation are outlined in section 2 of this report.</p>
<p>(8) A condition may relate to reporting or monitoring.</p>	<p>In addition to a condition requiring annual reporting, Condition 5 requires the West Australian Department of Primary Industries and Regional Development to implement improved reporting requirements for coral species listed under CITES. The specifics of this are set out in Section 2 of this report.</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.	<b>Not applicable</b>
(11) A copy of an instrument under section 303FN, or this section is to be made available for inspection on the internet.	<b>Meets</b> The instrument for the fishery, made under sections 303FN and the conditions under section 303FT, will be registered as a notifiable instrument and made available through the department's website.

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

Section 391 Minister must consider precautionary principle in making decisions	Comment
<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><b>Meets</b></p> <p>Having regard to:</p> <ul style="list-style-type: none"> <li>management measures in place for the MAFMF, including the annual monitoring of stocks against prescribed performance measures, management strategies for overfished stocks, and the mitigation measures already in place to minimise risks to protected species</li> <li>the requirement under <i>Fish Resources Management Act 1994 (WA)</i> and <i>Fish Resources Management Regulations 1995 (Western Australia)</i>, or under the authority of an Exemption granted in accordance with Section 7 of the <i>Western Australian Fish Resources Management Act 1994</i> to be managed consistent with the precautionary principle</li> <li>the proposed conditions would form part of the declaration as an approved wildlife trade operation.</li> </ul> <p>The department considers the precautionary principle has been accounted for in the preparation of advice in relation to a decision under section 303DC and section 303FN. No threats of irreversible damage were determined to be present in this assessment. The department noted the absence of scientific data about population dynamics of species of concern in WA which is addressed in the conditions included in section 2 of this report.</p>

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