



Australian Government

Australian Fisheries Management Authority

Coral Sea Fishery

Aquarium Sector

Environmental Risk Assessment Scoping Documents

2025



Scoping Document S1 General Fishery Characteristics

Fishery Name: Coral Sea Fishery (CSF)

Date of assessment: November 2024

Assessor: ABARES

General fishery characteristics

Fishery Name

Coral Sea Fishery (CSF)

Sub-fisheries

There are four sectors in the CSF, based on fishing technique, which include:

1. Line Sector – demersal longline, trotlines, droplines, setlines and handlines (6 permits)
2. Sea Cucumber Sector – hand collection (2 permits)
3. Aquarium Sector – hand collection, barbless hook and line, scoop, cast and seine nets (2 permits)
4. Lobster and Trochus Sector – hand collection (2 permits).

Sub-fisheries assessed

Aquarium Sector

Start date/history

CSF logbooks have been kept since 1997. Logbooks data collection was managed by Fisheries Queensland until 2019 when this was taken over by AFMA.

Geographic extent of fishery

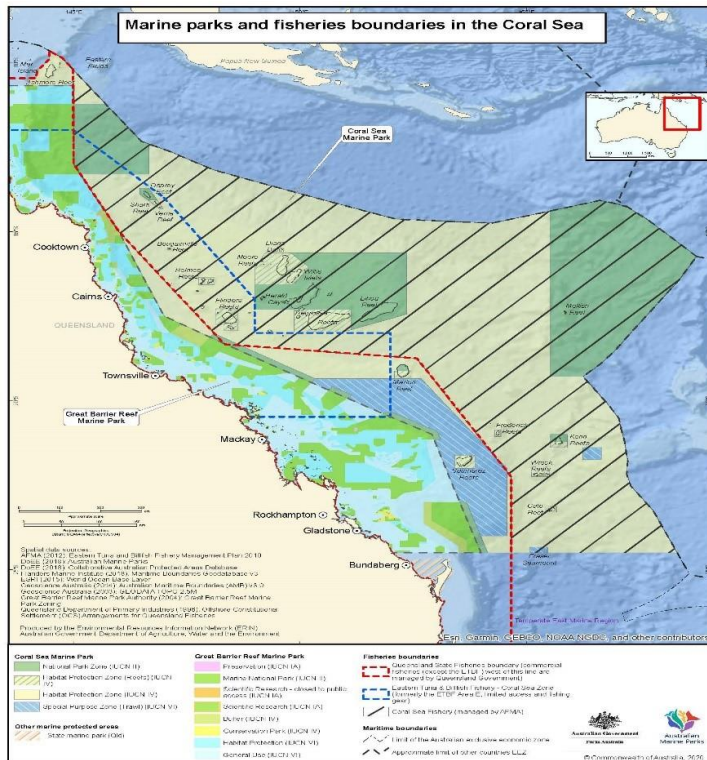


Figure 1.1. Map of Coral Sea Fishery extent

The CSF extends from Cape York to Sandy Cape in Queensland. It is bounded on the east by the Australian Fishing Zone and on the west by a boundary line 10 to 100 nm east of the boundary of the Great Barrier Reef Marine Park.

Regions or Zones within the fishery

The Aquarium Sector does not have prescribed regions or zones for management purposes.

In recent years, most of the fishing effort and catch occurred at *Holmes Reef, Flora Reef, and Flinders Reef*. The following locations have also been fished: *Arlington Reef, Boat Islet, Dart Shoal, Flinders Island, Hall-Thompson Reef, Ham Clay, Heart Reef, Herald Island, Home Islands, Jorgensen's Patch, Mai Island, Mid Mollie Island, Mid Reef, Moore Reef, North West Reef, Osprey Reef, Pellowe Reef, Shark Reef, Surprise Reef, Surprise Shoal, William Reef, and Willis Island*.

In 2018, *Osprey, Mellish, Lihou Reefs, Herald Cays and half of Marion and Kenn Reefs* were declared as national park zones within the Coral Sea Marine Park thereby prohibiting all commercial fishing activity, including by hand collection.

Fishing season

12-month season starting 1 July

Key/secondary commercial species and stock status

There are over 500 species caught within the Aquarium Sector. These include a range of species of groupers (*Serranidae*), wrasses (*Labridae*), damselfish (*Pomacentridae*), bristletooths, surgeonfish, tangs and unicorn fish (*Acanthuridae*), blennies (*Blenniidae*), gobies (*Gobiidae*), angel fish (*Pomacanthidae*), humphead Maori wrasses (*Cheilinus undulatus*), stony corals (*Acroporidae*) and live rock. Due to the vast number of species retained within this sector, no formal stock assessments have been conducted for these species in the Coral Sea.

The ABARES 2024 Fishery Status Report assessed the CSF Aquarium Sector as not overfished nor subject to overfishing, as the recent catches within the sector is likely to represent a small proportion of the estimated overall population and therefore is unlikely to affect the stock status.

Table 1.1: Biological status of the Coral Sea Fishery (Keller et al. 2024)

Status	2022		2023	
	Fishing mortality	Biomass	Fishing mortality	Biomass
Aquarium Sector (>500 species)	Not subject to overfishing	Not overfished	Not subject to overfishing	Not overfished

Bait collection and usage

Bait is used on a limited basis for some shark species, with pilchards purchased from a bait provider for this purpose.

Current entitlements

Fishers must hold a valid fishing permit to fish in the Coral Sea Fishery, which are transferable.

In the fishery there are currently:

12 fishing permits across the Line (6), Sea Cucumber (2), Aquarium (2), and Lobster and Trochus (2) sectors.

There was 1 active operator in the Aquarium Sector in 2023/24 fishing season.

Current and recent TACs, quota trends by method

Catch is managed via Level 1 and Level 2 triggers. The triggers are in place for the six key commercial Family groups in the Aquarium Sector of the CSF.

Note: Level 1 trigger is 0.02% and the Level 2 trigger is 0.04% of the minimum estimated stock size for each family group. No triggers have been exceeded in the Aquarium Sector since their introduction in the 2017/18 season.

All other species, Acroporidae, live rock, and humphead Maori wrasse have their own individual triggers, which are outlined below:

Other aquarium fish species:

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

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

Acroporidae:

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

Level 1 Catch Trigger: 20 tonnes.

Level 2 Catch Trigger: 40 tonnes.

Live rock:

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

Level 1 Catch Trigger: 20 tonnes.

Level 2 Catch Trigger: 40 tonnes.

Humphead Maori wrasse:

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

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

Level 2 Catch Trigger: 50 individuals.

There is also a reef level limit, with no more than 10 live specimens of humphead Maori wrasse able to be taken from any one reef in one fishing season (1 July – 30 June).

Current and recent fishery catch trends by method

Total catch for the previous three fishing seasons:

Table 1.2: Catch (numbers) in Aquarium Sector for previous three fishing seasons

Standard name	Family name	2021-22	2022-23	2023-24
Anthias	<i>Serranidae</i>	8,813	5,823	2,991
Wrasses, cleaner wrasses	<i>Labridae</i>	7,984	5,673	1,621
Humphead Maori wrasse	<i>Labridae</i>	6	5	8
Damselfish	<i>Pomacentridae</i>	4,800	4,085	705
Blue tang/ surgeonfish	<i>Acanthuridae</i>	3,004	4,023	573
Gobies	<i>Blenniidae & Gobiidae</i>	1,687	868	447
Angelfish, Pygmy Angels	<i>Pomacanthidae</i>	2,490	771	176
Total Aquarium Fish		30,721	31,297	17,109
Stony corals	<i>Acroporidae</i>	410kg	520kg	245kg
Live rock	N/A	2460kg	720kg	1710kg

Current and recent value of fishery (\$)

The GVP of the CSF is confidential due to the small number of operators. Given low levels of latency in the Aquarium Sector, net economic returns (NER) for this sector of the fishery are likely high.

Relationship with other fisheries

The CSF borders or shares common waters/boarders with Commonwealth, State and recreational fisheries, although direct interaction for common resources is negligible.

Commonwealth fisheries - Eastern Tuna and Billfish Fishery

Qld fisheries – Blue Swimmer Crab Fishery, East Coast Mud Crab Fishery, Spanner Crab Fishery, Coral Fishery, Marine Aquarium Fishery, Sea Cucumber Fishery, Crayfish and TRL Fishery, East Coast Inshore Fishery, East Coast Spanish Mackerel Fishery, Reef Line Fishery,

Recreational fisheries – Operators and management regard the interaction of these fisheries as insignificant.

Gear

Fishing methods and gear

Hand collection including cast, scoop and seine nets and handlines with barbless hooks may be used with or without the aid of an underwater breathing apparatus.

Fishing gear restrictions

1. This concession also authorises the act of herding fish into collection areas, this can include the use of cast, scoop and seine nets or handheld rod.
2. If fishing with a scoop net, the net must be no more than 2 metres in any direction, have a maximum mesh size of 28 millimetres and have a handle/shaft length of less than 2.5 metres.
3. If fishing with a cast net, the net must be no more than 6 metres in diameter and have a maximum mesh size of 28 millimetres.
4. If fishing with a seine net, the net must be no more than 16 metres in length, have a maximum mesh size of 28 millimetres and have a drop of less than 3 metres.
5. The size of the mesh is determined by measuring the distance between the innermost edges of two diagonally opposite knots of the mesh, while the two knots are pulled in opposite directions so that the twine is taut.
6. Live rock may only be taken by hand or by using handheld non-mechanical implements.
7. The holder must not use chemicals (including anesthetics) and/or explosives for the purposes of fishing.

Selectivity of fishing methods

Hand Collection is a highly selective method for the target species alone. Gear restrictions noted above.

Spatial gear zone set

Aquarium gear is set on rubble areas and reef fronts, as opposed to coral areas, principally to avoid damage to collection nets.

Depth range gear set

Limited to safe diving depths, i.e. less than 30 metres.

How gear is set

Aquarium gear is set and operated by hand. Fish are herded into barrier nets. Barrier nets are generally 6m in length, have a lead-line bottom and a float line on top. This method is very selective, with generally, one fish is targeted at a time.

Area of gear impact per set or shot

The impact of gear is minimal, with the following size restrictions in place for fishing gear:

- If fishing with a scoop net, the net must be no more than 2 metres in any direction, have a maximum mesh size of 28 millimetres and have a handle/shaft length of less than 2.5 metres.
- If fishing with a cast net, the net must be no more than 6 metres in diameter and have a maximum mesh size of 28 millimetres.
- If fishing with a seine net, the net must be no more than 16 metres in length, have a maximum mesh size of 28 millimetres and have a drop of less than 3 metres.

Capacity of gear

Net size described above.

Effort per annum all boats

Effort for the past three fishing seasons:

Year	Dive (hrs)	No. Dives
2023/24	1,469	313
2022/23	1,755	394
2021/22	1,843	365

Lost gear and ghost fishing

Not applicable due to the method of fishing.

Issues

Key/secondary commercial species issues and interactions

There are over 500 species caught within the Aquarium Sector, with no defined or easily discernible target species (see 'Key/secondary commercial species' above). As such, a single fishery-level stock is assumed for status determination purposes.

Over the last 7 years, marine heatwaves have increased in the Coral Sea and greater scrutiny of the sustainability of coral harvests from some importing countries has increased. Although the harvest limit for Acroporidae has been set based on conservative estimates of the growth of Acroporid corals, without harvest limits being set at either the species or genus level, there is a potential risk of overharvest of

individual species. However, while logbook reporting is only at the family level (due to the difficulty with species level identification at sea) operators are required to provide species level identification of Acroporidae catches to AFMA under current permit conditions.

Byproduct and bycatch issues and interactions

The CSF bycatch and discarding workplan was developed 2010 when the first round of ERAs was completed. Considering the fishing methods used in the fishery and the low effort, the risks to bycatch and protected species are low and are dealt with on a case-by-case basis if they do arise.

Protected species issues and interactions

Fishers are required to report all interactions with endangered, threatened or protected (ETP) species in their daily fishing logbooks. All interactions reported in logbooks are published quarterly on AFMA's website:

<https://www.afma.gov.au/sustainability-environment/protected-species-management/protected-species-interaction-reports>.

There have been no reported interactions with any ETP species in the CSF since 2018.

Habitat issues and interactions

Operators within the CSF describe the habitat as patchy, steep, with few banks present. There are a small number of reefs only (5-10 square miles in size) which are steep sided with large rocky outcrops/bombies rising high up on the reef sides. Generally, mother-boats anchor on sand and tender boats drift, but tenders in the Aquarium sub-fishery do also anchor, generally on the reefs.

Community issues and interactions

There are no listed Threatened Ecological Communities in the area of the CSF (DCCEEW Assessment of Commonwealth Coral Sea Fishery, 2024). Although 'move on' provisions are used in other sectors of the CSF, the current level and distribution of fishing effort does not warrant this form of management in the Aquarium Sector.

Discarding

Due to the highly selective fishing methods in the Aquarium Sector there is no discard.

Current and Planned Management Measures

Management objectives

- Avoid recruitment impairment of the key/secondary commercial, byproduct, bycatch, and protected species.
- Avoid negative consequences for the above species, including to population size, geographic range, genetic structure, age/size/sex structure, reproductive capacity, behaviour and movement.
- Take measures to minimise interactions with protected species; ensure protected species survival is maximised and that interactions do not affect the viability of the population its ability to recover.
- Avoid negative impacts on environmental quality including water, air, and substrate quality, habitat types, structure, and function.
- Avoid negative impacts on the community including species and functional group composition, distribution, and trophic structure.

Input controls

Input controls such as restricted permits, gear controls such as maximum net size/diameter, mesh size, net length, prohibition of chemical or explosive use.

Output controls

TACs have been set for Acroporidae corals, live rock, humphead Maori wrasse and the key aquarium fish species groups (Serranidae, Labridae, Pomacentridae, Acanthuridae, Blenniidae, Gobiidae and Pomacanthidae).

There are catch triggers in place for Acroporidae. A total of 40 t of coral from the Family Acroporidae can be harvested across all concessions. Since the implementation of the Coral Sea Fishery Aquarium Sector Harvest Strategy Framework 2019 AFMA has monitored this through catch triggers set at 20 t for Level 1 and 40 t for Level 2. As of 1 July 2024, AFMA have revised the Level 1 trigger for Acroporidae to include a limit of 15 t of *Acropora* spp.

Technical measures

Translocation mitigation policy of no fish to be returned to the water once caught.

Regulations

CSF vessels are required to conform to regulations of the International Convention for the Prevention of Pollution from Ships (MARPOL).

Initiatives, strategies and incentives

It is permitted for multiple licenses to be nominated to one vessel, which increases the incentive for operators to fish in the sector due to the offshore location of the fishery

(i.e. save on operational costs), while still ensuring that the catch limits of the fishery are not exceeded.

There is also an industry Code of Conduct for the Queensland Aquarium fishery, which doesn't officially apply to the CSF although the relevant practices within this are generally adhered to by operators in the CSF.

Enabling processes

It is now mandatory for operators to use electronic logbooks (e-logs) in the CSF, which became compulsory on 1 July 2024. CSF operators in the Aquarium Sector are also required to carry a scientific observer when requested by AFMA.

Other initiatives or agreements

Parks Australia have conducted annual Coral Sea Marine Park Health Surveys since 2021. These reports assess the status of ecological communities across various reefs, as well as the impacts of coral bleaching events. While these reports could provide benefit to the sustainable management of the CSF, they are not currently incorporated into the CSF's management. Additionally, due to the broader reef health objectives of these surveys within the marine park, they do not focus on all habitats and target stocks impacted of the CSF sectors.

Data

Logbook data

Logbooks are used to collect catch and effort data for fishing activity in the Aquarium Sector. Details include species, number of fish retained, number of fish discarded, location and time of each dive, type of gear used, amount of time fished, number of divers, and catch/release of protected species. Trigger reports of CSF catch and effort by species and sector within the fishery are produced annually and available on the AFMA website.

Observer data

There is no prescribed minimum observer coverage in the Aquarium Sector, due to the relatively low level of fishing effort in the CSF, with coverage being as directed by AFMA. However, within recent operational constraints, resource limitations and coverage priorities in other fisheries, AFMA attempts to get observer trip in the hand collection sectors of the CSF (Aquarium and Sea Cucumber sectors) as frequently as possible. In the 2023/24 fishing season, there was one observer trip totalling seven at-sea days and nine dives.

Other data

There is other data collected within the CSF area through other research projects undertaken (e.g. annual reef health surveys), although this is not specifically collected to support the management within the CSF Aquarium Sector.

Scoping Document S2 Unit of Analysis

Target species

This list was obtained by reviewing all available fishery literature, including logbook records, and through discussions with stakeholders. Logbook data is identified to family groupings only. Target species, obtained through discussions with the Aquarium Sector operators, are as agreed by the fishery.

Table 2.1. List of target species in CSF Aquarium Sector

CAAB	Family	Species name	Common name	Role
10114026	Spongiidae	<i>Hyattella intestinalis</i>	Sponge Head	Target
11232013	Invertebrate- anemone	<i>Entacmeae quadricolor</i>	Anemone-white	Target
11298905	Fungiidae	<i>Fungia spp.</i>	Mushroom Coral	Target
11298036	Fungiidae	<i>Heliofungia actiniformis</i>	Long Tentacle Mushroom	Target
11305081	Faviidae	<i>Oulophyllia/Favia/Platygyra spp.</i>	Brain Corals	Target
11320000	Dendrophylliidae	<i>Duncanopsamia spp.</i>	Tree Coral	Target
11325028	Poritidae	<i>Goniopora stocksii</i>	Golf Ball Coral	Target
11327000	Euphyllidae		Red Fan Coral	Target
11327000	Euphyllidae	<i>Phyllospongia lamellosa</i>	Sponge Fan	Target
11327000	Euphyllidae	<i>Distichopora spp.</i>	Orange Lace Coral	Target
11327000	Euphyllidae	<i>Galaxea spp.</i>	Galaxy Coral	Target
11327000	Euphyllidae	<i>Lobophyllia/Symphyllia spp.</i>	Lobed Coral	Target
11327000	Euphyllidae	<i>Physogyra spp.</i>	Bubble Coral	Target
11327000	Euphyllidae	<i>Plerogyra spp.</i>	Bubble Coral- large bubbles	Target
11327000	Euphyllidae	<i>Sarcophyton spp.</i>	Mushroom Soft Coral	Target
11327000	Euphyllidae	<i>Turbiaria spp.</i>	Cabbage Coral(yellow)	Target
11327000	Euphyllidae	<i>Xenia spp.</i>	Palm tree Zooanthid	Target
11327000	Euphyllidae	<i>Zoanthid sps</i>	Purple Carpet Zoanthid	Target
11327001	Euphyllidae	<i>Catalaphyllia jardenei</i>	Elegance Coral	Target
11327002	Euphyllidae	<i>Euphyllia ancora</i>	Hammerhead Coral	Target
11327003	Euphyllidae	<i>Euphyllia cristata</i>	Grape Coral	Target
11327004	Euphyllidae	<i>Euphyllia divisa</i>	Frogspawn Coral	Target
11327004	Euphyllidae	<i>Euphyllia divisa(Branching)</i>	Branching Frogspawn	Target
24155015	Cypraeidae	<i>Cypraea tigris</i>	Tiger Cowrie	Target
24222000	Conidae	<i>Conus sp</i>	Coneshell-poisonous	Target
25125000	Ophidiasteridae	<i>Assorted Starfish</i>	Assorted Starfish	Target
25125028	Ophidiasteridae	<i>Linckia larvigata</i>	Blue Starfish	Target
25247000	Echinodermatridae	<i>Echinometra sp.</i>	Short Spine Urchin	Target
25408031	Invertebrate	<i>Pseudocolochirus violaceus</i>	Sea Apple	Target
28725001	Stenopodidae	<i>Stenopus hispidus</i>	Banded Cleaner Shrimp	Target
28767026	Hippolytidae	<i>Lysmata amboinensis</i>	Redline Cleaner Shrimp	Target
28828004	Coenobitidae	<i>Coenobita perlatus</i>	Land/Strawberry Hermit Crabs	Target
37013003	Orectolobidae	<i>Orectolobus maculatus</i>	Ornate Wobbegongs	Target

37013006	Stegostomidae	<i>Stegostoma fasciatum</i>	Zebra Sharks	Target
37013010	Gynglymostomatidae	<i>Nebrius ferrugineus</i>	Tawny Nurse Shark	Target
37013011	Orectolobidae	<i>Eucrossorhinus dasypogon</i>	Tasseled Wobbegong	Target
37013014	Hemiscyllidae	<i>Hemiscyllium ocellatum</i>	Epualete Shark	Target
37018007	Carcharhinidae	<i>Carcharhinus plumbeus</i>	Sandbar/Brown Shark	Target
37018008	Carcharhinidae	<i>Carcharhinus falciformis</i>	Silky Shark	Target
37018027	Carcharhinidae	<i>Carcharhinus albimarginatus</i>	Silver Tip Shark	Target
37018029	Carcharhinidae	<i>Negaprion acutidens</i>	Australian Lemon Shark	Target
37018033	Carcharhinidae	<i>Carcharhinus amblyrhynchos</i>	Grey Reef sharks	Target
37018036	Carcharhinidae	<i>Carcharhinus melanopterus</i>	Black-tip Reef Shark	Target
37018038	Carcharhinidae	<i>Trienodon obesus</i>	Whitetip Reefshark	Target
37019002	Sphyrnidae	<i>Sphyrna mokarran</i>	Great hammerhead	Target
37026001	Rhinidae	<i>Rhynchobatos australiae</i>	White Spotted Guitarfish	Target
37027010	Rhinobatidae	<i>Rhinobatos typus.</i>	Giant Shovelnose	Target
37035004	Dasyatidae	<i>Dasyatis kuhlii</i>	Kuhl's Blue Spot Ray	Target
37035009	Dasyatidae	<i>Taeniura lymma</i>	Blue Spotted Ray	Target
37035011	Dasyatidae	<i>Pastinachus sephen</i>	Cowtail Ray	Target
37035017	Dasyatidae	<i>Taeniura meyeni</i>	Black Blotched Fantail Ray	Target
37035025	Dasyatidae	<i>Himantura jenkinsii</i>	Jenkins Whiptail Ray	Target
37035027	Dasyatidae	<i>Urogymnus asperrimus</i>	Thorny/Porcupine Ray	Target
37060015	Muraenidae	<i>Gymnothorax pictus</i>	Peppered Moray	Target
37060016	Muraenidae	<i>Gymnothorax favagineus</i>	Honeycomb Moray	Target
37060023	Muraenidae	<i>Echidna nebulosa</i>	Snowflake	Target
37060029	Muraenidae	<i>Gymnomuraena zebra</i>	Zebra Moray	Target
37060035	Muraenidae	<i>Gymnothorax fimbriatus</i>	Dark-Spotted Moray	Target
37060036	Muraenidae	<i>Gymnothorax flavimarginatus</i>	Yellow Margin Moray	Target
37060037	Muraenidae	<i>Gymnothorax fuscomaculatus</i>	Brown-spotted moray	Target
37060039	Muraenidae	<i>Gymnothorax javanica</i>	Giant Moray	Target
37060045	Muraenidae	<i>Gymnothorax meleagris</i>	Whitemouth Eel	Target
37060047	Muraenidae	<i>Gymnothorax nudivomer</i>	Peppered Moray	Target
37060053	Muraenidae	<i>Gymnothorax undulatus</i>	Undulated Moray	Target
37060058	Muraenidae	<i>Rhinomuraena quaesita</i>	Ribbon eel	Target
37067017	Heterocongridae	<i>Heteroconger hassi</i>	Spotted Garden eel	Target
37118023	Synodontidae	<i>Synodus variegatus</i>	Variegated Lizardfish	Target
37192002	Plotosidae	<i>Plotosus lineatus</i>	Coral/striped Catfish	Target
37205002	Batrachoididae	<i>Halophryne diemensis</i>	Banded Toadfish / Frogfish	Target
37210000	Antennariidae	<i>Antennarius sp.</i>	Anglerfish species	Target
37210003	Antennariidae	<i>Tathicarpus butleri</i>	Butler's Frogfish	Target
37210025	Antennariidae	<i>Histrio histrio</i>	Sargassumfish	Target
37260001	Anamalopidae	<i>Anomalops katoptron</i>	Two-Fin Flashlight Fish	Target
37260002	Anamalopidae	<i>Photoblepharon palpebrates</i>	One-Fin Flashlight Fish	Target
37261000	Holocentridae	<i>Myripristis sps</i>	Soldierfish	Target
37261001	Holocentridae	<i>Sargocentron rubrum</i>	Redcoat Squirrelfish	Target
37261002	Holocentridae	<i>Myripristis murdjan</i>	Blotcheye Soldierfish	Target
37261013	Holocentridae	<i>Myripristis pralinia</i>	Scarlet Soldierfish	Target

37261015	Holocentridae	<i>Myripristis vittata</i>	Red Soldierfish	Target
37261019	Holocentridae	<i>Neoniphon sammara</i>	Spotfin Squirrelfish	Target
37261020	Holocentridae	<i>Plectrypops lima</i>	Roughscale Soldierfish	Target
37261022	Holocentridae	<i>Sargocentron caudimaculatum</i>	Whitetail/Tailspot Squirrelfish	Target
37261023	Holocentridae	<i>Sargocentron diadema</i>	Crown Squirrelfish	Target
37261024	Holocentridae	<i>Sargocentron ittodai</i>	Samurai Squirrelfish	Target
37261026	Holocentridae	<i>Sargocentron melanospilos</i>	Blackspot Squirrelfish	Target
37261029	Holocentridae	<i>Sargocentron spiniferum</i>	Sabre Squirrelfish	Target
37261030	Holocentridae	<i>Sargocentron tiere</i>	Bluestripe/Tahitian Squirrelfish	Target
37261031	Holocentridae	<i>Sargocentron tiereoides</i>	Red Squirrelfish	Target
37261032	Holocentridae	<i>Sargocentron violaceum</i>	Violet Squirrelfish	Target
37261033	Holocentridae	<i>Sargocentron cornutum</i>	Threespot Squirrelfish	Target
37277001	Aulostomidae	<i>Aulostomus chinensis</i>	Trumpetfish	Target
37280003	Centriscidae	<i>Aeoliscus strigatus</i>	Razor Fish/Shrimp Fish	Target
37281065	Scorpaenidae	<i>Rhinopias aphanes</i>	Lacey Scorpionfish	Target
37287010	Pteroidae	<i>Dendrochirus brachypterus</i>	Dwarf Lionfish	Target
37287012	Pteroidae	<i>Pterois russelli</i>	Russel's Lionfish	Target
37287026	Pteroidae	<i>Dendrochirus zebra</i>	Zebra lionfish	Target
37287028	Synanceiidae	<i>Inimicus didactylus</i>	Spiny Devilfish	Target
37287040	Pteroidae	<i>Pterois volitans</i>	Common lionfish/Butterfly cod	Target
37287064	Pteroidae	<i>Pterois antennata</i>	Spotfin lionfish	Target
37287081	Scorpaenidae	<i>Scorpaenopsis diabolous</i>	Devil Scorpionfish	Target
37287087	Scorpaenidae	<i>Sebastapistes cyanostigma</i>	Yellow-Spotted Scorpionfish	Target
37287090	Scorpaenidae	<i>Taenianotus triacanthus</i>	Leaf Scorpionfish	Target
37287095	Pteroidae	<i>Dendrochirus biocellatus</i>	Fu Manchu	Target
37287940	Scorpaenidae	<i>Scorpaenopsis sp.</i>	Scorpion Fish Species	Target
37289001		<i>Caracanthus maculatus</i>	Spotted Croucher	
37311008	Serranidae	<i>Cephalopholis boenak</i>	Brown-barred Rock Cod	Target
37311014	Serranidae	<i>Epinephelus fasciatus</i>	Black-tipped Rock Cod	Target
37311021	Serranidae	<i>Epinephelus fuscoguttatus</i>	Flowery Cod	Target
37311026	Serranidae	<i>Variola albimarginata</i>	Lyretail Trout	Target
37311044	Serranidae	<i>Cromileptes altivelis</i>	Barramundi Cod	Target
37311045	Holocentridae	<i>Cephalopholis sonnerati</i>	Tomato/Coral Rockcod	Target
37311047	Serranidae	<i>Epinephelus polyphkadion</i>	Camouflage Rockcod	Target
37311063	Serranidae	<i>Epinephelus merra</i>	Honeycomb Grouper	Target
37311068	Serranidae	<i>Epinephelus tukula</i>	Potato Cod	Target
37311069	Serranidae	<i>Epinephelus ongus</i>	Speckled Rock Cod	Target
37311078	Serranidae	<i>Plectropomus leopardus</i>	Coral Trout	Target
37311079	Serranidae	<i>Plectropomus laevis</i>	Footballer Trout	Target
37311081	Serranidae	<i>Plectropomus areolatus</i>	Squaretail Coral Trout	Target
37311082	Serranidae	<i>Cephalopholis argus</i>	Peacock Rock Cod	Target
37311083	Serranidae	<i>Cephalopholis miniata</i>	Coral Grouper	Target
37311085	Serranidae	<i>Anyperodon leucogrammicus</i>	White Lined Rock Cod	Target
37311094	Serranidae	<i>Pseudanthias hypselosoma</i>	Pink Basslet/Stocky Anthias	Target
37311104	Serranidae/Anthiinae	<i>Luzonichthys waitei</i>	Waite's Splitfin	Target

37311112	Serranidae	<i>Pseudanthias bicolor</i>	Yellowback Basslet/Bicolor Anthias	Target
37311113	Serranidae/Anthiinae	<i>Pseudanthias cooperi</i>	Flame Basslet	Target
37311114	Serranidae/Anthiinae	<i>Pseudanthias dispar</i>	Redfin Anthias	Target
37311117	Serranidae	<i>Pseudanthias hutchi</i>	Pacific Basslet/Threadfin Anthias	Target
37311119	Serranidae/Anthiinae	<i>Pseudanthias lori</i>	Lori's Anthias	Target
37311121	Serranidae	<i>Mirolabrichthys pascalus</i>	Sailfin Queen	Target
37311122	Serranidae	<i>Pseudanthias pictilus</i>	Painted Basslet/Anthias	Target
37311123	Serranidae	<i>Pseudanthias pleurotaenia</i>	Mirror Basslet	Target
37311124	Serranidae	<i>Pseudanthias rubrizonatus</i>	Lilac-tip Basslet	Target
37311126	Serranidae	<i>Pseudanthias squamipinnis</i>	Orange basslet	Target
37311126	Serranidae/Anthiinae	<i>Pseudanthias squamipinnis</i>	Scalefin Anthias	Target
37311127	Serranidae	<i>Mirolabrichthys tuka</i>	Purple queen	Target
37311128	Serranidae/Anthiinae	<i>Pseudanthias ventralis</i>	Longfin Anthias	Target
37311130	Serranidae/Anthiinae	<i>Serranocirrhitis latus</i>	Sunrise Anthias	Target
37311136	Serranidae	<i>Cephalopholis cyanostigma</i>	Blue-spotted Rock Cod	Target
37311138	Serranidae	<i>Cephalopholis leopardus</i>	Leopard Rockcod	Target
37311140	Serranidae	<i>Cephalopholis sexmaculata</i>	Saddle Grouper	Target
37311142	Serranidae	<i>Cephalopholis urodeta</i>	Flagtail Rockcod	Target
37311156	Serranidae	<i>Gracila albomarginata</i>	Masked Grouper	Target
37311166	Serranidae	<i>Variola louti</i>	Lyretail Trout	Target
37312002	Serranidae	<i>Diploprion bifasciatum</i>	Barred Soapfish	Target
37312005	Serranidae	<i>Belonoperca chabanaudi</i>	Blue Arrowhead Soapfish	Target
37312006	Serranidae	<i>Grammistes sexlineatus</i>	Sixline Soapfish	Target
37313005	Pseudochromidae	<i>Pseudochromis flammicauda</i>	Firetail Dottyback	Target
37313006	Pseudochromidae	<i>Pseudochromis fuscus</i>	Yellow/Dusky Dottyback	Target
37313013	Pseudochromidae	<i>Cypho purpurascens</i>	McCulloch's Dottyback	Target
37313014	Pseudochromidae	<i>Ogilbyina queenslandiae</i>	Longfin Dottyback	Target
37313016	Pseudochromidae	<i>Pseudochromis cyantaenia</i>	Bluestriped Dottyback	Target
37313017	Pseudochromidae	<i>Ogilbyina velifera</i>	Longfin Dottyback	Target
37316004	Plesiopidae	<i>Assessor macneilli</i>	Blue Scissortail/Assessor	Target
37316005	Plesiopidae	<i>Calloplediops alteivelis</i>	Comet	Target
37326005	Priacanthidae	<i>Priacanthus hamrur</i>	Red Bigeye	Target
37326012	Priacanthidae	<i>Priacanthus blochii</i>	Bloch's Bigeye	Target
37327000	Apogonidae	<i>Apogon sp.</i>	Cardinal fish	Target
37327020	Apogonidae	<i>Apogon aureus</i>	Ring-Tailed Cardinal Fish	Target
37327049	Apogonidae	<i>Apogon compressus</i>	Blue-eye Cardinalfish	Target
37327052	Apogonidae	<i>Apogon cyanosoma</i>	Goldline Cardinalfish	Target
37327057	Apogonidae	<i>Apogon fraenatus</i>	Spur-Cheek Cardinal Fish	Target
37327065	Apogonidae	<i>Apogon leptacanthus</i>	Longspine Cardinalfish	Target
37327072	Apogonidae	<i>Apogon properupta</i>	Coral Cardinalfish	Target
37327073	Apogonidae	<i>Apogon sangiensis</i>	Assorted Cardinalfish	Target
37327082	Apogonidae	<i>Archamisa fucata</i>	Redlined Cardinal	Target
37327083	Apogonidae	<i>Archamia leai</i>	Lea's Cardinal Fish	Target
37327089	Apogonidae	<i>Cheilodipterus macrodon</i>	Tiger Cardinal Fish	Target
37327090	Apogonidae	<i>Cheilodipterus quinquelineatus</i>	Five-Lined Cardinal Fish	Target

37327092	Apogonidae	<i>Cheilodipterus parazonatus</i>	Mimic Cardinal Fish	Target
37330101	Malacanthidae	<i>Malacanthus latovittatus</i>	Blue Blanquillo	Target
37331008	Malacanthidae	<i>Hoplolatilus starcki</i>	Starck's tilefish	Target
37331009	Malacanthidae	<i>Malacanthus brevisrostris</i>	Flagtail Blanquillo	Target
37336001	Echeneidae	<i>Echeneis naucrates</i>	Suckerfish / Remora	Target
37337012	Carangidae	<i>Gnathanodon speciosus</i>	Golden Trevally	Target
37337027	Carangidae	<i>Caranx ignobilis</i>	Giant Trevally / Turrum	Target
37337029	Carangidae	<i>Elagatis bipinnulatus</i>	Rainbow Runner	Target
37337039	Carangidae	<i>Caranx sexfasciatus</i>	Big-eye Trevally	Target
37337050	Carangidae	<i>Caranx melampygus</i>	Bluefin Trevally	Target
37337074	Carangidae	<i>Trachinotus bailloni</i>	Black-Spotted Dart	Target
37337075	Carangidae	<i>Trachinotus blochii</i>	Snub-Nosed Dart	Target
37346004	Lutjanidae	<i>Lutjanus sebae</i>	Red Emperor	Target
37346011	Lutjanidae	<i>Lutjanus carponotatus</i>	Stripey / Spanish Flag	Target
37346012	Lutjanidae	<i>Lutjanus sp.</i>	Assorted Perch	Target
37346015	Lutjanidae	<i>Lutjanus argentimaculatus</i>	Mangrove Jack	Target
37346017	Lutjanidae	<i>Symphorus nematophorus</i>	Chinamanfish	Target
37346028	Lutjanidae	<i>Lutjanus gibbus</i>	Paddletail	Target
37346029	Lutjanidae	<i>Lutjanus bohar</i>	Red Bass	Target
37346033	Lutjanidae	<i>Lutjanus adetii</i>	Hussar	Target
37346034	Lutjanidae	<i>Lutjanus fulviflamma</i>	Black-Spot Snapper	Target
37346037	Caesionidae	<i>Caesio teres</i>	Blue & Gold Fusilier	Target
37346043	Lutjanidae	<i>Lutjanus fulvus</i>	Yellow Margined Seaperch	Target
37346044	Lutjanidae	<i>Lutjanus kasmira</i>	Bluestripped Snapper	Target
37346047	Lutjanidae	<i>Macolor macularis</i>	Midnight Snapper	Target
37346048	Lutjanidae	<i>Macolor niger</i>	Black beauty/ black-&-white snapper	Target
37346065	Lutjanidae	<i>Lutjanus russelli</i>	Moses Perch	Target
37346068	Caesionidae	<i>Pterocaesio marri</i>	Marr's Fusilier	Target
37347006	Nemipteridae	<i>Scalopsis monogramma</i>	Colourful Monacle Bream	Target
37347031	Nemipteridae	<i>Scolopsis bilineatus</i>	Threadfin/Monocle Bream	Target
37350014	Haemulidae	<i>Plectorhinchus chaetodonoides</i>	Clown Sweetlip - Juvenile	Target
37350020	Haemulidae	<i>Plectorhinchus lessonii</i>	Striped Sweetlip	Target
37350022	Haemulidae	<i>Plectorhinchus lineatus/goldmani</i>	Diagonal Banded Sweetlip	Target
37350023	Haemulidae	<i>Plectorhinchus picus</i>	Panda Sweetlip - Adult	Target
37351008	Lethrinadae	<i>Lethrinus nebulosus</i>	Spangled Emperor	Target
37351009	Lethrinadae	<i>Lethrinus miniatus</i>	Red-Throat Emperor	Target
37351020	Lethrinadae	<i>Lethrinus xanthochilus</i>	Yellowlip Emperor	Target
37351021	Lethrinidae	<i>Gnathodentex aureolineatus</i>	Gold-lined/goldspot Seabream	Target
37351026	Lethrinadae	<i>Monotaxis grandoculis</i>	Big-Eye Bream	Target
37355000	Mullidae	<i>Parupeneus sps</i>	Goatfish	Target
37355005	Mullidae	<i>Parupeneus indicus</i>	Indian Goatfish	Target
37355006	Mullidae	<i>Parupeneus sp.</i>	Assorted Goatfish	Target
37355014	Mullidae	<i>Upeneus tragula</i>	Freckled Goatfish	Target
37355015	Mullidae	<i>Parupeneus spilurus</i>	Blackspot Goatfish	Target
37355020	Mullidae	<i>Mulloidichthys vanicolensis</i>	Yellowfin Goatfish	Target

37355021	Mullidae	<i>Parupeneus barberinoides</i>	Bicolor Goatfish	Target
37355022	Mullidae	<i>Parupeneus barberinus</i>	Dash-Dot Goatfish	Target
37355024	Mullidae	<i>Parupeneus ciliatus</i>	Cardinal Goatfish	Target
37355025	Mullidae	<i>Parupeneus cyclostomus</i>	Yellow gostfish	Target
37355026	Mullidae	<i>Parupeneus multifasciatus</i>	Manybar Goatfish	Target
37355027	Mullidae	<i>Parupeneus pleurostigma</i>	Sidespot Goatfish	Target
37362004	Ephippidae	<i>Platax teira</i>	Teira Batfish	Target
37362006	Ephippidae	<i>Platax pinnatus</i>	Pinate Batfish	Target
37362007	Ephippidae	<i>Platax orbicularis</i>	Orbicular Batfish	Target
37365003	Chaetodontidae	<i>Parachaetodon ocellatus</i>	Ocellated Coralfish/Butterflyfish	Target
37365005	Chaetodontidae	<i>Heniochus diphreutes</i>	Schooling Bannerfish	Target
37365013	Chaetodontidae	<i>Chaetodon aureofasciatus</i>	Golden Striped Butterfly	Target
37365014	Pomacanthidae	<i>Pomacanthus imperator</i>	Emperor angelfish	Target
37365016	Pomacanthidae	<i>Apolemichthys trimaculatus</i>	Flagfin Angel	Target
37365019	Chaetodontidae	<i>Chaetodon auriga</i>	Threadfin Butterflyfish	Target
37365022	Pomacanthidae	<i>Centropyge bicolor</i>	Bicolor Angel	Target
37365023	Pomacanthidae	<i>Centropyge bispinosis</i>	Coral beauty	Target
37365025	Pomacanthidae	<i>Centropyge flavicauda</i>	White-tail Angel	Target
37365026	Pomacanthidae	<i>Centropyge flavissimus</i>	Lemonpeel Angelfish	Target
37365027	Pomacanthidae	<i>Centropyge woodheadi</i>	Blackfin Angelfish	Target
37365027	Pomacanthidae	<i>Centropyge heraldi</i>	Yellow/Herald's Angel	Target
37365028	Pomacanthidae	<i>Centropyge loricula</i>	Flame Angelfish	Target
37365029	Pomacanthidae	<i>Centropyge multifasciatus</i>	Multi-Barred Angelfish	Target
37365030	Pomacanthidae	<i>Centropyge nox</i>	Midnight Angel	Target
37365031	Pomacanthidae	<i>Centropyge tibicen</i>	Keyhole Angel	Target
37365032	Pomacanthidae	<i>Centropyge vrolikii</i>	Pearscale Angel	Target
37365034	Chaetodontidae	<i>Chaetodon baronessa</i>	Triangular Butterfly	Target
37365035	Chaetodontidae	<i>Chaetodon bennetti</i>	Bennet's Butterflyfish	Target
37365036	Chaetodontidae	<i>Chaetodon citrinellus</i>	Speckled Butterfly	Target
37365037	Chaetodontidae	<i>Chaetodon ephippium</i>	Saddlebacked Butterfly	Target
37365038	Chaetodontidae	<i>Chaetodon flavirostris</i>	Black Butterflyfish	Target
37365040	Chaetodontidae	<i>Chaetodon klenii</i>	Klein's Butterfly	Target
37365041	Chaetodontidae	<i>Chaetodon lineolatus</i>	Lined Butterfly	Target
37365042	Chaetodontidae	<i>Chaetodon lunula</i>	Raccoon Butterfly	Target
37365043	Chaetodontidae	<i>Chaetodon melanotus</i>	Blackback Butterfly	Target
37365044	Chaetodontidae	<i>Chaetodon mertensii</i>	Merten's Butterfly	Target
37365045	Chaetodontidae	<i>Chaetodon meyeri</i>	Meyers Butterflyfish	Target
37365046	Chaetodontidae	<i>Chaetodon ocellicaudus</i>	Spot-Tail	Target
37365047	Chaetodontidae	<i>Chaetodon ornatissimus</i>	Ornate Butterfly	Target
37365049	Chaetodontidae	<i>Chaetodon pelewensis</i>	Dot & Dash Butterfly	Target
37365050	Chaetodontidae	<i>Chaetodon plebeius</i>	Sunrise/bluespot butterflyfish	Target
37365051	Chaetodontidae	<i>Chaetodon punctatofasciatus</i>	Spot-banded Butterflyfish	Target
37365052	Chaetodontidae	<i>Chaetodon rafflesi</i>	Laticed Butterfly	Target
37365053	Chaetodontidae	<i>Chaetodon rainfordi</i>	Rainford's Butterflyfish	Target
37365054	Chaetodontidae	<i>Chaetodon reticulatus</i>	Reticulate butterflyfish	Target

37365055	Chaetodontidae	<i>Chaetodon semeion</i>	Golden Butterflyfish	Target
37365056	Chaetodontidae	<i>Chaetodon speculum</i>	Speculum Butterflyfish	Target
37365058	Chaetodontidae	<i>Chaetodon trifascialis</i>	Chevroned Butterfly	Target
37365060	Chaetodontidae	<i>Chaetodon ulietensis</i>	Double-saddled Butterfly	Target
37365061	Chaetodontidae	<i>Chaetodon unimaculatus</i>	Teardrop Butterfly	Target
37365062	Chaetodontidae	<i>Chaetodon vagabudus</i>	Vagabond Butterfly	Target
37365068	Chaetodontidae	<i>Forcipiger flavissimus</i>	Yellow longnose/forceps fish	Target
37365069	Chaetodontidae	<i>Forcipiger longitrosus</i>	Extralongnose Butterflyfish	Target
37365070	Pomacanthidae	<i>Genicanthus lamarck</i>	Blackstriped Genicanthus	Target
37365071	Pomacanthidae	<i>Genicanthus melanospilos</i>	Melanospilos/swallowtail angelfish	Target
37365073	Pomacanthidae	<i>Genicanthus watanabe</i>	Watanabes angelfish	Target
37365074	Chaetodontidae	<i>Hemitaurichthys polylepis</i>	Pyramid	Target
37365075	Chaetodontidae	<i>Heniochus chrysostomus</i>	Bannerfish	Target
37365076	Chaetodontidae	<i>Heniochus monoceros</i>	Monoceros Bannerfish	Target
37365077	Chaetodontidae	<i>Heniochus singularis</i>	Singular Bannerfish	Target
37365078	Chaetodontidae	<i>Heniochus varius</i>	Humphead/Horned Bannerfish	Target
37365080	Pomacanthidae	<i>Pomacanthus semicirculatus</i>	Blue/Semicircle Angel	Target
37365082	Pomacanthidae	<i>Pygoplites diacanthus</i>	Regal Angelfish	Target
37372000	Pomacentridae	<i>Neoglyphidodon cyanomos</i>	Regal Damsel	Target
37372000	Pomacentridae	<i>Pomacentrus sp</i>	Yellow Damsel	Target
37372015	Pomacentridae	<i>Acanthochromis polyacanthus</i>	Spiny Chromis	Target
37372016	Pomacentridae	<i>Amblyglyphidodon aureus</i>	Golden Damsel	Target
37372017	Pomacentridae	<i>Amblyglyphidodon curacao</i>	Staghorn Damsel	Target
37372018	Pomacentridae	<i>Amblyglyphidodon leucogaster</i>	Yellowfin Staghorn Damsel	Target
37372020	Pomacentridae	<i>Amphiprion akindynos</i>	Brown Clowns	Target
37372021	Pomacentridae	<i>Amphiprion chrysopterus</i>	Blue stripped (orange fin) clown	Target
37372024	Pomacentridae	<i>Amphiprion melanopus</i>	Tomato (blackback) clown	Target
37372027	Pomacentridae	<i>Amphiprion perideraion</i>	Pink anemonefish/Skunk Clowns	Target
37372027	Pomacentridae	<i>Amphiprion perideraion</i>	Skunk (pink) clown	Target
37372034	Pomacentridae	<i>Chromis amboinensis</i>	Ambon Chromis	Target
37372043	Pomacentridae	<i>Chromis iomelas</i>	Bicolour chromis	Target
37372047	Pomacentridae	<i>Chromis margaritifer</i>	Bicolor Chromis	Target
37372051	Pomacentridae	<i>Chromis ternatensis</i>	Ternate Chromis	Target
37372052	Pomacentridae	<i>Chromis vanderbilti</i>	Vanderbilt's Chromis	Target
37372053	Pomacentridae	<i>Chromis viridus</i>	Green Chromis	Target
37372058	Pomacentridae	<i>Chrysiptera biocellata</i>	Twospot Demoiselle	Target
37372060	Pomacentridae	<i>Chrysiptera cyanea</i>	Orange Tail Blue Damsels	Target
37372064	Pomacentridae	<i>Chrysiptera brownriggii</i>	Surge Damsel	Target
37372067	Pomacentridae	<i>Chrysiptera rollandi</i>	Rolland's Demoiselle	Target
37372068	Pomacentridae	<i>Chrysiptera starcki</i>	Starck's Damsel	Target
37372069	Pomacentridae	<i>Chrysiptera talboti</i>	Talbots Damsel	Target
37372070	Pomacentridae	<i>Chrysiptera taupou</i>	Fiji Damsel	Target
37372071	Pomacentridae	<i>Chrysiptera tricineta</i>	Browntail Humbug Damsel	Target
37372073	Pomacentridae	<i>Dascyllus aruanus</i>	Banded Humbug Damsel	Target
37372074	Pomacentridae	<i>Dascyllus reticulatus</i>	Reticulated Damsel	Target

37372075	Pomacentridae	<i>Dascyllus trimaculatus</i>	Domino (threespot) damsel	Target
37372082	Pomacentridae	<i>Lepidozygus tapeinosoma</i>	Purple Fusilier Damsel	Target
37372084	Pomacentridae	<i>Neoglyphidodon melas</i>	Bowtie Damsel	Target
37372085	Pomacentridae	<i>Neoglyphidodon nigroris</i>	Honey Damsel	Target
37372087	Pomacentridae	<i>Neopomacentrus azysron</i>	Yellowtail Damsel	Target
37372101	Pomacentridae	<i>Plectroglyphidodon lacrymatus</i>	Jewel Damsel	Target
37372106	Pomacentridae	<i>Pomacentrus amboinensis</i>	Yellow Ambon Damsel	Target
37372108	Pomacentridae	<i>Pomacentrus bankanensis</i>	Fire Damsel	Target
37372109	Pomacentridae	<i>Pomacentrus brachialis</i>	Charcoal Damsel	Target
37372111	Pomacentridae	<i>Pomacentrus coelestis</i>	Neon Damsels	Target
37372118	Pomacentridae	<i>Pomacentrus moluccensis.</i>	Lemon Damsel	Target
37372122	Pomacentridae	<i>Pomacentrus pavo</i>	Blue Chromis	Target
37372126	Pomacentridae	<i>Pomacentrus vaiuli</i>	Princess Damsel	Target
37372128	Pomacentridae	<i>Pomachromis richardsoni</i>	Richardon's Damsel	Target
37372129	Pomacentridae	<i>Premnas biocellaris pr</i>	Maroon Anemonefish	Target
37372901	Pomacentridae	<i>Abudefduf sp.</i>	Sergeant Major	Target
37374002	Cirrhitidae	<i>Amblycirrhitus bimaculata</i>	Twinspot Hawkfish	Target
37374003	Cirrhitidae	<i>Cirrhitichthys falco</i>	Pixie/dwarf hawk	Target
37374004	Cirrhitidae	<i>Cirrhitichthys oxycephalus</i>	Freckled/spotted hawk	Target
37374006	Cirrhitidae	<i>Cyprinocirrhites polyactis</i>	Swallowtail Hawkfish	Target
37374007	Cirrhitidae	<i>Neocirrhites armatus</i>	Flame hawk	Target
37374008	Cirrhitidae	<i>Oxycirrhites typus</i>	Longnose Hawkfish	Target
37374009	Cirrhitidae	<i>Paracirrhites arcatus</i>	Arceye/ringeye hawk	Target
37374010	Cirrhitidae	<i>Paracirrhites forsteri</i>	Fosters/freckled hawk	Target
37384000	Labridae	<i>Oxycheilinus sp</i>	Pink Maori Wrasse	Target
37384028	Labridae	<i>Labroides dimidiatus</i>	Cleaner wrasse	Target
37384032	Labridae	<i>Halichoeres melanurus</i>	Bluetail	Target
37384033	Labridae	<i>Pteragogus cryptus</i>	Redstriped Cryptic Wrasse	Target
37384038	Labridae	<i>Cheilinus undulatus</i>	Humphead Moari Wrasse	Target
37384044	Labridae	<i>Cheilinus trilobatus</i>	Tripletail Maori Wrasse	Target
37384045	Labridae	<i>Anampses caeruleopunctatus</i>	Blue Spotted Wrasse	Target
37384047	Labridae	<i>Anampses femininus</i>	Femininus Wrasse	Target
37384049	Labridae	<i>Anampses meleagrides</i>	Speckled/Guinea Fowl Wrasse	Target
37384050	Labridae	<i>Anampses neoguinaicus</i>	China/blackback wrasse	Target
37384051	Labridae	<i>Anampses twistii</i>	Yellowbreasted Wrasse	Target
37384052	Labridae	<i>Bodianus anthioides</i>	Lyre Tail Hogfish	Target
37384053	Labridae	<i>Bodianus axilaris</i>	Coral pigfish/Axilspot Hogfish	Target
37384055	Labridae	<i>Bodianus bimaculatus</i>	Twospot Hogfish	Target
37384056	Labridae	<i>Bodianus diana</i>	Diana's Hogfish	Target
37384059	Labridae	<i>Bodianus loxozonus</i>	Blackfin Hogfish	Target
37384060	Labridae	<i>Bodianus mesothorax</i>	Splitlevel Hogfish	Target
37384064	Labridae	<i>Cheilinus chlorourus</i>	Floral Maori Wrasse	Target
37384065	Labridae	<i>Oxycheilinus diagrama</i>	Violetlined/Cheeklined Wrasse	Target
37384066	Labridae	<i>Cheilinus fasciatus</i>	Red Breasted Wrasse	Target
37384067	Labridae	<i>Cheilinus oxycephalus</i>	Snooty Maori Wrasse	Target

37384070	Labridae	<i>Cheilio intermis</i>	Yellow Cigar Wrasse	Target
37384073	Labridae	<i>Choerodon fasciata</i>	Harlequin Tuskfish	Target
37384077	Labridae	<i>Choerodon jordani</i>	Jordans Tuskfish	Target
37384080	Labridae	<i>Cirrhilabrus exquisitus</i>	Exquisite Wrasse	Target
37384081	Labridae	<i>Cirrhilabrus laboutei</i>	Laboutes/Magenta -streaked wrasse	Target
37384082	Labridae	<i>Cirrhilabrus lineatus</i>	Lavender wrasse	Target
37384083	Labridae	<i>Cirrhilabrus punctatus</i>	Purple Cirrhilabrus	Target
37384084	Labridae	<i>Cirrhilabrus scottorum</i>	Scotts/Rainbow Fairy Wrasse	Target
37384090	Labridae	<i>Coris aygula</i>	Redbloched/Two-spot Wrasse	Target
37384093	Labridae	<i>Coris dorsomaculata</i>	Christmas Wrasse	Target
37384094	Labridae	<i>Coris gaimard</i>	Clown/Flame wrasse	Target
37384098	Labridae	<i>Coris batuensis</i>	Variigated wrasse/Batu Coris	Target
37384104	Labridae	<i>Epibulus insidiator</i>	Slingjaw Wrasse	Target
37384106	Labridae	<i>Gomphosus varius</i>	Birdnose wrasse	Target
37384107	Labridae	<i>Halichoeres biocellatus</i>	Biocellate Wrasse	Target
37384109	Labridae	<i>Halichoeres chloropterus</i>	Lime wrasse	Target
37384110	Labridae	<i>Halichoeres chrysus</i>	Banana Wrasse	Target
37384110	Labridae	<i>Halichoeres hortulanus</i>	Checkerboard Wrasse	Target
37384113	Labridae	<i>Halichoeres margaritaceus</i>	Pink-Belly Wrasse	Target
37384114	Labridae	<i>Halichoeres marginatus</i>	Margined Wrasse	Target
37384118	Labridae	<i>Halichoeres nebulosus</i>	Nebulous Wrasse	Target
37384119	Labridae	<i>Halichoeres ornatissimus</i>	Neon Wrasse	Target
37384120	Labridae	<i>Halichoeres prosopeion</i>	Twotone Wrasse - Juvenile	Target
37384122	Labridae	<i>Halichoeres trimaculatus</i>	Three-spot Wrasse	Target
37384124	Labridae	<i>Hemigymnus fasciatus</i>	Fiveband Wrasse/Banded Thicklip	Target
37384125	Labridae	<i>Hemigymnus melapterus</i>	Five bar wrasse	Target
37384127	Labridae	<i>Hologymnus doliatus</i>	Pastel Wringwrasse	Target
37384128	Labridae	<i>Hologymnosus longipes - Male</i>	Sidespot Wrasse	Target
37384129	Labridae	<i>Labrichthys unilineatus</i>	Blue Lined Tubelip Wrasse	Target
37384130	Labridae	<i>Labriodes bicolor</i>	Bicolour Cleaner Wrasse	Target
37384131	Labridae	<i>Labriodes pectoralis</i>	Red Cleaner Wrasse	Target
37384132	Labridae	<i>Labropsis australis</i>	Southern Tubelip	Target
	Labridae	<i>Labropsis micronesica</i>	Micronesian Wrasse	Target
37384133	Labridae	<i>Labropsis xanthonota</i>	Yellowback Tubelip Wrasse	Target
37384135	Labridae	<i>Macropharyngodon kuiteri</i>	Kuiter's Wrasse	Target
37384136	Labridae	<i>Macropharyngodon meleagris</i>	Leopard wrasse	Target
37384137	Labridae	<i>Macropharyngodon negrosensis</i>	Black Leopard	Target
37384140	Labridae	<i>Novaculichthys taeniourus</i>	Carpet wrasse	Target
37384142	Labridae	<i>Pseudocheilinus evandius</i>	Hog/pinstripe/Disappearing wrasse	Target
37384143	Labridae	<i>Pseudocheilinus hexataenia</i>	Six lined wrasse	Target
37384144	Labridae	<i>Pseudocheilinus octotaenia</i>	Eightstripe Wrasse	Target
37384145	Labridae	<i>Pseudocoris yamashiroi</i>	Redspot Wrasse	Target
37384146	Labridae	<i>Pseudodax moluccanus</i>	Chiseltooth Wrasse	Target
37384147	Labridae	<i>Pseudojuloides cerasinus</i>	Candy wrasse/Smalltail Wrasse	Target
37384153	Labridae	<i>Pteragogus enneacanthus</i>	Redstriped Wrasse	Target

37384154	Labridae	<i>Stethojulis bandanensis</i>	Redspot/Bluelined Wrasse	Target
37384164	Labridae	<i>Thalassoma amblycephalum</i>	Parrot/bluehead wrasse	Target
37384165	Labridae	<i>Thalassoma hardwicke</i>	Hardwick's Wrasse	Target
37384166	Labridae	<i>Thalassoma janseni</i>	Jansen's wrasse	Target
37384167	Labridae	<i>Thalassoma lunare</i>	Green lunare wrasse	Target
37384168	Labridae	<i>Thalassoma lutescens</i>	Yellow lunare wrasse	Target
37384169	Labridae	<i>Thalassoma purpuraceum</i>	Surge Wrasse	Target
37384170	Labridae	<i>Thalassoma quinquevittatum</i>	Lightning Wrasse	Target
37384170	Labridae	<i>Thalassoma quinquetum</i>	Quin's Wrasse	Target
37384172	Labridae	<i>Thalassoma trilobatum</i>	Ladder wrasse	Target
37384174	Labridae	<i>Wetmorella nigropinnata</i>	Possum Wrasse	Target
37384184	Labridae	<i>Pseudocheilinus ocellatum</i>	Mystery Wrasse	Target
37384190	Labridae	<i>Cirrhilabrus condei</i>	Conde's Wrasse	Target
37384191	Labridae	<i>Halichoeres hartzfeldii</i>	Goldstripe Wrasse	Target
37384193	Labridae	<i>Cirrhilabrus bathyphilus</i>	Coral Sea Wrasse	Target
37384196	Labridae	<i>Thalassoma nigrofasciatum</i>	South Pacific Wrasse	Target
37384197	Labridae	<i>Pseudocoris heteroptera</i>	Torpedo Wrasse	Target
37384222	Labridae	<i>Paracheilinus rubricaudalis</i>	Red Finned Flasher Wrasse	Target
37384923	Labridae	<i>Iniistius sp.</i>	Razorfish	Target
37386007	Labridae	<i>Cetoscarus ocellatus</i>	Bicolor Parrotfish	Target
37386007	Scaridae	<i>Cetoscarus bicolor</i>	Bicolor Parrotfish	Target
37386010	Scaridae	<i>Scarus altipinnis</i>	Minifin Parrotfish	Target
37386011	Scaridae	<i>Chlorurus bleekeri</i>	Bleeker's Parrotfish - Male	Target
37386014	Scaridae	<i>Scarus flavipectoralis</i>	Yellowfin Parrotfish	Target
37386016	Scaridae	<i>Scarus frenatus</i>	Bridled Parrotfish	Target
37386018	Scaridae	<i>Scarus globiceps</i>	Globeheaded Parrotfish	Target
37386019	Scaridae	<i>Scarus longipinnis</i>	Highfin Parrotfish	Target
37386020	Scaridae	<i>Chlorurus microrhinos</i>	Steephead Parrotfish	Target
37386022	Scaridae	<i>Scarus oviceps</i>	Egghead Parrotfish	Target
37386024	Scaridae	<i>Scarus psittacus</i>	Palenose Parrotfish	Target
37386027	Scaridae	<i>Scarus rivulatus</i>	Surf Parrotfish	Target
37386028	Scaridae	<i>Scarus rubroviolaceus</i>	Ember Parrotfish	Target
37386029	Scaridae	<i>Scarus schlegeli</i>	Schlegals Parrotfish	Target
37386030	Scaridae	<i>Scarus sordidus</i>	Bulletheaded Parrotfish	Target
37386031	Scaridae	<i>Scarus spinus</i>	Greensnout Parrotfish	Target
37386907	Labridae	<i>Scarus sp</i>	Parrotfish	Target
37390011	Pinguipedidae	<i>Parapercis hexophthalma</i>	Speckled Sandperch	Target
37390013	Pinguipedidae	<i>Parapercis clathrata</i>	Latticed Sandperch	Target
37390016	Pinguipedidae	<i>Parapercis multiplicata</i>	Redbarred Sandperch	Target
37408012	Blenniidae	<i>Cirripectes chelomatus</i>	Lady Musgrave Blenny	Target
37408017	Blenniidae	<i>Cirripectes stigmaticus</i>	Tiger Rock Hopper	Target
37408019	Blenniidae	<i>Escenius aequalis/strictus</i>	Great Barrier Reef Blenny	Target
37408021	Blenniidae	<i>Ecsenius australianus</i>	Australia Blenny	Target
37408022	Blenniidae	<i>Ecsenius bicolor</i>	Bicolor blenny	Target
37408027	Blenniidae	<i>Ecsenius mandibularis</i>	Queensland Blenny	Target

37408028	Blenniidae	<i>Ecsenius midas</i>	Midas Blenny	Target
37408030	Blenniidae	<i>Ecsenius schroederi</i>	Spotted Blenny	Target
37408032	Blennidae	<i>Ecsenius tigris</i>	Tiger blenny	Target
37408039	Blenniidae	<i>Exallias brevis</i>	Leopard Blenny	Target
37408042	Blenniidae	<i>Blenniella chrysospilos</i>	Redspotted Rockskipper	Target
37408051	Blennidae	<i>Meiacanthus atrodorsalis</i>	Canary blenny/eyelash fangblenny	Target
37408055	Blenniidae	<i>Meiacanthus grammistes</i>	Grammistes Blenny	Target
37408079	Blenniidae	<i>Salarias fasciatus</i>	Carpet Blenny	Target
37408097	Blennidae	<i>Meiacanthus reticulatus</i>	Reticulated fangblenny/CS Lyretail Blenny	Target
37408911	Blenniidae	<i>Istiblennius sp.</i>	Blenny	Target
	Blenniidae	<i>Meiacanthus smithi</i>	Smith's Blenny	Target
37427032	Blenniidae	<i>Neosynchiropus ocellatus</i>	Ocellated Dragonet	Target
	Gobiidae	<i>Amblyeleotris aurora</i>	Flagtail Shrimp Goby	Target
37428033	Gobiidae	<i>Amblyeleotris diagonalis</i>	Pinktail Shrimp Goby	Target
37428044	Gobiidae	<i>Amblyeleotris wheeleri</i>	Burgundy Shrimpgoby	Target
37428046	Gobiidae	<i>Amblygobius decussatus</i>	Orange-Striped Goby	Target
37428048	Gobiidae	<i>Amblygobius phaelaena</i>	Chocolate Goby	Target
37428049	Gobiidae	<i>Amblygobius rainfordi</i>	Old glory/Rainfordi Goby	Target
37428098	Gobiidae	<i>Cryptocentrus cinctus</i>	Yellow Cinta Goby	Target
37428158	Gobiidae	<i>Gobiodon citrinus</i>	Fourbar Goby	Target
37428160	Gobiidae	<i>Gobiodon histrio</i>	Broad-Barred Goby	Target
37428162	Gobiidae	<i>Gobiodon okinawae</i>	Lemon Okinawa Goby	Target
37428212	Gobiidae	<i>Paragobiodon echinocephelus</i>	Redhead Goby	Target
37428280	Gobiidae	<i>Valenciennea helsdingenii</i>	Twostripe Goby	Target
37428282	Gobiidae	<i>Valenciennea longipinnis</i>	Long-Finned Goby	Target
37428284	Gobiidae	<i>Valenciennea puellaris</i>	Orange Dashed Goby	Target
37428286	Gobiidae	<i>Valenciennea strigata</i>	Gold head/blueband glider goby	Target
37428326	Gobiidae	<i>Valenciennea decora</i>	Elegant Goby	Target
37428904	Gobiidae	<i>Amblyeleotris sp.</i>	Shrimp Gobies	Target
37435007	Microdesmidae	<i>Nemateleotris decora</i>	Purple Fire Dartfish	Target
37435008	Gobiidae	<i>Nemateleotris magnifica</i>	Fire Goby	Target
	Gobiidae	<i>Gobiodon atrangulatus</i>	Earspot coral goby	Target
37435015	Microdesmidae	<i>Ptereleotris evides</i>	Scissor tail goby/arrow dartgoby	Target
37435018	Microdesmidae	<i>Ptereleotris heteroptera</i>	Blacktail Blue Dartfish	Target
37435019	Microdesmidae	<i>Ptereleotris microlepis</i>	Pale Dartfish	Target
37435020	Microdesmidae	<i>Ptereleotris monoptera</i>	Blue Dartfish	Target
37435022	Microdesmidae	<i>Ptereleotris zebra</i>	Zebra dartgoby	Target
37437001	Zanclidae	<i>Zanclus cornutus</i>	Moorish idol	Target
37437002	Acanthuridae	<i>Acanthurus grammoptilus</i>	Finelined Surgeonfish	Target
37437007	Acanthuridae	<i>Acanthurus blochii</i>	Ringtail Surgeonfish	Target
37437008	Acanthuridae	<i>Acanthurus dussumieri</i>	Penciled Surgeon	Target
37437009	Acanthuridae	<i>Acanthurus guttatus</i>	Whitespot Surgeonfish	Target
37437010	Acanthuridae	<i>Acanthurus lineatus</i>	Clown Tang	Target
37437011	Acanthuridae	<i>Acanthurus mata</i>	Elongate Surgeonfish - Juveniles	Target

37437012	Acanthuridae	<i>Acanthurus nigricans</i>	Goldrim Surgeonfish	Target
37437013	Acanthuridae	<i>Acanthurus nigricauda</i>	Blackstreak Surgeonfish	Target
37437014	Acanthuridae	<i>Acanthurus nigrofuscus</i>	Brown Tang/Dusky surgeonfish	Target
37437016	Acanthuridae	<i>Acanthurus olivaceous</i>	Red shoulder/orange blotch tang(surgeonfish)	Target
37437017	Acanthuridae	<i>Acanthurus pyroferus</i>	Mimic tang (surgeonfish)	Target
37437018	Acanthuridae	<i>Acanthurus thompsoni</i>	Night Surgeonfish	Target
37437019	Acanthuridae	<i>Acanthurus triostegus</i>	Convict Surgeonfish	Target
37437022	Acanthuridae	<i>Ctenochaetus striatus</i>	Lined Bristletooth	Target
37437024	Acanthuridae	<i>Naso annulatus</i>	Whitemargin Unicorn Tang	Target
37437026	Acanthuridae	<i>Naso brevirostrisoc</i>	Spotted Unicorn	Target
37437029	Acanthuridae	<i>Naso lituratus</i>	Lipstick tang /clown unicornfish	Target
37437031	Acanthuridae	<i>Naso unicornis</i>	Unicorn Tang	Target
37437032	Acanthuridae	<i>Naso vlamingii</i>	Vlamingi Tang	Target
37437033	Acanthuridae	<i>Paracanthurus hepatus</i>	Blue tang	Target
37437036	Acanthuridae	<i>Zebrasoma scopas</i>	Brown Sailfin tang	Target
37437037	Acanthuridae	<i>Zebrasoma veliferum</i>	Sailfin Tang	Target
37437903	Acanthuridae	<i>Naso sp.</i>	Unicornfish	Target
	Acanthuridae	<i>Ctenochaetus strigosus</i>	Goldring Bristletooth	Target
37438003	Siganidae	<i>Siganus punctatus</i>	Goldspotted Rabbitfish	Target
37438008	Siganidae	<i>Siganus corallinus</i>	Blue spotted/Coral Rabbitfish	Target
37438009	Siganidae	<i>Siganus doliatus</i>	Bluelined/Barred Rabbitfish	Target
37438011	Siganidae	<i>Siganus puellus</i>	Masked/Bluelined Rabbitfish	Target
37438012	Siganidae	<i>Siganus punctatissimus</i>	Fine-spotted Rabbitfish	Target
37438017	Siganidae	<i>Siganus vulpinus</i>	Foxface	Target
37465000	Monacanthidae	<i>Cantherhines specie</i>	Leatherjacket	Target
37465009	Monacanthidae	<i>Monacanthus chinensis</i>	Fan-bellied Leatherjacket	Target
37465011	Balistidae	<i>Abalistes stellatus</i>	Starry Triggerfish	Target
37465013	Balistidae	<i>Chaetodermis penicilligerus</i>	Leafy Leatherjacket	Target
37465027	Balistidae	<i>Pseudobalistes fuscus</i>	Fuscus Trigger	Target
37465028	Ballistidae	<i>Rhinecanthus aculeatus</i>	Hawaiian triggerfish	Target
37465031	Balistidae	<i>Balistoides conspicillum</i>	Clown Triggerfish	Target
37465046	Balistidae	<i>Amanses scopas</i>	Brush-sided Leatherjacket	Target
37465047	Ballistidae	<i>Balistapus undulatus</i>	Orangestripe Triggerfish	Target
37465048	Balistidae	<i>Balistoides viridescens</i>	Titan Triggerfish	Target
37465051	Balistidae	<i>Cantherhines pardalis</i>	Honeycomb Leatherjacket	Target
37465058	Balistidae	<i>Melichthys vidua</i>	Pinktail Triggerfish	Target
37465061	Ballistidae	<i>Odonus niger</i>	Red tooth trigger	Target
37465062	Monacanthidae	<i>Oxymonacanthus longirostris</i>	Harlequin filefish/Beaked Leatherjacket	Target
37465063	Monacanthidae	<i>Paraluterus prionurus</i>	Valantini trigger/blacksaddle filefish	Target
37465066	Monacanthidae	<i>Pervagor alternans</i>	Yellow-Eyed Leatherjacket	Target
37465067	Monacanthidae	<i>Pervagor aspricaudus</i>	Orangetailed Filefish	Target
37465068	Monacanthidae	<i>Pervagor janthanisoma</i>	Gillblotch/Orange tail Leather jacket	Target
37465069	Monacanthidae	<i>Pervagor melanocephalus</i>	Golden Leatherjacket	Target

37465071	Balistidae	<i>Pseudobalistes flavimarginatus</i>	Yellowmargin Triggerfish	Target
37465072	Balistidae	<i>Rhinecanthus rectangulus</i>	Wedge-tail Triggerfish	Target
37465072	Ballistidae	<i>Rhinecanthus lunula</i>	Racoon/halfmoon trigger	Target
37465074	Balistidae	<i>Rhinecanthus verrucosus</i>	Blackspot Triggerfish	Target
37465078	Balistidae	<i>Sufflamen bursa</i>	Scimitar Triggerfish	Target
37465079	Balistidae	<i>Sufflamen chrysopterus</i>	Eyestripe/Flagtail Trigger	Target
37465080	Balistidae	<i>Xanthichthys auromarginatus</i>	Bluebeard Triggerfish	Target
37465086	Balistidae	<i>Canthidermis maculatus</i>	Spotted Triggerfish	Target
37465927	Monacanthidae	<i>Pervagor sp.</i>	Assorted Leather jacket	Target
37466004	Ostraciidae	<i>Lactoria cornuta</i>	Longhorn Cowfish	Target
37466009	Ostraciidae	<i>Rhynchostracion rhinorhynchus</i>	Shortnose Boxfish	Target
37466013	Ostraciidae	<i>Ostracion cubicus</i>	Yellow boxfish	Target
37466019	Ostraciidae	<i>Ostracion meleagris</i>	Spotted Boxfish	Target
37466020	Ostraciidae	<i>Ostracion solorensis</i>	Striped Boxfish	Target
37467013	Tetraodontidae	<i>Canthigaster coronata</i>	Crowned Pufferfish	Target
37467014	Tetraodontidae	<i>Arothron stellatus</i>	Star Puffer	Target
37467027	Tetraodontidae	<i>Arothron nigropunctatus</i>	Blackspotted/Dogface Puffer	Target
37467035	Tetraodontidae	<i>Arothron mappa</i>	Map Puffer	Target
37467036	Tetraodontidae	<i>Canthigaster amboinensis</i>	Ambon Toby	Target
37467037	Monacanthidae	<i>Canthigaster bennetti</i>	Bennett's Toby	Target
37467040	Tetraodontidae	<i>Canthigaster janthinoptera</i>	Spotted Pufferfish	Target
37467042	Tetraodontidae	<i>Canthigaster papua</i>	Bluespot Pufferfish	Target
37467043	Tetraodontidae	<i>Canthigaster valentini</i>	Valentini Puffer	Target
37467064	Tetraodontidae	<i>Arothron meleagris</i>	Yellow puffer	Target
37469015	Diodontidae	<i>Diodon hystrix</i>	Spotted Porcupinefish	Target
37469016	Diodontidae	<i>Diodon liturosus</i>	Black-Blotched Porcupinefish	Target
99379024	Balistidae	<i>Aluterus scripta</i>	Scrawled Leatherjacket	Target
99379193	Acanthuridae	<i>Ctenochaetus strigosus</i>	Blue spot tang (surgeonfish)	Target
99379680	Scorpaenidae	<i>Synanceia verrucosa</i>	Reef Stonefish	Target

Byproduct species

Byproduct refers to any part of the catch that is kept or sold by fishers, but is not a target species. No byproduct occurs in the Aquarium sub-fishery.

Discard species

Bycatch as defined as catch which is returned to the sea either because it has no commercial value or because regulations preclude it being retained; and catch that does not reach the deck but is affected by interaction with the fishing gear. No discard occurs in the CSF Aquarium sub-fishery.

ETP species

ETP species are those species listed as Endangered, Threatened or Protected under the Environment Protection and Biodiversity Conservation Act (EPBC Act). This list has been generated using the DCEW [Protected Matters Search Tool](#). Species considered to have

potential to interact with fishery (based on geographic range & proven/perceived susceptibility to the fishing gear/methods and examples from other similar fisheries across the globe) are included.

Table 2.2. List of ETP species with potential for interaction in CSF Aquarium Sector

Species ID	Taxa	Scientific Name	Common Name	Status
66253	Fish	<i>Micrognathus andersonii</i>	Anderson's Pipefish, Shortnose Pipefish	
66254	Fish	<i>Micrognathus brevirostris</i>	thorntail Pipefish, Thorn-tailed Pipefish	
1066	Bird	<i>Pachyptila turtur</i>	Fairy Prion	
59309	Bird	<i>Actitis hypoleucos</i>	Common Sandpiper	Migratory
66257	Fish	<i>Microphis brachyurus</i>	Short-tail Pipefish, Short-tailed River Pipefish	
1104	Reptile	<i>Hydrophis elegans</i>	Elegant Sea Snake, Bar-bellied Sea Snake	
799	Bird	<i>Sterna striata</i>	White-fronted Tern	
1013	Bird	<i>Fregata minor</i>	Great Frigatebird, Greater Frigatebird	Migratory
1012	Bird	<i>Fregata ariel</i>	Lesser Frigatebird, Least Frigatebird	Migratory
1014	Bird	<i>Phaethon lepturus</i>	White-tailed Tropicbird	Migratory
59257	Reptile	<i>Natator depressus</i>	Flatback Turtle	Vulnerable
66241	Fish	<i>Hippocampus zebra</i>	Zebra Seahorse	
825	Bird	<i>Anous stolidus</i>	Common Noddy	Migratory
824	Bird	<i>Anous minutus</i>	Black Noddy	
66472	Bird	<i>Thalassarche melanophris</i>	Black-browed Albatross	Vulnerable, Migratory
59642	Bird	<i>Pterodroma cervicalis</i>	White-necked Petrel	
66213	Fish	<i>Doryrhamphus negrosensis</i>	Flagtail Pipefish, Masthead Island Pipefish	
66271	Fish	<i>Solegnathus dunckeri</i>	Duncker's Pipehorse	
1120	Reptile	<i>Aipysurus laevis</i>	Olive Sea Snake, Olive-brown Sea Snake	
66270	Fish	<i>Siokunichthys breviceps</i>	Softcoral Pipefish, Soft-coral Pipefish	
1774	Reptile	<i>Crocodylus porosus</i>	Salt-water Crocodile, Estuarine Crocodile	Migratory
75601	Reptile	<i>Hydrophis macdowellii</i>	MacDowell's Sea Snake, Small-headed Sea Snake,	
66272	Fish	<i>Solegnathus hardwickii</i>	Pallid Pipehorse, Hardwick's Pipehorse	
1125	Reptile	<i>Emydocephalus annulatus</i>	Eastern Turtle-headed Sea Snake	
1077	Bird	<i>Calonectris leucomelas</i>	Streaked Shearwater	Migratory
66275	Fish	<i>Solegnathus spinosissimus</i>	Spiny Pipehorse, Australian Spiny Pipehorse	
1060	Bird	<i>Macronectes giganteus</i>	Southern Giant-Petrel, Southern Giant Petrel	Endangered, Migratory
1093	Reptile	<i>Laticauda laticaudata</i>	a sea krait	
1092	Reptile	<i>Laticauda colubrina</i>	Yellow-lipped Sea Krait	
1075	Bird	<i>Phoebastria fusca</i>	Sooty Albatross	Vulnerable, Migratory
66197	Fish	<i>Choeroichthys sculptus</i>	Sculptured Pipefish	
855	Bird	<i>Calidris canutus</i>	Red Knot, Knot	Vulnerable, Migratory
66199	Fish	<i>Corythoichthys amplexus</i>	Fijian Banded Pipefish, Brown-banded Pipefish	
66198	Fish	<i>Choeroichthys suillus</i>	Pig-snouted Pipefish	
66210	Fish	<i>Doryrhamphus dactyliophorus</i>	Banded Pipefish, Ringed Pipefish	
66214	Fish	<i>Festucalex cinctus</i>	Girdled Pipefish	

874	Bird	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Vulnerable, Migratory
66194	Fish	<i>Choeroichthys brachysoma</i>	Pacific Short-bodied Pipefish, Short-bodied Pipefish	
93509	Reptile	<i>Hydrophis peronii</i>	Horned Sea Snake	
82404	Bird	<i>Ardenna carneipes</i>	Flesh-footed Shearwater, Fleshy-footed Shearwater	Migratory
856	Bird	<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered, Migratory
93746	Reptile	<i>Hydrophis platura</i>	Yellow-bellied Sea Snake	
66239	Fish	<i>Hippocampus spinosissimus</i>	Hedgehog Seahorse	
66236	Fish	<i>Hippocampus histrix</i>	Spiny Seahorse, Thorny Seahorse	
858	Bird	<i>Calidris melanotos</i>	Pectoral Sandpiper	Migratory
66238	Fish	<i>Hippocampus planifrons</i>	Flat-face Seahorse	
66226	Fish	<i>Haliichthys taeniophorus</i>	Ribboned Pipehorse, Ribboned Seadragon	
64459	Bird	<i>Thalassarche impavida</i>	Campbell Albatross, Campbell Black-browed Albatross	Vulnerable, Migratory
1116	Reptile	<i>Aipysurus duboisii</i>	Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake	
66220	Fish	<i>Halicampus dunckeri</i>	Red-hair Pipefish, Duncker's Pipefish	
66221	Fish	<i>Halicampus grayi</i>	Mud Pipefish, Gray's Pipefish	
64463	Bird	<i>Thalassarche salvini</i>	Salvin's Albatross	Vulnerable, Migratory
66190	Fish	<i>Bulbonaricus davaoensis</i>	Davao Pughead Pipefish	
1111	Reptile	<i>Hydrophis ornatus</i>	Spotted Sea Snake, Ornate Reef Sea Snake	
66279	Fish	<i>Syngnathoides biaculeatus</i>	Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish	
64462	Bird	<i>Thalassarche steadi</i>	White-capped Albatross	Vulnerable, Migratory
66222	Fish	<i>Halicampus macrorhynchus</i>	Whiskered Pipefish, Ornate Pipefish	
66281	Fish	<i>Trachyrhamphus longirostris</i>	Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish	
66219	Fish	<i>Halicampus brocki</i>	Brock's Pipefish	
66280	Fish	<i>Trachyrhamphus bicoarctatus</i>	Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish	
66211	Fish	<i>Doryrhamphus excisus</i>	Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish	
66184	Fish	<i>Solenostomus paradoxus</i>	Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish	
66187	Fish	<i>Acentronura tentaculata</i>	Shortpouch Pygmy Pipehorse	
66266	Fish	<i>Phoxocampus diacanthus</i>	Pale-blotched Pipefish, Spined Pipefish	
93510	Reptile	<i>Hydrophis stokesii</i>	Stokes' Sea Snake	
66183	Fish	<i>Solenostomus cyanopterus</i>	Robust Ghostpipefish, Blue-finned Ghost Pipefish,	
66228	Fish	<i>Hippichthys cyanospilos</i>	Blue-speckled Pipefish, Blue-spotted Pipefish	
66225	Fish	<i>Halicampus spinirostris</i>	Spiny-snout Pipefish	
66229	Fish	<i>Hippichthys heptagonus</i>	Madura Pipefish, Reticulated Freshwater Pipefish	
64464	Bird	<i>Thalassarche carteri</i>	Indian Yellow-nosed Albatross	Vulnerable, Migratory
1763	Reptile	<i>Caretta caretta</i>	Loggerhead Turtle	Endangered, Migratory
800	Bird	<i>Sterna sumatrana</i>	Black-naped Tern	Migratory

1766	Reptile	<i>Eretmochelys imbricata</i>	Hawksbill Turtle	Vulnerable, Migratory
1767	Reptile	<i>Lepidochelys olivacea</i>	Olive Ridley Turtle, Pacific Ridley Turtle	Endangered, Migratory
83000	Bird	<i>Thalasseus bergii</i>	Greater Crested Tern	Migratory
1765	Reptile	<i>Chelonia mydas</i>	Green Turtle	Vulnerable, Migratory
84292	Bird	<i>Ardena pacifica</i>	Wedge-tailed Shearwater	Migratory
93516	Reptile	<i>Hydrophis hardwickii</i>	Spine-bellied Sea Snake	
93512	Reptile	<i>Hydrophis major</i>	Olive-headed Sea Snake	
93511	Reptile	<i>Hydrophis kingii</i>	Spectacled Sea Snake	
66212	Fish	<i>Doryrhamphus janssi</i>	Cleaner Pipefish, Janss' Pipefish	
847	Bird	<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	Critically Endangered, Migratory
1768	Reptile	<i>Dermochelys coriacea</i>	Leatherback Turtle, Leathery Turtle, Luth	Endangered, Migratory
994	Bird	<i>Phaethon rubricauda</i>	Red-tailed Tropicbird	Migratory
87261	Reptile	<i>Aipysurus mosaicus</i>	Mosaic Sea Snake	
1109	Reptile	<i>Hydrophis melanosoma</i>	Black-banded Robust Sea Snake	
66205	Fish	<i>Corythoichthys schultzi</i>	Schultz's Pipefish	
66200	Fish	<i>Corythoichthys flavofasciatus</i>	Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish	
66202	Fish	<i>Corythoichthys intestinalis</i>	Australian Messmate Pipefish, Banded Pipefish	
66203	Fish	<i>Corythoichthys ocellatus</i>	Orange-spotted Pipefish, Ocellated Pipefish	
1023	Bird	<i>Sula sula</i>	Red-footed Booby	Migratory
66209	Fish	<i>Cosmocampus maxweberi</i>	Maxweber's Pipefish	
1022	Bird	<i>Sula leucogaster</i>	Brown Booby	Migratory
1021	Bird	<i>Sula dactylatra</i>	Masked Booby	Migratory
82651	Bird	<i>Ardena grisea</i>	Sooty Shearwater	Vulnerable, Migratory
89224	Bird	<i>Thalassarche cauta</i>	Shy Albatross	Endangered, Migratory
93514	Reptile	<i>Hydrophis zweiffei</i>	Australian Beaked Sea Snake	
87375	Reptile	<i>Microcephalophis gracilis</i>	Graceful Small-headed Sea Snake, Slender Sea Snake	
66231	Fish	<i>Hippichthys penicillus</i>	Beady Pipefish, Steep-nosed Pipefish	
66237	Fish	<i>Hippocampus kuda</i>	Spotted Seahorse, Yellow Seahorse	
66232	Fish	<i>Hippichthys spicifer</i>	Belly-barred Pipefish, Banded Freshwater Pipefish	

Scoping Document S2B1. Benthic Habitats

Risk assessment for benthic habitats considers both the seafloor structure and its attached invertebrate fauna. Because data on the types and distributions of benthic habitat in Australia's Commonwealth fisheries are generally sparse, and because there is no universally accepted benthic classification scheme, the ERA methodology has used the most widely available type of data – seabed imagery – classified in a similar manner to that used in bioregionalisation and deep seabed mapping in Australian Commonwealth waters. Using this imagery, benthic habitats are classified based on an SGF score, using sediment, geomorphology, and fauna. Where seabed imagery is not available, a second method (Method 2) is used to develop an inferred list of potential habitat types for the fishery. For details of both methods, see Hobday *et al* (2007).

Habitat data used for assessment of the Coral Sea Fishery sectors were largely derived from geophysical and fishery data using Scoping method 2, as few seabed image data were available. Data were available only for the NE seamount chain from a deep-sea biodiversity survey undertaken in 2003 (Williams *et al.*, 2006).

This scoping method provides an overly inclusive list as a precautionary measure in the absence of habitat image data. All habitats in this list have been identified from video and applied to this region based on depth zone and geomorphic feature. Data from Williams *et al* (2006) considered representative of the NE seamount chain. Obvious anomaly is the inclusion of sponges as the dominant faunal taxa in tropical waters, however, this term is likely to interchangeable with 'corals' in warmer waters.

Table 2.3. List of benthic habitats within the extent of the CSF that are subject to effort from Aquarium fishers.

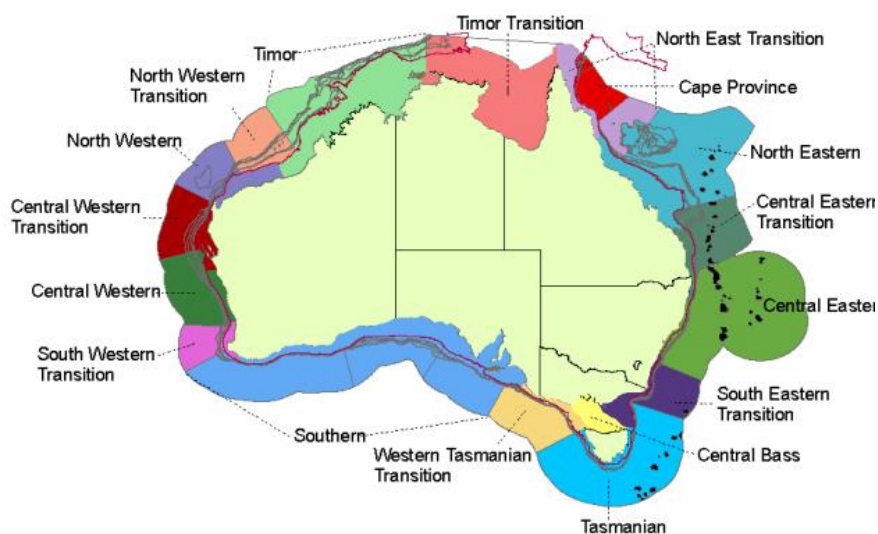
ERA record No.	ERA Habitat Number	Sub-biome	Feature	Habitat type	SGF Score	Depth (m)	Image available	Reference image location
2995	012	inner shelf	shelf	fine sediments, unrippled, large sponges	101	25- 100	Y	SE Image Collection
3004	094	inner shelf	shelf	fine sediments, unrippled, small sponges	102	25- 100	Y	Norfanz Image Collection
2998	016	inner shelf	shelf	fine sediments, unrippled, mixed faunal community	103	25- 100	Y	SE Image Collection
3003	093	inner shelf	shelf	fine sediments, unrippled, bioturbators	109	25- 100	N	SE Image Collection
2997	014	inner shelf	shelf	fine sediments, wave rippled, large sponges	111	25- 100	Y	SE Image Collection
3005	095	inner shelf	shelf	fine sediments, wave rippled, no fauna	120	25- 100	N	SE Image Collection
3006	096	inner shelf	shelf	fine sediments, wave rippled, small sponges	122	25- 100	N	SE Image Collection
3012	201	inner shelf	shelf	fine sediments, wave rippled, encrustors	126	25- 100	N	SE Image Collection
3001	091	inner shelf	shelf	fine sediments, irregular, large sponges	131	25- 100	N	SE Image Collection
3002	092	inner shelf	shelf	fine sediments, irregular, small sponges	132	25- 100	N	SE Image Collection
2996	013	inner shelf	shelf	coarse sediments, unrippled, large sponges	201	25- 100	Y	SE Image Collection
3218	205	inner shelf	Shelf	Coarse sediments, current swept, mixed low epifauna	206	25-100	Y	WA Image Collection

3165	234	inner shelf	Shelf	Coarse sediments, unrippled, solitary epifauna	207	25-100	Y	WA Image Collection
2993	010	inner shelf	shelf	coarse sediments, current rippled, no fauna	210	25- 100	Y	SE Image Collection
3000	090	inner shelf	shelf	coarse sediments, current rippled, bioturbators	219	25- 100	N	SE Image Collection
2994	011	inner shelf	shelf	coarse sediments, wave rippled, large sponges	221	25- 100	Y	SE Image Collection
3151	191	inner shelf	shelf	coarse sediments, wave rippled, small sponges	222	25- 100	N	SE Image Collection
3011	200	inner shelf	shelf	coarse sediments, wave rippled, encrustors	226	25- 100	N	SE Image Collection
2992	009	inner shelf	shelf	coarse sediments, wave rippled, sedentary	227	25- 100	Y	SE Image Collection
2999	089	inner shelf	shelf	coarse sediments, irregular, encrustors	236	25- 100	N	SE Image Collection
2990	006	inner shelf	shelf	coarse sediments, subcrop, large sponges	251	25- 100	Y	SE Image Collection
3177	282	inner shelf	shelf	Coarse sediments, subcrop, mixed faunal community	253	25- 100	Y	Norfan Image Collection
2985	001	inner shelf	shelf	gravel, current rippled, mixed faunal community	313	25- 100	Y	SE Image Collection
3008	098	inner shelf	shelf	gravel, wave rippled, no fauna	320	25- 100	Y	SE Image Collection
3007	097	inner shelf	shelf	gravel, wave rippled, bioturbators	329	25- 100	Y	SE Image Collection
3227	242	inner shelf	Shelf	Gravel, irregular, no fauna	330	25-100	Y	WA Image Collection
2991	007	inner shelf	shelf	gravel, debris flow, mixed faunal community	343	25- 100	Y	SE Image Collection
3158	199	inner shelf	shelf	cobble, wave rippled, low/ encrusting mixed fauna	426	25- 100	N	SE Image Collection
2989	005	inner shelf	shelf	cobble, debris flow, large sponges	441	25- 100	Y	SE Image Collection
3009	099	inner shelf	shelf	Igneous rock, high outcrop, large sponges	591	25- 100	N	SE Image Collection
2988	004	inner shelf	shelf	Sedimentary rock, outcrop, large sponges	671	25- 100	Y	SE Image Collection
2986	002	inner shelf	shelf	Sedimentary rock, outcrop, large sponges	691	25- 100	Y	SE Image Collection
2987	003	inner shelf	shelf	Sedimentary rock, outcrop, mixed faunal community	693	25- 100	Y	SE Image Collection
3237	271	inner shelf	Shelf	Rock/ biogenic matrix, high outcrop, large sponges	719	25-100	Y	WA Image Collection
3018	272	inner shelf	Shelf	Rock/ biogenic matrix, Wave rippled, No fauna	720	25-100	Y	WA Image Collection
3019	273	inner shelf	Shelf	Rock/ biogenic matrix,subcrop, large sponges	751	25-100	3	WA Image Collection
3020	274	inner shelf	Shelf	Rock/ biogenic matrix, subcrop, small encrustors	756	25-100	Y	WA Image Collection
3021	275	inner shelf	Shelf	Rock/ biogenic matrix, low outcrop, mixed faunal community	763	25-100	Y	WA Image Collection
3022	276	inner shelf	Shelf	Rock/ biogenic matrix, low outcrop, octocorals	765	25-100	Y	WA Image Collection

3023	277	inner shelf	Shelf	Rock/ biogenic matrix, low outcrop, mixed faunal community	773	25-100	Y	WA Image Collection
3024	278	inner shelf	Shelf	Rock/ biogenic matrix, high outcrop, mixed faunal community	793	25-100	Y	WA Image Collection
3026	283	inner shelf	shelf	Bryozoan communities	XX6	25- 100	Y	Norfanz Image Collection

Scoping Document S2B2. Pelagic and Demersal Provinces

(a)



(b)

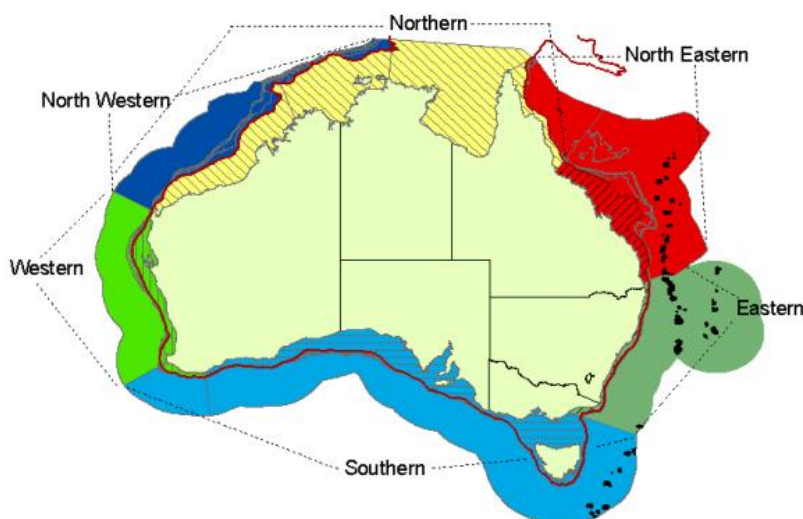


Figure 2.1. (a) Demersal communities around mainland Australia based on bioregionalisation schema. Some inshore (0-110 m) communities comprise more than one community e.g. Timor Transition comprises 4 distinct communities. **(b)** Australian pelagic provinces. Hatched areas indicate coastal epipelagic zones overlying the shelf. Offshore (oceanic) provinces comprise two or more overlaying pelagic zones as indicated in Table 2.6. Seamounts (black) and plateaux (light green) are illustrated in their demersal or pelagic provinces

Scoping Document S2B3. Pelagic Habitats

Table 2.4. List of pelagic habitats within the extent of the CSF that are subject to effort from Aquarium fishers.

ERA Habitat Number	Pelagic Habitat type	Depth (m)	Comments
P5	Northern Pelagic Province - Coastal	0 – 200	
P15	North Eastern Pelagic Province - Plateau	0 – 600	This is a compilation of the range covered by the Northeastern Plateau Community (1) and (2)

Scoping Document S2C1. Demersal and Pelagic Communities

In ERA, communities are defined as the set of species assemblages that occupy the large-scale provinces and biomes identified from national bioregionalisation studies. The biota includes mobile fauna, both vertebrate and invertebrate, but excludes sessile organisms such as corals that are largely structural and are used to identify benthic habitats. The same community lists are used for all fisheries, with those selected as relevant for a particular fishery being identified on the basis of spatial overlap with effort in the fishery. The spatial boundaries for demersal communities are based on IMCRA boundaries for the shelf, and on slope bioregionalisations for the slope (IMCRA 1998; Last *et al.* 2005). The spatial boundaries for the pelagic communities are based on pelagic bioregionalisations and on oceanography (Condie *et al.* 2003; Lyne and Hayes 2004). Fishery and region-specific modifications to these boundaries are described in detail in Hobday *et al.* (2007) and briefly outlined in the footnotes to the community Tables below.

Table 2.5. Demersal communities in which fishing activity occurs in CSF Aquarium Sector (✓). Shaded cells indicate communities within the province.

Demersal community	Cape	North Eastern Transition	North Eastern	Central Eastern Transition	Central Eastern	South Eastern Transition
Inner Shelf 0 – 110m						
Outer Shelf 110 – 250m						
Upper Slope 250 – 565m						
Mid–Upper Slope 565 – 820m						
Mid Slope 820 – 1100m						
Lower slope/ Abyssal > 1100m						
Reef 0 -110m						
Reef 110-250m						
Seamount 0 – 110m			✓			
Seamount 110- 250m						
Seamount 250 – 565m						
Seamount 565 – 820m						
Seamount 820 – 1100m						
Seamount 1100 – 3000m						
Plateau 0 – 110m			✓			

Plateau 110- 250m						
Plateau 250 – 565m						
Plateau 565 – 820m						
Plateau 820 – 1100m						

Table 2.6. Pelagic communities that overlie the demersal communities in which fishing activity occurs in the CSF Aquarium Sector (✓). Shaded cells indicate all communities that exist in the province.

Pelagic Communities	North Eastern
Coastal pelagic 0-200m	
Oceanic (1) 0 – 600m	✓
Oceanic (2) >600m	
Seamount oceanic (1) 0 – 600m	✓
Seamount oceanic (2) 600–3000m	
Oceanic (1) 0 – 200m	
Oceanic (2) 200-600m	
Oceanic (3) >600m	
Seamount oceanic (1) 0 – 200m	
Seamount oceanic (2) 200 – 600m	
Seamount oceanic (3) 600–3000m	
Oceanic (1) 0-400m	
Oceanic (2) >400m	
Oceanic (1) 0-800m	
Oceanic (2) >800m	
Plateau (1) 0-600m	✓
Plateau (2) >600m	
Heard Plateau 0-1000m	
Oceanic (1) 0-1000m	
Oceanic (2) >1000m	
Oceanic (1) 0-1600m	
Oceanic (2) >1600m	

Scoping Document S3 Identification of Objectives

Component	Core Objective	Sub-component	Operational objectives	Indicators	Rationale
Target species	Avoid recruitment failure of the target species. Avoid negative consequences for species or population sub-components.	1. Population size	1.1 No trend in biomass 1.2 Maintain biomass above specified level 1.3 Maintain catch at specified level 1.4 Species do not approach extinction or become extinct	Biomass, numbers, density, catch per unit effort, yield	1.1 Increases in biomass of the key/secondary commercial species would be acceptable. 1.2. To ensure that population biomass is above acceptable level. 1.3. Catch limits/triggers are specified. Annual review of target species catch (trigger report). 1.4. This is a general objective for all AFMA fisheries as per <i>Fisheries Management Act 1991</i> (objective (b): ensuring that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development).
		2. Geographic range	2.1 Geographic range of the population, in terms of size and continuity, does not change outside acceptable bounds	Presence of population across CSF	2.1 Not currently monitored. No specific management objective based on the geographic range of key/secondary commercial species.
		3. Genetic Structure	3.1 Genetic diversity does not change outside acceptable bounds	Frequency of genotypes in the population, effective population size, number of spawning units	3.1 Not currently monitored. No specific management objective based on the geographic range of key/secondary commercial species.
		4. Age/size/sex structure	4.1 Age/size/sex structure does not change outside acceptable bounds (e.g. more than X% from reference structure)	Biomass, numbers or relative proportion in age/size/sex classes; Biomass of spawners; Mean size, sex ratio	4.1 Not currently monitored. The selectivity of the fishing method suggests that the fishery is not targeting juveniles despite fishing occurring in spawning or recruitment grounds (coral reefs).
		5. Reproductive capacity	5.1 Fecundity of the population does not change outside acceptable bounds (e.g. more than X% of reference population fecundity) 5.2 Recruitment to the population does not change outside acceptable bounds	Egg production of population; Abundance of recruits	5.1 This objective is covered by 1.2 above. 5.2 This objective is covered by 1.2 above.
		6. Behaviour/Movement	6.1 Behaviour and movement patterns of the population do not change outside acceptable bounds	Presence of population across space, movement patterns within the population (e.g. attraction to bait, lights)	6.1. Changes to behaviour that are deleterious to the species and populations are to be avoided.

Byproduct and Bycatch	Due to the high selectivity of the hand collection fishing method, there are no byproduct or bycatch species identified for assessment.	-	-	-	-
ETP species	Avoid recruitment failure of ETP species Avoid negative consequences for ETP species or population sub-components Avoid negative impacts on the population from fishing	1. Population size	1.1 No trend in biomass 1.2 Maintain biomass above specified level 1.3 Maintain catch at specified level 1.4 Species do not approach extinction or become extinct	Biomass, numbers, density, catch per unit effort, yield	1.1 This is a general objective for all AFMA fisheries as per <i>Fisheries Management Act 1991</i> objective (1b): ensuring that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development); and objective (2): ensuring, through proper conservation and management measures, that the living resources of the AFZ are not endangered by over-exploitation; therefore, the fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species. 1.2 A positive trend in biomass is desirable for protected species. 1.3 As the hand collection fishing method is highly selective, there is no untended catch, and therefore no recorded interactions, of ETP species. 1.4 The above management objective states 'must avoid mortality/injury' to protected species.
		2. Geographic range	2.1 Geographic range of the population, in terms of size and continuity, does not change outside acceptable bounds	Presence of population across CSF	2.1 Change in geographic range of protected species may have serious consequences e.g. population fragmentation and/or forcing species into sub-optimal areas.
		3. Genetic Structure	3.1 Genetic diversity does not change outside acceptable bounds	Frequency of genotypes in the population, effective population size, number of spawning units	3.1 Because population size of protected species is often small, protected species are sensitive to loss of genetic diversity. Genetic monitoring may be an effective approach to measure possible fishery impacts.
		4. Age/size/sex structure	4.1 Age/size/sex structure does not change outside acceptable bounds (e.g. more than X% from reference structure)	Biomass, numbers or relative proportion in age/size/sex classes; Biomass of spawners; Mean size, sex ratio	4.1 Monitoring the age/size/sex structure of protected species populations is a useful management tool allowing the identification of possible fishery impacts and that cross-section of the population most at risk.

		5. Reproductive capacity	5.1 Fecundity of the population does not change outside acceptable bounds (e.g. more than X% of reference population fecundity) 5.2 Recruitment to the population does not change outside acceptable bounds	Egg production of population; Abundance of recruits	5.1 Fishery induced changes in reproductive capacity may have immediate impact on the population size of protected species. 5.2 Fishery induced changes to recruitment may have immediate impact on the population size of protected species.
		6. Behaviour/ Movement	6.1 Behaviour and movement patterns of the population do not change outside acceptable bounds	Presence of population across space, movement patterns within the population (e.g. attraction to bait, lights)	6.1 Fishing operations may attract protected species and alter behaviour. Subsequently this could increase the risk of injury/mortality by collision, entrapment or entanglement with a vessel or fishing gear.
		7. Interactions with fishery	7.1 Survival after interactions is maximised 7.2 Interactions do not affect the viability of the population or its ability to recover	Survival rate of species after interactions; Number of interactions, biomass or numbers in population	7.1 As part of an existing management objective, the highly selective method of fishing is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species.
Habitats	Avoid negative impacts on the quality of the environment	1. Water quality	1.1 Water quality does not change outside acceptable bounds	Water chemistry, noise levels, debris levels, turbidity levels, pollutant concentrations, light pollution from artificial light	1.1 MARPOL regulations prohibit discharge of oils, discarding of plastics. Discharge of organic matter through provisioning is considered to be infrequent and in very low quantities, even on a local scale.
		2. Air quality	2.1 Air quality does not change outside acceptable bounds	Air chemistry, noise levels, visual pollution, pollutant concentrations, light pollution from artificial light	2.1 Not currently perceived as an important habitat sub-component, fishing operations not believed to strongly influence air quality.
	3. Substrate quality	3.1 Sediment quality does not change outside acceptable bounds	Sediment chemistry, stability, particle size, debris, pollutant concentrations	3.1 Fishing methods in Aquarium Sector seen to have little impact of substrate quality.	
	4. Habitat types	4.1 Relative abundance of habitat types does not vary outside acceptable bounds	Extent and area of habitat types, % cover, spatial pattern, landscape scale	4.1 Fishing methods in Aquarium Sector seen to have little impact of habitat types.	
	5. Habitat structure and function	5.1 Size, shape and condition of habitat types does not vary outside acceptable bounds	Size structure, species composition and morphology of biotic habitats	5.1 Fishing methods in Aquarium Sector seen to have little impact of habitat structure.	
Communities	Avoid negative impacts on the composition/function /distribution/structure of the community	1. Species composition	1.1 Species composition of communities does not vary outside acceptable bounds	Species presence/absence, species numbers or biomass (relative or absolute);	1.1 General objective for all AFMA fisheries as per <i>Fisheries Management Act 1991</i> (objective 1b): ensuring that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with

		Richness; Diversity indices; Evenness indices	the principles of ecologically sustainable development) in particular the need to have regard to the impact of fishing activities on non-target species and the long-term sustainability of the marine environment.
2. Functional group composition	2.1 Functional group composition does not change outside acceptable bounds	Number of functional groups, species per functional group (e.g. autotrophs, filter feeders, herbivores, omnivores, carnivores)	2.1 The presence/abundance of 'functional group' members may fluctuate widely, however in terms of maintenance of ecosystem processes it is important that the aggregate effect of a functional group is maintained.
3. Distribution of the community	3.1 Community range does not vary outside acceptable bounds	Geographic range of the community, continuity of range, patchiness	3.1 The current MPA and conservation areas reserve large areas of the known habitat types from fishing disturbance.
4. Trophic/size structure	4.1 Community size spectra/trophic structure does not vary outside acceptable bounds	Size spectra of the community; Number of octaves, Biomass/number in each size class; Mean trophic level; Number of trophic levels	4.1 Fishing activities for key/secondary commercial species have the potential to remove a component of the either prey or predator functional group. Increased abundance of either prey or predator functional groups may then allow shifts in relative abundance of higher trophic level organisms.
5. Bio- and geo-chemical cycles	5.1 Cycles do not vary outside acceptable bounds	Indicators of cycles, salinity, carbon, nitrogen, phosphorus flux	5.1 Aquarium fishing operations not perceived to have a detectable effect on bio- and geo-chemical cycles. The use of chemicals (including anaesthetics) for fishing is prohibited.

Scoping Document S4 Hazard Identification

Direct Impact of fishing	Fishing Activity	Score (0/1)	Documentation of Rationale
Capture	Bait collection	0	Bait is purchased rather than collected.
	Fishing	1	Capture of organisms due to actual fishing.
	Incidental behaviour	0	No activities that result in capture while not fishing.
Direct impact without capture	Bait collection	0	Bait is purchased rather than being collected.
	Fishing	1	Benthic species may be disturbed by divers moving over them, and by contact with hand nets without actual capture. Impact considered minimal and reef edges and rubble areas are targeted, as opposed to coral areas, primarily to avoid damage to collection nets.
	Incidental behaviour	1	Periodically go ashore on an island during the daytime, once per six months. Lights at night may have an impact on bird life, likely minimal.
	Gear loss	0	Gear is operated by hand and unlikely to be lost. Equipment is custom made so fishers are highly incentivised to preserve gear between fishing locations and trips.
	Anchoring/mooring	1	Possible damage to animals and corals where anchor drops. Motherships are anchored on sand where possible. Light anchors are used to secure tenders on reefs. In most cases anchoring occurs on back of reef, however, the harder bottom of the front of reef causes negligible impact. Permanent moorings are not used as they do not lend themselves to the spread of fishing effort.
	Navigation/steaming	1	Steaming/navigation between fishing grounds may result in collisions (e.g. seabirds or whales vessel interactions).
Addition/movement of biological material	Translocation of species (boat launching, ballasting)	1	Could occur incidentally via boat hulls, or fouling or nets, involving introduced species or movement of species from coastal areas into the Coral Sea Fishery area. However, holds and transport containers are sterilised intermittently with anti-fouling chemical; only one port is used by all operators (Cairns). Fishing does not occur in the weeks prior to and one week following coral spawning. No fish caught by Aquarium operators are ever returned to the water. Drying all nets between trips also ensures translocation risk is reduced.
	On board processing	0	Fish are caught, transported, and delivered live. There is no onboard processing involved.
	Discarding catch	0	No discarding due to highly selective fishing methods.
	Stock enhancement	0	Does not occur.
	Provisioning	1	Berley cage with pilchard bait (purchased from bait provider) used to attract some shark species. Only one operator engages in provisioning, where they catch sharks using line fishing.

	Organic waste disposal	1	Disposal of organic wastes (sewage) from the permit boat. MARPOL guidelines apply. There is no offal or catch discarding in this fishery.
Addition/movement of non-biological material	Debris	0	Rubbish not thrown overboard. MARPOL guidelines apply.
	Chemical pollution	1	Oil spills, anti-fouling chemicals, MARPOL guidelines apply. Dishwashing liquids, shampoos etc.
	Exhaust	1	Exhaust of diesel and other engines.
	Gear loss	0	Gear is operated by hand and unlikely to be lost. Fishers are highly incentivised to preserve their gear as they are custom made. Retention of equipment is critical for the next dive and remainder of the trip.
	Navigation/steaming	1	Navigation and steaming of the vessels will introduce noise (engine noise and echo-sounders) and visual stimuli into the environment.
	Activity/presence on water	1	The activity of the vessels will introduce noise and visual stimuli into the environment. May interact with wildlife such as dolphins riding bow wave, birds settling on boat. Lights at night may have minimal impact.
Disturb physical processes	Bait collection	0	Bait is purchased rather than being collected.
	Fishing	1	Divers may disturb sediments locally. Impact considered to be low.
	Boat launching	1	Vessels in fishery come from designated ports that are outside the Coral Sea Fishery (Cairns). Within the CSF, tenders launched from the mothership.
	Anchoring/mooring	1	Anchoring may affect the physical processes where anchors and chains contact the seafloor. Tenders often anchor directly to reef, although light gear is used to minimise impact. Intensity of impact is minor due to most fishing occurring in rubble pans.
	Navigation/steaming	1	Navigation /steaming may affect the physical processes on the benthos and the pelagic by turbulent action of propellers or wake formation, however, impact is considered negligible.
External Hazards	Other capture fishery methods	1	Other CSF Sectors (Sea Cucumbers, Lobster & Trochus, and Line) and recreational fishing. Other fisheries are either inactive or subject to very low levels of effort.
	Aquaculture	0	Fishery is located offshore and not impacted.
	Coastal development	0	Fishery is located offshore and not impacted.
	Other extractive activities	0	At present, no current petroleum permits exist, and no new leases have been granted for the CSF area.
	Other non-extractive activities	1	Shipping lanes.
	Other anthropogenic activities	1	Some recreational spearfishing occurs on reefs within the Aquarium fishery. Shark feeding previously occurred (more than 20 years ago) causing sharks to congregate around boats, so these areas are avoided. Acroporidae are severely affected by bleaching events (recently occurring in 2020, 2022, and 2024).

Scoping Document S5 Bibliography

Assessment of the Commonwealth Coral Sea Fishery February 2024, Commonwealth of Australia, 2024.

Butler, I, Patterson, H, Bromhead, D, Galeano, D, Timmiss, T, Woodhams, J and Curtotti, R 2024, Fishery status reports 2024, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, DOI: <https://doi.org/10.25814/bfnc-9160>. CC BY 4.0

Condie, S., Ridgway, K., Griffiths, B., Rintoul, S., Dunn, J. (2003). National Oceanographic Description and Information Review for National Bioregionalisation. Report for National Oceans Office. (CSIRO Marine Research: Hobart, Tasmania, Australia)

Hobday, A. J., A. Smith, H. Webb, R. Daley, S. Wayte, C. Bulman, J. Dowdney, A. Williams, M. Sporcic, J. Dambacher, M. Fuller, T. Walker (2007). Ecological Risk Assessment for the Effects of Fishing: Methodology. Report R04/1072 for the Australian Fisheries Management Authority, Canberra.

Interim Marine and Coastal Regionalisation for Australia Technical Group (1998). Interim Marine and Coastal Regionalisation for Australia: an ecosystem-based classification for marine and coastal environments. Version 3.3. Environment Australia, Commonwealth Department of the Environment: Canberra, Australia.

Last, P., Lyne, V., Yearsley, G., Gledhill, D., Gomon, M., Rees, T., and White, W. (2005). Validation of national demersal fish datasets for the regionalisation of the Australian continental slope and outer shelf (>40m depth). National Oceans Office, Department of Environment and Heritage and CSIRO Marine Research, Australia.

Lyne, V., Hayes, D. (2004). Pelagic Regionalisation. National Marine Bioregionalisation Integration Project. 137 pp. CSIRO Marine Research and NOO: Hobart, Australia.

Williams, A. and Gowlett-Holmes, K. and Althaus, F. (2006). Biodiversity survey of the seamounts and slopes of the Norfolk Ridge and Lord Howe Rise (NORFANZ). Final Report to the National Oceans Office, April 2006.