## 4.5 CORAL SEA COMMONWEALTH MARINE RESERVE

### *Background*

The Coral Sea CMR extends from the GBRMP out to the limit of Australia's EEZ, from Cape York Peninsula in the north and an east–west line approximately 40 km north of Bundaberg in Queensland in the south. The reserve's nearest point to the mainland is approximately 60 km and it extends out to about 1 100 km from the coast. Depth ranges from shallow waters around reefs and cays to the remote and little-known abyssal plains almost 5 km deep.

The Coral Sea CMR established in 2012 covered 989 842 km$^2$ and contained six zone types: Marine National Park (51%), Habitat Protection (Coral Sea) (18%), Habitat Protection (Seamounts) (9%), Conservation Park (2%), Multiple Use (20%), and General Use (0.4%) (Figure 4.5.1). It encompassed the former Coral Sea Conservation Zone, and included the former Coringa-Herald National Nature Reserve and former Lihou Reef National Nature Reserve which were proclaimed in 1982.

Much of the reserve is considered to be a relatively pristine marine environment with distinctive biological characteristics and has not been subject to major anthropomorphic pressures. Conservation values represented within the reserve include six Provincial Bioregions (Cape Province, Northeast Transition, Northeast Province, Central Eastern Transition, Kenn Province, and Kenn Transition); 94 Depth Ranges (by Provincial Bioregion); reefs, cays and herbivorous fish of the Marion Plateau; reefs, cays and herbivorous fish of the Queensland Plateau; the Tasmantid Seamount Chain; and over 100 historic shipwrecks.

The northern part of the Tasmantid Seamount Chain extends into the reserve, providing shallow reef and deepwater habitats for a wide range of species. Seamounts are seen as stepping stones for dispersal and hotspots of species richness, abundance and biomass in an otherwise nutrient-poor environment.

The reserve has a range of seafloor features, with shallow coral reefs such as Ashmore and Boot reefs in the north-west; seamounts and deep troughs, including the Townsville Trough that separates the Queensland and Marion plateaux; and the Queensland Trough, which extends along the reserve's border with the GBRMP. The Coral Sea Basin in the north of the reserve is a deepwater abyss that extends to the Mellish Rise in the east.

There are numerous cays and islets and over 30 reefs in the reserve, with a total reef area of approximately 15 024 km$^2$. These oceanic reef systems provide complex habitats that support diverse and abundant marine and terrestrial flora and fauna, distinct from the fringing reefs of the Great Barrier Reef. Several seamounts support coral reefs at their peaks, including Wreck, Cato, Kenn and Mellish reefs.

The Coringa-Herald and Lihou Reefs and cays were designated as a wetland of international importance under the Ramsar Convention in 2002. These cays and islets support communities of *Pisonia grandis* (a species of flowering tree in the *Bougainvillea* family) that is relatively uncommon in Australia and globally. These *Pisonia* forests provide significant habitat for nesting seabirds.

Heritage values are significant in the Coral Sea. Historically, many vessels involved in the mining of guano and harvesting of pearls, trochus and sea cucumbers were lost at sea. It is likely that hundreds of historic shipwrecks rest in the reserve, but the precise locations of

most remain unknown. The locations of at least 10 historic shipwrecks are known, with the *Cato* and the HMS *Porpoise* considered particularly important. The region was significant in the Battle of the Coral Sea during World War II. Three ships from this battle are known to have sunk in the north-east of the Reserve, the USS *Sims* (a destroyer), USS *Lexington* (an aircraft carrier) and USS *Neosho* (an aviation fuel supplier).

The north of the reserve, adjacent to the Torres Strait, is important for Indigenous use. This is acknowledged through the Torres Strait Regional Sea Claim, which extends over approximately 37 800 km$^2$ of sea in the Torres Strait, between Cape York Peninsula and Papua New Guinea. The Torres Strait Turtle Fishery operates in the far north-east corner of the reserve as an Indigenous fishery using hand-collection and traditional spear methods. Native title rights extend into a small portion of the north-west of the reserve.

Commercial fishing is an important industry in many coastal economies in the region. Associated activities, such as fish processing, trade and marketing, ship repair yards, marinas and dock facilities, transportation, boat construction, and the supply of marine equipment such as nets and rigging, are important to regional employment and economic activity and, more broadly, to food security.

Queensland fisheries that operate partially within the reserve include the East Coast Otter Trawl Fishery, the Deep Water Multiple Hook Fishery and the East Coast Inshore Fin Fish Fishery. The Commonwealth ETBF is partially within the Coral Sea, while the entire Coral Sea Fishery is within the Coral Sea. Hand collection of tropical fish and coral for the marine aquarium trade is the most economically important component of the Coral Sea Fishery. For a variety of reasons, including stricter fishing regulations and the introduction of quota controls, fuel prices and changing market conditions, the current extent of commercial fishing and reported catches are considerably lower than in the past.

Most recreational fishing and charter fishing, including spear and game fishing, occurs in and around the reefs and cays of the Queensland and Marion plateaux adjacent to GBRMP.

The Coral Sea is also important for tourism, particularly diving, whale watching and cruising as well as boating and shipping. Willis Island is a particular interest for the cruise ship industry in the region.

The reserve is also important for science with research and monitoring conducted on the former Coringa-Herald and Lihou Reef National Nature Reserves. The meteorological research station on Willis Island is the only permanently populated island in the Coral Seas Islands Territory. Unmanned weather stations, beacons and a lighthouse are located on some of the other islands and reefs.

The Coral Sea CMR contains one of Australia's busiest shipping routes, with important links to the global shipping lanes between Europe and Asia. There are no petroleum exploration permits, titles or acreage leases in the reserve.

Submarine telecommunication cables linking Australia with other countries, including Papua New Guinea, Guam and Japan, intersect the reserve.

The Australian Defence Force uses the entire marine reserve in the course of its operations, with a specific area set aside around Saumarez Reefs for training activities.

***Issues raised***

The Coral Sea CMR was canvassed in detail in many submissions and in meetings with stakeholders. Issues raised included:

*General*

- Concerns that the protection in existing zoning, or that modified through the set-aside Coral Sea CMR Management Plan, would be weakened
- Loss of access for fisheries and the regional socioeconomic consequences, specifically:
    - Loss of access for tuna fishing
    - Loss of potential to further develop tuna fisheries in the Coral Sea
    - Loss of access to potential deepwater prawn resources
    - Loss of access for collecting sea cucumber and aquarium species within several of the coral reefs
- Impact of MNPZs on the charter fishing industry
- Promotion of the Coral Sea reefs as an 'eco-research' destination
- Impacts of commercial and game fishing on the coral reefs and associated fish species
- Gear drift by tuna long-lines
- Illegal, unreported and unregulated fishing
- Inadequate protection—specifically, improved MNPZ protection of reefs, shoals, cays and seamounts
- Ports and shipping operations—specifically risks, impacts and unintended consequences, as well as dredge spoil management.
- Historical maritime significance of the area—particularly the Battle of the Coral Sea
- Effort shift—particularly negative consequences of concentrating fishing effort in areas outside MNPZs or outside the Coral Sea CMR more generally
- Impact of non-extractive uses on MNPZ values (e.g. diving and shark feeding)
- Importance of reference, monitoring and research in MNPZs
- Allowing recreational fishing in IUCN II zones
- Removal of destructive fishing practices from the Coral Sea CMR
- Exclusion of mining, including oil and gas and mineral exploration
- Need to better integrate fisheries and conservation management

*Osprey, Shark and Vema reefs*

- Loss of access for charter and recreational fishing
- Maintenance or expansion of protection to ensure adequate reserve size and secure ecotourism opportunities
- Maintenance or expansion of protection for reef habitat

*Bougainville Reef*

- Loss of access for charter and recreational fishing
- Maintenance of protection to secure ecotourism opportunities
- Maintenance or expansion of the MNPZ to ensure adequate protection

*Kenn and Mellish reefs*

- Maintenance of protection as an MNPZ
- Loss of access for fisheries—specifically:
    - Loss of access for tuna fishing
    - Loss of access for charter fishing

*Seamounts*

- Loss of access for commercial fisheries—specifically, the adequacy and implications of the FGRA that relates to auto-longlining
- Protection of seamounts under MNPZ.

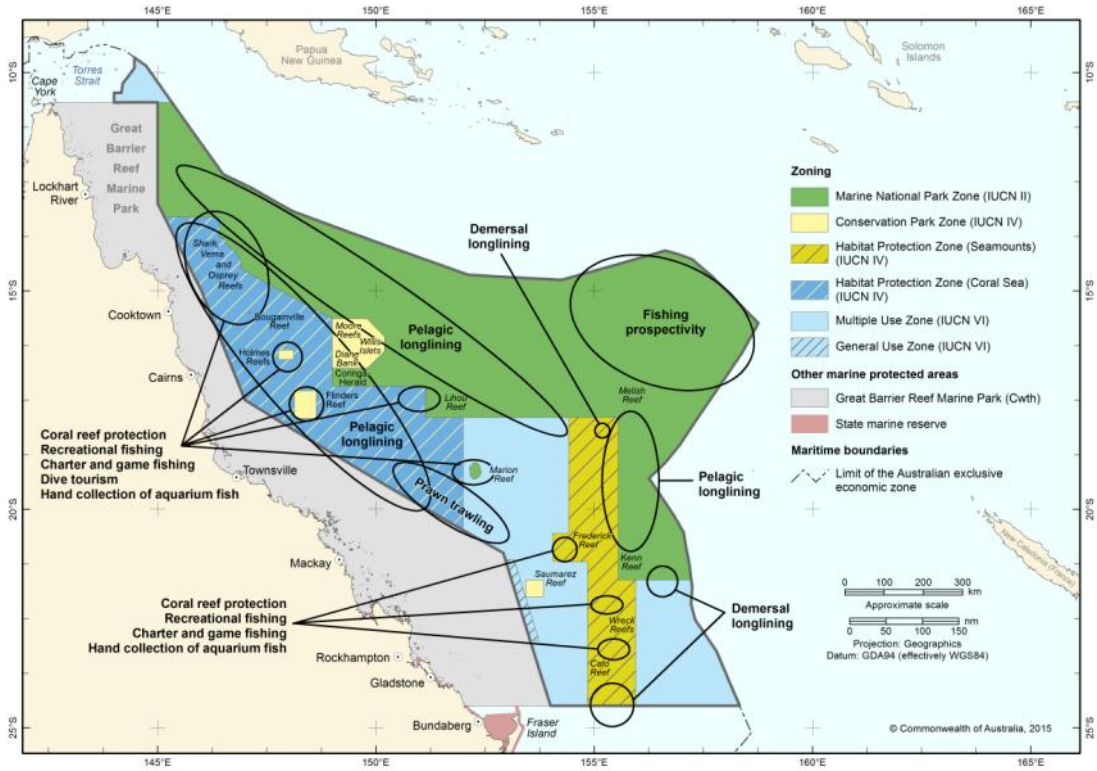


Figure 4.5.1 Coral Sea CMR as proclaimed, showing key issues and drivers for change identified during the CMR Review

***Areas of contention***

The Regional Panel listed several areas of contention in the Coral Sea CMR, including:

- Loss of access by established commercial, recreational and charter fisheries
- Access to, use of and improving level of protection of coral reefs in the Coral Sea
- Balancing competing uses of Osprey, Shark and Vema reefs
- The FGRA of auto-longlining on Coral Sea seamounts.

*Commercial fishing—pelagic longlining*

The ETBF extends from Cape York in Queensland to the border of South Australian and Victoria, and fishing occurs in both the Australian Fishing Zone and adjacent high seas. The main target species are albacore tuna (*Thunnus alulunga*), bigeye tuna (*T. obesus*), yellowfin tuna (*T. albaceres*), broadbill swordfish (*Xiphias gladius*) and striped marlin (*Tetrapturus audux*). These species are also caught in many other countries, and Australia's catch of tuna and billfish is only a very small part of the total international catch. The catch in Australia is sustainable, but bigeye tuna is considered overfished and broadbill swordfish subject to overfishing.

Fish are taken by minor line (that is, trolling, pole and line (poling) or rod and reel fishing) and pelagic longline (baited hooks attached to the longline by short lines called snoods that hang off the mainline, which can be many kilometres long and can carry thousands of hooks). Recreational anglers use minor line methods.

The methods of fishing employed in the ETBF have been found to have little to no direct impact on the physical marine environment. AFMA ecological risk assessment identified nine species at high risk from the effects of fishing in the ETBF. This included longfin

mako, dusky whaler, pelagic thresher and crocodile sharks; two species of sunfish; short-finned pilot and false killer whales; and leatherback turtle. No target species, ecological communities or habitats were assessed to be at high risk from the effects of fishing in the ETBF.

Areas of particular interest:

- The Coral Sea Zone (formerly known as Area E), a restricted area off the Queensland coast where a 500-hook limit per shot applies to protect juvenile marlin species and their spawning grounds. Under the 2012 proclamation this area was entirely contained in the HPZ (Coral Sea) that prohibited commercial longlining.
- The remainder of the Coral Sea CMR all of which overlaps with the ETBF, with a significant portion in the MNPZ proclaimed in 2012.

The Regional Panel considered that the ETBF was a sustainable fishery which, together with a number of ancillary shore-based businesses, made a significant contribution to the regional economy. It found little justification for the extent of the proclaimed restriction of commercial tuna longlining in the Coral Sea, given its conservative management. The BAP also took the view that the large MNPZ that covered 51% of the Coral Sea CMR, most of which was in distant waters of over 2000 m depth, placed unnecessary constraints on the ETBF, which usually set hooks shallower than 300 m.

*Aquarium fish collection and sea cucumber fishery*

Hand collection of aquarium fish and of sea cucumbers (*beche-de-mer*) are sectors of the Coral Sea Fishery managed by AFMA and operating from Cape York to Sandy Cape in Queensland. The Aquarium Sector is licensed to collect 40 000 specimens of more than 500 species found in the Coral Sea. The sea cucumber sector targets mainly black teatfish, prickly redfish, surf teatfish, white teatfish greenfish and lollyfish as well as 11 other minor species with a total allowable catch of over 40 t in total. Both sectors operate on the coral reef and flats.

The Regional Panel considered that both fisheries were low impact as long as they maintained their established pattern of rotational fishing on reefs, including Osprey, Shark, Bougainville and Marion reefs, to avoid localised depletion.

*Recreational and charter fishing*

The Coral Sea is an internationally recognised fishing destination that supports a significant recreational and charter fishing sector that markets and is reliant on the remoteness and wildness of the Coral Sea.

The BAP noted representations from both sectors that illustrated the importance of access to nearshore reefs, particularly Osprey, Bougainville, Holmes, Flinders, Marion and Saumarez reefs, as local destinations for their respective communities fishing out of Cooktown, Cairns, Townsville, Mackay and Gladstone respectively. The BAP also noted the importance of these reefs for charter operations as a key 'staging post' on the way to more distant locations.

Several of these reefs are very large and, in the opinion of the BAP, can be zoned in such a way as to achieve the highest level of conservation (MNPZ) alongside low-impact recreational and charter fishing (HPZ (Reefs)). These areas included Osprey, Shark, Vema, Holmes, Flinders and Marion reefs.

The BAP also considered the general findings of the ESP on recreational fishing and its impacts, in particular that consume-on-site provisions and/or restrictions on the catch of reef associated species in some areas which had the potential to minimise impacts while allowing limited fishing to occur in such areas.

*Trawling*

Demersal trawling occurs in the Coral Sea CMR and is a component of the Queensland Trawl Fishery. The area of interest is the deeper water (250–800 m) adjacent to the boundary with the Great Barrier Reef between Townsville and Rockhampton. Species of interest include giant scarlet prawns and royal red prawns as well as bycatch such as scampi, crabs and ornamental shells.

Impacts of prawn trawling on inter-reefal areas of the Great Barrier Reef have been well described and are likely to be similar for prawn trawling on these habitats in the East Marine Region.[14] Single trawl shots have little impact but repeated trawling has a cumulative effect and can remove the majority of highly susceptible species. In general, research indicates that the impacts of trawling are related to the distribution and intensity of fishing effort, the resilience of taxa to removal by the gear, and the ability of the taxa to recover after impact. Prawn trawls have been reported to have smaller effects than fish trawls and beam trawls.[15]

*Auto-longlining*

Demersal or bottom longlining has occurred in the Coral Sea CMR in several places along the Tasmantid Seamounts. This method is allowed in the Coral Sea Fishery. Reef and seamount species are targeted: a broad range of finfish including tropical snappers and emperors (Lethrinidae, Pristipomoides or Lutjanidae), eyeline snapper (Nemypteridae), coral cod (*Epinephelus* spp, Serranidae), jobfish (Lutjanidae), and coral trout (*Plectropomus leopardus*). Other species may also be targeted, depending on the area being fished, such as trevalla and sharks.[16]

The ESP advice on the FGRA for demersal automatic longline gear specifically in relation to operations in the Coral Sea CMR was that:

- Recent management arrangements implemented by AFMA, particularly those relating to spatial closures, together with use of tori lines and industry codes of practice designed to improve the survival of bycatch, have significantly mitigated the threat of demersal longline fishing to vulnerable chondrichthyans in the Central Eastern CMR
- Information on the impact of the auto-longline sector of the Coral Sea Fishery in relation to target species, bycatch species and habitat is poor, but closer monitoring of logbooks and placement of observers has been recommended
- The impact of demersal longline fishing on deepwater habitats such as those found in the Coral Sea CMR remains uncertain, as to date no research has specifically assessed this risk in this region

[14] K. McLoughlin and S. Morison. (2010). Assessment of risks that commercial fishing methods may pose to conservation values identified in the Areas for Further Assessment of the East Marine Region. Department of the Environment, Water, Heritage and the Arts, Canberra.

[15] C. R. Pitcher, C. Y. Burridge, T. J. Wassenberg, B. J. Hill and I. R. Poiner. (2009). A large scale BACI experiment to test the effects of prawn trawling on seabed biota in a closed area of the Great Barrier Reef Marine Park, Australia. *Fisheries Research* 99(3), 168–183.

[16] D. Furlani, M. Fuller, C. Bulman, J. Dowdney and M. Sporcic. (2007). Ecological Risk Assessment for the Effects of Fishing: Report for the Demersal Longline Subfishery of the Coral Sea Fishery. Report for the Australian Fisheries Management Authority, Canberra.

- In some circumstances and under appropriate management arrangements, demersal longline may be a more sustainable method than trawl for deepwater fisheries off the continental slope and on seamounts. However, this will depend largely on the habitat characteristics of the area fished and the intensity of fishing
- Spatial closures appear to offer the best protection where catch rates of non-target species are high
- Until such a time that these relationships can be properly understood, a precautionary approach to deep water fishing should be maintained. For this reason demersal longline fishing (including auto-longlines) should remain a method that is incompatible with the conservation values of the Coral Sea CMR, particularly those relating to seamounts.

*Conservation*
The ESP noted that:

- Recent studies have shown that Coral Sea fish assemblages have complex patterns of connectivity and are unique on a regional, national and global scale. Deepwater fish in the western Coral Sea display high species richness and endemism, while coral reef associated fish species are more similar to Pacific assemblages than to the Great Barrier Reef.
- New information relevant to two of the identified KEFs of the Coral Sea—the reefs, cays and herbivorous fish of the Queensland Plateau and the reefs, cays and herbivorous fish of the Marion Plateau—indicates that the underpinning assumption that the Coral Sea provides connectivity between the Great Barrier Reef and the South Pacific may need to be revised for macroinvertebrates and herbivorous fish. Instead, fish and macroinvertebrate assemblages of the Coral Sea more closely align with those of the western Pacific, such as Tonga and Samoa, while those in the Great Barrier Reef were more closely aligned with Papua New Guinea, the Solomons Islands and Vanuatu.
- Reefs within marine national parks zoned as IUCN II, including the Coringa-Herald and Lihou reef systems, supported higher fish biomass (approximately 70%) than comparable reefs where fishing is allowed. Shark biomass was approximately 90% higher and large predator biomass 50% higher in IUCN II zones than at comparable fished areas nearby.[17]

The BAP noted that this information supported the argument for greater protection of the coral reefs in the Coral Sea, including a better spatial coverage across the Queensland and Marion plateaux.

The BAP noted the importance placed on the size of the Coral Sea MNPZ in several of the submissions, that argued that the area needed to be protected as one of a few relatively intact marine ecosystems globally. It also noted that much of this area was in deep offshore waters and lightly impacted by fishing and other anthropogenic activities. The area held potential in terms of fishing prospectivity, especially for tuna, and aside from historical fishing by international fleets, had not been exploited by Australia.

The BAP paid particular attention to zoning that would complement the zoning and management arrangements of the GBRMP, recognising the conservation, social and

[17] G. J Edgar, D. M. Ceccarelli and R. D. Stuart-Smith. (2015). Reef Life Survey Assessment of Coral Reef Biodiversity in the Coral Sea. Report for the Department of the Environment. The Reef Life Survey Foundation Inc. and Institute of Marine and Antarctic Studies.

economic values and potential of the Coral Sea for a wide variety of users and other interested stakeholders.

The ESP advice about new information on the conservation values for the Coral Sea CMR included:

- The coral reefs in the Coral Sea CMR have been shown to be distinctive at the species and functional group level in southern, central and northern parts of the reserve. The Coral Sea is shown to be a significant biodiversity hotspot for reef associated sharks and is an important area for pelagic resources such as tuna and marlin. All six species of turtle are found in the Coral Sea and it is also a significant area for breeding seabirds. The Coral Sea CMR is also significant in that it is one of few remaining areas globally that has not been significantly impacted by human activities
- The diversity of the Coral Sea reefs warrants a higher level of protection especially in the southern region. Because they are relatively un-impacted by human activity, the reefs, pelagic and demersal biodiversity of the Coral Sea form an important baseline reference area and an adequate representation should be contained in highly protected, no-take reserves.

The ESP advice regarding split zoning over coral reefs in the Coral Sea was that:

- Split zones and paired sites offer an opportunity to study the effectiveness of different management approaches and can provide useful information to inform and improve future reserve management
- Splitting reef systems into more than one zone type should only be considered on reef systems that are large enough to ensure that (i) each zone covers a sufficient area to deliver conservation outcomes (ii) the allowable activities undertaken in one zone are not of a type, scale or intensity to impact on adjacent zones, and (iii) one zone type is MNPZ.

***Recommendations***

The recommendations for the Coral Sea CMR are to:

- Combine the HPZ (Coral Sea) and MUZ areas in the south into a single HPZ. This area will provide a larger area of access for the ETBF, charter and recreational fisheries
- Retain the majority of the proclaimed MNPZ in deeper waters of the Coral Sea
- Create a new HPZ (Reefs) zone over Shark, Vema and Bougainville reefs; Diane Bank; Willis Islets; Moore, Saumarez, Frederick and Cato reefs; the southern part of Osprey; the northern half of Marion and Flinders reefs; and western Holmes Reefs. This will provide a greater level of protection to coral reef systems of the Coral Sea while providing access for aquarium, hand-collection, charter and recreational fisheries. Specific restrictions on linefishing and spearfishing for reef associated species should be developed, including no take of reef fish species
- Establish a SZ on Lihou Reef
- Retain MNPZ status on Herald Cays, Coringa Islets, Magdelaine Cays, Mellish and Kenn reefs, and the horn and northern part of Osprey Reef
- Establish new MNPZs on South Flinders, eastern Holmes and Wreck reefs which together with those above, will provide the highest level of protection to a significant and geographically widely spaced number of coral reefs in the Coral Sea for conservation and reference purposes

- Establish five new MNPZs along the south-western boundary of the Coral Sea CMR, to align and complement MNPZs in the GBRMP
- Change and extend the proclaimed GUZ (IUCN VI) to a SPZ near the border of the GBRMP from Townsville to above Rockhampton that will improve access for deep water prawn trawling
- Introduce two small SPZ areas in the southern part of the Coral Sea CMR that will permit demersal longlining
- Change the MUZ in the north around Ashmore and Boot Reefs to HPZ.

These changes are shown in Figures 4.5.3 to 4.5.16 and summarised in Table 4.5.1.

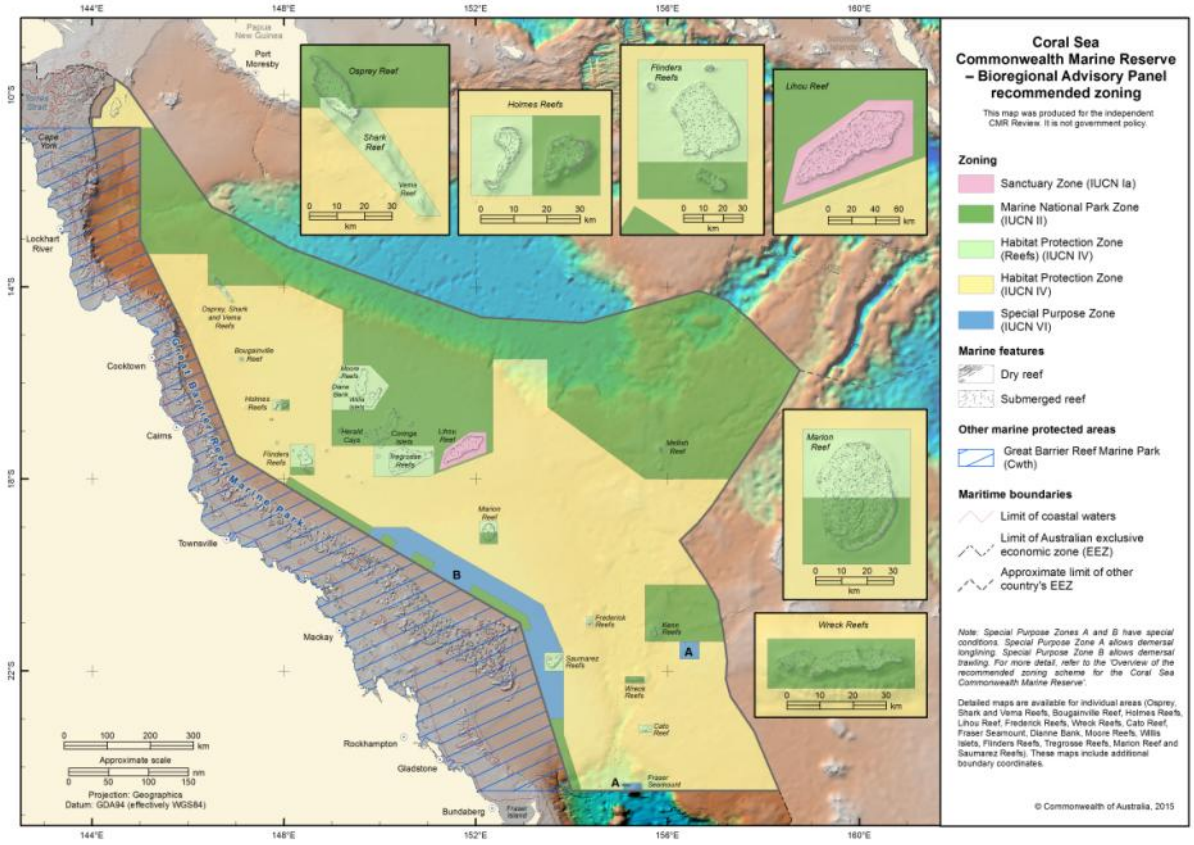


Figure 4.5.3 Recommended zoning for Coral Sea CMR

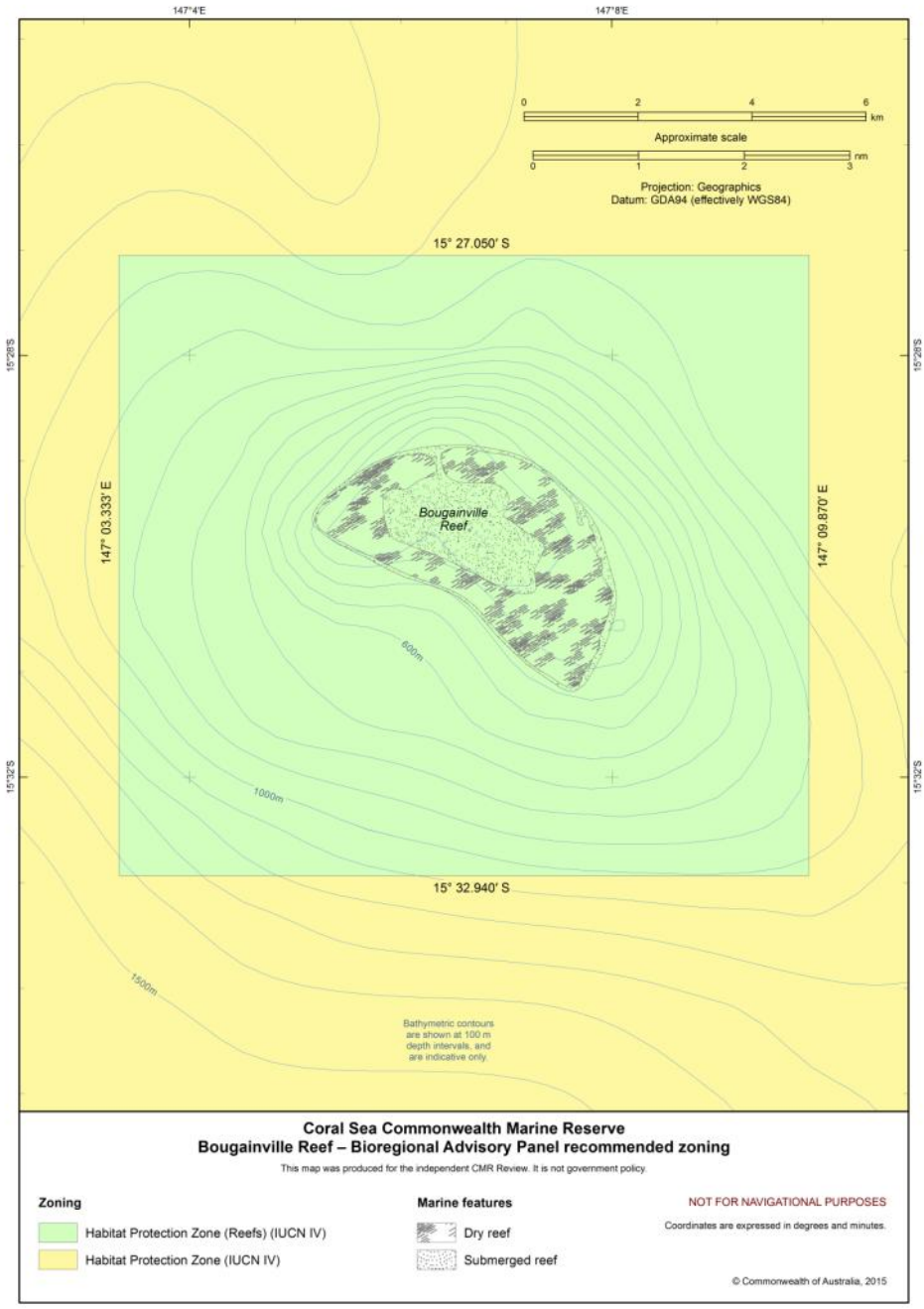


Figure 4.5.4 Recommended zoning for Bougainville Reef, Coral Sea CMR

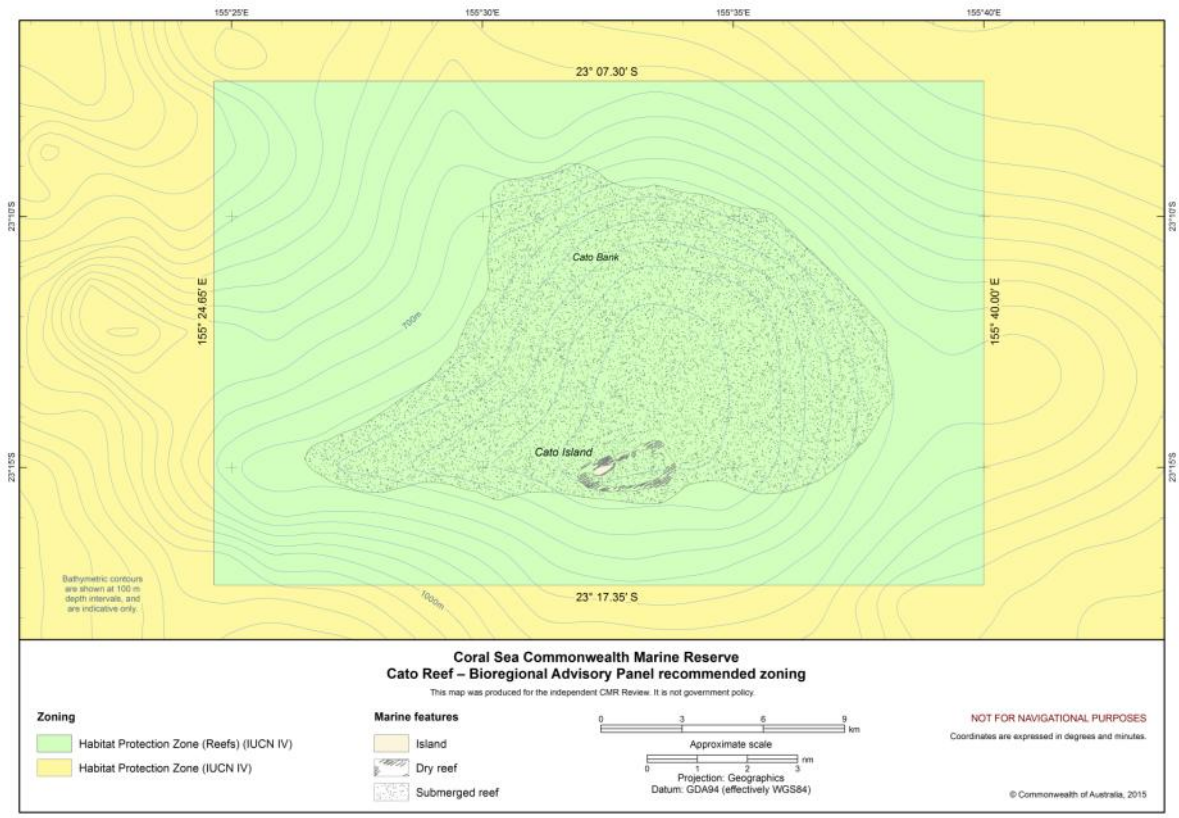


Figure 4.5.5 Recommended zoning for Cato Reef, Coral Sea CMR

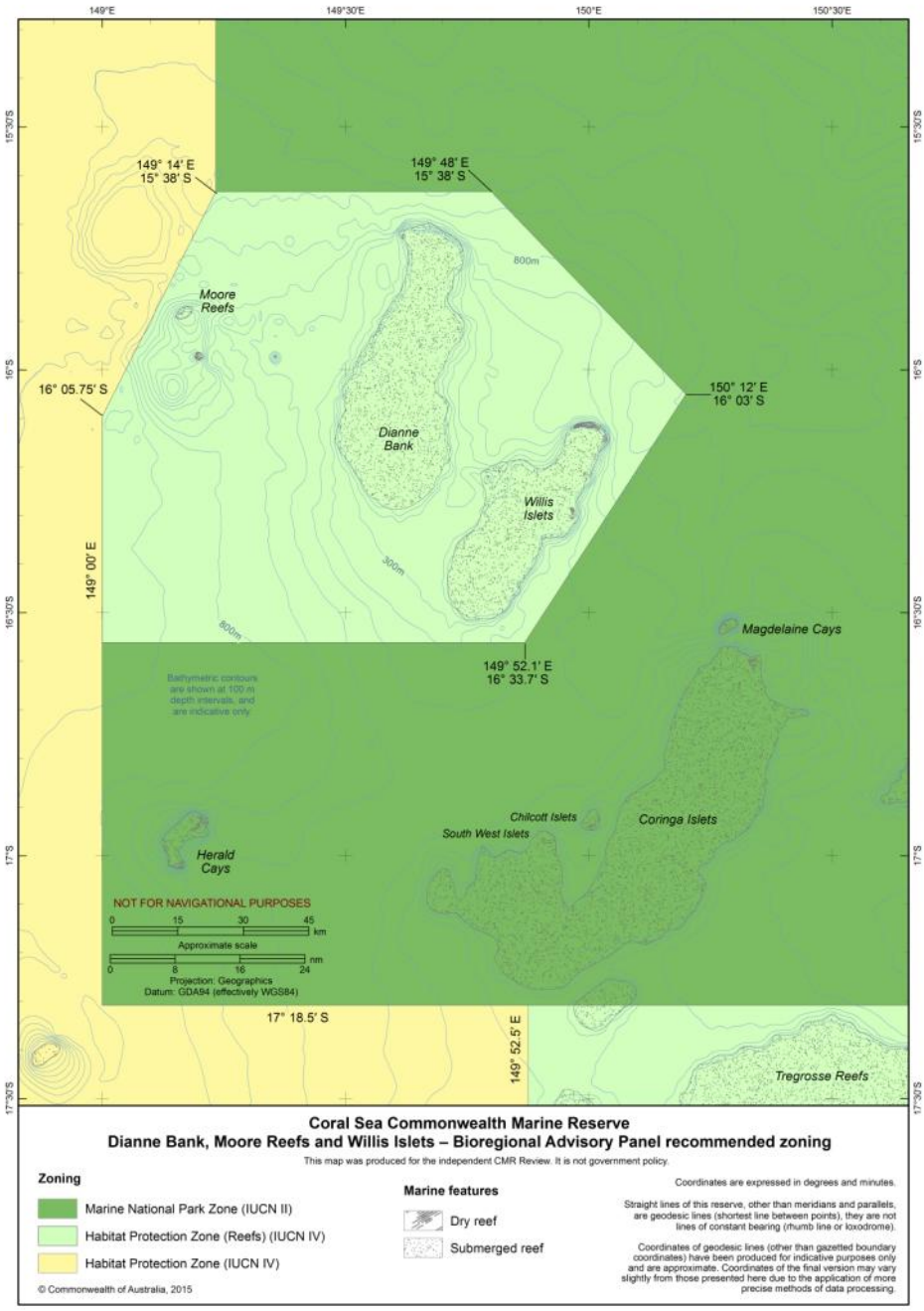


Figure 4.5.6 Recommended zoning for Dianne Bank, Moore Reefs and Willis Islets, Coral Sea CMR

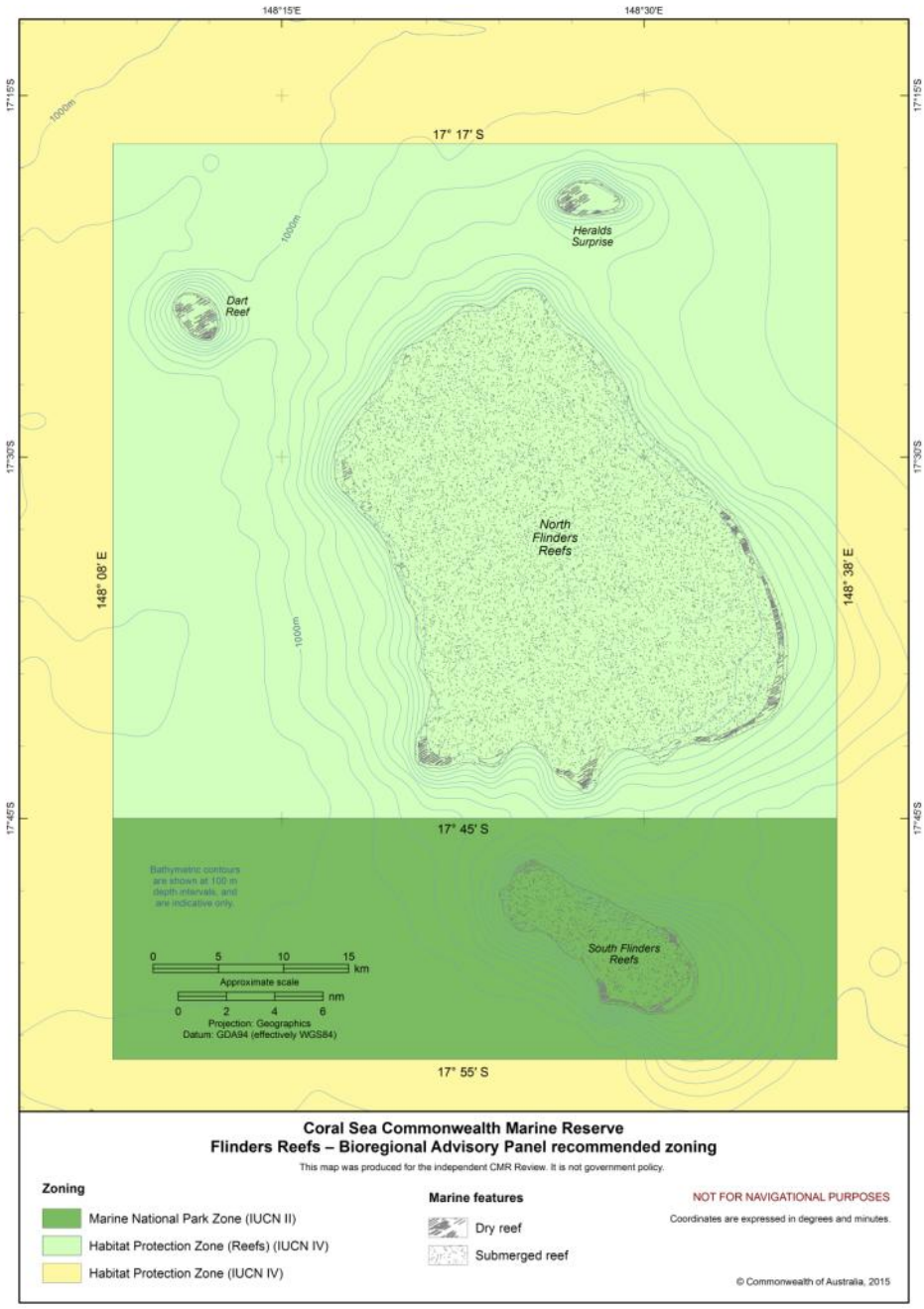


Figure 4.5.7 Recommended zoning for Flinders Reefs, Coral Sea CMR

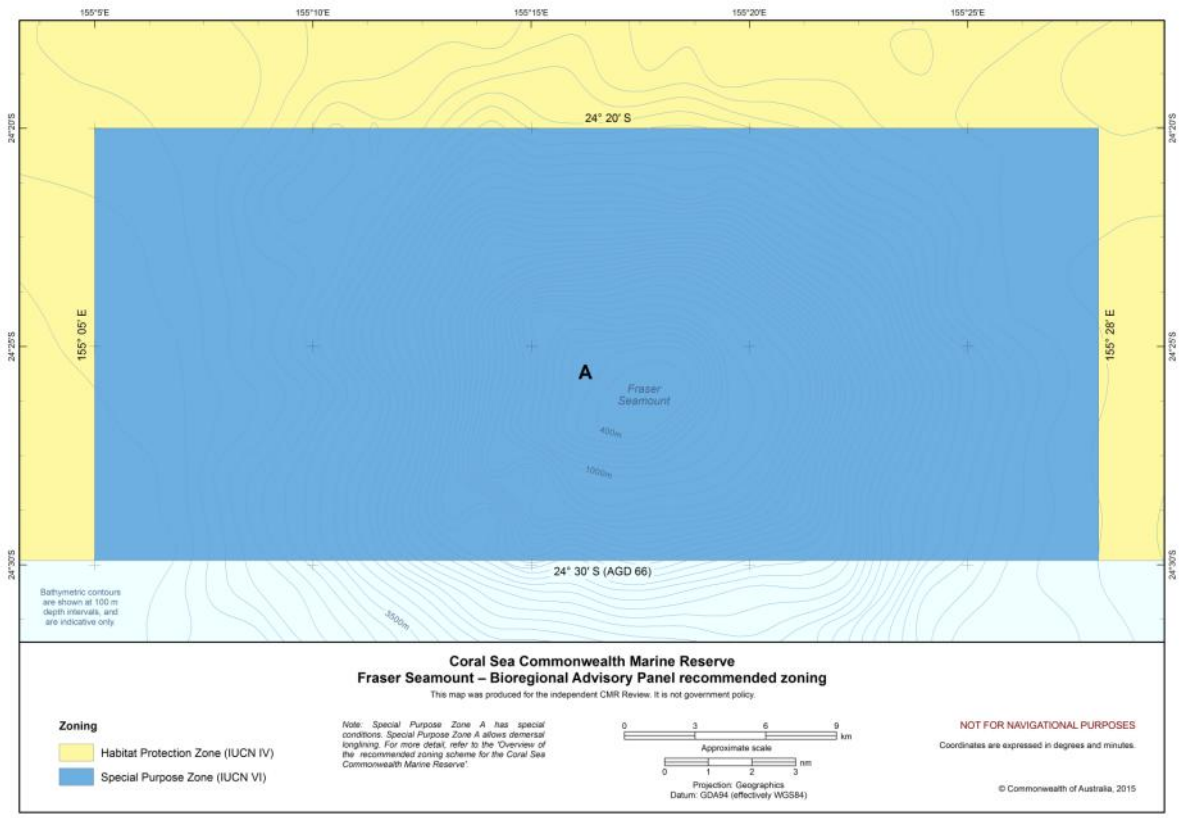


Figure 4.5.8 Recommended zoning for Fraser Seamount, Coral Sea CMR

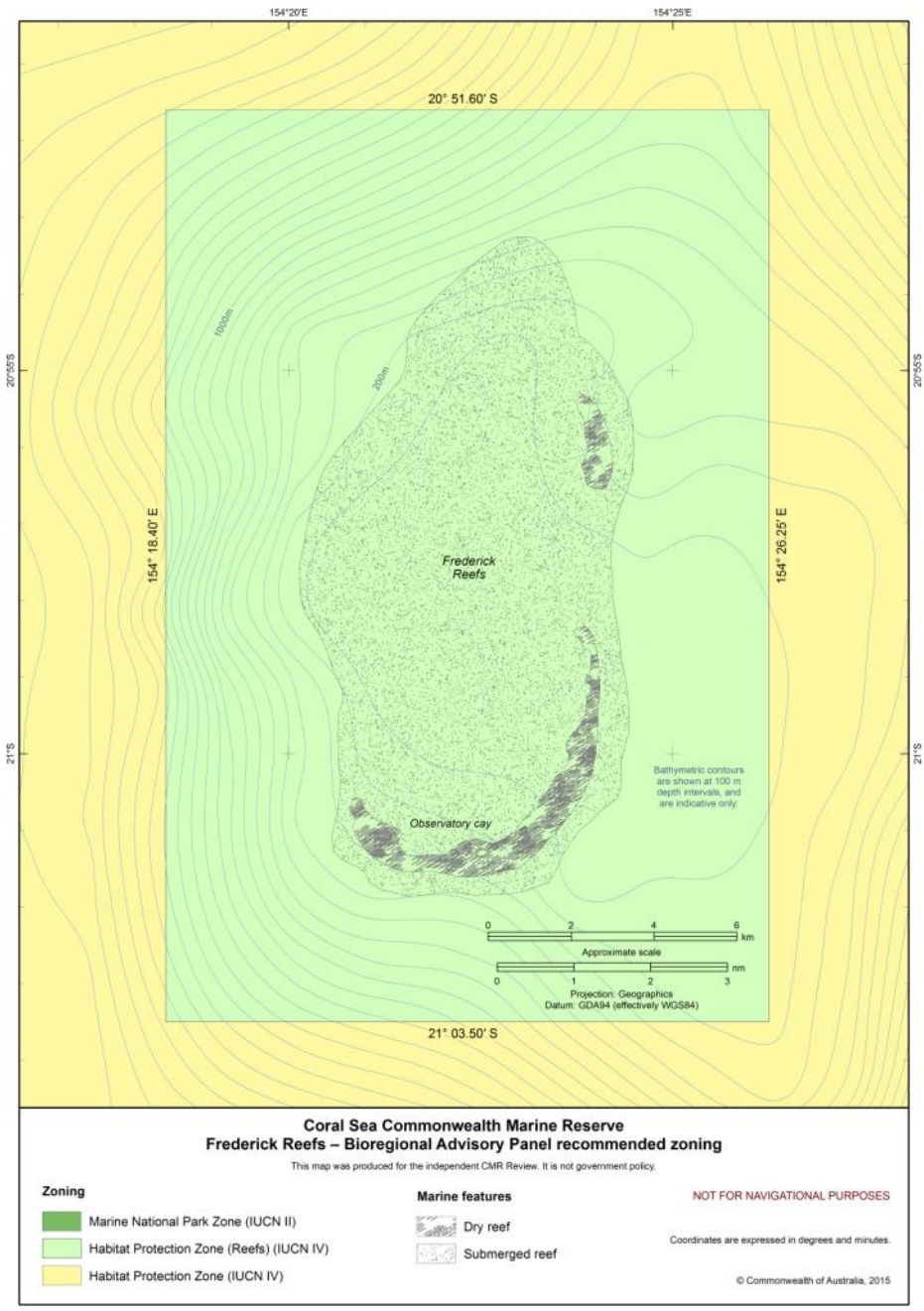


Figure 4.5.9 Recommended zoning for Frederick Reefs, Coral Sea CMR

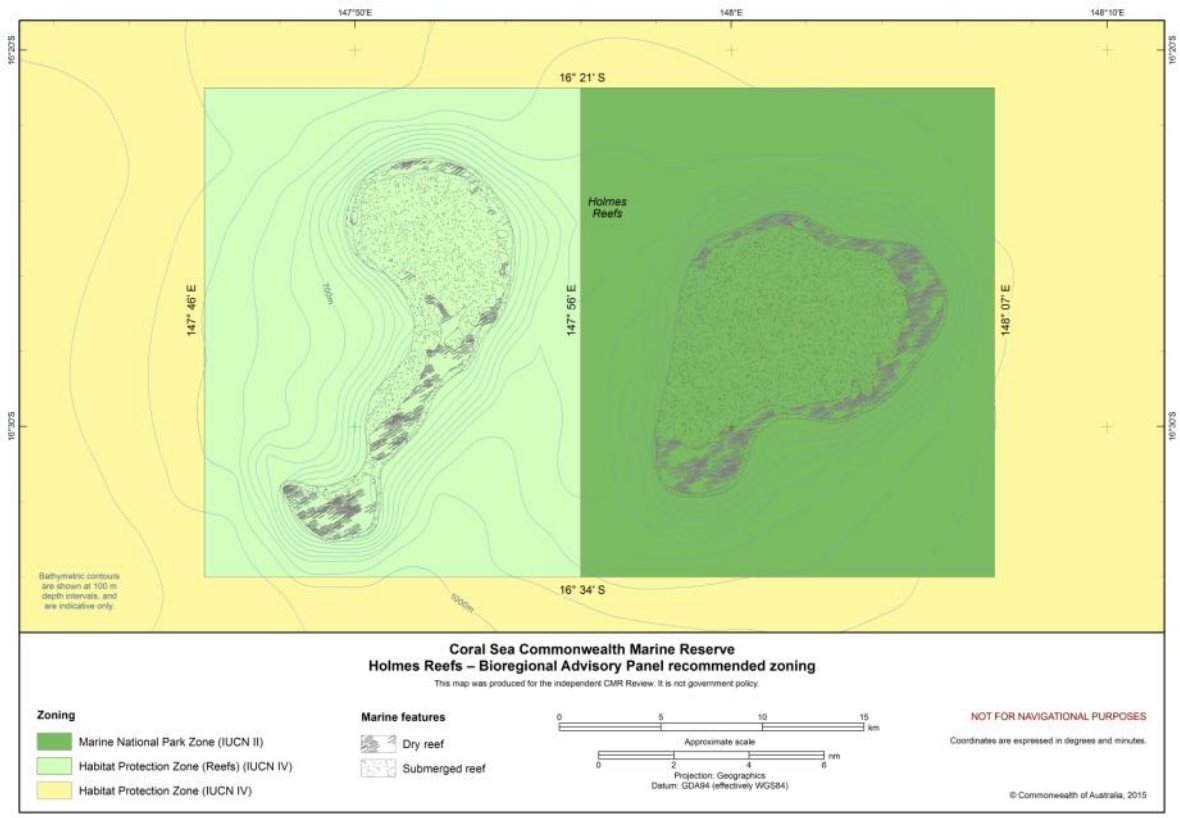


Figure 4.5.10 Recommended zoning for Holmes Reefs, Coral Sea CMR

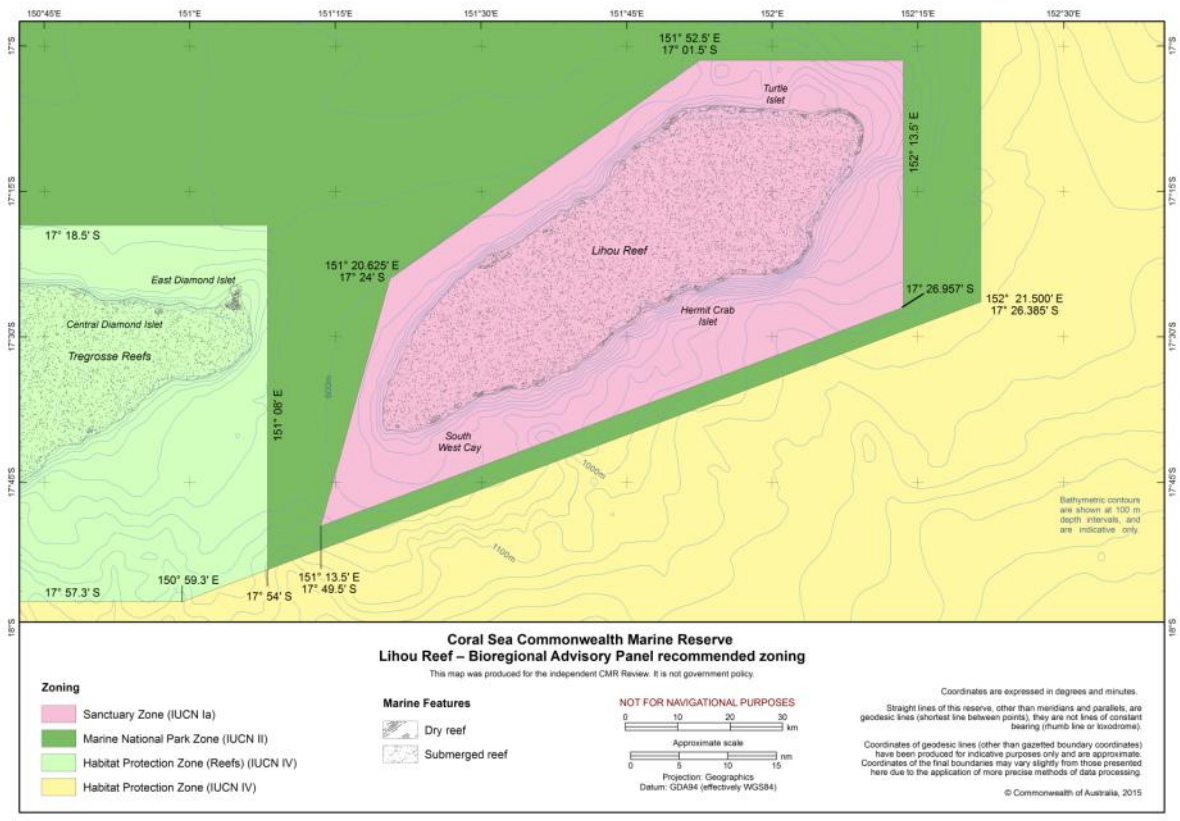


Figure 4.5.11 Recommended zoning for Lihou Reef, Coral Sea CMR

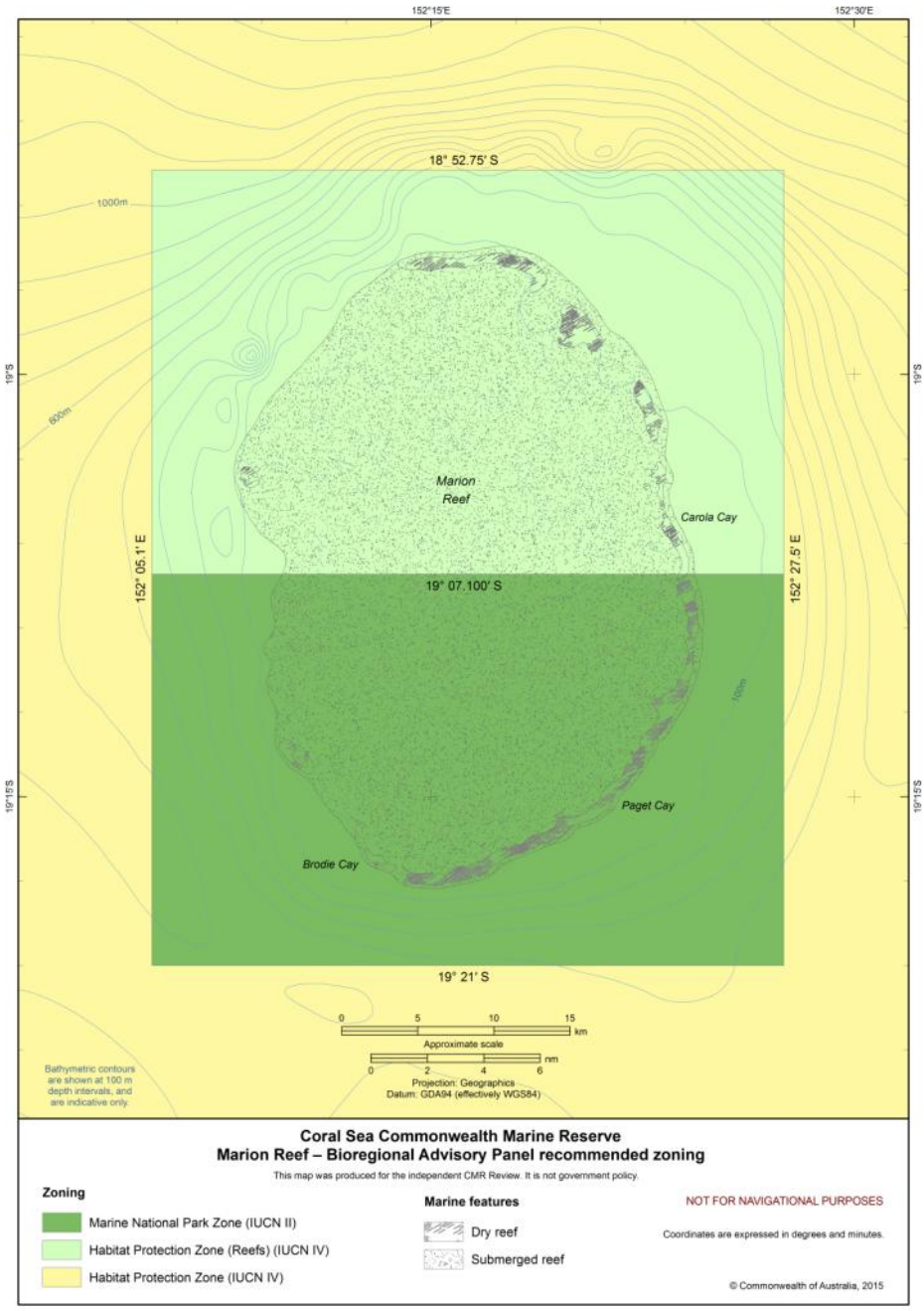


Figure 4.5.12 Recommended zoning for Marion Reef, Coral Sea CMR

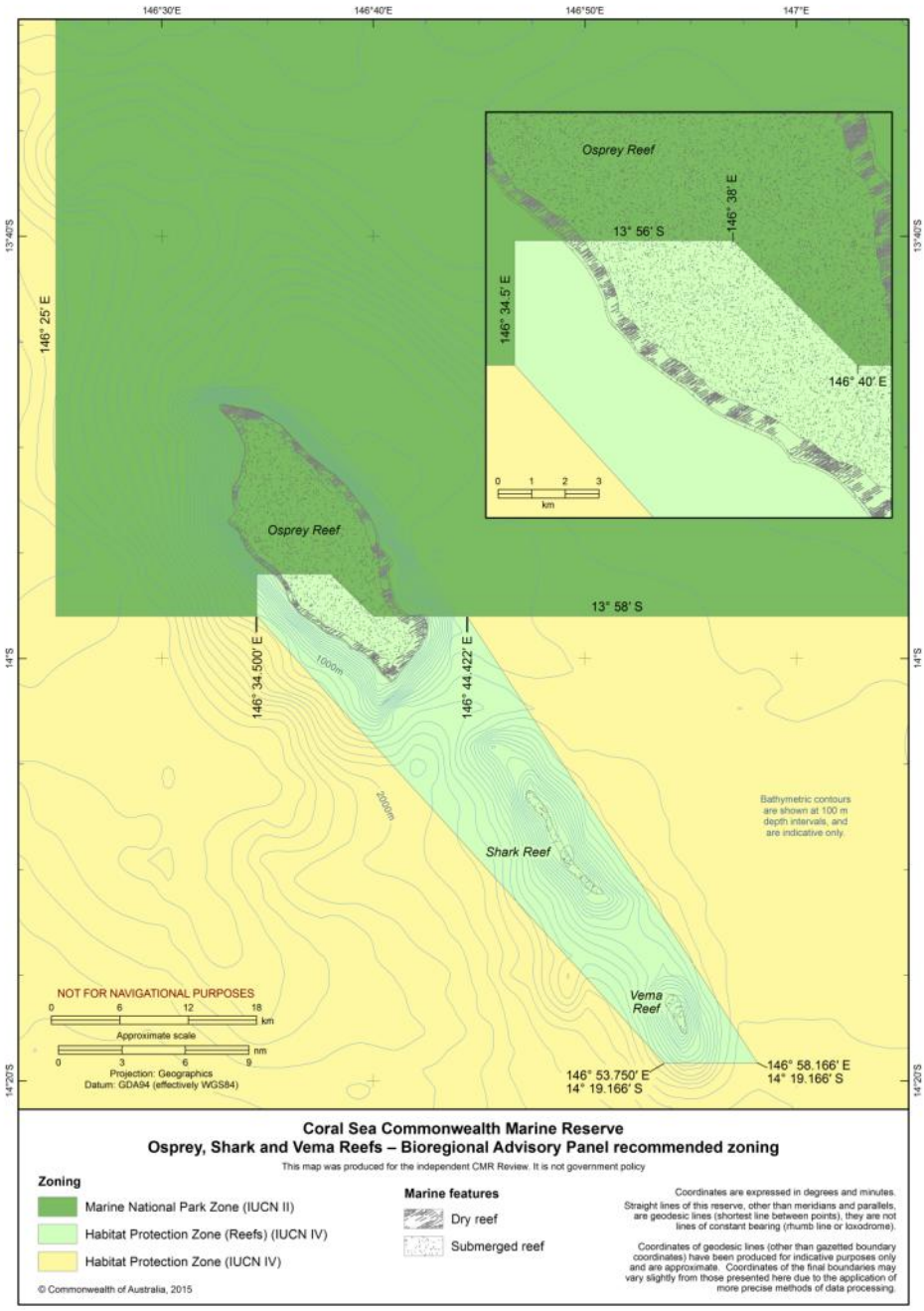


Figure 4.5.13 Recommended zoning for Osprey Reef, Shark Reef and Vema Reef, Coral Sea CMR

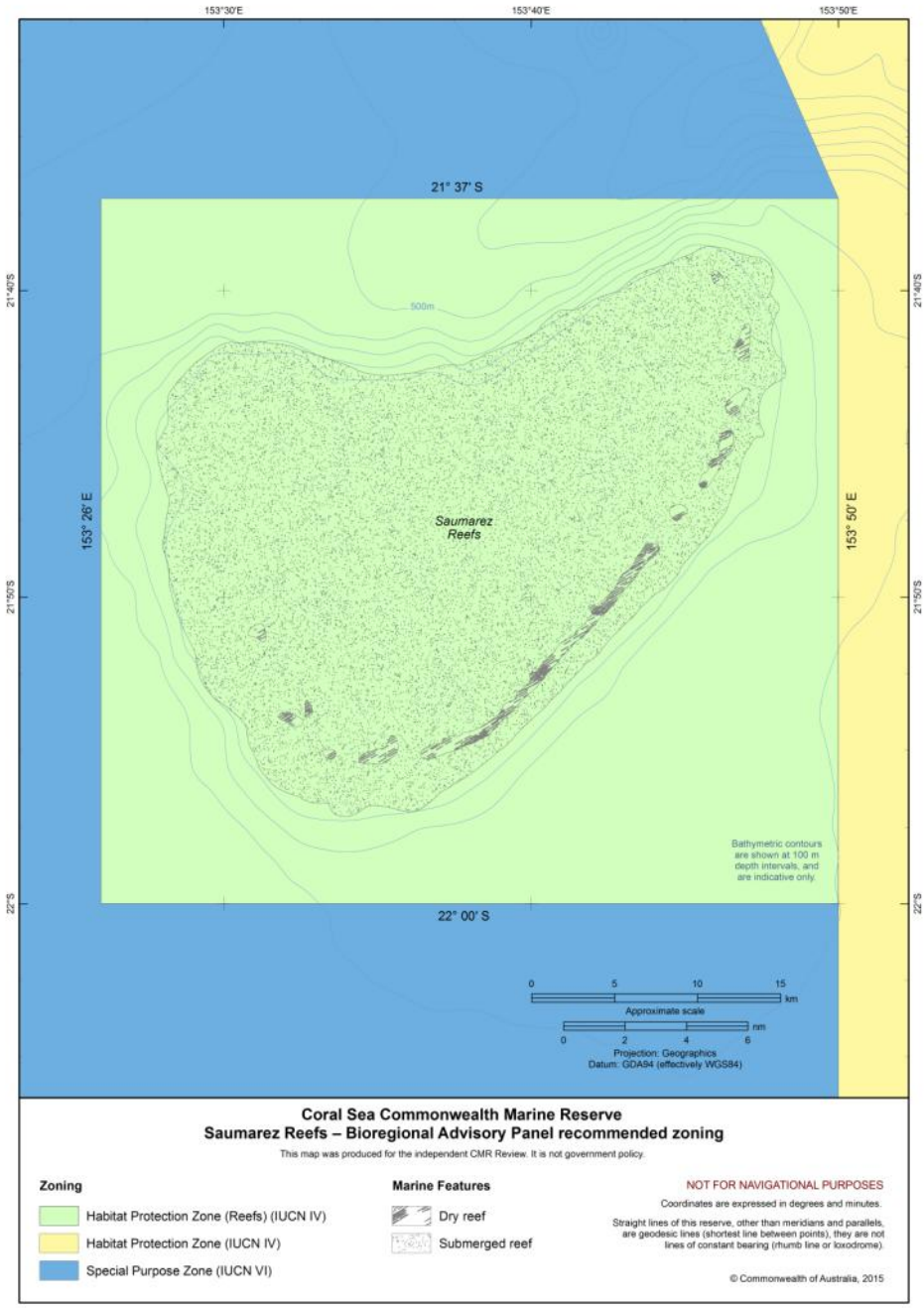


Figure 4.5.14 Recommended zoning for Saumarez Reefs, Coral Sea CMR

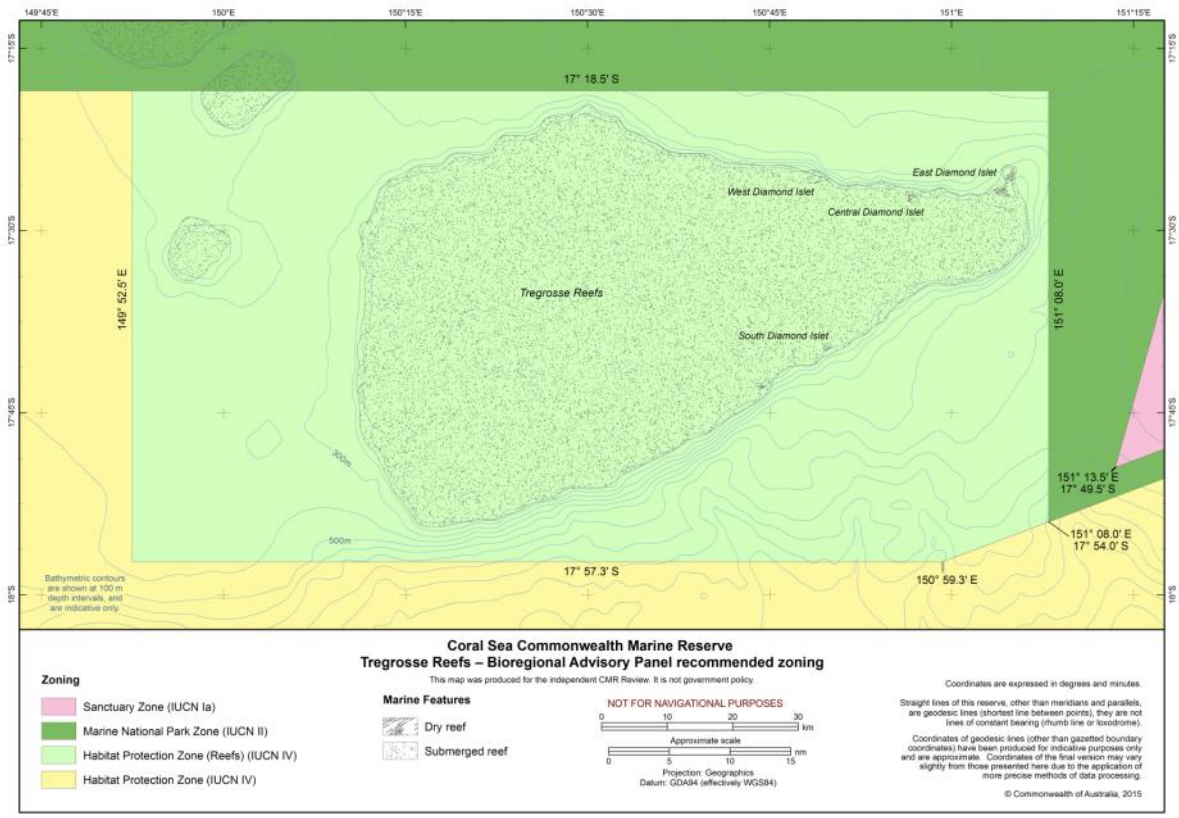


Figure 4.5.15 Recommended zoning for Tregrosse Reefs, Coral Sea CMR

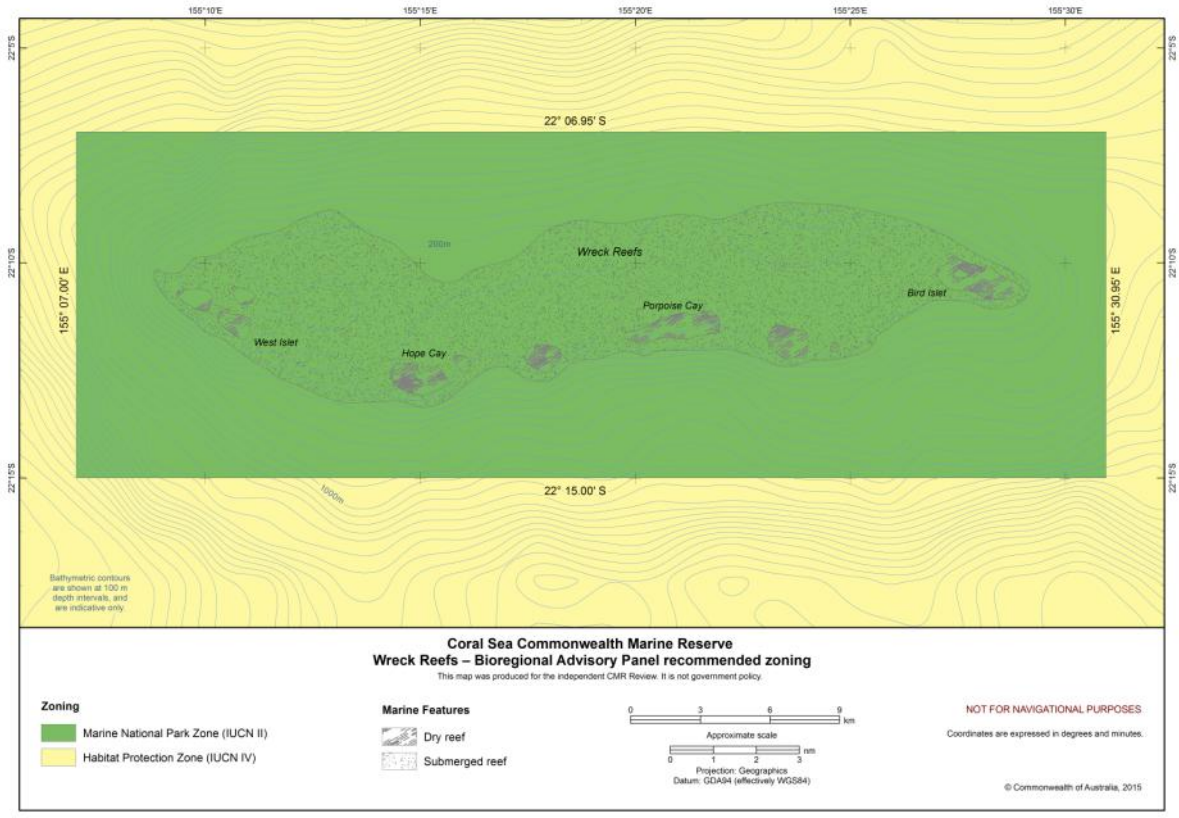


Figure 4.5.16 Recommended zoning for Wreck Reefs, Coral Sea CMR

Table 4.5.1 indicates how the areas of different zone types (within the outer boundaries of the reserve) would change between the proclaimed and recommended zoning. There is a

reduction of MNPZ from 51% to 41%. The HPZ (Coral Sea) and HPZ (Seamounts) are removed, as is the MUZ in the northern and southern parts of the CMR. Combined these areas form a new HPZ which affords high-level protection to 52% of the benthic habitat in the reserve. A new zone, HPZ (Reefs), is established which covers close to 3% of the reserve and approximately 54% of the area of coral reef. A SZ is introduced over Lihou Reef, providing the highest level of protection (IUCN 1a) to this feature. The GUZ is eliminated and is replaced by SPZ, which covers 3% of the reserve and allows trawling and demersal longlining by exception.

Table 4.5.1 Comparison of areas of zone types between proclaimed and recommended zoning for Coral Sea CMR

| Zone | Proclaimed | | Recommended | | Difference | |
|---|---|---|---|---|---|---|
| | Area ($km^2$) | % of CMR | Area ($km^2$) | % of CMR | Area ($km^2$) | % of CMR |
| SZ (IUCN Ia) | Nil | Nil | 5 212 | 0.53% | +5 212 | +0.53% |
| MNPZ (IUCN II) | 502 654 | 50.78% | 405 258 | 40.94% | –97 396 | –9.84% |
| CPZ (IUCN IV) | 20 570 | 2.08% | Nil | Nil | –20 570 | –2.08% |
| HPZ (Coral Sea) (IUCN IV) | 182 578 | 18.45% | Nil | Nil | –182 578 | –18.45% |
| HPZ (Seamounts) (IUCN IV) | 85 507 | 8.64% | Nil | Nil | –85 507 | –8.64% |
| HPZ (IUCN IV) | Nil | Nil | 518 833 | 52.42% | +518 833 | +52.42% |
| HPZ (Reefs) (IUCN IV) | Nil | Nil | 27 477 | 2.78% | +27 477 | +2.78% |
| MUZ (IUCN VI) | 194 232 | 19.62% | Nil | Nil | –194 232 | –19.62% |
| SPZ A (IUCN VI) | Nil | Nil | 2 407 | 0.24% | +2 407 | +0.24% |
| SPZ B (IUCN VI) | Nil | Nil | 30 656 | 3.10% | +30 656 | +3.10% |
| GUZ (IUCN VI) | 4 300 | 0.43% | Nil | Nil | –4 300 | –0.43% |
| Total | **989 842** | 100% | **989 842** | 100% | | |

Note: All figures are rounded to the nearest $km^2$ (and therefore in some instances can appear to not add up to the totals supplied). No changes have been made to the outer boundaries and total area of the reserves. Percentages are calculated based on the rounded figures.

***Conservation outcomes***

Under the recommended zoning for the Coral Sea CMR, the total area zoned as MNPZ will decrease by 10% but still comprise approximately 41% of the reserve. The protection of Coral Sea coral reefs is improved by the inclusion of three additional reefs in MNPZ (Holmes, South Flinders and Wreck) and three in the new HPZ (Reefs) (Tregosse, Cato and Frederick). The recommended zoning will result in a significant increase in IUCN IV

zoning in the Coral Sea CMR, with approximately 55% of the reserve zoned as HPZ or HPZ (Reefs).

Many of the submissions focused attention on the uniqueness and level of protection of the Coral Sea coral reefs. To address these concerns the recommended zoning will afford a high level of protection in SZ, MNPZ and/or HPZ/HPZ (Reefs) to all of the 34 reefs in the Coral Sea, and notably improves the protection of reefs of the Marion Plateau.

Table 4.5.2 shows how the proclaimed and recommended zoning represent primary conservation features in SZ/MNPZ and CPZ/HPZs, providing an indication of their performance against the four primary goals under the Goals and Principles. All of the Provincial Bioregions in the Coral Sea CMR are now represented in either SZ or MNPZs and HPZs. Depth ranges (by Provincial Bioregion) increase from 70 to 78 in SZ/MNPZ and from 67 to 83 in HPZs, increasing the level of protection for this conservation feature. Similarly an additional seafloor type is captured in HPZs. Ninety-one conservation features are represented in both SZ/MNPZ and HPZs, and together these zone types include all but one of the 119 primary conservation features in the reserve. These conservation features are shown in Appendix H.

Table 4.5.2 Comparison of representation of conservation features between proclaimed and recommended zoning for Coral Sea CMR

| Goal | Primary Conservation Feature | Total no. in CMR | Proclaimed | | Recommended | |
|---|---|---|---|---|---|---|
| | | | MNPZ (IUCN II) | CPZ and HPZs (IUCN IV) | SZ (IUCN Ia) or MNPZ (IUCN II) | HPZs (IUCN IV) |
| 1 | Provincial Bioregions (PBs) | 6 | 5 | 5 | 6 | 6 |
| | Meso-scale Bioregions | N/A | N/A | N/A | N/A | N/A |
| 2 | Depth by PB | 94 | 70 | 67 | 78 | 83 |
| 3 | Key Ecological Features | 3 | 3 | 3 | 3 | 3 |
| | Biologically Informed Seascapes | N/A | N/A | N/A | N/A | N/A |
| 4 | Seafloor Types | 16 | 15 | 14 | 15 | 15 |
| | Total | 119 | 93 | 89 | 102 | 107 |

Note: Some features are represented in SZ/MNPZ and HPZs; therefore the total number of features represented in these zones is not the simple sum of their occurrence in each zone.

Table 4.5.3 compares the recommended zoning of coral reefs with the proclamation. Although the eastern part of Holmes and South Flinders and Wreck reefs are new MNPZs, the number of reefs in either SZ or MNPZ (no-take) increases by one. This is because Lihou Reef is re-zoned from MNPZ to SZ and Bougainville and Vema reefs are re-zoned from MNPZ to HPZ (Reefs). This recommended zoning notably improves the protection of

reefs of the Marion Plateau in the southern part of the CMR. These reefs are listed in Appendix I.

Table 4.5.3 Comparison of representation of reefs between the proclaimed and recommended zoning for Coral Sea CMR

| No. of reefs in CMR | Features represented | | | | | |
|---|---|---|---|---|---|---|
| | Proclaimed | | | Recommended | | |
| | MNPZ (IUCN II) | CPZ and HPZs (IUCN IV) | | SZ (IUCN Ia) or MNPZ (IUCN II) | HPZs (IUCN IV) | |
| 34 | 10 | 10 | 4 10 | 11 | 9 | 18 |
| | | Total: 24 | | | Total: 27 | |

Note: Some reefs are represented in SZ/MNPZ and HPZs and therefore the total number of reefs represented in these zones is not the simple sum of their occurrence in each zone.

### *Socio-economic impacts*

*Commercial fishing*
The recommended zoning substantially decreases the impact on commercial fishing compared to the proclaimed zoning. This decrease is largely due to the increased access for pelagic longlining in the reserve.

The Regional Panel could find no reasonable argument not to provide greater access for this fishery given that it is a pelagic fishery, that it is sustainably managed and that parts of it have recently been afforded Marine Stewardship Council accreditation. This was particularly relevant in the case of the fishery in 'Area E', which has a modest total allowable catch relative to tuna fishing in adjacent international waters, and which makes a substantial contribution to the regional economy in north Queensland.

The introduction of the new HPZ (Reefs) zoning and in places the introduction of split reef zoning (Osprey and Marion reefs) allows access for the aquarium and sea cucumber sectors of the Coral Sea Fishery. Impacts on the three other Queensland managed fisheries displaced by the proclaimed zoning (Marine Aquarium Fish; Coral, Shells, Shell Grit and Star Sand; and Sea Cucumber) may also decrease slightly as a result of the recommended zoning changes to the marine reserve; however, due to the confidential nature of the catch data in this area the likely change in impact is unknown. Access to a larger number of reefs decreases the risk of localised depletion and facilitates current rotational harvesting practices.

The recommended new SPZs to allow auto-longlining reduce the displacement of this component of the Commonwealth Coral Sea Fishery.

Impacts on the Queensland East Coast Otter Trawl Fishery will also be reduced by the increased area made available to trawling through the introduction of the new SPZ 'B' in the area proclaimed as MUZ and GUZ. A slight increase in impacts on the Queensland East Coast Inshore Fin Fish Fishery is likely result from the removal of MUZ as well as the increased area of HPZ.

*Recreational and charter fishing*
The introduction of the new HPZ (Reefs) zoning and removal of MNPZ over part or all of several reefs (Osprey, Shark, Vema, Bougainville and Marion) addresses many of the

concerns of these sectors and ensures continuing access for recreational and charter fishing, which are vital to the regional visitor economy in the area. A balance has been struck between reef access (HPZ (Reefs)) and no-take (SZ and MNPZ) to ensure conservation and socio-economic objectives are met.

*Practicality of implementation*
In comparison to the proclaimed zoning, the recommended zoning for the Coral Sea CMR may change the practicality of implementation in different ways for different users. For recreational fishers and commercial pelagic longliners operating within the CMR, the much larger area zoned as HPZ will improve ease of compliance and reduce problems associated with gear drift into areas where commercial longlining is not permitted (that is, HPZ (Reefs) and MNPZ), many of which are located over reefs which would already be avoided by this fishing method. The previous GUZ has been enlarged and rezoned as SPZ 'B', which would improve ease of use for commercial trawlers. While the introduction of two small areas of SPZ 'A' that allow auto-longlining will increase zoning complexity, it is expected that a limited number of operators will be using this fishing gear and that compliance with zoning boundaries in these areas will not be problematic for these operators. The introduction of a SZ and five new MNPZs along the south-western boundary of the CMR, including three MNPZs encompassed by SPZ B, may increase zoning complexity although the SPZ B and MNPZs align with and complement equivalent zoning in the GBRMP.

For the reefs in the Coral Sea CMR, the changes recommended may impact on ease of compliance for some users. The split zoning of Osprey and Marion reefs, where a portion of the reef is zoned as MNPZ and a portion is HPZ (Reefs), adds some complexity for recreational, charter and commercial fishers accessing the reefs. However, in comparison to the proclaimed zoning, which placed boundary lines along the reef edge at Marion, Osprey, Shark and Vema reefs, the recommended zoning adopts straight boundary lines around and across the reefs, and should markedly improve ease of compliance for most users.

The new zone type HPZ (Reefs) introduced over all or a portion of Moore Reefs, Dianne Banks, Willis Islets, Coringa Islets/Magdelaine Cays, Heralds Surprise, Holmes, North Flinders, Dart, Unnamed Reef 3, Bougainville, Frederick, Tregrosse, Cato, Saumarez, Marion, Osprey, Shark and Vema reefs aims to provide greater protection for reef habitats. This zonation foreshadows the need for restrictions in the management plan on the take of reef associated species (such as consume on site or limitation on the take of reef species). This restriction may increase the complexity of compliance for users, and as such it is expected that specific guidance will need to be developed in the preparation of the management plan.

*Native title*
The HPZ over Ashmore Reef overlaps with the Gudang Yadhaykenu People registered native title claim and Torres Strait Regional Sea Claim, presenting important opportunities for co-management with traditional owners and local Indigenous groups and improvements in management outcomes. Native title is not impacted by the proclamation of CMRs nor the development and implementation of management plans for those reserves under the EPBC Act. Recommendations relating to involvement of Indigenous groups and traditional owners in management of CMRs are outlined in Chapters 5 to 7 of this report.

*Mining and oil and gas development*
The recommended zoning for the Coral Sea CMR retains the restriction on mining activities within the reserve.

***Conclusion***
The recommended zoning of the Coral Sea CMR represents a carefully balanced approach to addressing the key areas of contention that arose during the consultation. Recognising the uniqueness and pristine nature of the area, the CMR Review has provided an opportunity to increase the level of protection given to the iconic coral reefs of the Coral Sea. At the same time socio-economic impacts on the commercial fishing sector are significantly reduced and in some cases improved through the reconfiguration of zone boundaries. The introduction of several small SPZs also reduces commercial fishing impacts and provides for limited harvesting of several currently unexploited species.

The overall proportion under MNPZ, at 41% of the reserve, is greater than the proportion of the GBRMP in no-take green zones and the total area of MNPZ in the Coral Sea CMR is nearly 20% bigger than the GBRMP. The combination of SZ, MNPZ and HPZs in the Coral Sea CMR affords a high level of protection to almost 97% of the reserve.

The approach to complementing GBRMP zoning and improving protection of the Coral Sea reefs is aimed at, and should result in, improvement in the overall protection of the World Heritage values of the GBR.

## Table 4.5.4 Overview of recommended zoning scheme for Coral Sea CMR

| Activity type[a] | | Special Purpose Zone (IUCN VI) | Habitat Protection Zone (IUCN IV) | Habitat Protection Zone (Reefs) (IUCN IV) | Marine National Park Zone (IUCN II) | Sanctuary Zone (IUCN Ia) |
|---|---|---|---|---|---|---|
| **MINING** | Mining (including exploration, development and other activities) | × | × | × | × | × |
| **COMMERCIAL FISHING**[b] | Handline/rod and reel | ✓ | ✓ | × | × | × |
| | Hand collection (including sea cucumber; marine aquarium fish) | ✓ | ✓ | ✓ | × | × |
| | Dropline[c]/Minor line/Poling | ✓ | ✓ | × | × | × |
| | Pelagic longline | ✓ | ✓ | × | × | × |
| | Purse seine | ✓ | ✓ | × | × | × |
| | Mid-water trawl | ✓ | ✓ | × | × | × |
| | Traps and pots (including crab and fish) | ✓ | × | × | × | × |
| | Gillnet (including demersal and pelagic) | × | × | × | × | × |
| | Demersal longline (including auto-longline and trotline) | ×[d] | × | × | × | × |
| | Demersal trawl | ×[e] | × | × | × | × |
| **AQUACULTURE** | | ✓ | × | × | × | × |
| **RECREATION** | Boating | ✓ | ✓ | ✓ | ✓ | × |
| | Scuba diving and snorkelling | ✓ | ✓ | ✓ | ✓ | × |
| | Recreational fishing (including spear-fishing)[f] | ✓ | ✓ | ✓[g] | × | × |
| **COMMERCIAL TOURISM** | Non-fishing related tourism (including scuba/snorkel tours and nature watching) | ✓ | ✓ | ✓ | ✓ | × |
| | Fishing related tourism (including charter fishing and fishing/spear diving tours) | ✓ | ✓ | ✓[g] | × | × |
| **INDIGENOUS ACTIVITIES** | Non-commercial Indigenous harvesting and hunting (consistent with the *Native Title Act 1993*) | ✓ | ✓ | ✓ | ✓ | ✓ |
| **RESEARCH** | | ✓ | ✓ | ✓ | ✓ | ✓ |
| **GENERAL USE** | Defence | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Shipping (general transit)[h] | ✓ | ✓ | ✓ | ✓ | ×[i] |

a. All activities require approval to be undertaken in CMRs; approvals are provided in the management plan or through class approvals or individual permits.

b. Commercial fishing methods not listed in the table may require assessment.

c. Dropline is defined as: a line that is vertically set or suspended in the water column; having no more than a single anchor point in contact with the seabed or substrate; and not operated with or as a trotline.

d. Demersal longlining is allowed in the Coral Sea CMR SPZ A.

e. Demersal trawling is allowed in the Coral Sea CMR SPZ B.

f. Recreational fishing is managed by the states. Queensland size and bag limits will apply in the Coral CMR unless otherwise specified in the management plan.

g. Specific restrictions on both linefishing and spearfishing for reef associated species may need to be imposed.

h. Ballast water exchange is managed under national arrangements. Restrictions may apply in some areas.

i. Does not affect the right of innocent passage, consistent with UNCLOS.