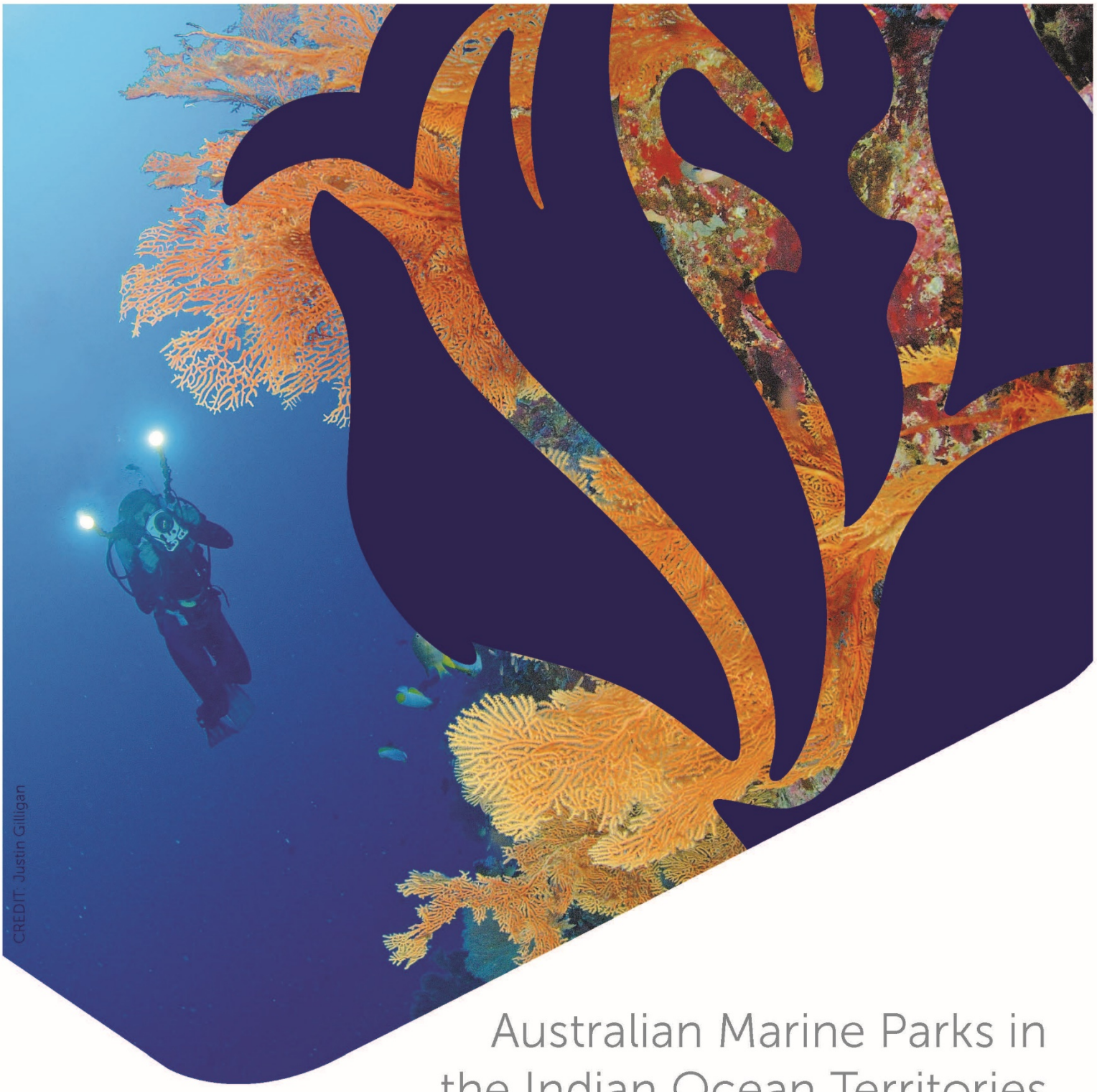

CREDIT: Justin Gilligan

Australian Marine Parks in the Indian Ocean Territories

Proclamation proposal for the establishment of marine parks in Australia's Indian Ocean Territories (Christmas Island and Cocos (Keeling) Islands)

PUBLIC CONSULTATION PAPER

OCTOBER 2021

Australian Government

Director of National Parks

Australian Marine Parks

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Purpose of this document

The *Proclamation proposal for the establishment of marine parks in Australia's Indian Ocean Territories (IOT) (Christmas Island and Cocos (Keeling) Islands)* ('proclamation proposal') has been prepared to support public consultation to help establish these parks. Specifically, this document provides a basis and the opportunity for the public to provide written comments on the proclamation proposal for at least sixty days, which is required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) before IOT marine parks can be formally established and proclaimed.

This document describes:

- the reasons, legal basis and processes for establishing Australian Marine Parks
- the context, approach and information used to design the proposed marine parks, including from community and stakeholder consultation
- biological and ecological values and socio-economic values and uses of the proposed marine parks
- the purpose, description and design (area, location, zoning and maps) of the proposed Christmas Island and Cocos (Keeling) Islands marine parks.

The preparation of the proclamation proposal involved gathering information on the natural, social and economic values and uses of IOT waters. This included analysis of available scientific and other information, as well as extensive community and stakeholder consultation. This consultation included inviting public comments on the release of a 'draft proposal' for IOT marine parks in July 2021. Most of the public comments strongly supported the proposed marine park designs and the designs set out in this proclamation proposal are largely unchanged from those in the draft proposal (see Section 3 for details).

The table below describes the consultation steps to establish IOT marine parks.

Table 1 – Consultation on IOT marine parks

Step	Timing
1. Community and stakeholder consultation to gather information and help prepare a draft proposal for the design	February to June 2021

(area, location and zoning) of the IOT marine parks (completed).	
2. Release of a draft proposal for IOT marine parks for public comment. Consultation with IOT communities and other stakeholders was also held during this time (completed).	16 July - 13 August 2021
3. Public comments on the draft proposal considered to inform the preparation of the proclamation proposal (completed).	August – September 2021
4. Release of the proclamation proposal (this document) for at least 60 days of public comment in accordance with EPBC Act requirements.	**Current step**
5. Public comments on proclamation proposal considered to prepare a report to the Minister for the Environment on the proclamation of IOT marine parks.	Follows above step

Have your say

We welcome your comments on the proclamation proposal.

Email your comments to **IOTmarineparksproclamation@environment.gov.au**.

Alternatively, comments can be mailed to:

> IOT Marine Parks Proclamation Proposal
> Parks Australia
> PO Box 385
> Kingston, TAS 7050

Comments must be sent by Monday 6 December 2021.

Comments will be included and considered in a report to be prepared by the Director of National Parks (the Director) for the Minister for the Environment under subsection 351(1) of the EPBC Act. Comments sent after 6 December 2021 or to addresses other than those above will not be considered or included in the Director's report. The Director's report will be published on the Director of National Parks' website (parksaustralia.gov.au).

All comments and information received will be treated as public documents and may be published in full on the Director of National Parks' website and/or the Department of Agriculture, Water and the Environment's website.

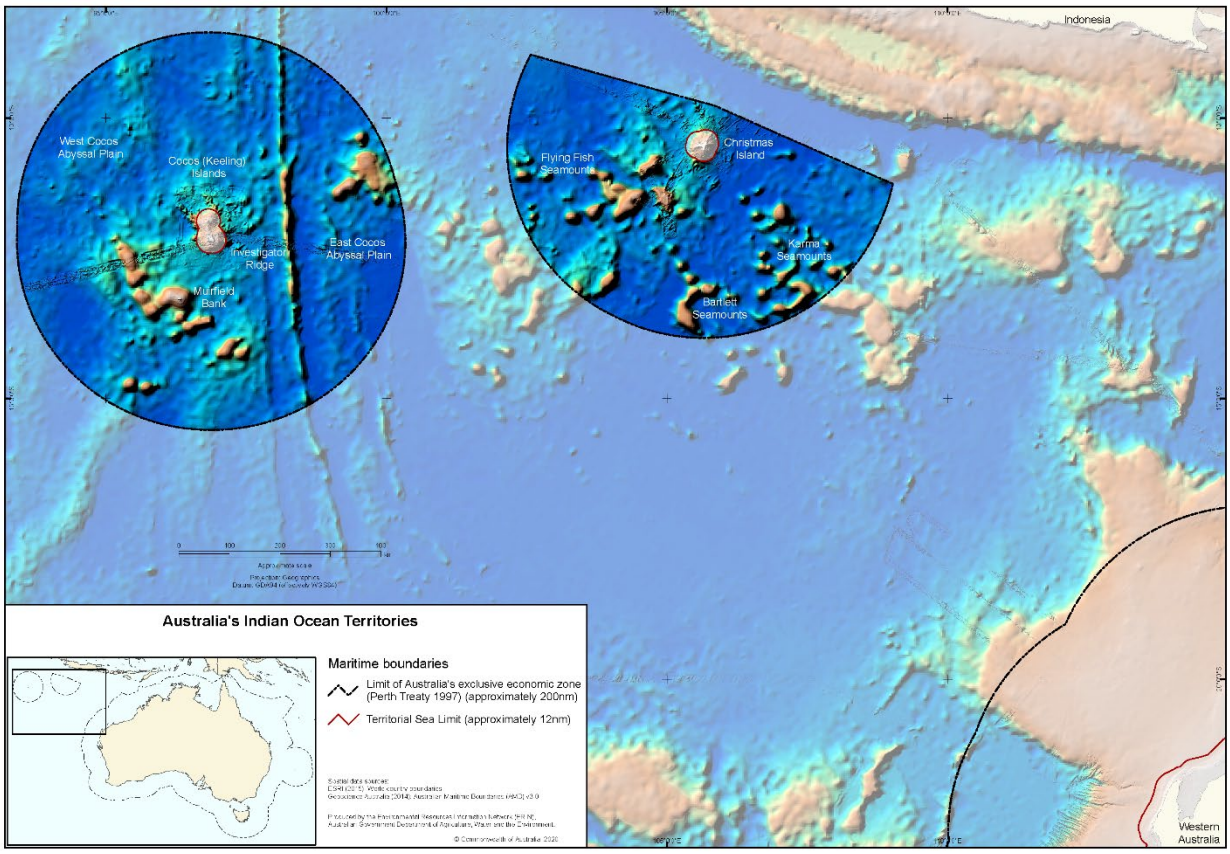
All comments will be managed in accordance with the privacy policy applicable to the Director of National Parks which is available at *https://www.awe.gov.au/about/commitment/privacy*

Preface

Australia has one of the largest marine estates of any nation in the world. Much of the marine life in Australia's oceans is globally significant, including some species and habitats that are found nowhere else.

This is particularly true for Australia's Indian Ocean Territories (IOT), whose remoteness and unique geographical position has resulted in many rare and globally significant marine and terrestrial features, habitats and species. In addition, many species found in Australian waters, including within the IOT, are under pressure elsewhere in the world. Therefore, it is in Australia's interests to keep IOT marine environments healthy, resilient and productive for future generations of Australians, and those who visit our waters.

Figure 1 - Australia's Indian Ocean Territories



The communities of Christmas Island and Cocos (Keeling) Islands are also unique and diverse. The ocean forms a vital part of their identities, cultures and lifestyles, particularly through the use of the inshore waters that surround these islands for subsistence fishing, which is important to many IOT community members and refers to fishing that is carried out primarily to feed the families and relatives of local fishers. Inshore waters are also used by local communities for recreation, as well as some small-scale commercial fishing and marine

fauna collection activities. These waters are also important for commercial shipping and port operations, recreation, research and nature-based tourism.

The proposed marine parks can protect the IOT marine environment while supporting these activities, through zoning that ensures key activities can continue. IOT marine parks would also deliver benefits to local communities, including through grant funding for community projects, local employment opportunities, marine research and the promotion of the IOT as unique eco-tourism destinations.

1. Overview of Australian Marine Parks

In 1998, Commonwealth, State and Territory governments agreed to establish the National Representative System of Marine Protected Areas (NRSMPA) and approved guidelines to do this[1]. The primary goal of the NRSMPA is to establish and manage a comprehensive, adequate and representative system of marine protected areas. Broadly, this means ensuring the system of marine parks includes all of Australia's marine bioregions, and that the range of different ecosystems and biological features within these bioregions are adequately represented in marine parks to ensure their long-term viability.

The Australian Government has now established a network of 58 Australian Marine Parks (AMPs) in Commonwealth waters. AMPs cover an area of around 2.8 million square kilometres (in addition to the Great Barrier Reef Marine Park and the Heard Island and McDonald Islands Marine Reserve).

AMPs are established and proclaimed under the requirements of the EPBC Act. These requirements include: the need for at-least 60 days of public consultation on the proposed AMPs; preparing a report to the Minister for the Environment on the proposed AMP proclamation and the comments received from public consultation; and assigning an AMP an International Union for the Conservation of Nature (IUCN) protected area category or categories. Once declared, the EPBC Act requires the Director of National Parks (DNP) to administer, manage and control AMPs, including preparing management plans as soon as practicable after they are proclaimed. These management plans describe how AMPs and the natural features within them will be protected, conserved and managed. For example, they describe what activities can and can't occur in AMPs, as well as research, monitoring and management priorities (see section 5 for additional details about the EPBC Act as it applies to AMPs).

Around mainland Australia, the Commonwealth marine area extends from three nautical miles from Australia's shoreline to the edge of Australia's Exclusive Economic Zone (approximately 200 nautical miles), with the area inside three nautical miles managed by the states and territories. However, in Australia's external territories, which include Christmas Island and Cocos (Keeling) Islands, Commonwealth waters start at the shoreline[2].

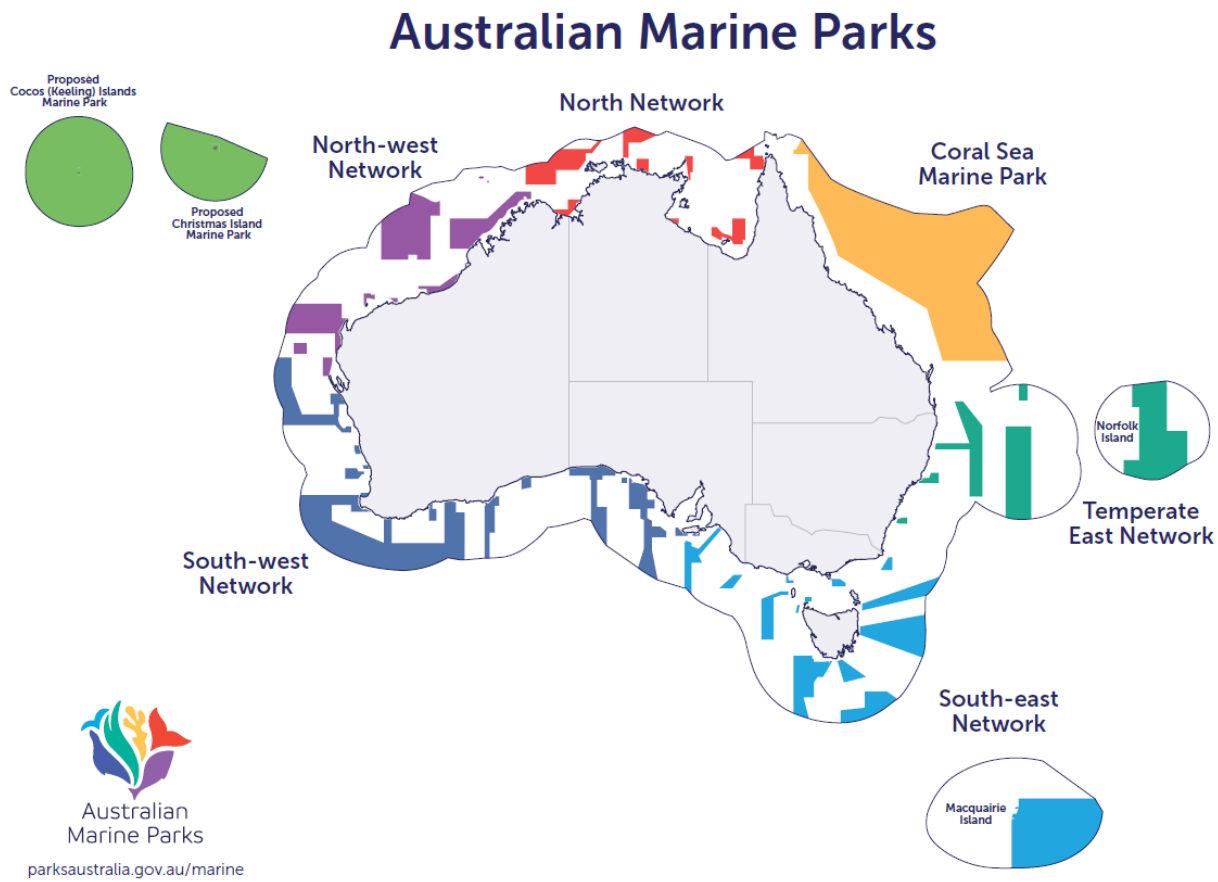
AMPs have been established in all of the marine bioregions that surround mainland Australia and other external territories such as Norfolk Island. With the exception of the very small marine areas included as part of the existing Christmas Island National Park and

[1] https://parksaustralia.gov.au/marine/management/resources/scientific-publications/guidelines-establishing-national-representative-system-marine-protected-areas/

[2] State and territory waters extend 3 nautical miles seaward of the territorial sea baseline. Coastal states and territories have also established marine parks in their coastal waters to contribute to the NRSMPA.

Pulu Keeling National Park, the marine regions of Australia's Indian Ocean Territories (IOT) are not yet included within the NRSMPA. The process to establish IOT marine parks will address this gap.

Figure 2 – Existing Australian Marine Parks and proposed IOT marine parks



2. The rationale and basis for IOT marine parks

The Integrated Marine and Coastal Regionalisation of Australia (IMCRA v4.0)[3] identified 41 distinct provincial bioregions within Australian waters. These provincial bioregions were identified based on scientific analysis that classified Australia's marine environment into 41 relatively distinct ecological regions, which were then used as the basis for developing the NRSMPA.

Australian Marine Parks (AMPs) are currently located within all IMCRA v4.0 provincial marine bioregions other than in the IOT (Christmas Island and Cocos (Keeling) Islands). This issue was highlighted in the Australian Government's 2015 independent Commonwealth Marine Reserves Review, which recommended that marine parks should be established in the IOT. Specifically, the reviewers noted that '*the absence of marine reserves in these territories is the most significant gap in the comprehensiveness of the reserve estate in*

[3] https://parksaustralia.gov.au/marine/management/resources/scientific-publications/guide-integrated-marine-and-coastal-regionalisation-australia-version-40-june-2006-imcra/

Commonwealth waters'[4]. Establishing IOT marine parks would address this gap in the NRSMPA.

The CSIRO has identified and described seven subregions within the two IOT marine bioregions: three subregions within the Christmas Island bioregion; and four subregions within the Cocos (Keeling) Islands bioregion. In addition, the CSIRO identified and described 38 small scale (inshore) ecological systems: 23 at Christmas Island and 15 at Cocos (Keeling) Islands[5]. These descriptions have helped to inform the design of the proposed marine parks, including assessment of the proposed design against the NRSMPA Goals and Principles.

The design of the proposed marine parks has also been informed by:

- Desktop reports prepared by Museums Victoria on the natural values, key ecological features and biologically important areas of offshore IOT waters.[6] These reports will be updated with new information from a recent research voyage to survey seamounts and deep waters around Christmas Island and a future voyage to the Cocos (Keeling) Islands.
- An existing body of research associated with the IOT inshore marine values (see Section 9 – References and further reading).
- Consultation with Commonwealth, state and local government agencies with interests in the marine areas of the IOT.
- Consultation to co-design the proposed parks with local communities. In particular, to help identify socio-economic values/uses and ecological values of inshore waters.
- Public comments received in response to the release of a draft proposal for IOT marine parks from 16 July to 13 August 2021 (see Section 3 for details).

[4] Buxton, C. D. and Cochrane, P. (2015). Commonwealth Marine Reserves Review: Report of the Bioregional Advisory Panel. Department of the Environment, Canberra. 341pp, p 235. Report available at: https://parksaustralia.gov.au/marine/management/background/review-reports/.

[5] D. T. Brewer, A. Potter, T. D. Skewes, V. Lyne, J. Andersen, C. Davies, T. Taranto, A. D. Heap, N. E. Murphy, W. A. Rochester, M. Fuller and A. Donovan. (2009). Conservation values in Commonwealth waters of the Christmas and Cocos (Keeling) Islands remote Australian Territories. Report for Department of Environment, Water, Heritage and the Arts, Canberra. CSIRO, Canberra. Report available at: https://parksaustralia.gov.au/marine/management/resources/scientific-publications/conservation-values-commonwealth-waters-christmas-and-cocos-keeling-island-remote/

[6] O'Hara, T.D, (2021) *Offshore Key Ecological Features and Biologically Important Areas of Australia's Indian Ocean Territories,* Museums Victoria; and O'Hara, T.D. (2021) *Assessment of the Offshore Marine Natural Values of Australia's Indian Ocean Territories*, Museums Victoria. Reports available at: https://parksaustralia.gov.au/marine/iot/process/

3. Integrating social and economic considerations into planning

Background

Christmas Island is a culturally diverse community of mainly Asian and European cultures and the community maintains strong cultural connections to the marine environment (e.g. through subsistence fishing). Over 63 per cent of people speak languages other than English at home, with Malay and Mandarin being the two main languages spoken.

Mining has been a mainstay of the Christmas Island economy since the island was annexed by Britain in 1888. The Christmas Island economy has risen and fallen with the phosphate industry and the opening and closing of other initiatives – for example, a casino in the mid-1990s saw the population rise to around 2000, only to fall again once the operation closed. Likewise, detention centre activities through the early 2000s to 2018, saw the population peak at over 2000 once again. It is currently around 1800.

Our Christmas Island 2030 Strategic Plan[7] identifies many social and economic activities of importance to Christmas Islanders, including that Christmas Island has natural advantages for sustainable and sensitive tourism opportunities. The Strategic Plan identifies that 'unique marine environments with significant numbers of species and excellent conditions for snorkelling, diving and recreational fishing' are one of the island's assets and comparative advantages. The natural environment was also identified as 'what we love about Christmas Island' by 71 percent of 139 residents surveyed.

The Cocos (Keeling) Islands main settlement is on Home Island. Almost all of its 410 inhabitants are Cocos Malay, who maintain strong cultural connections to the marine environment. West Island has a population of around 100 people of mostly European heritage. The marine environment is an important asset for the Cocos community for subsistence and recreational fishing, as well as commercial tourism. At 2,750 kms from Perth, Cocos (Keeling) Islands are amongst Australia's most remote communities. While the economy has a small but important tourism sector, most employment is in the government sector.

Our Cocos (Keeling) Islands 2030 Strategic Plan[8] identifies that the community values its local environment and considers the pristine marine environment to be one of the islands' strengths. Marine based activities like snorkelling, diving, kite surfing and fishing are particularly valued by the community, both as recreational activities and also for their tourism potential. While the tourism industry is still relatively small, it is gradually increasing

[7] https://www.regional.gov.au/territories/publications/files/CCS1681_IOTRDO_CI_Strategic_Plan_FINAL.pdf
[8] https://www.regional.gov.au/territories/publications/files/CCS1815-CKI-Strategic-Plan-Final-March-2019.pdf

in size and significance. For example, from 2013 to 2018 there was a 40 per cent increase in tourism activities and events. Some in the community expect tourism to be a mainstay of the economy into the future, particularly marine-based tourism activities. Low volume, high yield tourism experiences that are culturally, socially and environmentally sensitive and sustainable are the preferred tourism model. Regenerative tourism, where tourists leave a place better than when they arrived (such as through positive/beneficial interactions with locals, enhancing the environment) is also seen as having strong potential in the future.

The remote and deep offshore waters that surround Christmas Island and the Cocos (Keeling) Islands do not have the economic activities and pressures associated with many other areas of Commonwealth waters. There has been no commercial fishing since 2013 and there is no mining or gas and oil production. Due to their remoteness, there are little-to-no recreational activities in these offshore waters. The absence of these activities provides a rare opportunity to establish marine parks with a high degree of protection across all IOT offshore waters, without disrupting important existing social and economic activities. Such protection will help secure these significant environmental assets for the future with minimal social and economic impacts.

Consultation

Information on socio-economic uses and values of the IOT marine environment was gathered through several phases of community and stakeholder consultation.

The four phases of IOT community engagement were conducted from February to August 2021, focusing on:

- introducing the concept of Australian Marine Parks and the process to establish them.
- seeking views on establishing marine parks in the IOTs.
- identifying the environmental, social, cultural and economic values and uses of the IOT marine environment.
- working with IOT communities to co-design (locate and zone) the proposed Christmas Island and Cocos (Keeling) Islands marine parks outlined in this proposal.
- release of the draft marine parks proposal for public comment (described below).

During these four phases of engagement, Parks Australia met with Christmas Island and the Cocos (Keeling) Islands community members and stakeholders, including local Shires, businesses, fishers, tourism associations, community groups, individuals and island-based Commonwealth government agencies.

During initial consultation in February-March 2021, Parks Australia conducted 25 meetings with approximately 130 people from over 20 organisations and groups. Findings from the

initial consultations are documented in a separate report, *Summary of consultation on values of the IOT marine environment*.[9] Following this initial consultation, three phases of follow-up consultation were held with IOT community members and stakeholders. In total, over 150 individuals were involved in these consultations, with many people involved in all four phases of consultation.

Parks Australia also consulted directly with other key stakeholders about the proposal to establish marine parks, including mainland-based commercial fishing bodies representing two fisheries that extend into IOT waters—the Western Tuna and Billfish Fishery and the Southern Bluefin Tuna Fishery.

On 16 July 2021 a draft proposal for the establishment of IOT marine parks was released and made available for public comment until 13 August 2021. In response, 60 unique submissions and 15,184 'campaign submissions'[10] were received (15,244 total submissions). Of these, 47 unique submissions and all campaign submissions supported the draft proposal, without any changes to the designs (area, location and zoning) of the proposed marine parks. A further four unique submissions supported the proposed marine parks but requested some changes to inshore waters. Six submissions did not support the proposal, mainly due to restrictions proposed on offshore commercial fishing. The views from the remaining three unique submissions were unclear. A report that summarises these public comments is available on the Parks Australia website. Overall, the comments strongly supported proceeding to a proclamation proposal with marine park designs that are largely unchanged from those in the draft proposal. The only changes in this proclamation proposal compared to the draft proposal are small adjustments to the inner boundaries of the proposed Cocos (Keeling) Islands marine park to:

- incorporate a dive site known as 'the coal barge'.
- create a more locally identifiable zoning boundary at the *Rip* area.
- align more accurately with the existing port boundary.

Uses and impacts

In considering the uses and impacts of the proposed marine parks, IOT waters have been considered as two distinct areas:

[9] https://parksaustralia.gov.au/marine/iot/process/

[10] 'Campaign submissions' refers to those submissions that were generated by individuals through a third-party website and providing identical or very similar comments (there were two different campaigns).

(a) inshore waters, defined as from three to 12 nautical miles off the islands' shorelines[11]. Island-based users of the marine environment do not tend to venture further than a few miles from the shore.

(b) offshore waters, defined as from three to 12 nautical miles to the limit of Australia's Exclusive Economic Zone (AEEZ)[12]—around 200 nautical miles from shore.

Table 2 - Uses of IOT inshore waters and potential impact of proposed zoning

Activity	Prevalence	Impact of marine park
Subsistence and recreational fishing	Subsistence and recreational fishing are widespread in the inshore waters of both Christmas Island and Cocos (Keeling) Islands.	The proposed zoning will not affect current subsistence and recreational fishing practices, including anchoring (within 12 nautical miles from the shore of Christmas Island and three nautical miles from the shore of Cocos (Keeling) Islands). If fishing rules are introduced in the future, they will apply in the yellow zones of the marine parks.
Commercial fishing and marine fauna collection	Limited commercial fishing and marine fauna collection currently occurs in the inshore waters of Christmas and Cocos (Keeling) Islands.	The proposed zoning will not affect current local inshore commercial fishing activities and the collection of marine fauna for the aquarium trade (within 12 nautical miles from the shore of Christmas Island and three nautical miles from the shore of Cocos (Keeling) Islands). However, an approval may be required.
Tourism	Activities such as snorkelling and scuba diving, kite surfing, kayaking, charter fishing and eco-tourism (e.g. whale shark watching, bird watching, wildlife tours) are key tourism drawcards in the inshore waters of both Christmas Island and Cocos (Keeling) Islands.	Marine parks would create additional opportunities to protect and promote the IOT as unique eco-tourism destinations. The proposed zoning will not affect current tourism operations. However, an approval may be required for some commercial tourism activities.

[11] Note: Territorial waters in the IOT extend to 12 nautical miles. However, for the purposes of this document, Cocos (Keeling) Island's (CKI) inshore waters are defined as up to three nautical miles from shore; while Christmas Island's (CI) inshore waters are defined as up to 12 nautical miles from shore. These differences reflect the differing views between the CKI and CI communities in relation to where the inshore waters should be defined.

[12] On Christmas Island, the AEEZ extends southwest from the territorial sea limit to 200 miles from shore. To the northeast, the AEEZ boundary is around 80 kilometres from the territorial sea limit shoreline, as it abuts Indonesia's waters (Economic Exclusive Zone). See Figure 1.

Mining	No mining operations take place in the IOT marine environment. A terrestrial phosphate mine on Christmas Island relies on port access to carry out its operations.	The proposed zoning will prevent mining (including prospecting) from occurring in the IOT marine environment, however, it will not impact on land-based phosphate mining operations. For example, ships can transit through the proposed marine park zones and excluding the port zone on Christmas Island from the marine park ensures that there will be no impact on phosphate loading activities.
Shipping	Both Christmas Island and Cocos (Keeling) Islands contain active port areas and ships transit through the proposed marine parks areas.	The marine parks will not impact on transiting ships and shipping activities in active port areas (which have been excluded from the parks). Inside the marine park, ship anchoring is only allowed in anchoring areas determined under r.12.56 of the EPBC Regulations. Other regulations that may already apply to shipping (e.g. biosecurity, MARPOL) are not impacted or changed by marine parks.
Research	Considerable research has been undertaken IOT inshore waters.	Marine parks will create additional opportunities and demand for research. The proposed zoning will not affect research, which is allowed in all zone types. However, scientific research in IOT marine parks will require a permit.
Recreational activities	Scuba diving, snorkelling, kitesurfing, windsurfing, kayaking, boating and free diving are popular activities undertaken by locals and tourists alike.	The proposed zoning will not affect current recreational activities, including anchoring of vessels.

Table 3 - Uses of IOT offshore waters

Activity	Prevalence	Impact of marine park
Subsistence and recreational fishing	This area is not accessed for fishing by IOT communities or visiting fishers.	NIL
Commercial fishing	There has been no commercial fishing in IOT offshore waters since 2013 and very little fishing activity prior to this.	The proposed zoning will not affect current fishing operations as there are no fishers currently active in IOT offshore waters and prevent fishing in the future. The proposed zoning will exclude all forms of fishing in offshore waters.

Tourism	Nil	Nil
Mining	Currently, no mining operations take place in the IOT marine environment. A terrestrial phosphate mine on Christmas Island relies on port access to carry out its operations.	The proposed zoning will prevent mining (including prospecting) from occurring in the IOT marine environment, however, it will not impact on land-based phosphate mining operations. For example, ships can transit through the proposed marine park zones and excluding the port zone on Christmas Island from the marine park ensures that there will be no impact on phosphate loading activities.
Shipping	The offshore waters are used by transiting ships and ships destined for Christmas Island and/or Cocos (Keeling) islands.	The proposed zoning allows for transiting ships including commercial and recreational vessels. Due to the depths of offshore waters, anchoring is not feasible. Other regulations that may already apply to shipping (e.g. biosecurity, MARPOL) are not impacted or changed by marine parks.
Research	Limited scientific research in offshore IOT waters (to date). However, RV *Investigator* research voyages will complement existing research.	Marine parks will create additional opportunities and demand for research to be done in offshore IOT waters. The proposed zoning will not affect research, however, scientific research in IOT marine parks will require a permit.
Recreational activities	Nil.	Nil.

4. Natural Values

NRSMPA Goals and principles

The design of the proposed Christmas Island Marine Park and Cocos (Keeling) Islands Marine Park (IOT marine parks) (as described in Section 6) address the *Goals and principles for the establishment of the National Representative System of Marine Protected Areas (NRSMPA) in Commonwealth waters*.

The proposed marine parks contribute to addressing the natural values aspects of the NRSMPA goals and principles by:

- appropriately representing the final two provincial bioregions identified in Australian waters in marine protected areas.

- representing all eight depth ranges and seven subregions identified within the Christmas Island and Cocos (Keeling) Islands bioregions.[13]
- including eight features that have been identified as potential Key Ecological Features[14] (KEF). [15]
- including three proposed Biologically Important Areas (BIA) for threatened and migratory species.
- including biologically distinct habitats within Christmas Island's and Cocos (Keeling) Islands' inshore waters.
- adjoining marine parks to existing marine areas of Christmas Island National Park and Pulu Keeling National Park.

Indian Ocean Territories Natural Values

The waters around Christmas Island and the Cocos (Keeling) Islands contain a range of unique, isolated and largely undisturbed natural features located in a wide range of water depths, from shallow coastal waters to offshore waters over 6000 metres deep. These features include coral reefs, seagrass, deep-water plains, seamounts and ridges that provide habitats for many different species. These species include oceanic fish, reef species, threatened and migratory species including whale sharks, seabirds and marine turtles, as well as land crabs that require the ocean to breed. Several of these species are under pressure elsewhere or are not found anywhere else in the world.

Importantly, these islands are located where Indian Ocean and Pacific Ocean currents overlap. Coral reef species from both oceans can be found together, resulting in the evolution of unique hybrid varieties of marine fauna. The IOT region is the first recorded zone of this type in tropical waters and is thought to contain the highest number of hybrid fauna in any marine location[16].

There are strong ecological links between terrestrial and marine environments on both Christmas Island and Cocos (Keeling) Islands. Many species require both marine and terrestrial environments for their survival, particularly seabirds, marine turtles and land crabs.[17] Areas of both islands are already national parks (Christmas Island National Park and

[13] Brewer, D et al (2009), *Conservation values in Commonwealth waters of the Christmas and Cocos (Keeling) Island remote Australian territories*
[14] O'Hara, T.D, (2021) *Offshore Key Ecological Features and Biologically Important Areas*
[15] O'Hara, T.D, (2021) *Offshore Key Ecological Features and Biologically Important Areas*
[16] Hobbs, J.-P.A., et al. (2014), *Checklist and new records of Christmas Island fishes: the influence of isolation, biogeography and habitat availability on species abundance and community composition.* Raffles Bulletin of Zoology, 2014. **Supplement 30**: p. 184-202.

[17] Christmas Island Expert Working Group (2010)

Pulu Keeling National Park) that protect areas of island habitats and small marine areas. The proposed IOT Marine Parks would significantly extend the existing marine protections and management of habitats used by these species.

As is the case for many similar marine environments, information about the full range of habitats and species in the deep offshore waters surrounding Christmas Island and Cocos Keeling Islands is limited. In such circumstances, the scientific studies and data that does exist is supplemented with information on known or predicted links between the physical environment and biodiversity (surrogacy[18]). Surrogacy, as is used in marine park planning, refers to the use of surrogates (physical seafloor features like canyons and seamounts) that can be measured or mapped and are assumed to have a suite of associated biodiversity, which hasn't yet been directly measured or mapped.

As with the existing Australian Marine Parks, surrogates have been used to predict biodiversity in the design of the proposed IOT marine parks, and include:

- bioregions, subregions and island-scale (inshore) systems
- depth ranges
- seafloor biological and physical features
- latitude and currents
- Species presence, habitats and communities
- Key ecological features (KEFs) and biologically important areas (BIAs)

Offshore and deep-water habitats

Christmas Island and Cocos (Keeling) Islands are both the summits of tall seamounts that formed over 120 million years ago, rising from the deep ocean floor (approximately 5000m below sea-level). While numerous other seamounts populate the IOT region, mid-oceanic seamounts of this type are otherwise very rare in the eastern Indian Ocean. The IOT seamounts are generally arranged in clusters and orientated in a broadly east-west direction. Aside from one other massive seamount – Muirfield, south-west of Cocos, which rises to within 16m below the surface – the remaining seamounts have summits thousands of metres below sea-level. Another distinctive seafloor feature – the Investigator Ridge – rises to approximately 2500m and runs in a north-south direction to the East of Cocos.

We know from elsewhere in the world that seamount ecosystems are hotspots of biodiversity and may be important sites for evolution. Collectively, the IOT seamounts provide crucial 'stepping-stones' for marine life and long distance migratory seabirds, partly

[18] https://www.ga.gov.au/scientific-topics/marine/seabed-mapping/surrogacy

due to the unique east-to-west configuration of the seamounts, which rely on the relatively productive waters arising from the seamount clusters to sustain them on their long journeys.

Seamounts of this type are rare in Australian waters. The only other examples of equivalent shallow seamounts rising from the abyssal plain (deep sea-floor) in the NRSMPA are in the Tasmantid seamount chain in the Temperate East Marine Park Network and Coral Sea Marine Park.

Deep water drop-offs (walls and slopes) of both the Christmas Island and Cocos seamounts provide unique habitats for marine species. While less is known about the Muirfield seamount, its ecological uniqueness as the shallowest seamount in the region (excluding Christmas and Cocos) makes it a significant feature in the region.

In addition to the shallow water (0-200m) environments, Christmas Island and Cocos (Keeling) Islands and the Muirfield seamount support the only upper depth seafloor habitats of (200-1000m deep) in the IOT.

Deeper water habitats primarily consist of seamount crests and slopes in the ranges 1000-5000m, and the Investigator Ridge, which crests mainly in the 3,500 – 4,500 depth range. There is one significant hadal (below 6,000m) trough, to the south-east of Christmas Island.

Currently, the bathyal and abyssal (200-6500m) fauna of the IOT is largely unknown.

Inshore and shallow water habitats

Christmas Island, Cocos (Keeling) Islands and Muirfield seamount all support a range of shallow water benthic habitats (0-200m), consisting of a mix of some species only found in these areas (endemic species) and more widely distributed marine flora and fauna. Each feature is also unique due to its isolation, resulting in low rates of species immigration. While the number of known endemic species is low, their abundance can be relatively high.

Offshore, two important migratory marine species – whale sharks and southern bluefin tuna – depend on the benthic habitat of the IOT region, in particular the waters surrounding Christmas Island.

Southern bluefin tuna (SBT) is listed as 'Conservation dependent' under the EPBC Act and has been globally assessed as overfished. Breeding for the entire species is thought to occur in one spawning ground in the eastern Indian Ocean between Christmas Island and the northwest coast of Australia. The proposed Christmas Island marine park area is considered a critical part of this spawning area as the entire Christmas Island AEEZ is lies within it. Adult SBT typically prefer colder water but require warmer waters to breed. Spawning adults dive to depths of around 150m in order to thermoregulate. Spawning occurs between September and April.[19]

[19] O'Hara, TD (2021), *Offshore Marine Natural Values.*

Whale sharks are frequently seen around Christmas Island, particularly around the time of red crab spawning, when the plentiful red crab larva is thought to provide an important source of food. Other food sources, such as zooplankton and other invertebrate spawn, are harder to come by, and whale sharks are known to forage at depths of 1000m, returning to shallower waters to thermoregulate. Whale sharks are listed as 'vulnerable' under the EPBC Act, and very little is known about their breeding behaviour, although Christmas Island is considered an important habitat for migrating juvenile whale sharks.

Reef habitats

Christmas Island

Christmas Island and its shallower slopes contain a range of unique and diverse environments. Surveys of the fish fauna of Christmas Island[20] have identified 681 fish species (from 91 families), including four endemics and two near endemics. Of these, 50 species are not found in other Australian waters, 28 are found in extraordinary abundance and eight are hybrid varieties of fish.

Christmas Island's fringing coral reefs and waters support marine species typical of Indian Ocean tropical reefs, including 88 different corals. Several are hybrids of Indian Ocean and Pacific species, which has resulted from the island's unique geographic location and isolation.

Two marine turtles listed as vulnerable under the EPBC Act, the green turtle (*Chelonia mydas*) and hawksbill turtle (*Eretmochelys imbricata*), are found in these waters. There is only one green turtle nesting site on the island, at Dolly Beach on the south-east coast. Hawksbills are also common in the area, but don't appear to nest on the island.

In addition to the whale shark, several other shark species inhabit the area. Dolphin species also use the coastal waters and are thought to breed in the area (Bottlenose, Short-beaked common and Spinner dolphins). Manta rays can also be frequently seen.

Christmas Island is home to three species of true land crab. These crabs inhabit the entire island and spawn along the whole coastline. They are dependent on the ocean for spawning and the development of the larval phases. The red crab (*Gecarcoidea natalis*) is a keystone species as they play a vital role in the ecology of the island, helping to shape the structure and species composition of the island's rainforests. Red crab larva is thought to be an important food source for migrating whale sharks.

Christmas Island is also a breeding site for a range of seabirds, including Abbott's Booby (*Papasula abbotti*) and the Christmas Island Frigatebird (*Fregata andrewsi*), both of which

[20] Hobbs, J.-P.A., et al. (2014), *Checklist and new records of Christmas Island fishes: the influence of isolation, biogeography and habitat availability on species abundance and community composition.* Raffles Bulletin of Zoology, 2014. **Supplement 30**: p. 184-202.

are endemic to Christmas Island. Adult birds may fly hundreds of kilometres to their feeding grounds, but most foraging is thought to take place within 60km of the island. Abbott's Booby is listed as endangered under the EPBC Act and the Christmas Island Frigatebird is listed as critically endangered.

Cocos (Keeling) Islands

The Cocos (Keeling) Islands consist of North Keeling Island and the South Keeling Islands (southern atoll). These oceanic coral atolls are connected by a submerged ridge and are about 28 km apart. North Keeling Island is an atoll with a central lagoon. The South Keeling Islands sit on a coral atoll, comprising 26 separate islands, with two inhabited islands – Home Island and West Island.

Of the 533 fish species recorded at the Cocos (Keeling) Islands, only the angelfish (*Centropyge joculator*) has been identified as endemic to the IOT region. There are significant populations of shark (black tip, white tip, grey reef) around the atolls and a substantial population of butterfly fish. Both the humphead wrasse (*Cheilinus undulates*) and bumphead parrotfish (*Bolbometapon muricatum*) are common in the island waters.

The coral fauna is typical of Western Australia. Of the 99 species of reef building coral found on Cocos (Keeling) Islands, 12 are not found anywhere else in Australia and nine are not present anywhere else in the eastern Indian Ocean. The reef is predominantly rock with soft and hard coral cover present in most areas.

There is also a diverse population of mollusc fauna. The molluscs of Cocos (Keeling) Islands are closely linked to those of Christmas Island and Western Australia. There are 610 species found on Cocos (Keeling) Islands, while 490 are found at Christmas Island.

The spider shell conch *Lambis lambis* (gong-gong or spider conch) occurs in large numbers in shallow water in the southern part of the lagoon at Cocos. It is easily collected and is eaten regularly by members of the Cocos Malay community.

The lagoon of the southern atoll is ecologically important as it provides a sheltered area to act as a nursery to fish, and seagrass beds that provide habitat for invertebrates, small fish and feeding areas for turtles. The lagoon is mostly shallow but at the centre of the lagoon, the depth can reach 30 metres. There are extensive seagrass beds (*Thalassia hemprichii*) on the lagoon side of West Island, South Island and the eastern islands all the way up to Home Island. Seagrass is also found under Direction Island (*Syringodium isoetifolium*) and amongst the coral outcrops in the central northern area of the lagoon (*Thalassodendron cillatum*). These areas are the feeding grounds for the green turtles that nest on North Keeling Island. Seagrass cover and distribution in the lagoon are thought to be in decline, the cause of which is not fully known.

The forest of Pulu-Keeling National Park (PKNP) supports thousands of nesting seabirds and the atoll is the only seabird breeding colony within a 975 km radius. It supports one of the

most important and largest Red Footed Booby (*Sula sula*) colonies in the world. It also has the second largest lesser frigate bird nesting population in Australian territories. The Cocos buff banded rail is the only endemic bird in the territory and feeds on crustaceans living in the seagrass on the lagoon shore. Migratory birds are also thought to use the island as a staging point.

Several species of whale have been seen migrating through the coastal waters of Cocos (Keeling) Islands. Two species of dolphin are frequently seen and may be resident in the lagoon, *Delphinus delphis* and *Tursiops truncates*. A manta ray cleaning station has been observed by scuba divers on the southern edge of the ocean side of West Island. Manta rays can be seen all year round in the lagoon and in the coastal waters.

Table 4 - Features represented in the proposed Indian Ocean Territories Marine Parks

Feature type	Feature
Bioregions and sub-regions	Cocos Keeling Islands bioregion • West Cocos Abyssal Plain subregion • Cocos Volcanic Field subregion • Investigator Ridge subregion • East Cocos Abyssal Plain subregion Christmas Island bioregion • Cocos Basin subregion • Christmas Island Central Ridge subregion • Wharton Basin subregion
Island-scale (inshore) systems	Christmas Island • Deep coastal waters • Caves • Beaches • Coral reef ecosystems • Coastal pelagics • Shoreline rock platforms Cocos Island Reef • Coastal waters • Beaches • Mud flats • Seagrass beds • Coral reef ecosystems • Coastal pelagics • Lagoons • Historic shipwreck
Depth ranges	0 – 500 m 500 – 1000 m 1000 – 2000 m 2000 – 3000 m 3000 – 4000 m 4000 – 5000 m 5000 – 6000 m

Feature type	Feature
	> 6000 m
Seafloor features (excluding Island-scale systems)	Seamount/guyots, seamount slopes, ridges, plateaus, abyssal plains, manganese nodules, hadal (below 6,000 m) troughs
Latitude and currents	The IOT are located in tropical latitudes of the eastern Indian Ocean, in the path of the South Equatorial Current (SEC). Surface level currents generally flow from the Pacific, across central Indonesia and out into the east Indian Ocean. The surface Java current enters the northern IOT from the northwest in the summer, before becoming entrained by the SEC. Below 1000 m, currents tend to originate from the south.
Species, habitats and communities	The IOT marine environment supports many ecologically significant and/or endangered species and their habitats. These include: • Numerous seabirds including Red footed, Brown and Masked Boobies, as well as the endangered Abbotts booby and Christmas Island Frigatebird • Green and Hawksbill turtles • Whale sharks • Black tip, white tip and grey reef sharks • Red crabs and several other crab species, including endemic species (e.g. blue crab) • Southern Bluefin Tuna and other tuna species • Cetaceans including several species of dolphin • Manta rays • Corals and seagrasses • Molluscs
Key Ecological Features (KEF) (proposed)	• Golden Bo'sunbird seamounts • Christmas Island seamount • Christmas Island hard plains • Christmas Island Hadal • Raitt Rise seamounts • Muirfield seamount • Investigator Ridge • Cocos (Keeling) seamount
Biologically Important Areas (BIA) (proposed)	• Southern Bluefin Tuna breeding • Abbott's Booby foraging • Whale Shark foraging

Sources: Brewer et al, (2009), O'Hara (2021) *Key Ecological Features and Biologically Important Areas*

5. Zoning used for IOT marine parks

The EPBC Act describes the legal requirements for establishing Australian Marine Parks in Commonwealth areas (for areas of land and sea). Among other requirements, this includes

assigning an International Union for the Conservation of Nature (IUCN) protected area category to parks and (if applicable) the zones within them.[21]

Zoning of marine parks helps to address the NRSMPA goals and principles and the specific purpose or objectives of a particular marine park and prescribes what types of activities can and cannot occur within different areas/zones.

Two types of zones and IUCN categories are proposed within the Indian Ocean Territories marine parks:

(a) Green zones – National Park Zone (IUCN category II)

To be managed to protect and conserve biodiversity, ecosystems, habitats and native species in as natural a state as possible. This zone type is intended to allow only non-extractive activities, such as wildlife watching, diving, snorkelling and research. Fishing and mining are intended to be prohibited.

(b) Yellow zones – Habitat Protection Zone (IUCN category IV)

To be managed to ensure maintenance of the habitat conditions necessary to protect significant species, groups of species, biotic communities or physical features of the environment. Scientific research, environmental monitoring and community engagement are intended to be priority management activities. Activities that generate benefits for local communities and other marine park users, such as recreational fishing, other recreational uses, charter fishing, tourism and aquaculture are intended to be allowed. Some forms of commercial fishing are intended to be allowed. Mining is intended to be prohibited.

Whilst the two types of zones described above are proposed for the IOT marine parks, the EPBC Act enables a zone or zones applied under a proclamation to be varied by park management plans. The public will have the opportunity to provide its views about the zoning of the marine parks in future management plans, as the EPBC Act requires two phases of consultation when preparing management plans.

[21] https://www.iucn.org/theme/protected-areas/about/protected-area-categories

6. Proposed Indian Ocean Territories Marine Park designs

The purpose of the proposed Christmas Island Marine Park and Cocos (Keeling) Islands Marine Park is to provide for:

(a) The protection and conservation of biodiversity and other natural, cultural and heritage values

(b) Ecologically sustainable use that supports positive social and economic outcomes.

Consistent with their purpose, the table below describes the activities that would be allowed and not allowed in the two zone types proposed for IOT marine parks.

Table 5: Overview of proposed zoning scheme for IOT marine parks

Activity	**Habitat Protection (IOT) Zone (IUCN Category IV)**	**National Park Zone (IUCN Category II)**
Recreational and subsistence fishing (including anchoring)	✓[A]	✗
General use, access and waste management	✓	✓
Commercial shipping	✓[B]	✓[B]
Commercial fishing	✓[C]	✗[B]
Aquaculture	✓[C]	✗[B]
Commercial media	✓[C]	✓[C]
Commercial tourism (e.g. dive/snorkel tours, charter fishing)	✓[C]	✓[C]
Mining (e.g oil and gas extraction)	✗	✗
Structures and works	✓[C]	✓[C]
Research and monitoring	✓[C]	✓[C]
National Security and emergency response	✓	✓

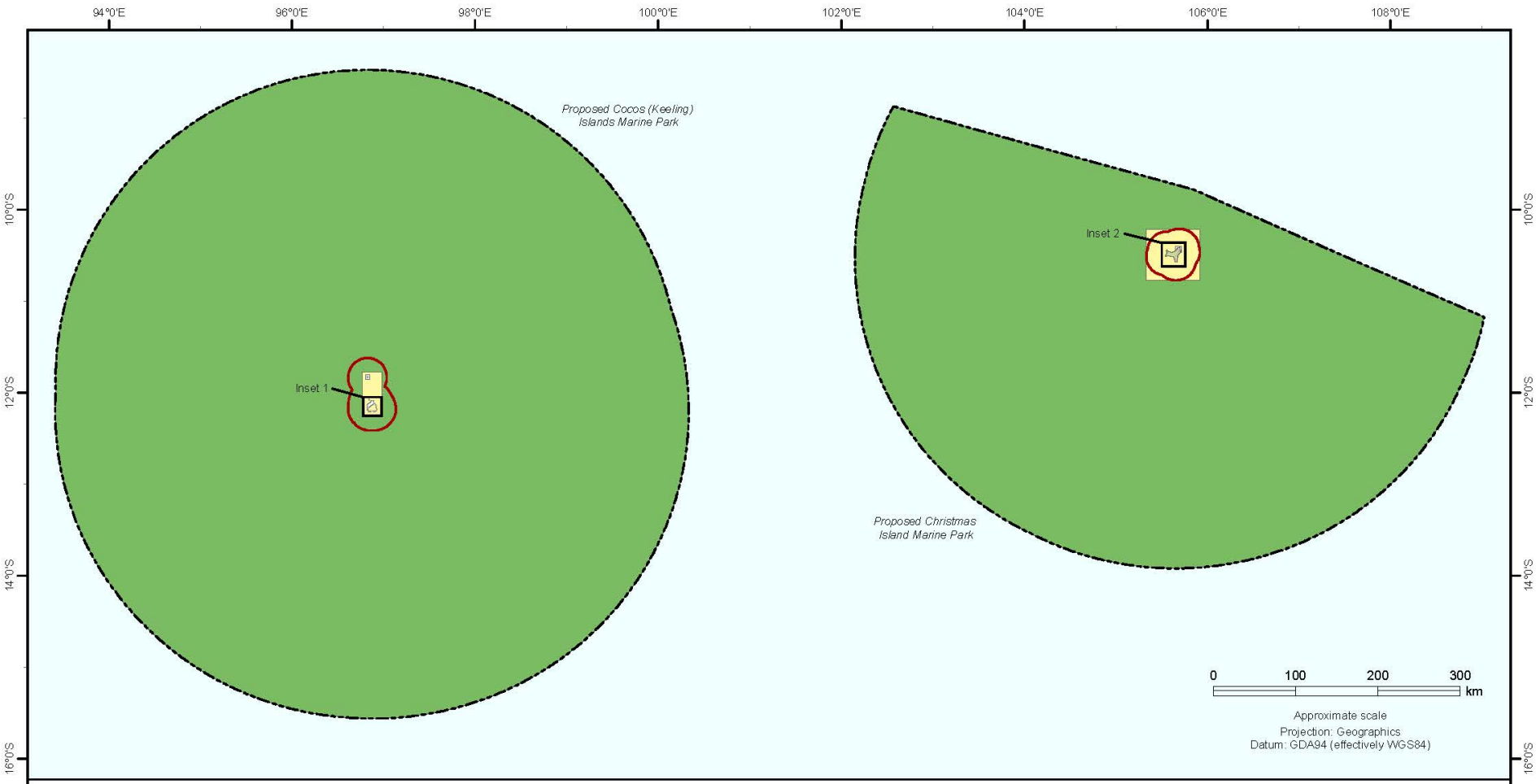
✓ Activity is allowed in accordance with the prescriptions of a management plan without the need of a permit, class approval or activity licence or lease issued by the Director of National Parks. The International Convention for the Prevention of Pollution from Ships (MARPOL) also applies with respect to ship generated pollution from ships (i.e. waste management).

✗ Activity is not allowed

A Recreational fishing is to be in accordance with local fishing rules, if applicable

B Anchoring is not allowed except in anchoring areas determined under r.12.56 of the EPBC Regulations

C Activity is allowed, subject to assessment, in accordance with a permit, class approval or activity licence or lease issued by the Director of National Parks (DNP). Class approvals are a general authorisation that allows a commercial activity to continue (e.g. commercial fishing) under existing (non-marine park) approvals, without separate DNP approval or fees.



Proposed Christmas Island Marine Park & Cocos (Keeling) Islands Marine Park: Proclamation Proposal October 2021

Maritime boundaries

- Limit of Australia's exclusive economic zone (Perth Treaty 1997) (approximately 200nm)
- Territorial Sea Limit (approximately 12nm)

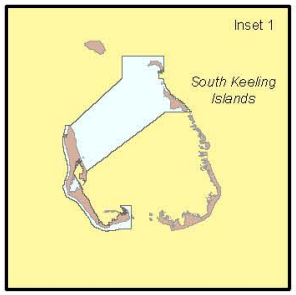
Proposed Marine Park zoning

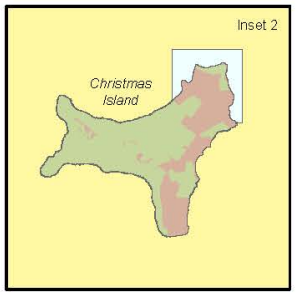
- National Park Zone (IUCN II)
- Habitat Protection Zone (IUCN IV)

Other areas

- Islands
- National Park
- Area not part of marine park

Total area of proposed Christmas Island and Cocos (Keeling) Islands MPAs = 744,770 sq km





Christmas Island Marine Park design

The proposed Christmas Island Marine Park comprises a total area of 277,016 square kilometres and extends from the island's shoreline to the limit of Australia's Exclusive Economic Zone (AEEZ), approximately 200 nautical miles from shore (except for north of Christmas Island). The marine park has two zones, corresponding to the island's inshore and offshore waters.

The marine park covers almost all of Christmas Island's inshore/Territorial waters, which extend from its shoreline to 12 nautical miles. This area is zoned a Habitat Protection Zone (yellow zone) (IUCN category IV). Most of the port area is not within the marine park, other than a narrow strip parallel with the western boundary of the port (an area of about 1.8 square kilometres). This area aligns the marine park to the marine boundary of Christmas Island National Park (CINP), which extends 50 metres seaward from CINP's low water mark. Elsewhere, the marine park boundary also adjoins CINP's waters. In marine areas of the island that are not part of CINP (but which are included in the marine park), the marine park extends to the island's low water mark.

The marine park includes all offshore waters, which extend from 12 nautical miles from Christmas Island's shoreline to the AEEZ. All of this area is zoned a National Park Zone (green zone) (IUCN category II).

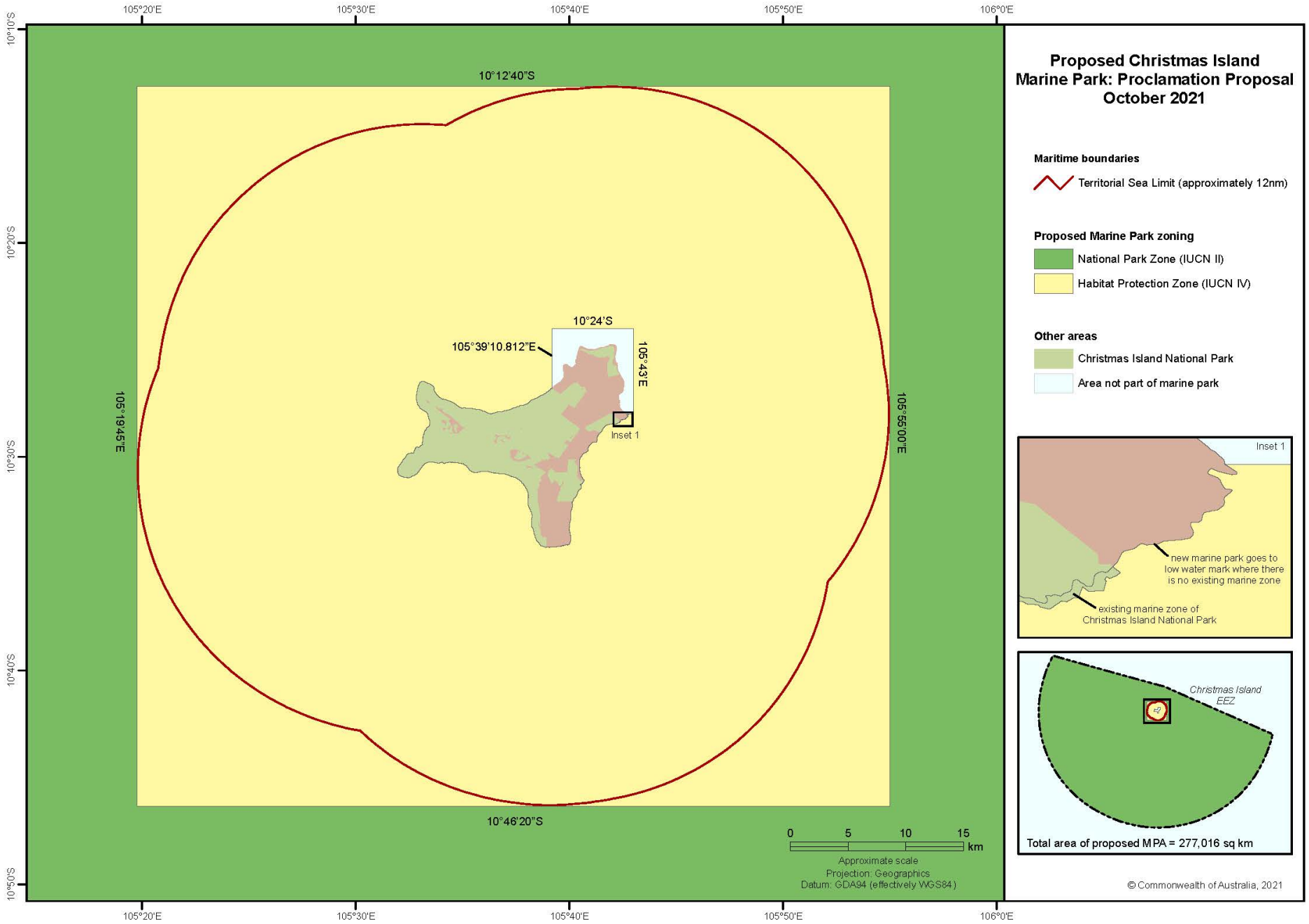
Rationale for the park design

In developing the design for the Christmas Island Marine Park, Parks Australia consulted widely with community members and other stakeholders and government agencies. Feedback from community and stakeholder consultation emphasised the importance of inshore recreational and subsistence fishing; tourism; research and recreational activities. Limited small-scale commercial fishing currently occurs in the inshore waters of Christmas Island, all within the 12 nautical miles of the shore. The habitat protection (yellow) zone proposed for this area is consistent with recreational and commercial uses of the inshore waters, which are defined as up to 12 nautical miles from the shore. Almost all of the port area has been excluded from the marine park to ensure commercial operations critical to the island (including phosphate, freight and fuel loading) can continue without any impact.

The large offshore National Park (green) zone has been proposed to preserve the unique, relatively untouched marine environment surrounding Christmas Island. IOT offshore waters have not been fished commercially since 2013, with very little fishing occurring prior to this. Likewise, there is no mining, gas and oil production. The proposed zoning will therefore not impact on any current commercial operations.

Name	Christmas Island Marine Park
Area	277,016 km^2
Depth ranges	0 to ~6,420m

Sea Floor Features	Seamount/guyots, seamount slopes, plateaus, abyssal plains, manganese nodules, hadal (below 6,000m) troughs
Major conservation values	The proposed marine park contains three proposed Biologically Important Areas (BIA) and four proposed Key Ecological Features (KEF): • Southern Bluefin Tuna breeding BIA • Abbott's Booby foraging BIA • Whale Shark foraging BIA • Golden Bo'sunbird seamount KEF • Christmas Island seamount KEF • Christmas Island hard plains KEF • Christmas Island Hadal KEF The marine environment supports many other significant, endangered and keystone species and their habitats. These include: • Numerous seabirds including Red footed and Brown Boobies, and the critically endangered Christmas Island Frigatebird and Abbott's Booby. • Green and Hawksbill turtles • Whale sharks • Red crabs and several other crab species • Southern Bluefin Tuna breeding area • Cetaceans including several species of dolphin • Manta rays • Corals and seagrasses • Hybrid coral reef fauna
Social and Economic Values	Recreational and subsistence fishing, marine recreation (including scuba diving, snorkeling and kayaking) and research are important uses of the waters surrounding Christmas Island. There is a small but growing eco-tourism sector. Commercial fishing operations in the inshore waters provides fish for the island community and local restaurants. Other activities in the area include shipping, defence/border protection and phosphate mining (i.e. ship loading areas)
IUCN category	II and IV
Internal zoning proposed	Yellow zone (IUCN IV) from Christmas Island National Park marine zone limit or low water mark (as applicable) to a rectangular boundary approximately 12 nautical miles from the low water mark of Christmas Island. Green zone (IUCN II) from 12 nautical mile rectangular boundary to the limit of the AEEZ. Note that Christmas Island port is not included in the marine park (other than a small area described above).



Proposed Christmas Island Marine Park: Proclamation Proposal October 2021

Maritime boundaries

Territorial Sea Limit (approximately 12nm)

Proposed Marine Park zoning

National Park Zone (IUCN II)

Habitat Protection Zone (IUCN IV)

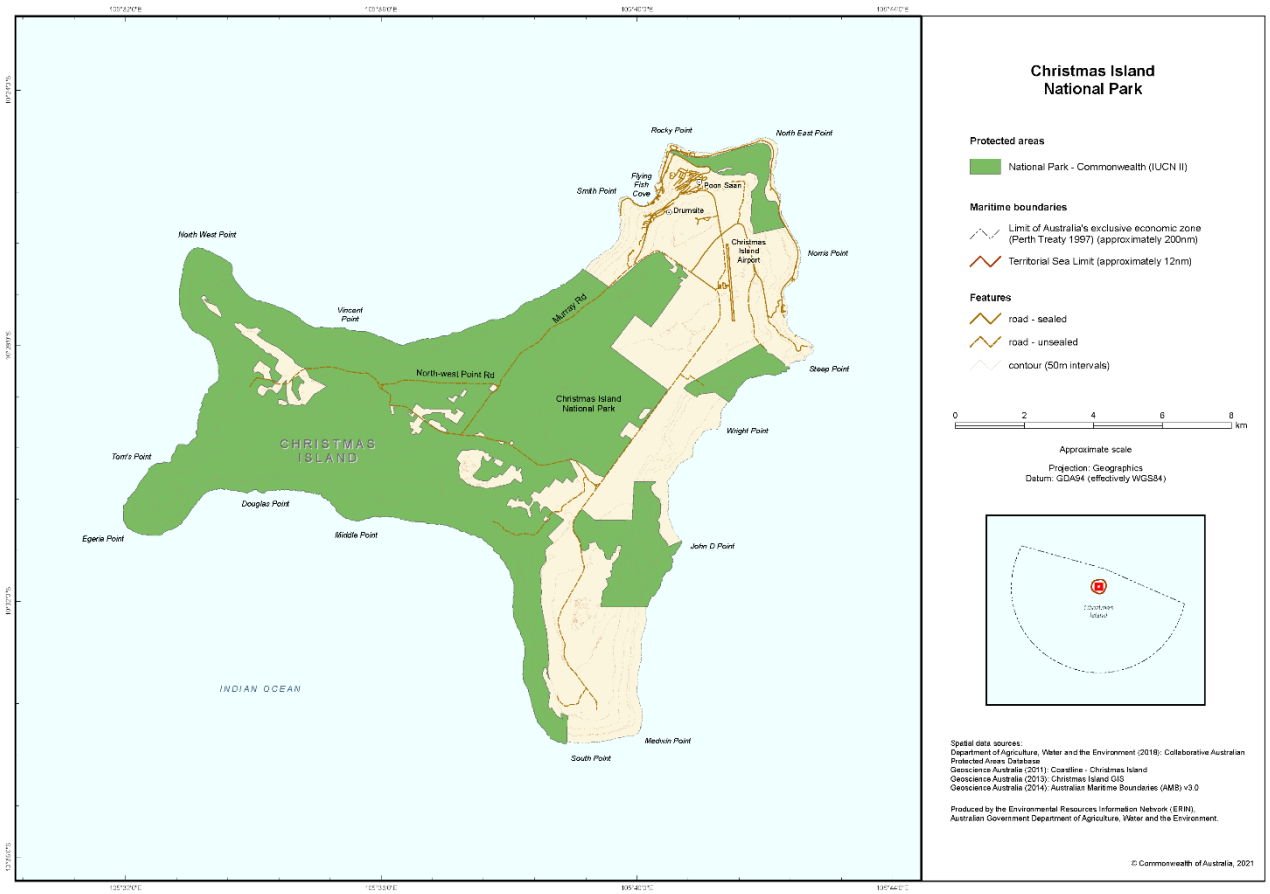
Other areas

Christmas Island National Park

Area not part of marine park

Total area of proposed MPA = 277,016 sq km

Relationship with the existing Christmas Island National Park



Christmas Island National Park (CINP) is a Commonwealth reserve under the EPBC Act that is managed by the Director of National Parks. The park was established in 1980 (and extended in 1986 and 1989) and covers 85 km² or 64% of the island. The park includes a small marine zone that extends 50 metres seaward from low water mark of the park's coastline.

The park protects habitat for threatened, migratory and endemic species, and contains two Ramsar listed wetlands of international importance. There are sites of historic and cultural significance including actively used Chinese temples.

It is proposed that the boundary of the Christmas Island marine park adjoin the marine zone of the existing national park, to ensure habitat connectivity and reflect the symbiotic nature of the marine and terrestrial environments, which will provide opportunities for integrated and holistic protection and management. Examples include:

- Migratory seabirds - Christmas Island is home to numerous nesting seabirds, including three endemic varieties, which rely on the surrounding waters to forage.

- Red crabs - Christmas Island's waters are critical as a spawning area for red crabs as part of their annual breeding migration. The proposed marine parks will increase the spawning area that is protected, as some spawning areas are not included in the existing CINP marine area.
- Marine habitat connectivity - Adjoining the marine park to the existing CINP marine area means that all water depths and the habitats within the region can be protected as one ecologically connected park. For example, this would mean that reefs at all depth ranges would be represented and protected within a marine park, which is currently not the case.

The proposed Christmas Island Marine Park represents a unique opportunity to not only protect marine species but to also further protect terrestrial species that are dependent on a healthy ocean to breed, feed and migrate.

Cocos (Keeling) Islands Marine Park design

The proposed Cocos (Keeling) Islands Marine Park comprises a total area of 467,054 square kilometres and extends generally from the islands' shoreline to the limit of Australia's Exclusive Economic Zone (AEEZ) approximately 200 nautical miles from shore. The marine park consists of two zone types, mostly corresponding to the inshore and offshore waters.

The inshore zone of the marine park forms a rectangle around the southern atoll and North Keeling Island. It extends approximately three nautical miles from the shoreline of the southern atoll (to the south, east and west), to three nautical miles north of North Keeling Island (approximately 28 kilometres to the north). The marine park adjoins the existing marine boundary of Pulu Keeling National Park.

Almost all of this area is zoned a Habitat Protection Zone (yellow zone) (IUCN category IV). There are also two small National Park Zones (green zones) (IUCN category II): one adjacent to the south-east end of Direction Island (covering the area known as the Rip); and one at Trannies Beach, located in the north-west of West Island. Most of the port zone is excluded from the marine park, except for a section of the port in the north-west of the southern atoll lagoon. Other inshore areas excluded from the marine park are the waters adjacent to Home Island and Direction Island (excluding the Rip); West Island's shallow reef platform from the seaward/outer reef edge to high water mark (excluding Trannies Beach); and a small portion of the lagoon to the north of the runway on West Island. The waters around all the remaining islands are included in the marine park to high water mark.

The marine park includes all offshore waters, which extend from three nautical miles from Cocos (Keeling) Islands' shoreline to the AEEZ. All of this area is zoned as a National Park Zone (green zone) (IUCN category II).

Rationale for the park design

In developing the design for the Cocos (Keeling) Island Marine Park, Parks Australia consulted widely with community members and other stakeholders and government agencies.

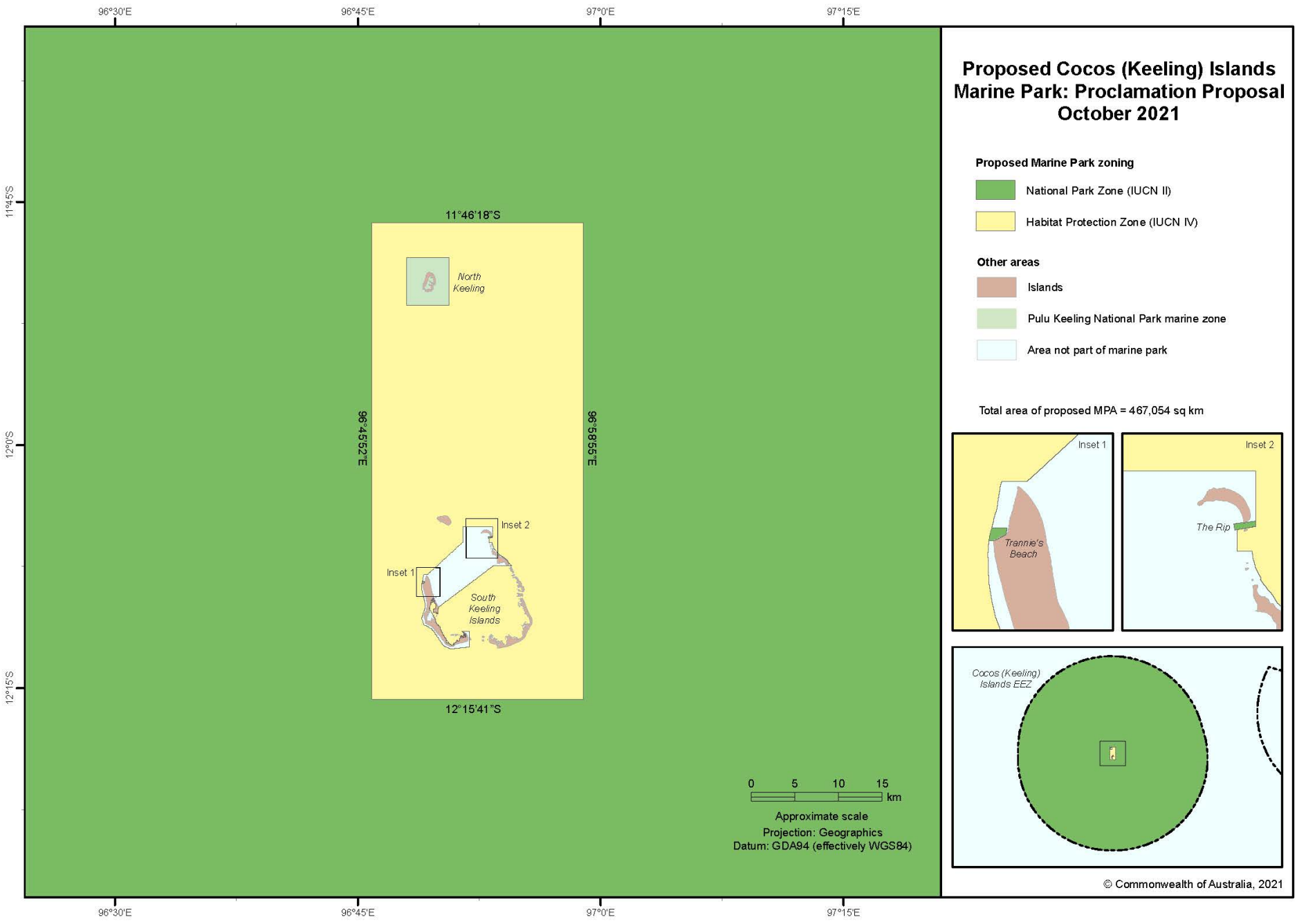
Feedback from community and stakeholder engagement emphasized the importance of recreational and subsistence fishing; tourism; research and recreational activities. Commercial fishing is limited to very small-scale inshore collection of marine species for the aquarium trade. Recreational and subsistence fishing are important activities for the local community, occurring within three nautical miles of the shore or between the southern atoll and North Keeling Island.

The habitat protection (yellow) zoning has been proposed to allow the abovementioned activities to continue in all areas except for 'The Rip' and 'Trannie's Beach', which have been proposed as National Park (green) zones, due to their high ecological value and importance to the local community. Both these areas are currently designated 'no fishing' zones by the Shire of the Cocos (Keeling) Islands. The small areas of the southern atoll that have not been included in the marine park are either adjacent to heavily populated areas, or part of existing or planned capital works (e.g seawalls). The active area of the port has been excluded from the marine park to ensure commercial operations critical to the islands (including ferry, freight and fuel loading) can continue without impact.

The large offshore National Park (green) zone has been proposed to preserve the unique, relatively untouched marine environment surrounding Cocos (Keeling) Islands. There is no active commercial fishing in the area, which has not been fished commercially since 2013, with very little fishing occurring prior to this. Likewise, there is no gas and oil production or mining. The proposed zoning will therefore not impact on any current commercial operations.

Name	Cocos (Keeling) Islands Marine Park
Area	467,054 km^2
Depth ranges	0 to > 6,000 m
Sea Floor Features	Seafloor features represented in the proposed marine park include shelfs, seamount/guyots, seamount slopes, plateaus, abyssal plain/deep ocean floor, volcanic ridges.
Major conservation values	The proposed marine park contains four proposed key ecological features (KEF): • Raitt Rise seamounts • Muirfield seamount • Investigator Ridge • Cocos (Keeling) seamount The marine environment supports many other significant, endangered and keystone species and their habitats. These include: • Numerous seabirds including Red footed, Masked and Brown Boobies • Green and Hawksbill turtles • Cetaceans including several species of dolphin • Black tipped and grey sharks • Manta rays

	• Molluscs • Corals and seagrasses • Hybrid coral reef fauna and one endemic fish species (Cocos Pygmy angelfish)
Social and Economic Values	Recreational and subsistence fishing, fishing tours, marine recreation (including boating, scuba diving and snorkeling, kitesurfing and kayaking), collection of marine fauna for the commercial aquarium trade and research are important uses of the waters surrounding Cocos (Keeling) Islands. Other activities in the area include shipping, tourism and defence/border protection.
IUCN category	II and IV
Internal zoning proposed	Yellow zone (IUCN) within the Southern Atoll lagoon and extending from the outer edge of the atoll to a rectangular boundary approximately three nautical miles from the shoreline. Green zone (IUCN II) from the three nautical mile rectangular boundary to the limit of Australia's EEZ, and over the area known as 'the Rip' at the south east end of Direction Island and 'Trannies Beach' in the north west of West Island. Note that the proposed Cocos (Keeling) Islands Marine Park does not include the actively used part of the Cocos port area or the fringing reef areas of some islands (as previously described).



Proposed Cocos (Keeling) Islands Marine Park: Proclamation Proposal October 2021

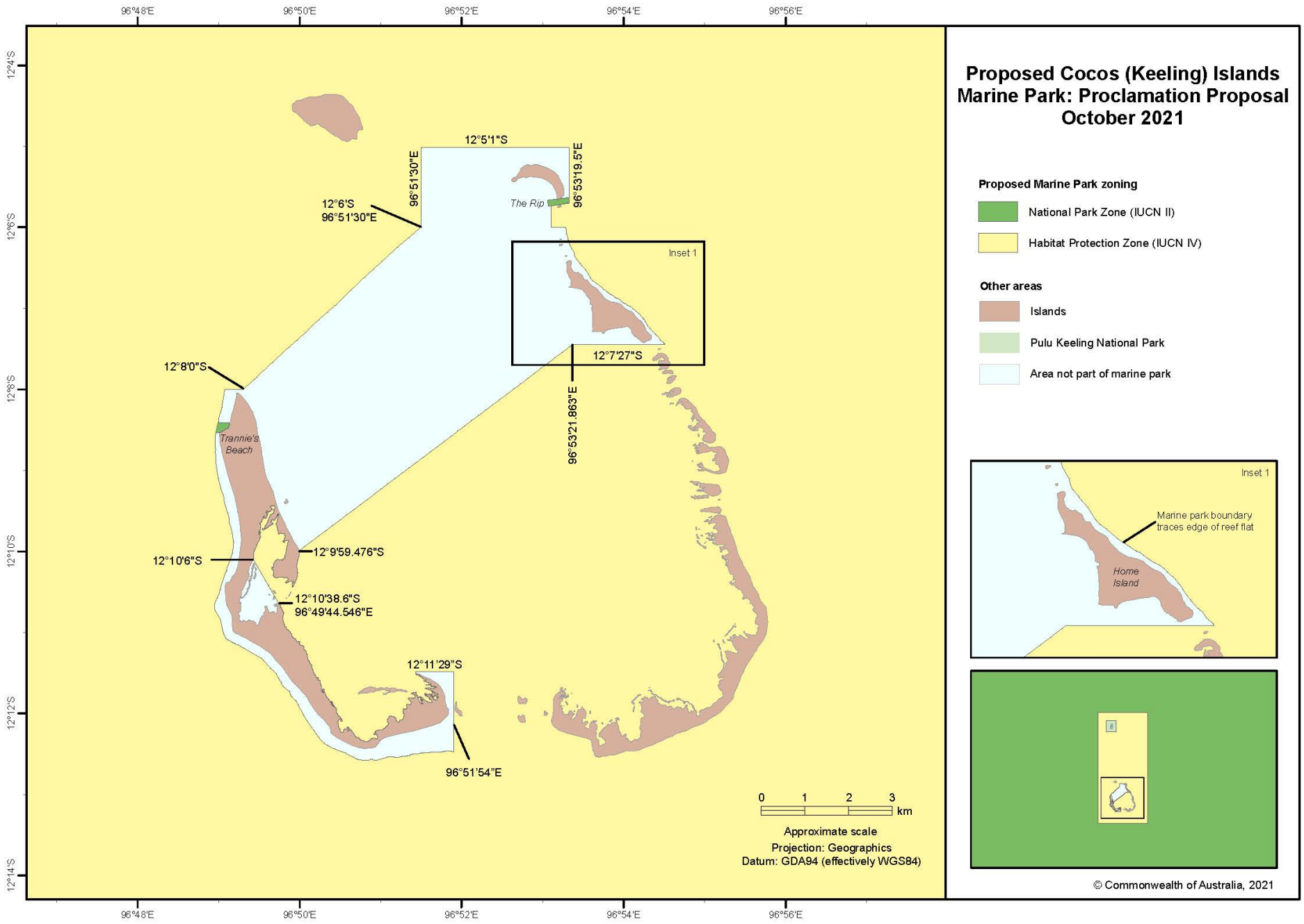
Proposed Marine Park zoning

- National Park Zone (IUCN II)
- Habitat Protection Zone (IUCN IV)

Other areas

- Islands
- Pulu Keeling National Park marine zone
- Area not part of marine park

Total area of proposed MPA = 467,054 sq km



Proposed Cocos (Keeling) Islands Marine Park: Proclamation Proposal October 2021

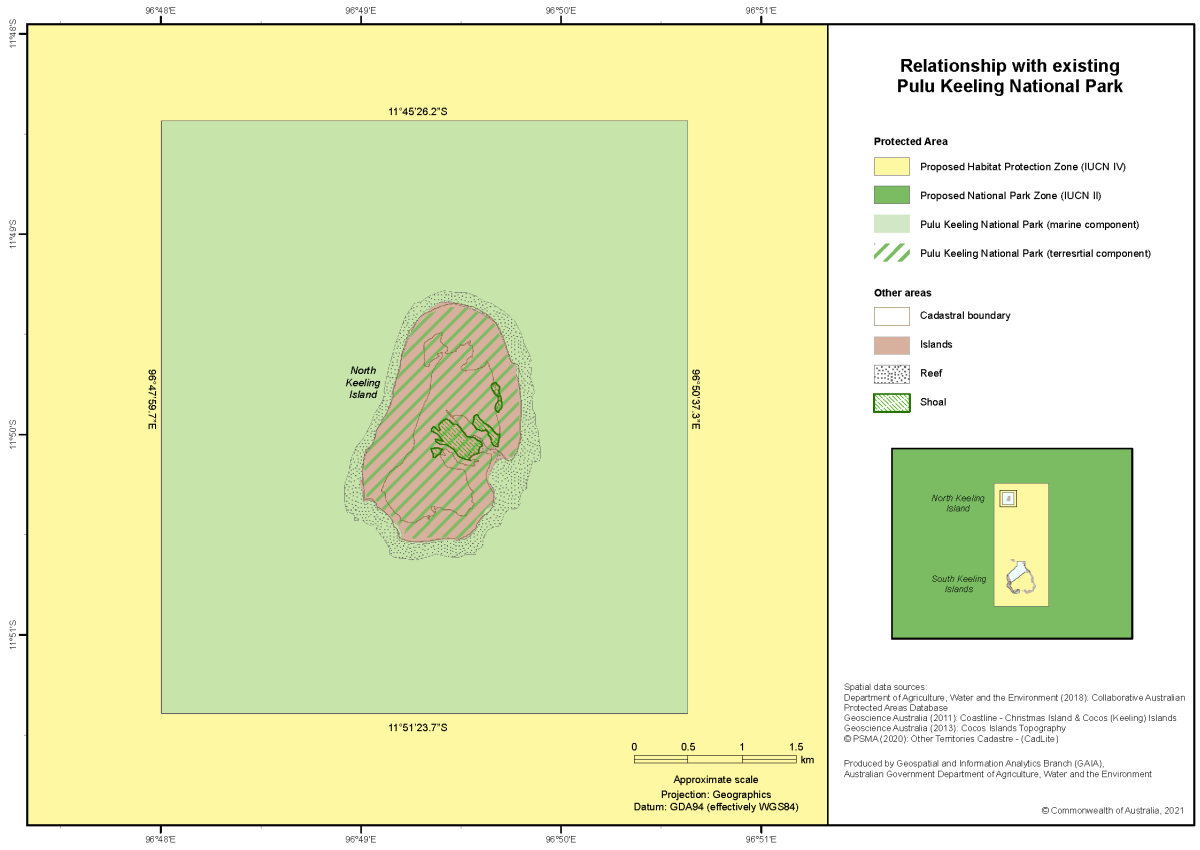
Proposed Marine Park zoning

- National Park Zone (IUCN II)
- Habitat Protection Zone (IUCN IV)

Other areas

- Islands
- Pulu Keeling National Park
- Area not part of marine park

Relationship with the existing Pulu Keeling National Park



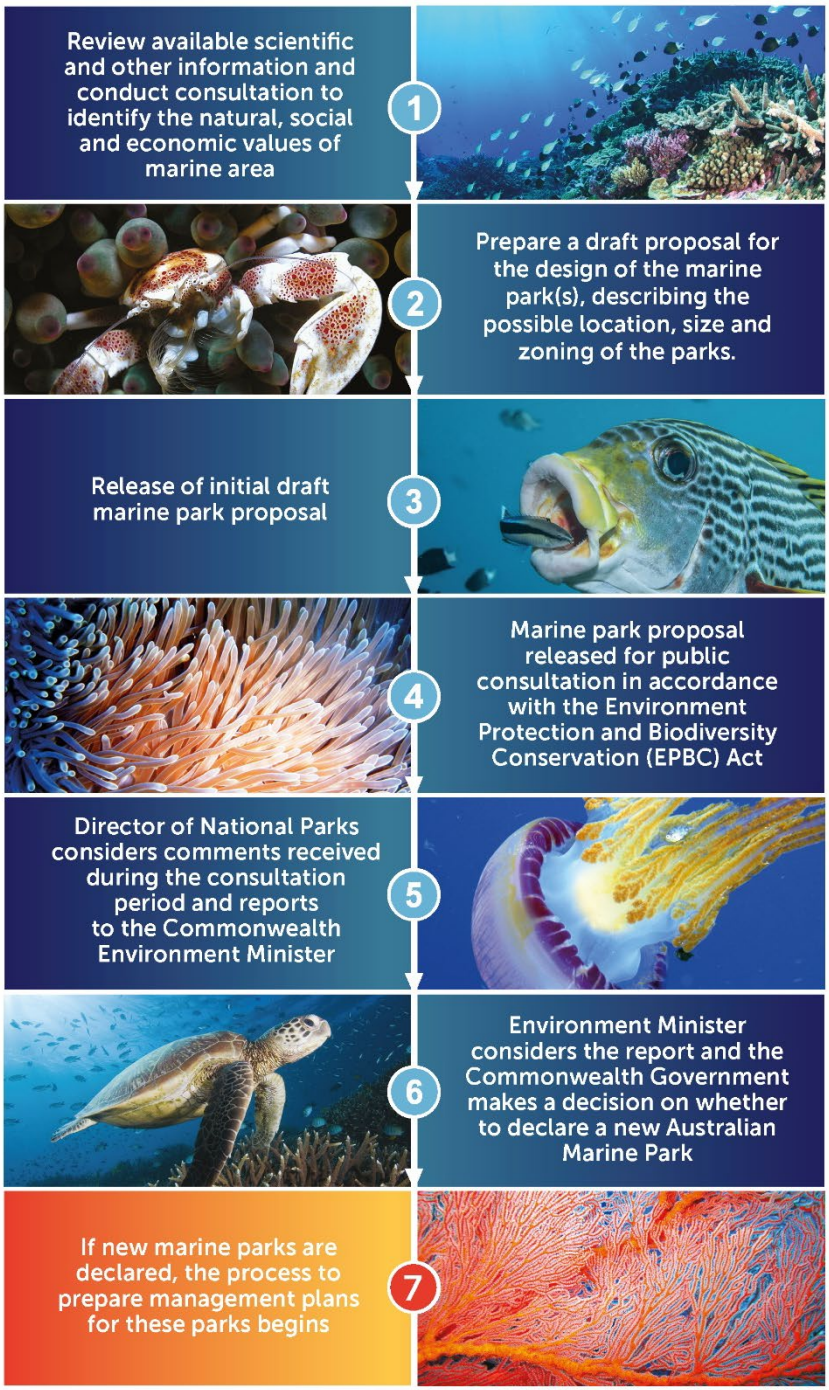
Pulu Keeling National Park

Pulu Keeling National Park (PKNP) covers the entire land mass of North Keeling Island and is a Commonwealth reserve under the EPBC Act that is managed by the Director of National Parks. The park includes 2.13 km^2 of land (including a central lagoon) and a marine zone of 23.9 km^2 surrounding the island, which extends to about two kilometres from the island's shoreline.

Due to the sensitivity of North Keeling Island's wildlife, the foremost management objective for the park is the protection and conservation of the island and its wildlife. The proposed Cocos (Keeling) Islands Marine Park extends from the existing PKNP marine zone boundary.

Adjoining the marine park to PKNP will extend the protections for the foraging habitats for the thousands of seabirds that nest on the island. An adjoining marine park will also ensure ecological connectivity, by protecting and representing all water depth ranges and associated habitats that surround the island in a marine park.

7. Steps to establish and proclaim the marine parks



8. Acronyms

AMP – Australian Marine Parks

AEEZ – Australia's Exclusive Economic Zone

BIA - Biologically Important Area

CINP – Christmas Island National Park

CSIRO – Commonwealth, Scientific and Industrial Research Organisation.

DNP – Director of National Parks

EPBC Act – Environment Protection and Biodiversity Conservation Act 1999

IMCRA – Integrated Marine and Coastal Regionalisation of Australia

IOT – Indian Ocean Territories (Christmas Island and Cocos (Keeling) Islands)

IUCN – International Union for the Conservation of Nature

KEF – Key Ecological Feature

NRSMPA – National Representative System of Marine Protected Areas

PKNP – Pulu Keeling National Park

SEC – South Equatorial Current

SBT – Southern Bluefin Tuna

9. References and further reading

Australian Marine Parks Goals and Principles https://parksaustralia.gov.au/marine/management/resources/scientific-publications/goals-and-principles-establishment-national-representative-system-marine-protected-areas/

Brewer, D. et al (2009), *Conservation values in Commonwealth waters of the Christmas and Cocos (Keeling) Island remote Australian territories*

Christmas Island Expert Working Group (2010), *Final Report of the Christmas Island Expert to the Minister for Environment Protection, Heritage and the Arts*.

Christmas Island National Park Management Plan 2014 -2024 https://www.environment.gov.au/system/files/resources/aa0c6d7f-d787-405b-955e-3bd9d1281ca7/files/christmas-island-national-park-management-plan-2014-2024_1.pdf

Hobbs, J.-P.A., et al. (2014) *An annotated bibliography of the research on marine organisms and environments at Christmas Island and the Cocos (Keeling) Islands.* Raffles Bulletin of Zoology, 2014. **Supplement 30**: p. 419-468.

Hobbs, J.-P.A., et al. (2014), *Checklist and new records of Christmas Island fishes: the influence of isolation, biogeography and habitat availability on species abundance and community composition.* Raffles Bulletin of Zoology, 2014. **Supplement 30**: p. 184-202.

O'Hara, T.D. (2021), *Assessment of the Offshore Marine Natural Values of Australia's Indian Ocean Territories*, Museums Victoria, 2021

O'Hara, T.D (2021), *Proposed Offshore Key Ecological Features and Biologically Important Areas of Australia's Indian Ocean Territories,* Museums Victoria, 2021

Our Cocos (Keeling) Islands 2030 Strategic Plan
https://www.regional.gov.au/territories/publications/files/CCS1815-CKI-Strategic-Plan-Final-March-2019.pdf

Our Christmas Island 2030 Strategic Plan
https://www.regional.gov.au/territories/publications/files/CCS1681_IOTRDO_CI_Strategic_Plan_FINAL.pdf

Pulu Keeling National Park Management Plan 2015 – 2025
https://www.environment.gov.au/system/files/resources/83e459f1-dc59-4fcc-9255-2bbb9cc23951/files/pknp-management-plan-web-v1.2.pdf

2015 Independent Commonwealth Marine Parks Review - Bioregional Advisory Panel Report, P 235 https://parksaustralia.gov.au/marine/management/background/review-reports/