Alliance Coral Sea

Australia and France-New Caledonia sustainable management of the Coral Sea

March 2024 I Newsletter #5

Welcome to the *Alliance Coral Sea*, the newsletter co-produced by Australia and France-New Caledonia.

The origins of this newsletter hark back to 2010, when Australia and France-New Caledonia signed the 'Declaration of Intentions between France-New Caledonia and Australia for the Sustainable Management of the Coral Sea'. The Official Representative of New Caledonia to Australia, Yves Lafoy, introduces us to the particulars of this important Declaration below (page 3).

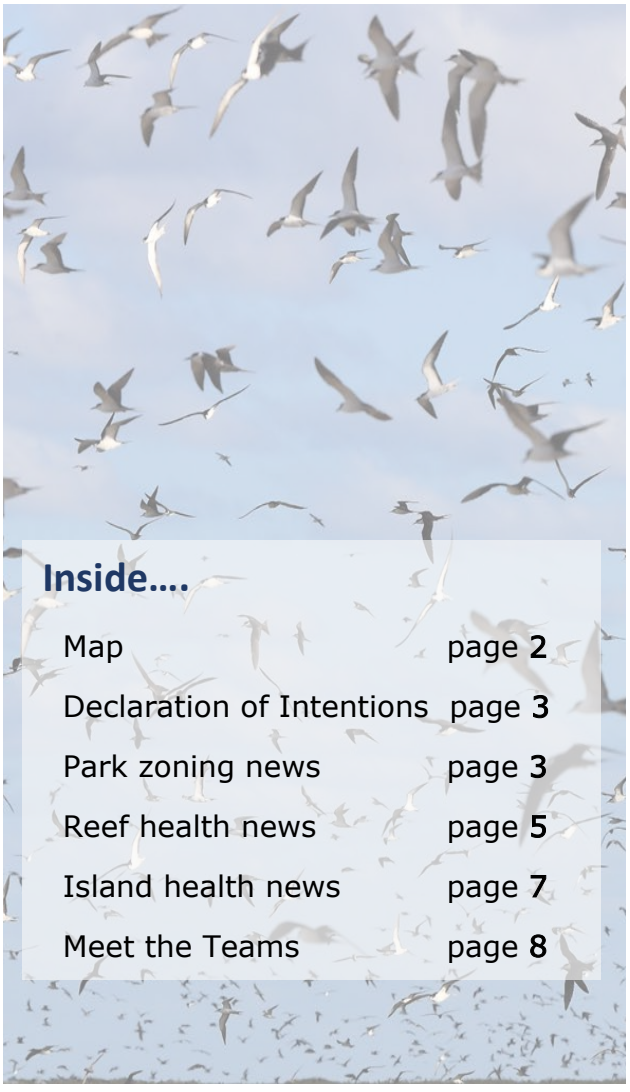
In 2016, France-New Caledonia and Australia agreed to produce an annual newsletter to share information on activities underway in Australia's Coral Sea Marine Park and the New Caledonian Coral Sea Natural Park (Parc Naturel de la mer de Corail). See, for example, 2020's edition here. After a hiatus of a few years, we're back with a slightly new format, but with the same aim of enabling information sharing for the ongoing collaborative management of our Parks. Find out about the passionate people who are working hard on (and in!) our Parks on page 8.

This bunch of park managers understand that no exceptional place exists in isolation. Many species move between Parks, and enabling protected corridors for them to do so will become increasingly beneficial as the effects of climate change continue to be felt. We are very excited by the establishment of New Caledonia's new Norfolk Ridge reserve for this reason, as it joins right up to Australia's Norfolk Marine Park (page 3). It's also why we've expanded this edition to include articles from the Great Barrier Reef Marine Park Authority, whose Park area shares a significant, long park border with the Coral Sea Marine Park (see the map on page 2).

It makes sense for adjoining Park managers to share news, research findings, and scientific methodology as we often face similar challenges and triumphs. In this edition of *Alliance Coral Sea*, you'll find two different projects relating to the management and monitoring of the green turtle (*Chelonia Mydas*) populations that move between our Parks (pages 7-8). There's also some news on work being done to monitor and understand changes occurring on the magnificent reefs that are scattered throughout the Coral Sea Marine Park, the Great Barrier Reef and the Norfolk Island Marine Park (pages 5-6).

This newsletter is housed on New Caledonian Parc Naturel de la mer de Corail website (https://mer-de-corail.gouv.nc/en), and the Parks Australia website (www.parksaustralia.gov.au).

Enjoy!



Inside....

Australian Government Parks Australia | Australian Marine Parks | Australian Government Great Barrier Reef Marine Park Authority | Parc naturel Mer de Corail Nouvelle-Calédonie | Gouvernement de la Nouvelle Calédonie

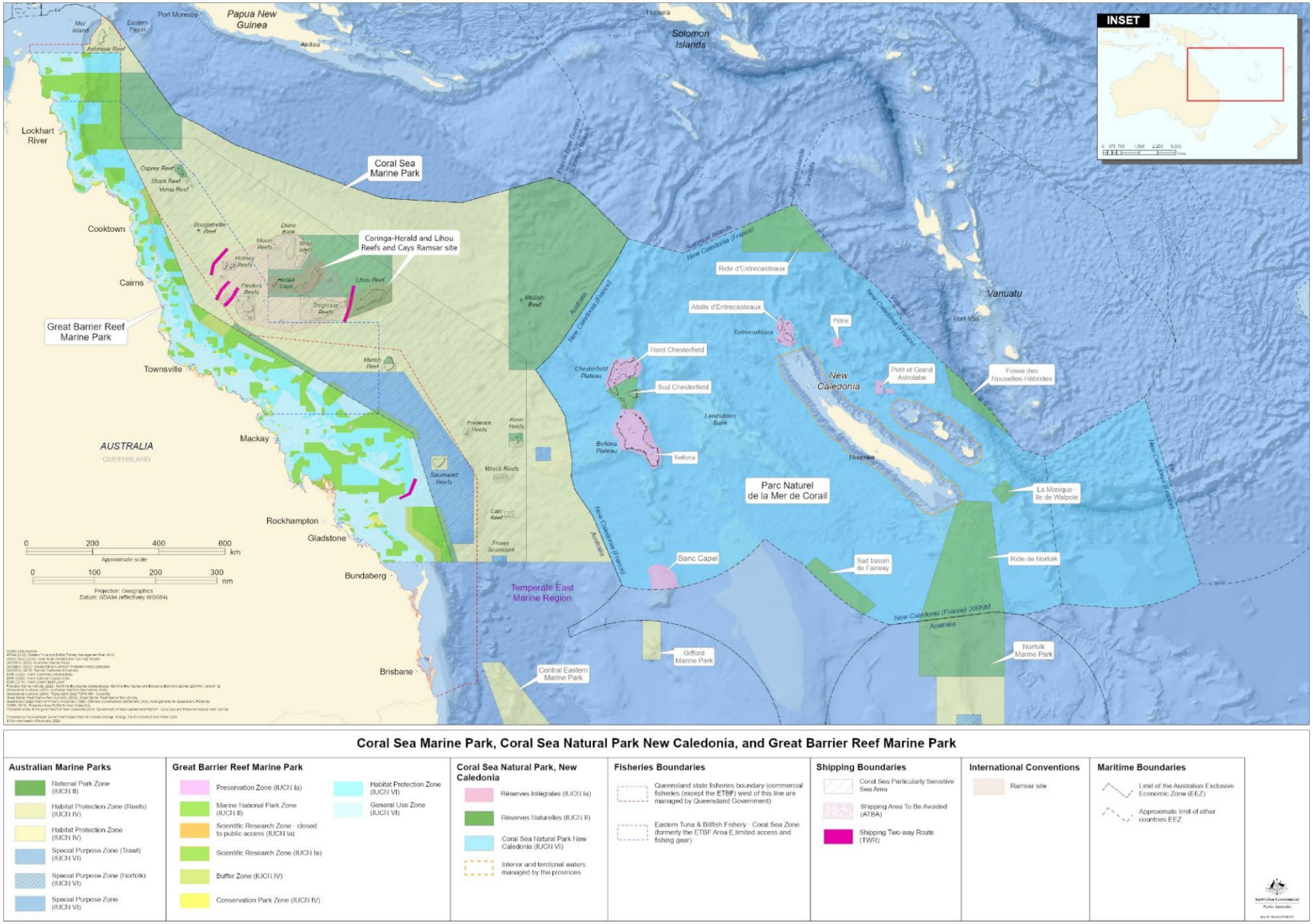


Figure 1: Map demonstrating zoning boundaries of the Australian Coral Sea Marine Park, the Coral Sea Natural Park New Caledonia, and the Great Barrier Reef

Declaration of intentions between France-New Caledonia and Australia for the sustainable management of the Coral Sea

Words by Yves Lafoy, the Official Representative of New Caledonia to Australia

The *Declaration*, signed in 2010, confirms the intention for Australia and France-New Caledonia to work collaboratively to:

- strengthen the scientific framework for collaboration on the conservation and management of the Coral Sea and its environs;
- establish long term collaboration between the bodies and institutions responsible for the management of ocean, reef and lagoon areas of the Coral Sea; and
- strengthen regional capacity building efforts to ensure a comprehensive trans-boundary approach to the conservation of biological diversity of the Coral Sea, including natural resources, in a cooperative and complementary manner.

Through this declaration, the concrete collaboration between Australia and France-New Caledonia make it possible to preserve the exceptional biodiversity of the Coral Sea maritime area, while enabling responsible and sustainable economic development, with visibility on an international scale. This collaboration is fully in line with the Pacific Islands Forum's strategy *"2050 Strategy for the Blue Pacific Continent*" (https://www.forumsec.org/2050strategy/) which focuses on integrated ocean management and adaptation to climate and environmental change.

Finally, this collaboration between Australia and France-New Caledonia will contribute directly to the implementation of the 2nd pillar "Resilience and climate action" of the France-Australia roadmap (adopted on 4 December 2023, https://www.dfat.gov.au/countries/france/australia-france-roadmap-new-agenda-bilateral-cooperation?s=03), which aims to pursue ways to address climate change and support sustainable use, management, and conservation of land, forest and ocean resources in alignment with Pacific priorities.

Park Zoning News

10 % of New Caledonia's maritime area now under high protection

On 18 October 2023, the government of New Caledonia officially increased to 10.6 % the Coral Sea natural park area with a level of protection classed as Ia or II, in accordance with the International Union for Conservation of Nature (IUCN) protected area categories. This also represents 10% of the New Caledonian maritime space, and has quadrupled the area of high protection reserves in the Park. The Park's spaces under high protection now cover an expansive area of 136,530 km².

Three new strict nature reserves (IUCN Ia) have been created:

- d'Entrecasteaux atolls: formally designated as a World Heritage site since 2007 and previously a natural park (IUCN II). These atolls are one of the most important nesting sites for green turtles in the South Pacific;
- Bellona reefs: formally designated as a natural park since 2018 and recognised to be part of an important marine mammals area (IMMA);
- Capel bank: a shallow seamount located in the southern extremity within the same IMMA including Bellona and Chesterfield Reefs.

Five new marine national parks have been established:

- La Monique-Walpole Island: high island designated as an important bird area (IBA) and which also holds vestiges of ancient and contemporary occupation;
- South Fairway Basin: also part of an IBA, and a bird feeding area;
- d'Entrecasteaux Ridge: located at the border of Solomon Islands, another important bird feeding area;
- Norfolk ridge: this new reserve shelters seamounts which are known to be of great interest for biodiversity conservation. It extends to the north of the Australian Norfolk Marine Park, forming a 600 km long ecological corridor for humpback whales' migration;
- the Abyssal Pit of the New Hebrides: part of an Ecologically or Biologically Significant Marine Area

which is also part of the Vanuatu economic exclusive zone.

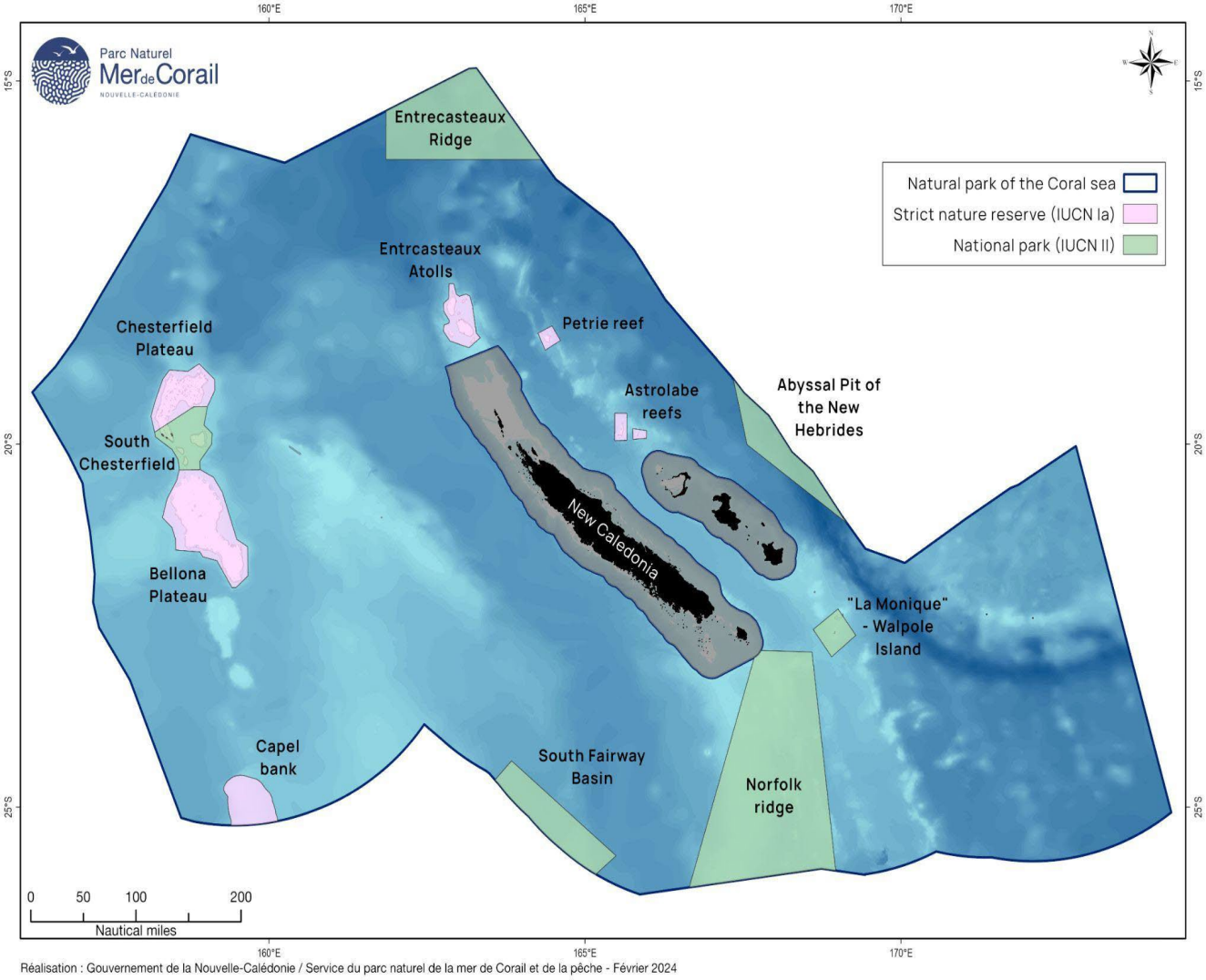


Figure 2: Map demonstrating areas under increased protection in the New Caledonian Coral Sea Natural Park

These new reserves are the result of an extensive consultation process with all stakeholders (including fishermen, environmental associations, NGOs, Indigenous representatives). After 30 meetings and a public survey which collected 2273 opinions (92% of which expressed support), the Management Committee of the Park agreed on the changes on the 27 September 2023 with 15 votes for and 5 against.

The French version of the decree signed the 18th of October 2023 is available at the following link (in French):
https://juridoc.gouv.nc/juridoc/jdwebe.nsf/joncentry?openpage&ap=2023&page=21900

Norfolk Marine Park new closed areas

From 15 February 2023, until further notice, Emily Bay and Slaughter Bay in the Norfolk Marine Park area are now no-take areas, and Cemetery Bay is now a no-take area for echinoderm species.

Due to the ongoing issue of storm and groundwater pollution entering the lagoon at Emily Bay and Slaughter Bay, and the important role of herbivorous fish and echinoderms in controlling algal growth, a complete no-take area has been established in this area. In recognition of the role that Cemetery Bay plays as a source of echinoderms to the lagoon, Cemetery Bay is now a no-take area for these species.

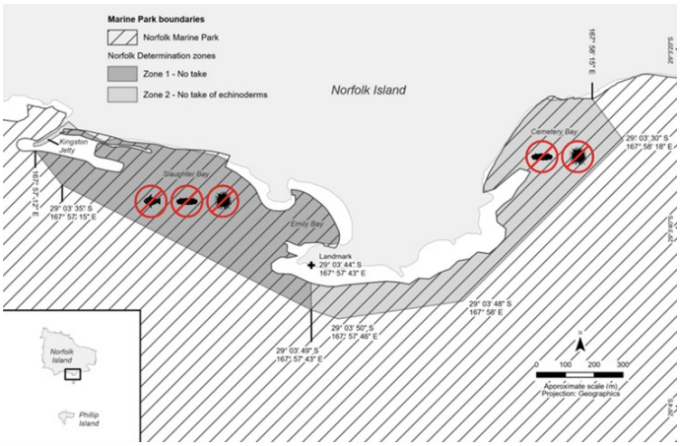


Figure 3: Emily, Slaughter and Cemetery Bays closures

Reef Health News

Reef rehab a 'star' in the making!

Reef stars are helping to promote new coral growth in areas where macroalgal growth and coral rubble has previously hindered reef regeneration and recovery around Keppel Bay on the Southern Great Barrier Reef.

More than 150 reef stars were installed at Monkey and Shelving Reefs, with a further 50 installed at Humpy Island Reef.

Reef stars are hexagonal metal frames coated with limestone sand to aid coral attachment.

Live coral fragments, also known as corals of opportunity, which have been broken through previous impacts, are collected in close proximity to the project site and fixed to the frames.

These frames are then placed on top of the seabed in areas of loose coral rubble and provide a stable platform for live coral to not only attach, but continue to grow and eventually cover the reef star structure.

Since 2022 a combined 3,000-plus live coral fragments have been attached to the reef stars in the Keppels and regular updates show the corals are thriving in their new environment.

The MARRS Reef Stars were originally developed by Mars Incorporated for use in Indonesia to rehabilitate reefs impacted by destructive fishing practices, but have since been trialled by the Reef Authority at Green Island and at Bait Reef.

The Yarul Dhingiga: Keppel Bay reef rehabilitation project is a partnership program involving the Reef Authority, Queensland Parks and Wildlife Service as part of the Reef Joint Field Management Program, the Woppaburra TUMRA Aboriginal Corporation (WTAC), Mars Incorporated, Keppel Dive and Freedom Fast Cats.

Figure 4: Reef Stars have helped with coral regeneration on the Great Barrier Reef. © Commonwealth of Australia (Reef Authority).

Norfolk Island Reef Health Studies

Since 2020, in response to a predicted marine heatwave and ongoing water quality concerns, Parks Australia has commissioned detailed reef health surveys of the Emily and Slaughter Bays lagoon at Norfolk Marine Park. The initial survey provided a baseline of coral health. Subsequent surveys have monitored how the reefs recovered from the 2020 bleaching event and how they are impacted by ongoing storm and groundwater pollution, including rates of coral disease and algal growth.

Figure 5: Norfolk Island

The reef health team are closely monitoring the lagoon for anticipated bleaching in 2024, planning surveys during and after the predicted marine heatwave to assess bleaching and mortality.

Surveying the CSMP reefs

The Coral Sea Marine Park contains about 1500 distinct reef systems. To create a baseline understanding of reef communities and health, Parks

Australia oversee the Coral Sea Marine Park Coral Reef Health Project - the largest and most comprehensive reef study undertaken in the CSMP, with now over 6 years of detailed survey data. The Project aims to track reef health through undertaking annual surveys that assess the latest condition of benthic, fish and invertebrate communities, as well as any ongoing impacts of recent bleaching events. Survey work also aims to gain some understanding of the resilience and biodiversity of the CSMP 'bright spot' reefs – those reefs where coral cover remains high or has increased.

Figure 6: Voyage scientists are dwarfed by 'Big Mel' – an enormous Porites coral located on Mellish Reef, Coral Sea Marine Park. © Photographer: Victor Huertas (JCU)

The latest survey was recently conducted in February and March 2024, on what was an epic 28-day voyage to 9 vast and remote offshore reefs - Elizabeth, Middleton, Cato, Wreck, Kenn, Mellish, Marion, Fredericks, and Saumarez Reefs. Eleven James Cook University marine researchers and the Parks Australia Coral Sea Marine Park manager, Martin Russell, surveyed corals, fish, sea cucumbers, and clams on about 40 sites across the 9 reefs visited.

While the overall health of the reefs visited is currently being assessed by voyage researchers, indications are that most reefs visited are in good health. Remotely operated underwater vehicles (ROVs) were deployed and revealed high coral cover at 70-100m depths. CSMP legend Big Mel, an 18-meter-wide by 8-meter-high Porites coral on Mellish Reef, was found to be alive and well. An almost perfectly round Porites coral was discovered on Marion Reef, measuring 4x4-metres.

Another surprising discovery from the voyage is that Mellish Reef is a tiger shark pupping reef, demonstrating that breeding females are travelling considerable distances to pup there.

Once the gathered data has been assessed, findings will be published on the Parks Australia website, alongside reports from previous reef surveys.

Revolutionising Reef health communications

The Great Barrier Reef Marine Park Authority, in partnership with the Australian Institute of Marine Science (AIMS) and James Cook University, have developed an innovative new framework to classify and categorise coral bleaching events on the Great Barrier Reef.

The project, led by the Reef Authority's Assistant Director of Reef Health Surveillance and Innovation, Dr Jess Stella, Australian Institute of Marine Science Coral Ecophysiologist Dr Neal Cantin and James Cook University Professor Scott Heron, is among the first of its kind.

The new framework considers four key components that contribute to coral bleaching: exposure, colony response, prevalence, and spatial extent, which not only introduces a common language to describe bleaching events, but enables comparisons to be made between years, over time, and across the Reef.

Although the Reef Authority and its partners monitor the health of the Marine Park all year round, summer is the most crucial period as the Reef is more exposed to extreme weather events including tropical cyclones, marine heatwaves and flooding.

This framework will be used to assess how the Reef fared at the end of the summer months and a "category" (1 to 5) will be used to describe the bleaching impact.

Figure 7: Summer is the most crucial period for health on the Great Barrier Reef as it is more exposed to extreme weather events including tropical cyclones, marine heatwaves and flooding. © QPWS - Photographer: Victor Huertas.

Island Health News

A decade of dedication: annual green sea turtle monitoring in the Coral Sea Natural Park in New Caledonia

The Coral Sea Natural Park and Fisheries Department (CSNPFD) in charge of protecting ecosystems in the New Caledonian maritime space is proud to share the results of over a decade of turtle monitoring missions in the Coral Sea Natural Park. Starting in 2007 and expanding to new locations since 2011, the commitment of the service has materialized through annual missions aimed at monitoring nesting sites for green sea turtles (*Chelonia mydas*).

Key Sites: The field efforts focus on two iconic sites within the park: the d'Entrecasteaux Atolls (classified as an UNESCO site) and the Chesterfield Islands. These sites host one of the largest populations of green turtles during the nesting season, making their preservation crucial for the overall health of the Pacific green turtle population.

Objective and methodology: the main goal is to track the visitation of the park's remote islands by green turtles. Collaborating with partners such as the Pacific Community (SPC's), we have developed an effective protocol called cross-line method, which has been selected and adapted to assess a valuable metric relating to the utilisation of nesting sites. Inspired by Australian research, our team utilises a daily line traced in the sand to track and count the turtle's tracks.

Promising Results: Detecting a potential anomaly in sea turtle demographic trends requires around two decades of continuous monitoring, preventing immediate conclusions about the dynamics on the Park's islands. Nevertheless, according to the monitoring history, the 2023 nesting season appears to be a "strong" year in terms of island visitation by green turtles (see Figure 7), and a recent study indicates that the trend in the number of nesting activities is positive (see Fretey *et al*., 2023).

To address ongoing management inquiries, monitoring efforts must persist to collect continuous data. Establishing a comprehensive management strategy necessitates studying the demographic trends of the turtle population. In the future, managers will strive to enhance the current effort, aiming to gather more data annually, ensuring a more nuanced understanding of the green turtle populations and supporting effective conservation measures.

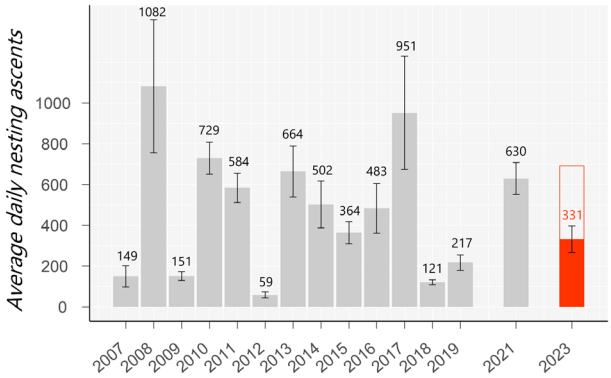


Figure 8: Evolution of the average daily nesting ascents at d'Entrecasteaux during monitoring campaigns. The last year of monitoring (2023) is indicated by the orange colour. The solid part of the graph represents the actual values calculated in the field for two monitored islands, while the non-solid part indicates an estimate based on the third study island, which could not be monitored in 2023 due to weather conditions.

Fretey, J., Read, T., Carron, L., Fontfreyde, C., Fourdrain, A., Kerandel, J., Girondot, M. (2023). *From terra incognita to hotspot: The largest South Pacific green turtle nesting population in the forgotten reefs of New Caledonia.* Oryx, 57(5), 626-636.

Healthy Islands in the CSMP

Since the Coral Sea Marine Park Management Plan came into effect in 2018, Parks Australia have undertaken a CSMP Island Health Program, ensuring through voyages undertaken in 2019, 2021, 2022 and 2023 that all 57 cays and islets have been visited and assessed. Apart from introduced weed species found

on 2 islands, and some exotic ant species, the islands are healthy and there is no other evidence of introduced flora and fauna.

Given the vast distances, Parks Australia now need to be strategic about which of these islands to visit, for what reasons, and when. To help us make informed decisions, Parks Australia recently held a workshop with experienced colleagues and subject-matter experts to co-develop the next 5 years of island research, monitoring and management activities. Attendees included representatives from Queensland Parks and Wildlife Service, James Cook University, Queensland Museum, University of the Sunshine Coast, Birdlife Australia and the Great Barrier Reef Marine Park Authority.

Utilising the Queensland Parks and Wildlife Service's Values Based Management Framework, workshop participants produced:

- assessments of our key natural value areas (vegetation, seabirds, turtles and island geomorphology),
- threats ratings;
- research, monitoring, and management strategies for each value; and
- a five-year voyage plan.

The valuable information gathered from the workshop has formed a CSMP Island Management Strategy which will guide future voyages and assessment work.

Figure 5: Central Diamond Islet, CSMP ©Parks Australia

Raine Island Recovery Project a success

A unique project to protect a turtle nesting beach on Raine Island, located in a remote northern corner of the Great Barrier Reef, has proven an overwhelming success after helping to save hundreds of adult females from cliff fall and improving the environment to produce thousands of green turtle hatchlings.

The project, which started in 2015, involved moving 40,000 cubic metres of sand to reprofile 35,000 square metres of nesting beach and raise it above tidal inundation levels, to improve nesting success and hatchling turtle production.

More than 1750m of cliff-top, turtle proof fencing was also installed to protect nesting turtles from falling off the nearby cliffs.

Raine Island is a 27 hectare, vegetated coral cay where up to 60,000 green turtles return to nest every year.

Figure 4: Turtle on Raine Island ©2022 Tourism and Events Queensland

The Raine Island Recovery Project was a joint partnership between the Great Barrier Reef Marine Park Authority, Queensland Government, Wuthathi and Meriam Nation (Ugar, Mer, Erub) Traditional Owners, BHP and the Great Barrier Reef Foundation.

Meet the Teams

We are pleased to present the dedicated teams in charge of the Parks within the Coral Sea. Our teams are committed to ensuring the preservation of this unique and remote marine environment.

Introducing the team in charge of the Australian Coral Sea Marine Park

Russ Gueho – Director, East Marine Region brings more than 40 years of natural resource and compliance experience, is a Divemaster and author of two natural history books on the Kimberley region of Western Australia.

Martin Russell – Manager, CSMP brings 26 years of MPA expertise working on the rezoning of the Great Barrier Reef Marine Park and management planning for Australian Marine Parks. He has undertaken numerous research and monitoring voyages in the Great Barrier Reef and Coral Sea, is a commercial diver and also works on marine conservation projects in the Pacific and Caribbean.

John Prichard – Senior Marine Parks Officer, with extensive Navy and government maritime experience. He has conducted numerous aerial surveillance flights through Australian Marine Parks and worked in Antarctica. He has been the voyage leader on serval CSMP voyages. Prior to joining Parks Australia, he has worked closely with French naval counterparts in New Caledonia.

Fiona Hagger – Senior Marine Parks Officer. The newest member of the CSMP team! She comes from a background in climate change research and studies in illegal, unreported, and unregulated fishing in the Southern Ocean krill fisheries. Fiona brings to the team a keen interest in all things marine combined with strategic planning.

Norfolk Marine Park

Fran Murray – Manager, Norfolk Marine Park has been working in marine park design and management for 15 years. Prior to joining Parks Australia, Fran worked in tourism policy and cultural heritage management.

Introducing the team in charge of the Coral Sea Natural Park New Caledonia

Manuel Ducrocq - Head of Service. Leading our team, Manuel provides guidance and leadership to ensure the effective coordination of our efforts in managing and preserving the various ecosystems located in the Coral Sea Natural Park.

Napoléon Colombani - Captain of the vessel Amborella. The vessel Amborella serves as the main maritime resource of the government of New Caledonia and dedicates approximately 80% of its time to scientific missions and park management. Napoléon ensures the successful execution of these responsibilities.

François Le Borgne - Head of Science. François serves as our Science Manager, overseeing the processing of campaign requests within the park and fostering relationships with the scientific communities. He plays a crucial role in integrating science into the management of the Park.

Arnaud Dubois - Monitoring and Surveillance Specialist. Arnaud Dubois is our expert in monitoring and surveillance. Tasked with safeguarding the maritime space, in order to maintain the integrity of this unique maritime space, Arnaud is particularly in charge of the development of an integrated tool which allow to monitor human activities and to increase the surveillance capacities.

Maële Brisset - Indicator Implementation Coordinator. Maële takes charge of establishing monitoring indicators as part of the Park's management plan renewal. Her work ensures that we have comprehensive data to guide informed decision-making for the sustainable future of the park.

Gilbert Bladinières – Communication. Gilbert is our communication specialist. Responsible for promoting the Park and its scientific and management activities, Gilbert plays a crucial role in raising awareness about the Coral Sea Natural Park and fostering a sense of community engagement.

Léa Carron - GIS Coordinator. As the GIS Coordinator of the Park, Léa played a significant role in defining the new reserves in 2023. Additionally, she organised and led the 2023 green turtle monitoring campaign.

Official Representative of New Caledonia to Australia

Yves Lafoy is the Official Representative of New Caledonia to Australia. A representative of the Nouméa government, he is based at the French Embassy in Canberra. His role is to promote New

Caledonia's interests in Australia by helping to strengthen the political dialogue, boost the economic exchanges and increase collaboration in the fields of science and innovation, and culture and education.

Great Barrier Reef Marine Park Authority

A vast team keep the GBRMPA afloat, with far too many stars to name here! Key collaborators include Mark Read, Director of the Field Management Strategy for Marine Park Operations, Lincoln Bertoli, Assistant Director of Strategic Communications and Richard Quincy as General Manager Marine Park Operations.