

Monthly news, analysis, and guidance on marine protected areas worldwide

## Planning MPAs in an era of warming oceans: How practitioners are preparing for future ecosystem shifts

As the 2020 deadline grows nearer for nations to set aside 10% of waters in well-managed MPAs ([Aichi Target 11](#)), planners are being challenged to provide advice on what to protect and where to protect it. Climate change is making those decisions harder. As evidence mounts that warming oceans are already having effects on ecosystems, planners are faced with forecasting the changes the future could hold – then figuring how MPAs could account for those changes.

Warming-related shifts in species and habitats are among the most visible impacts. Sperm whales are now [showing up in the Canadian Arctic](#), where they had not been observed prior to 2014. Humpback whales – the keystone species in the Hawaiian Islands Humpback Whale National Marine Sanctuary – appear to be [starting to go somewhere else](#), although it's unknown where. Countless smaller species are shifting poleward or to deeper waters.

If you are planning MPAs and want your sites to be relevant and resilient 100 years from now – or even after 50 years – how can you take potential ecosystem shifts into account?

This month we pose that question to MPA planners and others who are already wrestling with the challenge. (Please note that there are already a number of existing guides on this topic, which often focus on designating

networks of MPAs to allow for shifts over time, an ideal strategy. See the box on this page, “Guidance on designing MPAs for climate change resilience”.)

This article continues our climate change coverage from last month, in which we [examined](#) how MPA *managers* are adjusting to climate-related impacts that are already happening at their existing site.

### Consider how ecological connectivity will change

MPAs are often designed in relative isolation from one another. The goal is simply to protect a particular key habitat or biodiversity hotspot. Preferably, new MPAs are considered as part of larger networks that are genetically linked via ocean currents where known. The currents can help disperse the larvae of fish, invertebrates, and other marine species beyond an MPA's borders. With good ecological connectivity among reserves, one area can help maintain healthy biodiversity in other sites, or even help repopulate them in the case of a mass bleaching event, destructive cyclone, or other climate-related disaster. (As noted in the box on this page, there are several guides available on designing networks of MPAs that are resilient to climate change.)

However, warming waters introduce a new and unfortunate kink to this kind of conservation planning, says Jorge Álvarez-Romero, a research fellow at James Cook University in Australia. In warmer water, emerging research shows that the larvae developmental stage of many species is generally shorter. A shorter larvae stage may also shorten the distance that larvae disperse in the ocean, threatening existing connectivity between protected regions.

Working [closely with a local conservation group](#) called COBI (Comunidad y Biodiversidad, A.C.) in Mexico's northern Gulf of California rocky reef ecosystems, Álvarez-Romero led a [2017 study](#) to design a network of reserves around the Midriff Islands. The study accounted both for current and future connectivity under climate change. Three ecologically and commercially important species were used for the modeling (leopard grouper, rock scallop, and blue crab), and the analysis also considered socioeconomic concerns of local fishers. The goal was to create an economically realistic network of protected areas that would

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### Guidance on designing MPAs for climate change resilience

[Harnessing Ecological Spatial Connectivity for Effective Marine Protected Areas and Resilient Marine Ecosystems: Scientific Synthesis and Action Agenda](#). Marine Protected Areas Federal Advisory Committee (US). 2017.

[Designing Marine Protected Area Networks to Achieve Fisheries, Biodiversity and Climate Change Objectives in Tropical Ecosystems: A Practitioner Guide](#). Coral Triangle Initiative. 2013.

[Scientific Guidelines for Designing Resilient Marine Protected Area Networks in a Changing Climate](#). Commission for Environmental Cooperation. 2012.

[Coral reef module: Resilient MPA design](#). Reef Resilience Network.

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offer ecological connectivity – even under climate-changed conditions.

“If we are going to consider connectivity we need to consider how that could change under global warming,” he says. “That is something that hasn’t really been examined before.”

The results of the work show that larval connectivity would be significantly decreased in the Midriff Islands region – at least for the three species chosen. As a result, to maintain healthy genetic exchange, the paper’s proposed network design made its MPAs both closer together and somewhat larger than they would be if climate change were not considered. “There were some areas that may not have been important to protect the system as a whole,” he says, “but they were selected in our exercise because they acted as stepping stones, essentially making the system connected and closer together.”

Álvarez-Romero says this proposed network design is informing [active, ongoing discussions](#) among COBI, local communities, and the local, state, and federal governments to plan a system of reserves in the region and improve management throughout the area. He believes planners in other regions of the world could adapt his framework for incorporating climate change in connectivity design.

He adds there is another potential side effect of the Midriff Islands climate-resilient design. “Because you have more areas and more reserves, you also potentially have to talk to more people and work with more communities,” he says. “From a practical point of view, that’s also a big change.”

### **Continually integrate the latest science in your planning**

With relatively bleak projections (like [here](#) and [here](#)) for the future of coral reefs as oceans warm, it is important for MPA planners to use data and modeling to create resilient designs, as Álvarez-Romero did. Even with a good plan, however, designations often take longer to come to fruition than planners might hope. That has been the case in the Lesser Sunda region of Indonesia, a group of islands at the southern end of the Coral Triangle that hosts diverse coral habitat, migrating cetaceans, and sea turtles. Due to its location in a cold water upwelling area, the region [is thought to be relatively resilient](#) to climate change.

According to Glaudy Perdanahardja, senior ocean protection manager at The Nature Conservancy Indonesia, a network of MPAs in Lesser Sunda has been under planning for more than a decade. There has been progress but it has been slow. The upside is that the delays have allowed the plans to be updated as new climate information and data improve, and such science has improved substantially.

“In 2017, we helped the government to refine the 2009 scientific design with more reliable data and information,” says Perdanahardja. “Historical and projected future expo-

sure to coral bleaching was applied to identify conservation priorities in the region. And a revised habitat and coastal ecosystem map was derived from much higher resolution of satellite imagery, along with a ground-truth survey. The information gathered – including human interactions in the sea space – was incorporated into the biophysical and socio-economic principles for a refined network design,” he said.

This updated design contains 77 individual MPAs covering 75,000 km<sup>2</sup>. Of the 77 sites, 35 are already formally designated MPAs, 28 are proposed areas that lack formal designation, and another 14 are called “areas of interest.” [According to a](#) report from The Nature Conservancy, the design includes a mix of reefs with high historical exposures to thermal stress – so they have already proven resilient – as well as reefs with relatively low projected future exposures to thermal stress. The latter areas may act as refuges for larvae from adjacent reefs that bleach and die. (According to their criteria, reefs projected to have fewer than 13 thermal stress events between the years 2040 and 2060 were considered to have low projected future exposures.)

Formal designations will help each MPA access government funding and management. Perdanahardja notes, however, that designating an MPA in Lesser Sunda is a long process, especially because the region spans three provinces (Bali, West Nusa Tenggara, and East Nusa Tenggara) and lacks a collaborative management body to engage all stakeholders and levels of government.

Given that formal MPA designations can take years to happen, Perdanahardja says The Nature Conservancy in Indonesia is also working with communities in the area on climate change adaptation in general. While it is impossible to control climate change locally, effective management of local stressors can improve resilience against climate impacts.

“We are now focused on identifying more good practices performed by the local community to manage marine spaces and their natural resource management,” he says. This includes formalizing local customary practices that may set traditional rules for who can fish, when, and where. “We use science to help the community develop the zoning and planning over marine spaces and obtain acknowledgement from the government. It can be in the form of local marine management areas or rights-based fisheries management or something else. This approach may help to foster the MPA network in the region and improve ‘paper park’ status of existing MPAs.”

### **Hedging bets with deeper ecosystems**

Warming waters are imperiling coral ecosystems at the tropical end of their range. Australia’s Great Barrier Reef Marine Park, for example, experienced [widespread coral mortality](#) in a heatwave in 2016: averaged across the whole Great Barrier Reef, 30% of the corals were lost.

Some scientists [have placed hope](#) in deeper coral ecosystems called mesophotic reefs. While these deeper reefs (starting 30m below the surface and extending down to 150m depth) are usually less diverse than shallow coral reefs, and often harbor different species, there has been some evidence they might serve as refuges as near-surface corals struggle. If that is the case, it could provide an argument for protecting mesophotic reefs.

Pedro Frade, a researcher at the Center of Marine Sciences in Portugal, is the lead author of a recent [study](#) that examined this emerging concept. During the Great Barrier Reef bleaching in 2016, his study found that, while initially protected by cooler upwelling waters, deeper reefs at upper mesophotic depths (about 40 meters) eventually succumbed to prolonged high temperatures. Just like shallow reef counterparts, many deep corals bleached – albeit not quite as extensively. The study showed that even deep reefs are more vulnerable to rising ocean temperatures than had previously been thought.

Still, Frade believes mesophotic reefs could serve as biodiversity refuges under specific conditions. These could include when there is strong genetic connectivity between shallow and deep systems, and when there is frequent upwelling of colder water from deeper depths. “If both cases are met, this would represent a reef where the deeper populations are more likely to be protected from high temperatures caused by thermal anomalies,” he says.

He suggests that MPAs should be designed to protect both shallow and deep reef zones – the latter of which often harbor unique biodiversity in their own right that is still relatively unexplored. When it comes to climate change, he says MPA planners might want to hedge their bets by protecting a variety of reef conditions and zones. “Perhaps the best strategy is to protect as many different kinds of coral reefs as possible, both in regards to the biodiversity they hold and the topography that shapes them,” he says.


## MPAs in a changing climate

Whether in the tropics, the poles, or in between, the momentum to protect more of the ocean is inextricably linked to the climate changes the planet will experience in coming decades.

As former US Secretary of State John Kerry and former UK Prime Minister David Cameron – co-chairs of the new Pew Bertarelli Ocean Ambassadors group – wrote [in an opinion piece](#) in October, significantly increasing the protected percentage of the ocean is important at a time when the oceans are warming and acidifying, coral reefs are bleaching and dying, and more extreme weather events are battering coasts. They write:

“[MPAs] can replenish fish stocks and build resilience to climate change by giving marine flora and fauna places

where they can adapt to changing conditions.... They go hand in hand with our global efforts to combat climate change and ensure sustainable fisheries.”

The question of where to plan and how to design climate-resilient MPAs will be important to keep refining – although these questions can’t be done in scientific isolation. As Kerry and Cameron state, political leaders need to engage with these questions: “We know that for any elected leader who has promised to support jobs and grow the economy, there will be no blue economy if we don’t solve the threat to the oceans themselves.” 

– This article was reported by Jessica Leber.

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## To comment on this article:

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### More resources on climate change, MPAs, and ocean management

- The landmark 2016 IUCN report [Explaining Ocean Warming](#) reviewed the effects of ocean warming on species and ecosystems, and on ecosystem benefits to humans.
- The [lead article in the October 2018 issue](#) of MPA News covered how managers are responding to impacts of ocean warming at their sites, with cases from Hawaii, Mediterranean, Caribbean, and Madagascar. It also included several links to previous climate change coverage in MPA News.
- The [July/August 2018 issue](#) of our sister publication Marine Ecosystems and Management (MEAM) covered how ocean managers in general, beyond just MPAs, are responding to climate change impacts.
- The [June 2018 issue](#) of MEAM covered how weather and climate extremes are affecting the ocean.
- This [2017 article in PNAS journal](#) described how no-take marine reserves could help mitigate and promote adaptation to climate change.



## MPA Training in a Nutshell: On the MPA Rapid Vulnerability Assessment Tool

### Editor's note:

This recurring column, MPA Training in a Nutshell, distills insights and lessons learned from what is likely the largest and longest-running MPA management capacity training program in the world – the [International MPA Capacity Building Team](#) (IMPACT). Run by the US National MPA Center (within NOAA's Office of National Marine Sanctuaries), the program has trained thousands of MPA managers in more than 40 countries. MPA News profiled IMPACT in our [July 2015 issue](#).

By Anne Nelson, Lauren Wenzel, and Gabrielle Johnson (IMPACT Team)

Kudos to the examples of proactive climate management in last month's [MPA News coverage](#). The examples from colleagues in Hawaii, Caribbean / Gulf of Mexico, Mediterranean, and Madagascar provide important lessons to consider with your MPA team as you move through your own climate assessment, adaptation planning, and plan review. Discussing these examples with your team can be a good way to start, restart, or reevaluate your climate planning process.


One tool to consider for your MPA or MPA network is the [Rapid Vulnerability Assessment Tool](#) developed by the [Commission for Environmental Cooperation](#) (CEC) for North American MPAs. (The tool works for MPAs outside North America, too.) It is a good complement to MPA management planning and adaptation efforts.

Prepared for CEC by [EcoAdapt](#), the tool allows managers to conduct a relatively quick assessment of their site's vulnerability to climate change. A basic assessment can be done in just a day. The process provides valuable insights into how non-climate stressors could interact with climate

impacts, and how to identify resources likely to be most affected by climate stressors.

The assessment can be adapted to each site's needs and circumstances. For example, it can account for how much information you have available to review and integrate, and whether you are engaging external stakeholders or conducting an internal assessment.

The tool includes a user guide, worksheets, and examples of completed worksheets. It is available in Spanish, French and English. An hour-long webinar earlier this year walked users through the tool; a [recording is here](#).

Please feel free to share your experience with the tool in the [MPA discussion list](#) (MPA List) to inform other MPAs in using it. 

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### To comment on this article:

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## Commitments from the 'Our Ocean' conference, held in Bali in Oct 2018


In the past half-decade, the annual Our Ocean conference has become the primary venue for nations and NGOs to announce new commitments to more sustainable ocean management, including the designation of new MPAs. Examples of MPA-related commitments from past conferences are [here](#) and [here](#) (for the latter, scroll to the bottom). The latest conference – held in Bali, Indonesia, from 29-30 October – continued this trend.

For a full list of commitments made at the 2018 Our Ocean conference, [click here](#). Below are some of the MPA-related highlights:

- UNESCO World Heritage Programme announced a new, US \$9-million initiative to [build climate adaptation strategies across World Heritage-listed coral systems](#) over the next four years. The initiative is led by a global consortium of private sector foundations in collaboration with UNESCO's World Heritage Marine Programme.
- The European Union announced a project worth €9 million (US \$10.2 million) to protect marine ecosystems and promote exchange of knowledge on the effective management of MPAs between Atlantic and Southeast Asia regions.
- New Caledonia announced its commitment, by the end of 2019, to 'highly protect' its seamounts (of which it has approximately 150) as well

as its isolated islets of Walpole, Matthew and Hunter (all within the Coral Sea Natural Park).

- Germany contributed US \$94,000 to help cover travel expenses of developing countries to participate in negotiations on the forthcoming UN treaty on high seas conservation.
- Indonesia committed to allocate US \$2.3 million to improve management effectiveness of 10 national and 24 provincial MPAs.
- Peru committed to advancing the process of designating the 1156-km<sup>2</sup> Reserva Nacional Mar Tropical Grau, with the aim of implementation in 2019.
- Oman committed to designating 13 new MPAs.
- The Global Environment Facility (GEF) committed US \$50 million to create, expand, and improve the effectiveness of 80,000 km<sup>2</sup> of MPAs in the next four years.

The next Our Ocean conferences will be held in Norway in 2019 and Palau in 2020. 

### To comment on this article:

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# Perspective: Twenty new MPAs for South Africa!

By Kerry Sink and Tamsyn Livingstone

On 25 October 2018, South Africa announced that the nation's Cabinet [approved](#) 20 new marine protected areas for designation in 2019. The announcement represented the long-awaited implementation of the [Operation Phakisa Oceans Economy Marine Protected Area Network](#). This establishes South Africa as a leader in African ocean protection, and contributes to protection of both the Southeast Atlantic Ocean and Southwest Indian Ocean – a uniquely South African opportunity!

The [20 areas](#) include 18 new MPAs and expansions of Aliwal Shoal MPA and the conjoined Maputaland and St. Lucia MPAs. Together, the sites add approximately 50,000 km<sup>2</sup> to South Africa's protected area estate. This is an area over two and a half times the size of the Kruger National Park, South Africa's largest protected area on land. It will increase protection of South Africa's waters from 0.4% to 5%. (This figure excludes the 180,000-km<sup>2</sup> MPA in South Africa's sub-Antarctic [Prince Edward Islands territory](#).)

Mr. Derek Hanekom, the Acting Minister of Environmental Affairs, said that these areas “will considerably advance South Africa's efforts to protect our ocean heritage for future generations. They will contribute to fisheries sustainability, advance marine ecotourism, and help maintain resilience in ecosystems that are under stress from climate change.”

## Underpinned by systematic biodiversity plans


The network is very spatially efficient: 85% of South Africa's currently defined 136 marine ecosystem types are represented in a network that covers 5% of our ocean territory. It is underpinned by several systematic biodiversity plans, including the five-year [Offshore Marine Protected Area project](#), which identified focus areas for protection in 2011. Several of the MPAs will also contribute to management of Ecologically and Biologically Significant Areas in South Africa's oceans.

The new network provides the first protection for the Namaqua ecoregion (along the country's west coast) and for several threatened and fragile ecosystem types, including threatened mud, gravel, and shelf edge habitats and sensi-

tive deep water scleractinian, stylasterine, and soft coral-dominated ecosystem types. The new MPAs represent seamounts, submarine canyons, volcanic pinnacles, and a variety of ecosystem types on the shelf, continental margin, and abyss in both the Indian and Atlantic oceans.

The network is zoned with principles for zonation guided by specific objectives for each MPA, and consideration of the compatibility of each activity with protection goals. The network is unique in striving to support multiple objectives for biodiversity and fisheries management in alignment with ocean economy goals.

Further information about the network will be provided at the upcoming [Convention of Biological Diversity Conference of the Parties](#) in Egypt this month (17-29 November). A future article in MPA News will examine challenges faced and lessons learned from the Operation Phakisa MPA project.

Celebrate and explore our upcoming the new MPAs by visiting [www.marineprotectedareas.org.za](http://www.marineprotectedareas.org.za) 

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## To comment on this article:

<https://mpanews.openchannels.org/node/23591>

## Editor's note:

In 2016, [MPA News interviewed Kerry Sink](#) of the South African National Biodiversity Institute ([SANBI](#)) about the innovative Operation Phakisa effort to designate a network of MPAs throughout South Africa's waters. The project was based on the concept of [Big Fast Results](#): *phakisa* means *hurry up* in the Sesotho language. Although the new MPA network took somewhat longer to be approved than anticipated (March 2017 was the initial goal), it is now here.

Sink is a scientist at the South African National Biodiversity Institute and was lead of the Operation Phakisa Oceans Economy Marine Protected Area technical team. Tamsyn Livingstone is a GIS analyst at [Ezemvelo KZN Wildlife](#) and a member of the team that used hundreds of map layers to support the achievement described in this piece. (Ezemvelo KZN Wildlife is the conservation management agency for South Africa's province of KwaZulu-Natal.)

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MPA News is published monthly by OCTO, a 501(c)(3) not-for-profit corporation, in association with the School of Marine & Environmental Affairs, University of Washington.

Financial support for MPA News comes from the David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation.

All content has been written by the MPA News editorial staff unless otherwise attributed. The views expressed herein are those of the author(s) and should not be interpreted as representing the opinions or policies of the Packard Foundation, Moore Foundation, or other funders of MPA News.

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## MPA Science Corner

### Marine mammals and MPAs – Plastics and MPAs – Coral reef soundscapes – Population assessments with ROVs – Systematic conservation planning

These recent articles or preprints on MPA-related science and policy are all free to access.

• **Article:** Passadore, C., Möller, L. M., Diaz-Aguirre, F., and Parra, G. J. [Modelling Dolphin Distribution to Inform Future Spatial Conservation Decisions in a Marine Protected Area](#). *Scientific Reports* 8, (2018).

**Finding:** Bottlenose dolphins in Australia's Coffin Bay, a part of Thorny Passage Marine Park, are most likely to be found outside designated sanctuary zones, where there are multiple uses including vessel traffic, recreational fishing, and oyster farming. The latter, particularly, put them at risk of entanglement with gear. The results demonstrate a broader need to understand what drives the spatial distribution of top marine predators to better inform conservation planning.

• **Article:** Barnes, D. K. A. et al. [Marine plastics threaten giant Atlantic Marine Protected Areas](#). *Current Biology* 28, R1137 - R1138 (2018).

**Finding:** MPAs may effectively protect marine life from some human threats, but plastic pollution is probably not one of them. Marine surveys of five UK territories in the South Atlantic – each an existing or proposed MPA – found major increases in marine debris in recent years. Debris on beaches had increased more than 10-fold in a decade, and concentrations of sea surface plastics also rose 76% on average since 2013, and 92% since 1993. Levels of seamount debris, hundreds of meters below the surface, also increased. Meanwhile, a survey of 26 species found plastics are commonly ingested throughout different levels of the food chain.

• **Article:** Freeman, S. E., Freeman, L. A., Giorli, G., and Haas, A. F. [Photosynthesis by marine algae produces sound, contributing to the daytime soundscape on coral reefs](#). *PLOS ONE* 13, e0201766 (2018).

**Finding:** Marine macroalgae produce sound during photosynthesis as a result of forming and releasing little oxygen bubbles into the water column. Even in the midst of other biological noises, these sounds can be measured and directly correlated to levels of benthic algae cover across a shallow coral reef in Hawaii. Compared to current visual methods, measuring these sounds presents a potentially simpler and faster tool for estimating changes in algae abundance on a reef – a key indicator of ecosystem health.


• **Preprint:** Haggarty, D. R., Shurin, J. B., and Yamanaka, L. [Assessing population recovery inside British Columbia's Rockfish Conservation Areas with a remotely operated vehicle](#). *Fisheries Research* 183, 165 - 179 (2016).

**Finding:** In closing 164 rockfish conservation areas to fishing in the mid-2000s, Canada aimed to help rebuild overfished inshore populations of rockfish. But an underwater survey of 35 of these areas and adjacent unprotected areas in British Columbia, conducted several years after the closures, found little indication that the reserves have had any effect on recovery of populations of six species inside of their borders.

• **Preprint:** Adams, V. M. et al. [Implementation strategies for systematic conservation planning](#). *Ambio* (2018). doi:10.1007/s13280-018-1067-2

**Finding:** Conservation planning – the high-level process of deciding on priority areas to protect, often at a regional scale – does not accomplish much if plans never make it into action. This paper analyzes factors that help bridge the “assessment to implementation” gap and proposes a framework for designing implementation strategies that are more integrated into the planning process. It identifies 16 specific planning processes that have an influence on implementation success.

For a free, weekly list of the latest publications on ocean planning and management, including MPAs, [subscribe to the OpenChannels Literature Update here](#).

In addition, [OCTO](#) – the organization that produces MPA News and OpenChannels – also runs [MarXiv](#), the free research archive for marine conservation science and marine climate change science. Each week the MarXiv team produces [brief, one-page summaries of selected papers](#) in its repository for an audience of managers and policymakers. Share your research in MarXiv now and we may summarize your paper, too! 

### To comment on this Science Corner:

<https://mpanews.openchannels.org/node/23592>

## Notes & News

### European Commission study finds MPAs create jobs and business opportunities

A new study by the European Commission finds that MPAs can generate an array of direct and indirect economic benefits – including jobs and business opportunities – for industry sectors and surrounding communities. As a result, well-managed MPAs should be viewed as being at the core of building a blue economy.

The study, which includes 10 cases, notes that the design and management of MPAs are key factors in whether such benefits happen. “Economic benefits may be more likely to materialize if they are planned for as a component of MPA design, management, and governance,” it states. The report *Study on the economic benefits of MPAs* [is available here](#).

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### New Antarctic MPAs? Not this year

In October 2018, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) [fell short again](#) of reaching consensus on a proposal to designate a large new system of MPAs off the coast of East Antarctica. The proposal has now been under consideration for seven years, undergoing changes along the way. Although objections to it had [narrowed by last year](#) to just two CCAMLR members (China and Russia), this year [Norway reportedly joined the blockers](#). Separate proposals to designate MPAs in the Weddell Sea and off the Antarctic Peninsula also [failed to reach consensus](#) at this year’s meeting. More coverage of the meeting [is here](#).

There are 25 CCAMLR signatories (24 nations and the European Union). Under CCAMLR regulations, decisions on “matters of substance” – such as to designate MPAs – must be unanimous among all 25 members.

In 2016, CCAMLR members agreed to [designate a 1.55-km<sup>2</sup> MPA in Antarctica’s Ross Sea](#), following several years of negotiations. It is one of the largest MPAs in the world.

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### GLORES status awarded to seven more MPAs

The [Global Ocean Refuge System](#) (GLORES) – designed to incentivize nations to protect important ocean areas with strong, biodiversity-focused regulations – has [awarded seven more MPAs](#) with membership in the GLORES system. Developed and led by the Marine Conservation Institute, GLORES recognizes excellence in MPA practice, similar to what the Academy Awards do for movies. GLORES now has 10 member sites.

The seven new members are Exuma Cays Land and Sea Park (The Bahamas); Cape Rodney - Okakari Point Marine Reserve (New Zealand); Cerbère-Banyuls Natural Marine

Reserve (France); Chumbe Island Coral Reef Sanctuary (Tanzania); Wilsons Promontory Marine National Park (Australia); Misool Private Marine Reserve (Indonesia); and Ilhas Selvagens (Portugal). They join last year’s awardees Papahānaumokuākea Marine National Monument (US), Malpelo Fauna and Flora Sanctuary (Colombia), and Tubataha Reefs Natural Park (Philippines).

GLORES will be [taking nominations](#) for its 2019 awards from December 2018 to March 2019.

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### Island inside Papahānaumokuākea is wiped off map

Hurricane Walaka, one of the most intense Pacific Ocean hurricanes on record, submerged nearly all of a small island within Papahānaumokuākea Marine National Monument, [according to](#) the US National Oceanic and Atmospheric Administration.

East Island was a remote spit of low-lying land – mostly sand and gravel – within the MPA’s largest atoll, the French Frigate Shoals. The island provided important habitat for threatened green sea turtles to nest and critically endangered Hawaiian monk seals to raise their pups. After the October 2018 storm, most of the island’s 11 acres (.04 km<sup>2</sup>) now lies underwater. According to [one news report](#), researchers had already been studying East Island’s fragility in light of climate change, which causes sea level rise and stronger storms; they previously figured the island had only “a decade or two” left above water. A video with before-and-after footage of the island [is here](#).

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### New islands are built

In September, [an ambitious ecological restoration project](#) unveiled the fruits of its labor: a group of new islands in the center of Markermeer, a large lake and [Ramsar wetland](#) in The Netherlands that was dammed off from the ocean in 1932. The lake is an important bird and fish habitat, but by blocking the outward flow of sediment, the dikes have caused its water quality to decline. The restoration project, overseen by the Dutch Society for Nature Conservation, used lake bottom sediment to build five new islands to create new habitat and improve water dynamics at the bottom of the lake. Four of the islands are designated as wildlife habitat, while the fifth is open to the public to visit by ferry several times a week.

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### New data source on global coral reef health

A new global atlas of coral reef health could help guide conservation and restoration efforts. The [Allen Coral Atlas](#), from Paul G. Allen Philanthropies and partners, aims to be a “definitive source for real-time monitoring of the world’s



coral reefs,” providing change detection over time to allow governments and practitioners to take action to protect their reefs.

The atlas offers high-resolution (4-meters-per-pixel) satellite imagery and advanced analytics. A [press release](#) says it offers the most current and detailed images of the world's reefs available. It also includes maps of the structure and composition of five reefs from around the world: Moorea in French Polynesia; Lighthouse Reef in Belize; West Hawaii Island; Karimunjawa in Indonesia; and Heron Island in Australia. The atlas may be freely licensed for non-commercial scientific and conservation uses.

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## MPA readings from around the web

[A sea change: how one small island showed us how to save our oceans](#) (The Guardian) – The Isle of Man, in less than a decade, has set aside 50% of its inshore waters in MPAs, among other marine initiatives.

[How 'viper island' started a wave of coastal conservation](#) (China Dialogue Ocean) – This article reviews the status of China's MPAs, and explores what impacts the nation's new Ministry of Natural Resources could have on their protection.

[Amid lack of enforcement, fishermen take the fight to blast fishing](#) (Mongabay) - Indonesia's ban on blast fishing has reportedly gone unenforced in some parts of Sulawesi island, so two villages have declared – and are enforcing – their own MPAs.

[What happens if we don't protect the high seas?](#) (The Nature Conservancy) – Maria Damanaki, former EU Commissioner for maritime affairs and fisheries, calls for global action to protect high seas biodiversity, including in MPAs.

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## From the MPA News vault

### Features and news items from yesteryear

#### Five years ago: [November-December 2013](#)

- Australian Government scraps management plans for new national system of marine reserves
- A proposed no-take MPA where 100% of the citizens support it? Meet the Pitcairn Islands

#### Ten years ago: [November 2008](#)

- The New IUCN Definition for “Protected Area”: Examining Its Effects on MPA Practice
- Letter to the Editor: Uninhabited islands should be focus of conservation efforts

#### Fifteen years ago: [November 2003](#)

- Tools and Strategies for Financial Sustainability: How Managers Are Building Secure Futures for Their MPAs
- Problem Is Shortage of Capacity, Not Revenue Sources: Proposing a New Approach to Financing Protected Areas

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