



# Newsletter from African protected areas

#151, April 2021 – [www.papaco.org](http://www.papaco.org)



## Editorial

**GEOFFROY MAUVAIS**

IUCN-PAPACO COORDINATOR

## ELEPHANTS

Anyone who takes the least interest in the African continent and its wildlife will have noted that elephants have just entered, last month, the last leg on their road to extinction.

Going over several analyses from the past few years, the IUCN Red List experts reached the conclusion that the most iconic African animal now deserves to be classified as endangered, if not critically endangered. Data shows a steep decline in elephant populations, by over 60% (in the savanna) and over 80% (forest habitats) over the past decades. The next step is its pure and simple disappearance from the wild, followed by extinction.

Half a million elephants, at most, remain in Africa, mainly scattered across the eastern and southern parts of the continent. Everywhere, elephants have disappeared from large proportions of their original range. A few clusters resist better than others, but for how long still?

The African elephant is an essential contributor to its ecosystem; opening up forested areas, thus generating food and shelter for smaller species, shaping water points through its own use, scattering seeds...Elephants influence their natural habitat far beyond their direct impact on the plants they consume. Their presence (or absence) has important consequences on the environment they inhabit.

The main factors behind the elephant's dramatic decline are poaching on the one hand, and the fragmentation of its habitat on the other. Both are of course caused by man.

The poaching we need to consider here is not the one carried out, at the margin, by local communities

interested to consume the animal or seeking to defend their houses or crop against its damages. The poaching that significantly impacts elephant numbers is led by international ivory trafficking. Most ivory seizures are headed for Asia, and more specifically for China.

The fragmentation of habitats is of course collective work, but particularly aggravated by those who roll out massive industrial efforts to gain access to the most remote resources. The most salient example is China's ongoing 'Belt and road initiative'.

A new virus appeared at the end of 2019 – coincidentally, in China. We all know the story by now; the virus travelled across the world and we keep fighting it every day. The first death recorded in China took place on January 11, 2020 and on September 8 of the same year, the country grandly celebrated the official end of the epidemic – with a few thousand deaths recorded.

On February 10 this year, the Chinese robot Tianwen 1 entered the orbit of Mars. Its goal is to drop a smaller robot on the Red Planet, to take photos and collect data on its soil. We wish Tianwen 1 full success of course.

At this stage, a rather naïve question haunts me.

How can a country able to master with such ease an epidemic that caused almost 3 million deaths worldwide, able to send and pilot a tiny robot millions of kilometers away from our planet, fail to stop the trade and use, on its own territory, of a totally useless imported good such as ivory?

If anyone can provide an answer that differs from the usual, conventional idiocies repeated here and there to excuse the inexcusable, please let me hear it. ●

# MOOC Conservation

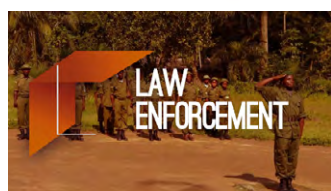
## MOOCS

**Attestation of success.** If your **score is higher than 75%**, you'll be able to download an attestation of success.

**Create a new account.** If you participated in our MOOCs prior to January 2021 and wish to enrol in other courses, you will need to **create a new account**.

**Ongoing session:** 18 January to 13 June 2021

**MOOC registrations:** [mooc-conservation.org](http://mooc-conservation.org).

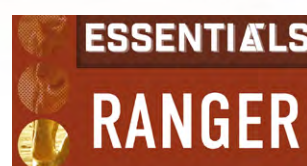


## THE ESSENTIALS

**What are they?** They are short courses geared to a specific profile of protected area conservation actors.

Four options are possible: Rangers, Managers (involved in Research R or in Law enforcement L) and Leaders.

**Inscriptions :** [mooc-conservation.org](http://mooc-conservation.org)



**RANGER ESSENTIAL**  
For protected area (PA) professionals who apply decisions and ensure the implementation of activities inside the PA.



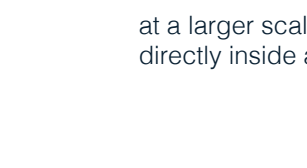
**MANAGER ESSENTIAL**  
For protected area professionals who need to plan, manage and assess the work carried out by field agents.



➔ **MANAGER LAW:** focuses on law enforcement and the valorisation of the PA and its natural resources.



➔ **MANAGER RESEARCH:** focuses on research activities, monitoring-evaluation and ecological monitoring.



**LEADER ESSENTIAL**  
For actors who are influencing the protected area context at a larger scale, without necessarily working directly inside a protected area.



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# COMING SOON: MOOC MARINE PROTECTED AREAS



**LAUNCH: 12 APRIL 2021**

**ENROL: [MOOC-CONSERVATION.ORG](https://mooc-conservation.org)**

## MOOC PRESENTATION

Marine protected areas (MPA) are managed on the same basis as terrestrial protected areas. However, the specific nature of these ecosystems require special measures and considerations.

The MOOC MPA completes our series of MOOCs on protected areas, and focuses on aspects related to marine ecosystems. We cover topics such as the design and creation of MPA networks, governance, ecological monitoring, but also surrounding economic activities, and how to include all this to MPA management. This MOOC was developed by experts in their respective fields, and it is rhythmized by video case studies to help you combine theory with practice.

## WHAT WILL YOU BE LEARNING ABOUT?

What are MPAs? What are the specificities of their management and governance? What ecological monitoring should be applied? How to implement effective planning and sustainable funding of MPA management? What impact do MPAs have on marine biodiversity? What future developments can we expect and how can we promote them? How to restore MPAs? How to valorise spaces? What room should be given to aquaculture?

## TEACHING TEAM

As usual, experts in their respective fields have prepared the main sequences:

- François Simard, consultant
- Raphaëla le Gouvello, Expert in marine coastal zone management, fisheries and aquaculture-dependent territories, sustainability, blue growth, IUCN expert, CEO of Stermor, President of RespectOcean
- Sue Wells, Marine conservation consultant
- Mathieu Ducrocq, consultant
- Dan Laffoley, Marine Vice Chair IUCN World Commission of Protected Areas
- Aurélie Spadone, Senior Programme Officer at IUCN, Ocean Governance
- Julien Rochette, Institute for Sustainable Development and International Relations (IDDRI)
- Francisco Otero Ferrer, PhD in Science of the Sea with the University of Las Palmas
- Charlotte Karibuhoye Saïd, Programme Director - MAVA Foundation
- Youssouph Diedhiou, IUCN-PAPACO

# Ambassadors

## HEAR FROM OUR AMBASSADORS: BY EMMANUEL LOKPAKA, DRC



“On Friday 26 March, we organised a MOOC Conservation workshop in partnership with the Environmental students Club at Kinshasa University.

The topics of the workshop were: MOOC conservation, opportunities for students, researchers and for professors, all for the sustainable management of protected areas in DRC.

The workshop aimed at informing and coach students, teachers, researchers from Kinshasa University on the existence of online conservation courses (MOOC Conservation).

In total, there were 102 participants, 56 men and 46 women. Environews, a local TV channel came to cover the event. Participants were interviewed, and 90% said they were satisfied with the event and will enrol.

Our greatest satisfaction was seeing the participation of many women, as they are typically less represented in conservation”

**AMBASSADOR ? An ambassador is a designated Papaco MOOC student who volunteered to help students in his city or region.**

**List of ambassadors (click on the name to send them an email):**

- |  |  |  |   |
|--|--|--|---|
| ➔ <a href="#">Benin, Kévin</a>           | ➔ <a href="#">Mathias</a>                  | ➔ <a href="#">Richard</a>                    | ➔ <a href="#">Pointe Noire, Charmand</a>        |
| ➔ <a href="#">Bouaké, Bernadette</a>     | ➔ <a href="#">Gabon, Brice</a>             | ➔ <a href="#">Mali, Seydou</a>               | ➔ <a href="#">Rwanda, Leonard</a>               |
| ➔ <a href="#">Burkina Faso, Valéry</a>   | ➔ <a href="#">Guinea (Conakry), Moussa</a> | ➔ <a href="#">Lomé (Togo), Samuel</a>        | ➔ <a href="#">Senegal, Thiam</a>                |
| ➔ <a href="#">Burundi, Léonidas</a>      | ➔ <a href="#">Haïti, Talot</a>             | ➔ <a href="#">Lubumbashi (DRC), Albert</a>   | ➔ <a href="#">Chad, Seid</a>                    |
| ➔ <a href="#">Comoros, Humblot</a>       | ➔ <a href="#">Kara (Togo), Jean</a>        | ➔ <a href="#">Madagascar (Tana), Raymond</a> | ➔ <a href="#">Tunisia, Moadh</a>                |
| ➔ <a href="#">Côte d'Ivoire, Mamadou</a> | ➔ <a href="#">Kenya, James</a>             | ➔ <a href="#">Morocco, Rachid</a>            | ➔ <a href="#">Yaoundé (Cameroon), Pascale</a>   |
| ➔ <a href="#">Douala (Cameroon),</a>     | ➔ <a href="#">Kindu (DRC), Ohm</a>         | ➔ <a href="#">Mauritania, Fall</a>           | ➔ <a href="#">Zambia, Chewe</a>                 |
|  | ➔ <a href="#">Kinshasa (DRC), Emmanuel</a> | ➔ <a href="#">Niger, Oumarou</a>             | ➔ <a href="#">Zimbabwe/South Africa, Fanuel</a> |
|  | ➔ <a href="#">Kisangani (DRC),</a>         | ➔ <a href="#">Nigeria, Michael</a>           |   |

# Guidelines



## 'PROTECTED AREA GOVERNANCE AND MANAGEMENT'

*Protected Area Governance and Management* presents a compendium of original text, case studies and examples from across the world, by drawing on the literature, and on the knowledge and experience of those involved in protected areas. The book synthesises current knowledge and cutting-edge thinking from the diverse branches of practice and learning relevant to protected area governance and management. It is intended as an investment in the skills and competencies of people and consequently, the effective governance and management of protected areas for which they are responsible, now and into the future.

The global success of the protected area concept lies in its shared vision to protect natural and cultural heritage for the long term, and organisations such as International Union for the Conservation of Nature are a unifying force in this regard. Nonetheless, protected areas are a socio-political phenomenon and the ways that nations understand, govern and manage them is always open to contest and debate. The book aims to enlighten, educate and above all to challenge readers to think deeply about protected areas—their future and their past, as well as their present.

The book has been compiled by 169 authors and deals with all aspects of protected area governance and management. It provides information to support capacity development training of protected area field officers, managers in charge and executive level managers.

*The entire book is freely accessible online in English on the Australian National University's website: <https://press.anu.edu.au/node/372/download>.*

## CHAPTER 20

# MARINE PROTECTED AREAS MANAGEMENT

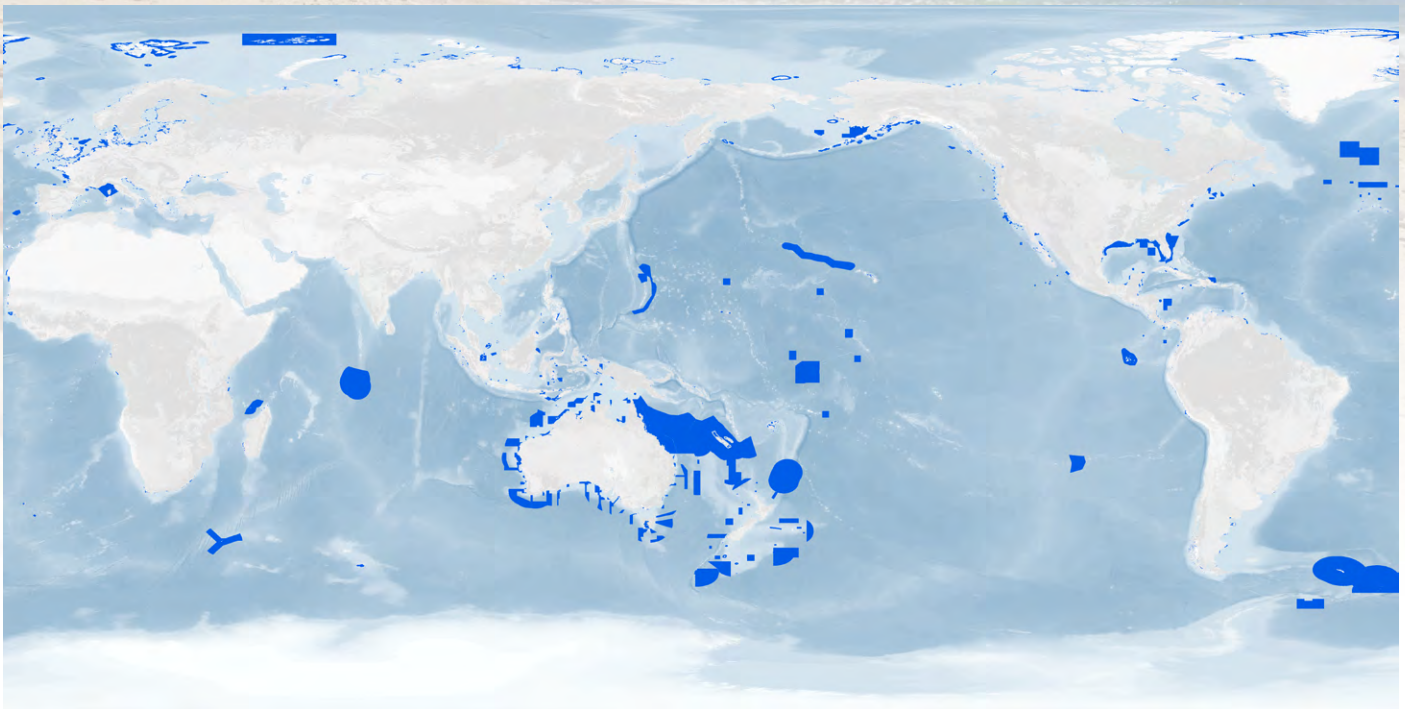
Principal authors: Jon C. Day, Dan Laffoley and Katherine Zischka

### Introduction

Globally, the protection of marine areas has been a comparatively recent initiative compared with the use of protected areas for terrestrial conservation and resource management. Oceans cover 70 per cent of the Earth's surface and contain 97 per cent of the Earth's water. They drive climate and weather, regulate temperature, generate

much of the oxygen in the atmosphere, absorb much of the carbon dioxide, and replenish freshwater to both land and sea through the formation of clouds. Oceans make up more than 90 per cent of the planet's biologically useful habitat and contain most of the life on Earth, including nearly all of the major groups of animals, plants and microbes. This watery living system is critical to how our world works. Oceans supply food, provide leisure opportunities and generate billions of dollars for national economies.

In recent decades, considerable efforts have been directed worldwide to establishing marine protected areas (MPAs). There has been a growing understanding that far more needs to be done to adequately manage our use of coasts, seas and oceans in order to ensure environmental and economic sustainability. There is an emerging realisation that effective marine protection requires us to identify and protect representative examples of marine habitats,



Global extent of Marine Protected Areas (MPAs). MPAs cover approximately 3.4% of Earth's oceans. For national jurisdiction (0–12 nautical miles), 8.4% is covered, for the Exclusive Economic Zone (12–200 nautical miles), 8.0% is covered (UNEP-WCMC 2014). Source: IUCN and UNEP-WCMC (2014)

rather than trying to protect specific threatened species or special or scenic areas. To be effective in protecting marine biodiversity, this approach needs to be applied in offshore waters and the open sea, as well as in near-shore and coastal areas.

## Progress in establishing marine protected areas

For the oceans, little progress in protection was made until a little more than 100 years ago when the world's first MPAs were declared in Australia. Most of these early MPAs focused on the protection of iconic species or special habitats rather than taking an ecosystem-based approach.

The main impetus for MPAs, however, came much later with the World Parks Congress on National Parks in 1962, and a follow-up meeting in 1982 calling for the incorporation of marine, coastal and freshwater sites into the worldwide network of protected areas. The movement for MPAs grew in strength from that point, in the recognition that demand was outstripping supply of goods and services from the ocean to fuel an ever-increasing global population. The 1982 UN Convention on the Law of the Sea (UNCLOS), the fundamental framework for marine governance globally, further obliged all states to protect and preserve the marine environment.

In 1995, a four-volume series recommended a globally representative network of MPAs; this was the first real global focus on marine protection through MPAs, and was followed by a guide for MPA planners and managers in 2000. The World Summit on Sustainable Development (WSSD) in 2002 called for the establishment of MPA networks by 2012. Further supporting this goal, four years later, the UN Convention on Biological Diversity (CBD) reinforced the WSSD decision by setting a global target for at least 10 per cent of each of the world's marine ecological regions to be effectively conserved by 2012. In 2003, the recommendations of the fifth International Union for Conservation of Nature (IUCN) World Parks Congress broadened this—to 'establish by 2012 a global system of effectively managed, representative networks of marine and coastal protected areas', which was maintained in the CBD 2011–20 strategic plan.

While the time scales may have changed more recently, these remain the principal global targets for MPAs. After setting the initial global target to effectively conserve at least 10 per cent of each of the world's marine ecological regions by 2012, the world acknowledged a decade later that the 10 per cent target was not going to be achieved and the deadline was extended to 2020, with a revised text:

By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially

areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

By including ecosystem services and stating that area-based protection must be effectively and equitably managed as well as ecologically representative, Aichi Target 11 has become a much more meaningful target for the world to achieve. The target is not only more meaningful for the ocean but also more attainable. It implies a scientifically driven, culturally inclusive and well-balanced effort by countries; however, there is still no guidance for countries to ensure their conservation efforts contribute to the newly revised targets that now include 10 per cent of marine areas. This lack of clarity effectively leaves each member country to decipher what it means within respective political contexts.

## IUCN categories and marine protected areas

So what counts as an MPA? As set out earlier in this book, a protected area as defined by the IUCN must have nature conservation as the primary objective. This definition forms the basis for defining MPAs, just as it does for terrestrial protected areas. Other existing values may be of similar importance, but in the event of a conflict between values, nature conservation must be considered the most important. Therefore, a site may be considered an MPA provided it: 1) has defined boundaries that can be mapped; 2) is recognised by legal or other effective means; and 3) has distinct and unambiguous management aims that can be assigned to a particular protected area category. The six management category types and four governance types are set out in Dudley (2008).

In the sea, as on land, there are many managed areas that protect biodiversity indirectly, incidentally or fortuitously. It is indeed a principle of the CBD's ecosystem approach that all land and water management should contribute to conservation, and as a result the distinction between what is and what is not a protected area is sometimes unclear; however, such areas do not necessarily fulfil the IUCN definition of a protected area.

This is particularly the case in the marine environment,



Locally managed marine area at Laitoko Village, Solomon Islands  
Source: Hugh Govan

where spatial planning and management of activities often have no stated aim or interest in nature conservation; they are just an incidental link. While some areas may be relatively easy to classify, others may be harder to determine and the following types of area-based measures are not necessarily MPAs:

- fishery management areas (temporary or permanent) with no wider stated conservation aims
- community areas managed primarily for sustainable extraction of marine products (such as coral, fish and shells)
- marine and coastal management systems managed primarily for tourism, which also include areas of conservation interest
- wind farms and oil platforms that incidentally help to build up biodiversity around underwater structures and by excluding fishing and other vessels.

Given the challenges in interpreting Dudley (2008) for MPAs, supplementary guidelines were issued in 2012 to ensure the



Black grouper (*Mycteroperca bonaci*), Bahamas  
Source: Craig Dahlgran



Shark and other fish, Great Barrier Reef Marine Park, Australia  
Source: © Great Barrier Reef Marine Park Authority

IUCN categories can be effectively applied to all types of MPAs, as well as to any marine components of adjoining terrestrial protected areas. The guidelines are intended primarily for policymakers but are also useful to help MPA managers understand the management objectives for the category to which an MPA has been assigned and thus guide planning and implementation.

## Governance of marine protected areas

The ecological, economic and social benefits of protected areas can only be enhanced and sustained when they are effectively managed through good governance.

Historically, marine governance has been developed sporadically and in a fragmented way to suit individual management needs where they have arisen, and less in a holistic, long-term and ecosystem-based way.

The governance of protected area networks can be framed within various arrangements including international environmental conventions at the global level, coordination between neighbouring countries at the regional level, government legislation at the national level, and community and NGO-driven governance at the local level.

### International context

The majority of coastal (and many non-coastal) countries around the world are signatories to international marine agreements or conventions. These provide legal frameworks to establish mechanisms for governing and managing marine areas under their national jurisdictions, or more simply, within

their national waters. International environmental laws have been established to address a wide range of marine issues, from the basic designation of national maritime boundaries to navigation, fisheries management, international trade in endangered species, biodiversity conservation and the establishment of MPAs. Such international laws can include both hard (legally binding) and soft (non-binding) laws.

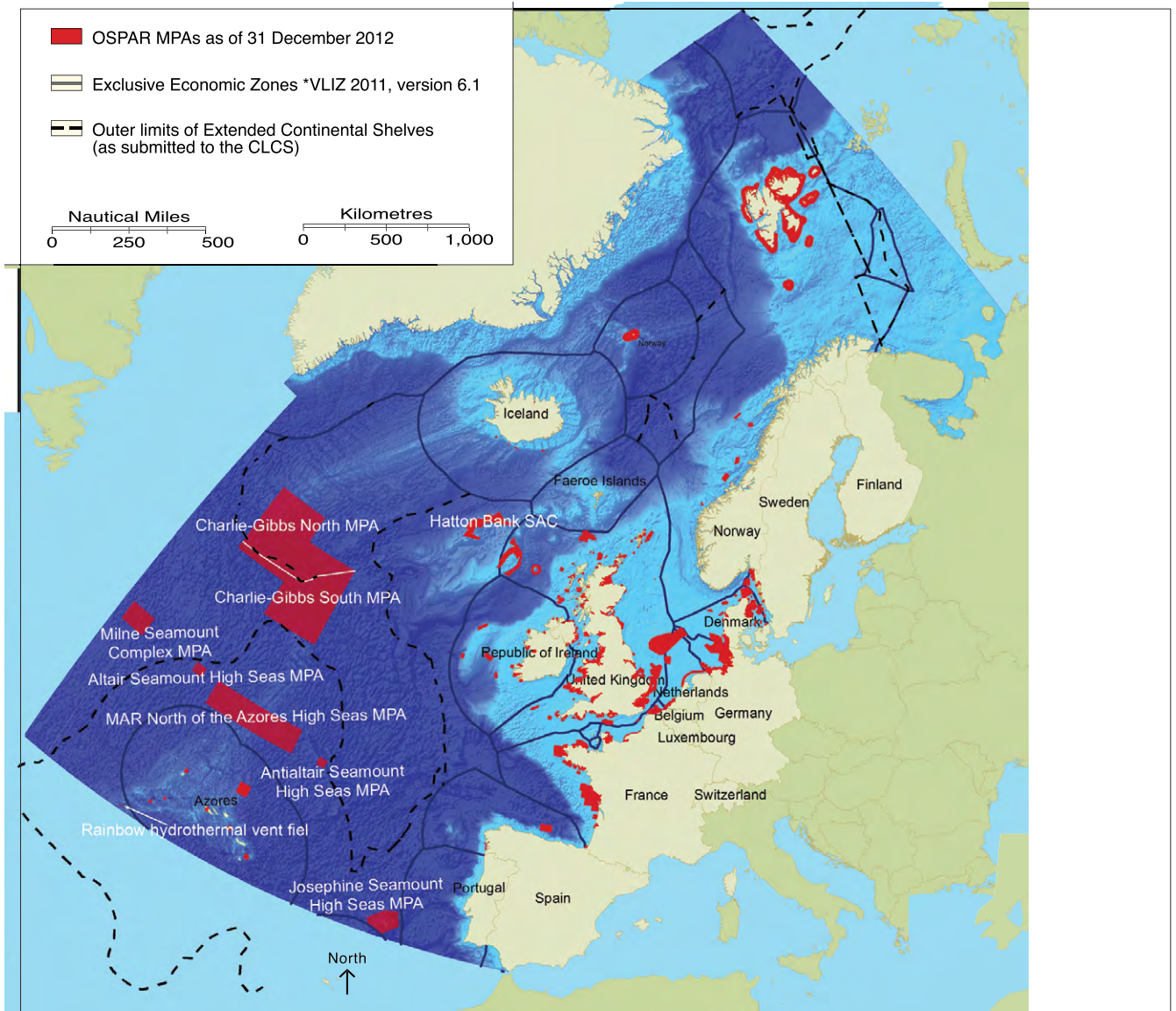
### Regional context

Regional approaches, such as the UNEP's Regional Seas Program, have been established around the world to improve marine management, and information and benefit sharing, at the regional level.

### National context

The majority of the world's MPAs are governed by laws and regulatory mechanisms established at a national or sub-national government level. In most coastal countries, the marine environment is not governed under a single law but is addressed through an often fragmented set of laws and mechanisms established to manage different aspects of the marine environment such as conservation, tourism, pollution or fisheries. Consequently, it is common for laws to be administered under separate jurisdictions and managed by a variety of stakeholders including national, regional Provincial/State/Territory or local government agencies, councils, NGOs or local communities. Jurisdictional overlap, gaps and lack of integration between multiple organisations can often lead to challenging MPA governance. Functional, holistic and cross-jurisdictional governance systems for





Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) network of MPAs, as of December 2012  
 Source: Modified from OSPAR Commission (2013), reproduced with permission from the OSPAR Commission, London

MPAs are critical.

### Local context

The local context is becoming increasingly important in MPA governance and management. Local governance, where coastal communities are responsible for governing and managing their own local marine resources, is often referred to as ‘customary marine tenure’.

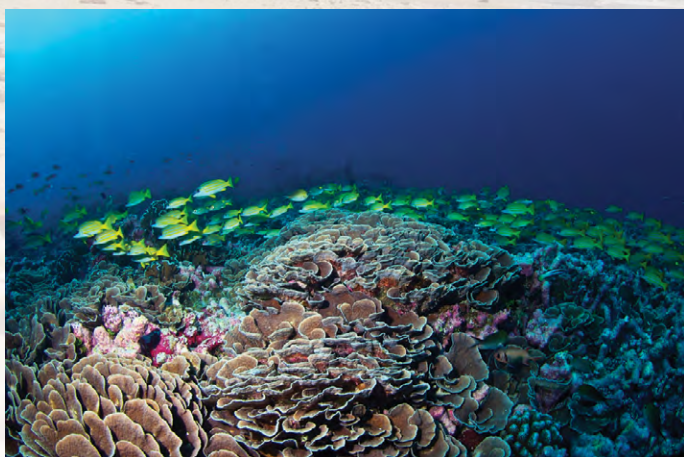
### Governance challenges

#### Limits of marine governance: Maritime boundaries and high seas governance

Among the main challenges to marine governance are the

legal differences between terrestrial and marine ecosystems. Sixty-four per cent of the world’s ocean— and nearly half the surface of the Earth— is outside the legal powers of traditional national governance systems. Despite their vastness, marine ecosystems and species in the high seas and international seabed areas beyond national jurisdiction are threatened on multiple fronts, making efforts to address areas both within and beyond national jurisdiction vital to achieving international goals for marine conservation.

Establishing governance across the whole ocean is essential. Near-shore and offshore systems are linked in many ways: ocean currents move water masses, pollution and marine debris; marine animals such as cetaceans, sea



Coral (*Echinopora lamellosa*) with pink crustose coralline algae and fish (probably snapper, *Lutjanus kasmira*), Seychelles outer islands, Republic of Seychelles  
Source: James Tanelander

turtles, sea birds and tuna undertake extensive migrations; many coastal marine species are found in the open ocean for large proportions of their life history. Fish stocks and seabed features such as seamounts, hydrothermal vents and cold-water coral reefs may straddle national and international boundaries. Spawning sites, breeding grounds and other habitats necessary for critical life-cycle stages of rare, threatened or endangered species as well as commercially important species may occur on either side of legal boundaries.

There is accordingly a critical governance gap for a large proportion of the global marine environment. A broad framework for cooperation to protect and preserve the marine environment, including in areas beyond national jurisdiction is set out under UNCLOS, under which all countries have a duty to protect and preserve the marine environment including rare and fragile ecosystems and the habitats of depleted, threatened or endangered species (Article 194.5), and to conserve high seas living resources (Article 117). There is, however, no specific legal framework for integrated and ecosystem-based management and no specific mandate for the establishment of MPAs for those bodies with the authority to regulate specific human activities. Progress in establishing representative networks of high seas MPAs to 2014 has thus been very slow.

## Management of marine protected areas

MPA managers rarely manage natural systems or specific marine species per se; what they generally do is manage the

human impacts within or on their MPA. MPA management typically relies on using a combination of management tools (including spatial tools like zoning plans or plans of management; temporal tools like seasonal closures for nesting birds or key spawning periods; legislative tools like regulations; and/ or permits), along with various management approaches (such as education, impact assessment, monitoring, partnerships and enforcement). Such approaches are used to regulate access, and to control and/or mitigate impacts associated with activities (such as recreation, tourism, fisheries or shipping) or to address pressures (such as declining water quality or climate change).

Management is usually considered to be a continuous, interactive, adaptive and participatory process, comprising a set of related tasks that all need to be undertaken to achieve a desired set of goals and objectives. It is important that these goals and objectives are clearly established early in the life of an MPA, that they are widely known and are able to provide the benchmark against which the effectiveness of management is evaluated.

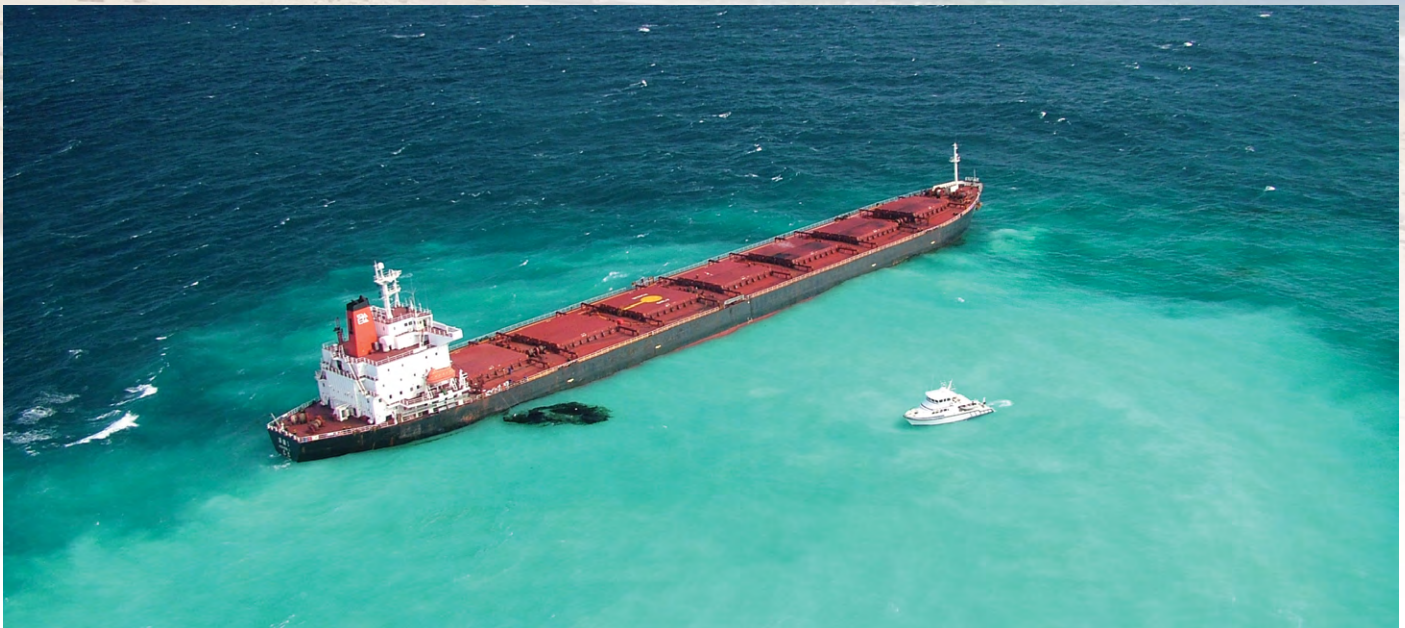
Patterns of use and technological approaches are constantly changing, so MPA management also needs to be flexible, adaptive and responsive. The marine environment itself is similarly dynamic and subject to both natural changes and differing patterns of use. Consequently, an adaptive management approach is essential for effective MPA management. Particularly in large MPAs, this is best achieved through regular interaction between agencies, across all levels of government and with local communities and interest groups.

## Marine spatial planning and management planning

Planning an MPA frequently requires consideration of a range of national and/or State or Provincial legislation, especially to ensure that planning accords with the legal mandate(s) for the area. Planning may also be guided by specific obligations under relevant international conventions, and for ICCAs there may also be community requirements.

Planning in the marine environment includes numerous challenges, many of which are not faced when planning terrestrial protected areas—for example:

- the interdependency on neighbouring ecological



Coal loader aground on the Great Barrier Reef, Australia  
 Source: © Great Barrier Reef Marine Park Authority

communities and the interconnectedness of the coastal and marine environments

- the impacts from adjacent land or sea areas that could threaten the integrity of even the best-managed MPA
- the three-dimensional (water column) aspects of an area requiring management (few MPAs are well known, easily viewed or easily ‘delineated’ for management purposes)
- the problem that most parts of the marine environment are not easily viewed or understood (‘out of sight, out of mind’)
- ownership issues—for most marine areas worldwide, open-access resources are poorly or insufficiently regulated and jurisdiction at the coastal land–sea interface may be unclear.

Effective marine spatial planning should be both strategic and integrated.

Broad- area integrated management that has zoning within a large MPA is considered more effective than a series of small, isolated highly protected areas within a broader unmanaged area because:

- ecologically: it recognises temporal/spatial scales at which ecological systems operate and ensures the entire MPA remains viable as a functioning ecosystem
- practically: it is easier to manage; it buffers and dilutes the impacts of activities in areas adjacent to highly

protected ‘core’ areas

- socially: it can help to resolve and separate conflicting uses and ensure all reasonable uses can occur with minimal conflict, as well as minimising confusion by a single management agency having responsibility rather than a multitude of differing agencies
- economically: integration within a larger area will generally have lower management costs per spatial area than a series of small MPAs managed separately.

## Marine management issues

### Climate change

Of all the emerging issues facing MPAs and marine environments worldwide, climate change remains one of the most challenging. Increasing ocean acidity, warming sea temperatures, leading to shifts in circulation patterns and changed rainfall patterns, and increasing sea-levels are real, serious and long-term threats to marine ecosystems and the communities which live in the coastal zone.

### Pollution

Marine pollution can occur when harmful, or potentially harmful, effects result from the entry into the ocean of chemicals, particles, industrial, agricultural and residential waste, noise or the spread of invasive organisms. Poor water quality and sediment quality are the most serious known pollution issues affecting many nations’ coastal and

marine environments. Pollution from land contributes up to 80 per cent of all marine pollution and is a major threat to the long-term health of near-shore marine systems, affecting ecological processes, public health and social and commercial uses of marine resources.

### Dredging and port development

Dredging and subsequent dumping at sea of dredge spoil can have major impacts, especially changing the hydrographical conditions within an MPA or in areas adjacent to an MPA. The extent of the effects depends on a wide range of factors, including the location of the dredged area and the disposal area, the method and rate of extraction, and the type of machinery, as well as the nature of the surface of the sea bottom, the sediments, the coastal processes and the sensitivity of habitats and species.

### Mineral and sand extraction

Marine sand and gravel, as well as minerals of interest found on or in the seabed, are non-renewable resources. The quantities of sand and gravel currently being exploited are very large.

### Oil and gas

Offshore oil and gas operations have increased dramatically and are expanding from shallow coastal waters to deeper offshore areas. Some activities associated with oil and gas operations, including surveys, drilling and production activities, may, if adjacent to MPAs, impact on the MPA in a variety of ways.

### Shipping impacts

Shipping can potentially damage an MPA by collisions, groundings, the introduction of invasive marine pests, oil and chemical spills, the introduction of antifouling paints, waste disposal and anchor damage. Even a minor oil spill can cause local impacts to coastal species including mangroves, crabs and sediment-dwelling species. The potential for shipping activity to introduce non-native species into marine ecosystems is always present, and ballast water is a major source of introduced marine pests.

### Unsustainable fishing

Fishing, whether commercial or recreational, can affect target species, non-target species and their habitats, and consequently has the potential to produce ecological effects

in both fished areas and the marine environment as a whole. Ecosystem effects and the cumulative impacts of fishing are poorly understood. Scientific studies have shown that as well as affecting the abundance and characteristics of targeted species in fishing zones, fishing may also affect prey species and food webs more broadly. It is therefore important to develop a strategic approach to managing commercial, recreational and indigenous fishing in order to achieve ecological sustainability.

### Unsustainable tourism

If not regulated or limited, particularly in high-use areas, tourism can lead to impacts on both the marine environment and adjacent islands. For example, repeated anchoring of tourist vessels in the same locality has the potential to damage coral and seagrass habitats. A range of mandatory and voluntary arrangements can be used to minimise the impact of tourist operations.

### Mariculture

Unless appropriately managed, mariculture can modify, degrade or destroy marine habitat, disrupt trophic systems, deplete natural seed stock, transmit diseases and reduce genetic variability. The expansion of mariculture in coastal areas can not only lead to significant physical alteration of coastal environments, but can also reduce coastal protection and other functions of the ecosystem. Other impacts include pollution from nutrients, antibiotics and antifouling agents.

### Management effectiveness

Evaluating the effectiveness of managing an MPA is a challenge facing the managers of most MPAs worldwide. Increasingly, there are expectations that management should be able to demonstrate that it is achieving its goals and objectives, but also that management is cost-effective, efficient and proactive. Consequently, management effectiveness needs to be assessed and demonstrated in a systematic way that will allow useful comparisons over time. The IUCN World Commission on Protected Areas (WCPA) framework for management effectiveness evaluation suggests that a comprehensive assessment of management effectiveness should assess six management elements:

1. an understanding of the 'context' of the MPA including its values, the threats it faces and opportunities available, its stakeholders, and the management and

political environments

2. 'planning' that establishes the vision, goals, objectives and strategies to conserve values and reduce threats
3. the 'inputs' (resources) of staff, money and equipment needed to achieve the objectives
4. implementation of management actions according to accepted 'processes'
5. production of 'outputs' (goods and/or services, which should usually be outlined in management and work plans)
6. many outputs and actions that result in impacts or 'outcomes' that achieve defined goals and objectives.

A comprehensive assessment of MPA management needs to assess all six elements. Such an evaluation can have many benefits including:

- reviewing MPA policies and programs
- providing feedback on management to decision-makers and interest groups
- helping account for existing management expenditure
- justifying the need for additional resources.

## Monitoring

Monitoring is a fundamental management tool to provide information for analysis and documenting environmental

impacts, both natural and anthropogenic, and for assessing the effectiveness of marine management actions. Monitoring management performance is an important task in order to know if an MPA is efficient and effective, where changes in the marine environment over time are compared with a baseline condition.

Monitoring of marine environments has evolved as management requirements have changed. Most monitoring programs have been directed towards biological, biophysical or social aspects and have generally been undertaken as 'stand-alone' monitoring or research tasks. Some of these programs assess the effectiveness of specific management actions, but few provide an integrated assessment of the overall effectiveness of a marine managed area, or specifically monitor against the objectives for which such an area was initially declared. A number of lessons learned from conducting marine monitoring programs include starting with a modest monitoring program, understanding that a combination of monitoring methods may provide a more reliable assessment than just a single method, and exploring opportunities for encouraging stakeholder participation or local input in the overall process. Do not wait for all the answers or perfect science before taking appropriate adaptive management action arising from monitoring information. • [Consultez le document complet en cliquant ici.](#)



Corals and reef life, Great Barrier Reef Marine Park, Australia  
Source: © Great Barrier Reef Marine Park Authority

# Announcements

## PANORAMA

SOLUTIONS FOR A HEALTHY PLANET

### Coral reef restoration via mineral accretion in coral nurseries

Coral cover and diversity decline in the Caribbean is threatening both marine ecosystems and peoples' livelihoods. Mexican specialists are working together for the restoration of the coral reef using mineral accretion technology (use of a low voltage electricity to improve the health and growth rates of corals and other marine organisms), as well as artificial structures to provide a surface to which corals can adhere and grow. Such technique has proved to be effective for coral restoration in the area. A coral nursery currently has 4500 fragments of coral developing with a 90% survival rate.

The National Institute of Ecology and Climate Change (INECC) and the National Commission of Natural Protected Areas (CONANP) have provided further support for the development of coral reef restoration in an area of 3,500 m<sup>2</sup> within the Sian Ka'an Biosphere Reserve.

Local population and fishermen cooperatives contribute to the project by keeping such restoration areas safe and long-term monitored.



Corales QR  
© Oceanus, A.C.

Full article: [here](#).  
More info on Panorama: [here](#).

## JOB OPPORTUNITIES

### Regional Forests and Climate Change Lead @ WCS

**Where?** Kigali, Rwanda

**Application deadline:** 15 April 2021

[>> Click here to access full job description <<](#)

### Community Development Lead @ Okapi Wildlife Reserve (OWR)

**Where?** Epulu, Okapi Wildlife Reserve (OWR), Democratic Republic of Congo

**Application deadline:** none

[>> Click here to access full job description <<](#)

### Technical Advisor - Law Enforcement & Conservation Technology @ Parc national Nouabalé--Ndoki

**Where?** Nouabalé--Ndoki National Park HQ, Republic of Congo

**Application deadline:** 30 April 2021

[>> Click here to access full job description <<](#)

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