



# MARINE NEWS

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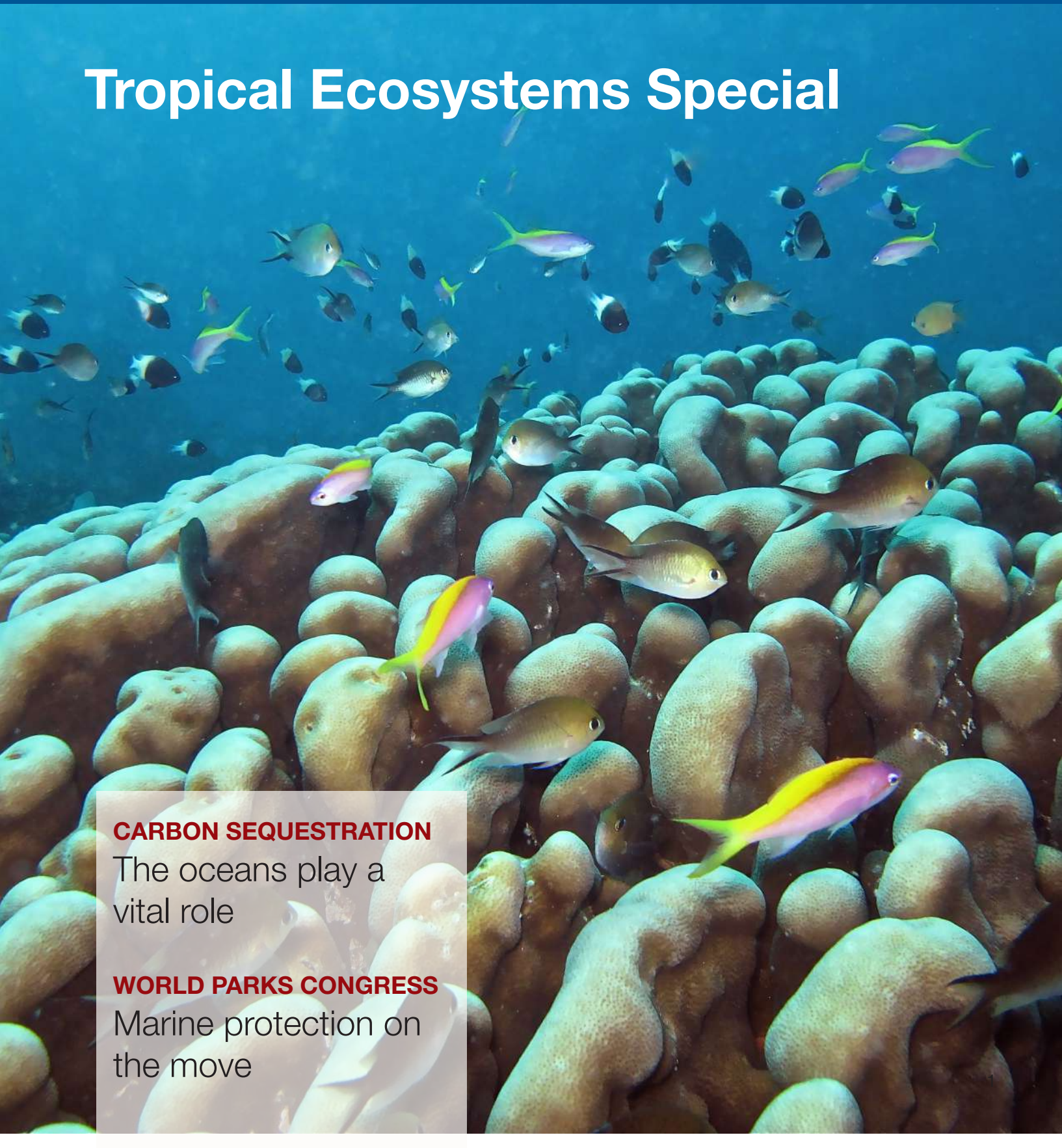
## Tropical Ecosystems Special

### **CARBON SEQUESTRATION**

The oceans play a vital role

### **WORLD PARKS CONGRESS**

Marine protection on the move





# Conserving Tropical Marine Ecosystems

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**M**arine ecosystems, particularly in the tropics, are experiencing rapid changes. In many places these changes are associated with loss of human benefits and the degradation of biodiversity. One such example is the coral reefs in the Caribbean. Since 1970, the coral reefs in the whole basin have seen a steady decline. Coral reefs have declined from between 45-65% coral cover to an average of 14% today (ranging between 3 – 53%). However, this is not the whole story - depending on the local management, a number of places are doing significantly better and are indeed experiencing improvements both of reef health and in fish populations. Local management works but requires clear objectives: good monitoring and proper enforcement of rules, particularly for fishing.

In this issue of Marine News, we will cover a number of examples as to how this can best be accomplished. In the Caribbean, the health of the herbivorous fish has been one of the key determining factors for reef health. As a general rule, the more people we have close to the tropical marine ecosystems, the less well they do. In the Indian Ocean, we have a perfect illustration of this. The largest no-take marine park in the world, Chagos, has no native population and as much as half of the healthy reefs in the Indian Ocean. The Maldives is a more mixed case, with some areas doing very well, while others are quite damaged and overall fish populations in steady decline, particularly sharks. In Sri Lanka and India, the situation is much more alarming with most reefs severely degraded and fish populations close to collapse with many local extinctions.

In order to address this, IUCN is working on several important programmes. In the Maldives, we are working with the government, NGOs and tourist resorts, to improve the resilience of the reefs and provide long-term livelihoods for people. Restoring degraded ecosystems is often the most cost-effective way of improving livelihoods and ensuring that we have nature-based solutions against hazards to humans, like coastal storms and coastal erosion. Each resort island in the Maldives can be seen as a de-facto marine reserve and IUCN is working with resort management and the government to enhance the management and sustainable use of these adjacent areas, called house reefs. The Cook Islands are also developing a vast new marine-protected area that might include most of its Exclusive Economic Zone of 1,800,000 km<sup>2</sup>. Several other Pacific Island Nations have also shown great leadership in this respect and the challenge today is to restore the degraded parts and put in place management mechanisms that benefit people and nature. Addressing sea-bed mining is one such challenge and here there is urgent need to improve the way we address environmental damage and calculate cost and benefits over the long term.

Through the BEST initiative, we are supporting the European Overseas territories to improve management and deliver long-term solutions to marine and island conservation. Europe has the largest marine area under its jurisdiction and the limited population and remoteness has ensured that most of these areas are in good condition. Other nations, like the US, Australia, Chile and South Africa, also have large overseas territories and they are doing their part in expanding marine protection. The US has recently declared the largest expansion ever of marine protected areas, covering 491,000 square miles – three times the size of California! The creation of the Sargasso Sea Commission is another ground-break-


ing initiative that demonstrates the way we can tackle areas beyond national jurisdiction. The Commission is charged with a stewardship role for this large ocean body and has created precedence for how we can manage a number of areas that currently lack a mechanism for their long-term management. We need to provide the tools and create the institutions that are suitable for ecosystem-based management, rather than for narrowly defined sectorial interest, as has been the case in the high seas to date. If the sectors can work in a framework where trade-offs can be made in a transparent manner and where true costs can be charged to those who destroy the ecosystem, we will then have a better chance of turning the tide and providing a better future for people and nature.

Another example of this work is in the oceans south of Madagascar. Through a series of expeditions, IUCN and its partners have been working to improve our knowledge of the area and the status of its deep-sea environment. We have also worked on legal mechanisms to improve its protection and

## Editorial

the potential for remote enforcement of rules. Finally, new species and findings about the presence of plastics have been presented to the world media. Increasingly, the world community needs to put these places in the open ocean on maps, and define the roles of the different actors so as to maintain and improve their condition. For too long we have treated them as our “collective garbage dump” with everything from toxic waste to plastics ending up out there.

To address the plastics threat, we are now embarking on a global expedition together with the Odyssey project launched by the Race for Water Foundation to the world's five large garbage patches. The objective is to improve our knowledge of the problems and demonstrate to people that their actions have consequences. The next step is to work with the cosmetics, packaging and clothing industry to reduce the amount of micro-plastics that they are producing. Consumers are increasingly demanding that their consumption reduces its footprint; it is up to industry to meet this challenge and show the way for cleaner consumption, either through substitution with less-polluting alternatives or through redesign that avoids the pollution problem altogether. The World has sustained enough degradation already, regenerating and restoring tropical marine ecosystems is a top priority concerning us all.



# The Maldives

## An archipelago vulnerable to a changing climate

**R**enowned the world over for its astounding beauty and unique biodiversity, the Maldives is an island nation that ticks all of the tourism boxes, with the industry accounting for close to 30% of total GDP. Yet beneath its glorious exterior, the Maldives faces various biological and ecological challenges from a number of different sources.

With a topographic average of just 1.5m above sea level, the Maldives is among the lowest lying countries in the world. Couple that with the fact that the country's territory is itself 99% water and the problems and risks become clear as sea level in the region is predicted to rise as a direct consequence of climate change. Other impacts to be expected are increases in sea temperature and acidity, as well as more frequent and violent storms.

The archipelago is made up of uninhabited, local and tourist resorts, each with their own unique features. All the islands however are heavily dependent

on marine resources (fishing and tourism), therefore the health of the coral reefs and other marine ecosystems is of great importance to all. The very nature of the Maldives, with over 1,000 islands spread over 90,000 square kilometers makes it challenging to oversee the management and sustainable usage of the marine resources.

There are also a number of conservation concerns in the region that are unrelated to climate change but are still very damaging to the marine ecosystems present. The proper disposal of rubbish and sewage is challenging and waste and poorly treated sewage cause threats to the environment. Concerns are increasing about overfishing, notably of reef and bait fish, and more monitoring is needed to assess the problem and promote sustainable fishing practices. And with more and more shoreline development, the region's coastal and marine ecosystems are struggling to cope.

An effective scenario for the Maldives would be the creation of an integrated network of

marine managed areas following national guidelines. These areas would operate at a number of different levels starting at LMMAs (locally managed marine areas) and MMAs (privately/resort marine managed areas) through to government managed MPAs (Marine Protected Areas). Establishing such networks of marine managed areas, at scale, provides a solution adapted to the geographical situation and contributes to the quantity and quality of conservation efforts in the country.

For more information, contact Dr Ameer Abdulla (Ameer.Abdulla@iucn.org)

### USEFUL LINKS :

For more information on our work in the Maldives visit [www.iucn.org/marine](http://www.iucn.org/marine) and click on "Maldives Marine Projects" image.

Our projects :

- Whale Sharks and Manta Ray Project
- Project REGENERATE

# Project REGENERATE

## Generating Environmental and Economic Resiliency for Atoll Ecosystems

**T**he issues facing the Maldives marine environment are pressing. There are a number of initiatives and projects trying to address these problems so that fragile ecosystems can be enjoyed for generations to come. Project REGENERATE aims to do just that.

Coral reefs play an essential role in shoreline protection, in the provision of food and as an attraction for visitors, supporting the country's two main sources of income: tourism and fisheries. Yet recent years have seen severe and mass coral bleaching that has killed a vast proportion of shallow corals. In order to rectify this damage, the government has begun creating policies in areas, including: reef fisheries monitoring, threatened species conservation, protected areas creation and management, and improved resort operation. Project REGENERATE, a partnership of IUCN, the Government of the Maldives and the United States Agency for International Development (USAID) - the development Agency of the U.S. Government - is

supporting these efforts. It builds on the experience of IUCN and of USAID in the Maldives and on previous work done by IUCN with resorts, thanks to Kuoni, and on marine species, thanks to Global Blue.

Project REGENERATE focusses on five aims:

- Enhance the national information system for information sharing, decision support and planning;
- Improve knowledge of Maldivian coral reef fisheries to apply resilience-based management in one selected atoll;
- Engage civil society in natural resource management;
- Strengthen public-private partnerships to further extend decentralised marine governance;
- Enhance knowledge and research associated with marine resources of the Maldives to apply Resilience-Based Management.

Resilience-Based Management (RBM) is a framework which

involves strengthening the ecosystems' resilience to damaging processes. The unique aspect of RBM is that it acknowledges that change will occur and works with that rather than trying to hold on to a steady-state environment that cannot sustain itself. The long-term goal of the project is that it will provide the foundation for environmental managers to improve the outlook for coral reef ecosystems and for the communities dependent on them. It will also enhance understanding of socio-ecological resilience, improve access to knowledge, and increase capacity to manage coral reefs. The RBM framework will be crucial for establishing a network of marine managed areas which are much needed.



**USAID**  
FROM THE AMERICAN PEOPLE



### North Ari Atoll: A case study

Project REGENERATE's activities include raising local islanders' awareness of their marine environment through beach cleanups and educational events, surveys to map and assess resources, and work with resort islands to reduce their environmental impact.



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# Marine Seminars in the Maldives

## Training the next generation of environmental managers

**T**he exchange of knowledge between researchers and the greater population is vital in the protection and management of marine ecosystems and the Maldives is no exception. This exchange is the very idea behind a series of public seminars, organised by IUCN Maldives Marine Projects in collaboration with the Faculty of Science of the Maldives National University, that invites students, past and present, along with other members of the public to discover and learn more about the unique ecosystems of the country. The programme will help provide a much needed academic route into marine science which is so important given the Maldives' territory is over 99% ocean water.

The project has three main aims: Promoting research activities currently being conducted in the Maldives; Spreading awareness on environmental issues including (but not limited to) climate change; and facilitating knowledge exchange and collaboration between professionals working in the Maldives and students at the Faculty of Science.

Occurring about once a month, the seminars cover a wide range of topics, are given by experts in their

respective fields and are relevant to Maldivian marine conservation and management. The first set of seminars included talks on topics such as the implications of climate change on coral reef communities and marine species protected under Maldivian law. They were videotaped and published online, making the information readily accessible to people on islands far from the capital Malé and at all times! Work is now under way to turn the seminars into an online academic course that contains all the lectures and associated materials.

The training material addressed subjects like charismatic species and tourism, resources value and management, and marine ecosystems and climate change. For example, the "Case of Hanifaru Bay" seminar, provided an in-depth look into the processes that made Hanifaru Bay a Marine Protected Area with minimization of tourism impacts to protect the manta population and ensure sustainable ecotourism.

In the seminar on "How local communities value natural resources", the audience learned that very notable changes impacting reef values are the migration of families to the capital reducing their inter-

actions with the reef environment, and globalisation - local concern is being replaced with concern for the global environment. In this new world-view, the sacred is separated from the secular.

This project is supported by USAID through Project REGENERATE.

For more information or to watch the seminars, visit <http://maldives-conservationportal.org/>

### SEMINARS

**MANTAS OF THE MALDIVES**  
Dr. Anne-Marie Kitchen-Wheeler

**MANTA TOURISM IN THE MALDIVES**  
Dr. Anne-Marie Kitchen-Wheeler

**WHALES AND DOLPHINS OF THE MALDIVES**  
Rachel Lambert

**HOW LOCAL COMMUNITIES VALUE NATURAL RESOURCES**  
Dr. Mizna Mohammed

**HANIFARU BAY**  
A case study - Niv Froman

**HOW MICROBES CONTROL THE HEALTH OF THE REEF**  
Dr. Michael Sweet

# Icons of the Ocean: Peaceful yet vulnerable

Listed as “Vulnerable” on the IUCN Red List of Endangered Species™, indicating a declining population, both whale sharks (*Rhinocondon typus*) and manta rays (*M.alfredi* and *M.birostris*) can be commonly found in the open ocean, fringing reefs and lagoons in and around the Maldives. While integral to the region’s tourism trade, little is known about these majestic creatures and therefore studies need to be undertaken in order to better understand their biological needs and the best protection strategies required for them.

As the world’s largest living fish, whale sharks provide spectacular and sought-after wildlife viewing opportunities. They are filter feed-

both of which can be found in the Maldives. The Oceanic Manta Ray is the largest of all the rays, with disk widths easily surpassing 700cm and with anecdotal reports of up to 910cm.

Aside from physical features, many aspects of whale shark and manta ray ecology and biology are still unknown. To collect the data needed to guide conservation efforts, the help of citizen-scientists like dive guides, tours operators or tourists is needed. IUCN and associate organisations, the

areas to preserve the animals’ critical habitats. In the Maldives, since 1995, there is a ban on export of all ray species and their body parts, and killing whale sharks is illegal.

As a measure to protect the species, and their habitat, the government of



ers and present no threat to human beings and are easily seen by divers due to their massive size and spotted pattern. The arrangement of these spots above the pectoral fin can actually be used to identify individuals, as the pattern is unique to each shark. Capable of diving to depths of 1,600m and beyond and tolerating temperatures as low as 3 degrees centigrade, the whale shark is a fascinating creature. The Maldives harbours significant whale shark aggregation sites where tour operators bring visitors for a close encounter with these ‘gentle giants’ as they are often called. Manta rays are split into two species: *alfredi* (Reef Manta Ray) and *birostris* (Oceanic Manta Ray),

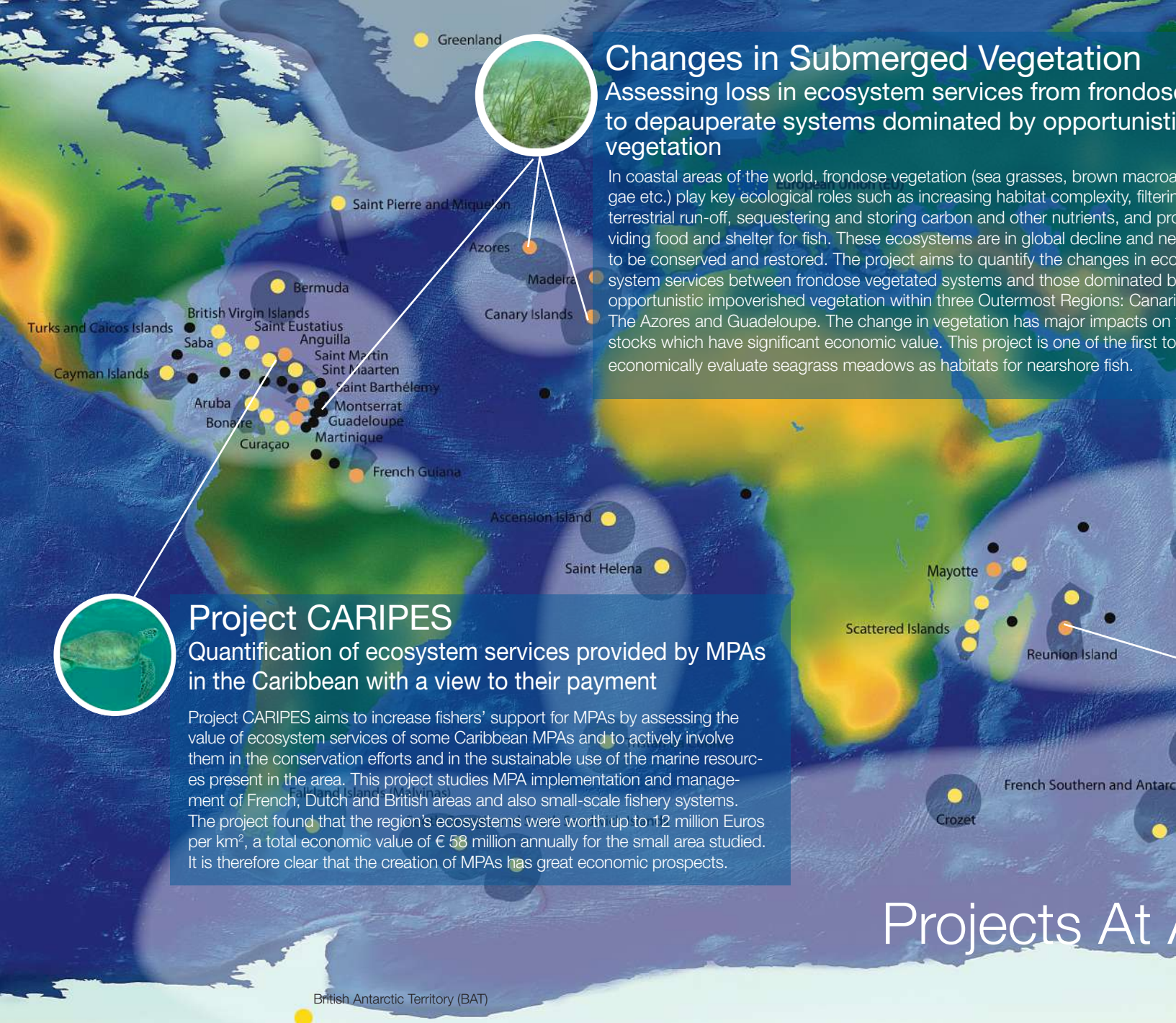
Maldives Whale Shark Research Programme and the Manta Ecology Project, are organizing workshops to engage citizen-scientists in the monitoring and conservation effort. Lectures and manuals include information on identification & biology, data collection and best viewing practices.

Globally, the main threats that whale sharks and manta rays face are targeted harvest or accidental fishing (bycatch). Whale sharks’ liver oil was often used to waterproof boat hulls and rays’ gill rakers are used in Asian medicine. Conservation solutions include restriction on harvest and the creation of marine protected

the Maldives has established 2 MPAs in the Maldives, the Baa Atoll Hanifaru Bay, and the South Ari Atoll Marine Protected Area, (SA MPA). To complement these measures, the adoption of best practices for viewing the animals will help prevent disturbances from an increase in ecotourism.

Only with local efforts and global support, centered on research and conservation, can whale sharks and manta rays truly exist as permanent icons of the ocean.





## Changes in Submerged Vegetation Assessing loss in ecosystem services from frondose to depauperate systems dominated by opportunistic vegetation

In coastal areas of the world, frondose vegetation (sea grasses, brown macroalgae etc.) play key ecological roles such as increasing habitat complexity, filtering terrestrial run-off, sequestering and storing carbon and other nutrients, and providing food and shelter for fish. These ecosystems are in global decline and need to be conserved and restored. The project aims to quantify the changes in ecosystem services between frondose vegetated systems and those dominated by opportunistic impoverished vegetation within three Outermost Regions: Canary Islands, The Azores and Guadeloupe. The change in vegetation has major impacts on fish stocks which have significant economic value. This project is one of the first to economically evaluate seagrass meadows as habitats for nearshore fish.

## Project CARIPES

Quantification of ecosystem services provided by MPAs in the Caribbean with a view to their payment

Project CARIPES aims to increase fishers' support for MPAs by assessing the value of ecosystem services of some Caribbean MPAs and to actively involve them in the conservation efforts and in the sustainable use of the marine resources present in the area. This project studies MPA implementation and management of French, Dutch and British areas and also small-scale fishery systems. The project found that the region's ecosystems were worth up to 12 million Euros per km<sup>2</sup>, a total economic value of € 58 million annually for the small area studied. It is therefore clear that the creation of MPAs has great economic prospects.

Projects At A

EU Outermost Regions (ORs) and Overseas Countries and Territories (OCTs) are home to exceptional ecosystems and unique species making up more than 70% of EU's biodiversity. Comprised of 34 political entities with a combined land area the equivalent to the continental EU area and a marine territory which is the largest in the world, these regions harbour a number of endemic species and valuable ecosystems that need protecting and managing. BEST – voluntary scheme for Biodiversity and Ecosystem Services in Territories of European Overseas - is designed to promote conservation and sustainable use of biodiversity and ecosystem services in ORs and OCTs, including ecosystem-based

### approaches to climate adaptation and mitigation.

A vast majority of the Europe Overseas entities are islands. With many endemic species, their biodiversity is very rich and particularly at risk as islands are highly vulnerable to invasive species, development, and climate change impacts. Europe Overseas entities are often not eligible to benefit from the same funding sources as their regional neighbours, often missing out on funds specifically targeted at their local ecosystems, threats and conservation. Given their specific needs, funding mechanisms are often not adapted at the EU level. To improve the situation, the European Commission supported a critical step: the BEST Initiative. BEST originated

as a follow-up to the “Message from Reunion Island”, which called for all EU Member States and the European Commission, together with the ORs and OCTs to establish a voluntary scheme for a combined effort to protect species and habitats. Through BEST the European Parliament initially provided funding for 16 projects. The overwhelming number of high-quality proposals submitted (the overall requested budget was more than 6 times higher than the available budget) led to the conclusion that a new, more sustainable financing and investment mechanism is required to meet the demand for funding of conservation projects. It also showed the willingness of stakeholders - at all levels - to invest and to move away from a classical donor-recipient relationship

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**BEST**

VOLUNTARY SCHEME FOR BIODIVERSITY AND ECOSYSTEM SERVICES IN TERRITORIES OF EUROPEAN OVERSEAS



# BEST Initiative

Protecting biodiversity of international importance and the livelihoods of the people who depend on it



## CORAIL project

**Coral reefs in a changing world - ecosystem services from coral reefs: public tools for decision-making in New Caledonia and French Polynesia**

In this era of global change, the importance of ecosystem services (ES), in particular those linked to coral reefs, need to be evaluated so that the public may make informed decisions on a number of local issues including climate & demographic change. ES valued include fisheries, underwater and blue tourism, protection against coastal flooding & carbon sequestration. The goal is to understand current relationships between ecosystem services in order to inform future decisions through governance scenarios.



## Project MIROMEN

**Migration Routes of Megaptera Novaeangliae (Humpback Whales)**

Based around Reunion Island (France), the project aims to better understand the migratory patterns of Humpback Whales. This will then help to reinforce conservation measures and aid in the implementation of management plans at the local and regional level for this emblematic species. 15 humpback whales were tagged with Argos transmitters to identify the migration routes from Reunion to breeding and feeding grounds and the first results have already been highly interesting, as the whales moved to unexpected locations. An important connection has now been identified with at least 7 of the whales travelling to Madagascar from Reunion pointing towards a major migratory journey.

## at A Glance

to a partnership approach. A first such partnership with the French Development Agency (Afd) allowed support for two additional projects.

Four of our projects in tropical marine ecosystems are featured above. Go to BEST Initiative website to discover more projects.

After a call for tender in 2013, IUCN was chosen as the implementing agency for the current phase of BEST, leading and coordinating an international consortium of 10 partners. BEST is:

- an open partnership that brings together experienced, local coordinators present in the field, a professional leading and supporting staff liaising with the European

Commission, the CBD Secretariat and donors, as well as high-level scientific and funding experts as advisers.

- a science-based action strategy: for each region, in consultation with local actors, BEST is developing an Ecosystem Profile, a proven tool to guide long-term conservation efforts and investments.
- a field base and participative approach operating in 7 regional knowledge hubs (Amazonia, Caribbean, Indian Ocean, Macaronesia, Pacific, South Atlantic, Polar/Subpolar), coordinated by staff involved in local projects, working for and with local stakeholders.

- a platform to facilitate knowledge and funding opportunities sharing, connecting projects in need of support with funders interested in saving biodiversity of international importance.

The BEST Initiative will contribute to protect biodiversity and ecosystem services and preserve them for generations to come.

Thanks to an € 8 million financial commitment from the EU just announced in October, the BEST Initiative will be able to support more projects!

For more information, consult the BEST Initiative website : <http://ec.europa.eu/best/> or Carole Martinez (carole.martinez@iucn.org)



# Analysis of MPA status in European Overseas regions

**M**arine ecosystems of European Outermost Regions (ORs) and Overseas Countries and Territories (OCTs) host an exceptional but threatened biodiversity. As a response to the decline of marine ecosystem health, marine protected areas (MPAs) have been established on an individual and ad hoc basis. However, only recently did international organisations and multilateral environment agreements, such as the Convention on Biological Diversity (CBD) recognise and recommend the need to establish ecologically coherent networks of MPAs. The report analyses the current status of MPAs in European ORs and OCTs including: geographic coverage, management, representativeness, resilience and progress towards the achievement of international objectives such as the Aichi Targets along with summarising current initiatives on invasive species and climate change.

The results of this qualitative assessment of existing EU (European Union) Overseas MPAs, with respect to their effectiveness to improve resilience of marine ecosystems, demonstrate that large MPAs, covering both coastal and off-shore areas, were the most resilient - provided they were well managed - whilst most other MPAs were rated as showing low to medium resilience. However, the design of a majority of the MPAs to date includes mostly a variety of coastal habitats while deep sea and pelagic ecosystems remain poorly represented.

There is a definite effort across EU ORs and OCTs to reach the target of 10% or more of marine areas under effective and ecologically coherent protection, which shows in the recent declaration of large MPAs in the Pacific or the united conservation efforts to protect a large patch of floating seagrass (Sargasso Sea) in the mid-Atlantic. But despite increasing acknowledgement of the international importance of the EU Overseas biodiversity to date, only 5 OCTs have managed to protect 10% or more of their marine area under national jurisdiction: Saba (33%), the British Indian Ocean Territories (99%), Mayotte (100%), New Caledonia (over 90 %) and South Georgia and South Sandwich Islands (around 70%). The management and protection status of the MPA designated in these territories ranges from strictly no-take to an MPA declaration without a management plan. As most of the existing MPAs are located in coastal waters, those OCTs that have managed to protect 10% or more of their exclusive economic zones (EEZs) have established vast off-shore MPAs.

So far there are only three operating ecological networks of MPAs across all EU's ORs and OCTs: (1) the British Virgin Island MPA

System, a network at national level, (2) OSPAR, a regional network covering the Northeastern Atlantic region including ORs of Macaronesia and Greenland, and (3) Natura2000 in the ORs of Macaronesia, a Europe-wide network of terrestrial and marine areas holding representative endangered species and key habitats.



## Guadeloupe 2014 - International conference on biodiversity and climate change

Held in October in Guadeloupe, Caribbean, this high level international meeting focused on biodiversity and climate change in the European Outermost Regions (ORs) and Overseas Countries and Territories (OCTs), and in the Small Island Developing States (SIDS) of the same geographic areas.

Over 250 high-level representatives and experts of more than 40 countries, territories and independent states adopted the 'Message of Guadeloupe', a 5-year road map to counter biodiversity loss and climate change impacts. Participants agreed on five strategic priorities and concrete actions, including building resilience, tackling biodiversity loss, developing the green and blue economy, advancing research and mobilising and easing access to resources.

As a continuation of the Reunion Island Conference (2008) it assessed the implementation of the Message from Reunion Island and created a new action plan for the 2015-2020 period with respect to international and European conservation targets, notably, the French government committed to accelerate its efforts towards 20% MPAs by 2020.

The conference was co-organised by the Secretariat of the Convention on Biological Diversity (CBD), the European Commission, the French Government, Guadeloupe's Regional Council (Guadeloupe Region), the government of the British Virgin Islands (BVI), the Association of Overseas Countries and Territories (OCTA) and IUCN.

# Islands 2014

Islands are especially important due to the high number of endemic species they harbour and are particularly threatened as they face major impacts from climate change and sea level rise, increased ocean temperatures and acidity affecting their marine environment. They also have to contend with ever more frequent and violent storms. Island ecosystems are also threatened by invasive species and, at times, destructive development. Conserving biodiversity on and around islands, through sustainable development, is key to achieving international conservation targets.

Islands face the challenge of over-seeing and sustainably managing - with somewhat limited capacity - a maritime territory often larger than

their own surface area. In addition to climate change, they need to address threats like pollution, invasive species, overfishing, etc.

Recognizing this situation, the UN designated 2014 as the International Year of Small Island Developing States (SIDS). Island biodiversity, the theme for the 2014 International Day for Biological Diversity, spurred increased attention and actions for islands. Several international events and conferences also focused on addressing island issues and announced commitments to actions: in June 2014, a meeting in La Reunion resulted in an Island Declaration on Climate Change; the SIDS conference in Samoa in September 2014 resulted in an outcome document - *The Samoa Pathway*,

and the SIDS Accelerated Modalities Of Action (S.A.M.O.A), which framed commitments under the big themes of Oceans, Energy and People. At the beginning of October, the meeting of the Conference of the Parties to the Convention on Biological Diversity (COP12) in Pyeongchang, Republic of Korea, saw substantial discussions on issues related to the biodiversity of the world's oceans. Following the CBD COP 12, participants at the international Conference on Biodiversity and Climate Change in Guadeloupe developed *the Roadmap from Guadeloupe*, a document which will guide conservation actions in Europe Overseas entities for the next five years. The IUCN Overseas Programme will actively follow and support the implementation of these commitments.

## Hope Spots in EU Overseas

**A Hope Spot is an area of ocean that merits special protection because of its wildlife and significant underwater habitats. Some are already protected through Marine Protected Areas (MPAs) yet a number still lack formally defined protection. Last year, Sylvia Earle announced several new Hope Spots including two EU Overseas entities: Wallis & Futuna in the Pacific and Ascension Island in the Atlantic.**

**Wallis and Futuna** is a French overseas country in the South Pacific Ocean between Fiji and Samoa, consisting of twenty islets and three main volcanic islands: Wallis, Futuna and Alofi. Wallis has a 63 km long barrier reef and a 200 km<sup>2</sup> lagoon. Futuna and Alofi are fringed by an apron reef some

100 m wide on average. The coral reefs of the territory are largely unexplored. Unlike many of the numerous other Pacific islands, Wallis and Futuna have neither commercial fisheries nor domestic or foreign longline vessels registered to fish in the exclusive economic zone. Interestingly, there are currently no local rules or laws that exist for the protection of Wallis and Futuna's environment.

Located slightly west of the Mid-Atlantic ridge, around 1,600 km from the coast of Africa and 2,250 km from the coast of South America, **Ascension Island** is the peak of a huge underwater volcano. While the island, a British territory, is only 91 km<sup>2</sup>, its waters harbour globally important marine biodiversity, the second-largest green turtle breeding population in the entire Atlantic (also the big-

gest green turtles ever recorded), as well as a unique assemblage of western and eastern Atlantic flora and fauna. Home to the endemic Ascension frigatebird and almost half a million sooty terns, the island is the most important seabird-breeding site in the tropical Atlantic. Having never been exposed to commercial fisheries, the inshore marine environment is still in a relatively pristine condition and should thus be adequately protected.

There is currently no marine protected area in Ascension Island. The designation of the island as a Hope Spot, as well as the efforts of the BEST initiative in the region, will hopefully advance the ongoing negotiations to establish an MPA around the island.



# Vamizi

## An exciting new development in marine conservation for Northern Mozambique

**T**he island of Vamizi (60km from the border with Tanzania) in the Quirimbas Archipelago is an area under intense pressure from fishing. Surprisingly, most of the fishermen in Vamizi's waters are from the city of Nacala, more than 450km to the south, and from Tanzania. These fishermen use more aggressive and illegal techniques that are depleting the resources of the island. On this island of only 1,500 inhabitants, the population doubles in the dry season with these populations of transient fishermen. They fill up their boats with dried fish caught in Vamizi waters, and go back home to sell them.

The idea for establishing a community-based conservation project on Vamizi Island was first considered in 1998 to channel revenues from tourism into initiatives for local development and the protection of the area's unique marine biodiversity. The project began with an assessment of the coral reefs, marine mammals and marine turtles. Vamizi island is the largest nesting location for green turtles in Mozambique in terms of the number of nests found each year, and one of the largest in continental Africa. Local monitors were employed to patrol the

island's beaches to look for nests and protect them against poaching, and a reward system put in place to persuade local fishermen to save turtles caught accidentally in their nets. An exclusive lodge and private villas were opened from 2005, carefully designed to blend in with the island's natural habitat, with minimal impact on the delicate ecosystem.

In 2006, the resort, community leaders and the Government's Institute of Small Scale Fisheries (IDPPE) came together to form a Community Council of Fisheries (known locally from the Portuguese translation as the "CCP") to help align the interests of local and transient fisherman, resolve conflicts within the local fishing population over correct fishing techniques, and create harmony between the resort and the island's local population. In 2003, the Government of Mozambique introduced a strategy of community-managed marine areas under the custodianship of CCPs: groups of fishermen formed to control and manage the fisheries, in coordination with the fisheries institutions. The CCP can issue fishing licenses, give technical advice and monitor the fishing industry in their local area. With technical support provided by IDPPE, alongside logistical and financial support from the resort, Vamizi's CCP was born.

One of the first initiatives of the CCP was to establish a marine sanctuary close to the island, creating a protected area where fish stocks could reach adulthood and reproduce, with an additional benefit of increased marine life in the areas surrounding the no-take zone. Over the years, the CCP's members have received training from the IDPPE and from the Lodge's resident conservation team to learn about sustainable fishing practices as well as monitoring of key species such as turtles, humpback whales and reef sharks. Today, a fee taken from every diving and snorkeling trip in the sanctuary is given to the CCP to support regular patrols to intercept fishermen caught inside the no-take zone, as well as funding education and health projects on the island. By diving and enjoying the sanctuary, the guests of Vamizi Island are contributing to a sustainable approach to the protection of one of the most important and biodiverse environments in East Africa.

Over the years, Vamizi's community and conservation initiatives have received important scientific backing from major organizations such as the Zoological Society of London and WWF, as well as local support from Lúrio University in Pemba, Mozambique. In April 2014, Vamizi established an important partnership with



IUCN to take these conservation, monitoring and research activities forwards and establish a world-class research centre on Vamizi Island as the hub for global efforts focused on the preservation of the Mozambique channel. Vamizi's conservation team is part of IUCN's Global Marine and Polar Programme and works with the in-country IUCN office based in Maputo.

are all featured on the IUCN's Red List of endangered species, and take refuge in Vamizi's waters as a safe place to feed and reproduce.

However, in many cases, very little is known about their patterns of behaviour, feeding and reproduction. By collecting data from tags fitted to several specimens, the Vamizi-IUCN team will begin



One of the first initiatives to be launched under this new partnership is a species tagging exercise rolled out across several of the most endangered species found in Vamizi's waters. Known on the island as the Vamizi "Big Five", the Grey Reef Shark, Green Turtle, Giant Grouper, Bumphead Parrotfish and Napoleon Wrasse

gathering the knowledge that is needed to develop a strategy to protect them.

The first of these species to be fitted with satellite and acoustic tags is the Grey Reef Shark. In September 2014, a group of scientists traveled to Vamizi to assist world

record holder and IUCN Oceans Ambassador, William Winram, as he dived to fit acoustic tags to shark. Renowned photographer and film-maker Mathias Klum and his team, including Eric Börjesson, captured footage of this incredible spectacle to feature in a film he is producing on the marine ecosystem that surrounds Vamizi.

Biopsies from 11 Humpback Whales were taken by the WCS Team in September and a photo database is being developed. The acoustic and satellite tags will perform slightly different functions; the acoustic tags have the advantage of lasting up to 20 years but will only record the sharks passing by a fixed receiver station. The satellite tags will last a much shorter time, but will give extremely accurate positioning data. The combination of both sets of data will provide us with a great deal of very valuable information on the habits of Vamizi sharks.

From early 2015, the project will be rolled out to some other of the Vamizi Big Five, focusing first on the populations of marine and hawksbill turtles that are frequent visitors to Vamizi's reefs. While marine turtles are frequent visitors to the island's beaches for nesting, relatively little is known about the lifecycle of hawksbill turtles in this region as they come close to Vamizi to feed but rarely nest there. Discovering where the females lay their nests would give an important insight into the potential threats this species may face in the future.

Collecting baseline data on species presence, distribution and identification of key habitats is of critical importance to effectively manage current and emerging threats to cetaceans in Mozambique.

continues Page 12



One of the largest natural gas deposits in the world has been discovered in the Cabo Delgado region and associated exploration and production activities have already begun. Anthropogenic noise generated from oil and gas activities in the area is of increasing concern to conservation of cetacean populations.

The rapid increase in noise pollution from all associated activities include: increasing shipping, Oil & Gas exploration, development and extraction, coastal port development plus the additional pressure on marine habitats for feeding the new inward migration of people. A review of cetacean species by WCS suggested there were 28 cetacean species, inhabiting or migrating through the coastal waters of Mozambique to date, many of which are classified as Endangered, Vulnerable or Data Deficient by IUCN. Collecting baseline data on species presence, distribution and identification of key habitats is of critical importance to effectively manage current and emerging threats to cetaceans in Mozambique.

Plans to establish another marine protected area close to the neighbouring Metundo island are also under discussion between the Vamizi-IUCN team, the local

communities and the fisheries institute. This second no-take zone would protect the popular dive site known as Neptune's Arm where female grey reef sharks aggregate during their breeding season. This new no-take zone could be formed according to provisions made in the newly introduced conservation legislation. Vamizi and its string of pearls is an important heritage to safeguard for future generations.

For more information contact Joana Trindade ([joana.trindade@vamizi.com](mailto:joana.trindade@vamizi.com))





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# Preparing For The Future With Blue Carbon

## Mangroves, Tidal Marshes & Seagrasses in Panama & Colombia

In terms of climate change mitigation, coastal blue carbon is the figurative new kid on the block. Based on the sequestration of carbon in coastal ecosystems such as mangroves, tidal marshes and seagrass fields, coastal blue carbon has the potential to be a transformational tool in the effective management, conservation and restoration of the ecosystems involved. The importance of blue carbon to a nation realistically depends on the amount of such resources they possess. With that as a starting point, IUCN undertook an ambitious project to assess Panama's and Colombia's blue carbon preparedness with relation to their coastal ecosystems and how effective these strategies could be at aiding their mitigation policies.

Well-managed and conserved coastal blue carbon ecosystems store and sequester significant amounts of carbon, thus supporting the mitigation of climate change, while at the same time safeguarding floral and faunal biodiversity. They are also major contributors to the so-called Blue Capital of countries (the entirety of

marine and coastal ecosystems that provide economically significant goods and services). When degraded, coastal blue carbon ecosystems can aggravate climate change risks by releasing stored greenhouse gases back into the atmosphere and providing fewer ecosystem services on the ground.

### *Blue Carbon Habitats*

Panama is home to 11 species of mangrove tree, with the largest forests found on the southern coast. Mangroves play a major role in the region's fisheries but are also known to be harvested for timber, charcoal and fuel wood in some areas. Seagrasses on the other hand are dominant on the northern (Caribbean) coastline with 4 species being present there as opposed to the 2 found on the other coast.

Mangroves are even more prominent in Colombia with both the Pacific and Caribbean coastlines showing extensive mangrove coverage. Yet the majority of these ecosystems are being degraded through changes in hydrology. Seagrasses are confined to the Caribbean coastline which has 6 species registered.

### *Panama City Workshop*

The workshop, which took place in March, made a number of findings and subsequent recommendations. The first major points surrounded the visibility and availability of blue carbon information. It recommended publishing documents in Spanish for all the countries relating to services provided by coastal ecosystems. Moreover, the group recognised the importance of sharing geographical and economic information surrounding blue carbon activities in Latin American countries. The workshop also highlighted the need to improve coordination within the blue carbon community and to ensure strong positioning of blue carbon at national levels within broader climate change and biodiversity discussions. Overall, both Panama and Colombia show great promise in terms of their blue carbon potential which will be vital in the coming decades as the world looks for new and innovative ways to mitigate climate change and also build blue capital.

For more information contact James Oliver ([james.oliver@iucn.org](mailto:james.oliver@iucn.org))



# Conserving Biodiversity In Balhaf Harbour

Yemen LNG aims to register a Verified Conservation Area (VCA)

**The Yemen LNG Company recently proposed its new Balhaf Harbour liquefaction facility for registration as a Verified Conservation Area (VCA). The VCA Registry encourages sustainable land and operations management through a voluntary registration process.**

After the initial construction phase of a project, environmental avoidance and minimization measures are often set aside, with the following operational phase's impacts and environmental management practices largely unevaluated and unmonitored. VCA registration requires preparation of a management plan which promotes biodiversity (BioPositive Management) that is made publicly available through the VCA Registry. The VCA Registry incorporates VCAs in to a framework which encourages area managers to promote and increase biodiversity on their landscape with socially beneficial outcomes. These may come in the form of sustainably harvested resources, other ongoing business operations, or protected areas. Operational management activities and monitoring programs are audited annually by approved VCA Auditors. Yemen LNG is taking advantage of the VCA Registry Platform to build a Biodiversity Action Plan for ongoing operations, focusing on the tropical coral reef community just off shore.

**From Construction to Operation – The Role of the VCA Registry**  
Mitigation measures undertaken

during the Balhaf Harbour construction sought to minimize impacts to the coral reef through relocation of corals in the work area followed by a restoration effort of the same area. Currently both the jetty and the pier of the new facility have new corals growing, but there is an urgent need for monitoring programs for continued protection of the coral. In 2013, Balhaf harbour experienced a bleaching event where a significant portion of the coral died off. The causes of this are unclear, but there is evidence that bleaching occurred throughout the region and the die off is not tied to operational activities. Ongoing monitoring programs required by the VCA Registry will facilitate building a data set for coral health, and allow for assessment and adaptation of management practices to best benefit coral biodiversity within the harbour.

### **Marine biodiversity Resources in Balhaf Harbour**

Balhaf Harbour is located on the north shore of the Gulf of Aden. This portion of the Yemen coastline is on the western edge of upwelling influence, driven by seasonal winds. Upwelling brings up nutrients from the sea floor and thus makes the area highly productive biologically – however such fluctuations in water temperature and turbidity are suboptimal for coral growth. This results in the Balhaf area having less coral species represented (80 species in the harbour, 105 species in the Balhaf-Bir Ali area, and 117 species in the entire Gulf of Aden) as the coastline bordering the southern

Red Sea (221 species) and western Arabian Sea (253 species at the Socotra Archipelago) which do not experience the same upwelling influence. Of the 80 species occurring in Balhaf Harbour one, *Parasim-plastrea sheppardi*, is listed as endangered on the IUCN Red List. Culturally the region is characterized by small fishing communities, which rely on the highly productive upwelling zone and coral reefs to provide forage and refuge for fish populations. Maintenance of water quality and the coral reef is essential for conserving and producing fish stocks which are important resources for local communities.

### **Future Plans for the Balhaf Harbour VCA**

Once the marine portion of Balhaf Harbour has been established as a registered VCA, Yemen LNG has plans to propose the terrestrial portion of the liquefaction facility property to be included in the Balhaf VCA. This terrain is characterized by xeric (dry) shrub lands, and contains several Bronze Age tombs of archaeological importance. Proper terrestrial management will supplement marine conservation management efforts as maintenance of vegetation can reduce wind (aeolian) erosion and subsequent deposition in the coral habitat.

For more information on Balhaf Harbour and the VCA Registry please visit the VCA Website at [www.v-c-a.org](http://www.v-c-a.org).

# Sargasso Sea Alliance

## Appointment of the First Sargasso Sea Commission

**S**ince the publication of the *Marine News* Issue 10, the Sargasso Sea Alliance has seen a number of very positive and major developments. March saw the signing of the 'Hamilton Declaration on Collaboration for the Conservation of the Sargasso Sea', by representatives from the governments of Bermuda, the US, the UK, Monaco and the Azores, representing a unique collaborative effort to protect the high sea ecosystem. Building on this, on August 6, the Government of Bermuda announced the names of the Sargasso Sea Commission, the first body of its kind in the world, created to "exercise a stewardship role for the Sargasso Sea and keep its health, productivity and resilience under continual review".

The Sargasso Sea is an open-ocean ecosystem around Bermuda within the North Atlantic Sub-Tropical Gyre, bounded on all sides by clockwise rotating currents. Sargassum is the unique golden floating seaweed that provides protective nursery and habitat for a host of endemic as well as threatened and endangered species, such as sea turtles, and commercially important species like tuna, marlin and swordfish. The Sargasso Sea is the only known spawning ground for the American and European eels.

The newly formed Commission is charged with watching over this unique open-ocean ecosystem in an area beyond national jurisdiction. The five Commissioners will serve in their personal capacities; they are all of different nationalities, highlighting the international nature of the project and Commission: Dr. Billy Causey (US), Professor Howard Roe (UK),

Professor Ricardo Serrão Santos (the Azores), Professor Dire Tladi (South Africa) and Dr. Tammy Trott (Bermuda).

The candidates were each nominated by Signatories to the Hamilton Declaration and the Government of Bermuda was charged with selecting the five Commissioners from a very strong field of candidates. The Hamilton Declaration requires that they be "distinguished scientists and other persons of international repute committed to the conservation of high seas ecosystems." The Commissioners are unpaid, do not represent governments, and will be assisted by a small Secretariat. The Commission will operate in a largely virtual setting allowing funds to be focused toward programmatic work. Dr. David Freestone, Executive Secretary of the Sargasso Sea Commission says "This is an historic step forward in our effort to conserve the Sargasso Sea and for high seas conservation globally. We are very excited about working with this very distinguished group of experts". The Commission represents an incredible step forward in the management and

protection of the unique two million nautical square mile ecosystem, one that will inevitably lead to more international involvement in the region.

In July, Monaco, as signatory to the Hamilton Declaration, put forward a proposal to list the European Eel (*Anguilla Anguilla*) under Appendix II of the Convention on Migratory Species. European Eels live in freshwater environments in continental Europe for the majority of their lives and then migrate thousands of miles to the Sargasso Sea in order to spawn and then die. The eel larvae, leptocephali, then find their way back across the Atlantic to European waters to mature and the cycle begins again.

Listing the European eel under the CMS Appendix II would indicate that its conservation status would benefit from international cooperation, which is the key objective of the Hamilton Declaration and the work of the new Commission.

For more information, please contact Kate Morrison or David Freestone at [kmorrison@sargassocommission.org](mailto:kmorrison@sargassocommission.org) or [dfreestone@sargassocommission.org](mailto:dfreestone@sargassocommission.org)



Premier Craig Cannonier signs Hamilton Declaration on behalf of Bermuda, Bermuda, March 11, 2014.

L-R: Dr. David Freestone, SSA Executive Director, Premier Craig Cannonier and Dr. Derrick Binns, Cabinet Secretary.

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# The Ultimate Carbon Sink

## Open Ocean Carbon Sequestration

**F**or decades, managing carbon through forests and other land environments has been the focus of the global community as it tries to find large enough carbon sinks to deal with ever increasing anthropogenic emissions, yet the largest potential carbon sink has been consistently overlooked. The open ocean plays a vital role in the global carbon cycle and is only now having its true carbon sink potential recognised through work conducted in part by IUCN.

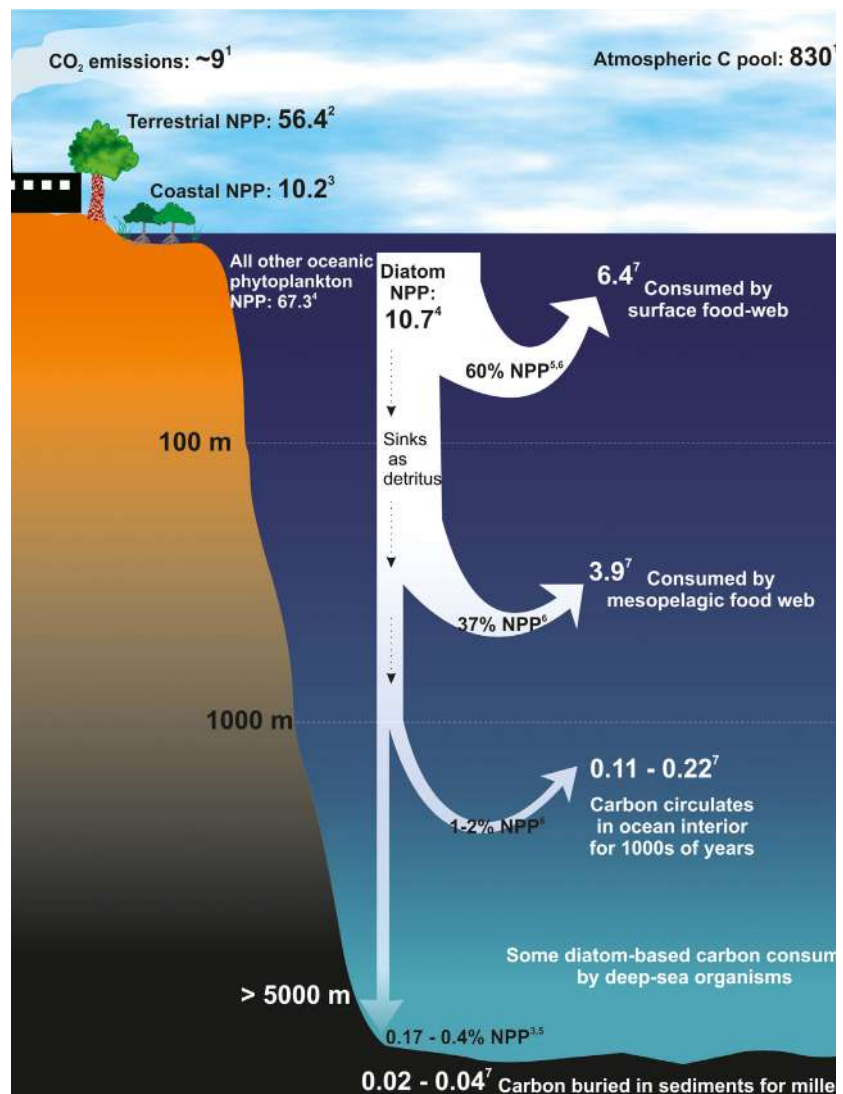
The open ocean represents the largest ecosystem on the planet and is home to a plethora of flora and fauna, a number of which are responsible for the primary productivity that ultimately drives life on the planet. It is therefore not surprising that a number of different systems in the oceans have the potential to act as a global carbon store, capable of negating a large proportion of anthropogenic carbon emissions.

Carbon dioxide and the processes that sequester it are often seen as abstract entities and systems due to the fact that they are predominantly invisible. Data shows that on average the oceans take up  $2 \times 10^{15}$ g of carbon per year which is the equivalent of 1330 million family cars worth of carbon a year. Given that annual emissions are approximately  $9 \times 10^{15}$ g of carbon per year from fossil

fuels burning, cement production and land-use change, the open ocean represents a vastly unaddressed and under-appreciated resource.

Fish make up almost half of all living vertebrates on the planet and are represented by over 27,000 species. Dubbed 'mobile carbon units', they also make a significant

contribution to the production of oceanic carbonate through the creation of high magnesium calcite crystals in their guts. The dissolution of these crystals restores surface alkalinity and allows for the drawdown of more  $\text{CO}_2$  and the reduction of atmospheric concentrations. The figure on Page 17 shows the possible fates of the



fish-produced carbonates. The initial calcification process acts as a sink for carbon as it can simply be removed by sedimentation, yet there is still a net production of CO<sub>2</sub>. In the shallow setting however, the calcite is much more likely to dissolve which rebalances the alkalinity and pH of the surface waters. Moreover, it has been suggested that this effect would only intensify with warmer oceans, helping to combat the current effects of climate change. Therefore, a large-scale effort must be undertaken to rebuild fish stocks as a vast majority of them are already depleted. A floral example can be found in the form of floating seaweed or *Sargassum*. Found in the Sargasso Sea and the Gulf of Mexico, *Sargassum* constitutes the world's largest biomass of marine seaweed and has the potential to have a major effect on carbon sequestration through primary productivity. In terms of mitigation, cultivating a larger area of seaweed in the open ocean or growing microalgae on land as biofuels are both feasible management strategies for maximising the ocean's sink potential. For example, in order to limit global temperature rise to 2 degrees centigrade, approximately 3.2 x 10<sup>15</sup> g of carbon must be removed from the atmosphere, and 10% of this goal could be met by cultivating seaweed in 4% of the oceans exclusive economic zone (EEZ) for

the next 100 years. Both the previous ecosystems operate at fairly shallow depths due to their dependence on light. Yet benthic prokaryotes (i.e. Microbes belonging to two domains of life: Bacteria and Archaea) and viruses can exist in the entire water column making them extremely abundant. The deep sea communities play an integral part in the decomposition process and also, like the Antarctic Krill, the biogeochemical cycling of carbon, nitrogen and phosphorus. Although not directly linked to carbon sequestration, these microbes are intrinsically linked to the ocean's feedbacks to climate change.

Other possible ecosystems capable of mitigating emissions include:

- Open ocean algal ecosystems such as diatoms which are responsible for transporting 0.15 x 10<sup>15</sup> g of carbon per year, which accounts for ~1.7 % of annual CO<sub>2</sub> emissions from fossil fuels and 6.5% of the annual sequestration of CO<sub>2</sub> by the ocean
- Deep-sea chemosynthetic carbon producers which fix carbon at a rate of approximately 4 x 10<sup>13</sup> g per year
- Open ocean calcifiers including Pteropods, Foraminifera and

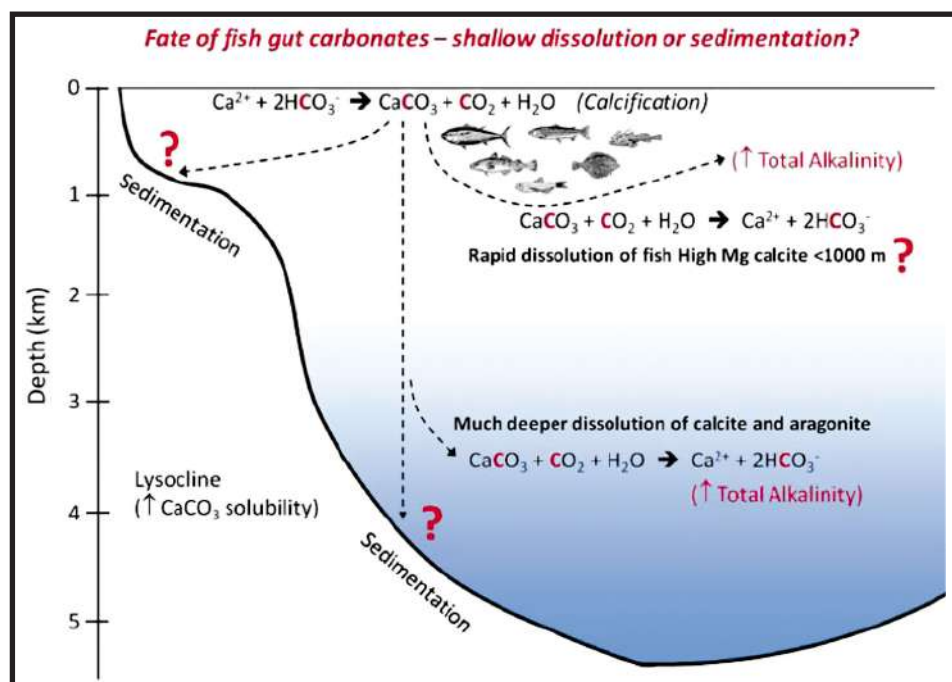
coccolithophores

- Antarctic Krill, which can sequester 2.3 x 10<sup>13</sup> g of carbon annually, offset ~0.26% of annual global CO<sub>2</sub> emissions from fossil fuel combustion

Based on this research, IUCN has made a number of recommendations regarding open ocean carbon sequestration including urgent action to address ocean carbon and protect the systems that regulate planetary processes, which are illustrated by all the examples; Addressing ocean carbon issues through international climate policy routes to develop new processes and strengthen relevant existing measures and aiding sectoral ocean management bodies to recognize and investigate ocean carbon budgets and undertake full environmental assessments of their activities.

It is clear from the examples given that there needs to be a shift in focus when it comes to carbon sinks and with the oceans already changing dynamically due to climate change, the time to act is now.

For more information, contact Dan Laffoley (danlaffoley@btinternet.com).



Figures taken from The Significance and Management of Natural Carbon Stores in the Open Ocean report (Figure left : Fate of diatom production in the ocean. Values represent mass of carbon. NPP = net primary production. Each component of the food-web will liberate CO<sub>2</sub> via respiration and produce faecal matter that sinks to the deep ocean. Figure right : A schematic diagram of the potential fates of high Mg calcites produced by marine teleost fish.

# Ocean Acidification

## International Solutions for a Global Problem

**O**cean acidification is an issue affecting locations across the globe and therefore requires input and solutions at the international level through cooperation and environmental law. Existing international treaties, however, appear ill-equipped to address the ecological threat of ocean acidification, which affects the global ocean, its ecosystems, and those who depend on them.

Ocean acidification is starting to become understood as one of the most serious human-caused threats to endanger our ocean; a threat that, like climate change, is a result of ongoing burning of fossil fuels and emissions from land-use changes. With both the atmospheric and therefore the oceanic concentrations of CO<sub>2</sub> rising at an alarming rate, the oceans chemistry is changing to a less habitable acidic environment. To date, there has not been a definitive mandate in any international treaty with regards to ocean acidification, yet several institutions have recently begun addressing the problem. Ocean acidification has been primarily included in general calls for concern, and considered through the scientific arms of various conventions and frameworks.

The forum best-suited for addressing the root source of the

problem of ocean acidification, namely CO<sub>2</sub>, is the UNFCCC, with implications and a strong linkage with UNCLOS. Adaptation measures in contrast can be formulated, and implemented, through the suite of existing ocean, conservation and resource management regimes. However they should not stand in isolation to the adaptation efforts discussed and implemented via the UNFCCC.

There are five major areas in terms of policy development that need to be addressed namely:

- 1) Implementation
- 2) Collaboration
- 3) Mitigation
- 4) Adaptation
- 5) Risk Assessment and Information Sharing

These areas represent integral steps required to limit the impact of ocean acidification across a plethora of marine ecosystems and help strengthen them to withstand similar potential problems in the future.

Based on this, IUCN has made a number of recommendations including:

- Revising and strengthening mitigation policies and mechanisms connected to climate change to focus on dealing with ocean acidification. Moreover, additional indicators must be set up to actively measure ocean acidity.

- Increase international planning and financing for adaptation with increased capacity building in vulnerable countries to measure ocean acidification, its local impacts and explore ways and means for local adaptation.
- Create national inter-agency working groups on ocean acidification, involving relevant officials and experts from the climate change field (mitigation and adaptation) as well as from agencies/organisations working on coastal and ocean management, including fisheries and aquaculture, conservation/protection (MPAs), and related fields such as tourism and finance.
- Establish a new cross-regime cooperation mechanism dedicated to ocean acidification. Whilst not proposing a new legal agreement for ocean acidification, a forum with representatives from relevant sectoral, conservation, marine and climate change regimes should be created and report annually on relevant efforts. A common global mandate expressed by a UNGA resolution to prompt progress would be useful.

For more information, contact Dan Laffoley (danlaffoley@btinternet.com)

# AQUACULTURE

## Sustainable Development Through Sustainable Fish Feeds

**A**quaculture plays a major part in global production of marine protein, a part that is set to grow considerably to keep up with global demands, yet the industry is constantly faced with environmental, social and technical issues. Development of the industry requires addressing its future relationship with marine biodiversity, ecosystem services and climate change scenarios.



Giant Clam ©  
CGL

This assessment will be the responsibility of the newly formed Ecosystem-based Aquaculture Group (E-bAG), an IUCN experts group with global expertise on aquaculture management and development, including biodiversity, ecosystem processes and precautionary approaches. The E-bAG is being established to address the need for aquaculture competence within the IUCN

**Commission on Ecosystem Management, contributing to the leading paradigm in conservation and management issues of aquatic environments.**

One of the group's first major projects is the creation of a "Guide for aquaculture sustainable development through sustainable feed". The guide will outline and make an argument for different possibilities of natural resources (sourcing) for the production of sustainable feed for aquaculture fish. Potential feeds include:

- Fisheries products (e.g. anchoveta)
- Fisheries by-products (by-catch/discard, processing waste)
- Aquaculture products (invertebrates, micro-alga, macro-alga)
- Agriculture products (e.g. soya)
- Husbandry products (insects)
- Aquaculture by-products (processing waste)
- By-products of terrestrial husbandry (blood proteins, feathers, bones, skins, etc; pork, bovine, poultry)

All of these natural resources will be studied and critically assessed in terms of their: nutritional value,

availability, impact of exploitation and production on biodiversity and ecosystems, technical & industrial development feasibility, health security & risks and social acceptability. These criterion will allow the group to make an informed set of recommendations from the view of sustainable development which will form the basis of the guide. The recipients of this guide will be the decision-makers at every level of aquaculture development, as well as all aquaculture professionals and interested or concerned members of the scientific community.

Along with this project, the group will have a number of other tasks and activities including among other things: Reviewing the status of ecosystems of aquaculture sites and reviewing aquaculture trends, identifying and considering ecosystem issues in aquaculture management, promoting better practices and sustainable approaches in ecosystem-based aquaculture management and strengthening communication, facilitating information sharing, and supporting and disseminating good aquaculture practices among the aquaculture community.

For more information, contact François Simard (francois.simard@iucn.org)

# Blue Solutions

## Sharing and Replicating Success in Marine Resource Management

**A**n essential objective of Blue Solutions is to communicate, educate and raise awareness of the significance of marine and coastal biodiversity for sustainable development and human well-being. Furthermore, the aim is to foster the application of methods and tools that help realize “blue solutions” to the development challenges faced worldwide. IUCN is one of the project partners.

The Blue Solutions initiative, led by GIZ, aims to provide a platform for sharing success in marine conservation and development, support the replication of proven “solutions”, and generate public, private sector and political support in the effort to reach the marine and coastal Aichi targets.

The project has a number of areas of focus in order to encourage a comprehensive and integrated approach to the implementation of the Aichi Targets which include:

- Integrated Coastal Zone Management and Marine Spatial Planning
- Marine and Coastal Protected Areas
- Integration of Ecosystem Services into Development Planning
- Ecosystem-based Adaptation and Mitigation
- Sustainable Financing

In June 2014, Blue Solutions hosted the Regional Forum on Solutions for Oceans, Coasts and Human Well-Being in Asia and the Pacific, on Mactan Island, Cebu, Philippines. It brought together over 100 people from a variety of backgrounds, from members from

local communities to government representatives and decision-makers, with the main goal of exploring novel ways of facilitating knowledge transfer and exchange of experiences (“blue solutions”) in marine conservation and development. Many participants used the opportunity to document their own “blue solutions” and their replicable elements, or “building blocks”, adding them to the increasingly larger pool of success stories. “The “solutioning approach” provides clear and simple guidance on documenting and learning from success stories using the building block concept.” says Marthen Welly of the Coral Triangle Center, Indonesia.

The Cebu Forum has given the Blue Solutions team a strong endorsement on the way ahead, and has helped strengthen regional knowledge networks, but also led to some very specific collaborations. Further regional fora will be held, with a Latin America and Caribbean Solutions Forum scheduled for early 2015.

Another pillar of Blue Solutions activities is centered around capacity building. Based on recent work on protected area governance, IUCN is co-organizing an MPA governance training workshop for

MPA managers and planners in Indonesia in September this year. The training will use “solutions” both from the region and beyond. Such a case study-based learning approach, adapted to the local context and needs, will be trialled in support of Indonesia’s commitment to establish 20 million hectares of MPAs by 2020.

Experiences from the training will be taken to the IUCN World Parks Congress in November. At the Ocean+ Pavilion, WPC participants will have the chance to learn about selected blue solutions from all around the world, discuss them, and engage in “solutioning” themselves.

An interactive online platform will be launched just before the WPC. Blue solutions will become available in a searchable database format, and “solution-providers” and “seekers” will be given the opportunity to directly connect with and learn from each other.

For more information, visit the [Blue Solutions website](#), [IUCN’s Blue Solutions web page](#) or contact Marie Fischborn (Marie.FISCHBORN@iucn.org) or Dorothee Herr (Dorothee.HERR@iucn.org)





# IUCN WORLD PARKS CONGRESS SYDNEY 2014

**O**ccurring only once a decade, the IUCN World Parks Congress is a landmark global forum on issues surrounding protected areas. The Congress will share knowledge and innovation, setting the agenda for protected areas conservation for the decade to come. It will bring together around 5,000 people from over 160 countries, to reflect on proven approaches for protected area governance and management, to inspire people from all sectors to build a much deeper connection to nature, and to shape and guide the implementation of innovative solutions for people and protected areas for the next decade and beyond.

To achieve real impact, the Congress aims to bring together not only leaders in the parks and protected areas field, but also business, government and influential individuals that depend on or impact protected areas.

The event itself is set to have a strong marine presence with a devoted marine crosscutting stream with 225 ocean-based events. Moreover, there will be a real drive to develop programmes based primarily on marine ecosystems which, to date, have been greatly overshadowed by attempts to manage, protect and sustainably use terrestrial ecosystems. In a time when marine ecosystems are already being affected by ocean warming & acidification and lowering oxygen levels along with the ever-present impacts of overfishing and pollution, the Congress will strive to create innovative and dynamic solutions based on protected areas that will continue to be implemented for the coming decades.

## MARINE PROGRAMME OCEAN+ PAVILION

Alongside the marine events in the eight streams, the Global Marine and Polar Programme and partners will present their activities through the Ocean+ Pavilion. The key aim is to foster marine conservation through better Marine Protected Areas by:

- Striving to reach the 10% MPA coverage target in 2020, including in the High Seas
- Managing MPAs effectively
- Approaching MPAs at ocean scales
- Living with MPAs
- Sustaining MPAs

The Ocean+ Pavilion's short and dynamic sessions will:

- Present the Ocean+ Agenda 2020 and map how to reach the Aichi Target

- Look at MPAs with a broader perspective
- Present technological innovations for MPA management
- Offer a Pacific and Australian focus

The pavilion will serve as a platform for launching new projects; presenting new key publications; introducing innovative technologies in relation to marine biodiversity conservation; and exchanging views, methods and tools for improving MPA management and Marine Spatial Planning.

For details, download the Marine Journey from the IUCN Marine website at [www.iucn.org/marine](http://www.iucn.org/marine)



## PUTTING IT IN PRINT Celebrating the IMPAC 3 Special Issue of the Wiley Journal Aquatic Conservation – Marine and Freshwater Ecosystems

Countries have signed up to demanding targets for the coverage and quality of MPAs. One of the challenges around meeting those targets, over and above putting MPAs in place and delivering their effective management, is ensuring all parts of the community are armed with the latest scientific information to help do so. This is an all too often forgotten part of the process, leading to critical MPA design, designation, management, surveillance and enforcement information and experience often residing in grey literature, or worse still not written up and shared at all. More critical still is the need to facilitate the rapid publica-

tion of such information in peer reviewed publications. Every year the global MPA community meets, and after big conferences where important information is presented and shared everyone returns to email-laden desks and then are immediately subsumed back into the demands of dealing with day-to-day issues.

In an attempt to plot a different course and accelerate publication of MPA science, WCPA-Marine teamed up with the Wiley journal Aquatic Conservation: Marine and Freshwater Ecosystems to develop the concept of Special Issues of the journey linking global MPA conferences together. This

is in line with the core objective of the journal which is to provide a forum in which all aspects of conservation can be presented and discussed, enabling greater cooperation and efficiency in solving problems in aquatic resource conservation. It is a focus for scientists in research institutes, universities, industry, nature conservation organisations and government, as well as managers and policy-makers.

The notion being that if we can support the community to get their results peer-reviewed and into print quickly in a special issue, then the next time the community meets, a raft of new scientific literature on MPAs would be available to participants and a far wider global audience reached. This is exactly what we have done – taking teams of experts who spoke at IMPAC 3 in Marseille in 2013 and working with them to produce

## Ocean events at WPC by numbers

**225** marine and marine-related stream events

**136** marine-focused events

**54** pavillion events

**23** side events

**5** Hangouts

**4** lunchtime debates

### Lunchtime debates in the Amphitheatre

- What's happening in the Great Barrier Reef? (Thursday, 13 November, 12:15-1:15pm)
- Lessons Learned from Australia's MPA Experience (Saturday, 15 November, 12:15-1:15pm)
- Land/Sea Connections: Building a coalition for protection from ridges to reefs (Monday, 17 November, 12:15-1:15pm)
- Location, Location, Location: Are we putting MPAs in the right places? (Tuesday, 18 November, 12:15-1:15pm)

## Not able to come to WPC? Join in via one of our official WPCA – Marine Google hangouts!

Conscious of the fact that it might not be possible for everyone to get to the Parks Congress, we are laying on 5 hangouts for a large online audience to join in. Planned so as to be broadcast at a range of times during the congress, as well as available via YouTube, we hope that these may give online participants a feel for the flavour of the debates and excitement from this event:

- The Live Sydney Seahorse Hunt, November 14th, 9:30 am - 10:25 am Sydney time
- Championing the High Seas, November 15th, 10:30 am - 11:15 am Sydney time
- Locally-managed marine areas: Building blocks for resilient and empowered coastal communities, November 17th, 10:30 am - 11:15 am Sydney time
- 'Going Big' with Marine Protection – Leveraging the unique benefits of large-scale MPAs to enhance ocean management and governance globally, November 17th, 17:00 - 17:50 Sydney time
- The Great Barrier Reef: what works! November 18th, 20:40 -21:30 Sydney time

To find out more and join in, search the hangout titles online through Google

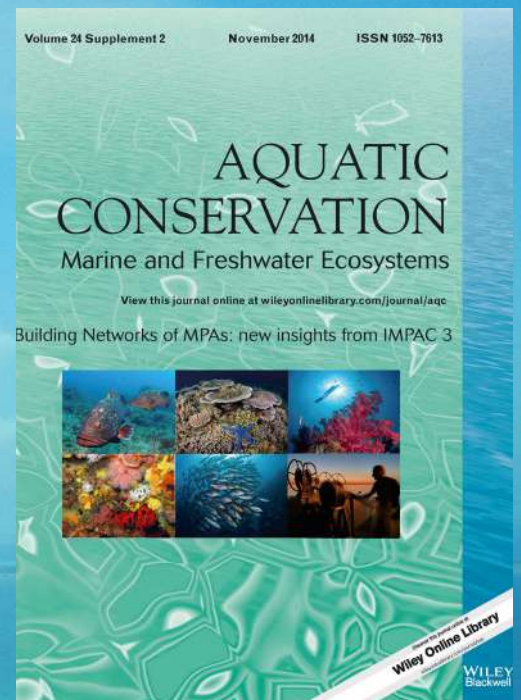


# IUCN WORLD PARKS CONGRESS SYDNEY 2014

a 200+ page Special Issue of the journal for launch at the World Parks Congress. So come along to the Ocean Pavilion on Thursday 13th November at 7pm to find out more!

Supported by IUCN, WCPA-Marine, Parks Canada and UNEP, included in this first Special Issue are a number of papers that explore the various challenges of achieving the Aichi Target 11 of conserving at least 10% of coastal and marine areas by 2020. Other papers discuss what an ecologically coherent network of MPAs might look like and the way in which MPAs can help provide protection for large mobile species and migratory species. Other aspects that are covered include innovative survey methods, options for developing better communication strategies, and perhaps most important of all sharing of practical

experience of managing MPAs. So successful has the idea been that we are making this a regular occurrence. For the MPA practitioner this removes the challenge of where to publish and for the community it vastly accelerates the quantity and quality of material we get into print in one year. We are already planning the Special Issue for the World Parks Congress, which this time will be sponsored by the French MPA Agency and NOAA with ongoing support from IUCN and its World Commission on Protected Areas. Fancy getting your Parks Congress MPA presentation into peer-reviewed print? – then please contact Dan Laffoley ([danlaffoley@btinternet.com](mailto:danlaffoley@btinternet.com)) and the editor of Aquatic Conservation, John Baxter ([j.baxter4@btinternet.com](mailto:j.baxter4@btinternet.com)), who are both attending the Congress.



## Ocean climax to PlanetFest !

PlanetFest is taking place on the middle Sunday during the Congress – 16th November from 10.30 to 20.30. It is an interactive, inspiring and fun-filled event designed to engage and promote the conservation of parks and protected areas to the community. The climax of the day will be the showing of the MacGillivray Freeman film **Journey to the South Pacific** narrated by Cate Blanchett. The film documents an underwater voyage to Indonesia to learn about its inhabitants, such as giant rays and whale sharks, as well as ocean conservation efforts being made in the region. The film will follow a fun-packed entertaining day including a live concert performance showcasing some of the finest Australian talent.

For movie visuals, see <http://journeytosouthpacific.imax.com/downloads/>

## MISSION BLUE Sydney Exclusive !

World-renowned oceanographer Sylvia Earle will present her ground-breaking documentary **Mission Blue** at an exclusive Sydney viewing during the World Parks Congress. Exploring the most important issues facing the world's marine habitats Earle – the globally renowned 'Voice of the Ocean' – highlights the wonders and challenges in the Gulf of Mexico, the Galapagos Islands, Australia's Coral Sea, and beyond.

With urgent issues threatening oceans, including pollution, climate change and over-fishing, **Mission Blue** presents a world changing solution, and the need to act now. Appearing live at the event, Earle's **Mission Blue** is particularly pertinent in Australia where the world's largest network of marine parks and sanctuaries is facing an uncertain future.



Saturday 15 November, 8pm (doors open 7.30pm) at the University of Sydney, New Law School Lecture Theatre (detailed venue map available). Seats are limited – book now at [www.missionbluefilm.eventbrite.com.au](http://www.missionbluefilm.eventbrite.com.au). WPC delegates should allow up to an hour to get to this venue.



**A** unique collaboration between the oil & gas industry, scientists and conservationists has proven a way to minimize seismic survey impacts on rare whales and other species. A step-by-step guide to reducing impacts on whales and other marine species during seismic sea floor surveys has been developed by experts with IUCN's Western Gray Whale Advisory Panel (WGWAP) and Sakhalin Energy Investment Company Ltd.

In the study, published in the journal *Aquatic Mammals*, the authors present the most thorough, robust and practical approach to minimizing and monitoring the risk of harm to vulnerable marine species when intense sounds are used to survey the sea floor primarily in the search for oil and gas. "This is a valuable tool for oil and gas companies, regulators and others on all aspects of developing and implementing successful

environmental monitoring and mitigation programmes that are precautionary, responsible and effective," says lead author Dr Doug Nowacek, WGWAP Member from Duke University.

In seismic surveys, air guns towed behind ships repeat powerful bursts of sound. Sensors measure the return echo to reveal details of the sea floor and underlying geologic structure to a depth of several kilometres. Sound is a powerful tool for imaging and investigating the sea floor that is deployed mostly by the energy industry to pinpoint the location of oil or gas. Such surveys are also used for mapping the continental shelf and for finding the best sites for new offshore wind energy projects.

Whales rely on sound for communication, navigation and foraging. Exposure to loud noise from seismic surveys can result in stress and behaviour changes, affect for-

aging and nursing, or cause direct physical damage.

The study describes the most comprehensive whale protection programme ever developed for a seismic survey, used by Sakhalin Energy Investment Company Ltd – an oil and gas company with Gazprom, Shell, Mitsui and Mitsubishi as shareholders – in a survey close to the main Western Gray Whale feeding area near Sakhalin Island, on the Russian coast, just north of Japan.

"The survey was completed on schedule and all monitoring and mitigation components were successfully implemented. The company obtained the necessary data, while, at the same time, minimising the risk of disturbance to whales. The approach was so successful that the results of ongoing analysis have not revealed significant direct impact on the whales," says Mr Carl Gustaf Lundin, Director of Global Marine and Polar

# Keeping Whales Safe In Sound

Programme at IUCN, which convenes GWAP.

The feeding areas near Sakhalin – a region with huge offshore oil and gas deposits – are vital for the survival of Western Gray Whales, listed as Critically Endangered on the IUCN Red List of Threatened Species™. They fast during the breeding season and most of their long migration from feeding to breeding and calving areas. Obtaining enough food, body mass and energy is crucial for their travels, which can cover tens of thousands of kilometres and are known as one of the longest migrations by any mammal.

Based on the experience in developing and conducting Sakhalin Energy's survey and associated mitigation and monitoring programme, the authors propose a broader approach that can be adapted to seismic surveys in any environmentally-sensitive area. Each such survey, however,

must take into account their specific circumstances – for example, local species, environmental features, the history and nature of other operations in the area. "Key to minimizing impacts during seismic surveys is advance knowledge of marine life distribution and migrations and timing a survey accordingly," says co-author Dr Greg Donovan, Chairman of the GWAP Seismic Survey and Noise Task Forces and Head of Science at the International Whaling Commission. "In the Sakhalin case that means conducting the survey as early as possible in spring when the ice has melted but most of the whales have not yet arrived."

Recommendations in the study include the need to:

1. Obtain baseline ecological data
2. Conduct detailed advance planning, communication and critical review of survey design and mitigation approaches

3. Restrict the survey area and limit estimated noise levels to minimize a survey's "acoustic footprint"

4. Employ real-time visual and acoustic monitoring of noise levels, whale locations and behaviour, before, during and after the survey

5. Halt a survey if animals are too close or show strong reactions to the seismic activity

6. Conduct systematic analyses of results to inform future planning and mitigation.

For more information, please contact Anete Berzina (anete.berzina@iucn.org), consult the abstract (<http://goo.gl/ZPifvJ>) or consult the website [www.iucn.org/wgwap](http://www.iucn.org/wgwap)



# High Seas

## Sustaining Marine Diversity beyond National Boundaries

**E**nsuring that marine biodiversity is conserved and used sustainably in areas beyond national jurisdiction (ABNJ) is a challenging but essential task. The high seas and international seabed Area represent nearly half of the Earth's surface and are vital to sustaining life as we know it.

Unlike ocean areas within national boundaries, the high seas are open to all but the direct responsibility of none. High seas activities are escalating. Due to outmoded laws and institutions, there are insufficient safeguards for sustaining marine biodiversity and ecosystems that are increasingly weakened by climate change, ocean acidification and decades of overfishing, pollution and neglect. The potentially vast impacts of deep seabed mining could further stress high seas ecosystems.

The good news is that there is growing convergence among States that the status quo is no longer acceptable. At Rio+20 in 2012, world leaders agreed on the need for urgent action and committed to decide, by September 2015, whether to go forward with a new international instrument under the United Nations Convention on the Law of the Sea (UNCLOS) on marine biodiversity in ABNJ. Two UN meetings in 2014 demonstrated widespread support for a new Implementing Agreement

under UNCLOS for this purpose and detailed its potential scope, parameters and feasibility. IUCN supports such an agreement as the best means of reaffirming and elaborating the responsibilities of States and citizens for sustaining the health, productivity and resilience of the global ocean.

UNCLOS provides a powerful yet insufficient legal framework. It commits countries to protect and preserve the marine environment, and to conserve and equitably use marine resources. But the rules in UNCLOS were based on boundary issues and pollution concerns of the 1970s. Lacking for the high seas are requirements to apply precaution and ecosystem-based management, to adopt MPA networks and to conduct comprehensive environmental impact assessments (EIAs). UNCLOS further lacks mechanisms to ensure that living resources in ABNJ, including marine genetic resources, are managed sustainably and equitably for the benefit of all.

For over a decade, IUCN GMPP has been involved in efforts to improve the conservation and sustainable use of marine biodiversity beyond national jurisdiction through existing international agreements and bodies. We have worked to rein in destructive fishing practices such as high seas bottom trawling; to advance the scientific basis for describing ecologically and biologically significant

marine areas; and to galvanize efforts to protect high seas "Hope Spots" such as the Sargasso Sea and the Costa Rica Dome. Important progress has been made, such as UN calls for controls on destructive high seas bottom fishing, CBD regional expert workshops to describe ecologically significant areas and the designation of seven high seas MPAs in the North East Atlantic and one in the Southern Ocean. Nevertheless, gaps and weaknesses in high seas governance are hampering progress.

IUCN has also been investigating legal and policy options for addressing these gaps and weaknesses. Most recently IUCN has conducted research, facilitated workshops and provided policy briefs to support UN discussions on the scope, parameters and feasibility of a new UNCLOS implementing agreement. Through the High Seas Alliance and in tandem with the Global Ocean Commission and the Ocean Elders, IUCN is further supporting efforts to raise public and political awareness of the need for urgent action through a new UNCLOS Implementing Agreement as well as through direct efforts on the water.

For more information, contact [Kristina M. Gjerde](mailto:kristina.gjerde@eip.com.pl), Senior High Seas Advisor, Global Marine and Polar Programme, IUCN, [kristina.gjerde@eip.com.pl](mailto:kristina.gjerde@eip.com.pl)

# Deep Sea Mining

## An emerging threat to deep sea ecosystems and global marine biodiversity

**In a few decades, deep sea mining has moved from a futuristic projection of mineral exploitation to a new reality facing the marine environment. Mining companies and nations have leases in national and international seabed areas to explore hydrothermal vents for deposits of massive polymetallic sulphides, seamounts for cobalt crusts, and the abyssal plain in the Pacific Ocean for manganese nodules (Mengerink et al., 2014, 334 SCIENCE 696-698).**

Though actual mining has not yet started, it is expected to begin in only a handful of years. Equipment is already under construction for mining of hydrothermal vents off Papua New Guinea, and rules for mining of manganese nodules in the international seabed area are now under development.

Under the UN Convention on the Law of the Sea (UNCLOS), the international seabed “Area” and its mineral resources are the “common heritage of mankind”. Mining-related activities in the Area are to be managed for the benefit of mankind, subject to rules for sharing benefits, fostering marine scientific research and protecting the marine environment. These rules

are binding on all State Parties to UNCLOS and their nationals seeking access to mineral resources in the Area. As set forth in UNCLOS, rules for mining seabed mineral resources within national jurisdiction are to be “no less effective” than international rules and standards.

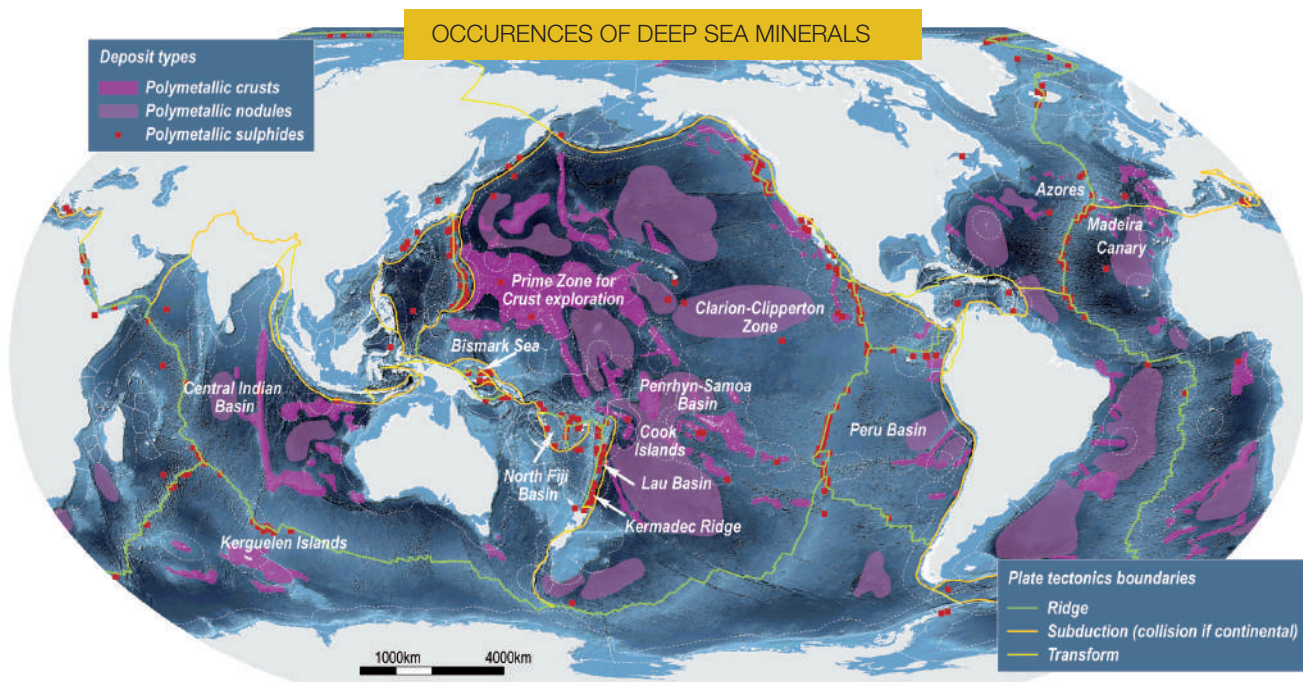
The challenge is how to translate these international rules into an effective regulatory system that balances any future mining with the need to maintain a healthy and productive marine environment. It should also sustain essential ecosystem services, and improve knowledge and collaboration of the deep ocean in the face of the vast knowledge gaps. Less than 5% of the deep ocean has been explored and much less has been studied. In addition to mineral resources, the deep ocean supports biodiversity that rivals tropical rainforests and provides many important ecosystem services.

In July 2014, IUCN attended the 20th anniversary celebration of the founding of the International Seabed Authority (ISA) under UNCLOS. At this session, seven new applications for exploration were approved, raising the total number of contracts for exploration from 19 to 26.

IUCN and other organisations are calling for the development of Environmental Management Plans for regions where exploration activities are taking place and for further development of the ISA environmental database. IUCN is also joining efforts with others to promote increasing transparency and coordination of all activities in the deep sea mining sector. Earlier this year, IUCN participated in an ISA stakeholder survey for the development of a regulatory framework for mineral exploitation in the Area.

In addition to the ISA, IUCN is actively participating in a range of deep sea projects. For example, IUCN had a leading role in the founding of the Deep Ocean Stewardship Initiative. This multidisciplinary partnership seeks to provide advice on deep ocean management. IUCN also supports the EU-funded MIDAS project (on Managing Impacts of Deep-sea Resource exploitation), and is advancing deep ocean exploration and management in a project on seamounts and hydrothermal vents of the South West Indian Ocean (FFEM-SWIO Project, see page 28 of this issue).

For more information, please contact [kristina.gjerde@eip.com.pl](mailto:kristina.gjerde@eip.com.pl) or [aurelie.spadone@iucn.org](mailto:aurelie.spadone@iucn.org)



# Hotspots of Biodiversity Beyond National Boundaries

## Further steps towards conservation & sustainable use in the South West Indian Ocean

**I**n February 2014, IUCN GMPP started a new marine conservation project in areas beyond national jurisdiction (ABNJ). The project focuses on two specific ecosystems - seamounts and hydrothermal vents - located in ABNJ of the South West Indian Ocean. These ecosystems are facing two major threats: (i) overfishing and potential destruction of habitats through deep sea bottom trawling; and (ii) the emerging threat of deep sea mining (for cobalt-rich ferromanganese crusts and polymetallic sulphides).

This three-year project, funded by the French Global Environment Facility (FFEM), is aiming at improving the governance framework for these areas in order to conserve their marine biodiversity and sustainably exploit their living and non-living resources, acknowledging the fact that the lack of scientific knowledge is one of the main barriers to conservation of biodiversity in ABNJ.

The project is being executed by several partners - the National Museum of Natural History (France), the Institute of Research for Development (IRD, France), Institute for Sustainable Development and International Relations (IDDRI) and Oxford University - in collaboration with several institutions, ongoing projects or programmes <sup>(1)</sup>. The project is supported by the French Ministry of Foreign Affairs and the French Ministry of Higher Education and Research.

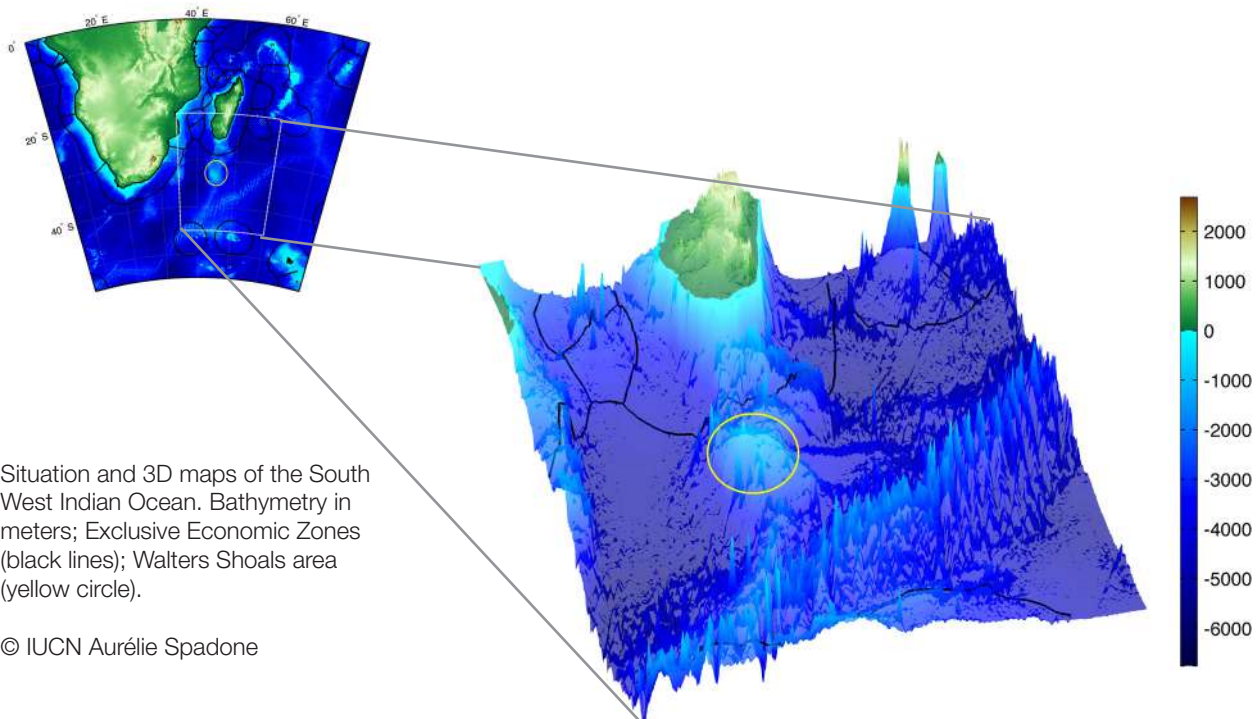
The scientific results of the project will be combined with those of two previous NERC/IUCN expeditions to seamounts of the South West Indian Ridge from a former IUCN-led Seamounts project (financed by GEF and supported by UNDP [2009-2013]). Combining the results of the three expeditions will generate new scientific data and greatly improve our understanding of these ecosystems, their connectivity and their importance for global marine biodiversity. The hope is that this will contribute to raising political will and momentum among decision makers.

Another project component will explore regional approaches to the conservation of marine biodiversity in ABNJ. The study of lessons learned and best practices will be used to propose potential models and scenarios for the South West Indian Ocean.

In the face of increasing human pressures in remote areas of the ocean, it is clear we need to cooperate at multiple scales and apply multiple tools to achieve the conservation and sustainable use of these fragile, slow-growing ecosystems and protect and preserve their rare and unique biodiversity before it is too late.

For more information, please contact Aurélie Spadone (aurelie.spadone@iucn.org).

<sup>(1)</sup> Notably the Department of Environmental Affairs and the Department of Agriculture, Forestry and Fisheries of South Africa, the Deep Sea Project of the FAO ABNJ Program and its partners, The Nairobi Convention, The Southern Indian Ocean Deepsea Fishers Association, universities in South Africa and Reunion Island, IFREMER, the International Seabed Authority, SAPHIRE and AfriCOG.



Situation and 3D maps of the South West Indian Ocean. Bathymetry in meters; Exclusive Economic Zones (black lines); Walters Shoals area (yellow circle).

# POLES

## Preserving and Protecting Polar Regions

**P**olar environments are home to a rich diversity of wildlife, both on land and within the seas.

Indeed, the Arctic and Antarctic are a common heritage of mankind; both can provide us insights into fundamental earth, geological and biological processes, which are of crucial importance for the Earth's climate and for biological, evolutionary and physiological adaptation.

The most significant and visible impacts of climate change to date are found in Polar Regions, which is why the scientific community considers these areas as a barometer of global climate change.

The Polar Regions are very different in terms of physical nature and political organization; however both are facing multiple common threats.

To meet these challenges, IUCN is working with a broad range of stakeholders across the Arctic and Antarctic to harmonize and enhance long-term environmental sustainability and biodiversity protection, through concrete actions. These include:

- supporting a strong Polar Shipping Code under development by the International Maritime Organization
- identifying shipping measures in the Bering Strait to minimize the risks of ship groundings, oil spills, noise and disturbance
- supporting the development of a network of protected areas through the identification and further designation of Ecologically and Biologically Significant Areas (EBSAs), marine World Heritage sites, Marine Protected Areas (MPAs), Special Areas (SA) or Particularly Sensitive Sea Areas (PSSAs) in the Arctic and Antarctic.

The IUCN Polar Programme works with the Arctic Council, the Protection of the Arctic Marine Environment (PAME) and Conservation of Arctic Flora and Fauna (CAFF) working groups, on topics such as high seas shipping, Arctic tourism, ocean acidification, and scenario development for future decision making.

The US recently embraced the creation of an Arctic-wide network of marine protected areas (MPAs) as one of its top initiatives for its Arctic Council. This action represents an extremely important step forward on Arctic conservation.

This year the IUCN Polar Programme participated in the Convention on Biological Diversity (CBD) workshop that identified 11 areas in the Arctic Region that meet the EBSA criteria. The IUCN Polar Programme will work to support governments as they aim to adopt and implement conservation and management measures on the basis of this initiative. In addition, IUCN is taking steps to identify potential marine World Heritage sites in the Arctic based in part on the collection of EBSA data. The pan-Arctic initiatives are critical for a cohesive international strategy for Arctic protection.

GMPP is also working to enhance awareness concerning an underestimated environmental risk posed by improper waste management in remote and fragile areas, such as Antarctica. Research activities produce waste and remarkable concentrations of chemical contaminants are found in the abandoned work and disposal sites.

Currently, there is no comprehensive inventory of contamination in Antarctica, it has been estimated that the volume of abandoned, unconfined waste materials in Antarctica may be greater than 1 million m<sup>3</sup> and the volume of petroleum-contaminated sediment may be similar. An improvement in waste management processes and environmental responsible tourism is a critical step forward for the Antarctic treaty parties.

For further questions please contact Dr. Tatiana Saksina (Tatiana.Saksina@iucn.org) or Dr. Sara Zucchi (sara.zucchi@iucn.org).

# MACBIO: Managing Oceania's MPAs

## Ensuring socio-economic prosperity for island nations

**O**ceania is a region full of diversity, from the mountain tops to the vast marine environments of the open Pacific Ocean. And each island nation has its own unique ecosystems. The coastal and marine areas around Pacific Island Nations are of utmost importance to the local communities as they represent a major source of natural resources that sustain their livelihoods. This dependence comes at a very real cost to the

biodiversity of the region and also to the diminishing marine resources. MACBIO was set up to tackle this problem head-on with an ambitious project that will help assess the value of the resources and aid in ensuring their sustainable use.

The sustainable use of resources is a cause that the world is now fully behind and this is no different for Pacific Nations. Yet sustainable resource use is not sufficiently reflected in the national

planning processes due, in part, to a lack of information regarding the economic value of the local marine resources. Existing marine protected areas (MPAs) have often been developed to help sustain marine resource uses, however, opportunistic or poor design, inadequate compliance and inadequate spatial planning processes have sometimes meant that they do not successfully secure associated biodiversity and ecosystem services. The project's main aim is to help rectify this problem.

Bull shark © CGL



Enhanced ecosystem-based management and more effectively managed marine resources will secure and strengthen local livelihoods, along with leading to more resilient coastal and marine ecosystems and more effective conservation of marine biodiversity. MACBIO will be implemented by the German Agency for International Cooperation (GIZ) with technical support from IUCN Oceania and regional support from the Secretariat of

the Pacific Regional Environment Programme (SPREP). The project will undertake economic assessments of marine and coastal ecosystems in the five project countries (Fiji, Kiribati, Solomon Islands, Tonga and Vanuatu) also assist governments in using seascape-level planning including use of MPAs. It will also demonstrate effective approaches to site management, including payment for ecosystem services.

Oceania is now seeing a major effort to safeguard and manage its marine and coastal ecosystems that is setting an example to the rest of the world.

For more information, please contact Dr Leanne Fernandes, MACBIO Senior Project Advisor, ([leanne.fernandes@iucn.org](mailto:leanne.fernandes@iucn.org)) or consult the Oceania webpage.



# Sea Cucumber Management

## Finding alternative protein sources on Pacific Islands

**P**rotein is an essential part of any diet. For Pacific Island nations, it usually comes in the form of finfish or invertebrates. Yet in August, at the Pacific Bêche-de-mer and the Future of Coastal Fisheries Meeting in Nadi, Fiji, it was announced that overfishing, population growth, rapid urbanisation, habitat degradation and climate change are all leading to a 'perfect storm' for coastal fisheries in the Pacific Islands region. This means that many Pacific Island countries and territories will need to find alternative sources of protein for their population within the next two decades.

This message was delivered by Mr Moses Amos, Director of the Fisheries, Aquaculture and Marine Ecosystems (FAME) division at the Secretariat of the Pacific Community (SPC).

Finfish and marine invertebrates make up a large proportion of the total protein intake on the Pacific Islands. Yet population numbers of these groups are falling dramatically due to the factors listed earlier but primarily due to overexploitation in areas characterised by increasing human population. It is predicted that the region's annual demand for fish will increase by 115,000 tonnes by the year 2030.

Along with increasing population and urbanisation, climate change is having a major effect on coastal fisheries through the increasing frequency and severity of extreme weather events, rising sea temperatures, ocean acidification and changing sea level, all of which are making the fisheries more unpredictable and, more importantly, unreliable. However, it is not too late for intervention to try and prevent this situation becoming a reality. In his presentation, Mr Amos outlined a number of steps that can be taken to reduce the threat posed by overfishing. These include improving the capacity of national fishery administrations, raising awareness about sustainable management, researching how to reduce fishing effort, increasing community-based management, promoting integrated coastal zone management, developing alternatives such as aquaculture, and banning the commercial export of live fish.

"We must build on our current strengths, regionally and nationally, to empower communities to take responsibility in managing these resources. This is to avoid the situations where the resources are so depleted that communities are sacrificing tomorrow's food security to feed themselves today. SPC continues to provide science-based

information to assist countries and organisations to sustainably manage their coastal fisheries" said Mr Amos.

These issues were discussed at a meeting co-hosted by the Governments of Fiji, the Marshall Islands and Tonga, in August 2014. It was facilitated by a partnership between the Government of New Zealand, SPC, University of the South Pacific (USP), Pacific Islands Development Forum (PIDF), World Wide Fund for Nature (WWF), Wildlife Conservation Society (WCS), IUCN Oceania, and the Marine and Coastal Biodiversity Management in Pacific Island Countries (MACBIO) project.

For more information contact [leanne.fernandes@iucn.org](mailto:leanne.fernandes@iucn.org)





# FishMPABlue

## Blue Economy Potential and Fisheries governance in Mediterranean MPAs

**B**alancing the needs of fisheries and ecosystems is never easy. Fisheries support communities, provide jobs and feed families whilst MPAs protect and manage marine ecosystems and all of the flora and fauna found in them. Very often the principles of MPAs and fisheries conflict, leading to neither one performing at its highest potential. FishMPABlue is a new project, jointly developed by Federparchi, IUCN-Med, ECOMERS and WWF, which will investigate the relationships between artisanal fisheries in the region and Mediterranean MPAs to propose modern solutions to the problems between them. This project was approved in April 2014 by the MED Selection Committee with a European Regional Development Fund (ERDF).

FishMPABlue was created after Programme MED launched a call

for projects for implementation between June 2014 and May 2015 focusing on a maritime integrated-approach. The year-long plans represent a 'bridge' between the old and new European cross-border cooperation programmes, in line with the strategy to boost marine and maritime economic enterprises.

The project will focus on compiling existing information and developing a relevant state-of-the-art report based on the status of artisanal fisheries in 20 MPAs around the Mediterranean. Based on the results, the group will propose a number of recommendations for improvement of governance, which will be considered for relevant transnational actions in the future.

The specific role of IUCN-Med is to collect regional and international information as to identify different governance models that could be implemented that would help

artisanal fishermen sustainably manage the fish-based resources inside and around marine protected areas.

The blue economy potential comes in the form of biodiversity and sustainable management in the MPAs. By improving the processes by which the fish are caught and the populations as a whole are maintained, the fisheries can gain major socio-economic benefits whilst helping manage the MPAs and reinforce their purpose and goals.

Overall, the project is set to create a whole new framework under which the best strategies will be laid out to achieve harmony between fisheries and MPAs.

For more information, contact Alain Jeudy de Grissac ([alain.jeudy@iucn.org](mailto:alain.jeudy@iucn.org)) or visit the Centre for Mediterranean Cooperation (IUCN-Med) website.

# Cetaceans and Sea Turtles in the Alboran Sea

## New Fact Sheets to Raise Awareness of Unique Species

**T**he Alboran Sea is one of the most biodiverse areas of the Mediterranean Sea yet it is also one of the busiest shipping routes on the planet. Frequented by numerous species of Cetaceans (marine mammals including whales and dolphins) and sea turtles, the Alboran Sea is an incredibly delicate ecosystem that is constantly being invaded by marine traffic. The IUCN Centre for Mediterranean Cooperation has recently released a series of fact sheets and information packs pertaining to 9 cetaceans and 5 sea turtles in an attempt to inform the global community of these phenomenal creatures and also the threats they face.

The publications are based on years of data collection and sightings. They describe the geographical distribution of the different species along with the major threats present and the conservation measures that have been implemented. The most serious threats

come in the form of acoustic disturbances from marine traffic, ingestion of plastics & other waste, net entanglement and chemical pollution which all have major impacts on the safety and population security of marine fauna.

The publications provide detailed information on a selection of the marine fauna found in the area, including six species that are on the IUCN Red List as endangered or critically endangered, the highest risk categories:

- Sperm Whales
- Risso's Dolphins
- Long-Finned Pilot Whales
- Common Dolphins
- Striped Dolphins
- Bottlenose Dolphins
- Killer Whales
- Fin Whales
- Cuvier's Beaked Whales
- Loggerhead Sea Turtles
- Hawksbill Sea Turtles
- Leatherback Sea Turtles
- Kemp Sea Turtles
- Green Sea Turtles

The Alboran Sea is a critical transit connection between the Atlantic and the Mediterranean. Most of these species are migratory and travel long distances, especially turtles, hence the good condition of the waters of the Alboran Sea and good regulation of human activities are critical to their survival.

The publications are part of the POCTEFEX-Alborán project, "Shared natural management of cross-border space", which aims to facilitate the exchange of experience between front-line contributors and stakeholders and identify the priorities that can improve natural resource governance in the Alboran Sea and promote sustainable and integrated management of the environment.

For more information, contact Andrés Alcántara ([andres.alcantara@iucn.org](mailto:andres.alcantara@iucn.org)) or consult the publications on the IUCN-Med Webpage.





# Ocean Core Group

## Strengthening IUCN's Role In Ocean Conservation

**C**onservation of 361,900,000 km<sup>2</sup> of the earth's open ocean space presents many challenges including governance, management, financial, scientific and more. The multi-dimensionality of ocean conservation was one of the major reasons behind the formation of the IUCN Ocean Core Group (OCG) at the 77th IUCN Council meeting, at the initiation of former Council member Christophe Levebre. The Oceans Core Group members represent the different components of IUCN and has as its objective promoting global ocean policy within the Union and providing advice to the Director General.

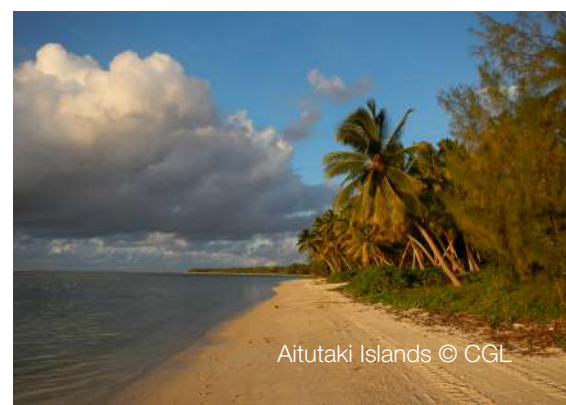
The group consists of: three IUCN councillors from three different continents representing respectively oceans, coasts and islands; six members from each of the IUCN Commissions to act as focal points for the main points of interest, and finally three members from the IUCN Secretariat. As the IUCN Council Oceans Focal person, Nilufer Oral is the current Chair of the Oceans Core Group and François Simard heads its secretariat. The Ocean Core Group has three main mandates:

- The Core Group will act as an advisory group, providing guidance to the Council (especially at the Programme and Policy Committee level), the Commissions, the Secretariat and the Members on the implementation of ocean policy, with reference to the Congress Resolutions.
- It may act as an advocacy group focusing on ocean, coasts and islands issues. As such, the Ocean Core Group will also address recommendations to the relevant international organizations and conventions such as the Convention on Biological Diversity on topics including the Aichi Targets.
- It will support the Secretariat, including global and regional levels, to generate means and will monitor the allocation of resources for the delivery of the programme according to policy priorities for Oceans, Coasts and Islands, according to the 77th Council decisions which states that the Ocean Core Group is established to strengthen the Global Marine and Polar Programme (GMPP) and structure IUCN marine expertise in order to develop an IUCN Ocean voice.

The group's first major goal will be to strengthen and coordinate IUCN's presence at a number of international conferences including the UN Small Islands Developing States (SIDS) Congress in Samoa (September 2014), the Convention on Biological Diversity in Korea (October 2014) and the World Parks Congress (November 2014). At the latter, the OCG will be working with the Global Marine and Polar Programme and making use of the Ocean+ Pavillion, which will host a number of the Ocean Core Group members.

Overall, the creation of the Ocean Core Group will undoubtedly contribute to improve the global effort to protect and manage the vast expanse of oceans, coasts and islands.

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# Fisheries Expert Group

## Fostering sustainable use and conservation of marine fishery resources and their ecosystems.

**T**he Fisheries Expert Group (FEG) was established during the 2008 IUCN Congress. Set up to address the need for an ecosystem-focused expert group with marine fisheries competence within the IUCN Commission on Ecosystem Management, FEG consists of senior fisheries experts and marine ecologists from around the world with substantial knowledge of the governance, operational, socio-economic and ecosystem issues affecting fisheries. Its mission is to foster the sustainable use and conservation of fisheries resources and related marine ecosystems; to inform fisheries policy and related conservation strategies; to propose management approaches and tools; and to seek to provide a link between the fishery and ecosystem/biodiversity expert communities of IUCN, the CBD, etc.

The Fisheries Expert Group present working priorities are:

- Understanding of the use and impacts of marine protected areas in fisheries;
- Analysis and evolution of fisheries and conservation governance,

their convergence, opportunities for improved alignment, remaining areas of conflict, etc.;

- Scientific analysis of the pros and cons of the Balanced Harvest strategy for fisheries management with the view to rebuild stocks and species communities, increase their resilience, and, possibly, increase yield, with a focus on operational issues;
- Review the system of economic incentives available to reduce bycatch, with a focus on the bycatch of megafauna in large scale pelagic fisheries;
- Contribution to the identification, characterisation and valuation of ecosystem services for fisheries or impacted by fisheries.

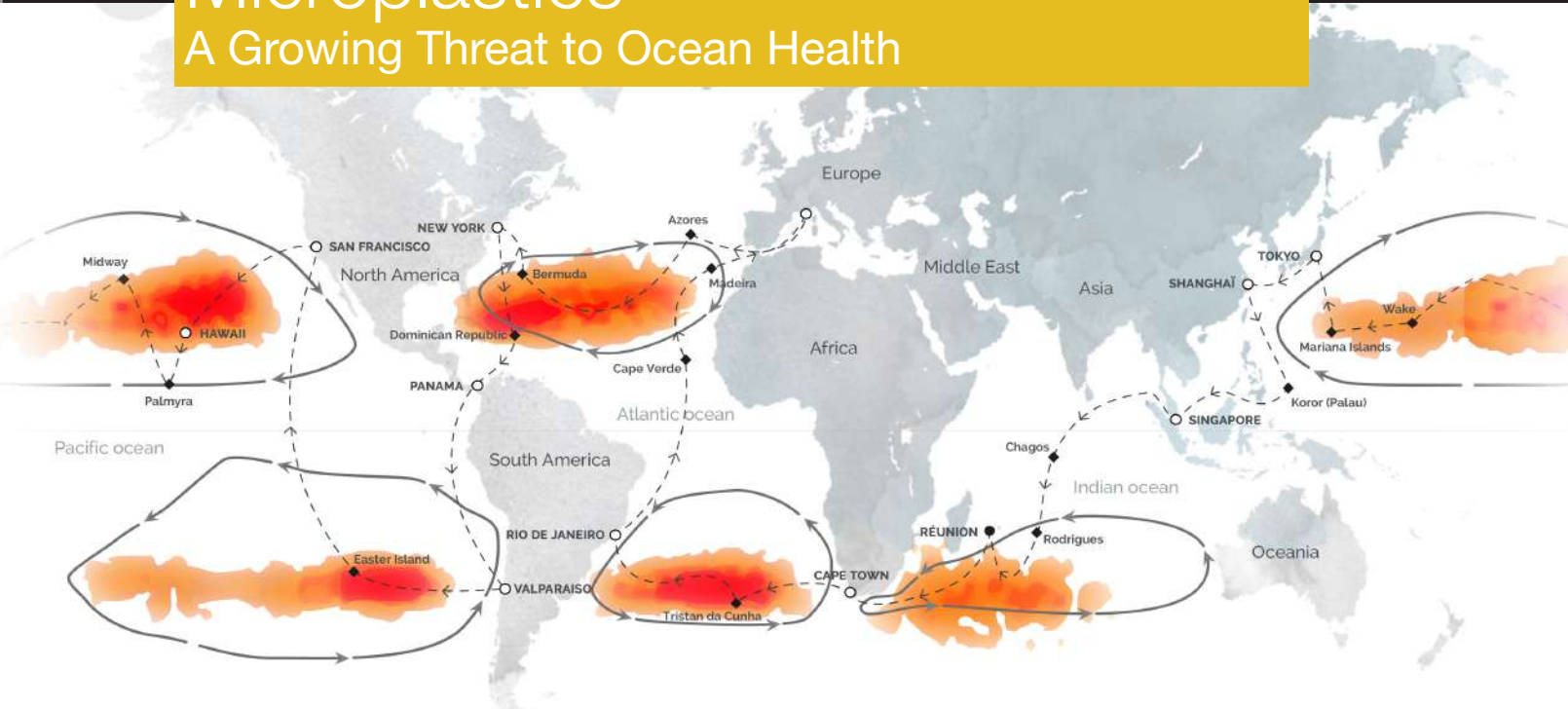
While work is ongoing on each of these priorities the recent outcomes include:

- A book on MPAs in fisheries in French, analysing bioecological and socioeconomic impacts as well as scientific, legal and governance issues. *Garcia, S.M.; Boncoeur, J. et Gascuel, D. 2013. Les aires marine protégées et la pêche: bioécologie, socioéconomie et gouvernance*, launched at IMPAC 3 in October 2013;

- A book on the governance of marine fisheries and biodiversity conservation: *Garcia, S.M.; Rice, J. and Charles, A. (Eds) 2014. Governance of marine fisheries and biodiversity conservation. Interaction and co-evolution*, launched at the Norwegian Fisheries Forum in Oslo, August 2014;
- A scientific workshop on Ecosystem-Level Impacts of Fisheries Bycatch on Marine Megafauna: *Biodiversity Conservation through Mitigation, Policy, Economic Instruments, and Technical Change* was held in IUCN, Switzerland, in October 2013. A book is being finalized on the subject to be published by Wiley-Blackwell or the University of California Press;
- The second scientific workshop on Balanced Harvest, entitled *Balanced Harvest in the real world — scientific, policy and operational issues in an ecosystem approach to fisheries* was co-organized with FAO in Rome, in September 2014. The “Nagoya group”, who launched the approach at the first meeting, enlarged by new actors in the subject review scientific progress and likely operational issues. 28 experts participated and 20 presentations were made, available in the EBCD FEG website.

# Microplastics

## A Growing Threat to Ocean Health



**P**lastic debris has now become one of the most serious problems affecting the marine environment, not only for coastal areas of developing countries that lack appropriate waste management infrastructures, but also for the world's oceans as a whole because slowly degrading large plastic items generate microplastic particles (smaller than 1 to 5 mm) that spread over long distances by the wind-driven ocean surface layer circulation.

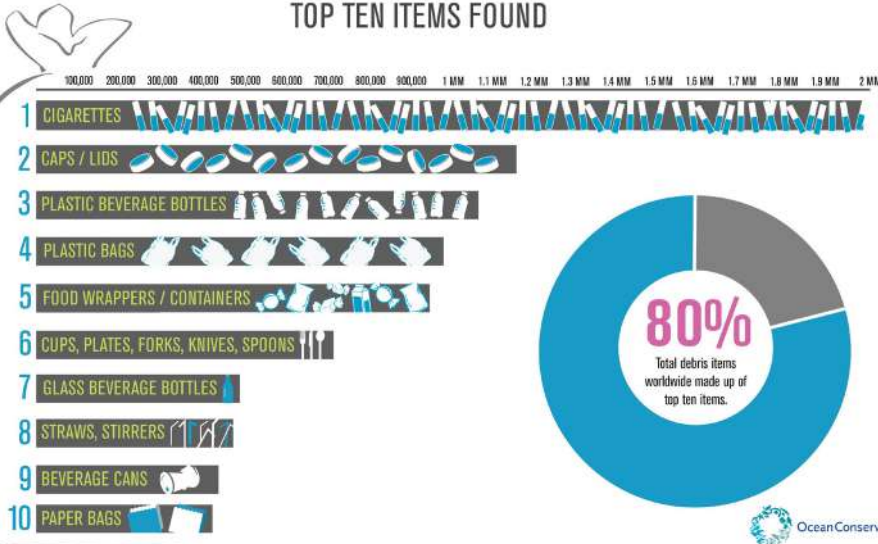
Growing scientific and public awareness is fuelling global concern regarding the impact of plastic

ingested by marine species and the accumulation of plastics in coastal and remote areas of oceans (in trash vortexes or gyres).

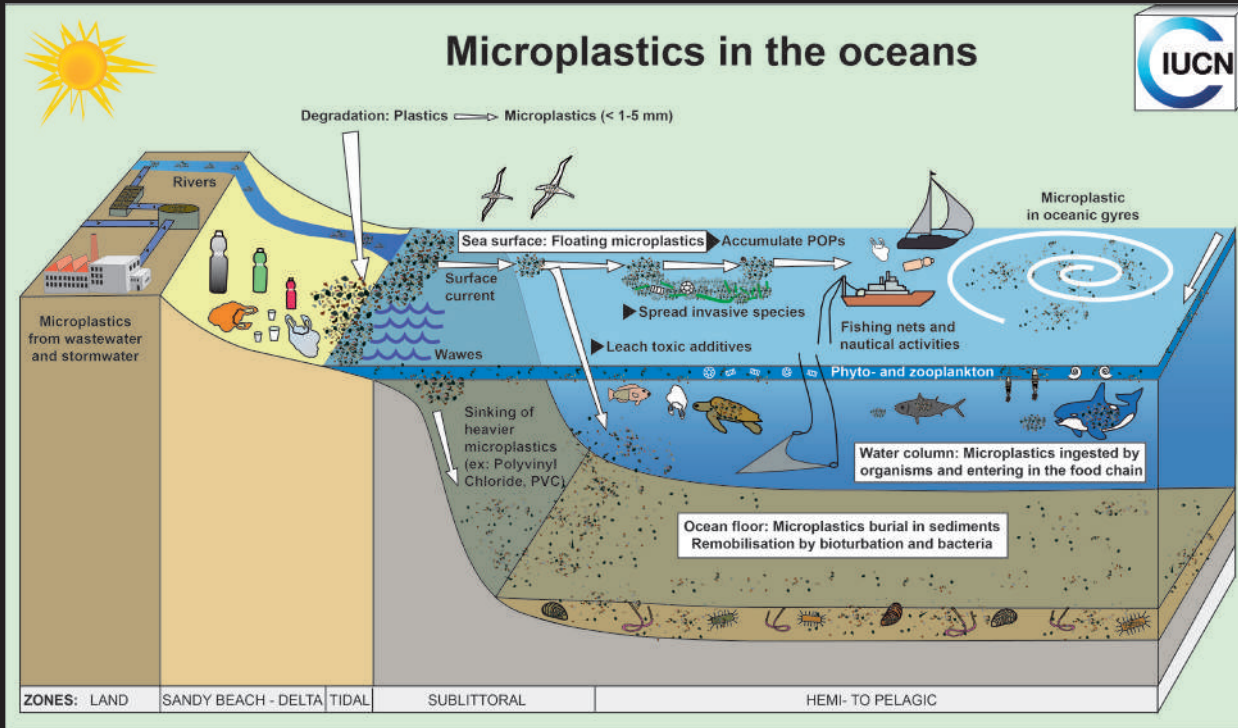
Private and public initiatives, such as the volunteer beach clean-ups and campaigns for removing beach debris, represent the major source of information concerning the amounts and types of marine litter. The regular cleaning by municipalities and public authorities, to maintain beaches attractive to tourists, engenders major economic costs. It is now well recognized that drifting plastic debris has several adverse effects on marine species and ecosystems. However, there

is still a lack of precise knowledge about the quantity, sources, transport, accumulation and fate of plastics in the oceans. The most visible and disturbing impact of marine plastic pollution is the ingestion, suffocation and entanglement of hundreds of marine species. Floating plastics, which are presently the most abundant items of marine litter, also contribute considerably to the transport of non-indigenous (alien) marine species thereby threatening marine biodiversity and the food web. These floating particles accumulate toxic pollutants on their surface during their long-residence time in polluted seawater and can there-

### TOP TEN ITEMS FOUND



Schematic drawing showing the main sources and movement pathways for plastics debris in the oceans.



fore represent a concentrated source of environmental pollution, or serve as a vector for toxic pollutants that accumulate in food webs (bio-accumulation of contaminants).

The globally emerging environmental, economic and health risks related to plastic pollution require immediate international attention. It is time to take regional- and global-level actions against the entry of plastics into the ocean. There is also an urgent need to monitor the type and quantity of marine plastics using standardized methodologies as well as to better assess the impacts of plastic pollution on

marine environments, species and ecosystems. Environmental monitoring data will help to set up local and global action programmes that need to be effective from a long-term perspective so as to reduce the entry of marine plastic litter and their redistribution within the world's oceans.

IUCN is starting a coalition of stakeholders with the three major sectors that contribute to the microplastic problem. Representatives from cosmetic, textile and packaging sectors will share experiences, lessons learned and good practices in manufacturing with the aim to draft a framework

for action in order to protect the marine environment.

IUCN is partnering with the Race for Water Foundation in the upcoming Odyssey tour around the world. The Race boat will cross the 5 plastic gyres collecting data and microplastic samples. Together, IUCN and Race for Water Foundation, with the support of donors and NGO's, will host public relations events in planned stop-over cities around the planet.

For more information contact Joao Sousa ([joao.sousa@iucn.org](mailto:joao.sousa@iucn.org))



Sharm-El-Naga © Florian Thevenon

© Fabiano Prado

# Caribbean Coral Reefs

## From despair to repair

**J**uly saw the publication of one of the most comprehensive studies of Caribbean corals ever undertaken. With coral populations declining rapidly in this area (from an average of 34% to 14% since the 1970s) the report, **Status and Trends of Caribbean Coral Reefs: 1970-2012**, signifies a vital step forward in our understanding of coral ecosystems and steps that can be undertaken to repair them.

The report represents the collaboration of 90 experts from around the world, including IUCN members. It is a compilation of



Belize Blue Hole © CGL

the analysis of over 35,000 surveys from the Caribbean, focusing mainly on corals, seaweeds, grazing sea urchins and fish. It found that the decline in coral population correlates strongly with ecological stressors such as tourism, overfishing and sewage and agricultural pollution, as opposed to the weak correlation with extreme heating events. Whilst climate change is still a major factor in coral degradation through bleaching and ocean acidification, the report highlights

how the grazers (parrotfish and sea urchins) play a much bigger role in the coral ecosystem than previously thought and are therefore important to its survival. Grazers are responsible for protecting the coral from invasive algae and seaweed, so with sensible management of these areas, such as protection against overfishing and constraints on destructive tourism, the reefs would become much more resilient to climate change, a key point made in the report. "Even if we could somehow make climate change disappear tomorrow, these reefs would continue their decline", said Jeremy Jackson lead author of the report. "We must immediately address the grazing problem for the reefs to stand any chance of surviving future climate shifts".

The report also includes data from much healthier coral reefs such as those found in the U.S. Flower Garden Banks National Marine Sanctuary in the northern Gulf of Mexico, Bermuda and Bonaire, all of which have thriving parrotfish communities due to the restrictions placed on fishing practices. These reefs are in sharp contrast however to those found in Jamaica, the Florida Reef Tract and the US Virgin Islands. Dubbed "Failure Reefs", these locations have been greatly affected by human activities as previously described.

The results from the report could not be clearer. The health of a coral reef is directly related to the

balance between the coral and the algae of which the grazers are the main controllers. Moreover, the reduction in parrotfish populations in these reef areas is a direct consequence of human fishing practices through spearfishing and the use of fish traps. The dramatic decline of Caribbean coral reefs propagated a huge wave of interest with international media all over the world when the report was released at the beginning of July 2014: More than 500 online news sites across 71 countries covered the story in 20 languages as well as 9 TV and radio outlets and 37 print newspapers, making this news release one of IUCN's most successful in a long time. With this overwhelming public attention, hopes are now high that national regulations and measures will be enforced to stop the decline and change the regional attitude from despair to repair.

For more information, please contact James Oliver (James.Oliver@iucn.org, IUCN) or Dr. Jeremy Jackson (jeremybcjackson@gmail.com, GCRMN)



Unhealthy Caribbean Reef ©Catlin Seaview Survey

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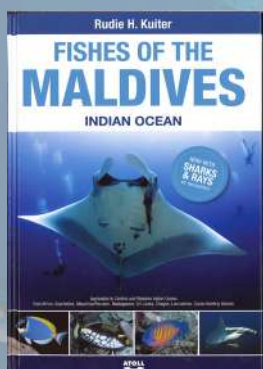
**Cardoso Lopez**  
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# New Publications and Reports



## Status and Trends of Caribbean Coral Reefs : 1970 - 2012

The report is the most detailed and comprehensive study of its kind published to date – the result of the work of 90 experts over the course of three years. It contains the analysis of more than 35,000 surveys conducted at 90 Caribbean locations since 1970, including studies of corals, seaweeds, grazing sea urchins and fish. With only about one-sixth of the original coral cover left, most Caribbean coral reefs may disappear in the next 20 years, primarily due to the loss of grazers in the region.



## Fishes of the Maldives

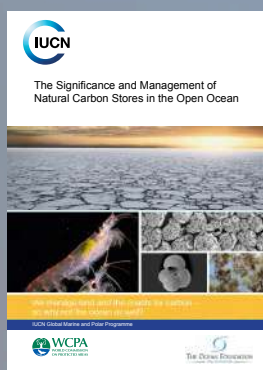
After more than 2 years of research, “Fishes of the Maldives Indian Ocean” is a fully updated and expanded version of “Photo Guide to Fishes of the Maldives” by Rudie H. Kuitert (Atoll Editions, 1998). The book includes almost every bony and cartilaginous fish likely to be noticed by divers, including the smallest species and mentions most recent research with input from the International Union for Conservation of Nature (IUCN).

This book serves mainly as a photo guide using images as the main tool for identifying particular species. It mentions the latest taxonomy changes and includes most Indian Ocean species known to depths within a diver’s range. For more information, go to: <http://www.fishesofthemaldives.com>



## Marine Natural Heritage and the World Heritage List

Interpretation of World Heritage criteria in marine systems, analysis of biogeographic representation of sites, and a roadmap for addressing gaps. The 1972 World Heritage Convention is one of the most significant international environmental agreements, recognizing the highest level of common concern for protecting sites of Outstanding Universal Value. Since its outset the Convention has been concerned with the oceans, seas and coasts of our “blue planet”. Australia’s spectacular Great Barrier Reef was one of the first listings, and a continuing series of iconic marine sites have been added to the list



## Ocean Carbon Report

Until recently attention has focused on the management of carbon held by the world’s forests, peatlands and soils. After nearly two years of work the authors publish this landmark report on carbon in the open ocean. The aim is to bring scientific knowledge together in a way that shows the open ocean in a new important ‘carbon’ context, and one with wide resonance. This report will add an ocean voice and scientific substance to the urgent need to drastically cut anthropogenic carbon emissions coupled with a twin track approach of rebuilding and sustaining resilience in ocean ecosystems. It should serve as a wakeup call to all those charged with managing the open ocean to now factor carbon values into their management processes.



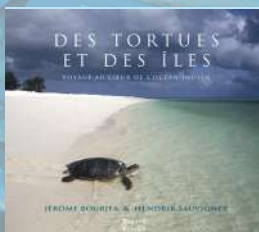
## Plastics Debris in the Ocean - The Characterisation of Marine Plastics and their Environmental Impacts

As recently evidenced by scientific research investigations, there is an urgent need to increase public awareness about the adverse effects of plastic pollution on marine organisms, and to foster a sense of individual responsibility and encourage government action and public initiatives for reducing the most severe impacts. The implementation of action plans to reduce the input of marine plastic around the world needs to involve different stakeholders from the plastic, tourism and fishing industries, the research community, NGOs, local authorities and national governments, in order to effectively address socioeconomic and environmental issues related to plastic pollution from a sustainable and global point of view.



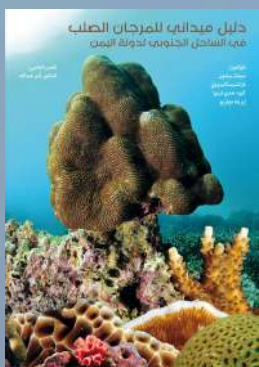
## BEST - Voluntary Scheme for Biodiversity and Ecosystem Services in the Territories of European Overseas

This brochure presents the BEST Initiative, featuring a world map with the location of European Outermost Regions and Overseas Countries and Territories, explaining the history of the initiative, its goals and its international importance for biodiversity conservation and sustainable development. Each of the 18 current BEST projects is showcased in detail. From saving species with less than a hundred individuals still alive, to policy work bringing countries together to protect shared ecosystems from the impacts of climate change, the projects have one thing in common: they inspire! Go to the BEST Initiative website to learn more: <http://ec.europa.eu/best/>



## Turtles and Islands - Journey to the Heart of the Indian Ocean

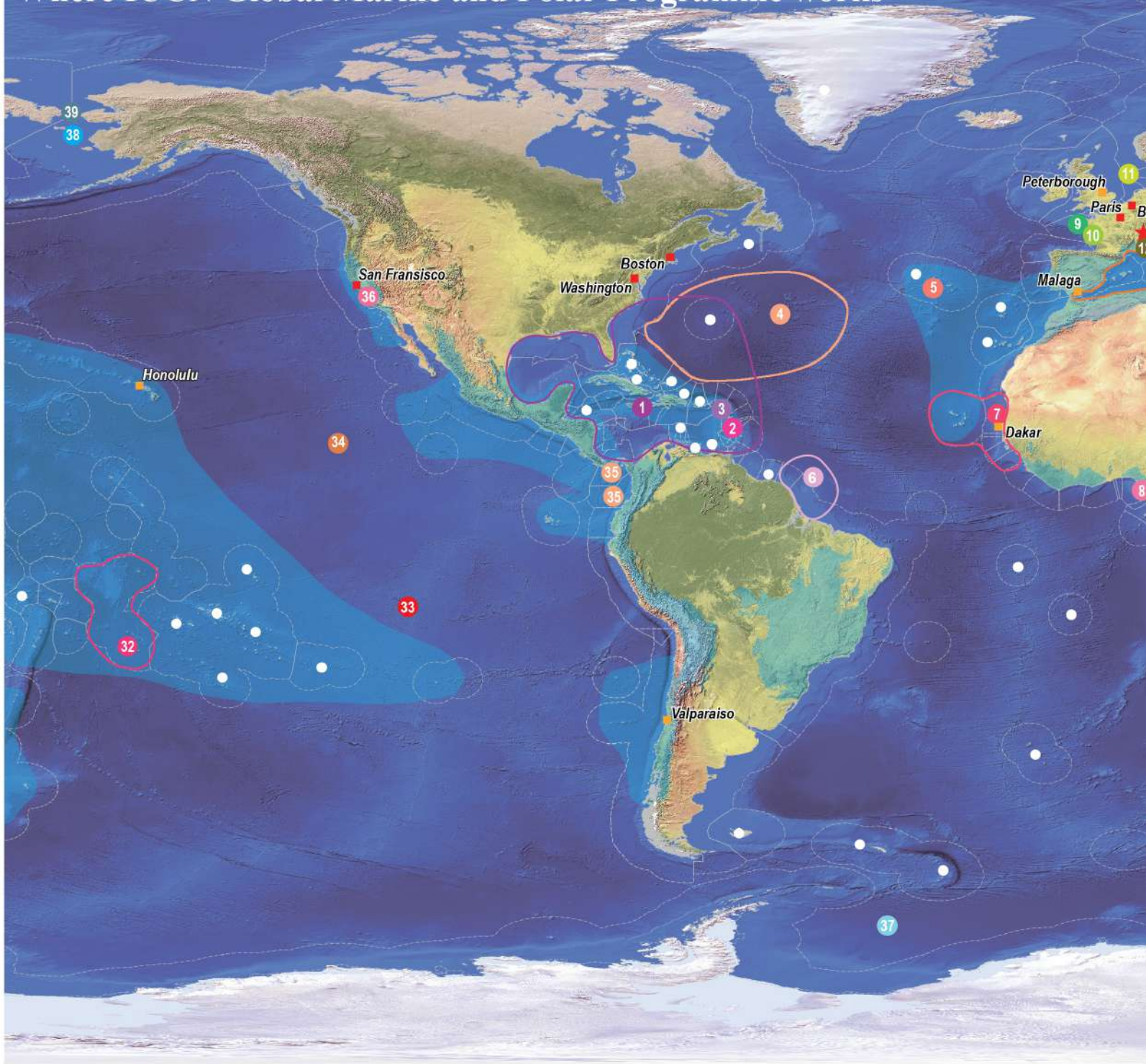
Dive into this book and get swept away by the sea turtles that inhabit these islands. The authors, Hendrik Sauvignat and Jérôme Bourjea, studied marine turtles for 12 years. They brought back a wealth of pictures freezing in time these unique encounters. Dependent on pristine beaches to reproduce - no houses, no light, no predators - sea turtles are now threatened. Of the six species recorded, one is listed as Vulnerable, two as Endangered and three as Critically Endangered. IUCN is currently supporting conservation projects in Mozambique and in different parts of the world.



## Field guide to the Hard Corals of the Southern Coast of Yemen - Arabic version

Between the Red Sea and the Indian Ocean, dotting the northern coast of the Gulf of Aden, the coral reefs of the south Yemeni coast deserve the full attention and interest of scientists, naturalists and ecologists, as well as amateur and professional divers and the public at large. This comprehensive field guide, published by Biotope in 2010, has now been translated into Arabic for distribution to universities and NGOs in the Arabian region, thanks to an IUCN project funded by Yemen LNG.

# Where IUCN Global Marine and Polar Programme works



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### MAJOR PROJECTS

- BEST Initiative - Biodiversity and Ecosystem Services in Territories of European Overseas

#### Caribbean & Atlantic

- 1 Global Coral Reef Monitoring Network Caribbean States 1970-2012
- 2 MANG - Managing Coastal Wetlands - Caribbean Region
- 3 Biodiversity Congress of Europe Overseas - Guadeloupe
- 4 Sargasso Sea Commission
- 5 Microplastics Initiative
- 6 Marine Social Planning Amazon Plume
- 7 Marine Protected Area & Fisheries
- 8 Niger Delta Panel

#### Europe, Mediterranean & Red Sea

- 9 Sustainable Aquaculture Fish Feed - Brittany
- 10 Sea for Society
- 11 North Sea Industry Engagement
- 12 Ocean Acidification RUG - Monaco

- 13 Marine Protected Areas & Aquaculture
- 14 Ocean Warming
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## MARINE NEWS

Issue 11, November 2014

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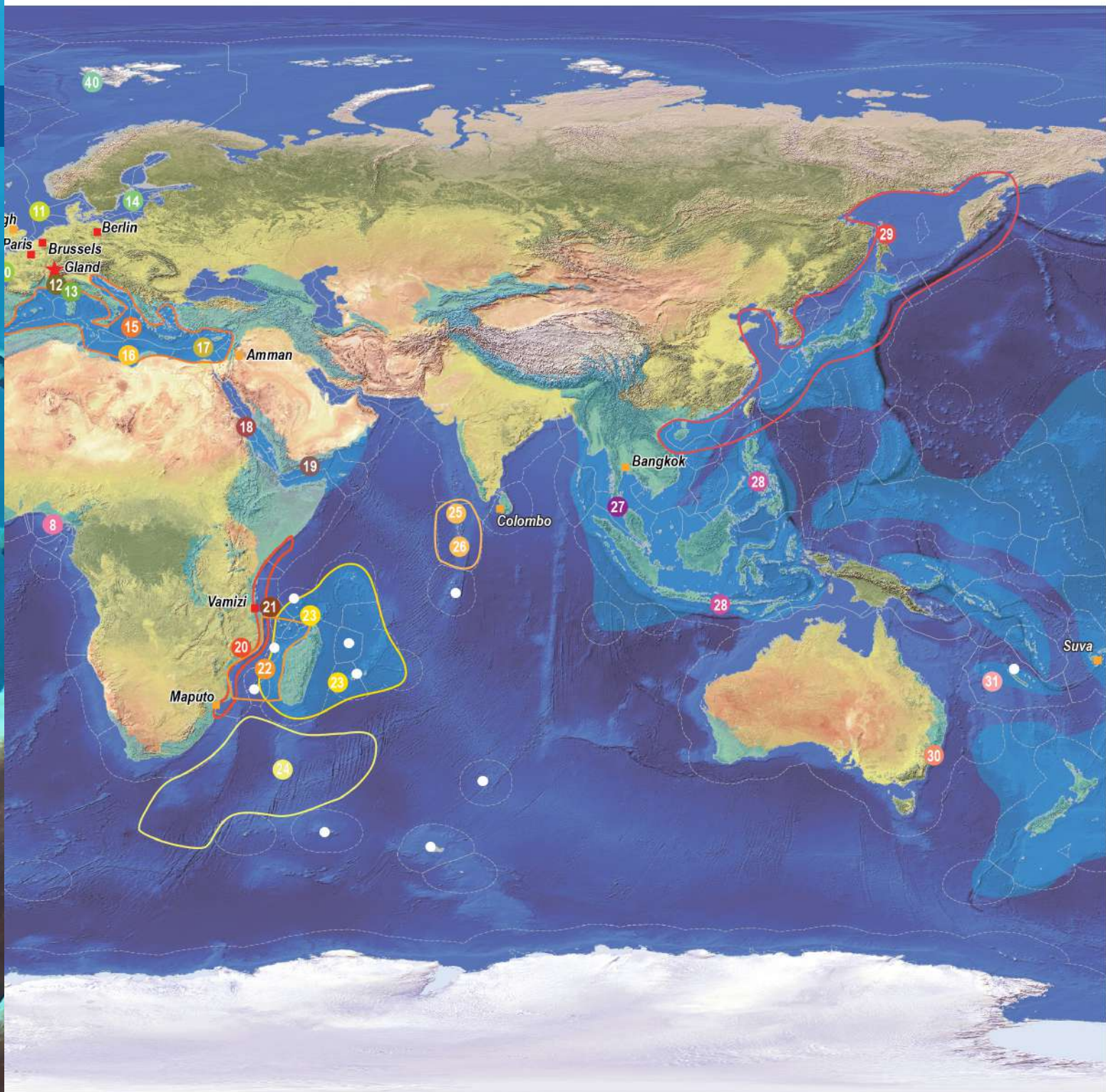
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