Global Ocean Biodiversity Initiative

Newsletter
October 2012

Progress towards establishing ecologically or biologically significant marine areas (EBSAs)

The series of regional workshops to facilitate the description of ecologically or biologically significant marine areas (EBSAs), called for by the Convention on Biological Diversity (CBD COP10), has continued through 2011 and 2012 with a total of five having now taken place.

In this newsletter we report on the two workshops that have taken place since the CBD SBSTTA meeting in Montreal in April 2012, namely the Southern Indian Ocean and the Eastern Tropical and Temperate Pacific workshops. Forthcoming CBD Regional Workshops are listed below.

Black-footed Albatross. Image courtesy Ben Lascelles.

We also include articles on new methods for describing ecologically or biologically significant areas for seamounts, two new projects that are tackling the difficult issue of describing EBSAs in the pelagic realm where species are mobile and often cover wide ranges, and reports from recent meetings of the FAO and the IUCN World Conservation Congress. Reports of the other regional workshops plus other relevant articles can be found in GOBI's April 2012 newsletter, available on the GOBI website www.gobi.org.

For further information contact:
Phil Weaver, GOBI Science Coordinator: phil.weaver@seascapeconsultants.co.uk
Patricio Bernal, GOBI Project Coordinator: patricio.bernal@gmail.com

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Proposed CBD Regional Workshops

Southeast Atlantic (Western African)
March 2013 in Namibia (in consultation)

North Pacific
March 2013 in Russia (confirmed)

Arctic
July 2014 (tentative); venue to be confirmed

Northwest Atlantic
September 2014 (tentative); venue to be confirmed

N. Indian Ocean, Red Sea, Gulf of Aden & ROPME Sea
November 2013 (tentative) in India (in consultation)

East Asian Seas
January 2014 (tentative) in Indonesia (in consultation)

Peri-Antarctic Circumpolar region
February/March 2014 (tentative) in Chile (in consultation)

The CBD Eastern Temperate and Tropical Pacific workshop to facilitate the description of EBSAs

Galapagos Islands, Ecuador, 28-31 August 2012
By Patricio Bernal, GOBI Coordinator

Continuing with the series of regional workshops requested by COP X in Nagoya, from the 28th to the 31st of August 2012, a group of intergovernmental experts convened by the Secretariat of the Convention of Biological Diversity, including representatives from all South American coastal countries from Mexico to Chile, met in the Galapagos Islands, Ecuador, to facilitate the description of ecological and biologically significant areas in the Eastern Tropical and Temperate Pacific. The workshop was hosted by the Government of Ecuador at the Galapagos National Park in Santa Cruz Island and supported by the Permanent Commission for the South Pacific (CPPS), the maritime regional organization created 60 years ago by the South American nations bordering the Pacific. The workshop was conducted in Spanish and the technical support provided by a team from the Marine Geospatial Ecology Laboratory (Duke University), a member of GOBI. Four days of intensive work were preceded by a full-day training session, where the seven scientific criteria to describe EBSAs, adopted in 2008 by Parties to the CBD, were thoroughly analyzed and examples developed.

Delegates at the EBSA workshop in the Galapagos

Workshop participants described 21 areas meeting the EBSA criteria, which are summarized in a report over 250-pages long. Following the procedure established in Nagoya, this report will be referred to a coming SBSTTA meeting for consideration.

Experts started the intergovernmental meeting by defining the latitudinal extension of the area of competence for the workshop from the US-Mexico border to the Central Gyre of the Pacific, in the north, and to the boundary of the Antarctic Treaty (CCAMLR) in the South. This opened the possibility for two fully oceanic EBSAs to be described: the "White Shark Café" and the "Grey Petrel (*Procellaria cinerea*) feeding ground". They also agreed to include the EEZ in the technical discussions. This probably reflects the maturation of the EBSA process under the CBD, since participating experts fully recognized EBSAs as a new valuable instrument to guide decisions of competent authorities when establishing management systems to protect biodiversity in the world ocean, clearly distinguishing them from MPAs. As abundantly clarified in the discussions, the inclusion of the EEZ in the technical discussions of the workshop in no way affects the exclusive authority that each country has within its jurisdictional waters to apply and enforce the most appropriate management systems of their choice.

Technical discussions included information on the pelagic domain and pelagic trophic chains, incorporating a wealth of knowledge of dominant oceanographic processes acting in the Eastern Pacific and the impact of the ENSO phenomena on the region. This shared understanding was reflected in the willingness of national experts to propose large EBSAs inside their EEZs, including where there are active management processes that have been well established for many years by the coastal states. Conversely, the experts also agreed to describe the Galapagos Archipelagic region as an EBSA, a region that from a different perspective and scope is already recognized by the UNESCO World Heritage Convention of 1972 as a Natural World Heritage site.

Some of the most prominent EBSAs described in the Galapagos workshop are the Thermal Dome of the Eastern Pacific, known colloquially in oceanography as the "Costa Rica Dome"; the Central Eastern Tropical Pacific EBSA or Marine Corridor of Malpelo, Coco, Galapagos, Gorgona and Coiba, presented by CMAR [1], the

[1] *The initiative of the Eastern Tropical Pacific Marine Corridor – CMAR was established by the Ministers of Environment of Costa Rica, Panamá, Colombia and Ecuador in a meeting held in San José de Costa Rica in 2004.*

extension of the Equator Upwelling High Productivity EBSA all along the Pacific, joining with an equivalent description made at the CBD Western South Pacific workshop (22-25 November 2011), and the Sala y Gomez and Nazca ridges.

Central American countries had proposals consistent with ongoing national processes for marine spatial management and protection of biodiversity in the coastal domain, like the Sipacate Ecosystem in Guatemala, the Gulf of Fonseca and the Gulf of Guayaquil. In the EEZs of Peru and Chile, large EBSAs were described around major upwelling centers and oceanographic features considered by the experts as key for the maintenance of the highly productive pelagic ecosystems off the west coast of South America.

The workshop also described three fully high seas areas: The "White Shark Café", in the central gyre of the North Pacific off Baja California; the Nazca and Sala y Gomez Ridges area, which extends from Easter Island almost to the EEZ of Peru and includes the Chilean EEZ off both Easter Island and Sala y Gomez islands; and the Grey Petrel (*Procellaria cinerea*) Feeding Ground area, half way between New Zealand and the South American Continent at the south end of the area, touching the CCAMLR jurisdiction boundary.

At one point in the technical discussions there were three very detailed and rich descriptions of large contiguous areas dividing the Humboldt Current from northern Peru to Southern Chile, including large extension of high seas, where experts considered that important biological and oceanographic processes critical for the maintenance of key ecological services take place. This gave rise to complex discussions about the scale of processes and interconnectedness of systems and at one point consideration was given to describe the whole Humboldt Current System as an EBSA. Through the discussions, experts obtained completely differing insights into how to apply the criteria when approaching the distribution of single species, multi-species complexes or the protection of core areas of large ecosystems, where in general several of the seven scientific criteria may apply simultaneously. It was recognized at the meeting that part of the richness of the EBSA process under CBD is precisely that these are not necessarily mutually exclusive options.

There were several proposals that although presented and analyzed during the meeting, were left for future consideration. Among them is worth mentioning the collection of deep sea hydrothermal vents all along the Pacific Rise, the feeding grounds of the Leatherback turtle in the South Central Gyre of the Pacific, and the recommendation to CBD to convene a workshop to discuss the Sub-Antarctic ecosystems surrounding Antarctica, bordering the CCAMLR jurisdiction. It was recommended that this workshop convene the peri-Antarctic countries: New Zealand, Australia, South Africa, Argentina and Chile, and that efforts should be made to organize it jointly with the institutions operating under the Antarctic Treaty, in particular CCAMLR.

The Ministers of Foreign Affairs of CPPS, which celebrated its 60th anniversary in the same venue the week before of the workshop, subscribed the "*Galapagos Commitment for the XXI Century*" that calls for the implementation of the CBD Strategic Plan for Biodiversity 2011-2020, to reach the Aichi Targets especially on fisheries resources, vulnerable marine ecosystems and MPAs and expresses the willingness of the CPPS countries to work with the international community, under international law, in the active monitoring and protection of the South Pacific ecosystems beyond their national jurisdiction. The high level of the deliberations in this very successful workshop, reflecting the existence of a mature scientific community, and these policy developments augurs well for a much needed increase in research and exploration in the high seas of this region in one of the least-known of the world oceans.

The Southern Indian Ocean regional workshop

Mauritius, 31 July - 3 August 2012

By Piers Dunstan, CSIRO, Australia

The Southern Indian Ocean regional workshop to facilitate the description of ecologically or biologically significant marine areas was held in Mauritius from the 31st of July to the 3rd of August, 2012. It was attended by representatives from 16 nations and 21 organizations. The workshop described 39 potential areas meeting one or more EBSA criteria. Ten areas outside national jurisdictions were described, including a large area described as the Agulhas Current extending from South Africa across the Indian Ocean toward Australia.

The workshop was preceded by a day of EBSA training where the workshop participants were introduced to the concepts underlying the EBSA criteria and to the data that could be used to support the description of EBSAs. The workshop also provided the history and rationale behind the EBSA criteria. The regional biogeography was discussed and specific examples of data types were introduced. In the afternoon, an interactive session was held where participants engaged in an exercise to use the data provided to describe a potential EBSA. The area described during the exercise, the Agulhas current, was later proposed a potential EBSA during the workshop.

Australia's Commonwealth Science Industry Research Organisation (CSIRO) was funded by its government to support the SCBD by accessing and providing 54 regional datasets for the workshop. Important physical data included physical oceanography (CSIRO) and seafloor geology (Geosciences Australia). While biological data were harder to access, the meeting did use predicted distributions of cold water coral communities (Census of Marine Life and the Marine Conservation Institute), seabird breeding and foraging areas (BirdLife International), fisheries data (IOTC), deep sea acoustic imagery (SIODFA) and species diversity (OBIS). The data were made available to all workshop participants through GIS software, and each of the proposed EBSAs could be drawn while being described. All data was made available for participants to return home with and the data and meta data will be hosted on the Australian Ocean Data Network (http://portal.aodn.org.au/webportal/).

All the EBSA criteria were used in at least one of the proposed EBSAs. They were described using a combination of local knowledge and large scale data sets. The challenges of describing EBSAs in the vast central ocean basins points to the need to increase regional scientific collaboration to identify both local and regional data sets. Data sources are dispersed and scientific expertise can be difficult to coordinate. The workshop identified the need for future workshops and improved collaboration across the Indian Ocean to support this processes.

Delegates at the Southern Indian Ocean workshop in Mauritius

IUCN World Conservation Congress, Jeju, Republic of Korea, 6-15 September 2012

By Kristina M. Gjerde, Senior High Seas Advisor, IUCN Global Marine and Polar Programme

Held every four years, the IUCN World Conservation Congress is one the world's largest and most important conservation events. The 2012 World Conservation Congress was held from 6 to 15 September 2012 in Jeju, Republic of Korea. 10,000 people, including leaders from government, the public sector, non-governmental organizations, business, UN agencies and social organizations from 153 countries discussed, debated and offered solutions for the world's most pressing environment and development issues.

The Congress started with a Forum where IUCN Members and partners discussed cutting-edge ideas, thinking and practice. The Forum led into the Members' Assembly, a unique global environmental parliament of governments and NGOs taking joint decisions that both call on States and others to take action and form part of IUCN's policy and programme over the next four years.

Marine issues were particularly prominent as part of the Congress theme of Nature+, a slogan designed to capture the fundamental importance of nature and its inherent link to every aspect of our lives. In a mix of workshops, intimate "knowledge cafes" and day-long Conservation Campuses, topics ranged from marine conservation in Asia and the Pacific, the Arctic and the Southern Ocean, small islands and continental shelves, to the significance of the ocean as a natural storehouse of "Blue Carbon" and the increasing threats of climate change and ocean acidification. Sessions also highlighted the importance of locally managed marine areas as well as large-scale MPAs and marine World Heritage sites, the problems of fisheries management and the protection of vulnerable marine species and habitats, as well as broad issues of ocean governance beyond national jurisdiction. A "Blue Pavilion" became the hub for ocean thinkers and leaders, featuring Google's "Liquid Galaxy", a walk-in closet-sized simulator which virtually surrounds viewers to enable ocean exploration from above and below.

Motions of direct relevance to the open ocean and deep sea include (see also the IUCN website):

1) MO96 "Implementing conservation and sustainable management of marine biodiversity in areas beyond national jurisdiction". Key elements of this motion call on governments and IUCN to:

a. Address ocean governance gaps in the protection and conservation of biodiversity in areas beyond national jurisdiction through the negotiation of a new implementing agreement under the UN Convention on the Law of the Sea which could, among other things: i) identify, design and effectively manage a global network of fully comprehensive, adequate and representative high seas MPAs, including reserves, and other effective spatial management measures; ii) require comprehensive prior assessments and ongoing monitoring; iii) ensure transparency in decision-making; iv) consider the question of sharing of benefits of marine genetic resources ; v) require application of the ecosystem and precautionary approaches; vi) ensure effective monitoring, control surveillance and compliance and enforcement measures.

b. Ensure through spatial and regional approaches, the identification and protection of areas of importance for marine biodiversity beyond national jurisdiction, including support to the Global Ocean Biodiversity Initiative (GOBI) and similar scientific efforts that assist in identifying ecologically or biologically significant areas (EBSAs), vulnerable marine ecosystems (VMEs) and other important areas and the design of MPAs networks; and

c. Ensure long-term conservation and sustainable use of fisheries resources in areas beyond national jurisdiction while protecting marine biodiversity, safeguarding vulnerable marine species and habitats, and maintaining ecosystem goods and services.

2) M105. Protection of the deep ocean ecosystems and biodiversity from the threats of seabed mining. This motion calls on IUCN to urgently dedicate efforts, expertise and resource to conduct research on the impacts on biodiversity of deep seabed mining activities. It also urges all State members of IUCN, national, regional and international organizations and stakeholders to facilitate:

a. Identification of areas that should be set aside as representative marine protected areas;

b. Comprehensive strategic and environmental impact assessments, including environmental cultural and social impact studies; and

c. The adoption of precautionary and ecosystem approaches, including the precautionary principle, to protect the marine environment and apply safeguards such as financial security and trust funds prior to any decision to approve exploration or seabed mining, in order to ensure that adverse environmental impacts are avoided.

3) M098. Accelerating the global pace of establishing marine protected areas and the certification of their effective management. Key elements of this motion call on States and others to:

a. Focus on the creation of effectively managed MPA networks and to ensure that some undisturbed ecosystems remain as reference areas in the oceans;

b. Base the creation of MPA networks on strong scientific considerations to ensure that the areas of importance for biodiversity and ecosystem services are effectively conserved and contribute to global objectives;

c. Encourage the use of the EBSA repository and other relevant sources of information to inform the identification of potential MPAs within and beyond national jurisdiction;

d. Ensure the integration of MPAs and other effective areas-based conservation measures into a larger seascape approach, including through marine spatial planning;

e. Promote regional integration of MPA networks through transboundary cooperation and facilitate the networking of marine corridors to take into account mobile or migratory populations and to follow the ocean currents.

Together these three motions set an active agenda for IUCN, its State and NGO members and the global community to find better ways to manage, conserve and protect the open ocean and deep sea within and beyond national boundaries for the benefits of present and future generations.

FAO Regional Workshop on Vulnerable Marine Ecosystems (VMEs) in the Indian Ocean

By Jeff Ardron, Marine Conservation Institute, Washington

The UN Food and Agricultural Organization (FAO) and the Indian Ocean Commission (IOC) and its SmartFish Programme held a three-day workshop in Flic en Flac, Mauritius, on 25-27 July 2012 to review the current knowledge of vulnerable marine ecosystems (VMEs) and fishing activity in the Indian Ocean. It was attended by 38 participants. This was immediately before the CBD workshop on EBSAs (see article in this newsletter, p4).

Representing GOBI, I attended this workshop and with the CBD Secretariat made a short presentation on EBSAs. Our central message was to encourage the VME process in the region to be in communication with the CBD EBSA process, and to be harmonized where possible. The FAO presented the Global Environmental Faculty (GEF) project for areas beyond national jurisdiction (ABNJ), and identified the southern Indian Ocean as one of the pilot areas for this project. This project component provides the opportunity for a collaborative inclusive approach.

There was also a set of presentations on the VME database that is currently under development by FAO, and on how it would help facilitate the VME process in the Indian Ocean. How this could link to the CBD repository is as yet unclear, but the workshop recognized the value of such a linkage.

The Southern Indian Ocean Fisheries Agreement (SIOFA) has just come into force. It is as yet unclear if they will follow the lead of other RFMOs (like CCAMLR, SIOFA, NEAFC, NAFO, etc.) and allow non-governmental participation in the science working group or the main forum.

As a next step in the identification of possible VMEs, some of the most recent research data, by industry observers, and by independent researchers (e.g. University of Oxford) will need to be used to begin to outline possible VME 'hotspots'. Exactly how this will be done is still open to discussion, but experience from other regions would suggest that bycatch data can directly indicate areas where VMEs have been found to date, whereas habitat suitability modeling can help predict other places where VMEs might also be found, possibly in a more natural state than those that have already been impacted by fishing.

New methods for describing ecologically or biologically significant areas for seamounts

Telmo Morato (University of the Azores, Portugal) and Ashley Rowden (NIWA, New Zealand)

The application of the CBD EBSA criteria should ultimately allow the establishment of representative marine protected area networks in the deep-sea and open ocean and help the implementation of ecosystem based management approaches. Pilot studies have described several potential EBSAs in different marine regions (www.gobi.org). However, the patchy nature of biological and ecological data regarding deep and open ocean ecosystems hinders a systematic application of these criteria and implies a wide reliance on global models and remote sensed data. Moreover, areas of critical importance in the water column tend to shift in time and space, making the location of pelagic EBSAs even more difficult.

Non-dynamic features such as seamounts and ridges may offer good alternative locations for the implementation of offshore marine reserves, since they have been demonstrated to be easier to conserve, map, survey, and enforce than ephemeral areas. Seamounts are prominent and ubiquitous features of the world's underwater topography and constitute one of the largest biomes of the deep-sea. Several authors have illustrated their importance for the benthic and pelagic realms. The interaction of seamounts with vertically migrating organisms and passing oceanic flows appears to facilitate exchanges up through the food chain toward top pelagic predators. Therefore, seamounts seem to be important hotspots for pelagic biodiversity and visitor organisms and play an important role in enhancing fishery catches of some pelagic species. However, seamounts are very heterogeneous habitats and the above-mentioned properties may not be common to all submarine features. In fact, seamounts are generally very diverse, and this is likely to affect the biological diversity and production of resident and associated organisms. As a consequence, the protection of different seamounts may ultimately result in very different outcomes. The use of the CBD EBSA criteria can help to describe seamounts more likely to be suitable for protection. Application of the EBSA criteria to seamounts is a new concept, and there is a need to establish a process or framework that can be used across multiple regions to describe EBSAs in a comparable and robust manner. Recently two independent approaches have been developed for applying the CBD EBSA criteria to locate potential ecologically or biologically significant seamount areas based on the best information currently available. While these methods are contrasting, each has its own merits and could arrive at similar conclusions via different routes.

Method 1

A joint GOBI-CenSeam workshop was used to develop a provisional process for selecting a region, obtaining appropriate data, evaluating EBSA criteria, describing areas for seamounts that meet EBSA criteria, and submitting via the CBD processes. A region in the South Pacific Ocean, from the Australian EEZ to the Chilean EEZ and latitudes 20 to 60 degrees south, was selected because the majority of workshop participants were familiar with the seamounts and biota of this region. The region encompasses two biogeographic provinces and seafloor at water depths from 50-4000m. A total of 3451 seamounts are predicted to occur within this region.

Datasets were obtained from a variety of sources, but where possible from publically available databases/ websites (e.g. OBIS, IUCN Red List) or published literature. Each of the criteria and corresponding data sets for the region was assessed independently. A GIS system was used to convert each data set into a spatial layer. This layer was assessed to determine which seamounts met the cut-off for each criterion. A particular seamount was given a score of 1 if it met the EBSA criterion or 0 if it did not. Thus each seamount had seven possible scores of 1 or 0. Seamounts could be sorted by their importance, and evaluated to describe areas of varying significance depending on how many categories were identified and how many met the criteria.

Using the available data sets, there was no single seamount within the region that met all the EBSA criteria. Equally, if only one criterion was deemed necessary then 3300 seamounts out of a possible 3451 could be selected. Thus, there was a clear need to prioritise within the 3300 seamounts that met at least one of the criteria. So in addition to the all criteria combinations three other possible schemes were trialled, based on selection using *and/or* format statements. We looked for combinations that would

produce a reasonable number of seamounts that could be combined into larger areas. We found that the 340 seamounts selected by the combination of any EBSA criterion (C1 or 2 or 3 or 6 or 5) plus Human impacts (C4 & 7) criteria were grouped in four distinct areas (Figure 1). They were the Nazca and Sala y Gomez seamounts Ridge in the eastern Pacific, the Foundation seamounts in the central Pacific, the Louisville seamount chain east of New Zealand and Three Kings Ridge, north of New Zealand.

Each of the candidate areas for the South Pacific Ocean region was given a score of Low/Medium/High depending on the number of individual seamounts in the area that met each EBSA criteria independently (Table 1). A score of High indicates that almost all the seamounts met the criteria, a score of Medium indicates that approximately half the seamounts met the criteria and a score of Low indicates that almost none of the seamounts met the EBSA criteria.

This provisional process used a combined criteria approach which enabled "high priority" EBSAs to be selected out of a large number of individual seamounts that may qualify for EBSA status based on meeting one or a few of the criteria. The process is transparent, and able to be modified by regional knowledge on smaller spatial scales than considered here. The process was intentionally limited to using data immediately to hand, and using sample data rather than model data where possible. If, and when, new data become available it would be possible to re-run the process and evaluate any

EBSA criterion	Candidate EBSAs			
	Nazca and Sala y Gomez	Foundation	Louisville	Three Kings
C1	L	H	L	L
C2	L	L	H	L
C3	H	L	L	H
C4	H	H	H	H
C5	L	L	M	H
C6	M	L	L	L
C7	H	H	L	H

Table 1: Scores for each of the potential EBSAs described based on the number of seamounts that met the criteria.

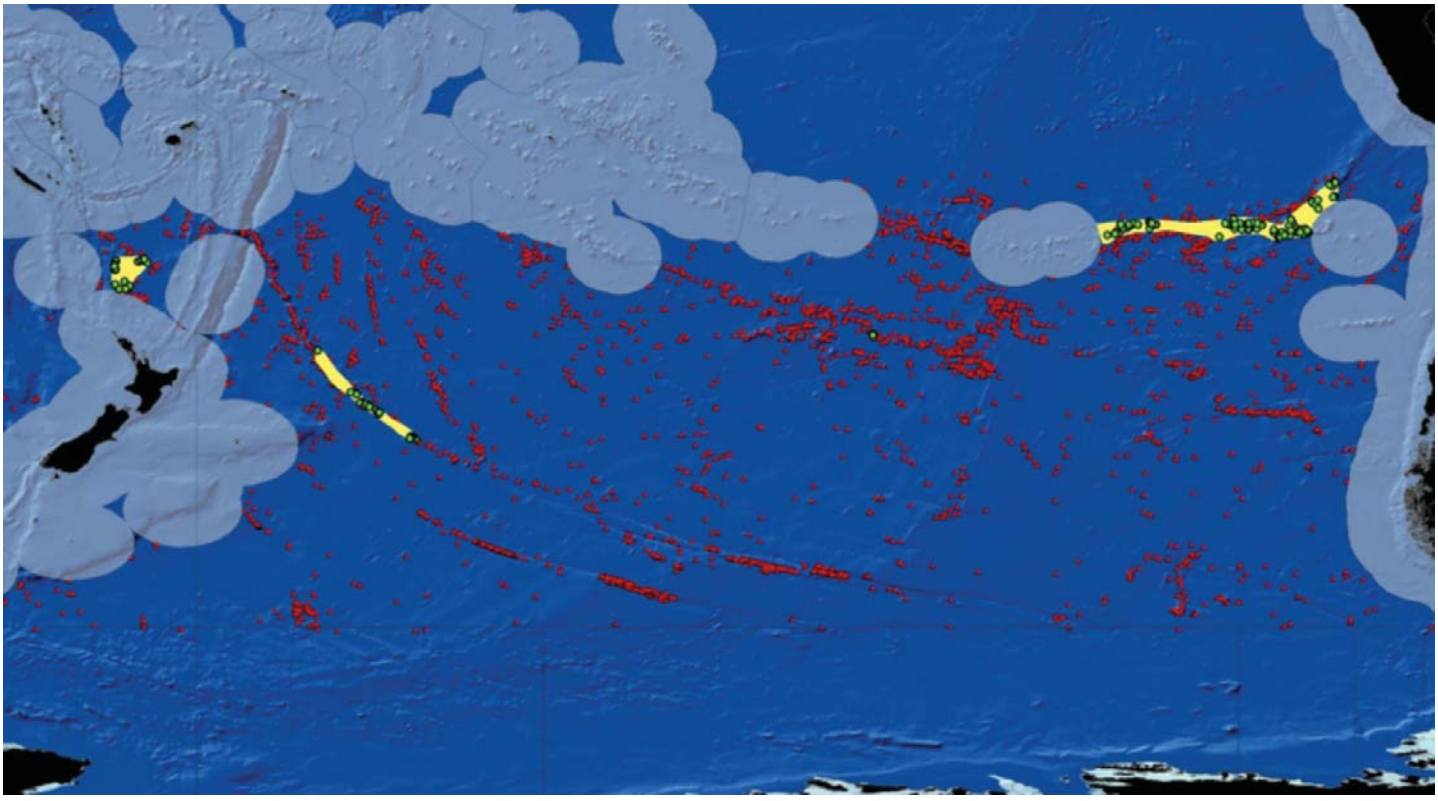
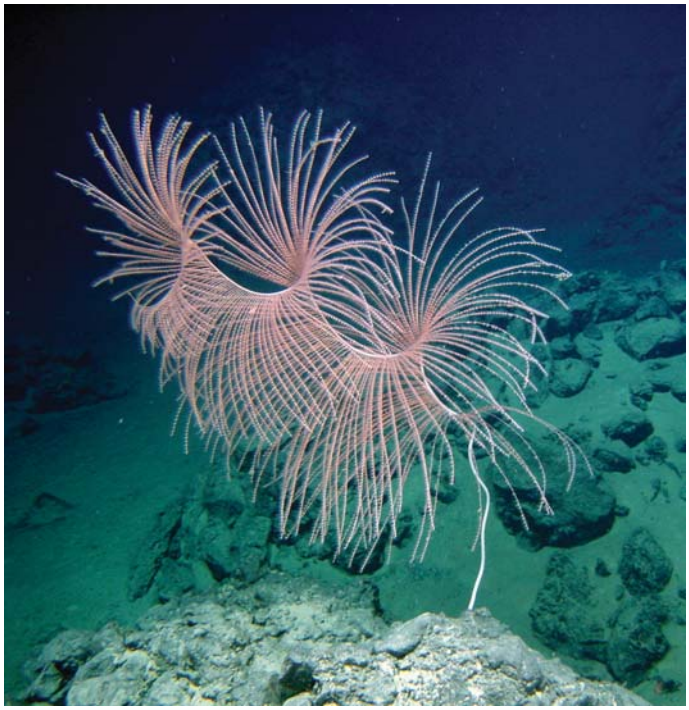


Figure 1: Seamounts (red dots) in the South Pacific Ocean and the four areas that contain seamounts (green dots) identified as meeting a combination of EBSA criteria. (a) Three Kings Ridge, (b) Louisville seamount chain, (c) Foundation seamounts (note the single green dot), (d) The Nazcar- Sala y Gomez seamounts Ridge. Seamount location data are from Yesson et al (2011).

changes in the descrption of EBSAs that may occur, and therefore the sensitivity of the description process to variation in data input. Improved information on the composition of biological communities (especially endemic or highly vulnerable species) and the extent of human impact from fishing or mining is necessary to make the evaluation of the criteria more robust. The provisional process should also be tested in other regions with different data sets.

The approach taken here differs from many other expert driven approaches. We did not describe the areas prior to obtaining data, in fact given the spatial domain we had no pre-existing areas that were described.



Method 2

An alternative approach to the provisional process developed by GOBI-Censeam is the Seamount Ecosystem Evaluation Framework. The framework combines the likelihood of a seamount constituting an EBSA and its level of human impact and can be used to locate priority areas for seamount conservation at global, regional and local scales. This methodology allows the classification of individual seamounts into various portfolio conservation categories that will help optimize management efforts toward the protection of the most suitable areas. This framework will also allow the description of seamount EBSAs and threats considering different ecological groups in the pelagic, benthic or both realms. Therefore, this framework may represent an important tool to mitigate seamount biodiversity loss and to accomplish the CBD 2020 goals.

Firstly, we have produced a global overview of current and past seamount knowledge, evaluating how many and which seamounts have been scientifically explored, how in detail and how fast seamount knowledge is advancing, and to assess whether the information available supports the existing theories of seamount ecosystem functioning. This information was used to develop the "EBSA score" which is an index of the likelihood of having ecologically or biologically significant seamount areas on a particular seamount (figure 2). Secondly, we have quantified the anthropogenic threats posed to individual seamount ecosystems by using an expert knowledge system and by developing an online questionnaire that was (and will be) distributed to selected international experts. The "threats score" of individual seamounts will be determined by the anthropogenic activities occurring on that feature. Finally, we have combined these two scores into many portfolio conservation categories which can help in optimizing management efforts toward the protection of the most suitable areas. The portfolio categories can range from Low EBSA likelihood - Low threats (bottom left part of figure 2) to Very High EBSA likelihood - Very High threats (uppermost right part of Fig. 2), including all combinations in between. Three aspects were central in the practical definition of the methodology. Our first concern was to develop a system that provides solid measures of the relative value and threat status of individual seamounts. Our second concern was to design a system compatible with the data currently available. Finally, we took particular care to keep the results simple to visualize and understand in order to facilitate their implementation in future management actions.

Another important characteristic of this framework is that it will allow the description of seamount EBSAs and threats considering different ecological groups in the pelagic and benthic components of both realms. This will be a major step forward in the integration of these, often disconnected, parts of the ecosystem and may allow managers to complement pre-existent conservation measures and to selectively mitigate the negative effects of human activities on particularly relevant seamount components. This framework will also allow the identification of seamounts with high data uncertainty and thus in urgent need of research. The methodology should constitute an important step forward in the implementation of conservation measures in deep see habitats and open ocean waters and help to fulfill the international commitments agreed under the Convention on Biological Diversity.

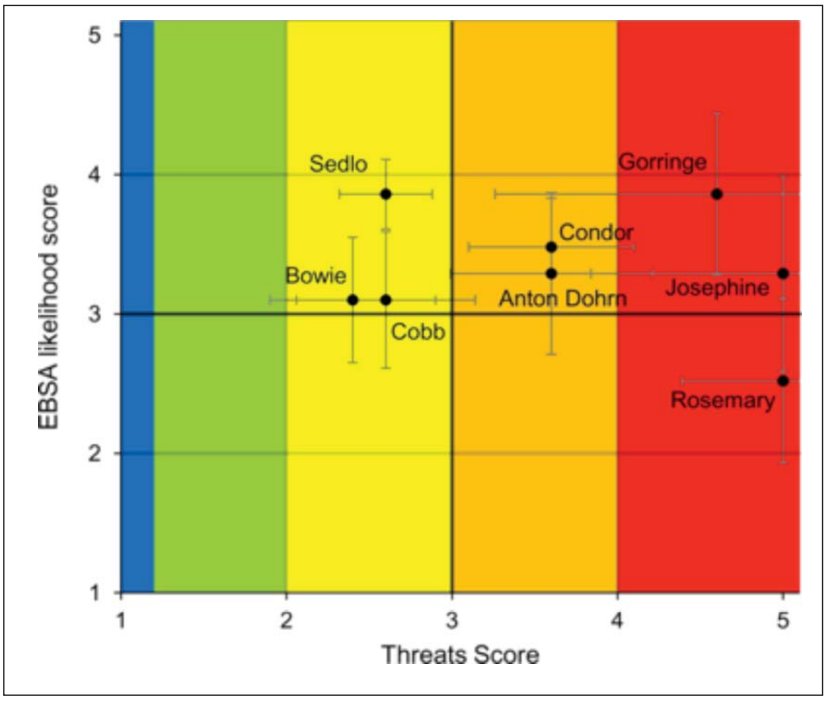


Figure 2 (right). Seamount EBSA portfolio plot based on EBSA likelihood scores and threat scores for eight case studies. The area in red represents very high human impacts, orange high human impact, yellow medium human impact, green low human impact and blue no human impact. The upper right seamounts score highly on EBSA criteria and have high threats, while the upper left seamounts score highly on EBSAs criteria and have medium and low threats. In the bottom are the seamounts that do not score highly on EBSA criteria with varying threats. Error bars represent the data uncertainty index that is proportional to data availability and quality.

For further information about these two approaches for describing EBSAs for seamounts see:

Taranto GH, Kvile KØ, Pitcher TJ, Morato T (2012) An Ecosystem Evaluation Framework for Global Seamount Conservation and Management. PLoS ONE 7(8): e42950

Dunstan, P.K. Clark, M.R., Guinotte, J., O'Hara, T., Niklitschek, E., Rowden, A.A., Schlacher, T., Tsuchida, S., Watling, L., Williams, A. (2011) Identifying Ecologically and Biologically Significant Areas on Seamounts. Gland, Switzerland: IUCN. 14pp.

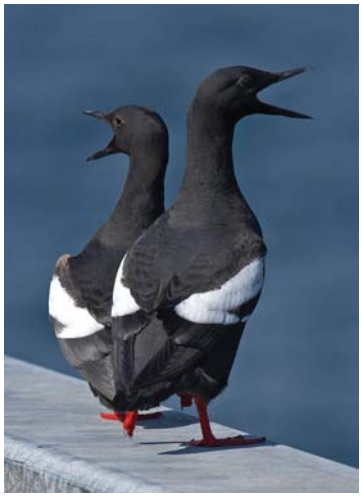
First global network of key sites for seabird conservation

Ben Lascelles, BirdLife International

BirdLife INTERNATIONAL

At CBD COP11 BirdLife International will launch its first global inventory of marine Important Bird Areas (IBAs) as an electronic atlas. The 3000 sites included are the culmination of over 7 years work, in more than 40 countries, by several thousand seabird and marine scientists. The e-atlas will be accessible at www.birdlife.org/datazone/marine.

The marine IBA inventory can help to set site based conservation priorities in the marine environment, primarily for seabirds (the most threatened group of birds) but also other marine life. The IBAs identified are already informing a range of marine conservation initiatives, including the CBD programme of work on EBSAs, the EU Bird's Directive, the work of the Nairobi and OSPAR Conventions and a number of national initiatives. The side event will showcase some of the ways the marine IBAs have been used in these different arenas, and give participants an opportunity to explore the e-atlas themselves during the question and answer session.



Right: Pigeon Guillemot. Image courtesy Ben Lascelles

Describing EBSAs for marine mammals worldwide: the PELAGIC project (2011-2014)

Kristin Kaschner, Albert-Ludwigs-University of Freiburg

Marine mammals, generally defined to encompass whales and dolphins as well as pinnipeds, dugongs, manatees and sea otters, are regarded as charismatic and often viewed as highly valued components of ecosystems. Most species are protected under a wide range of national and international agreements, yet a large proportion of this diverse group faces a high risk of extinction. In part, this can be attributed to the difficulties associated with studying marine mammals in the wild. Here, the vastness of the marine environment, very large distributional ranges of most species and the fact that animals spend the majority of their time under water all contribute to the challenges of marine mammal data collection that forms the basis for any successful protection and management measure. As a consequence of these challenges, a surprisingly large number of species remain poorly known with less than 10% of their distribution covered by monitoring efforts on average (Figure 1).

From a policy perspective an additional challenge lies in the fact that many species complete their life cycles across international boundaries, ultimately necessitating a global vision of marine mammal conservation. Global targets set by the CBD for the expansion of existing marine protected areas offer a policy opportunity for the implementation of such a vision, but this, in turn, requires the accurate identification of priority areas for conservation.

The development of a blueprint for such a global conservation strategy for marine mammals is the main goal of the project PELAGIC (www.cesab.org/images/projets/fiches2011/pelagicen.pdf), a three year research collaboration co-funded by the French Fondation pour la Recherche sur la Biodiversité (FRB) and Fondation Total through the CESAB programme (www.fondationbiodiversite.fr/programmes-phares/cesab).

PELAGIC, which stands for Prioritizing EcoLogically significant And Globally Important areas for marine mammal Conservation, aims to help describe marine mammal EBSAs by first compiling and standardizing the best available data on marine mammal monitoring in a global database. This will then be used to extrapolate into unsurveyed areas using newly developed modeling techniques. Finally, PELAGIC will synthesize all information to propose a globally coherent strategy for marine mammal conservation. By bringing together a network of leading experts in spatial conservation planning and in marine mammal monitoring, which includes several GOBI partners, the project will develop methodologies for the complex integration of data on marine mammal distributions, abundances, migrations, ecology threats and conservation efforts collected using a variety of scientific techniques in different geographic regions. Combined into a coherent framework, these data will be used as a basis for conducting subsequent analyses that will allow the selection of priority sites needing protection to ensure the long-term persistence of global marine mammal diversity. The direct and strong linkage to the GOBI network will ensure that outputs from PELAGIC are directly and mostly optimally communicated in the relevant policy fora.

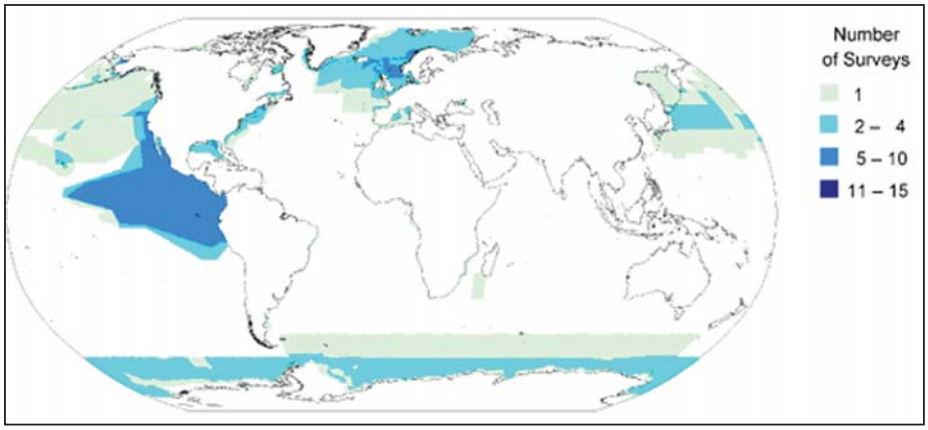


Figure 1: Map showing patchiness in worldwide coverage of line-transect surveys for cetaceans. As can be seen large gaps in monitoring efforts exist, especially in international waters. Only dark blue areas shown on the map have been covered frequently enough to allow assessment of possible negative impacts of human activities on cetacean populations. The paucity of data represents the biggest challenge for the description of marine mammal EBSAs in the high seas (Source: Kaschner et al, 2012 http://dx.plos.org/10.1371/journal.pone.0044075)

Pelagic conservation in the open ocean: building the science case

Daniel Dunn & Patrick Halpin, Marine Geospatial Ecology Lab, Duke University

The open oceans and deep seas cover the majority of our planet's surface area and represent a vast habitable volume. This pelagic open ocean represents the single largest and least understood biome on our planet, and also presents some of the greatest challenges for ocean resource management and conservation planning. The open ocean is deep, distant and dynamic: making access and assessment more difficult. Probably most challenging is the fact that critical areas in the pelagic environment are often shifting in space and time: requiring us to develop significantly more complex methods for defining the location and controls of these features. To date, these challenges have limited our efforts to conserve and manage human uses of the open ocean.

These limitations have directly affected our ability to achieve internationally agreed goals for conservation of the marine realm, as was made explicit in the Aichi Biodiversity targets agreed to at the 10th Convention of Parties to the CBD (COP10). At COP10, the previous goal of conserving 10% of marine biomes by 2012 was extended to 2020, while the target for terrestrial biomes and inland waters was increased to 17% by the year 2020. The call for representative protection of at least 10% of the ocean has been around since 1992, and to date we have protected less than 1 percent of marine areas beyond national jurisdiction. The provision of information on pelagic areas of ecological importance is critical to accelerating open ocean conservation. We must fill the knowledge gap in the pelagic realm and connect benthic and pelagic processes if we are to meet international targets for the conservation of all biomes.

In an effort to address these research needs, the Marine Geospatial Ecology Lab of Duke University and GOBI have teamed up to generate an exciting research agenda. This work began in 2011 with the sponsoring of a scientific workshop to provide guidelines and examples of the identification of ecologically important pelagic areas (Sydney, BC 5/12-14/2011; Dunn ed. 2011). We are proud to announce a new project, supported by the Lenfest Ocean Foundation, which builds on that workshop. Together with collaborators across the globe and GOBI's network of scientists, we aim to stimulate rapid data aggregation and analysis to inform identification and classification of important ephemeral but recurring pelagic habitats, and to characterize their connectivity with the less mobile benthic ecosystems. Work is already underway. The grant supported broader data aggregation for the CBD Eastern Tropical and Temperate Pacific EBSA workshop and the production of a brand new sea surface temperature front probability index for the region by Peter Miller of Plymouth Marine Laboratory. Over the next two years we expect to continue build new datasets and policy-relevant classification to inform a variety of international policy processes.

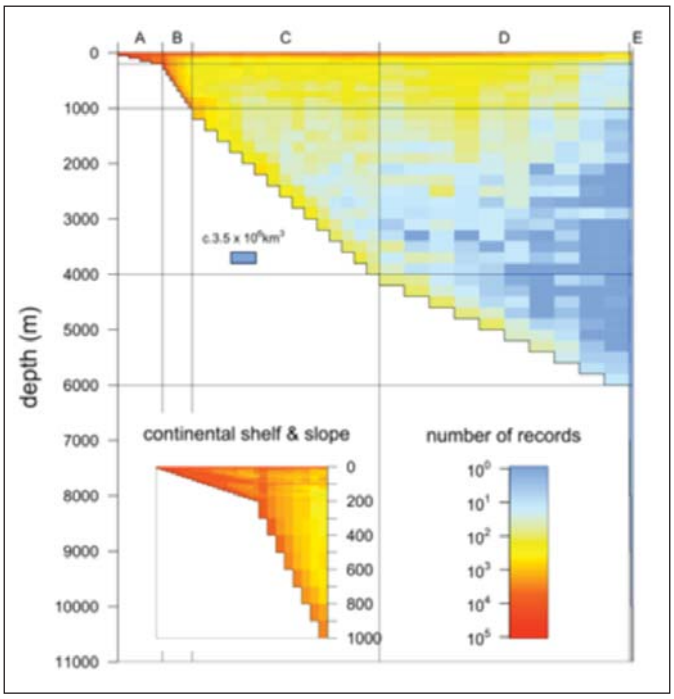


Figure 1: Data availability from iOBIS.org as a function of distance from shore and depth. Webb et al. 2010

Contact: daniel.dunn@duke.edu