

The ocean in motion



Reflections on a 7-year adventure

by David Johnson, GOBI Coordinator

I am proud to reflect on the successful completion of GOBI's 7-year project under the International Climate Initiative (IKI). Unusually, for such a complex and ambitious endeavour, each of the project elements boasts its own success story. In combination, the project's different strands represent a sustained, significant and unique contribution to furthering global ocean biodiversity protection. This has been achieved despite the disruption of the Covid pandemic and is testimony to the drive, determination and vision of key individuals working in the partner institutions involved. Very importantly, the results complement and feed into ocean policy priorities, which have evolved rapidly during the lifetime of the project. To that end, GOBI has provided reliable and appropriate scientific and technical support, as well as leaving a legacy with a relevance that will endure.

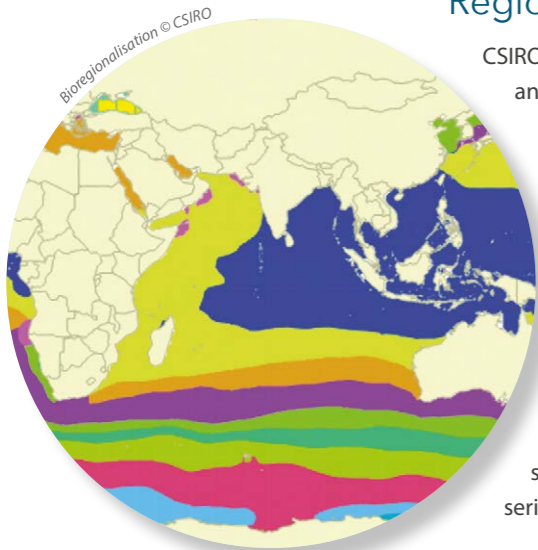
But what is 'appropriate' support? Our interpretation is that it should be relevant information that is impartial, objective, targeted, peer-reviewed and well communicated. The short account below attempts to summarise what has been achieved by each of the project's work streams and the impact that work has had; you can read more about the project's most recent achievements in the pages of this newsletter.

David Johnson, GOBI Coordinator
January 2024



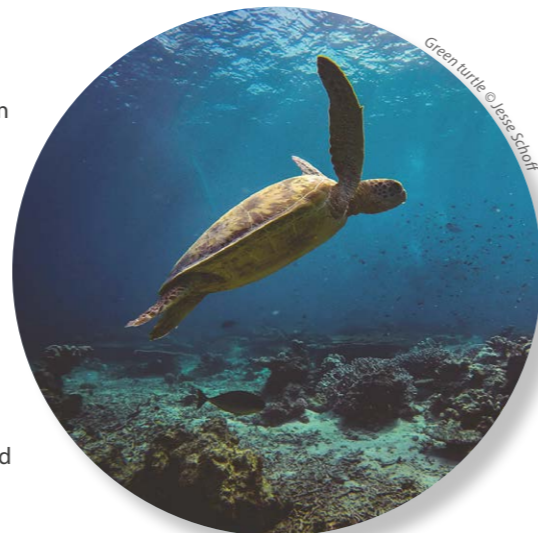
Regional biogeographies

CSIRO (Australia) led the development of regional biogeographies for the Western South Pacific and Indian oceans using expert knowledge, statistical applications and new information from biological collections. Physical bioregional information was combined with data on species and ecosystems to generate a range of benthic and pelagic bioregions. Each region has a description, map and qualitative ecosystem model that identifies the key pressures acting on the bioregion. Based on this, an MPA prioritisation process was developed that accounts for ecosystem structure and the different ways that pressures/threats interact with the ecosystem. This allows a cumulative approach to ecosystem management and enables priority areas to be identified that promote key biodiversity components. Stakeholder engagement was imperative to this work and the team facilitated dialogue with regional bodies and experts. Outputs from this work have been used by intergovernmental organisations, and will be taken forward through the Indian Ocean Rim Association to support regional planning and implementation of the new BBNJ Agreement, facilitated by a series of workshops planned for early 2024 (see p7).



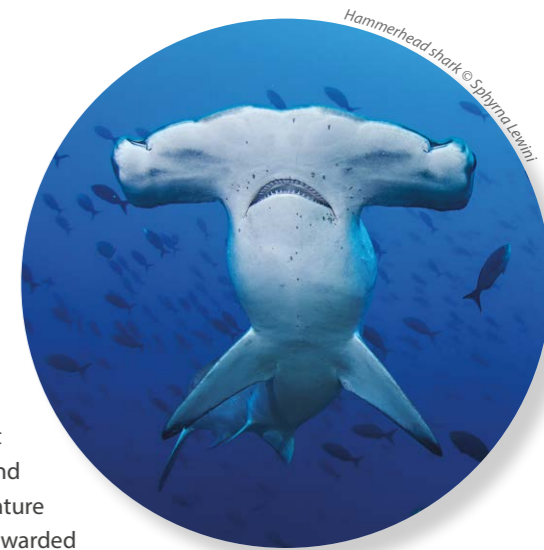
Migratory routes in Areas Beyond National Jurisdiction

Duke University (USA) and the University of Queensland (Australia) masterminded work on area-based planning to conserve migratory species, creating the Migratory Connectivity in the Ocean (MiCO) platform. An extensive literature review and collation of datasets from the global scientific community brought together a vast amount of tracking data for more than 100 migratory species, including fish, seabirds, turtles and marine mammals (see p8). This geospatial knowledge was analysed to determine migratory routes and areas important for life stages of different animals, and can now be visualised via the innovative MiCO portal, created with the explicit aim of informing policy about the movements of migratory species around the ocean. MiCO has achieved the basis for a global online knowledge system that can be added to, shared, demonstrated and applied in different contexts. Outcomes have been embraced by key intergovernmental bodies and potential for further research and application is vast.



Governance for the high seas area of the Costa Rica Thermal Dome

The MarViva Foundation (Central America) sought to raise awareness of and create momentum for the conservation and protection of the Costa Rica Thermal Dome – a unique oceanographic feature and area of high biodiversity in the eastern central Pacific. A comprehensive Atlas publication and online geoportal served to inform stakeholders of the biodiversity value and conservation importance of the Dome, raising public awareness of connections between the high seas and coastal ecosystems. Greater understanding has been achieved through a major outreach programme involving more than 30 national and international events, a high seas expedition and associated documentary, in-country promotion and a media campaign. High-level workshops brought together government representatives to discuss options for a regional governance model, forging alliances and enabling progress within a fluid political landscape. The global importance and pioneering nature of this effort has been recognised, with new support for conservation activities in this region awarded through the French Facility for Global Environment (FFEM). The Dome is a key area for testing conservation approaches, most recently as a prospective PSSA (see p16).



Safeguarding seabirds

BirdLife International has taken great strides to demonstrate and utilise the power of their Seabird Tracking Database to inform decision-makers and support the inclusion of seabird data in conservation measures. A winning combination of more data, higher confidence levels and better data management has achieved concrete results, including providing scientific rationale for the North Atlantic Current and Evlanov Sea Basin (NACES) MPA designated by OSPAR in 2021. Success is also down to an expanding and increasingly engaged expert community. The combination of compelling, data-driven evidence married with a better understanding of threats to seabird populations has fed into policy processes and combined with other area-based initiatives. Most recently, the recognition of Marine Flyways (see p10) has heightened public and policymaker awareness of ocean connectivity, and the Flyways initiative will be taken forward in discussion with the Convention on Migratory Species. BirdLife's experience in species-based spatial management has helped drive scientific discussion how different taxa-based important areas (IBAs, IMMAs, ISRAs, etc.) can create synergies for improved ecosystem-based management globally.



Conserving deep-sea hydrothermal vent ecosystems

Led by Duke University (USA), this work involved a detailed biodiversity risk assessment and genetic connectivity modelling to propose an advanced network design for the protection of hydrothermal vent ecosystems in the deep sea. The aim was to improve the current fragmented protection to ensure coherent conservation for deep-sea vent communities that are threatened by potential deep-sea mining activities. Another example of GOBI providing best available science to policymakers in an actionable format, this work has provided major input to International Seabed Authority (ISA) sponsored workshops and informed the rationale of the ISA's Northern Mid-Atlantic Ridge draft Regional Environmental Management Plan. This plan recommends precautionary protected status for all active hydrothermal vents and therefore has direct relevance for other ISA-led planning exercises, as well as to efforts to conserve and sustainably use biodiversity in areas beyond national jurisdiction – including implementation of the new BBNJ Agreement. This work has sparked new thinking on how the current levels of hydrothermal vent protection can be expanded and the challenges in doing so (see p13).



Important Marine Mammal Areas (IMMAs)

Recognising a gap in provision of data and information on marine mammals to intergovernmental processes, the IUCN Marine Mammal Protected Area Task Force (MMPATF) and Tethys Institute (Italy) capitalised on initial work to develop Important Marine Mammal Areas (IMMAs) as an exemplary taxa-specific area-based tool. Work undertaken through GOBI's IKI grant has supported seven regional expert IMMA workshops, involving 205 experts from 50 countries and resulting in the designation of over 200 IMMAs. In addition, four pilot areas provided the target for specific follow-up actions to scope management responses. IMMAs have been officially recognised by the Convention on Migratory Species of Wild Animals (CMS), been incorporated into EBSA descriptions under the Convention on Biological Diversity, and have informed the designation of Particularly Sensitive Sea Areas (PSSAs) under the International Maritime Organization. Success has secured funding from other donors to implement the IMMA process in other regions of the ocean (see p12), working toward global coverage. Furthermore, this rigorous and successful work has inspired similar efforts for other taxa: turtles, sharks and rays – the sincerest form of flattery!



Project coordination and GOBI partnership support

Finally, Seascope Consultants (UK) coordinated the activities funded by the IKI grant and provided the GOBI Secretariat team, supporting the GOBI partnership, organising a series of successful workshops, representing GOBI at UN meetings, mobilising the wider GOBI community where possible and managing the grant to its successful conclusion. And of course, had great fun and huge enjoyment working with colleagues from all around GOBI's extended family and further afield. Particular highlights include Ocean Voices at CBD COP14 (who can forget the purple acorn worm interpretive dance?), the UN Ocean Conference in Lisbon, IMPAC4 and 5, the designation of the NACES High Seas MPA in the North Atlantic, mainstreaming IMMAs in CMS and IMO, the GOBI 'EBSAs in ABNJ' workshop in Santa Cruz, and many other memorable events.

We are grateful to the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and the International Climate Initiative (IKI) for the financial support and professional trust that made this all possible.

And so to the next chapter for GOBI...

Though our grant under the International Climate Initiative may have drawn to a close, GOBI's work is far from finished. Our IKI grant leaves behind a strong legacy, with much of the work advanced over the past 7 years going on to achieve new heights for the protection and sustainable use of ocean biodiversity. Of course, the GOBI community continues to thrive, and the Secretariat has secured funding from the German government for a further two years' work, allowing GOBI to continue to provide advice and support to important ongoing processes – not least the CBD EBSA process (see opposite), the CBD Kunming-Montreal Global Biodiversity Framework, and the newly adopted international treaty to protect marine biodiversity beyond national jurisdiction – the BBNJ Agreement (see p19). Plenty to do, and we hope to see you all at a GOBI event in the very near future.



Charting the future: advancing discussions on EBSA modalities through technical and legal expert workshops

by Marketa Zackova, CBD Secretariat

On 20-24 and 23-27 November 2023, the Secretariat of the Convention on Biological Diversity (CBD) convened a technical expert workshop¹ and legal expert workshop², respectively, to review the draft modalities for modifying the descriptions of ecologically or biologically significant marine areas (EBSAs) and describing new areas. The workshops were held back-to-back and took place in the heart of Oslo, Norway, affording the participants the daily spectacle of the illuminated main Christmas Market during their commute to the venue.

Since 2010, the CBD Secretariat has been coordinating the process to facilitate the description of areas meeting the EBSA criteria (adopted in decision IX/20) through regional workshops. This initiative has seen remarkable success, with more than 300 areas described as meeting the EBSA criteria. Despite this accomplishment, the Conference of the Parties to the CBD has been discussing ways to improve this process since 2014 but has not yet been able to agree on modalities for modifying the descriptions of EBSAs and for describing new EBSAs through means other than regional workshops. In-depth deliberations on this issue did not take place during the most recent 15th meeting of the Conference of the Parties to the CBD (COP15) in December 2022 due to time constraints and heightened emphasis on negotiating the Kunming-Montreal Global Biodiversity Framework. In light of the urgency to adopt the new modalities to describe new areas and ensure accurate EBSA descriptions, decision 15/26³ requested the Executive Secretary to convene the two expert workshops to advance the critical discussions on these issues, delving into the technical aspects and legal dimensions pertaining to the modalities.

Attended by technical and legal experts nominated by their governments and organisations, the workshops were predominantly conducted in person with a limited virtual presence. Given the diverse composition of workshop participants, comprising both seasoned veterans involved in the realm of EBSAs for years and newcomers to EBSA-related meetings, a series of introductory and thematic presentations were delivered during the initial days of each workshop to provide a comprehensive background on the EBSA

scientific and technical work over the years, and to underline the importance of EBSA information. Topics included reflections from the EBSA process, sharing experiences on the use of EBSAs and the EBSA criteria, and consideration of EBSAs within the context of other international processes. Technical workshop participants provided their views on the future of EBSAs and the EBSA process, which paved the way for extensive discussions on the draft modalities in the remaining days.

Participants of both workshops were eager to dive into the draft modalities that reflect the long history of discussions on this issue and have evolved over time, with remaining core areas of disagreement. The technical workshop, predominantly utilising flowcharts, focused on the scientific and technical process and the mechanics of the modalities, pertaining to areas within and beyond national jurisdiction. Then, the legal workshop considered the outcome of the technical workshop, as per decision 15/26, from a legal standpoint. Moreover, the legal workshop discussed some key issues and areas of disagreement of a legal nature in the modalities. The overlapping days of the two workshops allowed the experts from both workshops to have a common understanding of the issues being addressed.

Reflecting the invaluable discussions from both technical and legal perspectives during the workshops, a revised version of the draft modalities, an information document, and reports from both workshops summarising the discussions will be available for the 26th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 26). Pending the outcome at SBSTTA 26, the hope is that the modalities can be adopted at CBD COP16 in October 2024.

The week-long intense discussions, often continuing passionately (and informally) over lunch and coffee breaks, did not aim to reach consensus but rather provided a space to express and capture diverse viewpoints. The undeniable significance of EBSAs for ocean conservation and sustainable use has been sufficiently established. Now, the responsibility lies with the CBD Parties to chart the course for EBSAs into the future.

¹ www.cbd.int/meetings/EBSA-EM-2023-01

² www.cbd.int/meetings/EBSA-EM-2023-02

³ www.cbd.int/doc/decisions/cop-15/cop-15-dec-26-en.pdf



Bringing it all together in the NW Indian Ocean

The final workshop under GOBI's grant from the International Climate Initiative took place in Muscat, Oman on 2-4 October 2023. Titled 'New tools to support ocean conservation, planning and sustainable use in the North-West Indian Ocean', this workshop showcased the tools and methodologies that GOBI has developed over the past 7 years, with the aim of demonstrating their use in supporting ecosystem-oriented marine management and marine spatial planning in the North-West Indian Ocean region.

The workshop included participants from a range of countries and organisations in the region, including India, Pakistan, Jordan, Seychelles, Mauritius and Sri Lanka as well as local participants from Oman. The programme was enriched and grounded by presentations of case studies from throughout the North-West Indian Ocean region, providing the opportunity to explore synergy, relevance, future opportunities and barriers to progress.

The workshop format ensured that discussions covered a varied set of topics including migratory connectivity, Important Bird and Biodiversity Areas, Important

Marine Mammal Areas, marine biogeographies, finance mechanisms, conservation efforts for mobile species, Strategic Environmental Assessment, Important Shark and Ray Areas, bycatch reduction efforts, data gathering, outreach and risk assessments.

A concluding session on area-based planning, including systematic conservation planning methodologies, was followed by a world café-style discussion on human uses and threats, transboundary ocean migration challenges and capacity building. A report of the workshop will be circulated at the next opportunity to inform biodiversity conservation deliberations at the South Asia Co-operative Environment Programme (SACEP) – the intergovernmental organisation with a mandate to promote and support protection, management and enhancement of the environment in the region. Workshop outcomes will also inform a side event planned for the 14th Conference of the Parties of the Convention on Migratory Species of Wild Animals in Samarkland, Uzbekistan in February 2024.

Above: Participants at the GOBI workshop in Muscat, Oman, October 2023.

Next steps for bioregionalisation efforts in the Indian Ocean

by Piers Dunstan, CSIRO

Regional understanding and agreement on biogeographic regionalisation (or bioregionalisation) of the Indian Ocean will be an important first step to the effective implementation of the recently adopted internationally legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (also known as the BBNJ Agreement) in the Indian Ocean. It will also pursue delivery of the Kunming-Montreal Global Biodiversity Framework Target 3 to enable and ensure that by 2030 at least 30% of the world's terrestrial and inland water areas, and marine and coastal areas, are effectively conserved and managed through ecologically representative, well connected and equitably governed systems of protected areas and other effective area-based conservation measures.

Biogeographic regions are a useful descriptor of biological units that integrates ecological and evolutionary processes. Bioregions provide spatially discrete units that can be used as part of an ecosystem approach to management. Ideally, these describe ecosystems within an area and describe the biodiversity contained within each region. Historically, bioregions have featured predominantly in conservation planning¹, but more recent applications to fisheries management have demonstrated their broader applicability². The distribution of biodiversity will be a key element in identifying and prioritising area-based management, including marine protected areas, in areas beyond national jurisdiction, including in the Indian Ocean.

There have been significant efforts previously to describe bioregions in the world's oceans including descriptions of the epipelagic³⁻⁵, mesopelagic⁶ and benthic^{4, 7-9}. However, each of these efforts have been independent and did not always include regional expertise, resulting in a partial picture of the distribution of biodiversity across the full oceanic realm.

To provide a more holistic picture in the Indian Ocean, CSIRO – as part of their role in GOBI's International Climate Initiative grant – led a scientific process to merge existing bioregionalisation efforts, and along with scientific experts from Indian Ocean coastal states, update them with detailed regional knowledge to produce a single set of bioregions that describe the benthic and pelagic ecosystems of the Indian ocean. This has resulted in the development of a new draft scientific bioregionalisation for the Indian Ocean,

drawing on experience in CSIRO, GOBI partners and among other regional and national collaborators.

As a next step, CSIRO, in collaboration with the Indian Ocean Rim Association (IORA) Secretariat and the Australian government departments of Climate Change, Energy, Environment and Water and Foreign Affairs and Trade, plan to hold a series of workshops with nominated IORA member State and dialogue partner participants in early 2024 to refine a new bioregionalisation for the Indian Ocean, leveraging IORA expertise and knowledge about the biodiversity of the Indian Ocean.

A key desired outcome is for IORA member States to have improved understanding of bioregions within the Indian Ocean, and gain access to data that may be used to inform candidate areas for future protection in areas beyond national jurisdiction and to collaborate with other IORA member States in the future development of proposals.

Participation in the workshops is restricted to nominated and invited individuals. For more details contact Piers Dunstan: Piers.Dunstan@csiro.au

References

- 1 Last et al. (2010) Long-term shifts in abundance and distribution of a temperate fish fauna: A response to climate change and fishing practices. DOI 10.1111/j.1466-8238.2010.00575.x
- 2 Koen-Alonso et al. (2019) The Northwest Atlantic Fisheries Organization Roadmap for the development and implementation of an Ecosystem Approach to Fisheries: structure, state of development, and challenges. DOI 10.1016/j.marpol.2018.11.025
- 3 Longhurst (2007) Ecological Geography of the Sea. DOI 10.1016/B978-012455521-1/50000-0.
- 4 UNESCO (2009) Global Open Oceans and Deep Seabed (GOODS): Biogeographic Classification. UNESCO-IOC Technical Series 84.
- 5 Sayre et al. (2017) A Three-Dimensional Mapping of the Ocean Based on Environmental Data. DOI 10.5670/oceanog.2017.116
- 6 Sutton et al. (2017) A global biogeographic classification of the mesopelagic zone DOI 10.1016/j.dsr.2017.05.006
- 7 Spalding et al. (2007) Marine ecoregions of the world: A bioregionalization of coastal and shelf areas. DOI 10.1641/B570707
- 8 Obura (2012) The Diversity and Biogeography of Western Indian Ocean Reef-Building Corals. DOI 10.1371/journal.pone.0045013

Ocean connectivity: what 25 years of tracking migratory species can tell us

By Connie Kot & the MiCO team

Connectivity is an essential component that contributes to how ecosystems function. Numerous studies have shown that species that depend on different areas for feeding, breeding and development also rely on how these spaces are connected. A comprehensive assessment of how these individual studies described global marine connectivity is a first step in learning how to improve the uptake of connectivity data in marine policy and area-based management decisions.

A recently published study – led by Duke University’s Marine Geospatial Ecology Lab (MGEL) as part of its work under GOBI’s grant from the International Climate Initiative – reviewed more than 25 years of information published on tracking migratory species to synthesise marine connectivity, globally. Through this synthesis, biases and gaps in the data were exposed as well as recommendations for future presentations of research and management applications. The review process started with a list of 173 marine fish, marine mammal, sea turtle and seabird species known to have extensive movements that connect different regions and habitats. A major knowledge gap was discovered due to the lack of marine connectivity or tracking information for 67 of the selected marine fish, marine mammal and seabird species. However, telemetry data were available on marine

connectivity within a total of 981 references, selected from the literature review, to describe research on the movements of a subset of 106 marine species.

The review found a significant increase in the number of publications with marine connectivity data for marine species since 1990. The summary of extracted information showed that the sea turtle taxa had the greatest number of available references compared to marine fish, marine mammals and seabirds. Additionally, most data were biased towards the Northern Hemisphere, with references on marine connectivity available for all four taxa, and the greatest number of studies occurring within the North Atlantic and Pacific oceans. From the full collection, 223 references were compiled to evaluate the information on four case study species: Atlantic bluefin tuna, humpback whale, loggerhead sea turtle and wandering albatross. The common trend for the case study species was that data gaps existed by sex and age-class, and more movement data were available during feeding and breeding when compared to migrating.

Published telemetry data were often processed using filtering or modelling methods to estimate home ranges; these results were presented in ways that have informed area-based management. Marine connectivity data could

more easily be utilised for future management applications if steps were also taken to standardise, archive, and share information within a known database repository, though most of the references that were reviewed did not mention standard practices for these steps. Connectivity research could reach a broader audience and be more easily integrated in management applications when results are communicated beyond the scientific literature. Collaborating within networks with common priorities, increasing partnerships among scientists and policymakers, and providing more opportunities for access and engagement from all stakeholders were all recommendations for expanding the impact of marine connectivity research.

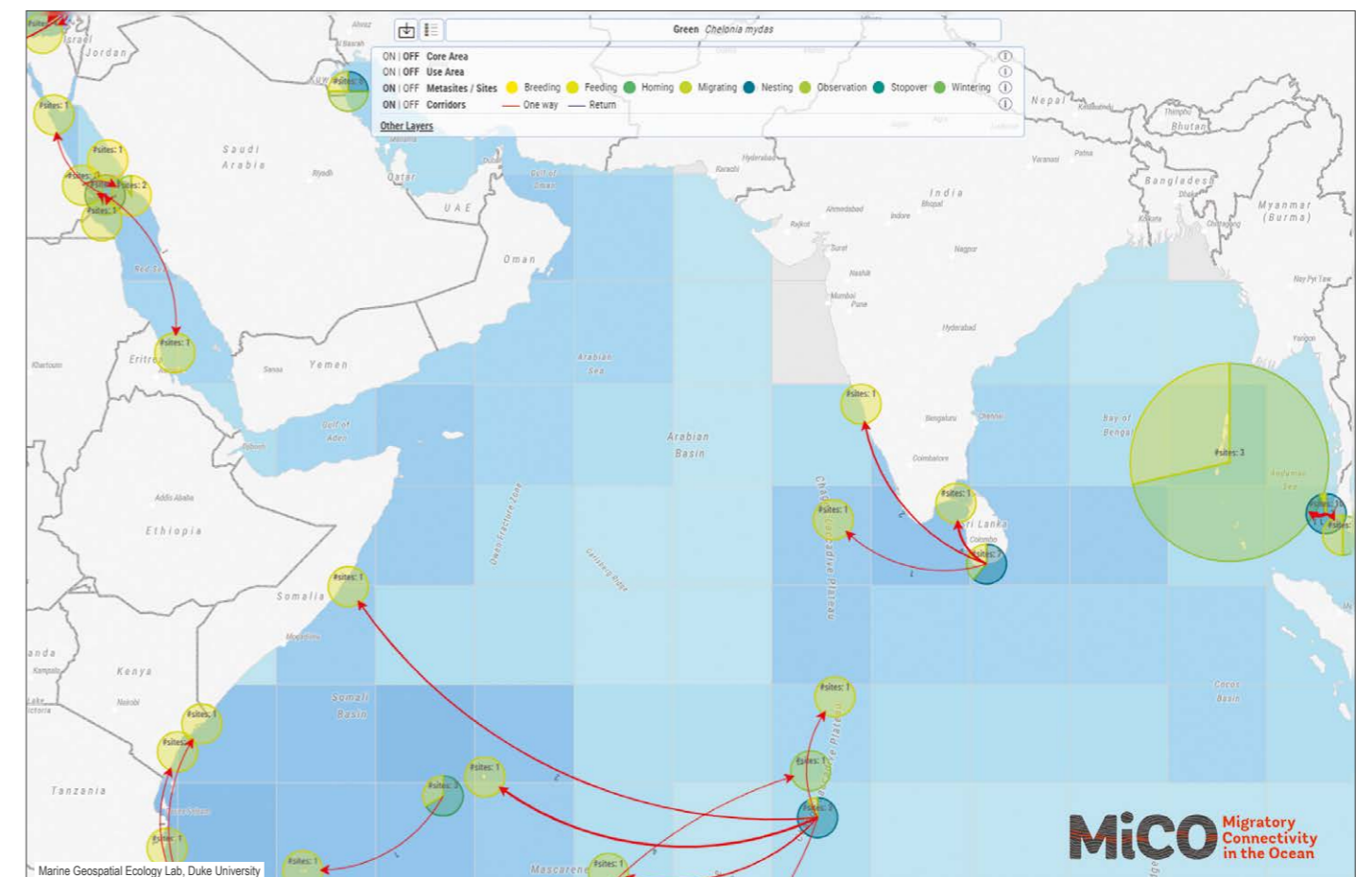
The data summarised in this paper form the foundation of the Migratory Connectivity in the Ocean (MiCO) system – an online visualisation platform that aggregates and generates actionable knowledge to support worldwide conservation efforts for numerous migratory species and the oceans on which they depend.

The MiCO team at the Applied Marine Biogeography Lab at the University of Queensland (UQ) has developed >100 new models based on the literature review, which describe connectivity generated by migratory marine megavertebrates. The models are freely available at mico.eco/system, and are part of a second publication that is in review. These models represent the largest repository of synthesised knowledge of marine migratory connectivity in the world, and GOBI is proud to be a primary supporter of this work. The UQ team and partners at the University of Tasmania, the Smithsonian Institute, Duke University and the University of Southampton have recently secured funding through the Australian Research Council to build on these models and integrate other data types that can inform our understanding of connectivity. Stay tuned for more news from MiCO in 2024!

Read the full article: Kot et al. (2023) Synthesizing connectivity information from migratory marine species for area-based management. *Biological Conservation*. DOI [10.1016/j.biocon.2023.110142](https://doi.org/10.1016/j.biocon.2023.110142)

MiCO Migratory Connectivity in the Ocean

Below: Example from the MiCO system showing known sites for different life stages (shaded circles) and migratory corridors (red lines) for Green turtle, based on tracking data. This visualisation of information is freely accessible, along with similar data for >100 other marine migratory species, at mico.eco/system.



Tracking device on a male green turtle offshore Brazil.
Image courtesy Thiege Rodrigues/All Angle Images



Marine Flyways: Seabird superhighways across the ocean

by Tammy Davies, BirdLife International

In October 2023 BirdLife International unveiled its Marine Flyways – the six major routes that migratory seabirds regularly use to travel between their breeding and non-breeding areas.

Flyways are the major routes followed repeatedly and consistently by migrating birds between their breeding and non-breeding areas. Using a vast amount of tracking data from long-distance migratory seabirds, BirdLife International have identified six Marine Flyways which complement the nine existing flyways identified for water and land birds and showcased in their global flyways portfolio. Marine Flyways represent the patterns of the journeys taken by long-distance migrants viewed at the sea-basin scale: in other words, the super-highways used by birds independent of species or timing of migration.

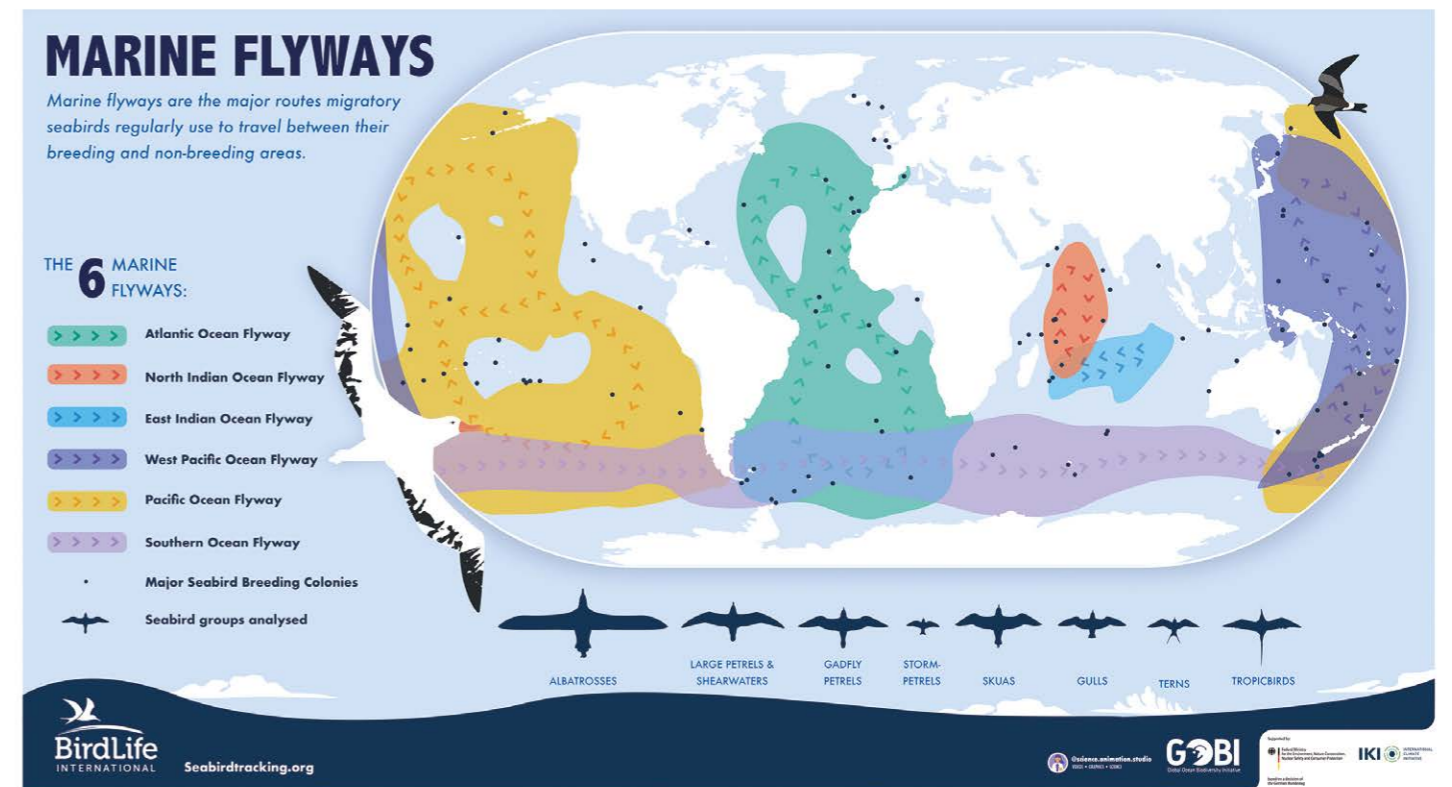
The Marine Flyways were identified by mapping the journeys of more than 1,000 seabirds from 48 different species and five seabird families, using data from the Seabird Tracking Database – a data platform for seabird researchers to share their tracking data, which now holds more than 30 million locations recorded from 160 seabird species and contributions from more than 275 seabird researchers. Both the database and the Marine Flyways work was supported by GOBI's grant from the International Climate Initiative.

The six Marine Flyways are: the Atlantic Ocean Flyway, the North Indian Ocean Flyway, the East Indian Ocean Flyway, the West Pacific Ocean Flyway, the Pacific Ocean Flyway and the

Southern Ocean Flyway (see map, right). The major oceanic seabird migratory routes occur within them. Across most of the flyways, seabirds can travel in both directions, with some species using the entire flyway and others just following segments. Species can also follow multiple flyways, linking ocean basins together through their journeys.

Within the Atlantic and Pacific oceans there are vast 'figure of eight'-shaped flyways. The routes correspond with the ocean gyres, currents and prevailing winds. The West Pacific Ocean Flyway is closer to the coastline and overlaps in places with the existing East Asian-Australasian Flyway, but the oceanic routes most seabirds used to fly south are now represented. Within the Indian Ocean there are two flyways, with seabirds migrating from breeding colonies in the West Indian Ocean either northwards to the Arabian Sea, or eastwards towards Indonesia and Australia. In the Southern Ocean there is a complete circumnavigation around the continent of Antarctica.

Seabirds are one of the most threatened groups of birds and many are migratory, undertaking incredible journeys across the planet – including from pole-to-pole or circumnavigating the globe – but the immense distances involved makes seabird conservation challenging. For example, Sooty Shearwaters depart breeding colonies in New Zealand to travel the length and breadth of the Pacific Ocean, flying approximately 1,000 km per day. Grey-headed Albatross have been recorded circumnavigating the Southern Ocean,



with the fastest recorded trip lasting just 46 days. And there is the record-breaking Arctic Tern, which undertakes the longest migration of any animal – up to 100,000 km every year, from high latitudes in the Northern Hemisphere to the Southern Ocean and back again. Within their lifetime (up to c. 30 years), they travel as far as the moon and back three times.

Seabirds can also offer insights into the overall ocean health. They are considered sentinel species, meaning that changes in population numbers can be early indicators of wider environmental issues. Instead of a canary in the coal mine, we instead should listen to the warnings from seabirds to inform us about changes to some of the remotest places on Earth.

Flyways can provide a pretext for linking countries, continents and people: they provide a framework for coordinated intergovernmental conservation action and have successfully led to partnerships to address major land-based threats for species and sites. Such multilateral coordination chimes well with the mandates and policy agendas of the Convention on Migratory Species and the Convention on Biological Diversity's Global Biodiversity Framework. In particular, as countries work to meet global commitments of protecting 30% of marine areas by 2030, considering connectivity across sites that are important for species will be critical to building a well-connected network of marine protected areas.

For more information:

www.seabirdtracking.org/case-studies/marine-flyways/
www.birdlife.org/globalflyways/

Main image: Arctic tern. Image courtesy Joanne Morten

Marine Flyways at CMS COP14

The 14th Conference of the Parties to the UN Convention on Migratory Species of Wild Animal (CMS COP14) takes place in Samarkand, Uzbekistan on 12-17 February 2024. BirdLife's Marine Flyways work will feature as a side event:

Thursday 15 February 2023, 12:45-13:30, Room 5
Marine Flyways: advancing coordinated conservation action for threatened migratory seabirds

This event will present an overview of the newly identified marine flyways and demonstrate how they can serve as a framework for international cooperation for conservation of migratory seabirds. The event will include case studies from the Pacific, and conclude with opportunities for interaction between CMS and other international agreements.





IMMA process to visit the NW Atlantic Ocean and Wider Caribbean region

Following its success in many regions of the global ocean, the Important Marine Mammal Area (IMMA) process will next visit the NW Atlantic Ocean and Wider Caribbean region.

Coordinated by IUCN's Marine Mammal Protected Areas Task Force (MMPATF), the IMMA initiative is an expert-driven process involving marine mammal specialists from the target region who pool their knowledge and expertise to identify discrete portions of habitat, important to marine mammal species, that have the potential to be delineated and managed for conservation. This process involves a week-long technical workshop to collate data and information to describe potential IMMAs, followed by an intensive expert review process before IMMAs are formally approved and entered into the IMMA e-Atlas.

IMMAs are identified in order to prioritise their consideration for conservation measures by governments, intergovernmental organisations, conservation groups and the general public. To date, the IMMA process has examined 72% of the ocean and identified 242 IMMAs. Nearly 300 scientists have been involved in one or more of the week-long workshops held now in 10 regions, and GOBI is proud to have supported 7 of these workshops and their associated assessment and review processes via its grant from the International Climate Initiative (IKI).

The forthcoming IMMA workshop for the NW Atlantic and Caribbean region will take place in Playa del Carmen, Mexico, on 13-17 May 2024, supported by the Water Revolution Foundation and organised in collaboration with the Sargasso Sea Commission, with additional support from the Animal Welfare Institute.

For more information and to view the IMMA e-Atlas, go to www.marinemammalhabitat.org/imma-eatlas/



Above: Region covered by the forthcoming IMMA workshop for the NW Atlantic and Wider Caribbean region (shaded darker blue). Map courtesy IUCN MMPATF.

Main image: Common dolphins, *Delphinus delphis*.
Image courtesy David Sellwood, IUCN MMPATF

The challenges of expanding ocean protection for deep-sea hydrothermal vents *by Elisabetta Menini, Duke University*

Deep-sea active hydrothermal vents – ecologically crucial yet vulnerable habitats – are increasingly threatened by human activities, notably deep-sea mining. A new global assessment of their conservation status recently published by Menini et al. (2023) reveals that while 25% of vents are under conservation interventions, only 8% benefit from full protection against extractive activities. From 1921 to 2020, 30 discrete conservation interventions were made. These include regulation-based management approaches and area-based management tools (ABMTs) established by 17 sovereign States in their Exclusive Economic Zone (EEZ) and/or Extended Continental Shelf Claim (ECSC), by three Regional Fisheries Management Organizations (RFMOs) and one international treaty in international waters.

However, the assessment exposes fragmented and discordant conservation measures across jurisdictions and vents' biogeographical provinces, leading to inadequate protection, especially in areas beyond national jurisdiction (ABNJ). The new study emphasises the significant growth in the number of conservation interventions involving hydrothermal vents. However, 100 vents benefit from only partial protection and more than 400 remain completely unprotected, indicating a substantial gap in safeguarding these unique ecosystems. The challenges extend beyond incomplete coverage to issues of consistency and coherence in the application of conservation measures – for example, marine protected areas that ban bottom trawling but allow seabed mining applications and vice versa. The analysis

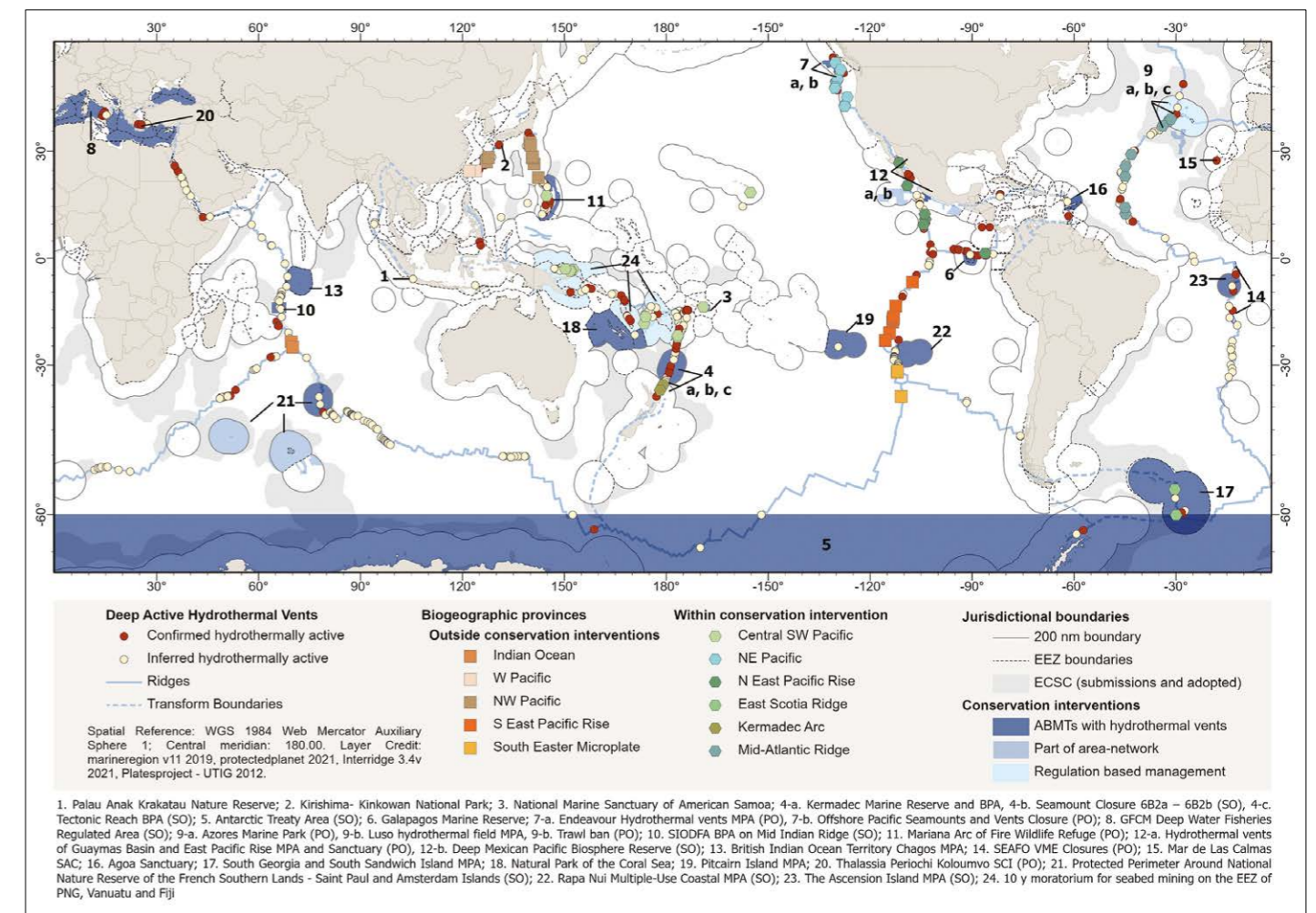


Figure 1: Conservation interventions with deep active hydrothermal vents in relation to their biogeographical provinces. World map illustrating the conservation interventions, consisting of area-based and regulation-based management measures, for deep-sea active hydrothermal vents across 11 biogeographical provinces and jurisdictions. The numbering indicates the chronological order of establishment, and lower-case letters represent discrete area-based management tools (ABMTs) in the same region. The figure's text box lists names and designations of conservation interventions. (Note: some area-based measures may be obscured due to Mercator projection distortion or ABMT size).

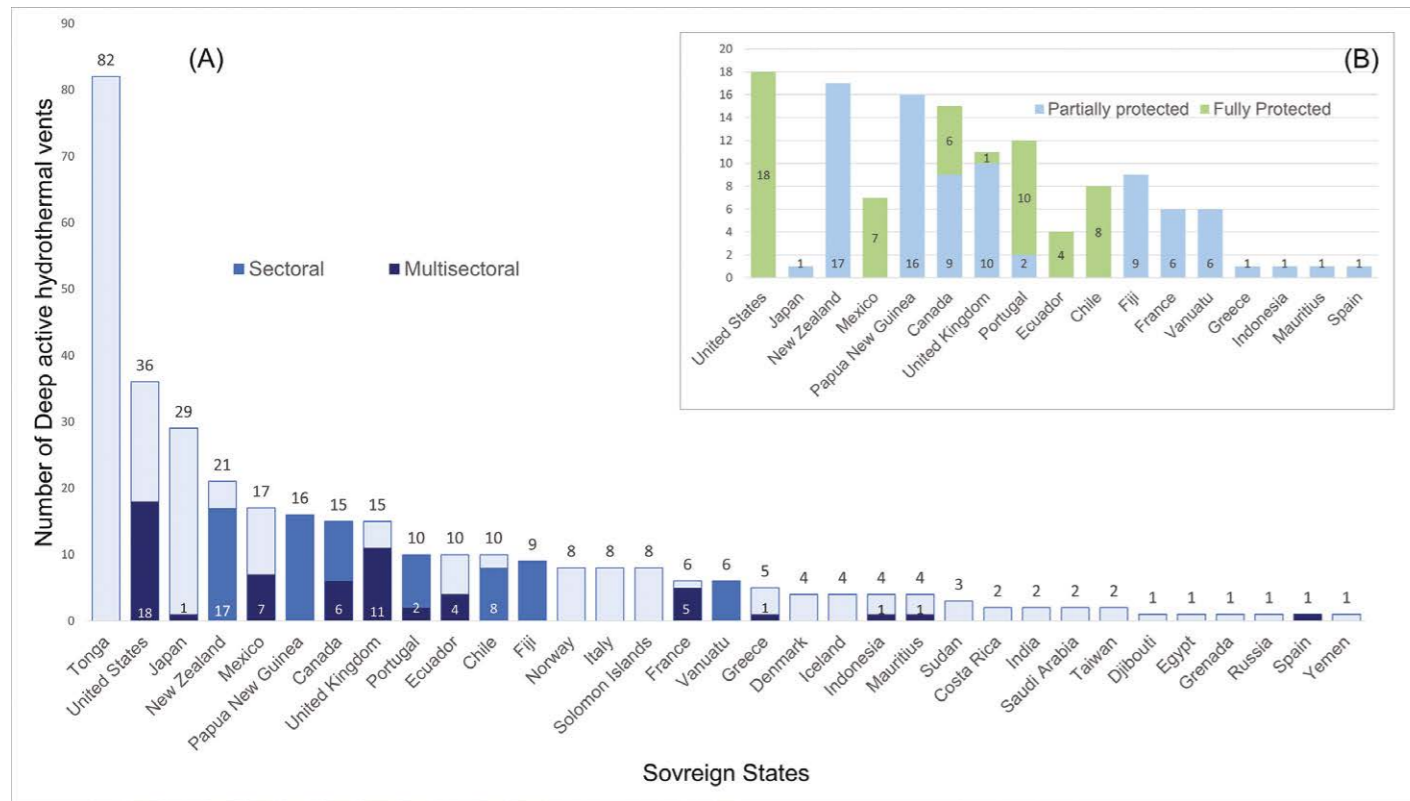


Figure 2: Modalities of management and level of protection in conservation interventions with deep active hydrothermal vents. (A) Number and modalities of management of active deep hydrothermal vents (HVs) by sovereign States. Numbers above each bar indicate the total number of HVs within the Exclusive Economic Zone. Numbers within the bars indicate the subset of HV within conservation interventions and modalities of management which are sectoral (blue) and/or multi-sectoral (dark blue). The bar's background color (light blue) represents the HVs that are not included in conservation intervention by the sovereign State. (B) Number of partially and fully protected HVs by sovereign States.

categorises conservation interventions into intentional, adapted, and incidental, revealing a lack of uniformity in protection levels, regulated sectors and management practices (see tables 1 & 2 in Menini et al., 2023). Even interventions implemented with the primary intention of protecting hydrothermal vents show a small fraction of vents being fully protected. This inconsistency raises concerns about the overall effectiveness of these interventions in ensuring the preservation of these ecosystems.

Moreover, only approximately half of the 11 biogeographic provinces are represented in these interventions. Notably, East Scotia Ridge, Central SW Pacific, Kermadec Arc, and the NE Pacific are fully or mostly covered, while the North-East Pacific Rise and the Mid-Atlantic Ridge have minimal representation. Alarming,ly, none of the defined biogeographical provinces in ABNJ currently have any conservation measures. Insufficient biological and ecological information on deep-sea hydrothermal vents makes it challenging to delineate the boundaries and characteristics of their biogeographical provinces accurately. The rarity of these ecosystems, coupled with their scattered nature and linear distribution on ocean ridges, further complicates conservation efforts. Further biogeographical research is needed to confirm the current provinces or identify new ones

so that it will be easier to improve ecological and biological representativity within a global strategy for conservation of active vents.

With the current momentum for ocean conservation, it is imperative to harmonise the management and protection of deep-sea vents globally, considering their biogeographic context and spatial distribution. This work will help align international initiatives to enhance baseline policies for their global protection.

In terms of existing strategies for enhancing protection, several international initiatives could be harmonised or coordinated to implement global conservation of active vents. These include the CBD's ecologically and biologically significant marine areas (EBSAs), Regional Environmental Management Plans (REMPs) under the International Seabed Authority (ISA), the new international agreement on marine biodiversity beyond national jurisdiction (BBNJ agreement), and the IUCN Red List of Ecosystems (IUCN RLEs):

- EBSAs, designated by CBD, acknowledge hydrothermal vents as unique and rare habitats. While EBSAs do not prescribe management or protection, they contribute to scientific knowledge exchange, and examples like

the Guaymas Basin Hydrothermal Vent sanctuary in Mexico showcase successful national implementation of protective measures. In ABNJ, information from the EBSA process has been used in proposing deep-sea hydrothermal vents as Sites in Need of Protection under the ISA.

- REMPs for the Mid-Atlantic Ridge and Indian Ocean Ridge, part of the ISA's conservation strategy and currently going through environmental policy procedures, may protect hydrothermal vents from mining activities in the Area. The potential designation of active vents as Sites in Need of Protection by the ISA could mark the first international effective protection of these ecosystems and promote it within the jurisdictional space of the ISA member States.
- The BBNJ agreement, addressing various elements including ABMTs, is crucial for improving coordination and cooperation in ABNJ. It aligns with the CBD Kunming-Montreal Global Biodiversity Framework, emphasising the importance of achieving 30% Earth surface conservation by 2030. The treaty text highlights the potential synergy between BBNJ and existing environmental management approaches in ABNJ, including those mentioned above and Vulnerable Marine Ecosystems identified by RFMOs.
- The IUCN RLEs, launched in 2014 and planned to be completed in 2025, provides a standardised tool for assessing ecosystem degradation. Applying these criteria

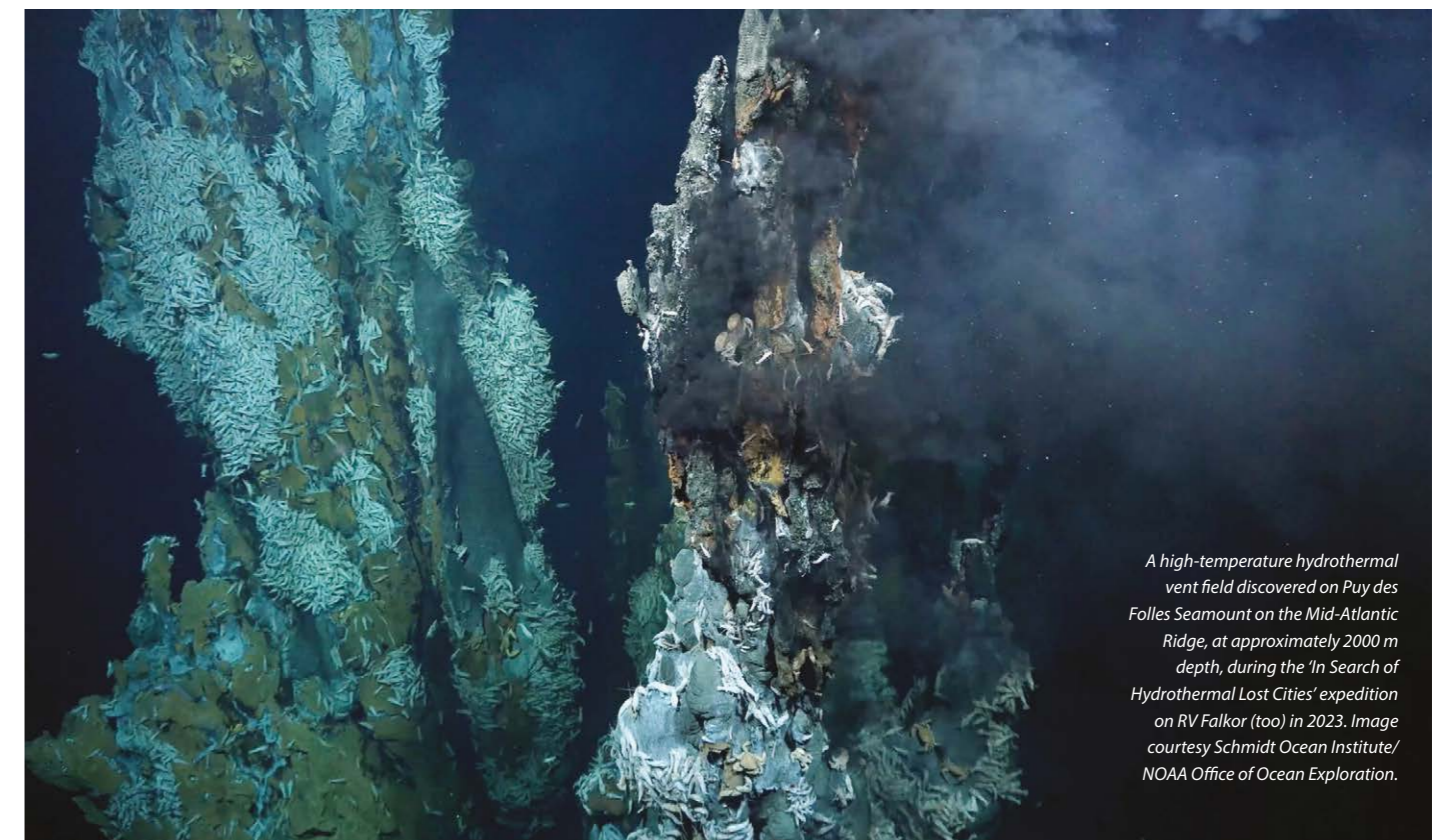
to hydrothermal vents could recognise their conservation importance globally and across jurisdictions. The recent development of a Red List of vent-endemic mollusc species further supports the feasibility of including hydrothermal vents in the IUCN RLEs.

Despite these initiatives, challenges persist. The call for a global moratorium on seabed mining in ABNJ resonates in various ocean governance events. However, even a complete ban may not be sufficient since it will remain a sectoral measure. Therefore, a more comprehensive set of holistic and multi-sectoral measures is needed to protect deep sea active hydrothermal vents.

In conclusion, while there is a growing interest in managing and protecting deep-sea vents, the current level of protection remains inadequate. The fragmented approach, potential impacts from seabed mining, and the insufficient representation of vent biogeographic regions call for urgent and coordinated global efforts.

Read the full article:

Menini E., Calado H., Danovaro R., Manea E. & Halpin P.N. (2023) Towards a global strategy for the conservation of deep-sea active hydrothermal vents. npj Ocean Sustainability. DOI [10.1038/s44183-023-00029-3](https://doi.org/10.1038/s44183-023-00029-3)



A high-temperature hydrothermal vent field discovered on Puy des Folles Seamount on the Mid-Atlantic Ridge, at approximately 2000 m depth, during the 'In Search of Hydrothermal Lost Cities' expedition on RV Falkor (too) in 2023. Image courtesy Schmidt Ocean Institute/NOAA Office of Ocean Exploration.

Sargasso Sea Commission co-hosts workshop on Particularly Sensitive Sea Areas on the High Seas

by Fae Sapsford and David Freestone, Sargasso Sea Commission

The Sargasso Sea Commission co-hosted a workshop on 'Particularly Sensitive Sea Areas (PSSAs) on the High Seas' on 13-15 November 2023 in San José, Costa Rica, together with the International Maritime Organization (IMO), World Maritime University (WMU) and MarViva.

To date, IMO has designated 18 PSSAs – including in 2023 the North-West Mediterranean PSSA, which extends beyond the territorial waters of Spain, France, Monaco and Italy. However, no PSSA has yet been designated on the high seas beyond 200 nautical miles. PSSAs are a tool to reduce the impacts of international shipping on an area that is deemed to have cultural, ecological or scientific importance. They can be used to achieve conservation outcomes on the high seas, though their focus is only on international shipping.

PSSAs can be designated according to cultural, ecological and scientific criteria. The ecological criteria for PSSAs match closely the Convention on Biological Diversity (CBD) criteria for description of ecologically or biologically significant marine areas (EBSAs), with both sets of guidelines including issues such as uniqueness/rarity, importance for species, and biological diversity and productivity. Many high seas areas, including the Sargasso Sea in the Atlantic Ocean, meet these criteria effortlessly – indeed, the Sargasso Sea was identified as an EBSA in 2014.

PSSAs are given legal significance by a required Associated Protective Measure (APM), which is authorised by an existing IMO instrument such as the Safety of Life at Sea (SOLAS), and the International Convention for Prevention of Pollution from

Ships (MARPOL). APMs include measures such as discharge restrictions, routing systems and reporting systems that can help to mitigate the vulnerability of the given area from international shipping. The bar to introducing an APM, and therefore a PSSA, can be high as it may be seen as infringing the right of freedom of navigation.

The November workshop benefited from the expertise of IMO staff and explored the criteria for PSSA designation, the procedures that are necessary to make an application for PSSA designation in a high seas area, and recent practice in such designations and their APMs. There was a great deal of attention paid to the North-West Mediterranean PSSA, which is located in waters beyond the territorial seas but not beyond 200 nm – waters that have not been claimed as EEZs. The proposal used voluntary measures to prevent vessel collisions with cetaceans as a groundbreaking APM in order to achieve a PSSA in this new arena.

The workshop closed with working groups looking at the feasibility of PSSA designation for the Sargasso Sea and the Costa Rica Thermal Dome, two sites representative of the diversity and importance of high seas ecosystems but which face significant challenges posed by international shipping. More than 40 participants from governmental authorities, academia and non-governmental institutions from 18 different countries bordering or having an interest in the protection of the Sargasso Sea and the Thermal Dome attended the workshop, as well as representatives from the Central American Maritime Transport Commission (COCATRAM).

This workshop was generously co-funded by World Maritime University, the SARGADOM project through the Sargasso Sea Commission and MarViva, and the Global Environment Facility Sargasso Sea Project.

Left: Participants at the PSSA in the High Seas workshop in Costa Rica. Image courtesy Sargasso Sea Commission.



United Nations
Climate Change



Ocean biodiversity at COP28

by David Johnson, GOBI Coordinator

The annual meeting of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) is the forum for some 200 countries to set goals and make plans for how to address climate change. Eight years ago at UNFCCC COP21, the Paris Agreement set a goal to limit global warming to 1.5 °C above pre-industrial levels. Having already reached an estimated 1.2 °C, many doubt this target is now realistic. Part of the Paris Agreement requires a progress report – a so-called 'global stocktake' – due for completion in 2023 and a key focus of attention for climate action followers all over the world.

The 70,000 delegates at this year's UNFCCC COP28 were focused on climate mitigation (especially the phasing out of fossil fuels), a loss and damage funding deal of over US\$650 million (funding pledged by wealthy nations to support vulnerable developing countries adversely affected by climate change impacts), and acknowledging waste as a huge contributor to global emissions. An agreed 'transition' away from fossil fuels and new voluntary agreements on methane and renewables were heralded as successes, together with a High Level Joint Statement for countries to better integrate nature and biodiversity in their national climate strategies.

However, despite increasing awareness of the complex and interconnected ocean-climate nexus – the ocean's pivotal role in sequestering carbon, absorbing excess heat and influencing wind and wave climate patterns – ocean biodiversity remains a sideshow at the UNFCCC. The subset of countries¹ who have formed the Ocean Panel (a high-level panel for a sustainable ocean economy) reiterated

their commitment to sustainably manage 100% of their respective ocean jurisdictions. At COP28 the Ocean Panel tabled a joint declaration recognising urgent need for climate action to protect ocean health and the importance of ocean-based climate solutions to rapidly reduce emissions. These 17 countries and the Secretariat of the Organization of American States advocate for Sustainable Ocean Plans that should marry marine biodiversity conservation and sustainable use with Nationally Determined Contributions (a non-binding national plan highlighting climate change mitigation, including climate-related targets for greenhouse gas emission reductions).

In the margins of the COP, in a dedicated pavilion in the Blue Zone, the United Nations Decade of Ocean Science for Sustainable Development (hosted by the International Oceanographic Commission) and Ocean X (a philanthropic ocean exploration initiative) promoted the role of science, media, technology and education to achieve ocean solutions. COP28 also saw efforts urging countries to ratify the BBNJ Treaty, recognising the impacts of record sea temperatures and marine heatwaves.

Championing the role of marine biodiversity in the COP28 discussions, the Deep Ocean Stewardship Initiative (DOSI) produced a Policy Brief on 'Incorporating deep-ocean biodiversity into climate change policy'. The aim of policy briefs like this is to attract attention, inform and – where possible – galvanise decision-makers into action. The DOSI brief has clear headline messages:

- Deep-ocean biodiversity underpins climate stability by sequestering carbon and regulating the global carbon cycle;
- Human disturbance of deep-ocean biodiversity diminishes the oceans' capacity to remove carbon from the atmosphere; and
- It is essential to incorporate protection of deep-ocean biodiversity into UNFCCC policy.

Read the full brief at: www.dosi-project.org/wp-content/uploads/deepsea-biodiversity-and-climate-change.pdf

Left: Conclusion of the COP28 summit. Image courtesy Kiara Worth/UN Climate Change



¹ Australia, Canada, Chile, Fiji, France, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Palau, Portugal, Seychelles, UK and USA



pollution consistent with the Cartagena Convention and MARPOL. A side event hosted by the World Bank presented research on a regional view of the problem (World Bank, 2023). Not surprisingly, however, there is divergence in opinion, with some countries suggesting that existing tools should not be replicated. Delegations addressed options relating to global standards for waste management and country-driven waste management, respectively, with several preferring the latter. Many expressed support for addressing the full lifecycle of ALDFG; others suggested placing ALDFG under provisions addressing emissions and releases, while noting the need for a just transition for artisanal fishers.

The Plastics Treaty now enters a more advanced phase using the agreed draft as the basis for further negotiations in April 2024.

World Bank (2023) Tangled Seas: A snapshot of Abandoned, Lost, or otherwise Discarded Fishing Gear in South Asia. Washington D.C.



The path towards a legally binding Plastics Treaty

by David Johnson, GOBI Coordinator

As with all international legally binding instruments, the ongoing negotiation to develop a treaty on plastic pollution, including the marine environment, is a carefully considered, slow, iterative process. A standard UN mechanism to inform a collective approach to problems such as this is to pass a resolution to form an Ad Hoc Expert Group (AHEG). For the Plastics Treaty such a resolution was passed in 2017. The AHEG took stock of the problem and of multiple responses and innovative solutions, but recognised gaps and the enormity of the task. The statistics are stark:

- An estimated 10 billion tonnes of plastic has been produced since the 1950s;
- 8 billion tonnes of this is now waste;
- 10-15 million tonnes of plastic is leaking into the marine environment each year; and
- Trends predict the amount entering the marine environment will triple by 2050.

At a Ministerial Conference in 2021, Peru and Rwanda tabled a bold resolution to end plastic pollution. Developing the legislation is now the responsibility of an International Negotiating Committee (INC) who, as of November 2023, have met three times in response to the resulting historic

United Nations Environment Assembly resolution 5/14. The third meeting of the INC (INC-3; 13-19 November 2023) marked a so-called 'mid-way point' with the aim of achieving a final agreed text by the end of 2024.

Substantive discussions at INC-3 focused on Part II of the zero draft text. This included views on targets to reduce primary plastic polymers, standards to eliminate chemicals and polymers of concern, and a ban or phase-out of problematic and avoidable plastic products (including short-lived and single-use plastic products and intentionally added microplastics). The life cycle approach encompasses duty of care for product design, non-plastic substitutes, extended producer responsibility and waste management. Reducing impacts on ocean biodiversity also requires measures to deal with transboundary pollution, accumulation zones and hotspots.

For GOBI, key marine plastics issues are the effects of ingestion and entanglement on marine species. In particular abandoned, lost, or discarded fishing gear (ALDFG) is a class of marine debris with far-reaching negative impacts. There was a push at INC-3 to include ALDFG in the provisions of the Plastics Treaty as well as to address cross-border ALDFG

BBNJ experts gather for 2-day symposium

On 6-7 October 2023, more than 500 delegates convened for The High Seas Treaty Symposium, a 2-day discussion of implementation opportunities for the new international treaty to protect marine biodiversity beyond national jurisdiction (BBNJ Agreement), adopted by the United Nations in June 2023.

The symposium, convened in Edinburgh, UK, took place as nations prepare to sign, ratify and apply the new legal framework set out by the BBNJ Agreement – the culmination of decades of work to pull together the fragmented regime to manage how humanity uses two-thirds of the world's ocean. Supported by a range of sponsors (including GOBI), the symposium brought together more than 100 organisations from 50+ nations, both in person and online, to discuss the opportunities and challenges in transitioning this historic agreement from negotiation to implementation.

"If we are to protect the health of our oceans and achieve political goals such as protecting 30% of the ocean by 2030, the global community needs to be ambitious in its implementation of the historic BBNJ Agreement," said Symposium Chair Prof. Murray Roberts (University of Edinburgh). "This symposium provided a critically important opportunity for us to take stock and evaluate the potential challenges and opportunities as nations move to ratify and eventually implement this historic agreement."

The symposium comprised 10 expert panels covering key aspects of the BBNJ Agreement, focusing on the four pillars of the treaty: marine genetic resources, area-based management tools, environmental impact assessments, and capacity-building and the transfer of marine technology.

GOBI Coordinator David Johnson chaired the panel on area-based management tools, featuring a keynote presentation from IUCN's Aurelie Spadone and subsequent discussion with experts Joe Appiott (CBD Secretariat), Cindy Van Dover (Duke University), Guillermo Ortuño Crespo (independent scientist) and Dominic Pattinson (OSPAR Secretariat).

Full details of the Symposium, including video highlights, are available at: high-seas-treaty.org



Above: Panel on ABMTs, featuring experts (L-R) Joe Appiott, Guillermo Ortuño Crespo, Dominic Pattinson, Cindy Van Dover and Aurelie Spadone. Image [jfdmedia.com/BBNJ Symposium 2023](https://jfdmedia.com/BBNJ_Symposium_2023).

Institutionalising science and knowledge under the BBNJ Agreement: Stakeholder perspectives on a fit-for-purpose Scientific and Technical Body

by Christine Gaebel, University of Edinburgh

After nearly two decades of dedicated effort, a new agreement under the United Nations Convention on the Law of the Sea (UNCLOS) for the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ Agreement) was formally adopted in June 2023. This historical agreement marks a significant step forward for marine biodiversity governance in areas beyond national jurisdiction – an area consisting of both the water column and seabed outside coastal state jurisdiction and which accounts for more than 64% of the global ocean’s surface area.

Under this Agreement, implementation is to be guided by the use of the best available science and knowledge. While there are many different ways that science and knowledge will enter the decision-making process, one important avenue will be through the establishment of a Scientific and

Technical Body (STB). This advisory body, established under article 49 of the Agreement, will be tasked with providing scientific and technical advice to the Conference of the Parties (COP), as well as fulfilling other functions conferred throughout the text and by the COP. Notably, while the text of the agreement provides an overarching framework for the STB, its formation and working modalities are to be determined by the COP after the BBNJ Agreement enters into force. As such, this marks a pivotal moment to consider what a fit-for-purpose STB would entail for BBNJ and what is needed to operationalise this in practice.

Our recent study, published in *Marine Policy*, delves into the intricacies of the future STB to offer insights to support decision-makers in this task. Drawing on perspectives gleaned from 40 stakeholders, including individuals from State delegations, intergovernmental organisations, non-

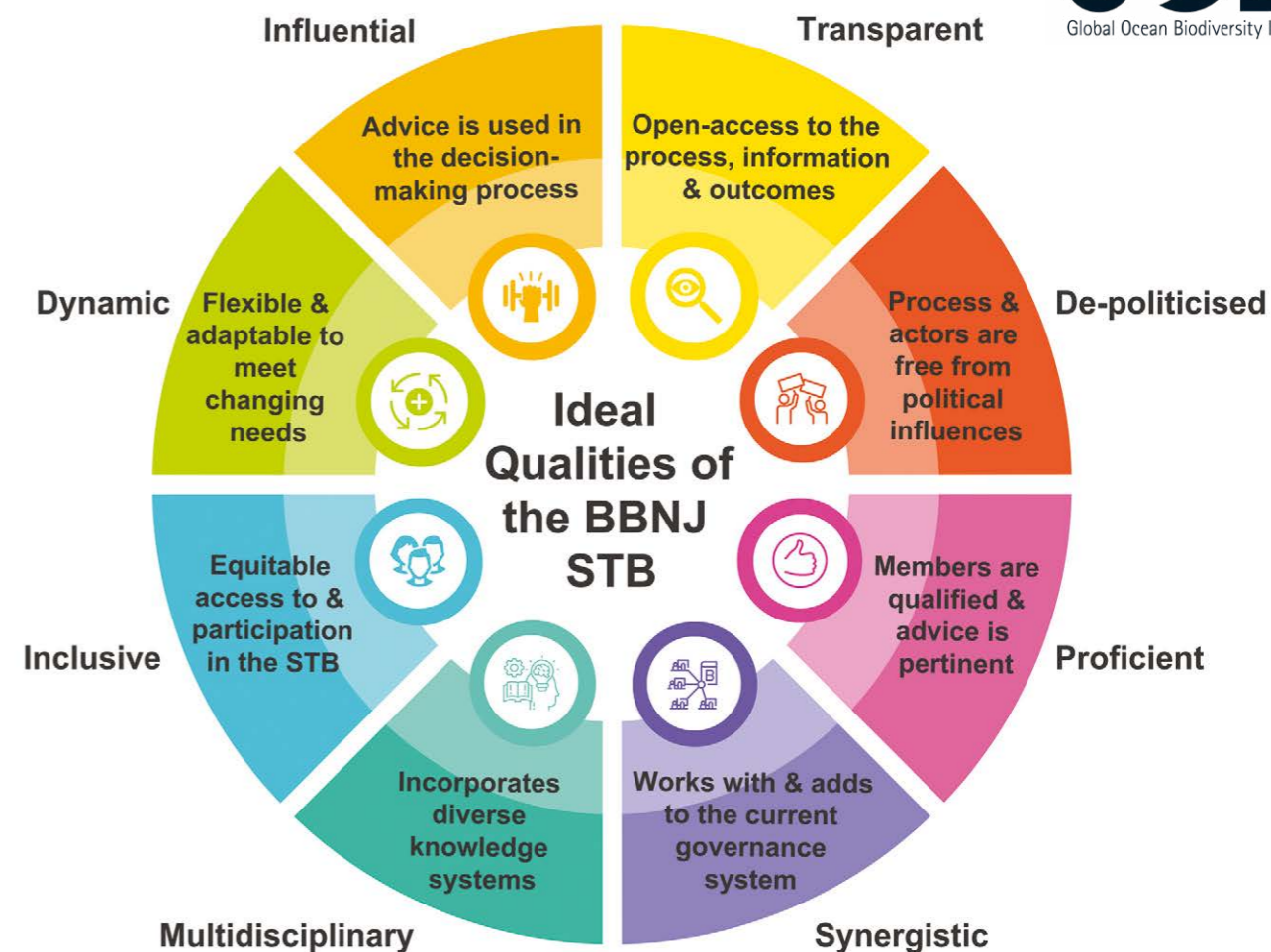


Figure 1: Ideal qualities of the BBNJ Agreement’s Scientific and Technical Body (STB) as identified by BBNJ stakeholders. Image courtesy Gaebel et al. (2023).

governmental organisations, and academic and research institutions, our findings identify eight important qualities for the STB to encompass (Figure 1), as well as barriers and enablers for translating these norms into practice.

While operationalising a proficient STB – one which provides high-quality and pertinent advice – was seen as essential, our study identifies a broader spectrum of qualities that stakeholders deem to be crucial for success. Recognising the complex landscape of existing conventions, bodies, and frameworks, participants emphasised the need for a synergistic approach which supports and adds value to the existing governance-scape in areas beyond national jurisdiction. They highlighted that a fit-for-purpose STB would be dynamic and capable of adapting to evolving and differing needs across space, time and topics. Inclusivity emerged as a vital aspect, with participants advocating for equitable participation, as well as the integration of diverse knowledge systems, including knowledge of Indigenous Peoples and local communities. The importance of transparency was stressed, emphasising the need for open access to the STB’s processes, information, and outcomes, while striving to depoliticise its processes and outputs.

Ultimately, resounding support for the STB was voiced, as well as a desire for this body to have a meaningful and influential role within the decision-making process.

It is evident that operationalising a fit-for-purpose STB that reflects the wide range of qualities identified in our study could pose a substantial challenge. As the BBNJ Agreement awaits ratification by 60 States before entry into force, we are at a critical juncture to reflect on current practice, as well as research and studies such as ours, to better understand what a fit-for-purpose STB would entail and how this can be effectively implemented to best support the conservation and sustainable use of BBNJ.

Read the full article:

Gaebel C., Novo P., Johnson D.E. & Roberts J.M. (2024) Institutionalising science and knowledge under the agreement for the conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction (BBNJ): Stakeholder perspectives on a fit-for-purpose Scientific and Technical Body, *Marine Policy*, DOI [10.1016/j.marpol.2023.105998](https://doi.org/10.1016/j.marpol.2023.105998)

Applying the CBD's MPA network criteria

by David Johnson, GOBI Coordinator

Experts from several GOBI partner organisations were part of the Marine Biodiversity Dialogues, an international task force that has developed a scientific framework to assess the abundance and distribution of marine biodiversity – a framework that has now been applied to the waters of the United States. This effort was sponsored by the Lenfest Ocean Program, a grant-making programme established in 2004 by the Lenfest Foundation and managed by The Pew Charitable Trusts.

The results, now published in a paper in *One Earth*, are an authoritative analysis that informs policymakers implementing the U.S. White House Ocean Climate Action and National Ocean Biodiversity Strategy, and were made available for the U.S. National Ocean Biodiversity Summit on 23 January 2024. For example, the analysis identifies opportunities for strategic expansion of protected areas, grouping areas of current protection that fall short.

Headline information is summarised in a useful factsheet containing the following key messages:

- U.S. protected areas fail to meet network criteria, despite 26% of U.S. marine waters being in some form of protection;
- MPAs vary widely in success across ecoregions. There are no fully protected areas that are both large and well-connected, and less than two-thirds are in some form of protection;

- Balancing multiple network criteria is key. Some regions have lower area coverage but more effective MPAs because they better balance representativity, replication and connectivity;
- We likely overestimate protection because of data gaps, including sparse information from outside of MPAs, oceanic waters (vs coastal systems), and invertebrate species (vs vertebrates).

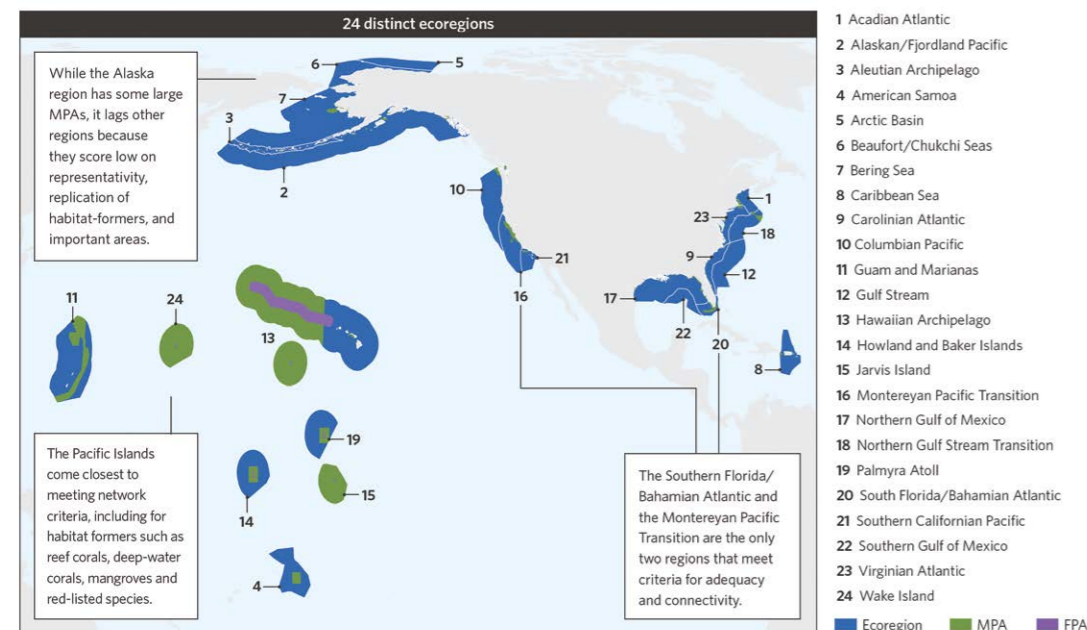
This is the first example of a comprehensive assessment applying the CBD's network criteria in Annex 2 of Decision IX/20 on Marine and Coastal Biodiversity.

Dr Daniel Dunn (University of Queensland), one of the three lead authors, said "This is a huge step forward in evidence-based conservation and understanding gaps in marine conservation in the U.S. The study provides a national baseline that we can assess progress against, which is critical for the U.S. to meet its global commitments under the Sustainable Development Goals and national commitments to delivering 30x30."

Read more...

Factsheet: www.lenfestocean.org/en/news-and-publications/fact-sheet/new-framework-to-assess-marine-biodiversity-in-us-waters

Full article: Gignoux-Wolfsohn et al. (2023) New framework reveals gaps in US ocean biodiversity protection. *One Earth*, DOI [10.1016/j.oneear.2023.12.014](https://doi.org/10.1016/j.oneear.2023.12.014)



Left: Currently 26% of U.S. waters are in an MPA or FPA, seemingly close to the 30% target. However, this 26% obscures large spatial variations and substantial gaps in which species and habitat types are protected, underscoring the importance of evaluating protections using data on biodiversity and a more comprehensive network criteria. Image courtesy Lenfest Ocean Program.

Conservation of the Arctic marine environment within OSPAR's maritime area

by Carole Durussel, OSPAR Secretariat

The OSPAR Commission is the Regional Sea Convention responsible for the protection of the marine environment of the North-East Atlantic. It brings together 15 governments and the European Union to deliver coordinated action to monitor, assess and develop measures to address pressures impacting the health of the North-East Atlantic. Through OSPAR, Contracting Parties collaborate to take action to secure its vision of a clean, healthy, and biologically diverse North-East Atlantic that is used sustainably.

At the last OSPAR Ministerial meeting, which took place in October 2021 in Portugal, OSPAR Ministers signed the Cascais Ministerial declaration, which "[...] recognises the unique biodiversity of the Arctic, part of the OSPAR maritime area and commit to protect the Arctic marine environment, including through collaboration with other relevant organisations, such as the Arctic Council and the International Maritime Organisation". This Declaration supports the relevant objectives under OSPAR's 2030 North-East Atlantic Environment Strategy – which is the Strategy by which OSPAR's Contracting Parties implement the OSPAR Convention until 2030 – including those concerning area-based conservation measures, such as marine protected areas (MPAs) and other effective area-based conservation measures (OECMs).

The Arctic Outcomes Working Group (AOWG) was established in June 2022 to deliver the 2022-2025 Arctic Outcomes Roadmap, which sets out the steps considered necessary to support the delivery of this commitment. As

part of this Roadmap, OSPAR organised an OSPAR Arctic Workshop in Copenhagen, Denmark, on 16-18 October 2023. The workshop was attended by 56 participants, who represented governments, Indigenous Peoples, civil society, academia, and research institutions. The objective of this workshop was to present and discuss a draft version of the 'OSPAR Arctic Waters Report: evidence and options for action', which compiles the scientific information and Indigenous Knowledge gathered by the AOWG on pressures, current and planned activities, and existing management and conservation measures in the Arctic marine environment.

Based on the information and knowledge gathered in this report as well as the initial ideas for possible OSPAR measures and actions proposed by the OSPAR Committees and by the workshop participants, a non-exhaustive list of possible measures and actions that OSPAR could consider to enhance the protection and conservation of the Arctic marine environment in the OSPAR maritime area was developed.

In 2024, the AOWG will develop, based on this non-exhaustive list, proposals for possible future OSPAR measures and actions to deliver OSPAR's commitment to protect the Arctic marine environment within its maritime area, with the aim of their adoption at the next OSPAR Ministerial Meeting in 2025.

Below: Participants at the OSPAR Arctic Workshop. Image courtesy OSPAR 2023.



Navigating ocean sustainability: A dive into the Marine Regions Forum 2023

by Anastasia Roberts, RIFS Potsdam

On 7-9 November 2023, 183 people travelled to Dar es Salaam, Tanzania to join talks at the second Marine Regions Forum 2023, under the theme 'Navigating ocean sustainability in the Western Indian Ocean and beyond'. This 3-day conference, co-hosted by the Republic of Seychelles and United Republic of Tanzania, brought together a diverse ensemble of stakeholders from the Western Indian Ocean (WIO) and other marine regions. Stakeholders ranged from scientists and government representatives, to private sector and civil society. Using a co-creative approach, participants discussed the pressing issues facing the marine ecosystem, the communities reliant on it, brainstormed solutions to encourage knowledge exchange, and shared examples of good practice in regional governance processes with the goal to improve regional ocean governance. Although the WIO was the focus of discussions, many of the issues raised were not limited to the WIO region, highlighting the interconnectedness of marine regions.

Emphasis was placed on the Global Biodiversity Framework's endorsement of the 30x30 target to protect 30% of the world's

oceans by 2030. Shockingly, biodiversity loss in marine regions is happening at a rate twice that of terrestrial areas – losses driven by pollution, climate change and unsustainable resource use. Marine heatwaves in the WIO region, notably on Madagascar's west coast, are a significant concern. High-resolution models derived from emissions data predict that marine heatwaves will last 10-12 months by 2035, with devastating impacts on nature and people as species are predicted to move away from the equatorial regions. The Forum shone a spotlight on conservation strategies to adapt to climate change, such as area-based management tools (ABMTs) and nature-based solutions. Participants discussed that the key to the success of ABMTs is equipping local marine protected area (MPA) managers with resources for effective stewardship, along with scaling up financing for conservation initiatives. Other key enabling factors discussed included inclusive and equitable governance; a human rights-based approach; representation of ecological systems, connectivity and efficient management; acknowledgment of the various governance methods, and new financial models in preserving marine biodiversity.



Marine Regions Forum group photo at the Ramada Hotel. Image courtesy Anastasia Rodopoulou.



Above: Participants engaging in the 'Tackling the Triple Planetary Crisis' session on innovative solutions. Image courtesy Anastasia Rodopoulou.

Shifting the spotlight to the strand focused on implementing global goals at the regional scale, the discussion turned to biodiversity beyond national jurisdiction (BBNJ). The establishment of the new BBNJ Agreement was a great success in 2023 with 83 states signing. However, 60 ratifications are needed for it to enter into force. Contributors from South African National Biodiversity Institute, Kerry Sink and Kirsty McQuaid, shed light on known and unknown deep-sea ecosystems, their importance in supporting biodiversity, and underscored the risk of inadvertently destroying what remains unexplored and unknown. The need for capacity and resources to study biodiversity in the high seas was emphasised, and the treaty's potential to create new opportunities for MPAs was explored.

Diving into the legal and policy realms of the biodiversity beyond national jurisdiction, Minna Epps (IUCN) and Pradeep Singh (RIFS) addressed the complexities of deep-sea mining. A panel discussion focused on economic and financial aspects, common heritage status of mineral resources, loopholes in the regulations and the pressing need for civil society mobilisation. Discussions highlighted the discrepancy between companies ready to commence mining activities and the growing number of stakeholders, including countries, calling for a moratorium or precautionary measures.



Amidst the challenges, innovative solutions shone through. Ted Schmitt (AI2) presented the Skylight project, which is deploying AI for high-seas surveillance using real-time data and only a 2-hour delay to detect illegal fishing activities. The success of such technological interventions will require capacity building, from training in technology use and data analysis, to how to use the data to inform decision-making and surveillance and enforcement. Another beacon of hope emerged with the Seychelles marine region boasting the world's largest coral reef and island restoration project – a coral gardening initiative. This not only revived coral reefs but played a critical role in supporting bird species, showcasing the links between terrestrial and marine management.



Above: The Marine Region Forum research team from RIFS, TMG - Think Tank for Sustainability, and Institute for Sustainable Development and International Relations (IDDRI). Image courtesy IISD/ENB.

As the conference drew to a close, the resounding message was clear: the fate of our ocean lies in our collective hands. The delicate dance between economic interests and environmental conservation will continue, but the urgency for sustainable solutions echoed through the exchanges. Discussions from the Marine Regions Forum 2023 conference will help inform upcoming events such as the 2024 Ocean Decade conference. By facilitating open exchange and dialogue across sectors, and disseminating emerging recommendations to the formal policy processes, the conference supports implementation of ocean governance, from the local and regional, up to global level.

For more information on the Marine Regions Forum please visit www.prog-ocean.org/marine-regions-forum/

Left: Minna Epps (IUCN) and Pradeep Singh (RIFS) discuss deep-sea mining issues. Image courtesy IISD/ENB.



Humpback whale breaching at Stellwagen National Marine Sanctuary. Image courtesy NOAA.

The Marine Mammals Management Toolkit

An innovative tool for the effective management of marine mammals within MPAs

by Francis Staub & Thomas Dallison

Marine mammals play a crucial role in marine ecosystem function, providing valuable ecosystem services. However, with marine mammal populations facing the mounting threats of shipping, bycatch and pollution, amongst many others (and predicted to be further aggravated by climate change), there is an unquestionable need for the development and implementation of effective management plans to support the conservation of these species. Marine protected areas (MPAs), amongst other area-based management tools (ABMTs), have been essential in conserving and managing marine mammal populations. Yet their success is often restricted by a lack of resources and capacity, both financial and technical, which hinders the ability of managers and practitioners to make specific management decisions.

To aid those interested in the conservation of marine mammals to overcome such barriers, the Marine Mammal Twinning initiative, part of the EU-funded Ocean Governance project, has designed and created a dedicated toolkit to equip MPA managers with effective tools to help improve the management and conservation of marine mammals.

The Marine Mammals Management Toolkit contains four key components:

- **Factsheets** provide critical resources and information for managers and practitioners. They are designed to support the integration of marine mammals to their area-based management plans, including MPAs and Sanctuaries, at various stages from planning to implementation. The factsheets cover 5 main themes: Management

Frameworks, Addressing the Activities and Threats, Research and Monitoring, Outreach and Engagement and Management Effectiveness. Each factsheet contains an introduction to the topic, provides information and guidance on how to manage the problem or integrate the solution (including conservation guidelines), as well as additional resources such as localised contexts through case studies, and relevant news articles. The latest factsheet focuses on climate change considerations for managers.

- The **self-assessment tool**, or SAT, enables MPA managers to understand and adapt the level of protection given to marine mammals. Available both in Excel format and online, in English, French and Spanish, the SAT is a multiple-choice based tool generating a dashboard based on responses to questions identifying gap and strengths in management plans to support adaptive management. A light version of the Self-Assessment Tool (SAT-LITE) is also available and acts as a precursor to the SAT, or can be utilised as a monitoring tool between the use of the full version.
- **Good practices** provide examples of management actions, initiatives and/or successful conservation actions to further support management plans, and activities in and around MPAs.
- A **Community of Practice** brings together managers and practitioners from around the world with the common goal of ensuring that marine mammals are effectively managed within management plans. It is open to

all, from local and small MPAs, to managers of large international transboundary Sanctuaries, as well as those involved in the planning and pre-establishment phase of ABMTs. Members can identify and network with fellow MPA and marine mammal experts, share good practices and lessons learned. Knowledge can be exchanged whilst sharing technical resources and obtaining support and guidance from mentors, ultimately supporting the effective management and conservation of marine mammals, mitigating threats and protecting biodiversity.

To date, the SAT has been applied in 23 different MPAs and Sanctuaries across 19 countries (see map below). It has recently been applied by the Kenya Wildlife Service in the Kiunga Marine Biosphere Reserve, a designated UNESCO Biosphere Reserve, and by the Department of Conservation (part of Zanzibar's Ministry of Blue Economy and Fisheries) within two of their MPAs: the Mennai Bay Conservation Area (already identified as an Important Marine Mammal Area), and the Tumbatu Marine Conservation Area. In addition, the SAT has been used by Stellwagen Bank National Marine Sanctuary (USA) to evaluate their existing management plan, by managers at the Iroise Natural Marine Park (France),

is being used to guide the development of a management plan for the Bermuda Marine Mammal Sanctuary, and has been integrated into the monitoring and evaluation plan for the AGOA Sanctuary in the Caribbean.

The Toolkit can also be used at national level to support countries' contributions to international agreements and targets, including the recently adopted Kunming-Montreal Global Biodiversity Framework (GBF) – particularly targets 1, 3, 4 and 21.

To further support and aid managers and practitioners, the Twinning is developing a series of online tutorial videos to highlight how, why and when to use the various components of the Toolkit. The first of these videos, an introduction to the Marine Mammals Management Toolkit, is available via the Supporting Resources page of the Toolkit: <https://marine-mammals.info/supporting-resources/>

To learn more about the Marine Mammal Twinning or to access the Marine Mammal Management Toolkit and SAT-LITE version, please visit www.marine-mammals.info, or email ocean-governance@biodiv-conseil.fr.





The Coral Reef Breakthrough

An urgent call to action for 25% of life in our ocean

Coral Reef Breakthrough aims to prevent extinction of one of the world's most threatened, yet most valuable and most biodiverse ecosystems

The International Coral Reef Initiative (ICRI), a network including 45 countries who represent over 75% of the world's coral reefs, has launched the Coral Reef Breakthrough in partnership with the Global Fund for Coral Reefs (GFCR) and the High-Level Climate Champions (HLCC). The Coral Reef Breakthrough aims to secure the future of at least 125,000 km2 of shallow-water tropical coral reefs with investments of at least US\$12 billion to support the resilience of more than half a billion people globally by 2030.

In addition to broad-based climate action, the Coral Reef Breakthrough will be achieved through:

- **Action point 1** Stop drivers of loss: Mitigate local drivers of loss including land-based sources of pollution, destructive coastal development, and overfishing.
- **Action point 2** Double the area of coral reefs under effective protection: Bolster resilience-based coral reef conservation efforts by aligning with and transcending global coastal protection targets including 30by30.
- **Action point 3** Accelerate Restoration: Assist the development and implementation of innovative solutions at scale and climate smart designs that support coral adaptation to impact 30% of degraded reefs by 2030.
- **Action point 4** Secure investments of at least USD 12

billion by 2030 from public and private sources to conserve and restore these crucial ecosystems.

Achieving the Coral Reef Breakthrough means preventing the functional extinction of one of the world's most threatened, yet most valuable, and most biodiverse, ecosystems.

The Breakthrough was launched through the ICRI 37th General Meeting in September 2023 and developed with support from the Government of Sweden and the Principality of Monaco.

Meeting the targets of the Coral Breakthrough will be instrumental achieving the Sustainable Development Goals (SDGs), particularly SDG14, Life Below Water. Actions to conserve, protect and restore 50% of the world's coral reefs would potentially generate over US\$18 billion in tourism revenues annually, preserve important fishing grounds and spawn aggregations for commercially important species, and safeguard US\$5.5 billion of coastal economic value through shoreline protection. Securing the future of coral reefs identified as climate refugia would also provide hope for lasting recovery and potential to resist climate threats in the decades to come.

For more information: coralbreakthrough.org






Global Ocean Biodiversity Initiative

Providing the scientific basis for conserving biological diversity in the global ocean

The Global Ocean Biodiversity Initiative is an international partnership of organisations committed to advancing the scientific basis for conserving biological diversity in the marine environment. In particular, GOBI contributes expertise, knowledge and data to support the Convention on Biological Diversity's efforts to identify ecologically and biologically significant marine areas (EBSAs) by assisting a range of intergovernmental, regional and national organisations to use and develop data, tools and methodologies.

GOBI also undertakes research to generate new science that will enhance the value of EBSAs and their utility for promoting environmental protection and management for specific areas of the world's oceans. The intention is ultimately to reduce the rate of biodiversity loss through the application of ecosystem approaches to the management of human activities, and to support the establishment of networks of representative marine protected areas in national and international waters.

The GOBI partnership and activities are coordinated by a Secretariat team, provided by Seascope Consultants Ltd. GOBI was funded by the International Climate Initiative (IKI) during the period 2016-2023, and is currently supported by direct funding from the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV).

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2021-2030 United Nations Decade of Ocean Science for Sustainable Development