GOBI
Global Ocean Biodiversity Initiative

Newsletter

Summer 2021

www.gobi.org

There's still only one ocean

There's still only one ocean

by Christopher Barrio Froján, GOBI Secretariat, and David Johnson, GOBI Coordinator

As science and prudent leadership slowly guide us towards the light at the end of the pandemic tunnel, we are hopefully able to concentrate again on addressing the more insidious threat we all face: the looming climate and biodiversity crises[1], both of which have the ocean at their core[2,3]. Thankfully, leading minds have not sat idle during the various waves of societal lockdown, instead advancing the ideas and mechanisms by which we may also eventually tackle this most pressing predicament[4].

A common theme in much of the current thinking is the importance of integration and cross-fertilisation of approaches[5] to achieve nature-positive sustainable development in the face of climate change[1]. Approaches to: (i) ocean governance at different scales[6], (ii) the financing of sustainable development[7,8], (iii) setting ambitious goals for biodiversity protection[9,10], (iv) dynamic marine protected area design[11,12], and (v) public engagement in marine issues[13], all underline the merits of climate-smart nature-based solutions[14], ocean science diplomacy[15] and innovative cooperation amongst diverse stakeholders[16]. Whilst none of these approaches is particularly new, the sense of urgency and need for a united push to achieve tangible results is omnipresent.

One event that exemplifies the type of coordinated interdisciplinary ocean action that is required has been the European Union's recent All-Atlantic Ministerial High-Level & Stakeholders Conference[17] (Azores, 2-4 June 2021). Presentations highlighted the new methodologies for ocean observation and ecosystems-based management linked to digitalisation processes, which represent an important innovative step towards the integration of the climate-biodiversity-society nexus to contribute to ocean sustainability. While the event itself was focused on the Atlantic Ocean, the applicability of the methodologies presented is global. The meeting also served to reinforce the fact that the environmental emergencies we face must be addressed together to achieve sustainability[18,19].

The recently-concluded 24th meeting of the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-24; online, 3 May - 13 June 2021) made progress on important topics such as the Post-2020 Global Biodiversity Framework, synthetic biology, risk assessment and management, conservation and use of soil biodiversity, but left sensitive elements of the marine and coastal biodiversity agenda unresolved after struggling with the limitations of having to conduct politically contentious negotiations on a virtual platform[19]. GOBI continues to work closely with the CBD Secretariat in anticipation of CBD COP15, and also with the CMS agenda set in 2020 at CMS COP13. A report on the impact of EBSAs is finalised and awaiting release, plans for a national Sustainable Ocean Initiative capacity building workshop for Thailand are taking shape, and GOBI's research funded through the International Climate Initiative (IKI) continues to deliver and share new science.

Plans to conduct other rescheduled events from 2020 – such as the 4th intergovernmental conference (IGC4; New York, USA) of the UNCLOS Biodiversity Beyond National Jurisdiction negotiations, CBD's COP15 (Kunming, China), the United Nations Framework Convention on Climate Change COP26 (Glasgow, UK), and GOBI's own 5th regional IMMA workshop targeting the south-eastern temperate and tropical Pacific Ocean (San José, Costa Rica) – remain tentative, as there is still much uncertainty around the safety of lifting travel restrictions imposed during the pandemic. In any case, momentum will continue to be maintained and progress made by all who can, exploring interlinkages and interdependencies among climate, water, food, energy and health[20], whilst also devising and deploying transformative local and regional initiatives to combat climate change and biodiversity decline. As the pandemic has demonstrated, we are all connected in ways we do not always appreciate, and the ocean is by far our greatest ally in keeping us healthy, resilient and connected. We do only have one ocean - it is not too big to fail, nor is it too big or too late to fix[21] .

1 Pörtner et al. (2021) IPBES-IPCC co-sponsored workshop report on biodiversity and climate change. DOI 10.5281/zenodo.4782538.

2 United Nations Second World Ocean Assessment www.un.org/regularprocess

3 Why the ocean matters in climate negotiations, COP26 Universities Network Briefing, June 2021 www.iass-potsdam.de/sites/default/files/2021-06/COP26%20Ocean%20Briefing.pdf

4 Pittman et al. (2021) Seascape ecology: identifying research priorities for an emerging ocean sustainability science. DOI 10.3354/meps13661

5 Stephenson et al (2021) The quilt of sustainable ocean governance: patterns for practitioners. DOI 10.3389/fmars.2021.630547

6 IISD (2021) The Rising Pressures on Ocean Governance, Brief #21 iisd.org/system/files/2021-05/still-one-earth-ocean-management.pdf

7 Sumaila et al. (2021) Financing a sustainable ocean economy. DOI 10.1038/s41467-021-23168-y

8 Dasgupta (2021) The Economics of Biodiversity: The Dasgupta Review

[9] Locke et al. (2021) A nature-positive world: the global goal for nature www.naturepositive.org/en/resources

[10] Maron et al. (2021) Setting robust biodiversity goals. DOI 10.1111/conl.12816

[11] Maxwell et al. (2021) Mobile protected areas for biodiversity on the high seas. DOI 10.1126/science.aaz9327

[12] Morales et al. (2021) Climate-smart, 3-D protected areas in the high seas. DOI 10.21203/rs.3.rs-421078/v1

[13] Kelly et al. (2021) Connecting to the oceans: supporting ocean literacy and public engagement. DOI 10.1007/s11160-020-09625-9

[14] Seddon et al. (2021) Getting the message right on nature-based solutions to climate change. DOI 10.1111/gcb.15513

[15] Polejack (2021) The importance of ocean science diplomacy for ocean affairs, global sustainability, and the un decade of ocean science. DOI 10.3389/fmars.2021.664066

[16] Weiand et al. (2021) Advancing ocean governance in marine regions through stakeholder dialogue processes. DOI 10.3389/fmars.2021.645576

[17] All-Atlantic Blog documents www.allatlantic2021.eu/blog

[18] UNEP (2021) Making peace with nature: a scientific blueprint to tackle the climate, biodiversity and pollution emergencies. www.unep.org/resources/making-peace-nature

[19] Summary of the 24th Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity: May-June 2021, Earth Negotiations Bulletin Vol. 9, No. 756 http://enb.iisd.org/biodiversity/CBD/SBSTTA24

[20] IPBES (2021) Scoping report on assessing the interlinkages among biodiversity, climate, water, food, energy and health https://ipbes.net/sites/default/files/2021-05/IPBES_8_3_nexus%20assessment_en.pdf

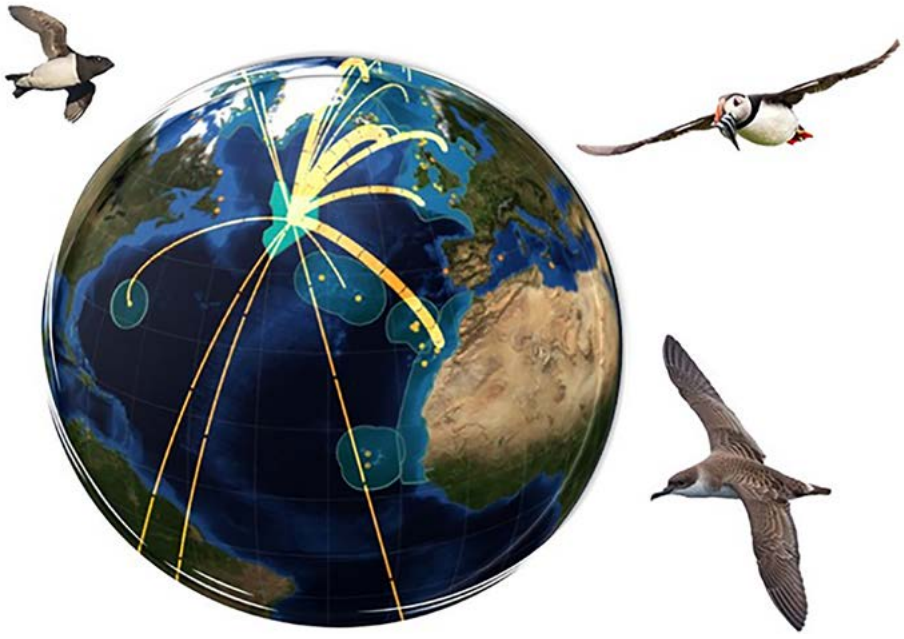
[21] Lubchenco & Gaines (2019) A new narrative for the ocean. DOI 10.1126/science.aay2241

In the spotlight: important seabird foraging hotspot in the North Atlantic

by Tammy Davies, BirdLife International

A seabird foraging hotspot in the high seas of the North Atlantic Ocean is one of the most important concentrations of migratory seabirds in the Atlantic Ocean, used by up to 5 million birds across 21 species and from 56 colonies – including Arctic terns from Greenland and great shearwaters from Tristan da Cunha. It was identified through a collaborative effort of 79 contributors, led by BirdLife International, to compile and analyse a comprehensive seabird tracking dataset.

The hotspot was found to be temporally stable and is being considered by the OSPAR Commission for designation as the proposed North Atlantic Current and Evlanov Seamount (NACES) MPA. The final decision is scheduled for the OSPAR Ministerial Meeting at the end of September 2021. If designated, the MPA will protect an important foraging area for migratory seabirds and many other marine taxa, contributing to a growing network of MPAs across the Atlantic, and expanding much needed protections for the high seas.



Full article: Davies, T. et al. (2021) Multi-species tracking reveals a major seabird hotspot in the North Atlantic. Conservation Letters, DOI 10.1111/conl.12824

South Africa achieves a tenfold increase in marine protected area estate

by Kerry Sink, South African National Biodiversity Institute, and Tamsyn Livingstone, Ezemvelo KZN Wildlife

In 2005, South Africa's first National Biodiversity Assessment (NBA) indicated that the offshore environment and marine ecosystems were poorly protected, sparking an initiative to develop a more representative marine protected area (MPA) network. In 2019, the latest NBA reported on 20 newly proclaimed MPAs, representing 87% of South Africa's ecosystem types in just 5.4% of ocean area. This spatially efficient network was based on more than a decade of research and was advanced into implementation through a Presidential Oceans Economy initiative called Operation Phakisa, meaning "hurry up" in Sesotho.

MPA expansion in South Africa was supported by systematic conservation planning. A dedicated Offshore MPA project, led by the South African National Biodiversity Institute in partnership with the government department responsible for environmental and, in the initial stages, fisheries management. The planning domain extended from the 30 m depth contour to the boundary of the mainland Exclusive Economic Zone. The project compiled more than 500 map layers covering benthic and pelagic biodiversity patterns, industry use for multiple sectors and existing spatial management. A stakeholder workshop held at the outset identified multiple integrated objectives including (i) to contribute to the long-term persistence of offshore biodiversity and its underlying processes; (ii) to contribute to sustainability of fisheries and ecosystem-based management of resources; (iii) to provide undisturbed areas for scientific study and long-term monitoring; (iv) to promote appropriate non-consumptive use of the offshore marine environment and (v) to advance integrated spatial planning and management arrangements for South Africa's marine territory[1].

A representative network of MPAs was sought covering the full range of biogeographic and depth zones and both benthic and pelagic biodiversity patterns and habitats with mapping of bioregions, sediment type, features (reefs, seamounts and canyons) and important life history areas of key species (threatened seabirds, fisheries target and bycatch species, cold water corals and other potential Vulnerable Marine Ecosystem indicators) advanced as part of the 2011 NBA. Cost layers were used to help minimise the impact of protection on multiple offshore stakeholders, including the shipping industry, oil and gas interests, commercial fishing, scientific research, naval operations, and tourism. A range of targets was used in planning, with many scenarios and iterations prepared in collaboration with stakeholders. Multiple cost layers were a key element in planning with some analyses including cumulative costs and others reflecting benthic or pelagic sectors or even single sectors to support sector specific goals. Fisheries management targets included those to protect the spawning and nursery areas of commercially important fish species, help manage bycatch and protect threatened species.

A multi-sector Offshore Environment Forum was developed in 2009 to support stakeholder engagement, facilitate co-operative research and share knowledge and experience between sectors. In 2011, a set of 12 priority areas was identified as a focus for offshore protection based on the integrated systematic conservation plan[2]. Implementation plans stalled when the department responsible for marine and coastal governance was fractured and it took a six-week facilitated high-level initiative with deep involvement from multiple ministries to advance the priority areas towards implementation. In the interim, the priority areas were proposed as ecologically or biologically significant marine areas (EBSAs) in dedicated regional workshops convened by the CBD to describe EBSAs in the Southeast Atlantic and Southwest Indian Oceans. This served as an important peer review step and helped to strengthen the scientific foundations of the underpinning research.

Operation Phakisa was initiated in 2014 and 22 new MPAs were gazetted for public comment in 2016. All the offshore priorities and two established coastal priority areas were included in the proposed network as well as new priorities from emerging analyses drawing from the latest biodiversity assessment and provincial or sector-specific initiatives. Consultation processes included a national roadshow, many engagements between government departments and multiple syndications focused on individual issues or areas. The final design was a balanced compromise with 20 new MPAs that advanced South African ocean protection from 0.4% of its ocean territory to 5.4% by adding approximately

1 Sink & Attwood (2008) Guidelines for Offshore Marine Protected Areas in South Africa. South African National Biodiversity Institute Biodiversity Series 9, pp. 18.

2 Sink et al. (2011) Spatial planning to identify focus areas for offshore biodiversity protection in South Africa. Final Report for the Offshore Marine Protected Area Project. South African National Biodiversity Institute. pp. 77.

50,000 km^2 of South Africa's protected area estate. In October 2018, South Africa announced that the nation's Cabinet approved this new MPA network for designation in 2019.

Management planning for the new MPAs was initiated in 2020 but COVID-19 challenged stakeholder engagement plans which are now underway. Operation Phakisa also included a target to identify further areas for protection and further research. This is being undertaken in the form of systematic conservation planning and the development of a new national coastal and marine spatial biodiversity plan, focused on producing a map of Critical Biodiversity Areas from which potential new focus areas for MPA planning can be identified. Key areas of current research to guide future efforts include marine species atlas efforts, science to define and map Vulnerable Marine Ecosystems, studies to support inclusion of ecosystem services and climate resilience in planning and transdisciplinary research to better incorporate oceanographic, ecological and human connections in MPA design. The latter includes transdisciplinary work to guide stakeholder engagement and the improved considerations of the human dimensions of MPAs.

South Africa's expansion of marine protection provides lessons for other countries working to expand MPAs and support sustainable ocean economies. Firstly, an earlier investment in targeted communication may have eased the six-year implementation phase of this network. Key lessons include technical and process lessons and the recognition that such work is a marathon effort that needs champions, long term funding and excellent record keeping. Sound scientific foundations were essential and adaptive research that is responsive to stakeholder concerns was a key element of success. Technically, the use of systematic conservation planning software was critical in achieving integrated spatial prioritisation and guiding the complex trade-offs with 11 fisheries sectors, 22 petroleum rights holders and many mining interests. Multiple planning scenarios and iterative analyses increased transparency, underpinned MPA zonation and helped negotiate equitable compromises while still achieving objectives. Together with the Prince Edward Islands MPA, South Africa has contributed to the protection of three oceans; the Atlantic, the Indian Ocean and the Southern Ocean. South Africa showed that with a strong science base and an adaptive stakeholder process that is alert to opportunities, a spatially efficient, ecologically representative MPA network that is aligned with ocean economy goals can be implemented.

Prof. Kerry Sink is a Principal Scientist at the South African National Biodiversity Institute and was the lead of the Operation Phakisa Oceans Economy Marine Protected Area technical team. Mrs Tamsyn Livingstone is a GIS Analyst at Ezemvelo KZN Wildlife who served in this team, undertaking research, making thousands of maps and engaging stakeholders to support this achievement.

Members of the Phakisa MPA team engaging with stakeholders about the new Amathole Offshore MPA in East London, South Africa. Image courtesy Kerry Sink.

Networks of MPA managers responding to global challenges

by Purificació Canals, Technical Coordinator of the EU Ocean Governance Project and President of MedPAN

Global challenges for MPA managers

Marine protected areas (MPAs) are widely used nature conservation tools that have the potential to maintain and restore marine ecosystems and their services; good governance structures and effective management are, however, required so that MPAs can accomplish this potential. In this sense, the approval of the Strategic Plan for Biodiversity 2011-2020, including Aichi Target 11, at the 10th Conference of Parties to the Convention on Biological Diversity (CBD) represented a critical change in the political approach for protected areas, in which the qualitative aspects become as relevant as the areal coverage for the full achievement of the target.

To reach the expected results, the involvement and coordinated work of different key actors is crucial, especially for the marine dimension of the target; this should include scientists, planners, policy makers and protected areas managers. In this context, effective management is essential to guarantee the protection of species, habitats, ecological processes and ecosystem services that will make MPAs equitable by supporting livelihoods of communities, within and around MPAs. The role of MPA managers has consequently become more relevant than ever before since they are at the cross point between policy implementation, scientific knowledge application, social awareness and community demands. Furthermore, by ensuring biodiversity protection on the ground, they allow their governments to achieve national, regional and international conservation targets. Being a good MPA manager is a real challenge that requires permanent updates of data, knowledge and skills, and even more important, connection and exchanges with other managers and stakeholders.

The drafts for the new CBD Post-2020 Global Biodiversity Framework clearly show the need to strengthen international policies, hopefully with the approval of the 30x30 challenge (30% of protected areas by 2030); and recent publications such as the Protected Planet Report 2020 support this need with worrying data, such as: (i) 52.6% of marine ecoregions in the world do not yet have 10% coverage; (ii) among the ocean's pelagic provinces, largely beyond national jurisdiction, only 10.8% meet the 10% coverage target; and (iii) the percentage of ecoregions entirely outside protected

Working session of the EU Transatlantic MPA Network project during IMPAC4 in La Serena-Coquimbo (Chile) September 2017.

and conserved areas in the marine realm is still at 15.5%. To date, 33.9% of Key Biodiversity Areas lack any overlap by MPAs or other effective conservation measures in the marine realm.

The role of MPA managers' networks

For the last decade, a significant number of networking initiatives launched by MPA managers, or having the manager community as their target audience, have been developed in different countries and regions, with the aim of helping MPA managers respond to the above challenge. Most initiatives were designed for MPA managers at national, sub-regional, regional or supra-regional levels. They allow for exchanges between managers with common issues in different local contexts, and generate creativity, problem solving and resource sharing. Human networks do not always overlap their geographic area of activity with ecological networks (i.e., the MPAs that should be created and networked to respond to the connectivity criteria of the Aichi Target 11); however, a first step is to acknowledge that ecological connectivity will be enhanced by strong human connectivity focusing on the same overall goal of healthy, sustainable ocean and coasts trough MPAs.

The transatlantic MPA networking experience

The Atlantic Ocean has been the setting for several attempts at regional networking among MPA managers, for example, the EU INTERREG projects such as MAIA (Marine Protected Areas in the Atlantic Arc, 2010-2012), involving MPAs of five countries bordering the Northeast Atlantic (Ireland, UK, France, Spain and Portugal) and PANACHE (Protected Area Network Across the Chanel Ecosystem, 2013-2015); the permanent networks of managers such as CaMPAM in the Wider Caribbean, MedPAN in the Mediterranean, NAMPAN in North America or RAMPAO in West Africa. These latter collaborations have since 2016 been supported by the EU's Foreign Policy instrument through the 'Cooperation with Northern and Southern Transatlantic Dimension through MPAs' project, and were further strengthened at the UN Ocean Conference in 2017. They all aim to stimulate exchange and the sharing of good practice to improve MPA management effectiveness. In addition to its focus on the Atlantic, the EU Ocean Governance project also targets Southeast Asia and addresses other topics. A common lesson from all such projects is that the project-based approach is effective to incentivise data and knowledge gathering, and to support permanent networks, but it is not the appropriate framework to launch new ones. This requires a deeper and longer commitment to make them long-lasting and sustainable.

Different governance but common interests

It is important to stress that, despite networks operating under different governance models, they all share strong common interests. Their motivation to work together stems from the exchanges of data and knowledge and the capacity building programmes that support MPA managers until more strategic goals can be developed, such as improving effectiveness in supporting MPA policy implementation and reaching sustainable funding to operationalise MPA networks.

While some collaborative projects have an associative status (MedPAN and RAMPAO), others rely on agreements between governmental agencies (NAMPAN created by Mexico, USA and Canada agencies), or are part of UNEP programmes for Regional Seas Conventions (CaMPAM and the SPAW Protocol of the Cartagena Convention). The interest in this transatlantic cooperation has motivated the involvement of other networks, such as OSPAR and HELCOM, the Marine and Coastal Group of Redparques in Latin American countries, or the Patagonian Forum supported by NGOs in South Brazil, Uruguay, Argentina and Chile.

Linking multiple dimensions

Through a bottom-up approach, networks of MPA managers are teaming up to keep the global, regional and national MPA agendas moving forward. This requires connecting different dimensions. An interesting lesson learned from the transatlantic exchanges is the great complementarity between regional and national networks that deliver better management on the ground while at the same time providing input from managers' experiences of regional and international processes, or launching initiatives about topics of interest that are not usually addressed at different levels. Today, transatlantic exchanges include the involvement of partners and MPA agencies from France, Spain, USA, Mexico, Dominican Republic, Colombia, Uruguay and Senegal. Specific topics on which they work together include the protection of certain migratory species (marine mammals and marine turtles), the role of MPAs in coastal resilience, management effectiveness and sustainable financing. This last topic is also developed with conservation trust funds and networks of trust funds operating at national and regional scales.

Networks of MPA managers are instrumental in bridging the gap between policies and conservation action and connecting multiple layers of governance. Strong MPA networks should be actively promoted and financed at the transatlantic level and beyond, to allow MPA managers to most effectively collaborate on actions to address the CBD's new Post-2020 Global Biodiversity Framework targets and the UN Sustainable Development Goals.

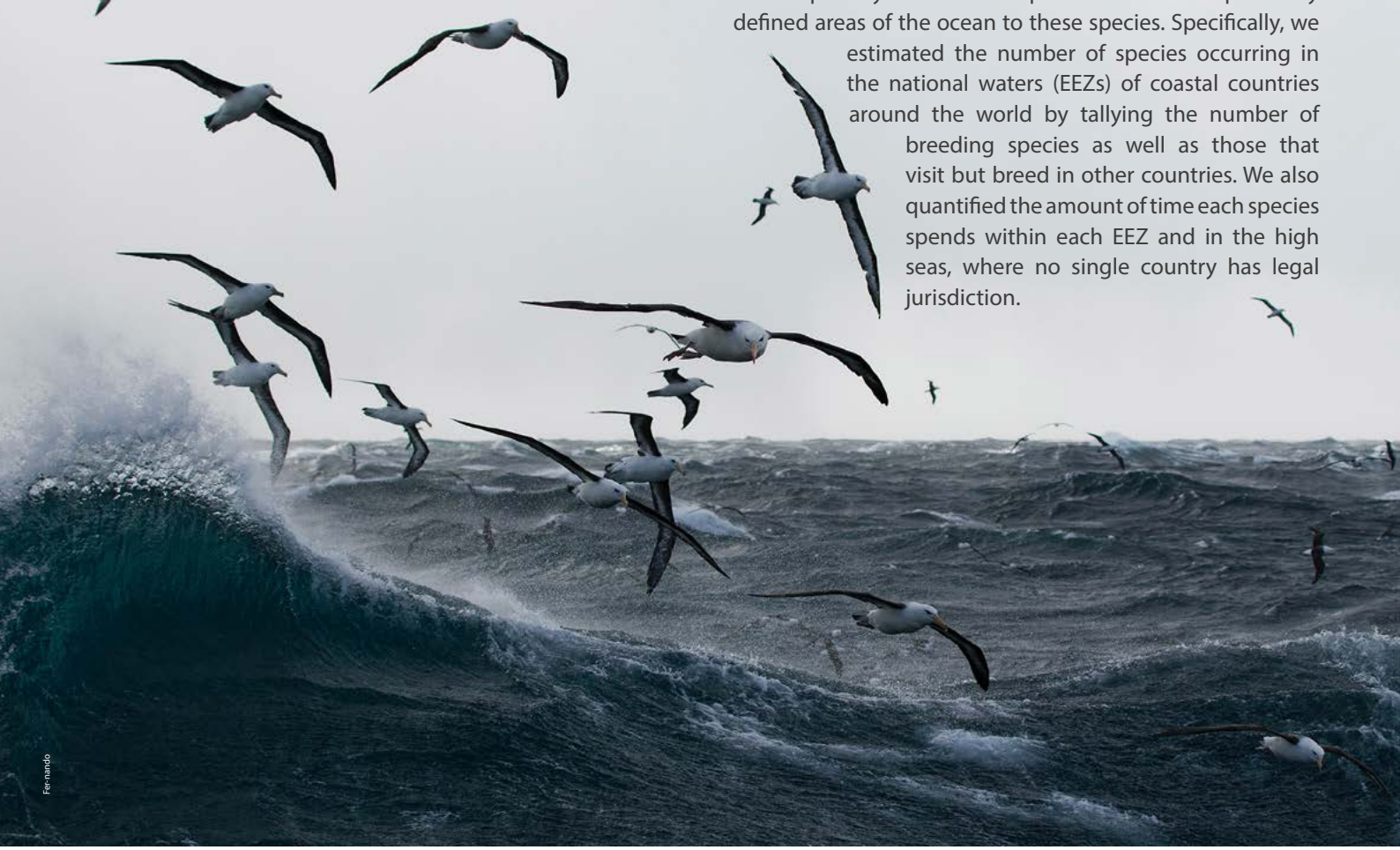
Shared political responsibility for ocean wanderers

by Martin Beal, Tammy Davies, Carolina Hazin and Maria Dias, BirdLife International

The ocean is a highly interconnected environment, where currents distribute planktonic organisms widely, and megafauna such as whales and seabirds travel thousands of kilometres under their own power on seasonal migrations. Not only does this connectivity help structure natural systems, it also means that both the management of global fish stocks and the conservation of wider biodiversity depend on what happens in distantly separated places. That is, threats to a species in one part of its range may counteract protection efforts taking place in another. As human pressures expand across the ocean, it becomes more important than ever to build knowledge on how marine biodiversity depends on multiple, disparate parts of the world.

Among the great transoceanic travelers are the albatrosses and their close relatives, the petrels. These species are considered among the world's most threatened animals and face numerous threats on land and at sea. Most notably, invasive predators introduced to their breeding and nesting sites, such as mice and rats, wreak havoc on the eggs and young of these unsuspecting birds. Although they depend on land to breed, albatrosses and petrels spend most of their lives at sea where they suffer incidental mortality associated with commercial fishing activities ('bycatch'), competition with fishers for food, exposure to pollution, and the wider consequences of climate change. So, in order to fully ensure these species will persist in the face of growing pressures on them and their ocean habitat, we need to understand the simple and fundamental questions of where do they go and where do they spend their time?

Together with a team of 87 seabird researchers and conservationists, we assembled tracking data from 39 of the 40 species of albatrosses and large petrels to address these fundamental questions. We analysed data from 5,775 tracked adult birds (>10,108 individual journeys) collected at 87 breeding sites across the world, to map the spatial distribution of these species throughout the year. The goal was to quantify the relative importance of various politically defined areas of the ocean to these species. Specifically, we estimated the number of species occurring in the national waters (EEZs) of coastal countries around the world by tallying the number of breeding species as well as those that visit but breed in other countries. We also quantified the amount of time each species spends within each EEZ and in the high seas, where no single country has legal jurisdiction.



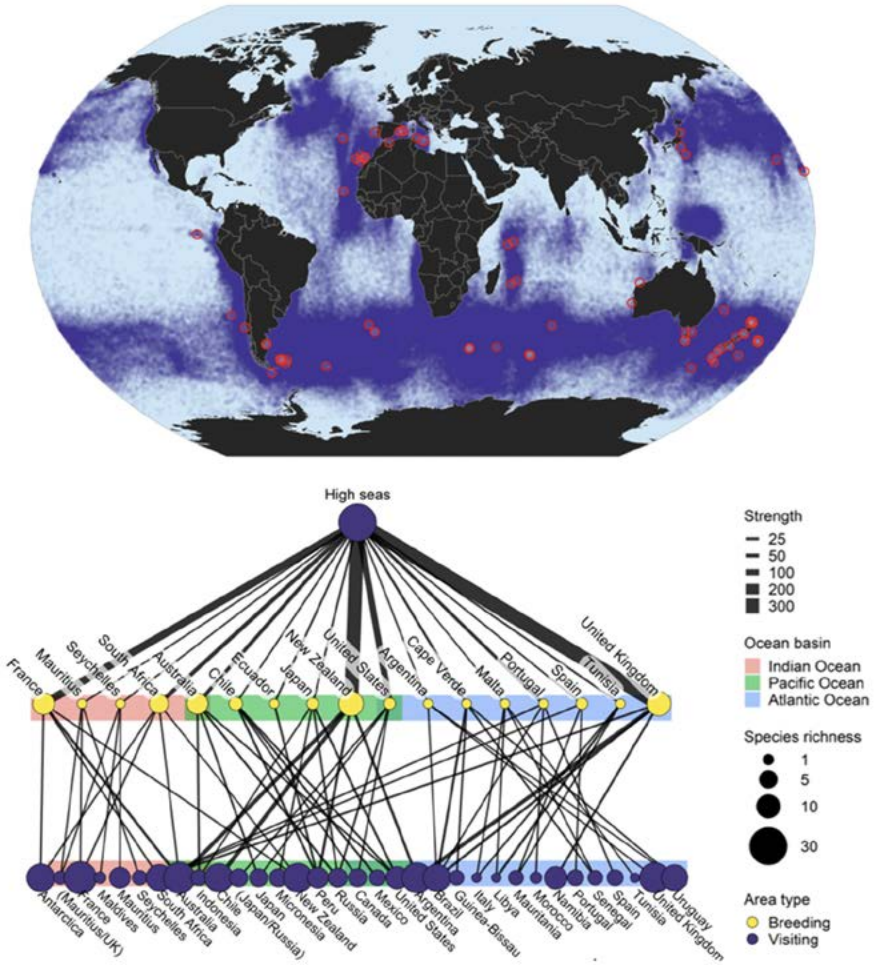
Fer-nando

We found that all 39 species of albatrosses and large petrels leave the EEZs of their origin country, and that a total of 39% of their yearly time is spent in the high seas, where there are currently only minimal protection mechanisms in place to support their conservation. The remaining 61% of the year is spent within various national waters across their range, where national protection measures could be applied, and coordinated internationally.

We also visualised networks of seabird tracks that illustrate how the movements of these birds link multiple politically defined areas. We showed that for each of the 17 countries that host breeding populations of albatrosses and large petrels (from which birds were tagged), the high seas represent one of the top five most-visited areas throughout the year. In addition, the emergent network allows conservation workers and policymakers to see how populations of albatrosses and large petrels depend on the national waters of different countries, providing a potential roadmap for collaborative conservation action.

Further, given that one of the major threats to these birds is negative interactions with fishing fleets, we calculated the amount of time birds spend in the regulatory areas of regional fisheries management organizations (RFMO). We found that RFMO regulatory areas in the high seas encompass the ranges of many albatross and large petrel species, making them especially vulnerable to certain fishing activities. Particularly, many of the largest RFMOs manage longline fisheries for tuna and tuna-like species, which have been found to have high bycatch rates for albatrosses and petrels as they often target the baited hooks. Mapping out these connections between RFMOs and seabird populations is vital information, as decisions within RFMOs that could mitigate the risk of bycatch are made by constituent countries, some of which have invested heavily in seabird conservation within their own jurisdictions (e.g., invasive predator eradications).

Our analysis provides the international community with a unique perspective on the connectivity that the spectacular journeys of albatrosses and large petrels create among various politically defined areas of the world. These results are highly topical, as UN Member States are currently discussing the terms of the treaty for the conservation and sustainable use of biodiversity in areas beyond national jurisdiction (BBNJ treaty). Connectivity is a foundational feature of marine systems, represented here by the migrations and habits of albatrosses and large petrels. Our oceans are facing ever-greater pressures from human exploitation and climatic change, and we would do well to improve international collaborations in conservation, whether that be at RFMO fora or through international agreements, like the forthcoming BBNJ treaty.



Full article: Beal et al. (2021) Global political responsibility for the conservation of albatrosses and large petrels. Science Advances, DOI 10.1126/sciadv.abd7225.

The results of this study can be also explored interactively at https://birdlifeseabirds.shinyapps.io/seabird-connections

Acknowledgements: This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie grant agreement no. 766417. This communication reflects only the authors' view, and the Research Executive Agency of the European Union is not responsible for any use that may be made of the information it contains.

Left: Map shows locations (in blue) of nearly 6,000 individual albatrosses and large petrels of 39 species tracked using electronic devices at 87 breeding sites around the world (red circles). The network below shows the top five most important connections between countries that host the birds during breeding (yellow) and the other political areas they visit during their seasonal movements (purple). The width of the lines signifies the total amount of time per year spent by the breeding populations of a given country in another politically-defined area, while accounting for the size of each population relative to the global total for each species.

Fishermen on the beach of Takoradi, Ghana

From capacity building in integrated ocean management to the creation of marine protected areas in West Africa

by Alison Amoussou, GRID Arendal

Since its launch in 2016, the Mami Wata project has focused on strengthening the knowledge and capacity of the member countries of the Abidjan Convention on Integrated Ocean Management through three tools: (i) the State of Marine Environment Report (SoME), (ii) the description of ecologically or biologically significant marine areas (EBSAs) according to the criteria of the Convention on Biological Diversity (CBD), and (iii) marine spatial planning (MSP).

Over the last couple of years, three Centres of Expertise specialised in these different tools have been identified to support this knowledge process in the Atlantic coast of the West, Central and Southern Africa Region, and to support their implementation in three designated pilot countries, which serve as a proof of concept.

Benin, Côte d'Ivoire and Ghana, the three pilot countries of the Mami Wata project, began the execution of the project by describing EBSAs and producing the SoME Report, with the support of capacity building workshops organised by the Centres of Expertise. The countries have been able to identify key stakeholders in the marine environment with whom they had not previously collaborated. Local and traditional authorities have been significantly involved in the process of sharing and validating the information collected in each country. As a result of this involvement, Côte d'Ivoire is planning to produce a SoME Report specifically for traditional authorities.

Towards a consolidation of these achievements, how might we develop the assets gained from EBSA descriptions?

The data collected during the description of EBSAs are currently being used to develop the MSP process and will also be used in the zoning exercise to determine the compatibility between the activities carried out and the preservation of the area defined for the application of said MSP.

In highlighting the importance of some marine areas, the EBSA description process has also raised the issue of the effective conservation of rare and fragile ecosystems found in the identified areas. Indeed, describing an EBSA is not enough to preserve its habitats, which is why countries have turned to the process of creating marine protected areas (MPAs) to preserve the defined area. EBSAs have therefore played a key role in the process of creating MPAs.

In Benin, the submission of the EBSA description report gave an important momentum to initiate the process of creating two MPAs: one in Donaten, in order to preserve marine turtles, and one in Bouche du Roy, at the mouth of the Mono River which supports rich mangrove ecosystems, the African manatee, three species of endangered sea turtles, and royal terns. Côte d'Ivoire and Ghana, meanwhile, are considering developing a process to describe a transboundary EBSA between Assinie, Côte d'Ivoire and Half-Assinie, Ghana, and adapting an incremental approach towards the creation of a transboundary MPA.

In the long term, the centres will synthesise lessons learned from the pilot projects to refine tools, methods and processes and will share experience within the region and beyond.

Towards effective conservation of the Nazca and Salas y Gómez ridges

by Eulogio Soto, Universidad de Valparaíso, Chile

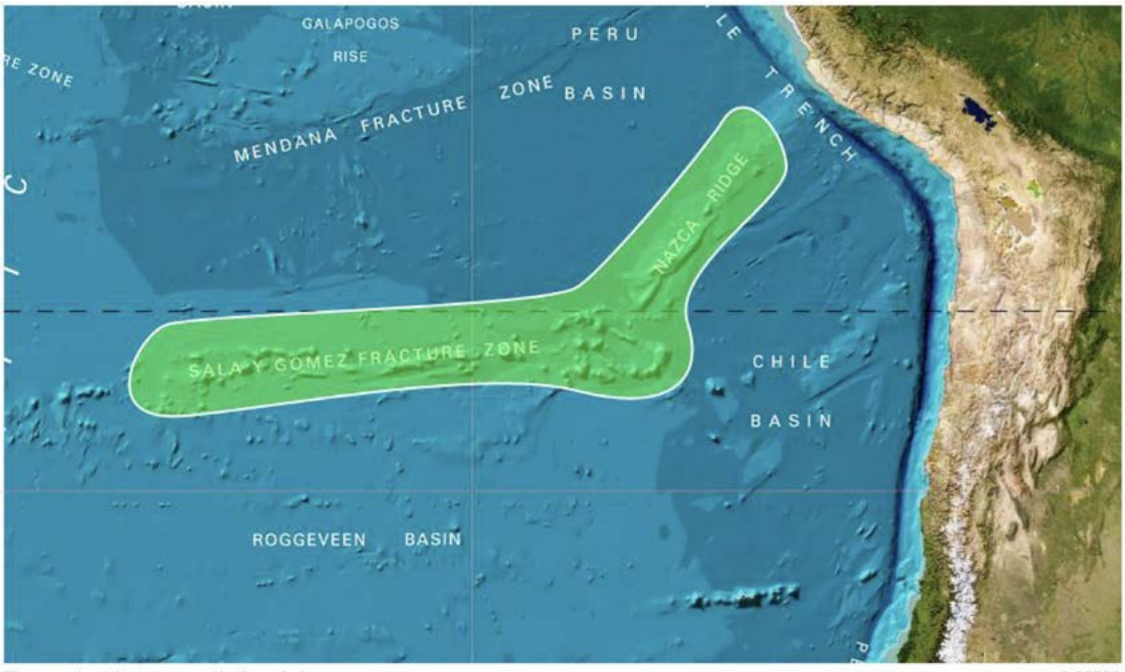
In the last few years the underwater ridges of Nazca and Salas y Gómez in the Southeast Pacific Ocean have been of growing interest to marine scientists, conservationists and politicians. In 2010, the Chilean Government established the Motu Motiro Hiva Marine Park around Salas y Gómez Island, followed in 2014 by the Convention on Biological Diversity identifying the ridges as an ecologically or biologically significant marine area (EBSA) for their high biological and ecological value. By 2016 the Chilean Government established the Nazca-Desventuradas Marine Park around Desventuradas Islands, and recently (22 April 2021[1]), the current authorities have announced to advance a proposal to fully protect the Nazca Ridge as a marine protected area (MPA) in the high seas. Despite all the initiatives to date, the Chilean Government has not yet addressed the specific financial resources required to study the area, limiting the research and knowledge that should allow support for any measure of conservation and management.

Interest in the area has also recently been highlighted by group of international scientists and lawyers through a thorough review article published in the scientific journal Marine Policy[2]. The article describes the main natural and cultural characteristics of the area but also the challenges, threats and conservation opportunities, seeking the urgent need of protection, research and management of this area of high biological value. The Chilean Government and other involved countries such Peru, Ecuador and Colombia should consider the rigorous information generated by the scientific community in the area as a powerful tool in the creation and implementation of any new MPA in the area, and hence commit permanent resources for the necessary research and monitoring.

The Salas y Gomez and Nazca ridges complex is one of the most attractive places in the ocean in terms of biodiversity. However, it is currently threated by overexploitation by fisheries, deep-sea mining, marine pollution and climate change. Therefore there is an urgent need for research and protection from countries with jurisdictional and administrative responsibilities for this area, as well as from international organisations and governments.

[1] Government of Chile Press Release during the 2021 Virtual Leaders Climate Summit (Santiago, 22 April 2021): President Piñera announces Chile will advance a proposal to fully protect an area of the high seas in the southeastern Pacific, the first of its kind.

[2] Wagner et al., 2021. The Salas y Gómez and Nazca ridges: A review of the importance, opportunities and challenges for protecting a global diversity hotspot on the high seas, in Marine Policy 126: 104377. DOI: 10.1016/j.marpol.2020.104377



Left: Map showing the area meeting EBSA criteria. Image courtesy Mauricio Gálvez.

Workshop on ocean governance and COVID-19: exchanges on building resilience for marine regions

by Laura Weiand, Institute for Advanced Sustainability Studies

The COVID-19 pandemic has impacted millions of people, causing significant loss of human life and unprecedented economic and social disruption. Those who depend upon the ocean for their livelihoods are no exception: all marine regions have been affected by this crisis, requiring urgent responses from international, regional, and national actors. Experiences and practices from marine regions and regional ocean governance can offer joint learnings about how to address some of the key impacts. Several initial impact assessments of the pandemic on the ocean economy and possible policy responses have already been published[1], but there have been few opportunities to share experiences and lessons learned from ongoing regional processes.

Taryn Elliott

In this context, the Marine Regions Forum – an informal and participatory space at the science-policy interface for marine regions – organised an online workshop on "*Ocean Governance and COVID-19 - building resilience for marine regions*". The workshop was held in January 2021 and brought together actors from different marine regions to explore possible pathways for navigating the effects of the COVID-19 crisis.

Workshop participants highlighted that the environmental consequences of the COVID-19 pandemic are still largely unknown given the lack of data and curbing of data collection. There have however been observations that not all marine sectors are impacted equally. For instance, small-scale fisheries seem to be more heavily impacted than large industrial-scale fishing fleets, partially due to the collapse of tourism and restaurants, which small-scale fisheries usually supply. The pandemic has also exacerbated gender inequality as especially women and young girls suffer strong hardships from the COVID-19 pandemic due to a shift in societal responsibilities to care for the unwell. Women are also a core driver of the small-scale fisheries value chain, so they are being directly impacted by the collapse of the sector.

A shift in priorities and financial flow towards economic recovery rather than holistically targeting the effects and building back on the premise of long-term sustainability has also been observed. Ocean protection and sustainable use is often seen only through the lens of declining ocean ecosystems, but a healthy ocean provides multiple benefits such as food security or sustaining livelihoods. The potential of the ocean to contribute to a sustainable recovery has not been widely recognised, leaving a great opportunity so far largely untapped. Workshop participants also discussed how responses to the multiple challenges could be implemented, such as through private-public partnerships to leverage financial support and supporting innovation and science.

[1] Northrop, E. et al. (2020) A Sustainable and Equitable Blue Recovery to the COVID-19 Crisis. Report for the High Level Panel for A Sustainable Ocean Economy; UNCTAD (2020) The Covid19 Pandemic and the Blue Economy: New challenges and prospects for recovery and resilience; OECD (2020) OECD Policy Responses to Coronavirus (COVID-19): Fisheries, aquaculture and COVID-19: Issues and policy responses; FAO (2020) How is COVID-19 Affecting the Fisheries and Aquaculture Food Systems, Food and Agriculture Organization of the United Nations, Rome.

The Lyell Centre joins the GOBI family

by Daniela Diz, The Lyell Centre

It is a great honour to become a member of the GOBI family. The Lyell Centre has just joined GOBI and we are delighted to collaborate in advancing the scientific basis for conservation and sustainable use of marine biodiversity globally.

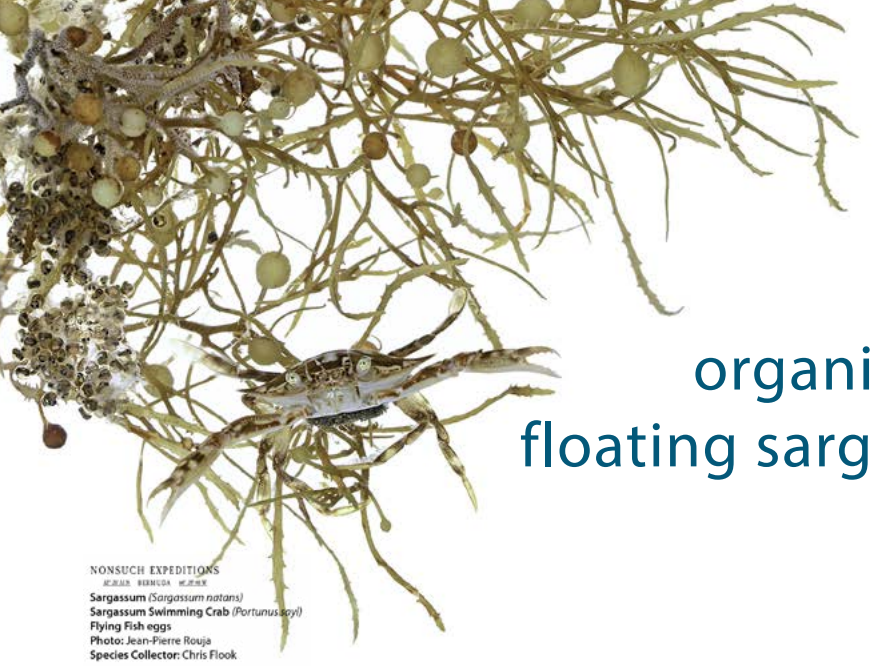
The Lyell Centre is an interdisciplinary research centre for earth and marine science and technology, led by the British Geological Survey and Heriot-Watt University, based in Edinburgh, UK. The Centre's strong focus on the marine environment combines expertise in areas of benthic and pelagic ecology, taxonomy, biogeochemistry in better understanding carbon flows, seabird ecology and monitoring techniques, fisheries sciences, supply chains, deep seabed mining, blue carbon, marine plastics, marine spatial planning, among several other areas. The unprecedented rates of (marine) biodiversity loss and the climate crisis can only be tackled by joint innovative solutions involving multiple stakeholders, rights and knowledge holders, and competent organisations from local to global levels (and everything in between). Such cooperative and holistic approach drives the research we undertake with the aim to find sustainable solutions to global challenges.

Better understanding of marine species and ecosystems, and interactions between biotic and abiotic features, anthropogenic pressures and their drivers, natural hazards, as well as socio-ecological systems is at the heart of the research conducted at the Lyell Centre. Such evidence-based understanding has been used to inform meaningful social change including through policy- and law-making processes at multiple governance scales globally. The Lyell Centre's research projects span across the globe – from polar regions to the tropics, from the upper sea surface micro-layer to abyssal plains, from microbes to mega-fauna, and from areas within to beyond national jurisdiction. In doing so, we are developing evidence-based knowledge on ecosystem functions, understanding thresholds, and unlocking solutions that lead to sustainable development.

Being a member of GOBI provides us with the opportunity for further collaboration in these areas and beyond. A concrete example that spans from previous collaborative efforts is on the Convention on Biological Diversity (CBD) ecologically or biologically significant marine area (EBSA) process. In addition to being involved in the EBSA process as a whole, the Lyell Centre is co-leading an exciting biodiversity mainstreaming project in the Paracas Bay, Peru, which encompasses part of the 'Centros de Surgencia Mayor y Aves Marinas Asociadas a la Corriente de Humboldt en Perú EBSA'. We have also been involved in research concerning the Galapagos EBSA. In addition, we have been engaged in the development of guidance for other effective area-based conservation measures (OECMs) in the marine fishery sector with FAO and the IUCN-Fisheries Expert Group, and have made use of information contained in the Corner Rise Seamounts EBSA (also part of the Sargasso Sea EBSA) as a case study.

We therefore welcome the opportunity to become part of the GOBI family and are excited about the prospects to enhance our collaboration in unveiling the role of the ocean and its marine biodiversity in driving the much-needed transition to a resilient and inclusive future.

Adele Beaucoleil



Life adrift: the tiny organisms adapted to life on floating sargassum in the open sea

by Fae Sapsford, Sargasso Sea Commission

The Sargasso Sea is named after the floating algae that populates its surface - golden-coloured *Sargassum natans* and *Sargassum fluitans* seaweed. Sargassum gathers in expansive mats at the surface, and provides the only cover in this mid-ocean sea.

Many associate the Sargasso Sea with game fish such as tuna, wahoo, jacks, and billfish. It also provides a spawning ground for freshwater eels and a nursery for juvenile turtles, and serves as a migratory passageway for cetaceans. However, the ecosystem that supports these charismatic megafauna begins with sargassum, and the much smaller invertebrates and fish that inhabit it.

The Sargasso Sea was first recorded by Columbus in 1492 - he wrote "*much more weed appearing, like herbs from rivers, in which they found a live crab, which the Admiral kept. He says that these crabs are certain signs of land*". Unfortunately for Columbus' crew, they were likely observing *Planes minutus*, now colloquially called the 'Columbus crab', a sargassum endemic species whose lifestyle is completely pelagic.

The open ocean is often thought of as barren and lifeless when compared to biodiversity hotspots such as coral reefs, however the sargassum ecosystem and the associated fauna it attracts provides a great concentration of life in the vast blue of the open ocean. So far, 145 invertebrate species have been recorded on sargassum, as well as ten species that are sargassum-endemic – species that are specialised for a pelagic lifestyle on floating sargassum mats, and which occur nowhere else.

Most of the sargassum-endemic species have adopted cryptic camouflage, their bodies turning shades of yellow, gold, brown, and orange to blend in perfectly with the sargassum where they make their home. Individual Columbus crabs, for example, can be light yellow, while others may have dark orange scrawling across their whole bodies. Many individuals have white patches across their bodies, mimicking the white tubes made by worms living on sargassum. Though not a member of the swimming crab family *Portunidae*, the crabs can swim about two inches from sargassum using their broad legs in order to hunt. The true swimming crab *Portunus sayi* is not classed as a sargassum endemic, though it exhibits sargassum-specialised camouflage, usually being orange-coloured and covered in white speckles. It is a fearsome hunter that employs both active and ambush hunting styles.

Perhaps the most fearsome hunter found on sargassum, however, is the sargassum frogfish (*Histrio histrio*), which only grows up to 20 cm long. These bulky fish are able to 'walk' around the sargassum mats with a pair of modified prehensile fins. Their bodies are heavily patterned and adorned with various fleshy protrusions to camouflage them on sargassum. They also sport a fleshy lure on their heads, used to ambush their prey. Frogfish do not have typical

Color variations of Sargasso crabs (*Planes minutus*) collected from Sargassum
Collection, Photography & © Jean-Pierre Rouja for the Nonsuch Expeditions

gill openings; instead, water is expelled from pores behind the pectoral fins. They can strike prey using jet propulsion, expelling water through these pores, and they can expand their mouth to swallow prey larger than themselves.

The sargassum sea slug is partially transparent, with golden pigmentation. They graze on hydroids that grow on the sargassum algae. Their bodies have six distinct protrusions - two on their heads, which allow the nudibranch to sense chemical changes in the water, and two pairs of protrusions their backs, which resemble sargassum fronds and are full of gill openings. They also lay their eggs on sargassum, which appear as gold-coloured squiggles covered in a transparent gelatinous substance.

Some of the most active sargassum inhabitants are the shrimp. The slender sargassum shrimp (*Latreutes fucorum*) is endemic to the algae, and *Hippolyte coerluscens* is a common inhabitant. They both mimic separate parts of the sargassum algae: *Latreutes* mimics the fronds, while *Hippolyte* mimics the round vesicles, which are filled with gas and allow sargassum to float.

These shrimps can change colour throughout their lives – both species usually begin life as solid-coloured or transparent, and as they grow too large to convincingly mimic plant parts, they adopt disruptive colour patterns corresponding to their surroundings as a whole. Larger *Latreute*s shrimp often have a few bright blue spots, and these may resemble open patches of water between Sargassum fronds and vesicles.

Sargassum is unlike any other drift algae. This "golden floating forest" contains a micro-world exploding with life - combed through by crabs, shrimps, and sea slugs, nested in by flying fish, colonised by bryozoans and barnacles, and providing shelter for juvenile turtles and fish. The productivity of this ecosystem begins with the fascinating, tiny organisms that inhabit it.

Various fish are attracted to the mats and feed underneath them, including jacks, rainbow runners, dolphin, barracuda, mackerel, wahoo, tuna, and billfish. The sargassum ecosystem is a globally important one, but as pressures on its integrity accumulate, measures must be taken to preserve and maintain its inherent natural value - and the fascinating, minute organisms that have evolved to live among its golden fronds on the open sea.

Left, top: Sargassum with the swimming crab Portunus sayi *and flying fish eggs. Bottom: Sargassum crabs* Planes minutus. *Both images courtesy Jean-Pierre Rouja.*

Right, top: The Sargassum shrimp Lautreutes fucorum *among Sargassum (image courtesy Fae Sapsford). Middle: Sargassum fish* Histrio histrio *(image courtesy Jean-Pierre Rouja).*

The Sargasso Sea Commission: an evolving new paradigm for high seas ecosystem governance?

Just published, this paper reviews the progress and significant achievements of the Sargasso Sea Commission over the decade since its formation. It goes on to detail the Commission's future plans to collect state of the art data on key aspects of the ecosystem and to re-examine governance issues in light of an improved understanding of human activities and impacts in the area. This will enable the Commission to take a holistic overview of the Hamilton Declaration and to highlight and remedy the defects of the primarily sectoral system of ocean governance, for example, by filling existing regulatory gaps.

Full article: Freestone, D. (2021) Frontiers in Marine Science 8, 659 pp. DOI 10.3389/fmars.2021.668253

The Dugong & Seagrass Hub: A one-stop-shop for all your dugong needs

The charismatic dugong have for some time faced an uncertain future, as their placid nature and preference (alongside humans') for clear, warm and shallow sub-tropical coastal lagoons in the Indo-Pacific have rendered them vulnerable to habitat loss – through displacement and the die-off of their fragmented seagrass pastures – and elevated mortality from boat-inflicted injury. Add to this their ongoing exposure to discharged chemicals, sewage, bycatch, poaching and plastics, and their short-term prognosis does not look good.

Conservation efforts for dugong have necessarily been localised and not always effective. Success is only evident years down the line, so there is an imperative to choose the right remedy for the right place as early as possible. Thankfully, the dugong research and conservation community now have a centralised online space in which to share, discuss and exchange experiences: the Dugong & Seagrass Hub. The Hub is supported by the CMS Dugong MoU Secretariat, in partnership with Convention on Migratory Species of Wild Animals (CMS), the Environment Agency - Abu Dhabi (EAD), Germany's International Climate Initiative (IKI), and the United Nations Environment Programme (UNEP).

Benjamin L. Jones

The Dugong & Seagrass Hub also incorporates the Dugong and Seagrass Research Toolkit, an initiative by the Dugong MOU, Environment Agency - Abu Dhabi and the energy company Total. Both Hub and Toolkit provide a common platform for the dugong and seagrass conservation community – which includes scientists, field practitioners, social entrepreneurs and coastal communities – to share research tools and techniques, projects, results and stories. The Hub's actions are also well aligned with other initiatives promoting the restoration of highly productive wetland ecosystems, enhancing biodiversity, strengthening coastal protection from storms, and sequestering carbon dioxide using natural solutions.

Since launching in March 2017, the Dugong and Seagrass Research Toolkit has been accessed by 3,200 users from 119 different countries, with a total of over 10,000 website views. In June 2021, the Toolkit was selected as one of the 25 most noteworthy innovations in the Government sector of the United Arab Emirates (UAE) by the Mohammed Bin Rashid Centre for Government Innovation.

Hub: www.dugongseagrass.org

Toolkit: www.conservation.tools/launch/

In other marine mammal news…

Dugong conservation recently got another boost by the proposal by the Government of Mozambique of a new Environmental Protection Area (EPA) based on the Bazaruto Archipelago to Inhambane Bay Important Marine Mammal Area (IMMA). The IMMA was identified during the GOBI-sponsored Western Indian Ocean and Arabian Seas IMMA Workshop held in March 2019, and is one of three chosen as pilot areas under the GOBI work programme for the exploration of appropriate conservation tools and management plans (the other two being the IMMA around the Republic of Palau and the Southern Andaman Islands IMMA in India).

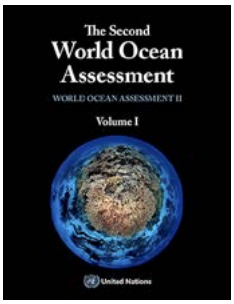
The Bazaruto Archipelago to Inhambane Bay IMMA features dugongs, Indian Ocean humpback dolphins and humpback whales, while it is also home various sharks and rays, marine turtles, and seabirds. Based on the area's importance for these key species, together with considerations about tourism, community activities and ecosystem threats (e.g., unsustainable fishing, mining concessions, coastal development and climate change) Conservation International has made a number of recommendations, including:

- Nominate the Bazaruto Archipelago to Inhambane Bay IMMA as a World Heritage Site;
- Create specific Areas of Protection within the EPA;

- Reduce and eliminate anthropogenic pressures in the IMMA;
- Select low-density tourism and conservation activities as the preferred land-use;
- Promote scientific research;
- Encourage local community involvement and alternative livelihood projects.

This outcome represents a vindication of the importance and utility of the IMMA concept for supporting conservation action. It also strengthens the need for extending the geographical coverage of the IMMA process across the world. To this end, an extraordinary IMMA workshop was organised during the pandemic-induced lockdown and delivered virtually, focusing on the Black Sea, Turkish Straits System and Caspian Sea Region. Whilst successful in its description of candidate IMMAs in such a discretely defined area with a limited number of marine mammal species and dedicated experts, it highlighted that there is no substitute for in-person meetings, where a greater scope for debate and information exchange is possible and necessary. The postponed IMMA workshop originally scheduled for October 2020 in Costa Rica (the fifth of five IMMA workshops funded via GOBI's IKI grant), targeting the south-eastern temperate and tropical Pacific Ocean, has been rescheduled to November 2021 as a hybrid virtual/in-person workshop, pandemic restrictions permitting.

Hot off the press



The Second World Ocean Assessment, Volumes I & II by the United Nations

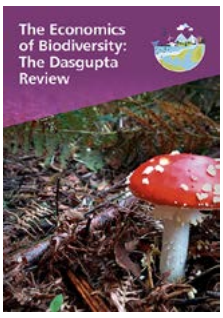
This second assessment provides an update to the first Assessment, taking into account developments and changes known to have occurred since 2015, and complements it by describing further human interactions with the ocean. It also provides an evaluation of how the developments and changes since the first World Ocean Assessment contribute to the achievement of relevant Sustainable Development Goals. It covers all topics related to the ocean – as well as identifying gaps therein – including biodiversity, climate change, ocean science, coastal communities and the blue economy.

https://www.un.org/regularprocess/

Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change by IPBES-IPCC

This document presents the results from the first-ever collaboration between the two intergovernmental science-policy bodies. It includes a set of seven sections on the connexion between climate and biodiversity, conservation in a changing climate, the effect of climate mitigation activities on biodiversity, adaptation to climate change, effects of conservation activities on climate change, the biodiversity-climate-society interface, and potential solutions at the biodiversity-climate-society nexus.

https://www.ipbes.net/events/launch-ipbes-ipcc-co-sponsored-workshop-report-biodiversity-and-climate-change



The Economics of Biodiversity: The Dasgupta Review by P. Dasgupta

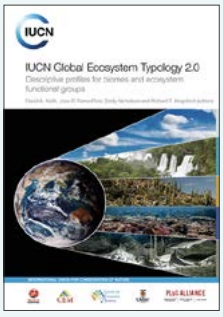
This highly anticipated review tackles the imbalance between our demands and nature's supply of the goods and services we use. Demands are affected by the size and composition of our individual demands, the size of the human population, and the efficiency with which we both convert nature's services to meet our demands and return our waste back into nature. Nature's supply is affected by the 'stock' of natural assets and its ability to regenerate. It recommends a number of societal, institutional and systemic changes to reduce that imbalance for the achievement of long-term sustainability.

https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review

IUCN Global Ecosystem Typology 2.0: descriptive profiles for biomes and ecosystem functional groups edited by D.A. Keith and colleagues

This report describes the three upper levels of a hierarchical classification system that defines ecosystems by their convergent ecological functions. Its lower levels distinguish ecosystems with contrasting assemblages of species engaged in those functions. The entire system provides a framework for understanding and comparing the key ecological traits of functionally different ecosystems and their drivers. An understanding of these traits and drivers is essential to support ecosystem management.

https://portals.iucn.org/library/node/49250



A nature-positive world: the global goal for nature by H. Locke and colleagues

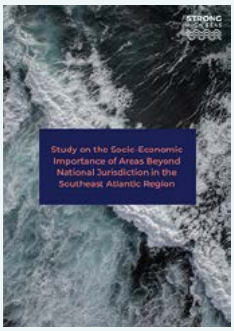
This report calls for the adoption of a succinct Nature-Positive Global Goal for Nature, to be attained alongside the Sustainable Development Goals and the goal of carbon-neutrality under the Paris Climate Agreement. Combined with development and climate goals it could create an integrated overarching direction for global agreements of an Equitable, Nature-Positive, Carbon- Neutral world. This integration would recognise that none of the goals is achievable without the others and would encourage a much-needed focus on synergies among the goals.

https://www.naturepositive.org

Critical habitats and biodiversity: inventory, thresholds and governance by A.D. Rogers and O. Aburto-Oropeza

The paper examines the distribution of marine species and critical marine habitats around the world; analyses trends in drivers, pressures, impacts and response; and establishes thresholds for protecting biodiversity hotspots, and indicators to monitor change. From this scientific base, it assesses the current legal framework and available tools for biodiversity protection, current gaps in ocean governance and management and the implications for achieving a sustainable ocean economy.

https://www.oceanpanel.org/blue-papers/critical-habitats-and-biodiversity-inventory-thresholds-and-governance



Study on the socio-economic importance of areas beyond national jurisdiction in the southeast Atlantic region and in the southeast Pacific region by the STRONG High Seas project

Two assessments, focusing on the SE Atlantic and the SE Pacific regions, apply the ecosystem services concept to characterise socio-economic interests and the importance of biodiversity conservation in ABNJ in the study regions. The reports intend to support decision-makers, including government officials, the private sector and other stakeholders to make informed decisions about ABNJ and weigh environmental, social, and economic objectives, in the context of a new internation BBNJ treaty.

https://www.prog-ocean.org/our-work/strong-high-seas/strong-high-seas-resources/

Seascape ecology: identifying research priorities for an emerging ocean sustainability science by S.J. Pittman and colleagues, in Marine Ecology Progress Series 2021, 663: 1-29.

This review describes the results of a structured survey amongst marine ecologists, conservationists and senior managers to help set priorities in any future research agenda for seascape ecology. Identified priority topics include seascape change, seascape connectivity, spatial and temporal scale, ecosystem-based management, and emerging technologies and metrics. These serve as a roadmap for advancing applied seascape ecology through the UN Decade of Ocean Science for Sustainable Development.

https://doi.org/10.3354/meps13661

Mapping threats to species: method matters by A. Ostwald and colleagues in Marine Policy 2021, 131: 104614

This paper reviews, compares and contrasts the various approaches to mapping anthropogenic threats to species, with an aim to assess the variability in results and effectiveness of each approach. While it uses data from the Australia's North Marine Region, its findings have implications far beyond that area. It concludes that the cumulative impact method requires the greatest data inputs, but provides the greatest level of detail in terms of where to act and which threats to manage for vulnerable species.

https://doi.org/10.1016/j.marpol.2021.104614

Marine mammal conservation: over the horizon by S.E. Nelms and colleagues, in Endangered Species Research 2021, 44: 291-325

This paper outlines the key threats to marine mammals and their impacts, identifying knowledge gaps and recommending actions. It goes on to discuss the merits and downfalls of established and emerging conservation mechanisms, outlining the application of research and monitoring techniques, and highlighting particular taxa/populations that are in urgent need of focus.

https://doi.org/10.3354/esr01115

Global Ocean Biodiversity Initiative

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 Seascape Consultants Ltd. GOBI is funded by the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

www.gobi.org @gobisecretariat secretariat@gobi.org

Supported by:

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

based on a decision of the German Bundestag

Federal Agency for Nature Conservation

seascape consultants ltd