

# Sustaining Deep-Sea Biodiversity in Areas Beyond National Jurisdiction

*A DOSI Report for Arcadia – 1 July 2024*

*For the period of 1 July 2023 – 30 June 2024*

## Executive Summary

DOSI continues to develop its work at the ocean science-policy interface by actively participating in relevant high-level intergovernmental meetings, and contributing to discussions at regional, national and local workshops. DOSI's visibility and impact continues to grow, as we are increasingly recognised as the go-to source of deep-ocean science expertise by influential stakeholders. As a direct result of DOSI's work, the deep-ocean is increasingly visible and forms part of the discussions and written output of many policy meetings where deep-ocean biodiversity should be considered.

DOSI's 10-year Strategic Plan sets out ambitious objectives which we are actively pursuing. [Table 1](#) summarises the activities undertaken over the past 12 months which contribute towards the achievement of those objectives. The DOSI Steering Committee has been meeting monthly to review and identify actions by which to improve our impact reporting and efficiency; these actions are also detailed in the report.

Year on year, DOSI engagement has grown through increased subscribers to our weekly newsletter (the Deep-Sea Round-Up), proactive social media outlets and via requests to become a DOSI member by joining any of our topical Working Groups. New and existing members are growing in confidence and expertise, learning how to contribute to policy and management discussions, and by mentoring others in these processes. DOSI has grown its engagement of underrepresented groups including early-career ocean professionals, with a project underway to ascertain how to make further improvements in this field.

DOSI Office operations have been streamlined, with the new DOSI Digital Officer currently developing a new website, producing engaging online content, and coordinating internal updates. We have a new Communications Manager starting in August 2024. We continue to build succession into our leadership roles to achieve long-term effective transformational change.

As for challenges, DOSI has fared well during this period, owing to improved management facilitated by an enlarged paid workforce. There have, however, been some structural and leadership changes. After much deliberation, a Steering Committee has been formed out of the old Executive Committee, to facilitate delineation of Committee and Office duties. Two Steering Committee members have been less active this year owing to illness and maternity leave, so a new member has been recruited to ensure continued smooth running.

In terms of budget, with permission from Arcadia we have made a few necessary changes which are discussed in the report. Arcadia's flexibility in this matter is very much appreciated.

## DOSI Strategic Objectives

- 1 To promote the sustainable management and conservation of the deep ocean, including biodiversity, functions and services of ecosystems
- 2 To provide robust deep-ocean science in a timely and relevant format accessible to policy makers and other stakeholders
- 3 To empower scientists and other experts globally to engage in international, regional and national policy processes relevant to the deep ocean through improved understanding and facilitation
- 4 To foster the next generation of deep-ocean stewards to achieve global impact and effective transformational change
- 5 To build awareness of the value of the deep ocean by communicating deep-ocean knowledge and providing expertise
- 6 To strengthen regional deep-ocean management capacity and to increase participation in global deep-ocean decision-making fora, especially for those countries that currently lack deep-ocean expertise
- 7 To ensure that all DOSI's actions are underpinned by principles of Social Equity, Diversity, Inclusivity, and Environmental Justice

**Table 1**

Activity in 2023-24 towards DOSI Objectives	Objective*						
	1	2	3	4	5	6	7
Held regular DOSI Core Team, Steering Committee and DOSI Office meetings to ensure everyone is up to date with activities, members' needs, issues arising, and to motivate the team to value their roles and responsibilities within DOSI	█	█	█	█	█	█	█
Increased operational capacity by recruiting Digital Officer and new Steering Committee member	█	█	█	█	█	█	█
Worked with external environmental funding consultant to identify new potential funds (travel for meeting attendance, workshops)	█	█	█	█	█	█	█
Continued to build succession into our leadership roles to achieve long-term effective transformational change				█			
Monitored and reviewed all DOSI actions to ensure they are in line with our guiding principles and internal policies on social equity, diversity, inclusivity and environmental justice, which are at the core of our operations							█
Revised and developed 11 internal policies to guide Core Team and network members	█	█	█	█	█	█	█
Enabled 70 placements of established and early career ocean professionals (majority from underrepresented groups) to engage in-person at 27 critical policy processes or events						█	█
Produced 15 written documents, including policy briefs and peer-reviewed publications, to inform deep-ocean conservation policy	█	█	█	█	█	█	█

Developed a DOSI Ambassador Feedback Form and a DOSI Event Participation Feedback Form to aid our internal review process and capture impact

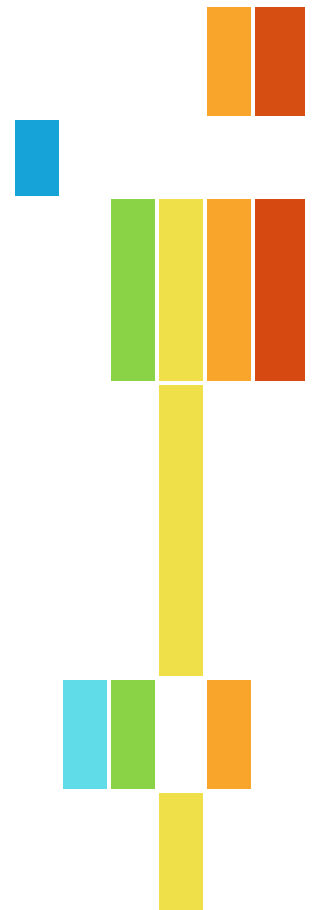
Progressed the DOSI UN Decade programme Challenger 150, with many DOSI Core Team members engaged in deep-sea-related programmes of the Decade

Undertook initiatives to aid transfer of capacity (e.g., ECOPs capacity development project, Namibia Deep-Sea Benthos Collection Project, special sessions at meetings on Capacity Development, developed online materials)

Continued the provision of reliable and accessible deep-ocean knowledge in a variety of formats, and to a variety of audiences, with targeted outputs such as webinars, new *Think Deep* podcast, weekly newsletters, Working Group bulletins, twice-yearly Deep-Sea Life publication and educational videos. Nine Policy Briefs and Information Sheets have been created and delivered to policy audiences covering topics including plastic pollution, science gaps in climate change, deep-ocean restoration and deep seabed mining impacts.

Continued to expand the DOSI network, from 2940 subscribers from 115 countries in June 2023 to 3240 subscribers in June 2024.

Expanded DOSI's presence on social media platforms (Twitter followers up by 10% to 7100 total, Instagram followers up by 25% to 5300, Facebook 2500, LinkedIn 930, new BlueSky account 30 followers)



## DOSI Activities

### Building a Strong DOSI Team

As we continue to grow the DOSI network, we have firmed up our foundations by revising roles and responsibilities (in our updated [Governing Document](#)) for the expanding DOSI Office team and Core Team members. Our Office team roles have been clearly defined and [communicated](#) to the Core Team so they are aware of who to approach for specific support. All DOSI Office members provided critical support for the activities and accomplishments described in this report.

This year we have fulfilled our goal of recruiting a fourth office member (part-time Digital Officer), with Bernadette Butfield joining us in July 2023. Our team of four is working extremely well. Our Core Team and members appreciate this added resilience of our Office, and we are adapting well to the new ways of working. Owing to the imminent departure (after >2.5 years) of our current Director of Communications, Brandon Gertz (who, we are delighted to report, has secured a permanent position in marine communications with the US Government) we have recruited a replacement Communications Lead - Elin Thomas, based in Perth, Australia - and look forward to working her when she starts in August. Although we are delighted that Brandon is moving onwards and upwards, he will be missed.

With the permission of the Arcadia Grant Manager, we have also been able to hire a temporary consultant from the DOSI Core Team – Jesse Van Der Grient – who, from May 2024, has helped with progressing some key Working Group activities. This support is crucial when we are largely reliant on voluntary contributions from experts, and at a time when our work on topics such as marine carbon dioxide removal (mCDR) and cumulative impacts in the deep ocean need to be highlighted.

Additional changes to our Core Team are the recruitment of six new Advisory Board members (in line with our three-year board policy). The [Advisory Board](#) is now made up of 13 members from 12 countries. We also have a new Steering Committee member, Maila Guilhon (an early-career researcher from Brazil) and 5 new WG leads (from 5 different countries, 3 of whom are ECOPs).

In the past year, our DOSI Core Team has continued to review and update our internal policies and we now have 11 policies finalised and approved with 6 more in progress to be completed this year. The active input from the Core Team is crucial to achieve the best possible functioning for DOSI, as they all bring different skills and backgrounds to the table. We have started to share our policy documents with other deep-ocean colleagues who may be able to benefit from them for their own organisations (e.g. Deep-Sea Conservation Coalition).

## Progress Towards DOSI Objectives

DOSI continues to apply its two-pronged approach of (1) Community Engagement – mobilising the growing global deep-ocean community to engage in policy processes to achieve informed, sustainable deep-ocean management, and (2) Policy Influence – through proactive engagement with policy processes. A third element to DOSI’s work is making deep-ocean issues visible and accessible to the general public. Some of the key outputs and progress around these elements that have been achieved in this reporting period are summarised below.

## Community Engagement



*Current DOSI network subscriber coverage – Countries represented in light blue (at least 115)*

- DOSI **network subscribers** have increased by 16% from 2940 to 3240 from 115 countries in the past 12 months.
- We have raised engagement across all DOSI social media including Twitter/X, Facebook, LinkedIn and Instagram. Our LinkedIn profile has reached a wider audience since September 2023 to May 2024 with analytics increasing from 602 to 6,499, 19 to 134, 11 to 314 (impressions, reactions and clicks respectively). Likewise, our Facebook page has seen engagement increase with a reach of 4 in September 2023 to 212 in May 2024, and page visits up by 37% during the same period. Our Facebook following sits at around 2,500 followers with a global geographic distribution across the United States (31.1%), Philippines (8.4%), United Kingdom (7%), Australia (6.8%), Mexico (4.8%), India (4.3%), Canada (3.7%), Italy (2.5%), Egypt (2.4%), Brazil (2%).

To reflect social media usage of our network we created a DOSI profile on Bluesky, a new platform offering an alternative option to Twitter/X. Further information about our DOSI Instagram account can be found in the public communications section.

- DOSI actively encourages engagement of early-career ocean professionals (ECOPs) and the recruitment of ECOPs to DOSI leadership positions. This has been most beneficial for DOSI activities, for the existing Working Group Leads and for the individuals recruited. Four new ECOP recruits to the Core Team this year are Sergio Cambroner Solano (Costa Rica), Angelee Anaswamy (Mauritius/France), Bernadette Butfield (UK) and Maila Guilhon (Brazil/Germany). ECOPs benefit enormously from working alongside established experts and senior scientists, two more of whom have been recruited to Working Group leadership positions: Saskia Brix (Germany) and Eva Ramirez-Llodra (Norway). Senior scientists also greatly benefit from the knowledge and spirit of energised ECOPs.
- Last year DOSI ECOPs Vanessa Lopez, Maila Guilhon and Mariana Caldeira embarked on a mapping project to ensure DOSI's ECOPs strategy is based on the needs of ECOPs themselves. This capacity development initiative sets out to: 1) Identify aspirations, needs and challenges faced by ECOPs with a focus on developing nations to engage in policy processes – both national and international; 2) Examine the role of DOSI in supporting ECOP engagement in policy processes; 3) Propose a set of recommendations for DOSI to take forward capacity development activities. The leads have designed and circulated a survey that aims to gather insights into the aspirations, needs, and challenges faced by ECOPs. Once the survey has been completed by the targeted ECOPs community, the findings will help enhance their involvement with the science-to-policy interface through the DOSI network. The [survey](#) is available in English, French, Spanish, and Portuguese. Data collection and analysis is underway. Results are due later in the year.
- During quarterly DOSI Core Team meetings, strategic and management issues such as new internal policies, budget status, and prioritisation of activities have been discussed. The active input from this team is a real asset for DOSI as we learn from each other and encourage a rich diversity of opinions.
- In September 2023, our Digital Officer started to produce monthly internal bulletins to keep the Core Team up to date with all current activities across DOSI. These have been well-received and are also useful for end of year reporting to funders.
- We request that all DOSI ambassadors complete post-meeting participation reports, which inform the DOSI Core Team of our impact and plan our future directions. These reports are available upon request. We recently introduced a [post-meeting survey](#) for ambassadors to ensure we are keeping our ambassadors safe and happy.
- We continue to produce our popular weekly Deep-Sea Round-Up newsletter which has expanded its audience by 10% in the last 12 months. Twice a year we produce a well-read informal publication Deep-Sea Life for the science community ([Issue 21, Aug 2023](#) and [Issue 22, Feb 2024](#)). We aim to inform all generations of deep-ocean scientists and stakeholders about relevant issues pertaining to deep-ocean stewardship, and our efforts to keep the community connected are much appreciated.



- Knowledge exchange in multiple forms across a range of stakeholders continues to be a major focus for DOSI, facilitating connections and collaborations and growing global deep-ocean science and science-policy interest, discussion and capacity. One example from this year is DOSI continuing successful capacity development work in Namibia. In collaboration with colleagues from the Namibian Ministry of Fisheries and Marine Resources (NatMIRC), and DOSI members from South Africa, Portugal and the UK, Maria Baker organised an in-person, hands-on taxonomy workshop in Swakopmund, Namibia in Oct/Nov 2023. The 2023 taxonomy workshop goals were to exchange practical knowledge around identification and taxonomic classification of the deep-ocean Namibian benthic invertebrates collected during Namibian fishery research expeditions. The resulting taxonomic reference collection is required for the eco-certification of the various fisheries by the Marine Stewardship Council (MSC) Fisheries Standard V 2.01 P2 Habitat Condition. DOSI secured funding from The Ocean Foundation and One Ocean Hub to support the 2023 taxonomy workshop.



*Namibia taxonomy workshop participants, Swakopmund, November 2023*

## Policy Influence

DOSI continues to build its positive reputation at the science-policy interface, engaging proactively with different stakeholders. This year we have placed 70 DOSI ambassadors representing 23 different countries (including 32 ECOPs, 19 from LMIC and 44 women) at 27 key events to inform on deep-ocean science. Those events that are directly related to our Working Groups are outlined in the next section. Here are listed some of the more generic meetings that different DOSI members have taken part in:

- In December 2023, DOSI members attended the International Symposium of the UN Regular Process on strengthening the ocean science-policy in Paris. This two-day symposium gathered scientific and policy communities at all levels, with expectations to deliver: (1) increased awareness on the importance of the science-policy interface for ocean governance; (2) enhanced understanding and knowledge on the science-policy interface through dialogue among multiple stakeholders from all levels; (3) improved identification of regional and global lessons learned and priorities in reinforcing the science-policy interface; (4) strengthened awareness on the importance of compatibility, and (5) synergies between assessments at the global and regional levels within the framework of the United Nations Decade of Ocean Science for Sustainable Development (2021–2030). DOSI members in attendance included: Maria Baker (representing DOSI), Christine Gaebel, Eva Ramirez-Llodra, Marcel Jaspars, Abbe Brown, Fuad Bateh, Pradeep Singh, Paul Snelgrove, Ina Tessnow-von Wysocki (each representing themselves alongside DOSI and funded externally), from UK, Spain/Norway, Palestine, Malaysia/Germany, Canada and Germany. As for all other meetings, the full participation report can be made available upon request.



*DOSI members at the International Symposium of the UN Regular Process on strengthening the ocean science-policy in Paris. From left to right: Christine Gaebel, Paul Snelgrove, Maria Baker, Marcel Jaspars, Abbe Brown, Pradeep Singh, Fuad Bateh, Eva Ramirez-Llodra, Ina Tessnow-von Wysocki.*

- In April 2024, a key high-level event for DOSI this year was the UN Ocean Decade conference in Barcelona, marked by active participation in numerous events both during the conference and in the days leading up to it. The primary objective was to showcase DOSI's own Decade-endorsed Challenger 150 Programme alongside 18 other deep-ocean decade programmes and projects. DOSI secured a coveted booth at the main venue, which proved highly popular and served as a central hub for deep-ocean science coordination and collaboration. The booth also facilitated meetings, enhanced coordination among deep-ocean colleagues, and provided opportunities for delegates to engage with deep-ocean scientists, science initiatives, ocean literacy efforts, data sharing, and policy links. The participation report highlights all DOSI-partnered/led events, including those from our ECOPs.



*Left: DOSI members at the Deepening the Decade DOSI booth during the 2024 UN Ocean Decade Conference, Barcelona, May 2024. From left to right: Brandon Gertz, Lisa Levin, Christopher Barrio Froján (back), Pei-Yuan Qian (front), Kerry Howell, Bernadette Butfield, Angelika Brandt, Ana Hilario, Maria Baker, Ana Colaço, Christine Gaebel and Eva Ramirez-Llodra.*

*Right: ECOP event organisers from DOSI and partners. From left to right: Leandro Angelo Pereira, Anastasiia Varlygina, Ana Hilario, Mariana Caldeira, Vanessa Lopes, Amelia Bridges, Mailla Guillhon, Evgeniia Kostianaia, Mariana Andrade, Maria Baker and Adriana Ruiz Kyvik.*



- In May 2024, DOSI member Alumita Sekinairai was supported by DOSI to attend (on the Fiji Delegation) the Fourth International Conference on Small Island Developing States convened in Antigua and Barbuda under the theme “Charting the course toward resilient prosperity.” Twenty-two Heads of State and Government and more than 3,000 delegates attended the Conference, including representatives from government, the private sector and civil society.



*Alumita Sekinairai (left) and Leneka Rhoden (DOSI Advisory Board member; right) at the Fourth International Conference on Small Island Developing States, Antigua & Barbuda, May 2024.*

- Finally, in June 2024, DOSI partnered with other stakeholders to deliver an official Side Event at the Immersed for Change UN Ocean Conference PrepCom in Costa Rica. The Side Event focused on the deep ocean of Costa Rica and linking global agreements with national policies. It was led by DOSI Biodiversity Task Force co-leads Sergio Cambronero and Diva Amon and included live deep-ocean artwork. DOSI were also invited to contribute to the ‘Let’s Be Nice to the Ocean’ event panel, where Diva Amon spoke about the importance of the deep ocean and the impacts upon it.



*Left: DOSI side event artist and panel. Right: side event audience.*





*DOSI side event flyer.*

## Policy and Outreach Impacts

As evidenced in this and previous DOSI annual reports, DOSI's visibility and impact continues to grow. We are increasingly recognised as the go-to expert voice of science with respect to the deep ocean, reaching large numbers of influential stakeholders, and delivering new insights and increased awareness of an important and environmentally critical ecosystem. We continue to build new associations and nurture our extensive well-established and enduring relationships. However, the 'soft diplomacy/influence' approach that underpins DOSI's activities complicates the quantification of our impact, and measurement remains challenging. Nevertheless, we continue to seek new metrics and refine internal processes to improve our reporting of successful actions across six categories (as listed in our proposal). New methods for assessing impact have resulted in the following data for July 2023 to June 2024:

- Number of times DOSI text appears in codified treaty text (1 – BBNJ 2023). The G77 and China proposed climate text changes that have now been codified in the BBNJ negotiation text which were supported by many other delegations because of a DOSI submission and DOSI delegation meetings on the topic.
- An easy-to-access digital feedback form (behind a QR code displayed at events) to gain insight from people attending DOSI events regarding the usefulness/impact of our activities has been deployed at a handful of events so far and will be further deployed over the coming months. Responses to date have been overwhelmingly positive, with respondents valuing the content, relevance and usefulness of the events attended.
- Mentions of DOSI and DOSI texts (interventions, submitted comments, policy briefs, presentation content) in draft legal and policy texts, delegate interventions, oral support from delegations, workshop reports or high-level deliberations (6 – ISA Jul 2023; UNGA EIA workshop Aug 2023; ISA REMP workshop Feb 2024; DOALOS at Ocean Dialogue 2024, CBD EBSA technical workshop, Nov 2023; MGR UK domestic legislation drafting for BBNJ). It is clear that we need to be more prescriptive in our requests for post-meeting participation reports in order to try harder to fully capture DOSI impact in this way and is a key action going forward.

- Anecdotal evidence (e.g. discussions with delegates who appreciate the scientific information provided by DOSI ambassadors). We also need to do better at capturing this and we have asked our delegates to report on this in their post-meeting participation reports. This month we made the decision to remove our participation reports from the website so that they can be more candid for our reporting purposes in future. Previously we have asked them to remove specifics.
- Being invited to events to share expertise, and successful proposals for engagement at high-level events, indicates our presence, non-advocacy approach and knowledge are valued and respected. This year DOSI has participated in 27 events including at UNFCCC SB60 and COP28, ISA, CBD, IPBES, IOC-UNESCO, UN Ocean Conference Preparatory Meeting, UK Parliament, IPOS (International Panel for Ocean Sustainability), UN Ocean Decade Conference and the first EAGE Conference on South Atlantic Offshore Energy Resources (industry meeting).
- Engagement in DOSI's Capacity Development ECOPs survey (>100 ECOPs to date – still active).
- Funding secured for knowledge exchange initiatives instigated by DOSI – £12,500K for Namibia Taxonomy Workshop. This will also be a first test case for the Ocean Discovery League Deep-Sea Capacity Development Maturity Model to help organisations assess and compare their capacity development projects with industry best practices, identify their strengths and weaknesses, and provide a clear roadmap for improvement. Example indicators of capacity-development impacts are training, skill-building, or strengthened collaborative abilities of involved individuals or groups.
- Internal impact as measured by a new DOSI ambassador survey mentioned above. This survey helps us identify ways we can better prepare DOSI ambassadors for effective, safe, and meaningful experiences communicating deep-ocean science.
- DOSI ambassador metrics are collated along with information on members of our Core Team, WG leads, webinar speakers and those who engage in written and oral outputs. This demonstrates our continued commitment to engage underrepresented groups from a wide geographic scope, who participate and lead in DOSI's mission, helping to close the deep-ocean knowledge gaps. Underrepresented groups include ECOPs, ambassadors from Low-Middle Income Countries (LMIC) and women. The DOSI Core Team of 49 members is currently made up of 26% ECOPS, 74% women, and 11% LMIC ambassadors representing 28 different countries. Of the 71 DOSI ambassadors out on mission this year 48% were ECOPS, 68% women and 28% LMIC ambassadors representing 23 countries. Our DOSI webinar presenters were 42% ECOPS, 53% women and 26% LMIC ambassadors. Around 80 people have worked on DOSI written outputs this year with a similar proportion of DOSI members from underrepresented groups.

- A further measure of impact is that on individuals who engage with DOSI. Many ECOPs who have engaged in DOSI working group activities have moved on to leadership roles and now engage on a regular basis at the science-policy interface as a direct result of their work with DOSI. Examples include individuals such as Diva Amon from Trinidad and Tobago who started working with the Minerals WG in 2016 as an ECOP, moved to co-leadership of the group in 2018 and is now on the DOSI Steering Committee. She is often called upon by NGOs and others to talk at science and science-policy events. Similar progression has been seen in many of our DOSI Core Team members such as Harriet Harden-Davies and Maila Guilhon who are now both SC members, and many other ECOPs who now co-lead working groups and or are members of the DOSI AB (e.g. Sarah Seabrook, Angelee Anaswamy, Emilia Bravo, Pradeep Singh, Narissa Bax).

## Media and Outreach Highlights

- 6 webinars on deep-ocean policy led by Working Group teams (details in Working Group sections below.)
- 16% increase in network subscribers to a new total of 3167 people from 115 countries
- 10% increase in subscribers from G77 countries
- 17,000 DOSI website visitors (nearly a 200% increase over 2022-2023)
- 57,000 DOSI website page views
- 1,998 downloads of DOSI policy documents
- Twitter/X: 6,844 followers (13% increase)
- Instagram: 4,648 followers (25% increase)
- LinkedIn: 615 followers (27% increase)
- Facebook: 2500 followers (first record)
- BlueSky: 30 followers

## Public Communication Outputs

- Increased capacity for DOSI communications, including the employment of a part-time DOSI Digital Officer (funded by Synchronicity Earth for three years), has led to wider sharing of knowledge (enacting our 10-year strategy) improving deep-sea literacy across platforms and driving the science-policy agenda.
- In this past year, and to mark the occasion of DOSI's 10<sup>th</sup> anniversary, we organised and delivered a series of monthly webinars on key deep-ocean policy topics. These were attended by audiences from 70 to 300+ people when they were broadcast live, as well as watched online (over 100 to several hundred views each) after the event on the DOSI YouTube channel (see webinar series playlist [here](#)).

- DOSI is increasingly contacted by different stakeholders, including journalists, to identify deep-ocean experts who may be able to provide pertinent information.
- A new [DOSI podcast](#) series called *Think Deep: Ocean Policy with the Experts* is under development. The first episode, in which Lisa Levin and Sarah Seabrook (DOSI Climate change WG leads) discussed the issue of marine carbon dioxide removal intervention impacts in the deep ocean, was released on 8 June 2024 for World Ocean Day.
- The [DOSI Instagram](#) page has made huge strides over the past year. Currently run by four early career volunteers, the page posts daily content covering the latest news in deep-ocean science and policy. Since the previous report in June 2023, the Instagram page has seen the addition of over 1,000 new followers with a major milestone of 5,000 at the beginning of May and content reaches over 8,000 accounts during a typical week. In the past year, we have highlighted over 30 diverse members of the deep-sea community in our Monday Meet feature. The Instagram account has also been a great way to share DOSI news. We are especially encouraged by the fact that some of our more popular links are to deep-sea internship opportunities as we hope that our page is a place for students to learn about deep-ocean career paths. Our most popular post to date included images of pink deep-sea creatures with the caption “On Wednesdays we wear pink.” The post received over 9,200 likes and reached over 35,700 accounts. Our audience ranges from the general public, letting us know they learned something new, to scientists and policy-makers thanking us for sharing their work. The DOSI Instagram account has also been very impactful for the volunteers running it. Our current team of four volunteers has been working together for over two years. Not only has it been a great way to expand their networks within the deep-sea community, it has helped them all refine their science communication skills. For example, Laura Anthony is a PhD candidate studying deep-sea biology and has written about her passion for science communications and her work on the DOSI page in several successful funding applications over the past year. While the public often perceives the deep ocean as distant and alien, this opportunity has helped the team learn how to communicate the beauty and importance of the deep sea.
- DOSI has been featured in numerous public engagement events globally, most recently at the UK National Oceanography Centre’s Open Day on 8 June 2024 - marking UN World Oceans Day - when the DOSI Project Officer talked to the attending public.
- Nine Policy Briefs and Information Sheets have been created and delivered to policy audiences. They cover topics including plastic pollution, science gaps in climate change, deep-ocean restoration and deep seabed mining deposit issues.

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### *Comments from Policy Officials*

*“Thank you very much for your email and policy brief. Belgium currently holds the presidency of the EU and we will organise a stakeholder meeting at the end of INC-4 to discuss the main takeaways from the meeting in Ottawa. I will put DOSI on the invitation list. In addition to that, we might also reach out to you on behalf of Belgium if we have remaining questions about deep-ocean plastic.”*



### *Comments from Ocean Professionals:*

*(A NOAA official, after inviting DOSI to comment on US Government plans): "I have been on the DOSI listserv since I was a grad student in 2015 and it's always been an incredibly beneficial resource."*

*"I am a postdoctoral researcher on midwater jellyfish. I just wanted to write this email to thank you all for the great job that you are doing. I am always impressed by the quality and content of the Deep-Sea Round-Ups. These always so informative: to keep up to date on the latest research in the field, to the list of conferences and opportunities. Especially as a postdoc, with our busy schedule which makes it difficult to keep up to date, and the constant stress regarding future work opportunities, these round-ups are so helpful. I also like the personal touches, like in one of the previous ones it ended up with a squid made me laugh. So many big thanks and keep up the good work!"*

### *Comments on Instagram:*

*"Fascinating! Thanks for sharing! I would hope that once New Zealand has ratified the High Seas Treaty, it would help progress the protection of their deep sea corals."*

*"I had no idea that baby mussels have a 'choice' [in] relocation. How amazing!"*

*"She has been one of my biggest heroes and inspiration." (In response to a Marie Tharpe 'Monday Meet' feature)*

*"Ah! Thank you so much for the feature DOSI!" (Melissa Betters upon having her dissertation work featured)*

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## Looking Ahead

We are looking forward to welcoming the new DOSI Communications Manager (Elin Thomas) who will provide support for the numerous activities that are planned for the coming year. Elin will join DOSI in mid-August 2024.

There are significant transitions afoot in some of the global ocean policy processes and DOSI will adjust its goals to fit with these new challenges, for example around the entry into force and implementation phases of the BBNJ Agreement. The ISA Mining Code and the Plastics Treaty under negotiation are also both due to move onto a new implementation phase in this coming year. The Montreal-Kunming Global Biodiversity Framework (GBF) is moving into the monitoring phase, and DOSI can play a significant role in evaluating the suitability of current proposed indicators that will monitor progress towards meeting the targets by 2030. It is expected that the BBNJ will draw from the GBF process and monitoring framework, and DOSI is well positioned to influence the intersection of the implementation of the two agreements. There are many opportunities for DOSI to work to ensure deep-ocean ecosystems are afforded due consideration and the level of protection they should have.

To that end we are planning two further cross-Working Group hybrid workshops for 2024-5: one on understanding climate change and industry effects on deep-ocean environments, and another on cross-sectoral Environmental Impact Assessments in deep-ocean industries. These will include elements of knowledge exchange.

We are striving to diversify our funding stream to enable more DOSI Ambassadors to engage in important processes to fulfil our mission. We have had meetings with a few potential funders recently and have been invited to further discussions and to submit a proposal for a knowledge exchange action.

We plan to attend the 17<sup>th</sup> Deep-Sea Biology Symposium (DSBS) in January 2025 and in tandem, host a long-overdue DOSI Day. We have had three previous DOSI Days (the last one in 2018) and they have always generated much interest and engagement among the deep-ocean science community. Raising awareness of the work of DOSI and attracting new recruits to Working Groups are the key aims of this meeting. We will support the attendance of ECOPs from lower and middle-income countries to attend DOSI Day and the DSBS.

We also hope to attend the 3<sup>rd</sup> UN Ocean Conference in Nice in June 2025 to encourage discussion around the critical deep-ocean realm. To this end, DOSI will be attending the UN Ocean Conference preparatory meeting in New York in July 2024 in order to start planning our participation.

Beyond that, DOSI will continue to make headway in all focus areas, striving to ensure deep-ocean science guides policy of fisheries, pollution, offshore energy, minerals and climate policy. All of these elements will be drawn together under the DOSI Biodiversity Task Force. Long-term funding awarded by Arcadia enables DOSI to fulfil its commitment and contribution towards the UN Ocean Decade of Sustainable Development, progress for which is already underway.

DOSI will continue to engage with the deep-ocean research community in as diverse a way as possible, aiming to reach a broad and diverse audience, from seasoned professionals to early-career researchers, and especially including persons from regions where access to ocean-related resources is limited. We are committed to providing open access to all our outputs and encouraging the rest of the deep-ocean and scientific community to follow suit.

## Activities of the DOSI Working Groups

DOSI Working Groups consist of hundreds of proactive DOSI members who specialise in specific topics of concern related to the deep ocean. Each DOSI Working Group (WG) operates independently but with a close eye on activities by other Working Groups to ensure a consistency of approach, as many issues are cross-cutting. Below are the salient activities of each DOSI WG over the past year.

# BBNJ Working Group

## (Biodiversity Beyond National Jurisdiction)

### Summary

- Reviewed WG strategy following BBNJ Agreement adoption in July 2023
- Surveyed WG members to gauge interests and encourage participation
- Hosted DOSI cross-WG meetings to discuss collaboration and joint outputs, along with cross-cutting issues related to BBNJ, the International Seabed Authority, UNFCCC and plastic pollution treaty negotiations
- Webinar: The BBNJ Agreement and Climate Change Action (September 2023)
- Participated in High Seas Treaty Symposium, Edinburgh (October 2023)
- Webinar: The BBNJ Treaty: A New Chapter in Ocean Governance (December 2023)
- Early Career Ocean Professional Marina Garwood is now assisting WG leads
- WG co-lead Christine Gaebel published a paper on the topic of a fit-for-purpose Scientific and Technical Body (STB) under the BBNJ Agreement.
- Led on-site satellite events at the UN Ocean Decade Conference (April 2024)
- Produced and distributed the Information Sheet “Life Moves Slowly in the Deep Ocean – The Challenge of Timescales in Ocean Restoration
- Webinar and workshop : Connecting Deep-Ocean Science and Policy: The Future of the BBNJ Treaty (May 2024)
- Participated in the organisational meeting of the BBNJ PrepCom (June 2024)

The BBNJ Agreement was adopted in July 2023. As the BBNJ process now moves from a discussion phase towards ratification and implementation, opportunities to promote the use of best available scientific knowledge in decision-making are likely to increase. BBNJ WG membership met in August 2023 to reflect and to determine their strategy. They will continue to work to establish a comprehensive network of experts on BBNJ and to empower ocean researchers to engage with, participate in, and contribute science, knowledge, and expertise to policy discussions. They will continue to build the WG's reputation as a "go to" group on deep-sea science-to-policy advice. The overall vision for DOSI is that the implementation of the BBNJ Agreement is based on the best available scientific knowledge.

Part of this strategy-building stage is exploring opportunities to collaborate with other DOSI WGs, especially regarding topics covered across groups, and to better understand how the WGs can support each other's work. To that end, in September 2023 the BBNJ WG leads hosted a cross-WG meeting to discuss BBNJ and thematic overlap across groups. Additional one-to-one sessions have also been organised, to help bring together WGs across DOSI and learn from each other's experiences and expertise. This includes exploring synergies and interlinkages with processes under the UNFCCC and the ISA, with future sessions envisioned to explore the CBD and environmental impact assessments.

A joint DOSI and IUCN webinar was delivered in September 2023 with contributions by DOSI Steering Committee members Lisa Levin and Kristina Gjerde. The webinar joined together ideas around the BBNJ Agreement and Climate Change Action (300 registered, 400 online views post-webinar).

**DOSI**  
DEEP-OCEAN STEWARDSHIP INITIATIVE

**IUCN**

# The BBNJ Agreement and Climate Change Action

**11 September 2023**  
3:00PM - 4:30PM UTC

*Roles of biodiversity Beyond National Jurisdiction in Earth's climate and climate change*

*Opportunities in the BBNJ Agreement to address climate change*

*Key steps for bringing the Treaty into force*

**Fuad Bateh (moderator)**  
Former Delegate to the BBNJ Intergovernmental Conference

**Lisa Levin**  
Scripps Institution of Oceanography and DOSI Executive Committee

**Julio Cordano**  
Chilean Ministry of Foreign Affairs and UNFCCC Ocean Dialogue Co-Facilitator

**Kristina Gjerde**  
IUCN High Seas Advisor and DOSI Executive Committee

**ARCADIA**

**SYNCHRONICITY EARTH**

Register here: <https://tinyurl.com/3r8c98ep>

Image courtesy of NOAA Ocean Exploration, Seascapes / Alaska 3

Several members of the BBNJ WG were actively engaged in a High-Seas Treaty meeting in Edinburgh in October 2023. The meeting brought together over 200 BBNJ experts. WG co-lead Harriet Harden-Davies chaired a panel on 'Capacity-building and the transfer of marine technology' and was joined by Julia Schutz-Veiga as a panel expert. WG co-lead Christine Gaebel joined the panel on 'Best available science and international cooperation' as a speaker. Bringing the event to a close, Kristina Gjerde joined others as a panel expert to inspire attendees on "Hitting the ground running: preparations for BBNJ COP1."





Left: DOSI members pose for a photograph at the High-Seas Treaty Symposium. Right: DOSI event flyer.

In December 2023, BBNJ WG members engaged in the second [DOSI 10-year anniversary webinar](#), discussing the newly adopted BBNJ Agreement and what the next steps are to make a difference for the deep ocean. Also in December, BBNJ WG co-lead Christine Gaebel was a panel member at a high-level symposium on science-policy interfaces in international ocean governance hosted at the IOC-UNESCO headquarters by UNESCO and the UN Division for Ocean Affairs and the Law of the Sea (DOALOS).

In March 2024, Christine Gaebel shared the first publication from her PhD research, which explores: [“What would a fit-for-purpose Scientific and Technical Body \(STB\) look like under the BBNJ Agreement?”](#) These findings are pertinent to the forthcoming endeavour of designing and implementing a Scientific and Technical Body under the BBNJ Agreement, and more generally, provide insights on normative qualities that stakeholders perceive as important for science-policy interfaces. The BBNJ WG co-leads are exploring options to build on this research, through a DOSI output or workshop, to explore this important topic more.

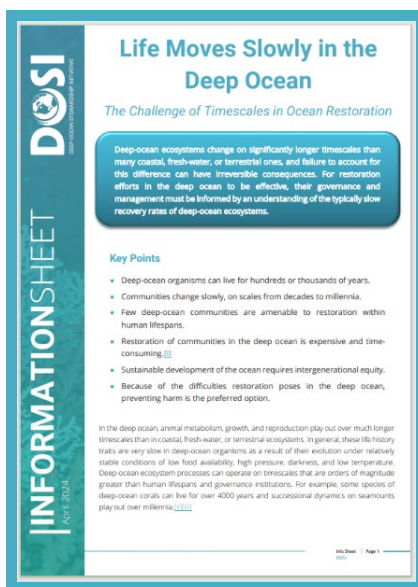
Also in March, Marina Garwood was temporarily employed to lend support to the WG leadership team to help plan and organise new deep-dive sessions to explore various topics under the BBNJ Agreement, as well as a series of cross-WG engagement discussions. It is envisioned that these sessions could lead to policy briefs or other outputs in the coming months.

The BBNJ WG co-organised and hosted a Satellite Event at the UN Ocean Decade Conference in April 2024, which addressed ratification and implementation needs for the BBNJ Agreement, as well as interlinkages with the Ocean Decade. It featured several DOSI members as speakers and panellists, including Christine Gaebel, Lisa Levin, Vanessa Lopes, and Mariana Caldeira. The event had a successful turnout and has received positive feedback from the BBNJ and wider community. The event was co-hosted with IUCN, High Seas Alliance, IDDRI and Ocean Voices Programme.



*Panellists Vanessa Lopes (DOSI), Christine Gaebel (DOSI), Kludija Cremers (IDDRI), Ana Matias (High Seas Alliance), Marjo Veirros (Ocean Voices) and moderator Aurelie Spadone (IUCN) during the onsite Satellite Event at the Ocean Decade Conference.*

In April 2024, a DOSI Information Sheet on the challenges of deep-ocean restoration was produced by BBNJ WG members and it is being distributed widely across processes. It is titled: [Life Moves Slowly in the Deep Ocean - The Challenge of Timescales in Ocean Restoration.](#)



A webinar was delivered in May 2024 to a deep-ocean science audience, titled [Connecting Deep-Ocean Science and Policy: The Future of the BBNJ Treaty.](#) Presentations were given by DOSI WG co-leads Paul Snelgrove, Jeff Marlow and Steering Committee member Kristina Gjerde (40 participants and >100 YouTube views).

In June, Muriel Rabone and Lisa Levin participated in a workshop titled *The High Seas Treaty: A Critical Perspective* at the National Oceanography Center in Southampton. As the only scientists presenting, they discussed how the BBNJ Agreement addresses (or could address) marine genetic resources and climate change issues, respectively.

Finally, the BBNJ WG participated in the organisational meeting of the BBNJ Preparatory Commission (PrepCom) in June 2024. The DOSI delegation is composed of Christine Gaebel, Marina Garwood and Vanessa Lopes, who will continue to connect BBNJ decision-makers with science and scientists as the process moves towards implementation. The meeting aims to tackle three main tasks: (1) elect co-chairs for the future PrepCom sessions, (2) decide on dates and times for future sessions, and critically, (3) decide upon a plan of work. This plan of work will detail the topics that will be addressed in future PrepCom sessions, so it is of critical importance for the deep-sea science community to stay engaged in the process to support delegations in these decisions in order to ensure that important considerations from a scientific perspective are allocated sufficient time in the PrepComs. This could include considerations around the Scientific and Technical Body, the Clearing House Mechanism, and finance and capacity building requirements to ensure that all future parties to the agreement can engage in and benefit from deep-sea science in areas beyond national jurisdiction.



*DOSI delegation and members at the BBNJ PrepCom June 2024: Solomon Sebuilbax, Krisitna Gjerde, Christine Gaebel, Marina Garwood and Vanessa Lopes.*

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*“Participating in the United Nations BBNJ Preparatory Commission as a DOSI representative has profoundly enriched my career, offered meaningful insights into international policy, and fostered connections with global experts in ocean governance. Collaborating with fellow advocates for BBNJ fuels my commitment to contribute positively towards global progress. I am deeply grateful for this opportunity to help create a better world with DOSI and through collective efforts dedicated to responsible ocean management.”*

*-Marina Garwood (USA - DOSI BBNJ WG Member)*

## Summary

- DOSI Minerals WG members actively engaged in the 28<sup>th</sup> (July & November 2023) and 29<sup>th</sup> (March 2024) Sessions of the Council and Assembly of the International Seabed Authority, delivering interventions and side-events. Many of the 43 DOSI interventions made during these sessions were supported and cited by States and NGOs
- Four DOSI Information Sheets were presented to delegates attending ISA Council sessions
- DOSI co-hosted a Side Event at the 28th Council Session with Pew and NHM (November 2023)
- DOSI hosted a Side Event at the 29th Council Session titled 'What does the deep ocean do for you?' (March 2024)
- DOSI Ambassadors participated in workshops and led sessions at other key fora
- The Minerals WG continues to produce a valued weekly newsletter for its members
- The WG submitted two commentaries on two Environmental Impact Statements related to the testing of collector vehicle prototypes

DOSI Ambassadors participated (both in person and online) in Part II of the 28<sup>th</sup> Session of the Council of the ISA and the annual Assembly in July 2023, where they delivered 20 interventions that included scientific and expert opinions on how to ensure high environmental standards and the reflection of independent and robust science in the regulations. DOSI's work was mentioned and supported by other delegates' interventions (e.g. by PEW Charitable Trusts and the Deep Sea Conservation Coalition (DSCC)). Additionally, we received many thanks from a variety of State delegations for our on-topic interventions. Canada gave compliments: *"...all been very strong interventions and Diva has done a great job as well."* Diva Amon was interviewed by Danica Coto of the Associated Press.





*Left: Muriel Rabone delivering side-event in Jamaica. Right: DOSI members at ISA, July 2023*

DOSI co-hosted a Side Event during the 28th Session, together with Pew Charitable Trust and the Natural History Museum (London) titled *'What DeepData can tell us about the Biodiversity in the CCZ?'* The event featured the recently published study carried out by DOSI Marine Genetic Resources WG lead, Muriel Rabone from the Natural History Museum, who compiled and analysed all available faunal records in the Clarion-Clipperton Zone (CCZ) in the central North Pacific Ocean. The event was well attended, with at least 100 attendees from various nations, NGOs and members of the ISA Secretariat. The main points of the talk were captured in an Information Sheet which was distributed during the event. DOSI also prepared, printed, and distributed copies of three further Information Sheets from our "What Does the Deep Ocean Do for You?" series ([Polymetallic Nodule-Rich Abyssal Plains and the Water Column](#), [The Seamount Ecosystem](#), and [Hydrothermal Vent Ecosystems](#)). DOSI delegates were interviewed by Science Magazine, JamaicaTV, Washington Post, Vox.com, Mongabay and NRC (Netherlands). As for all meetings DOSI attends, a detailed participation report is available upon request. DOSI's delegation and the publications they brought to the ISA Council Meetings were featured in multiple Earth Negotiations Bulletin updates (see [here](#)). Our experts at the event were also quoted in [Science](#) and [YaleEnvironment360](#). Following this meeting, DOSI was contacted by a video journalist from Vox seeking to interview experts in deep-ocean policy. The [resulting video](#) from those interviews has over 1.3 million views.

In November 2023, the Minerals WG participated in Part III of the [28th Session of Council of the ISA](#). DOSI made 12 interventions during proceedings and was mentioned and supported in interventions by other delegations, such as the PEW Charitable Trusts and the Federal States of Micronesia.

However, during the first day of the session, a 5.4 magnitude earthquake afflicted Kingston and surroundings. Following evacuation, the meeting was postponed until the next day. A detailed report including DOSI reactions and management is available on request. This was an alarming situation for all delegates including DOSI Ambassadors on the ground. A letter was sent to the Secretary General of the ISA with recommendations for future incidents. We have also taken steps to enhance security for our ambassadors in future and updated our pre-meeting packs for DOSI Ambassadors to include an earthquake emergency protocol document (when attending meetings in earthquake zones). We also ensured that the hotel our delegates stay in is earthquake proof and regularly inspected.



DOSI Ambassadors Stephen Cody (left) and Patricia Esquete (Head of Delegation; right) delivering interventions.

In March 2024, Minerals WG members attended Part I of the 29th Session of the Council of the ISA. Members actively contributed to the event, particularly during discussions on the development of Regional Environmental Management Plans. A total of 11 interventions were made and these were mentioned or supported by other delegations.

Representatives from the Minerals WG, Sabine Gollner, Patricia Esquete, Beth Orcutt, Catherine Blanchard and Samantha Robb, delivered a successful DOSI evening Side Event exploring the question “*What does the deep ocean do for you?*” which focused on the valuation of ecosystem services. The event started with a welcome reception, followed by three presentations, a Q&A session, and concluded with a social reception so that interested parties could further discuss the presentations. The event was well attended, with over 70 delegates from various nations and observer delegations.



**What Does the Deep Ocean Do for You?**

Talk of the Town Room,  
The Jamaica Pegasus Hotel, 81 Knutsford Blvd

20 March 2024  
7:00pm drinks and hors d'oeuvres served  
7:30 - 9:30pm presentations and Q&A

**Dr. Patricia Esquete**  
University of Aveiro  
Polymetallic Nodule-rich Abyssal Plains and the Water Column

**Dr. Sabine Gollner**  
Royal Netherlands Institute for Sea Research (NIOZ)  
Hydrothermal Vent Ecosystems

**Dr. Beth Orcutt**  
Bigelow Laboratory for Ocean Sciences  
Ecosystem Services Provided by Deep-sea Microscopic Life, and What We Know about Indicators and Thresholds of Harm

BENIOFF OCEAN SCIENCE LABORATORY  
ARCADIA

**DOSI**  
DEEP-OCEAN STEWARDSHIP INITIATIVE

Find an expert near you:  
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Image courtesy of NOAA Ocean Exploration, 2016-160909, Moana Expedition

DOSI side-event presenters and audience at the ISA, March 2024.



Other meetings of note this past year for the Minerals WG include a DOSI special session on the biodiversity risks of deep seabed mining during the 5th World Conference on Marine Biodiversity in Malaysia, in July 2023. It was chaired by Khaira Ismai, a DOSI member from the region. The focus was to provide information and increase participation of countries from SE Asia in topics related to deep-sea mining. There are few deep-sea scientists in the region, and those countries are less active at the ISA (except Malaysia and Singapore). The session received good feedback and similar events will be considered for the future.



*DOSI special session organisers from left to right: Khaira Ismai, Angelika Brandt, Moriaki Yasuhara, Patricia Esquete, Tina Molodtsova, Pradeep Singh.*

Also in July 2023, Minerals WG members were invited to meet with the ISA to discuss the implementation of the first ever Strategic Plan for the Authority and associated High-Level Action Plan for the period 2019-2023, to discuss whether the ISA contributed to the objectives assigned to them, and whether or not, as well as how, it has reinforced the work of ISA.

In September 2023 DOSI Executive Director, Maria Baker, presented DOSI to the Challenger Deep-Sea Interest Group (UK). This has resulted in strengthening connections with the UK government on scientific and environmental aspects of deep-sea mining, with some DOSI UK members joining a new national taskforce on the subject (June 2024 meetings now postponed until after the general election).

In February 2024, Ana Colaço provided expertise at an ISA workshop on the development of a Regional Environmental Management Plan for the Area of the Northwest Pacific, providing technical advice on environmental impacts.



In June 2024, Patricia Esquate provided expertise at an ISA workshop on the development of a scientific approach for the identification of deep-sea taxa in support of effective protection and management measures in the Area.

Also in June 2024, scientific experts Tanja Stratmann and Baban Ingole represented DOSI at the ISA Thresholds Working Group meeting Jamaica (awaiting participation report).

Minerals WG experts have engaged in stakeholder consultations and submitted commentaries on two deep-sea mining industry Environmental Impact Statements: [DOSI-Commentary-on-BPC-EIS.pdf \(dosi-project.org\)](#) (Test of Deep-Sea Miner and Buffer Station) and [DOSI-Commentary-on-CMC-EIS.pdf \(dosi-project.org\)](#) (Testing of Polymetallic Nodule Collector Vehicle). These comments have been made to highlight the inadequacies in the current statements from a scientific perspective.

Finally, this month a popular programme called Last Week Tonight with John Oliver featured the issue of Deep-Sea Mining and DOSI SC member Diva Amon and DOSI member Craig Smith were shown talking about the fragility of deep-ocean nodule habitats. This programme has huge reach and already has over 2.5M views.

The Minerals WG produces and distributes a regular newsletter amongst its members, sharing the latest news and research around deep seabed mining, and is a valuable resource for the community. The WG has also held numerous meetings during the year to discuss elements of science and management of deep seabed mining.



# Climate Change Working Group

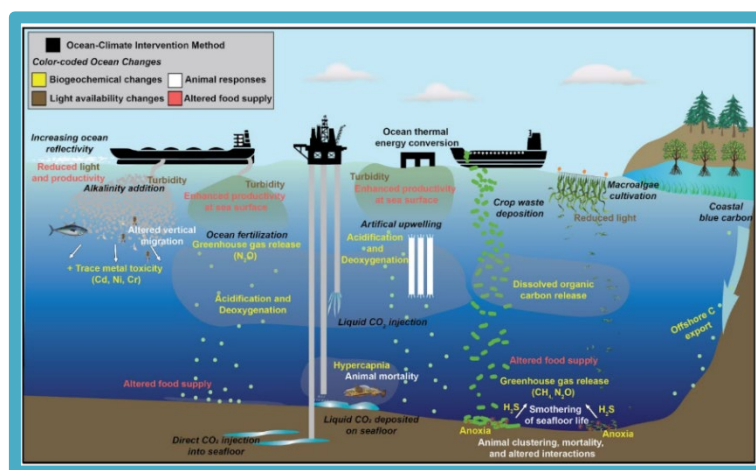
## Summary

- A DOSI delegation attended UNFCCC COP28 in Dubai, giving presentations and hosting SideEvents on the impacts of climate change and carbon capture on the deep ocean. Two Policy Briefs and 1 Information Sheet were produced and disseminated for COP28 (November/December 2023)
- A collaborative information sheet is being designed by DOSI and the Deep-Ocean Observing Strategy (DOOS). The document will report on deep-sea climate gaps in IPCC AR6
- The WG surveyed members to identify future priorities
- DOSI Climate Change WG members raised awareness of impacts of mCDR in deep ocean environments at various fora
- Submitted comments to the UNFCCC Ocean and Climate Change Dialogue Preparatory Meeting, recommending discussion topics (March 2024)
- WG members attended the 2024 UN Ocean Decade Conference and participated in events to link biodiversity and climate (April 2024)
- Attended UNFCCC SB60 in Bonn (June 2024), contributing to the Ocean Dialogue
- Within the Deep Ocean Climate Intervention Impacts subgroup, new activities included a mCDR workshop to address impacts of mCDR in the deep ocean (June 2024)

The DOSI Climate Change WG has continued its mission to ensure that the deep ocean is considered in key relevant discussions and negotiations. Climate Change WG co-leads Sarah Seabrook and Lisa Levin, and DOSI Director of Communications Brandon Gertz attended UNFCCC COP 28 in Dubai (Nov/Dec 2023). They focused on raising awareness about the deep ocean relevance to climate policy, evaluating current climate trends and narratives as they affect the deep ocean (e.g., marine Carbon Dioxide Removal - mCDR), as well as making contacts with participants engaged in the ocean-climate nexus. They held multiple conversations about mCDR and the need to elevate discussion of deep-sea environmental consequences. In addition, they contributed to the RINGO (Research and Independent Non-Governmental Organisations) final plenary statement on research needs. Two Policy Briefs and one Information Sheet were prepared by DOSI (with DOOS) for COP 28 - covering: Identifying Deep Ocean Science Gaps for Understanding and Monitoring Climate Change; Incorporating Deep Sea Biodiversity in Climate Change Policy, and [Marine Carbon Dioxide Removal: Ocean Impacts and Policy Needs](#). These were distributed along with the promotion of an app called "[How Much Deep Sea is in your EEZ?](#)" created by Kristen Johannes.



Flyer for one of the DOSI-partnered sessions at COP28 featuring Climate WG leads Lisa Levin and Sarah Seabrook.



Infographic from DOSI Policy Brief on Marine Carbon Dioxide Removal: Ocean Impacts and Policy Needs

In January 2024, Lisa Levin participated in [a Global Maritime Academy webinar](#) on mCDR to talk about potential impacts of these activities in the deep ocean. Lisa also provided input about the deep ocean to the US Listening Sessions on Developing a mCDR research program.

Also in January, Maria Baker was invited to a UK Parliamentary Round Table where she spoke directly with ministers and Lords about mCDR deep-ocean impacts.

In February 2024, the WG submitted comments on the [US mCDR Research Plan](#).

In March 2024 the WG made a [submission to the UNFCCC Ocean and Climate Change Dialogue](#) Preparatory Meeting paving the way for further discussions to include deep-ocean issues.

In April 2024, members from the WG delivered a webinar on “Climate and policy in deep sea” with Sarah Seabrook, Lisa Levin, Kristina Gjerde, Joanna Post, Fuad Bateh as speakers. This webinar brought to a close the DOSI 10-year Anniversary webinar series. Recordings of this and all other webinars in the series can be found [here](#).



*Flyer for the climate change webinar in the DOSI 10th Anniversary webinar series*

During the 2024 UN Ocean Decade Conference in Barcelona in April 2024, along with other members from DOSI, Lisa Levin delivered multiple presentations which focused on deep-ocean climate change which are detailed in the DOSI participation report (available upon request).

The Deep Ocean Climate Intervention Impacts (DOCII) subgroup of the Climate Change WG has been active this year, producing the [coordinated response](#) to the Decade for Ocean Science comments on the Visions 2030 White Paper for Challenge 5: Unlock ocean-based solutions to climate change. The goal was to highlight opportunities for the White Paper to consider the deep ocean when discussing climate interventions.

In June 2024, WG co-leads Moriaki Yasuhara and Sarah Seabrook attended UNFCCC SB60 in Bonn. Here they attended many sessions including the Ocean and Climate Dialogue, submitting an intervention on deep-ocean impacts.



*Moriaki Yasuhara and Sarah Seabrook at the UNFCCC SB60 in Bonn, June 2024.*

Finally, from June 24-26 2024, the WG convened a workshop on mCDR and the deep sea at Scripps Institution of Oceanography (UC San Diego) to address natural analogs, state of knowledge, potential impacts, knowledge gaps, governance and equity issues for these activities in the deep ocean. This workshop was co-sponsored by Benioff Ocean Science Laboratory and Arcadia. In all, 22 participants from 11 countries attended this workshop (report to follow).

## Decade of Deep-Ocean Science Working Group (Challenger 150 Programme)

### Summary

- Published a [Review of the central and south Atlantic shelf and deep-sea benthos: Science, policy and management](#) (2023)
- Held a Challenger 150 / DOSI session at the 7<sup>th</sup> CBE, Brazil (July 2023)
- Held a meeting with other deep-ocean UN Ocean Decade groups to plan joint activities and goals (Oct 2023)
- Held a Challenger 150 Atlantic mapping workshop, Portugal (March 2024)
- The Challenger 150 Programme leads and ambassadors showcased their work during the UN Ocean Decade Conference, Barcelona (April 2024)
- Created a first report from the Challenger 150 African Network of Deep-water Researchers (ANDR) – strengthening Africa’s capacity for deep-ocean research (April 2024)
- Signed an MoU with Seabed 2030 to cooperate on ocean mapping (April 2024)
- Held online training and standardisation workshops in image analysis (May 2024)
- Provided support via the 12 Challenger 150 scientific regional working groups and 4 technical scientific working groups for new Primary Investigators to develop ship time proposals for submission to programme partner Schmidt Ocean Institute



The [Challenger 150](#) UN Decade-endorsed programme was developed by the DOSI Decade of Deep-Ocean Science WG, and now represents the WG's main activities. The programme focuses on global cooperation in deep-ocean science and is recognised as a high-profile programme of the UN Ocean Decade. To date, the programme has completed a total of 33 affiliated research cruises in five ocean basins and has established 12 science regional working groups and 4 science technical groups. See highlights report (June 2024) below for further details. This year the Challenger 150 programme has continued to focus its efforts on training and capacity building to broaden the deep-sea science base and support early career researchers joining the field. Key activities have been the development of an Africa-focused report, online training and standardisation workshops in image analysis, and support via the regional working groups for new principal investigators (PIs) to develop ship-time proposals for submission to programme partner Schmidt Ocean Institute.

# CHALLENGER 150

## Year 3 Highlights

CELEBRATING

RESEARCH

# 33

CRUISES



REGIONAL

# 12

GROUPS

This year the Challenger 150 programme has continued to focus its efforts on training and capacity building to broaden the deep-sea science base and support early career researchers joining the field. Key activities have been the development of an Africa-focused report, online training and standardisation workshops in image analysis, and support via the regional working groups for new Principal Investigators to develop ship-time proposals for submission to programme partners Schmidt Ocean Institute.

The African Network of Deep-water Researchers (ANDR) released "Practical Actions to Strengthen Capacity for Deep-water Research in Africa". This report proposes a series of short-, medium-, and long-term measures to strengthen Africa's capacity for deep-water research. It was released alongside the 2024 Ocean Decade Conference (Barcelona, April 2024), highlighting work since the beginning of the Ocean Decade. Understanding deep-water ecosystems is key for their management, but there are substantial discrepancies in countries' abilities to achieve this.

Through a series of online workshops, the ANDR brought together 98 individuals from 19 African nations to discuss challenges for deep-water research in Africa, identify solutions to overcome these, and propose practical actions.

Also at the UN Ocean Decade Conference, Kerry Howell was a panellist on "Ocean Census: Discovering Marine Life", while Hiário and Amélia

Bridges were panellists on "Gathering Forces for Science-Policy Nexus, Innovation, and Funding". Challenger 150 was featured prominently at the Deepening the Decade booth - convened by DOSI - alongside other Ocean Decade pro-grammes, and had a poster on permanent display throughout the conference.



Challenger 150 has signed an MoU with Seabed 2030 to cooperate on mapping the ocean floor. Seabed 2030 maps will provide essential information for the creation of habitat maps and species distribution models in the deep sea.



Finally, Kerry Howell and Ana Hilário have been recognised by the British Embassy for their collaborative international efforts managing and directing the Challenger 150 programme.



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



A significant output from the C150 programme this year was a 45 author paper led by ECOP Amelia Bridges: [Review of the central and south Atlantic shelf and deep-sea benthos: Science, policy and management](#). The team compiled literature to investigate the distribution of previous scientific exploration of offshore ecosystems in the Central and South Atlantic, both within and beyond national jurisdiction, allowing a synthesis of overall patterns of biodiversity. Furthermore, through the lens of sustainable management, they reviewed the existing anthropogenic activities and associated management measures relevant to the region, identifying key knowledge gaps and under-sampled regions that represent priority areas for future research. This review represents a comprehensive summary for scientists and managers alike looking to understand the key topographical, biological, and legislative features of the Central and South Atlantic.

In July 2023 – a special DOSI / Challenger 150 Session was convened during the 7<sup>th</sup> CBE in Brazil. Ana Hilario led this session which introduced new members of the science community to both DOSI and C150.

In October 2023, Decade WG co-lead Kerry Howell, along with other DOSI Core Team members, travelled to California to participate in a ‘Deepening the Decade’ Workshop at Scripps Institution of Oceanography, which brought together representatives of several other UN Decade-endorsed programmes including DOOS, Cobra, Jetzon, Seabed 2030, Marine Life 2030, Obon, to name but a few. The purpose of the meeting was to identify synergies between the various Decade-endorsed programmes and projects, and areas for collaboration and mutual support.



Bottom right: DOSI participants of the Deepening the Decade workshop. From left to right: Brandon Gertz, Vanessa Lopes, Narissa Bax, Emilia Bravo, Lisa Levin, Kerry Howell, Jeff Marlow.

In March 2024, Ana Hilario and Kerry Howell hosted a workshop in Portugal to develop a strategy for mapping Atlantic marine biodiversity under the Challenger 150 programme. Researchers from 12 countries (Portugal, United Kingdom, Norway, Iceland, Ireland, France, Spain, South Africa, Canada, USA, Brazil, Uruguay, and Argentina) met to deliver Atlantic-scale unified datasets for the distribution of key species and habitats, supporting onward modelling of distributions both then and under climate change scenarios.

In April 2024, the Challenger 150 African Network of Deep-water Researchers (ANDR) released a report on “Practical Actions to Strengthen Capacity for Deep-water Research in Africa”. The report proposes a series of short-, medium-, and long-term measures to strengthen Africa's capacity for deep-water research. It was released during the UN Ocean Decade Conference and sought to highlight work since the beginning of the Ocean Decade. Understanding deep-water ecosystems is key for management, but there are substantial discrepancies in countries’ abilities to achieve this. Through a series of online workshops, the ANDR

brought together 98 individuals from 19 African nations to discuss challenges for deep-water research in Africa, identify solutions to overcome these and propose practical actions.



*WG leads Kerry Howell and Ana Hilario signing MoU with Seabed 2030 during the UN Ocean Decade Conference (April 2024).*

Also during the UN Ocean Decade Conference (April 2024), the Challenger 150 programme featured prominently in the Deepening the Decade DOSI booth, which highlighted this and other programmes such as DOOS, One Deep Ocean, JETZON, and Digital Depth. Key conference activities for Challenger 150 included Decade WG co-lead Kerry Howell's participation as a panellist on "Ocean Census: Discovering Marine Life," and WG co-lead Ana Hilario's involvement, with Amelia Bridges, as panellists in the ECOP event "Gathering Forces for Science-Policy Nexus, Innovation, and Funding." During the conference, [\*\*Challenger 150 signed a Memorandum of Understanding \(MoU\) with Seabed 2030\*\*](#) to cooperate on ocean mapping. Seabed 2030 maps seafloor terrain, which provides vital information to map life in the deep sea. The Challenger 150 programme had a poster on permanent display throughout the conference. The presence and contributions of Challenger 150 representatives, DOSI and the wider deep-ocean community further emphasised the necessity of focused deep ocean research and collaboration for sustainable ocean management and conservation efforts.

A major outcome of the UN Ocean Decade Conference was the Barcelona Statement, which outlined three key priorities: (1) generating ocean knowledge and science to inform management decisions, (2) improving infrastructure for marine pollution monitoring and ocean observations, and (3) addressing cross-cutting issues like co-designing initiatives and embracing diverse knowledge systems. The statement underscored the importance of making the deep ocean a Decade priority and emphasised the need to better understand deep-sea ecosystems, particularly in the context of climate change and emerging economic activities. DOSI's efforts at the conference succeeded in highlighting the critical need for deep-ocean research and integration into the broader Decade priorities.

DOSI retains oversight of the Challenger 150 programme to ensure that new knowledge generated reaches a wide audience and is used to inform relevant policy. The programme also has an important role to play in connecting people for science.



# Marine Genetic Resources Working Group

## Summary

- The Marine Genetic Resources WG actively participated in Marine Natural Products meeting, Spain (September 2023)
- The WG leads co-organised the High Seas Treaty Symposium in Edinburgh (October 2023)
- Recruitment of two additional WG leads (March 2024)
- Contributions to World Ocean Assessment III – Use of genetic resources and biotechnology
- Close collaboration with Digital Sequence Information (on genetic resources) Network
- Created a book chapter on MGR & BBNJ considerations and guidance for scientists (June 2024)

In September 2023, members of the Marine Genetic Resources (MGR) WG, Thomas Vanagt, Marcel Jaspars and Julia Schutz-Veiga, participated in a policy session at the EU Conference on Marine Natural Products/MaNaPro. The key theme of this event was sustainability focused, exploring how to better preserve the seabed in order to expand knowledge and awareness of the marine environments. This event was especially useful for linking up with the BBNJ treaty proposed regulations as well as implications of the Convention on Biological Diversity (CBD) Digital Sequence Information (DSI) decision.

In October 2023, WG co-leads, Muriel Rabone and Marcel Jaspars launched the High Seas Treaty Symposium held in Edinburgh, with a session on 'Marine genetic resources, including questions on the sharing of benefits' as a panel expert and chair, respectively. Marcel was one of symposium organisers. They worked with the BBNJ WG co-leads and other DOSI experts who also attended this meeting (mentioned in the BBNJ section).

MGR WG co-lead Marcel Jaspars and member Abbe Brown have been collaborating through the University of Aberdeen, to bring about a fair, science-informed and legally consistent approach to international policy-making in three UN institutions. Their collaboration has focused on the use of genetic resources to gain new knowledge and build new products. More information about their contributions can be found [here](#).

In March 2024, the MGR WG successfully recruited two new co-leads, Angelee Annasawmy (early-career researcher from Mauritius/France) and Saskia Brix (from Germany) who will help to support and deliver activities for the group going forward.



Also in March 2024, WG co-lead Marcel Jaspars co-organised an interactive session on the BBNJ Treaty and CBD DSI discussions titled 'BBNJ or PB&J?' during the Gordon Research Conference on Marine Natural Products.

Members of the WG, led by Robert Blasiak and WG co-lead Muriel Rabone are engaging with the next iteration of the World Ocean Assessment (III) – specifically on “Section 5A Chapter 5: Use of genetic resources and biotechnology”. More information about the World Ocean Assessment can be found [here](#). The MGR WG has members on the Digital Sequence Information (DSI) network discussion group, meaning that close coordination on the topic of DSI under the BBNJ treaty and the CBD may be facilitated. Reporting back on these discussions between the two networks is leading to a joint commentary to be published in a peer reviewed scientific journal.

Co-leads Marcel and Muriel have written a chapter for an upcoming book - Decoding governance of marine genetic resources under the BBNJ agreement. Their chapter focuses on considerations and guidance for scientists regarding the MGR provisions in the BBNJ Agreement. Although still to be published, this work has already proved to be of great policy impact, being used as a reference for drafting domestic legislation in the UK in preparation for ratification of the Agreement.

## Fisheries Working Group

### Summary

- Released a publication on using imagery to identify vulnerable marine ecosystems (VMEs) (October 2023)
- Participated in High Seas Treaty Meetings (October 2023)
- DOSI was awarded observer status at the International Council for Exploration of the Sea (ICES) (Feb 2024)
- Recruited a new Working Group co-lead to help support activities (March 2024)
- Released a publication on Impact Assessments (June 2024)
- Launched a project to review and assess existing knowledge of mesopelagic fisheries, with a view to informing future policy needs (ongoing)
- Launched a project to assess use of deep-sea data in decision making by RFMOs (ongoing)

In October 2023, our DOSI Fisheries WG paper '[Towards a scientific community consensus on designating Vulnerable Marine Ecosystems \(VMEs\) from imagery](#)' made it into the PeerJ Top 5 Most Read list for 2023. The study brought together a large international team to determine current VME assessment protocols and establish preliminary global consensus guidelines for identifying VMEs from images. Management of deep-sea fisheries beyond national jurisdictions by Regional Fisheries Management Organizations/Arrangements (RFMO/As) requires identifying VMEs. Current methods rely on fisheries data like trawl and longline bycatch, which can be invasive. To address this, the study proposes using non-invasive imagery from scientific surveys for VME identification. However, there is no standardised framework for interpreting these images. The study brought together international experts to review existing VME assessment protocols and develop preliminary guidelines for identifying VMEs from images. Findings revealed inconsistencies among RFMO/As in defining VME indicator taxa, leading to variability in VME identification. In some cases, a VME could be identified from a single image, particularly in areas with scleractinian reefs, dense octocoral gardens, multiple VME species' co-occurrence, or chemosynthetic ecosystems. A decision flow chart was created to help interpret FAO criteria for single images, though experts' perceptions of VME density thresholds varied significantly across regions and taxa. The paper provides several key recommendations, such as establishing global consensus on VME indicator taxa, encouraging RFMO/As to use imagery surveys as an alternative or complement to bycatch and trawl surveys for VME designation, incorporating imagery surveys into Impact Assessments and extending the use of imagery surveys to all seafloor-impacting industries. Follow up work includes drafting several related publications aimed at developing an areal extent index for VMEs, incorporating confidence measures, and enhancing the understanding of how density and diversity levels correspond to key ecosystem functions for VME indicator taxa.

Joining other DOSI Core Team members, WG co-lead, Matthew Gianni, participated in the High Seas Treaty Symposium in Edinburgh (October 2023) as a panellist discussing 'Implications for the other competent global and regional bodies' (see BBNJ and MGR sections).

DOSI was awarded observer status at the International Council for Exploration of the Sea (ICES) to enable further expert input from DOSI to relevant topics (Feb 2024). Initial discussions have been had with key ICES scientists and secretariat members to ensure our input will be accepted.

In March 2024, the Fisheries WG leadership put out a call for a new co-lead. Our current part-time Digital Officer, Bernadette Butfield, has a strong fisheries background and we are delighted that she stepped forward into this leadership role.

Another DOSI paper led by ECOP Laura Kaikkonen titled "*Improving Impact Assessments to reduce impacts of deep-sea fisheries on Vulnerable Marine Ecosystems*" has been accepted for publication in Marine Policy in June 2024. The study analyses Impact Assessments (IAs) and concludes that current IAs do not adequately demonstrate that deep-sea fishing on the high seas is managed to prevent significant adverse impacts (SAIs) on vulnerable marine ecosystems (VMEs) or ensure sustainable fishing practices. Most IAs lack comprehensive information needed to assess the impacts of fishing effectively, failing to fully comply with the FAO Guidelines and UNGA resolutions. Key issues include insufficient ecosystem descriptions, incomplete activity details, missing baseline data, and inadequate risk assessments. The study also provides several pathways to strengthen the IA process.

In collaboration with members from the Deep-Ocean Observing Strategy (DOOS), DOSI Fisheries WG have been conducting research to assess the use of deep-sea data in decision making by Regional Fisheries Management Organisations (RFMOs). Data have been collected via an online survey with follow-up workshops which took place in December 2023 and February 2024. The writing process is underway with a view to publication later this year. This effort is being led by Fisheries WG co-leads Lissette Victorero and Bernadette Butfield (the newly appointed co-lead of the Fisheries WG, who performs this role in addition to her role as DOSI Digital Officer), along with WG member Laura Kaikkonen and Amelia Bridges from DOOS. This WG has a second project underway (started May 2023) titled “Science-policy gap analysis on mesopelagic fishes, fisheries and ecosystems”. The objective of this study is to compile and assess the current understanding of mesopelagic fishes and ecosystem, emphasising the identification of knowledge gaps regarding fisheries development. Through a comprehensive survey targeted at experts, we aim to reveal emerging trends, challenges, and opportunities within the realm of mesopelagic fishes and the development of mesopelagic fisheries. Our objective is to pinpoint both current and potential knowledge gaps and spatial disparities that hinder effective management and conservation efforts in the global twilight zone. These insights will aid in evaluating the integration of recent scientific discoveries into existing policies governing the mesopelagic zone, and for informing future research priorities to enhance mesopelagic fisheries management. The survey will be widely distributed across various expert networks focused on the mesopelagic realm to ensure diverse perspectives are captured. The survey is targeted towards a diverse range of stakeholders, including scientists, policymakers, industry representatives, and non-governmental organisations. The survey is currently being circulated to testers, before its wider release to several expert networks in August 2024.

The WG has started working on a video which will highlight the impacts of fisheries on deep sea ecosystems before outlining the specific steps that experts, policymakers, and others can take to improve management of deep-ocean fisheries on the high seas.

# Pollution and Debris Working Group

## Summary

- DOSI participation in the Global Plastics Summit, Bangkok (October 2023)
- DOSI attended international plastic pollution treaty meetings INC-3 (Nov 2023) and INC-4 (April 2024), engaging in bilateral talks with delegations
- Webinar: “The Pollution Pandemic in the Deep Ocean” for DOSI’s 10th Anniversary Series (January 2024)
- Circulated a survey to members for planning purposes (February 2024)
- New WG co-lead Eva Ramirez-Llodra joined, filling Shamik Dasgupta’s spot following his retirement from the role (April 2024)
- Made contributions to ICES Marine Chemistry WG on deep-sea mining contaminant impacts (May 2024)

In October 2023, Pollution and Debris WG member Rufino Varea and co-lead Shamik Dasgupta, attended the Global Plastics Summit in Bangkok to highlight the importance of the deep-sea environment in the Zero Draft text of the new International Legally Binding Instrument on Plastic Pollution, Including in the Marine Environment under development. It was an intense event, ahead of the third Intergovernmental Negotiating Committee to develop the treaty (INC-3). They noted a clear lack of concern about the deep ocean in general and advised further effort from DOSI to highlight the importance of the deep-sea in upcoming meetings.



*Rufino Varea and Shamik Dasgupta at the Global Plastics Summit, Bangkok*



DOSI ambassadors Agnes Muthumbi, Maurine Kerubo and Rufino Vaera subsequently attended the third session of the Intergovernmental Negotiating Committee to Develop an International Legally Binding Instrument on Plastic Pollution, Including in the Marine Environment (INC-3) in Kenya (Nov 2023). WG co-lead Lucy Woodal supported the DOSI ambassadors remotely. As DOSI does not have UNEP Observer Status, DOSI ambassadors were given badges to participate by the Gallifrey Foundation, Deep-Sea Conservation Coalition and the German delegation. DOSI engagement in this process aims to highlight that the deep ocean is the ultimate sink for plastic pollution released into the sea, with unknown consequences on the deep-ocean ecosystem and its services. It is not expected that the deep ocean will be mentioned in the final text of the treaty, but rather to be considered by delegations during deliberations. Nevertheless, a DOSI technical brief titled ***"Deep-Ocean Plastic Pollution must be considered in treaty negotiations"***, was produced and circulated to delegates and beyond.



**INFORMATION SHEET**  
 November 2023

## Deep-Ocean Plastic Pollution Must be Considered in Treaty Negotiations

*Plastic pollution exacerbates the many stressors already acting upon the deep ocean.*

The deep sea is remote from human habitation and supports many vital planetary processes. It is therefore key to human survival but is not immune to human pressures.

Many man-made stressors are already affecting the integrity of the deep sea, most of which can also be linked to plastic (see table below). All plastic begins its life on land and, upon entering the ocean, much ultimately sinks to the seafloor. Plastic on the seafloor is consumed by and entangles wildlife, causing untold harm within the food chain. Because of its persistence, plastic in the deep ocean will continue to cause harm for centuries to come.

We do not have the technology or resources to retrieve plastic from the deep ocean, and because of the linkages between plastic and other stressors, plastic pollution cannot be considered in isolation.

Stressor	Impacts Related to Plastic Pollution
Climate change causes and consequences	Plastic production is heavily reliant on the fossil fuel industry, and each stage of production, ranging from fossil fuel extraction to end-of-life, emits greenhouse gases.
Climate change mitigation activities	Most deep-sea geo- and bio-engineering schemes intentionally deposit material onto the seabed. Given the ubiquity of plastic in the environment, this will increase plastic pollution in the deep ocean.
Fishes	Deep-sea fishing directly causes plastic pollution in the form of discarded or lost fishing gear, predominantly from trawling and bottom gillnet fishing.
Vessel traffic	Plastic pollution can occur due to lost containers, litter from vessels, inappropriate garbage disposal or incineration bycatches.
Coastal runoff	Plastics are a major part of pollutants flowing from population centers to the deep ocean, increasing partly due to rising plastic production and growing coastal populations.
Deep-sea mining	Plastic pollution can act as a co-stressor for deep-sea mining alongside physical disturbance, noise and chemical pollution.
Chemical pollution	Plastic adsorbs chemicals and can deliver them to the deep ocean.

Given the ubiquity of plastic in the ocean, its harmful effects on wildlife and the environment, and its ability to worsen the effects of other deep ocean stressors, preventing new plastic pollution entering the deep ocean must be considered in Plastic Treaty negotiations.

Info Sheet | Page 1

Agnes Muthumbi, ECOP Maurine Kerubo and Rufino Vaera during INC-3.

In January 2024, WG members took part in the 3rd DOSI 10th Anniversary Webinar and talked about the pollution pandemic in the deep ocean. They discussed the perils of plastic pollution in the deep and what the scientific and policy-making communities are doing to combat its spread via the creation of the new Plastics Treaty.

DEEP-OCEAN STEWARDSHIP INITIATIVE

## 10th Anniversary Webinar Series

3

The pollution pandemic  
in the deep ocean

17 Jan 2023 | 3pm UTC  
via MS Teams

Agnes Wangui Muthumbi  
University of Nairobi

Rufino Vaera  
Pacific Islands Development Program

João Miguel Pereira  
University of the Azores

Join our experts to learn about the perils of plastic pollution in the deep ocean, and what the scientific and policy-making communities are doing to combat its spread via the creation of a new 'Plastics Treaty'

Register at [www.dosi-project.org/anniversary-webinar-series](http://www.dosi-project.org/anniversary-webinar-series)

In Feb 2024, a short questionnaire was circulated to WG membership to engage them on future directions of the working group. This generated useful topics for consideration which have been discussed in subsequent WG meetings.

In April 2024, DOSI ambassadors Jill Bartolotta, Judith Gobin, Rufino Varea and Melanie Bergman attended INC4 in Ottawa. They were successful in highlighting the issue of plastics in the deep ocean. Many of the delegates were not aware of the issue in the deep ocean but were interested in learning more. DOSI ambassadors stressed the impacts to deep-ocean ecosystems, the need for more research, and the importance of preventing plastic from entering the deep ocean. Cleanup of the deep-ocean was suggested as a solution several times during discussions, but DOSI ambassadors were quick to provide information on the limited feasibility of such a notion. DOSI ambassadors participated in the plenary session, and both Contact Group and Subgroup negotiations. They participated in seven Side Events, four meetings, and spoke with 11 universities or NGO's, two industry representatives, and 27 delegates from nine countries. A detailed account of these activities is available in the participation report (available upon request).



*Left to right: Jill Bartolotta, Rufino Varea, Melanie Bergman at the Night of Science event hosted by the Scientists' Coalition for an Effective Plastics Treaty. The night focused on independent and indigenous science available to help support the decision-making process.*



*Jill and Judy in Contact Group 2 where implementation was the topic of discussion.*

Also in April 2024, WG co-lead Shamik Dasgupta stepped down from WG co-leadership after three years in post. Eva Ramirez-Llodra has replaced him as the third WG co-lead alongside Lucy Woodall and Nelia Mestre. She has great experience in deep-ocean pollution and we are excited that she will lend her expertise to this group.

The ICES's Marine Chemistry working group is hoping to produce an ICES Viewpoint report – 'Understanding potential contaminant impacts of Deep Sea Mining (DSM), and how best to mitigate these impacts to protect/sustain the deep ocean for the future'. WG co-lead Nelia Mestre, attended this meeting to deliver her expertise for this effort.

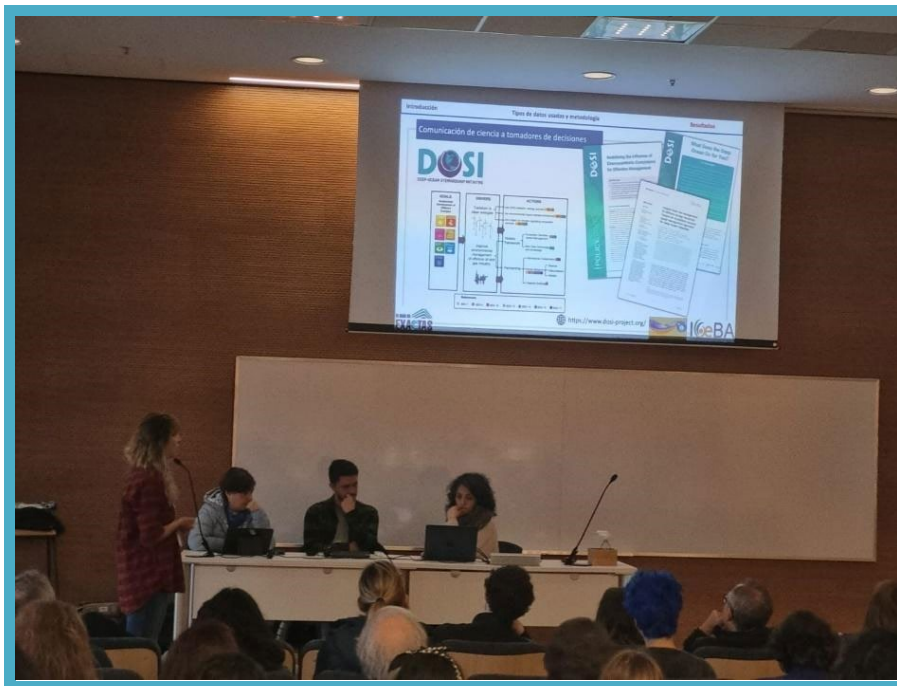
The Pollution and Debris WG continues to work together with Challenger 150's deep-sea litter technical working group, with joint members ensuring the cohesive outputs of these groups.



# Offshore Energy Working Group

## Summary

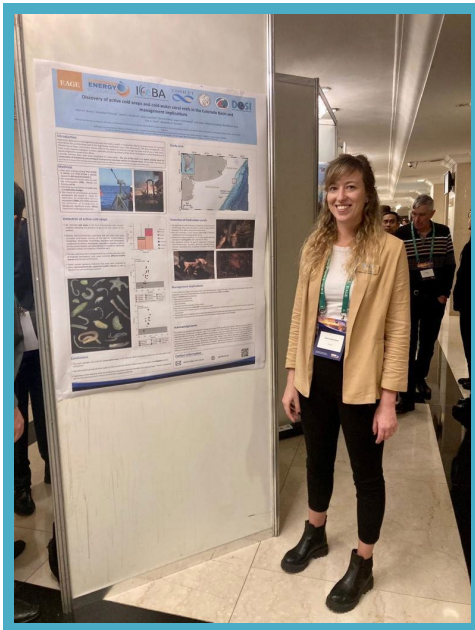
- Conducted a WG member survey for group interests and priorities (August 2023)
- Participated in the EAGE Conference on South Atlantic Offshore Energy Resources (Uruguay) (September 2023)
- Webinar: “Decarbonisation of the Deep Ocean” for DOSI’s 10th Anniversary Series (February 2024)
- Thanked Erik Cordes for 10 years of leadership upon his retirement from the role of co-lead. (March 2024)



*Offshore Energy WG co-lead Emilia Bravo delivering a presentation on DOSI during a University of Buenos Aires event in August 2023.*

In September 2023, Emilia Bravo was supported by DOSI to attend the congress First EAGE Conference on South Atlantic Offshore Energy Resources. She actively participated in all the sessions and panel discussions and presented the only scientific work focused on environmental management for the event entitled: “Discovery of active cold seeps and cold-water coral reefs in the Colorado Basin and management implications”. The presentation caught the attention of some representatives from the oil and gas industry such as Equinor, Exxonmobil, Chevron, Pluspetrol, YPF, YPF-Tecnología, and Total Energies. As a result, some discussions around clean energy with industry representatives were fruitful and our Offshore Energy publication ([link](#)) was shared with them.

The conference, organised by Oil and Gas companies currently starting development in Brazil, Uruguay and Argentina, was held in Montevideo, Uruguay.



*Emilia Bravo at EAGE, Uruguay*



*[Decarbonisation of the Deep Ocean \(youtube.com\)](https://www.youtube.com/watch?v=...)*

In March 2024, after 10 years of co-leadership for the Offshore Energy WG, Erik Cordes stood down from the position. DOSI thanked Erik for his infectious passion and knowledge which led to improving the environmental management of the offshore energy industry through increasing the impact of science on decision making. The remaining two co-leads are in the process of recruiting a replacement co-lead to help with the activities of this WG.

Finally, preparations are underway at the University of Buenos Aires for a series of workshops and mini-courses for local specialists, decision-makers, industries and students. The topic will be focused on climate change in the Argentine deep waters. A Policy Brief will be prepared for dissemination to the stakeholders with a series of priorities on climate-smart management of the deep ocean. This work will be supported by a Fulbright Specialist Programme grant (for hosting Lisa Levin) and DOSI.



# New Technologies for Environmental Impact Assessments Working Group

## Summary

- The New Technology for EIAs WG has focused on boots-on-the-ground engagement to advise and help stakeholders
- Activities have focused on coordinating the development and dissemination of tools to help raise accuracy and efficiency in the EIA process for deep sea surveys

The New Technologies for Environmental Impact Assessments (EIAs) WG has been focusing on non-destructive technologies relevant for EIAs of deep-sea mining projects, considering recent developments in this space. There have been activities this year around further testing the Shadowgraph camera prototype (September 2023).

Also in September, a few members from the WG attended the Ocean Twilight Zone Symposium in Woods Hole, Massachusetts, USA. Annette Govindarajan (WHOI) was able to show and explain the eDNA sampler they have developed for use on the AUV *Mesobot*, so the WG will be investigating how it can be reproduced and integrated with other platforms now.

WG lead Dhugal Lindsay and Jean-Olivier Irisson took part in the G7 Future of the Seas & Oceans Initiative - GOOS workshop "Towards a global marine plankton observing network: development of a strategy and implementation plan", providing input from a DOSI perspective.

Dhugal Lindsay is working with DOSI leadership via the WG to help facilitate the attendance of more ECOPs to the upcoming 5th Marine Imaging Workshop to be held in Monterey in October 2024. Dhugal is on the workshop committee.

# Task Force for the Conservation of Deep-Ocean Biodiversity

## Summary

- The Biodiversity Task Force has participated in several globally relevant events on furthering the conservation of biodiversity including with IPBES and CBD.
- Sergio Cambroneró joined the Task Force as a new co-lead (December 2023)
- The Task Force is developing a policy brief in response to a call for stakeholder input on plans to manage biodiversity in UK Overseas Territories biodiversity plans.

In September and October 2023, two workshops, one virtual and one hybrid, were held for the project “*Beyond the status quo: defining and enabling a sustainable deep-ocean blue economy*”. With leadership and participation from DOSI, alongside SpeSeas, the Benioff Ocean Science Laboratory, and the Nippon Foundation-University of Edinburgh Ocean Voices Programme, as well as financial support from The National Geographic Society, this project aims to create a new status quo and accelerate stewardship of the deep ocean by guiding the emerging deep-ocean Blue Economy into one that is truly equitable and sustainable. Twenty-one experts from 13 countries participated.

In October 2023, local DOSI ambassador Agnes Muthumbi represented the Task Force for the Conservation of Deep-Ocean Biodiversity, or Biodiversity Task Force (BTF) for short, at the CBD SBSTTA25 meeting in Nairobi, Kenya, with a view to learning more about the processes in order to engage more meaningfully in subsequent meetings. Her understanding of the process was vastly improved in May 2024 when Agnes joined BTF co-lead Anna Metaxas and attended SBSTTA26, also in Nairobi. Anna was able to mentor Agnes in person and Agnes found this immensely helpful. Agnes attended the discussions on the marine environment and made connections with the Kenyan delegation. Anna was also able to contribute key deep-ocean science via the Canadian delegation position papers and interventions. Specifically, wording was added that explicitly links the pelagic and benthic ecosystems *as well as to improve understanding of marine biodiversity in deep sea ecosystems, and avoid harmful activities*. The new wording was included under paragraph 1 of the Annex on Gaps and areas in need of additional focus under the Convention on Biological Diversity to support the implementation of the Kunming-Montreal GBF with regard to marine and coastal, and island biodiversity, of the draft recommendation submitted by the Chair to COP16 on the “Conservation and sustainable use of marine and coastal biodiversity”.

DOSI's nomination of Ana Colaço for the CBD's "Informal Advisory Group for Ecologically or Biologically Significant Marine Areas" was successful. Additionally, she was successfully nominated to participate in the "Technical and legal expert workshops to review modalities for modifying the descriptions of ecologically or biologically significant marine areas and describing new areas" as a DOSI ambassador, from 20 to 27 November 2023 in Norway. Ana presented "The evolving data landscape and implications for EBSAs". Recommendations from that workshop were used to develop the document that was discussed at SBSTTA26 and submitted by the Chair to COP16 on "Further work on ecologically or biologically significant marine areas". BTF co-lead Anna Metaxas advised and supported the Canadian government on some of the wording of the document itself and the pressing need to move it forward to the next stage (COP16) for consideration.

Also in November 2023, Anna Metaxas participated in the third Indigenous and Local Knowledge Dialogue workshop for the IPBES Nexus Assessment in Montreal, Canada.



*Agnes Muthumbi and Anna Metaxas during CBD SBSTTA26 in Nairobi, Kenya, May 2024*

In the first webinar in DOSI's 10-year Anniversary series, DOSI Core Team experts Paul Snelgrove, Muriel Rabone and Moriaki Yasuhara guided an exploration of deep-ocean biodiversity: Why it matters for us on the surface, threats it faces, and key ways to protect deep-ocean life from harm.

Having helped out with numerous working group activities in the past months, in December 2023, a third co-lead was invited to join the group leadership – early career ocean professional (ECOP) Sergio Cambronero from Costa Rica.

From 5 to 9 February 2024, BTF co-lead Anna Metaxas participated in the third and final meeting of authors for the IPBES Nexus Assessment in Kathmandu, Nepal. The assessment is now completed and Anna, who was lead author of a chapter, ensured that all relevant aspects of the deep sea were included in the text. Further, she strongly advocated successfully with other marine scientists for the inclusion of the marine environment in the chapter on future projections (and throughout the assessment). DOSI member Elva Escobar participated as a reviewer.

Throughout the IPBES assessment process, Anna Metaxas has been active in promoting content relating to the ocean and, where information is available, the deep ocean. She is not directly involved in other chapters but was a member of a small group of marine scientists (~10/160 authors) pushing for ocean content.

In February 2024, a DOSI submission was delivered to the US National Science Foundation and the National Science and Technology Council Subcommittee on Ocean Science and Technology for the request for information for the USA's National Biodiversity Strategy. The full submission is available [here](#).

In May 2024, Anna Metaxas was invited to give a keynote plenary talk at the seventh International Marine Connectivity Conference (I-MarCo 2024) on ecological connectivity and its application in marine conservation and resource management. Many of the examples she used were from the deep sea. Further, she was asked to participate in a stakeholder day as a panellist, and in two break-out groups: one on integrating connectivity in the design of Marine Protected Areas, and another on integrating connectivity in the sustainable use of areas beyond national jurisdiction.

From March 13th to April 8th, the BTF conducted a survey for all members of the group to better understand the collective and individual interests, expertises, preferences. 32 full responses were received in addition to a couple of emails from members expressing their thoughts in relation to survey and dynamic of WG. From this, we identified that "Joint peer-review paper" is the most frequently desired output, followed closely by "Policy briefs" and "Workshops / Events." "Webinars" also show significant interest, indicating a preference for interactive and collaborative formats. Workshops and events are especially appreciated, showing that members want practical, hands-on engagement and opportunities to exchange knowledge, this should be a top priority. The interest in webinars and social media posts emphasises this is a second level priority. Also, the survey highlighted key interests in promoting deep-sea biodiversity and related policies. There is a strong emphasis on raising awareness through events and briefs connected to the Convention on Biological Diversity (CBD) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), focusing on Ecologically or Biologically Significant Areas (EBSAs) and Global Biodiversity Framework (GBF) indicators.

Harmonising efforts across international agreements, including CBD, Biodiversity Beyond National Jurisdiction (BBNJ), the United Nations Framework Convention on Climate Change (UNFCCC), the International Seabed Authority (ISA), and the Food and Agriculture Organization (FAO), was deemed crucial. Improved communication and collaboration within the Deep-Ocean Stewardship Initiative (DOSI), possibly through dedicated ambassadors, were also suggested.

Key research interests include microbial diversity, deep-sea mining, biodiversity patterns in poorly studied regions, impacts of climate change and human activities, habitat mapping, blue carbon, and studies of specific regions like Southeast Asia and the Northern Central Indian Ocean. There is also significant interest in deep-water sharks and corals, new species discoveries, pelagic ecosystems, Marine Protected Areas (MPAs), benthic species, underwater imaging, and the Arctic.



Horizon scanning to identify research needs for the new Agreement on Biodiversity Beyond National Jurisdiction (ABNJ) and to determine good practices in science policy was highlighted. Additionally, socio-ecological parameters were noted as important for conservation and sustainability projects. Engaging media to raise awareness and exploring graduate school options related to deep-sea biodiversity and policy also garnered interest.

High Level Event in preparation for the June 2025 UN Ocean Conference (Immersed in Change, Costa Rica): Co-leads Diva Amon and Sergio Cambronero organised an official side event in the National Conference Center, CR in the morning of World Ocean Day 2024. This event was a product of months of planning and logistics, partnering with Universidad Nacional, Universidad de Costa Rica, Ministry of Foreign Affairs, Schmidt Ocean Institute, Blue Nature Alliance, FAICO, Pelagos, Ocean Voices. The idea was originally coined with the support of DOSI members Beth Orcutt and Jorge Cortés, as a follow up to the Octopus Odyssey expeditions in 2023 and as a pivotal event of the national deep-sea awareness campaign Costa Rica Desconocida. The event consisted of two short presentations followed by a live painting act by Carlos Hiller in parallel to a panel discussion of 5 panellists with diverse expertise from science, diplomacy, policy and law. 20 artwork pieces were displayed in the room during the event, including photo prints and paintings, which gave this side event an artistic and dynamic distinction among others. Numerous DOSI policy briefs and deep-sea stickers were given to more than 100 people who attended the side event, exceeding the capacity of the room and headphones available. Many people, including organisers of Immersed in Change, Government representatives and scientists gave verbal feedback that it was the best side event of Immersed in Change. Over 6 people subscribed to the DOSI mailing list while many others expressed interest in becoming involved and supporting the Costa Rica Desconocida campaign to raise awareness about these topics. There were more than 15 social media posts from people sharing their experience in the event. The deep-sea was not included as an official topic part of the agenda of Immersed in Change, so this event positioned the topic very well among the attendees.

*“Quoting a very heartfelt speech from yesterday, Uncle Sol mentioned something that is very simple yet so difficult to achieve. Respect, respect life for what it is, and love what we have, these amazing creatures that give us so much yet, we keep taking from them over and over again... Even though national and international policies are driven by science, knowledge and politics, we need to make sure that the main driver is the respect for life. Simple but something that we need to remind ourselves when we are working on these issues. Is not about the money, the resources, the science.... is about life respecting life, and this, ladies and gentlemen, is what could save our planet from an environmental collapse.*

*So... in our ultimate quest to understand and protect these fragile environments, let's take a page from the book of deep-sea sponges: absorb all the knowledge, filter out the noise and stay cool under the most extreme pressures.”*

*-Sergio Cambronero, DOSI Biodiversity Task Force co-lead and side event moderator*

Additionally, while at the High Level Event in Costa Rica, Diva Amon spoke on behalf of DOSI at a further official side event: ‘Let's Be Nice To The Ocean’. This was focussed on the Protection Principle and included a roundtable of civil society entities (DOSI, IDDRI, IFAW, The Ocean Race and TBA21), and a discussion with a select group of governments (Costa Rica, France, Chile and European Parliament), followed by a speech by Minister Hervé Berville, France's State Secretary for the Sea and Biodiversity. The meeting ended with a few closing remarks by Dr. Kilaparti Ramakrishna, Director of Marine Policy Center at Woods Hole Oceanographic Institution (US). Towards this event as well as UNOC2025, DOSI submitted a document

showcasing our vision and proposals to scale up ocean action in support of the Protection Principle: Making Ocean Protection the norm rather than the exception on the way to Nice. This is included in this [summary report](#) of 24 submissions received from different organizations.



*Diva Amon (stage left in the left picture) representing DOSI at the “Let’s Be Nice to the Ocean” event in Costa Rica.*

Finally, the Task Force is currently developing a Policy Brief in response to a call for stakeholders to comment on biodiversity management plans in UK overseas territories. Narissa Bax is leading that effort.