

Safeguarding the ocean for future generations: advancing equity, science and capacity

DOSI Annual Report for Arcadia

For the period of 1 August 2022 – 30 June 2023

Executive Summary

In this first year of the 10-year Arcadia award for DOSI (2022-2032), DOSI has been involved in a variety of deep-ocean related policy and conservation activities, actively promoting engagement both amongst DOSI members across its 10 Working Groups, and with deep-ocean stakeholders at the science-policy interface. Particular attention has been given to enabling more voices to be heard from underrepresented groups and early-career ocean professionals.

During this same period, DOSI has grown in operational capacity, with a DOSI Office now comprising three full-time staff members (Executive Director, Director of Communications and Programme Officer), and plans to recruit a fourth member (part-time Digital Officer) in July 2023. This additional capacity has added resilience to our reputation as a trusted 'go to' network for deep-ocean information and expertise.

Deep-ocean concerns are now firmly part of the discussions and output documentation at many meetings and processes concerning ocean biodiversity protection, but there is always more to do and new delegates to engage. To this end, we have grown our membership through increased subscribers to our social media outlets and proactive requests to join DOSI's topic-specific Working Groups. New and existing members are growing in confidence and expertise and are learning how to contribute to policy and management discussions and decisions.

DOSI's 10-year strategic plan sets out ambitious objectives for the coming years and we are excited to have already embarked on many of them. The following table summarises the activities undertaken over the past year which contribute towards the achievement of our objectives.

DOSI has faced a few challenges over the past year, including being affected by the unfavourable financial markets, being overstretched operationally, and facing unprecedented competition from other operators at the science-policy interface (e.g., oversubscription to UNFCCC SB58 leading to a declined event proposal). Despite these issues, we have fulfilled most of what we set out to do in this period and are continuing to improve our impact and efficiency. DOSI's key deliverables, achieved outputs, and items that remain pending for this reporting period are listed on our annual Gantt Chart (available upon request). Notably, some projected staffing spends have not been actioned due to shifts in strategy brought on by superior performance and promotion of current staff. Further details on all our activities are contained in the sections below.

Activity	Objective*						
	1	2	3	4	5	6	7
Held regular DOSI Core Team, Executive 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 Programme Officer - Christopher Barrio Froján	█	█	█	█	█	█	█
Secured further funding (£120K) from Synchronicity Earth for three years (May 2023 to April 2026) to increase communications capacity - a part-time Digital Officer is being recruited (July 2023)	█	█	█	█	█	█	█
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 on social equity, diversity, inclusivity and environmental justice, which are at the core of our operations							█
Revised and developed new internal policies to guide Core Team and network members	█	█	█	█	█	█	█
Enabled 42 established and early career ocean professionals (ECOPs; majority from underrepresented groups) to engage in-person in 25 critical policy processes						█	█
Led and participated in 58 policy forum events, produced 30 written documents, including policy briefs and peer-reviewed publications, to inform deep-ocean conservation policy	█	█	█	█	█	█	█
Supported over 100 DOSI expert members to engage and contribute to discussions, written texts and webinars						█	█
Progressed Challenger 150, now endorsed as a programme of the United Nations Decade of Ocean Science for Sustainable Development, with many DOSI Core Team members engaged in deep-ocean-related programmes of the Decade		█					
Embarked on new initiatives to aid transfer of capacity (e.g., ECOP capacity development project, Namibia Deep-Sea Benthos Collection Project)				█	█	█	█
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 weekly newsletters, Working Group updates, twice-yearly Deep-Sea Life publication and educational videos					█		
Continued to expand the DOSI network, from 2,595 subscribers from 108 countries in July 2022 to 2,940 from 112 countries in July 2023			█	█		█	
Expanded DOSI's presence on social media platforms (e.g., Twitter followers up by 20% to 6,477 total, Instagram followers up by 33% to 4,255)					█		

* 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

DOSI Activities

A Restructured DOSI Office Team

With advice from our Executive Committee and Core Team, DOSI Executive Director Maria Baker launched a process in May 2023 to clarify hiring plans and to define clear responsibilities for current DOSI staff. Our office team currently consists of Maria Baker, (Executive Director), Brandon Gertz, (Director of Communications), and Christopher Barrio Froján (Programme Officer). Specific roles for each DOSI Office member are presented in [this update on the DOSI Office meeting](#). All DOSI Office members provided critical support for the activities and accomplishments described in this report.

Recognising the current needs of our network and the effective performance of DOSI staff, we decided that our team could be more effective with the help of a dedicated digital assistant. To this end, we are in the process of hiring a part-time Digital Officer with a view to start from July 2023, to help with website updates and social media outputs. Christopher Barrio Froján was hired as Programme Officer in March 2023. Brandon Gertz has been promoted to Director of Communications as of 1 June 2023, filling a need for strategic communications leadership that we anticipated in DOSI's 10-year plan in 2021.

Activities of the DOSI Core Team

The DOSI Core Team consists of the DOSI Executive Committee (six members, including the Executive Director), the DOSI Advisory Board (15 members), the DOSI Office (three members including the Executive Director, Director of Communications and Programme Officer) and the DOSI Working Group leads (23 members); together they steer and manage the remit and strategy of DOSI. DOSI's mission is delivered by the Working Groups, whose members include members of the Core Team.

In the past year, the DOSI Core Team has reviewed existing internal policies, approved new staff responsibilities, recommended the production of new internal policies, managed DOSI's funding strategy, organised media training exercises, and prioritised a suite of activities that keep DOSI running effectively and efficiently. The active input from the Core Team is a real asset for DOSI, as we learn from each other and encourage a rich diversity of thought and opinion.

Progress Towards DOSI Objectives

DOSI continues to tackle the most pressing challenges facing the deep ocean and our planet, actively driving the ocean policy agenda by ensuring that the latest deep-ocean scientific knowledge is understood and considered during international and national ocean policy debates and processes. DOSI has been successful this year in engaging voices from less-represented groups in a variety of policy processes; this is crucial for the future sustainable management of all regions. DOSI is also an accessible platform for early career ocean professionals (ECOPs) to engage with globally significant policy processes, by offering its members opportunities to gain first-hand experience in the rigours and pitfalls of intergovernmental negotiations, which may launch them on a path to become future decision-makers, policy leaders, advocates or influencers.

Details of deep-ocean impact challenges are laid out in previous Arcadia Fund reports so will not be repeated here. DOSI continues with an approach consisting of the two broad elements 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. 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 112)

- DOSI **network subscribers** have increased from 2,595 to 2,940 in the past 11 months. We have also driven increases in Working Group membership, especially from ECOPs, who are gaining confidence via mentorship from the DOSI leadership and fellow network members. This supports capacity development, one of DOSI's goals.
- DOSI actively encourages **engagement of ECOPs** and the recruitment of ECOPs to DOSI Working Group leadership positions. This has been most beneficial for DOSI activities, for the existing WG Leads and for the individuals recruited. In August 2022, PhD researcher Christine Gaebel from the University of Edinburgh joined the BBNJ WG leadership and has already been a great asset for this group.
- **Knowledge exchange** in multiple forms continues to be a focus for DOSI, facilitating connections and collaborations and growing global deep-ocean science and science-policy discussion and capacity.
- This past year, DOSI ECOPs Vanessa Lopez, Maila Guilhon and Mariana Caldeira have devised and instigated an Early Career Capacity Development Programme around the global ECR community, kick-starting DOSI's 10-year strategy on this issue. Engaging current and future generations of scientists requires fair access and participation in the decision-making process of all involved, including those from developing countries. To achieve that, it is important to identify and discuss needs and challenges faced by ECOPs to engage in science-to policy processes. The overall objective of this work is to conduct a mapping exercise to keep DOSI's ECOP strategy informed, and with such knowledge DOSI can continue to support the needs of ECOPs for years to come.

- During **quarterly DOSI Core Team meetings**, strategic and management issues such as new internal policies, funding, media training 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.

Public Communication Outputs

- Increased capacity for DOSI communications has led to wider sharing of knowledge (enacting our 10-year strategy) improving deep-sea literacy and driving the science-policy agenda. Videos produced by the DOSI Director of Communications, Brandon Gertz, have generated in excess of 20K views on YouTube, Twitter, and Tik Tok. The latest such product is [a video produced for World Ocean Day](#), which celebrates DOSI's 10-year anniversary.
- It is evident from DOSI network feedback that our communications products, including the weekly Deep-Sea Round-Up, regularly updated Network News, the twice-yearly Deep-Sea Life publication and new additions to our website (e.g., Introducing deep-ocean research projects), are capturing audiences far and wide. We aim to inform all generations of deep-ocean scientists and stakeholders about relevant issues pertaining to deep-ocean stewardship, and to keep the community connected.
- DOSI is increasingly contacted by different stakeholders, including journalists, to identify deep-ocean experts who may be able to provide pertinent information (e.g., recent request from the BBC for its documentaries 'Our Changing Planet' and 'Blue Planet 3').
- A new DOSI podcast and a webinar series are under development.
- The DOSI Instagram team consists of volunteer ECOPs eager to gain experience in science and policy communication. They continue to deliver excellent and consistent daily postings with a 40% increase in followers from last year. The distribution of DOSI Policy Briefs and deep-ocean news to an audience who would likely not encounter these resources outside of Instagram is an excellent result. A 'Monday Meets' feature on the DOSI Instagram account serves as an informal introduction to members of the deep-ocean research community, with almost 100 diverse deep-ocean community members featured. Two events offering a free copy of Dr Helen Scales book 'The Brilliant Abyss' received 1,600 entries and six winners. The Instagram team received honoraria this year from DOSI as a token of appreciation for their efforts.

"[DOSI is] such a cool account!! Thanks for doing these 'meet' posts!! 🧠🧠🧠" & well done @deepstewardship! This is so inspiring!

Comments on Instagram

"I really love the new video concept. While still being informative, it's able to give info more easily and in smaller bites, ideal for people that aren't experts."

Comment on YouTube in response to 'Is the Deep Ocean Creepy'

“Really happy that it is turning into a series! I'm in my 20s and only now just got interested in marine biology, so this video and the Why You LOVE the Deep Ocean video have been informative without being intimidating”.

Comment on YouTube

“Have you seen the @DeepStewardship video about them? It's superb!”

https://twitter.com/tammy_horton/status/1651475234145419264

Tammy Horton, Taxonomist

“Fantastic! What a lovely issue and so nice to see all the faces and places 😊”

Comment on Deep-Sea Life 20 - Robert Blasiak, Stockholm University, Sweden

Policy Influence

DOSI engages with scientists and policymakers through delivering presentations, organising and attending Side Events, authoring written materials, networking and via online communications. In its first 10 years, DOSI has built up a highly visible, authoritative and respected presence in numerous deep-ocean related policy meetings and workshops. Country delegates approach DOSI Ambassadors at different fora having recognised both our collective and individual expertise at other meetings. At the Plastics Treaty meeting in Paris in May-June 2023 (INC-2), DOSI Ambassadors were enthusiastically welcomed by the Chilean delegation having already met with other DOSI Ambassadors at the ISA and during BBNJ and UNFCCC processes. In this way, DOSI can bridge the gap between often disparate dialogues taking place under different processes but with deep-ocean concerns in common. A further example of cross-cutting DOSI WG focus areas is found in our publications, with members of different groups using their particular expertise to bring together ideas in a way that any one single WG could have achieved alone, such as [a paper our Climate Change Working Group released in Science](#) with support from members of our Offshore Energy Working Group.

Looking Ahead

With increased capacity due to new hires and expanded staff responsibilities, along with increasing and enthusiastic teamwork between Working Groups, we anticipate a more coordinated approach to future DOSI engagements across many different policy processes. In the coming year we will identify how we can best engage in the new BBNJ instrument and new seabed mining regulations (if they are finalised), and we will do all we can to ensure that robust environmental elements pertaining to the fair and sustainable development and conservation of the deep ocean are endorsed and upheld.

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 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 myriad ways, aiming to reach a broad and diverse audience, from seasoned professionals to ECOPs, 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.

Finance Report

[redacted]

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

Summary

- The DOSI BBNJ WG participated in and helped inform State delegations at the negotiations for a new international agreement for the conservation and sustainable use of BBNJ (negotiating session 5.1 (August 2022) and 5.2 (March 2023)), which have now concluded with the adoption of the agreement.
- The G77 and China proposed climate text changes, which were supported by many other delegations because of a DOSI submission and DOSI-delegation meetings on the topic.
- DOSI BBNJ WG members led a roundtable discussion on 'Exploring Opportunities and Implications for Scientists under the BBNJ Agreement' which fostered dialogue and helped inform next steps for the WG.
- Two new Policy Briefs were authored by DOSI members and circulated to delegates at the BBNJ negotiations.
- DOSI BBNJ WG members engaged with media outlets (e.g., The New Yorker, Nature, and Carbon Brief) to disseminate knowledge on the outcomes of the BBNJ negotiations and next steps.

Members of the DOSI BBNJ Working Group were active in the UN BBNJ negotiations in New York in the lead-up to the adoption of the treaty in June 2023. Since the early days of the BBNJ process, DOSI has been involved in a range of activities aimed at bringing deep-ocean science to the forefront of BBNJ discussions. Activities have included hosting Side Events at the UN Headquarters during various stages of the negotiations as well as organising intersessional workshops and producing Policy Briefs, publications, and other research outputs.

WG members were on-hand to discuss the science behind certain draft provisions with delegates, answering any questions, and connecting delegates with relevant scientists where appropriate. Feedback was received from different state delegations, which highlighted that the DOSI delegation was a trusted source of deep-ocean science throughout the process. These efforts played an important role in bridging science and decision-making communities, and in supporting use of the best available science in decision-making related to conservation and sustainable use of the deep ocean.



The DOSI Team at ICG5, Aug 2022. L-R Kristina Gjerde, Harriet Harden-Davies, Marcel Jaspars, Christine Gaebel, Muriel Rabone, Vanessa Lopes, Judith Gobin, Mariana Caldeira, and Julia Schütz Veiga



DOSI members attending IGC5.2. L-R: Lisa Levin, Julia Schütz Veiga, Vanessa Lopes, Alumita Sekinairai, Jeff Marlow, Christine Gaebel, Luciana Fernandes Coelho, Judith Gobin, Harriet Harden-Davies



DOSI Early Career Ocean Professionals at the BBNJ negotiations in New York. L-R: Alumita Sekinairai - Fiji, Sheena Talma - Seychelles, Gemma Nelson (not DOSI), Vanessa Lopes - Cabo Verde

In the past year, DOSI has built on the momentum generated by previous DOSI delegations who attended past BBNJ meetings. DOSI sent in-person delegations to BBNJ IGC5 (August 2022) and BBNJ ICG 5.2 (March 2023), coordinated and led by BBNJ WG Co-lead Harriet Harden-Davies. DOSI delegates included 13 WG members from six countries, with many other WG members on hand to contribute remotely as required. This included ECOPs, who were mentored by DOSI members throughout the negotiation process and afterwards. Two new DOSI Policy Briefs were created and circulated to delegates and beyond: ['The Deep Ocean and BBNJ: Important Points for IGC-5'](#) and ['Climate Change and Biodiversity Beyond National Jurisdiction'](#).

During the negotiations, DOSI BBNJ WG members played an important role in providing expertise and input to delegations. This included discussion on the qualities of a Scientific and Technical Body with delegates, providing valuable input on the definition of marine technology, as well as other key elements relating to marine genetic resources and capacity building. They also successfully pushed for the inclusion of key provisions regarding climate change impacts, such as deoxygenation, as well as the links between BBNJ and climate mitigation. Indeed, members of the G77 and China delegation gave official interventions during the negotiations, using text proposals formulated by DOSI members. These recommendations were met with support from other delegations and have now been codified in the final text.

"My voice within this BBNJ negotiations was to see that our Indigenous People and local communities were involved with the use of Traditional Knowledge in the BBNJ treaty. Some countries question the use of traditional knowledge on the high seas, as they do not understand that our Indigenous people from decades ago have been using traditional navigation to move from one country to another and have preserved knowledge about the ocean on the high seas. Within two weeks of negotiations, Traditional Knowledge from Indigenous People and local communities was included in the Scientific & Technical Body (STB), Indigenous People being capitalised and being reflected in almost all aspects of the BBNJ treaty."

-Alumita Sekinairai (Fiji - DOSI BBNJ WG Member)

"The BBNJ process has inspired and pushed me to work towards finding PhD funding – which I am so glad I have been successful in obtaining. I will start a PhD in October 2023 maintaining my interest in deep-sea science, policy and social science. I think the whole experience was really worth my while, I would now aim to also attend the International Seabed Authority Meeting as these topics are intertwined. After the BBNJ and now in Seychelles, we have had several meetings with media and government to explain what the high seas treaty means".

-Sheena Talma (Seychelles - DOSI BBNJ WG Member)

Some of the BBNJ WG members were interviewed after the BBNJ text was adopted. This led to several publications, such as an [article in Nature](#), a [citation in CarbonBrief](#), [Marcel Jaspars' radio interview](#), and a [New Yorker inside story of the UN high-seas treaty by Jeff Marlow](#).

States met in New York City at the UN Headquarters on 19-20 June 2023 with the aim of adopting the BBNJ Agreement. After adoption, it will have to be ratified by 60 States before it can enter into force. It is hoped that the treaty can be brought into force by the next United Nations Ocean Conference in June 2025. After it has entered into force, the Conference of the Parties (COP) will meet within the first year, at which time, Rules of Procedure and other important considerations will be addressed. Since the adoption of the BBNJ Agreement, the WG has endeavoured to connect with the deep-ocean science and policy community to identify how DOSI can support countries during the ratification and implementation stages.

In May 2023, DOSI BBNJ WG Lead, Christine Gaebel, gave a keynote talk about integrating science into the BBNJ Agreement at the International Symposium on Deep-Sea Corals. This was followed by a DOSI-organised roundtable discussion event titled 'Exploring Opportunities and Implications for Scientists under the BBNJ Agreement'. This event brought together members of the deep-ocean science community to identify opportunities, barriers, and knowledge gaps. The report outlines the challenges associated with the next stages of implementation of this new instrument.

In addition, the WG has organised meetings with different BBNJ stakeholder groups, to help identify how DOSI can support implementation. For example, a meeting was held with Adrian Jones (UK Foreign, Commonwealth & Development Office), which included discussions on the next steps for BBNJ from a UK, regional and global perspective, with a focus on identifying the role for DOSI. It was highlighted that DOSI members were a trusted source of knowledge throughout the negotiations and that there is an opportunity for this role to continue.

As the BBNJ Agreement moves from adoption to ratification to implementation, scientific information and other knowledge will remain important, whether it be promoting and supporting ratification, or supporting the implementation of specific provisions. As such, the DOSI BBNJ Working Group looks forward to this next chapter in the BBNJ process and will endeavour to connect deep-ocean science and researchers with decision-makers and policy processes to help support evidence-based decision-making for the deep ocean.

Minerals Working Group

Summary

- DOSI Minerals WG members attended the 27th and 28th Sessions of the Council of the International Seabed Authority in November 2022 and March 2023, respectively. The WG is preparing to participate in upcoming meetings in July and November 2023 at the ISA.
- Minerals WG interventions at recent ISA Council sessions were supported by States and NGOs. DOSI's work was cited in interventions by other delegations at those sessions.
- Two DOSI Information Sheets were created and presented to delegates attending ISA Council sessions.
- DOSI hosted a scientific Side Event at the 28th Council Session: 'Latest Science on the Impacts of Deep-Sea Mining on Benthic and Pelagic Ecosystems and Fisheries.'
- DOSI's work was cited in articles in the New York Times, the Earth Negotiations Bulletin and on the ISA website.
- Minerals WG members proactively engage in other international meetings and processes with regard to environmental aspects for the regulation of deep seabed mining.
- The Minerals WG continues to produce a valued weekly newsletter for its members.

The 27th Session of the Council of the International Seabed Authority (ISA) (Part III) was held at the ISA headquarters in Kingston, Jamaica in November 2022. DOSI prepared, printed, and distributed copies of the document: '[Scientific Knowledge is Currently Insufficient for Effective Environmental Management of Deep-Seabed Mining](#)' at the meeting which was attended by one DOSI representative (Diva Amon) and six DOSI WG experts (with remote assistance from a further 13 WG members). DOSI actively intervened in the discussions by delivering a total of 19 interventions (Annex I of participation [report](#)), including to ensure high environmental standards and the reflection of independent and robust science. The interventions delivered can be found on the [ISA website](#). DOSI's work was mentioned in other interventions or had our interventions supported. In particular, the DOSI intervention that proposed a new Annex on Impact Reference Zones and Preservation Reference Zones was supported by the UK, Russia, Germany, Costa Rica, France, Spain, Canada and NZ.

Additionally, we received many thanks from a variety of State delegations for our on-topic interventions. Canada gave compliments: "...all have been very strong interventions and Diva has done a great job as well." Diva Amon was interviewed by Danica Coto of the Associated Press.

On 6 October 2022, DOSI sent a letter to the Legal and Technical Commission (LTC) and Secretary-General to the ISA regarding the LTC's recommendation on Nauru Ocean Resources Inc. (NORI), a subsidiary of The Metals Company (TMC). In the letter, DOSI expressed concern over the recommendation, seeking clarification to the content of the revised Environmental Impact Statement (EIS) from NORI, which to date has not been publicly released, clarification on the process that was undertaken to review and approve the EIS content and how comments from stakeholders (including DOSI's) were taken into consideration. The original EIS that NORI submitted was considered inadequate and the LTC had requested changes that included more environmental data and a new environmental management and monitoring plan. No additional stakeholder consultation was undertaken even though significant and substantive revisions had taken place to the document. DOSI's own scientific review of the first EIS demonstrated that for the biological information there was not sufficient information because of lack of detail in analyses, and high uncertainty in the data. DOSI participated in the stakeholder consultation from NORI on their Social Impact Assessment Scoping report in February 2023. DOSI highlighted inconsistencies in the methodology proposed, which would result in an unrealistic programme of work.

The 28th Session of the Council (Part I) was held in March 2023. Members of DOSI Minerals WG participated in person, supported virtually by other members of the WG - 20 experts in total. There were six items on the Session's agenda with particular relevance for DOSI. DOSI Minerals WG prepared and distributed copies of the documents: '[Scientific Knowledge is Currently Insufficient for Effective Environmental Management of Deep-Seabed Mining](#)' and '[What Does the Deep Ocean Do for You?](#)'



DOSI Minerals WG delegation member Sonigitu Ekpe (Nigeria) delivering an intervention



Dedicated DOSI publications for ISA meetings



Minerals WG Co-lead Jesse van der Grient presenting a DOSI ISA Side Event March 2023. All photos on this page are courtesy of Earth Negotiation Bulletin

The DOSI Minerals WG delegation contributed 40 interventions to the proceedings (see Annex I of the Minerals WG [meeting participation report and the ISA website](#)), including scientific and expert opinions on how to ensure high environmental standards are maintained, and on the inclusion of independent and robust science in the regulations. Interventions by Minerals WG members were supported by other delegations, as well as DOSI's work being mentioned in interventions by some delegations, including by:

- Germany – supporting DOSI's intervention on environmental monitoring
- PEW Trust – supporting DOSI's intervention on independent expert review
- UK – supporting DOSI's intervention on IRZ/PRZs, especially related to EMMP
- USA – supporting DOSI's intervention on test mining
- Deep Sea Conservation Coalition (DSCC), UK and Federation State of Micronesia – supporting DOSI's intervention on lack of scientific baseline information
- DSCC – supporting DOSI's intervention on fisheries



DOSI Minerals WG members (L-R) Pradeep Singh, Diva Amon, Jesse van der Grient, Mathias Haekel, Jeff Drazen, Beth Orcutt, Sonigitu Ekpe, at the 28th Session of the Council of the ISA, March 2023

On the evening of 22 March during the 28th Session of the Council of the ISA, DOSI hosted a Side Event titled 'Latest Science on the Impacts of Deep-Sea Mining on Benthic and Pelagic Ecosystems and Fisheries' (see Annex II of the Minerals WG participation [report](#)). The event was well attended by approximately 90 people representing various States and NGOs. Prior to the event, the main points of the three presentations delivered were captured in a DOSI Information Sheet (Annex II of the WG meeting [report](#)), which was distributed to those attending the event. This [Information Sheet](#) also included a QR code to a new database that the Minerals WG has created containing a list of experts on deep-sea mining, where they are based and what languages (other than English) they speak.

DOSI interventions and Side Event at the 28th Council meeting of the ISA were included in [Earth Negotiations Bulletin reports](#).

The Minerals WG is currently preparing to attend Part II of the 28th Session in Kingston in July 2023, with four policy briefs and a Side Event in development.

Other meetings attended by members of the Minerals WG in the past year included an ISA workshop on the development of a Regional Environmental Management Plan (REMP) for the Indian Ocean (India, May 2023), where Ana Colaço and Klaas Meyn provided expertise and a report on behalf of DOSI. Tanja Stratmann represented DOSI at an Impossible Metals demonstration meeting in Canada in May 2023. Anna Metaxas was supported by DOSI to share her expertise on deep-sea minerals exploitation at the Canadian Council of International Law Conference. Minerals WG Co-lead Sabine Gollner coordinated a [response](#) to the Ministry of Petroleum and Energy's hearing on its impact assessment for mineral activities on the Norwegian Continental Shelf (January 2023). Lisa Levin gave a lecture on [Seabed Mining and Biodiversity Conservation in the Deep Sea: Where Science Meets Policy](#) at the University of Bergen in April 2023. Minerals WG Co-lead Jesse van der Grient, in support with other members of the WG, gave a presentation at the Ecosystem-based Working Group at the Inter-American Tropical Tuna Commission (IATTC), about the overlap between tuna fisheries and mining areas in the Clarion Clipperton Zone, in collaboration with Bobbi-Jo Dobush (DOSI WG member and representative of The Ocean Foundation (TOF)). The presentation was accompanied by a White Paper on the same topic. During the meeting, a draft recommendation, prepared by DOSI and TOF, on further engagement with deep-sea mining by the IATTC was passed through the Scientific Advisory Committee. Several members of the Minerals WG collaborated on a scientific paper regarding thresholds in deep-seabed mining, which has been published in Marine Policy.



DOSI Minerals WG members Ana Colaço and Klaas Meyn at the REMP meeting for the Indian Ocean, May 2023

Efforts by the DOSI Minerals WG have been captured in a New York Times article '[Secret Data, Tiny Islands, and a Quest for Treasure on the Ocean Floor!](#)', and in the [British Geological Survey's Deep-Sea Mining Evidence Review](#).

The Minerals WG produces and distributes a regular newsletter amongst the WG's 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

- DOSI's Climate Change WG authored an article titled 'Deep-Sea Impacts of Climate Interventions' published in *Science* in March 2023; allowing free access to the paper on the DOSI website.
- A DOSI delegation attended UNFCCC COP27 in Egypt in November 2022, giving presentations and hosting side-events on the impacts of climate change and carbon capture on the deep ocean.
- The Climate Change WG attended UNFCCC SB58 in Bonn in June 2023, making an intervention at the Ocean and Climate Change Dialogue, contributed to a talking point brief for the Global Stocktake, and networking with delegates.
- WG members attended the 5th International Symposium on Effects of Climate Change on the World's Oceans in Norway in April 2023, hosting a Special Session
- The Climate Change WG was represented in the DOSI delegation attending the High Seas Treaty (BBNJ) negotiations prior to the treaty's adoption in February 2023

During the latest reporting period, the DOSI Climate Change WG has continued its mission to ensure that the deep ocean is considered in all ocean-related discussions and negotiations. As a direct result of the engagement of this WG, consideration of climate change impacts in the deep ocean have been discussed and incorporated into the text of the High Seas Treaty, at the ISA in the development of the mining regulations, in discussions around deep-sea fisheries, and at the Convention on Biological Diversity.

In November 2022, 16 DOSI Climate Change WG members joined other delegations to highlight climate impacts in the deep ocean at UNFCCC COP27 in Sharm El Sheikh, Egypt. The Climate Change WG organised a delegation in collaboration with the University of Southampton, supported in part by the DOSI Travel Fund.



DOSI Ambassador Sonigitu Ekpe speaking at a joint DOSI and POGO event at COP27



Ocean Pavilion event on The Deep Ocean, The Decade and Climate Change (17 November). L-R: Ken Buesseler, Lisa Levin, Torsten Thiele, Maria Baker, and Bernadette Snow

The delegation's mission was to highlight the importance of the deep ocean in the context of climate change mitigation and adaptation, and to promote the inclusion of the ocean in climate negotiations as well as policy in development and implementation.

It was important for DOSI to give a voice for deep ocean ecosystems as they are the most important ally for mitigation of climate change. It was important for DOSI members to gain further experience of the UNFCCC COP process to explore priorities and strategies for future engagement. It was an excellent opportunity to reconnect with colleagues from NGOs, the scientific community, policy makers and others to make new contacts for future collaborations. We were able to identify new research directions that could be beneficial to future climate change policy considerations while also learning to better translate science to policy. Finally, DOSI supported ECOPs by encouraging active participation across the proceedings.

The full report with specific event participation details can be accessed [here](#).

“During the meeting I was able to meet ocean advocates from different sectors, and briefly discuss with delegates the importance of the ocean, concerns regarding proposed carbon dioxide removal methods, the IPOS proposal, seabed mining issues and other concerns. I also met for the first time several DOSI participants from Nigeria. I was able to inform others about the deep ocean, DOSI, DOSI resources, and how to sign up. I was also able to mentor students and early career scientists from Scripps and other institutions on how to maneuver and get the most out of COP 27. From these discussions have emerged several planned policy briefs and UNFCCC Ocean Dialogue inputs for next year. Overall I was able to raise awareness about the deep ocean and its critical role and vulnerability to climate change, as well as possible impacts of proposed climate mitigation technologies.”

-Lisa Levin, USA on COP 27 (UNFCCC climate negotiations) in Sharm El Sheik, Egypt (Nov. 7-18 2022)

The 5th Effects of Climate Change on the World's Ocean (ECCOW) meeting in Norway in April 2023 was attended by DOSI Climate Change WG members who delivered a special session on 'Deep-Sea responses to, and solutions for, Climate Change'. Lisa Levin gave a talk titled 'Mitigation or Mutilation? Deep-sea Consequences of Ocean-Based Climate Intervention'.

The environmental impacts of ocean-based climate interventions, including carbon dioxide removal is another area where DOSI is increasingly engaged. A subgroup (DOCII - Deep Ocean Climate Intervention impacts) was formed in 2020 and led to a series of policy briefs and synthetic publication Deep-Sea Impacts of Climate Interventions published in March 2023 (downloaded over 4,000 times). In May 2023 DOSI teamed up with DOOS to host a two-hour online discussion at the DOOS annual meeting about deep observing roles in assessing ocean-based climate interventions.

The Climate Change WG responded to a request for comment on the United States Government's Climate Action Plan in November 2022. The group also advised on the US Government's updated Climate Literacy Guide, offering suggestions for how the Guide can better explain the role of the deep ocean in Earth's climate.

In March 2023, the Climate Change WG linked with the Deep Ocean Observing Strategy (DOOS) to make an intervention at the online Dialogue Planning Discussion, in advance of the Ocean and Climate Dialogue at UNFCCC SB58 (held in June 2023). Together we agreed to address the following general topic (along with a list of action items for discussion): 'Recognising and managing the linkages between biodiversity, the carbon cycle and climate, including for the deep sea and high seas'. We also requested that communications to UNFCCC COP 28 highlight the importance of the deep ocean/high-seas science, conservation and management, including the biodiversity-climate connection, for the implementation of the Paris Agreement, including in Nationally Determined Contributions, Adaptation Plans and the Global Stocktake, and requested funding that can be used to help developing nations focus on non-fossil fuel, ocean-based renewable energy during their economic development.

At the UNFCCC SB58 meeting in Bonn, Germany in June 2023, Climate Change WG members Lisa Levin, Sarah Seabrook, Alumita Senkairai and Pradeep Singh helped to raise the profile of deep-ocean impacts of climate change, participating in the Ocean Dialogue breakout discussions on coastal restoration and fisheries and food security. Sarah Seabrook made an intervention on behalf of DOSI at the Ocean Dialogue calling out the need for more inclusion of the high seas and deep sea. WG Lead, Lisa Levin, gave an emphatic presentation during a Side Event on the impacts of CO₂ removal on the deep ocean.

Also at UNFCCC SB58, DOSI partnered with the Ocean Acidification Alliance to produce a submission titled ['Strengthening UNFCCC Response to Ocean Warming, Acidification and Deoxygenation: Recommendations for Blue Carbon Ecosystems and Food Security'](#).

Lastly, the Climate Change WG has strengthened relations with several organisations and programmes including UNFCCC Research and Independent Non-Governmental Organisations (RINGO) Ocean Interest Group, which serves as an international interdisciplinary knowledge exchange hub around ocean and coastal climate change issues.



DOSI members at SB58 - Sarah Seabrook, Lisa Levin, Alumita Senkairai and Pradeep Singh

Decade of Deep-Ocean Science Working Group

Summary

- The Challenger 150 programme, a UN Ocean Decade Programme created by the Decade of Deep-Ocean Science Working Group, now encompasses all the activities of the original Working Group.
- The Challenger 150 programme has created its own Working Groups, with a dual focus on oceanic regions and technical scientific research topics.
- Engagement with the programme by the wider scientific community has yielded several opportunities for collaboration, knowledge exchange and capacity sharing, especially with scientists from regions with limited access to such opportunities.
- DOSI retains oversight of the Challenger 150 programme to ensure wide dissemination of results and access to the policy arena.

The [Challenger 150](#) UN Decade of Ocean Science programme was developed by the DOSI Decade of Deep-Ocean Science WG, and now represents the WG's main activities. The Challenger 150 programme focuses on global cooperation in deep-ocean science. It is recognised as a high-profile programme of the UN Ocean Decade. Since its launch, two 'Challenger 150 Highlights' documents have been produced (Year 1 and Year 2). The programme has so far completed a total of 27 affiliated research cruises in five ocean basins, with many more expeditions in the pipeline.



A recent C150-affiliated research cruise to the Northeast Pacific deep ocean (May 2023)

The Challenger 150 programme has established 12 Regional Scientific Research Working Groups populated by scientists from each region (each group reviewing the state of knowledge in its region and developing research plans) and four Technical Scientific Research Working Groups. The information generated by the programme is used to understand how discrete changes in the deep ocean impact the wider ocean. The affiliated expeditions are intended to build greater capacity and diversity in the deep-ocean scientific community, acknowledging that existing deep-ocean research is conducted primarily by developed nations with access to resources and infrastructure. In addition to expeditions, capacity development workshops have been conducted in Costa Rica (by Elva Escobar) and with Canada First Nations (by Cherise DuPreez) and a new African deep-sea network has been set up and active with workshops and meetings (by Kirsty McQuaid). A funding application for support for the African deep-sea network has been submitted.

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 a role to play in connecting people for science.

Challenger 150 has been present at numerous fora, including a recent webinar (May 2023) around the new UN Decade programme 'Digital DEPTH', with whom DOSI hopes to collaborate on efforts to further explore and protect deep-ocean biodiversity.

Marine Genetic Resources Working Group

Summary

- DOSI's Marine Genetic Resources WG contributed pertinent scientific information to delegates involved in the BBNJ negotiations via DOSI's dedicated Policy Briefs, prior to the instrument's adoption by Parties in June 2023.
- The Marine Genetic Resources WG engaged with media outlets during the BBNJ negotiations, leading to several mentions in both scientific and public broadcast media.

For the past year, the work of DOSI's Marine Genetic Resources (MGR) WG has been closely intertwined with that of the BBNJ WG, since the issue of marine genetic resources has been a major item on the agenda of the BBNJ negotiations. Representatives of the Marine Genetic Resources WG also attended the BBNJ negotiations in New York, adding to and amplifying DOSI's united voice on the issue of raising awareness of the deep ocean at all stages of the negotiations. Specifically, they provided practical examples of how sample identifiers work in practice for digital sequence information (DSI) on genetic resources, clarifying the minimal burden associated with unique and standardised identifiers, and discussing the central importance of DSI and derivatives with several delegations.

The DOSI MGR WG provided experts for the “Drop-in Session to Discuss Issues on the BBNJ Treaty” held at Scandinavia House, New York, on 20 August 2022 coinciding with the middle weekend on BBNJ IGC5. The format was an open forum focused on discussing and exploring more technical questions around the BBNJ treaty. A range of experts in science, law and social science were on hand to discuss questions from delegates. During the day, around 40 delegates attended the meeting and useful discussions were held, in particular around benefit sharing. The idea of a decoupled system for monetary benefits was discussed by various State delegates and Blocs, and these ideas were followed up during the negotiations. The final treaty text contains elements of a decoupled system, showing that such open discussions amongst delegates and experts can have real value.

Dissemination of information on the topic of marine genetic resources was included in generic interventions and interviews during BBNJ negotiations, such as the Policy Brief [‘The Deep Ocean and BBNJ: Important Points for IGC-5’](#) and mentions in the broadcast media outlets listed under the BBNJ WG update (above).

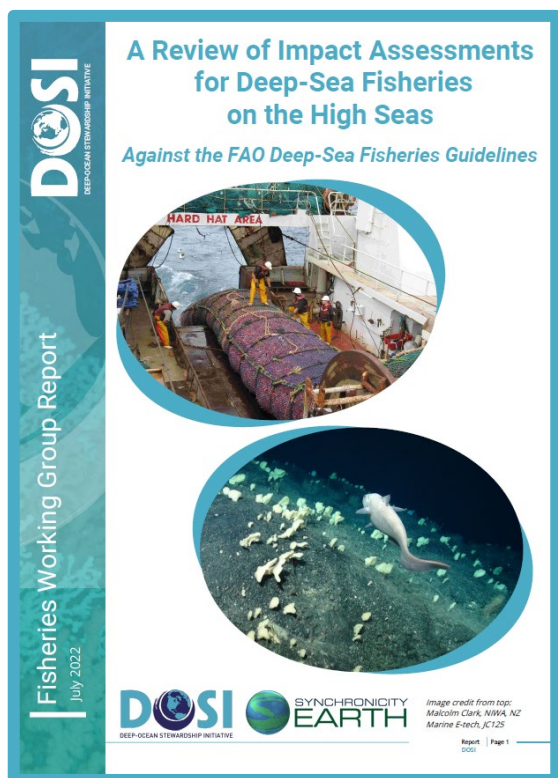
The MGR WG has members on the DSI network discussion group meaning that close coordination on the topic of DSI under the BBNJ treaty and the Convention on Biological Diversity (CBD) may be facilitated. Reporting back on these discussions between the two networks is leading to a joint commentary to be published in a peer reviewed scientific journal.

Fisheries Working Group

Summary

- The Fisheries WG produced a scientific review to inform an UNGA workshop on bottom fishing in August 2022 in New York, followed by an UNGA review exercise in November 2022. A Policy Brief was also prepared for the UNGA review exercise.
- The Fisheries WG is collaborating with DOOS to assist decision-making in Regional Fisheries Management Organisations.
- The WG has initiated a project to review and assess existing knowledge around mesopelagic fisheries, with a view to informing future policy needs.
- A WG member gave the keynote presentation at the 16th Deep-Sea Biology Society meeting in September 2021. The subject of that talk is now under review for publication in *PeerJ*.

In July 2022, the Fisheries WG produced a major and impactful output led by Laura Kaikkonen, '[A Review of Impact Assessments for Deep-Sea Fisheries on the High Seas](#)' and Fisheries WG co-lead Lissette Victorero presented the results at an expert panel during the UN General Assembly (UNGA) Bottom Fisheries Workshop in New York in August. The UNGA workshop produced [its own report](#), which included DOSI Fisheries WG input (p.9, para. 39) and was taken into consideration by States in UNGA's review on bottom fishing in November 2022. In preparation for the UNGA review on bottom fishing, the Fisheries WG also prepared and circulated a Policy Brief, '[Improving Impact Assessments for Deep-Ocean Bottom Fisheries](#)', based on the recommendations of its own review. The main results from this study will also be published in a peer-reviewed publication (in prep.) that will be submitted to Fish and Fisheries in September 2023. Fisheries WG co-lead, Matt Gianni, attended the UNGA review meeting in New York, offering his deep knowledge to the proceedings.



The Fisheries Working Group's review shared at the August 2022 Bottom Fisheries Workshop

The Fisheries WG is involved in a collaborative project with the Deep-Ocean Observing Strategy (DOOS) to produce an assessment of the use of ocean data by Regional Fisheries Management Organisations (RFMOs) and to liaise with RFMOs to address their needs. This effort is being led by Fisheries WG members Amelia Bridges, Bernadette Butfield and Lissette Victorero. The kick-off meeting was in January 2023. A survey to engage the RFMOs has been prepared and the next stage of the project will include engaging scientists working with RFMOs to provide input for the project. Amelia Bridges gave a presentation on the project at the DOOS annual meeting (May 2023).

The Fisheries WG has initiated a new mesopelagic fisheries project, its first meeting taking place in May 2023. A subgroup of WG members is being assembled to (i) coordinate the establishment of cadre of mesopelagic experts/enthusiasts to respond to emerging topics/issues, and (ii) produce a scientific review paper and a Policy Brief on the status of mesopelagic science and fishing efforts with a view to informing future policy negotiations. For this purpose, Lissette Victorero has also held several meetings and established a partnership with two EU projects focused on mesopelagic fisheries (MEESO and SUMMER). There is a need to synthesise the available mesopelagic fisheries science in different areas of the ocean, as well as the potential for the exploitation of the mesopelagic zone in the future, with a view to informing future policy.

In September 2021, a subgroup of the Fisheries WG focusing on demersal fisheries and Vulnerable Marine Ecosystems (VMEs), and led by Amy Baco-Taylor, gave a keynote presentation at the 16th Deep-Sea Biology Society meeting. The talk was titled 'A Community Consensus on Designating Vulnerable Marine Ecosystems from Imager'. The subgroup (30 experts) is now working on addressing the final round of reviewers' comments on a manuscript based on the talk, submitted to *PeerJ*.

Pollution and Debris Working Group

Summary

- The Pollution and Debris Working Group attended international plastic pollution treaty meeting INC-2 in May 2023, engaging in bilateral talks with delegations from five countries and two regional groups.
- While at INC-2, the Working Group shared a new Policy Brief titled 'Plastic Pollution in the Deep Ocean' in both English and Spanish.

Members of the Pollution and Debris WG attended the first session of the Intergovernmental Negotiating Committee to Develop an International Legally Binding Instrument on Plastic Pollution, Including in the Marine Environment (INC-1) in Uruguay in late 2022, which focussed on procedural matters. In May-June 2023, the WG once again was in attendance during the second session (INC-2), held in Paris, France. As DOSI does not have UNEP Observer status, Lucy Woodall (WG Co-lead) and Melanie Bergmann were able to participate under the Gallifrey Foundation delegation and the German delegation, respectively. 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 deep-ocean ecosystem 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.



L-R Lucy Woodall and Melanie Bergmann represent DOSI at INC-2, Paris, May 2023



DOSI policy brief on plastic pollution in the deep ocean in Spanish and English

Prior to the meeting, the Pollution and Debris WG produced and circulated (via direct mails to delegates and via social media) a Policy Brief on plastic pollution in the deep ocean, both in English and Spanish. The Policy Brief was well-received and was found to be useful at subsequent meetings during the week. A statement based on the Policy Brief was submitted to the Treaty Secretariat.

The WG is now planning to attend further meetings in Bangkok (October 2023) for the Global Plastics Summit and INC-3 in Kenya (November 2023). Further intersessional work to support the treaty process is also planned. 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

- The Offshore Energy WG has produced a seminal and crosscutting publication on an 'ecosystem services-based management approach' for deep-ocean industries.
- Members of this WG also provided valuable expertise for a publication of the Climate Change WG.

In January 2023, members of the Offshore Energy WG published a review article in *Frontiers in Marine Science* titled '[Insights from the management of offshore energy resources: Toward an ecosystem services based management approach for deep-ocean industries](#)', led by Maria Emilia Bravo, Miriam Brandt and Erik Cordes. This paper offers several suggestions for managing ecosystem services in the offshore energy industry, drawing upon lessons learnt from the oil and gas, fisheries and mining industries.



The Offshore Energy Working Group's paper on an ecosystem-based approach for deep-ocean industries

Members of the Offshore Energy Working Group have been directly involved in the Restoration process following the Deepwater Horizon oil spill. While not a formal DOSI activity, the input of the Working Group is being included in the process and many members are involved in the activity. In particular, members of the Working Group are advocating for the inclusion of quantitative metrics for deep-sea coral restoration in these activities.

Another independent activity of the Working Group is an effort to communicate with the oil and gas industry around exploration blocks offshore of Argentina. The members involved are proposing opportunities for local capacity building in environmental science and management, and these are being considered. WG members are also highlighting the presence of important conservation areas within the areas tendered for exploration. Several agreements are proposed within this framework, one of which was renewed in May 2023, which are providing opportunities for local scientists to participate in offshore exploration activities.

Offshore Energy WG members were involved in a paper in *Science* titled "[Deep-sea impacts of climate interventions](#)" and contributed their input on the energy-related activities, such as ocean thermal energy conversion and the potential use of oil and gas infrastructure for carbon sequestration.

There have been a number of recent workshops and meetings about restoration of habitats in the deep ocean with ample participation from Offshore Energy WG members. These included an Expert Elicitation Workshop on Essential Environmental Impact Variables (Stockholm Resilience Center), Deep-Sea Vulnerable Marine Ecosystem Dynamics Workshop (Royal Netherlands Institute for Sea Research), and the CORDAP Cold-Water Corals Workshop (Oslo, Norway).

There is an effort underway in the USA to achieve the goal of protecting 30% of its exclusive economic zone in the next year, and members of the Offshore Energy WG were invited by the Natural Resource Defense Council to discuss high-priority areas for the creation of new Marine Protected Areas (National Marine Sanctuaries or Marine National Monuments).

Members of the WG were also involved in the evaluation of Marine Protected Area designs for Israel over the past few years, and these are in the process of being established by the Israeli government. One of these, the Palmahim Slide off of the Tel Aviv coast, was named a "[Hope Spot](#)" designated by Mission Blue and protected by the Israeli government.

On 10 May 2023, the Offshore Energy WG participated in a panel during the DOOS Annual Meeting with a presentation titled 'How are deep-sea habitats "valued" for ecosystem services: a case study from the offshore energy industry' as part of the discussion 'Accelerating seafloor crustal ocean biosphere research to inform policy making' (co-led by COBRA).

On 5 June 2023, members of the Offshore Energy WG submitted an abstract to the congress First EAGE Conference on South Atlantic Offshore Energy Resources. The abstract is titled: 'Discovery of active cold seeps and cold-water coral reefs in the Colorado Basin and management implications'. The conference, organised by Oil and Gas companies currently starting development in Brazil, Uruguay and Argentina, will be held in Montevideo, Uruguay between 20-22 September 2023.

New Technologies for Environmental Impact Assessments

Working Group

Summary

- The New Technology for EIAs Working Group has focused on boots-on-the-ground engagement to advise and help stakeholders when approached, while simultaneously coordinating the development and dissemination of tools to help raise accuracy and efficiency in the EIA process for deep sea surveys.

The New Technology for EIAs Working Group has been focusing mostly on non-destructive technologies relevant for EIAs of deep-sea mining projects, in light of recent developments in this space. There have been activities around further testing of new camera systems for 3D seafloor mapping used in surveys around hydrothermal vents (*R/V Kaimei* Cruise, December 2022; *KAUST Thuwal* cruise May 2023) and a shadowgraph-based plankton camera system, development of a per cruise-deployable Nanopore-sequencing based eDNA survey pipeline to enable community impact assessments in near real-time while at sea using CTD rosette-collect water samples, and software data analysis tools and pipelines for imaging data - being trialed and tested for ROV-based Environmental Impact Assessment surveys in the NORI-D zone of the Clarion Clipperton Zone (The Metals Company Campaign). Work has continued on taxonomically curated barcode generation of planktonic organisms through whole genome sequencing in collaboration with 'Aquatic Symbioses in 3D' (Sanger Institute) project, and through genome skimming for markers with the Smithsonian Institution (Collins lab).

Knowledge dissemination has occurred at various workshops, including the following:

- 4th Marine Imaging Workshop in Brest, France – October 2022
- Japan-India workshop on plastic waste surveys and technologies to facilitate them – November 2022.
- South-East Asian researcher-targeted workshop under CREPSUM (Collaborative Research and Education Project in Southeast Asia for Sustainable Use of Marine Ecosystems) Program in March 2023 on taxonomy for image-based plankton surveys.
- Saudi Arabia hands-on ROV Technology Workshop at KAUST – April 2023.

Other stakeholder interactions included the following:

- 'Ocean Vision AI' (PI: Kakani Katija) involvement – ongoing.
- Serving in working group for North Pacific Marine Science Organization PICES Working Group 48 'Towards best practices using Imaging Systems for Monitoring Plankton' – from June 2022.
- Consulting to Japan Atomic Energy Agency on sensors and methods for measuring radioactivity in the deep sea – July 2022 onwards.
- Consulting to Bureau of Ocean Energy Management (BOEM, USA) on deep-sea EIA technologies and methodologies – September 2022 onwards.

- Consulting on new and appropriate technologies for EIA to the Japan Organization for Metals and Energy Security (JOGMEC) – October 2022 & March 2023.
- Technology transfer (image analysis pipeline) to an EIA company being subcontracted for deep-sea studies funded by the Japanese Government – November 2022.

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.
- Attendance at CBD COP15 and its satellite meetings in December 2022 strengthened ties with fellow delegates, increasing awareness of the deep ocean in proceedings and raising DOSI's profile.
- The Task Force represented DOSI at the 5th International Marine Protected Areas Congress (IMPAC5), held in Vancouver, Canada.

In December 2022, Co-lead of the Task Force for the Conservation of Deep-Ocean Biodiversity, Anna Metaxas, attended the Convention on Biological Diversity's (CBD) Open-ended Working Group on the Post-2020 Global Biodiversity Framework (WG2020-5) and COP15 in Montreal, Canada, on behalf of DOSI and supported by DOSI funding. This was DOSI's second participation at a CBD COP. During her participation, Anna secured meetings with several Party delegations, participated in a panel discussion on Ocean and Climate Change and conducted two interviews, one of which was for a press release of a [Policy Brief led by Senckenberg](#) on the importance of deep-ocean species data that DOSI co-signed. Anna also attended several Sessions and Side Events. The goal was to increase the visibility of DOSI and awareness of the deep ocean, as well as bring attention to the shortcomings of the existing indicators that will be used to report to WG2020 on the marine environment. Important connections were made that, if pursued further, can position DOSI well for participating in efforts to develop new indicators, which can be a focus for the Task Force in the coming years.



Task Force Co-lead Dr Anna Metaxas speaks at a press event at COP15, Canada

In February 2023, Anna Metaxas again represented DOSI and the Task Force during the fifth International Marine Protected Areas Congress (IMPAC5), held in Vancouver, Canada. She was a remote (online) panelist at an IUCN event titled 'Marine Connectivity Conservation Rules of Thumb'.

The Task Force is continuing to engage with the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and in March 2023, Anna Metaxas joined the IPBES Second Author Meeting of the Nexus Assessment in South Africa. Agnes Muthumbai, DOSI Advisory Board member, attended the IPBES capacity-building forum in Nairobi in May 2023 on behalf of DOSI, bringing valuable elements of the ocean/deep ocean and African scientists into the conversation.

In June 2023, Ana Colaço was selected to represent DOSI in the CBD Informal Advisory Group for Ecologically or Biologically Significant Marine Areas. DOSI Executive Committee member, Elva Escobar, will also participate in that Informal Advisory Group via the Mexico delegation, ensuring that the deep ocean will be well considered.

Other DOSI Activities

- Exchanging knowledge with colleagues in Namibia has led to a new project - the Namibian Deep-Sea Benthos Collection - which is now underway. DOSI members will work with Namibian colleagues during a taxonomic workshop (planned for October 2023) for which there are secured £12,600 in funds from the One Ocean Hub and The Ocean Foundation.
- The additional funding (£100K) DOSI secured from an anonymous funder to support travel to expand knowledge exchange efforts within the deep-ocean community and beyond, has enabled 31 people from 17 nations to attend key meetings, including BBNJ IGC4, IGC5 and IGC5.2, CBD COP15, UNFCCC COP27, UN Ocean Conference, IMPAC5 and others. DOSI also benefits from funding for travel and activities relating to deep seabed mining from the JM Kaplan Fund and Benioff, which have enabled attendance to the ISA and other meetings.
- Making connections with the rest of the ocean policy community is an important role of the DOSI Office staff. To that end, the Director of Communications participated in a meeting organised by the Global Ocean Biodiversity Initiative in Vancouver in February 2023. He also participated in a DOOS workshop in California in May 2023. In June 2023, DOSI was invited by IOC Secretariat to attend the IOC UNESCO Assembly in Paris. The newly appointed DOSI Programme Officer **represented DOSI there**, drawing attention to the importance of deep-ocean biodiversity in IOC discussions. These activities are essential for spreading the reputation of DOSI as the 'go to' body for deep-ocean related scientific knowledge, whilst also encouraging further engagement and membership in DOSI Working Groups and activities.
- DOSI Office and other Core Team members participated in training programmes and attended informative meetings and webinars to enhance our operations and interactions (e.g., CommOcean (month, year) - workshop to provide communication skills and inspiration to (ocean science) communicators across a range of experience levels; Media training for DOSI Core Team members delivered by Jon Copley (Advisory Board member and professional science communicator); policy interaction training via the University of Southampton).