



MONACO EXPLORATIONS
Reconnecting Humanity and the Sea



INDIAN OCEAN EXPEDITION 2022

SCIENCE TO POLICY
WORKSHOP REPORT
PORT-LOUIS - MAURITIUS - 12-14 NOV. 2025



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



2nd International
**Indian Ocean
Expedition**
2015-2025





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EXECUTIVE SUMMARY

INTRODUCTION

The Science-to-Policy Workshop, convened in Port-Louis, Mauritius, from 12 to 14 November 2025, was organized under the auspices of Monaco Explorations to review and discuss the outcomes of Monaco Explorations 2022 Indian Ocean Expedition (MEIO2022 Expedition) and their implications for ocean management and governance in the Southwest Indian Ocean (SWIO). It brought together a diverse assembly of scientists, policymakers, regional organizations, and civil society (see list of participants in [Appendix 2](#)) to connect marine science and actionable policy. This report presents the proceedings of the workshop, summarizing the presentations, discussions, and recommendations developed collectively by participants.

WORKSHOP OBJECTIVES AND STRUCTURE

The workshop aimed to:

- Inform stakeholders of the latest scientific findings from the expedition,
- Analyse the implications for regional management and governance,
- Propose concrete recommendations for policy and action relevant to Mauritius, Seychelles, and regional ocean governance stakeholders,
- Foster regional and international collaboration for ocean stewardship.

The agenda is provided in [Appendix 3](#). It was structured around five main sessions:

1. Global policy trends in ocean governance,
2. Presentation of scientific results from the MEIO2022 Expedition,
3. Relevance of results for management and governance,
4. Drafting of policy recommendations,
5. Presentation of recommendations.



OUTCOMES

The workshop developed a set of recommendations aimed at integrating scientific knowledge into policy processes, fostering regional collaboration, and identifying potential finance sources for conservation and sustainable development. The recommendations address the following issues:

- Ecosystem connectivity,
- Regional coordination,
- Establishment of a World Coral Bank,
- Pollution monitoring,
- Expansion of deep-sea research,
- Real-time monitoring and early warning systems,
- Enhanced monitoring, control, and surveillance,
- Engagement with the private sector for blue economy development,
- Strengthened governance and communication,
- Prioritization of nature-based solutions,
- Innovative management of Mauritius-Seychelles Joint Management Area (JMA),
- Strengthening the science-law-policy interface and data transparency.

ECOSYSTEM CONNECTIVITY

Integrate ecosystem connectivity into marine spatial planning (MSP), protect source reefs, and foster regional collaboration and funding. This supports recognition of transboundary connectivity under international frameworks such as BBNJ and CBD.

REGIONAL COORDINATION

Establish a regional mechanism to support research continuity, facilitate exchange of students and marine scientists, coordinate the design of shared activities for ecosystem monitoring, and promote cumulative knowledge-building.

WORLD CORAL BANK (CONSERVATORY)

Support the establishment of a regional eDNA database/reference library and coral repository node.

MICROPLASTICS & PATHOGENS

Conduct regional pollutant mapping and integrate findings into ecosystem-health monitoring.

MESOPHOTIC / DEEP-SEA ECOSYSTEMS

Expand deep-sea ecosystem surveys and develop national management plans.

MONITORING AND WARNING SYSTEMS

Contribute to the development of real-time monitoring and early warning systems through targeted capacity building.

MONITORING, CONTROL, AND SURVEILLANCE (MCS)

Assess existing MCS systems and explore new emerging technologies for collaborative enhancement.

BLUE ECONOMY

Engage with private sector, civil society, and research institutions to develop regenerative blue-economy models. Investigate Blue Carbon potential of Saya de Malha Bank for inclusion in strategy.

GOVERNANCE AND ENGAGEMENT

Strengthen capacity building to support the strengthening of international ocean governance agreements relevant to the SWIO such as the BBNJ Agreement and support regional States in advancing their ratification and their effective implementation.

COMMUNICATION AND ENGAGEMENT

Build environmental-policy literacy and science-policy messaging for civil society.

CLIMATE RESILIENCE

Prioritize Nature-based Solutions within blue-economy frameworks.

JOINT MANAGEMENT AREA

Investigate management options for coherence between water column and continental shelf regimes. Use the lull in bottom trawling to promote precautionary measures. Highlight JMA as a pioneering initiative and living laboratory for science and governance.

CROSS-CUTTING THEMES

Science-Law-Policy Interface: Strengthen the interface with feedback loops for evidence-based processes.

Data Transparency: Ensure data transparency and sharing through collaborative mechanisms.

CONCLUSION

The Science-to-Policy Workshop demonstrated the power of partnership and evidence-based decision-making in addressing the complex challenges of ocean governance in the SWIO. The recommendations developed provide a roadmap for integrating scientific knowledge into policy, fostering regional collaboration, and unlocking innovative financing for conservation and sustainable development. The workshop's outcomes reinforce Monaco's commitment to ocean protection and serve as a model for science-driven governance in other regions.

The success of this initiative will ultimately be measured by the translation of these recommendations into concrete actions, ensuring the health of marine ecosystems and the well-being of current and future generations.



SCIENCE TO POLICY WORKSHOP REPORT

INTRODUCTION

The Science-to-Policy Workshop, convened in Port-Louis, Mauritius, from 12 to 14 November 2025, was organized under the auspices of Monaco Explorations to review and discuss the outcomes of Monaco Explorations 2022 Indian Ocean Expedition (MEIO2022 Expedition) and their implications for ocean management and governance in the Southwest Indian Ocean (SWIO). It brought together a diverse assembly of scientists, policymakers, regional organizations, and civil society (see list of participants in [Appendix 2](#)) to connect marine science and actionable policy. This report presents the proceedings of the workshop, summarizing the presentations, discussions, and recommendations developed collectively by participants.



OFFICIAL OPENING

Xavier PRACHE, Director of Monaco Explorations, Chrissant BARBE, Director General of the Department of Blue Economy, Government of Seychelles, and Rezah BADAL, Director General of the Department for Continental Shelf, Maritime Zones Administration and Exploration (CSMZAE), Prime Minister's Office, Government of Mauritius, opened the workshop.

The following texts are abstracts of the opening speeches. Full texts are available in the [Appendix 4](#).



Xavier Prache, Director of Monaco Explorations
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XAVIER PRACHE, DIRECTOR OF MONACO EXPLORATIONS

This opening address presents Monaco Explorations' commitment to reconciling humanity and the ocean through science, diplomacy, and outreach, under the leadership of H.S.H. Prince Albert II of Monaco. It highlights the Indian Ocean Expedition (2022), a largescale, multidisciplinary mission involving international scientific teams and cooperation with Mauritius and Seychelles. The speech outlines the expedition's scientific priorities—coral reefs, megafauna, marine protected areas, and innovative exploration techniques—and introduces the SciencetoPolicy Workshop as a key step toward translating scientific knowledge into concrete governance and conservation actions for sustainable ocean management.



Chrissant Barbe, Director general of the department of Blue Economy, Government of Seychelles
©Government Information Service.



Rezah Badal, Director General of the Department for CSMZAE, Prime Minister's office, Government of Mauritius
©Government Information Service.

CHRISSANT BARBE, DIRECTOR GENERAL OF THE DEPARTMENT OF BLUE ECONOMY, GOVERNMENT OF SEYCHELLES

This opening address highlights the central role of science in shaping effective, transparent, and inclusive ocean governance, particularly for Small Island Developing States such as Seychelles. It emphasizes how scientific evidence underpins national policies, including marine spatial planning and blue economy strategies, while also strengthening international partnerships and access to funding. The remarks underscore the importance of collaboration between scientists, policymakers, and stakeholders, illustrated by initiatives such as the Monaco Explorations Expedition. The address reaffirms Seychelles' commitment to sciencedriven decisionmaking as a foundation for sustainable development, regional leadership, and responsible ocean stewardship.

REZAH BADAL, DIRECTOR GENERAL OF THE DEPARTMENT FOR CONTINENTAL SHELF, MARITIME ZONES ADMINISTRATION AND EXPLORATION (CSMZAE), PRIME MINISTER'S OFFICE, GOVERNMENT OF MAURITIUS

This opening address highlights the importance of bridging ocean science and policy to support sustainable governance in the SouthWest Indian Ocean. It situates the Monaco Explorations "Science to Policy" Workshop within the legacy of the Indian Ocean expeditions and the UN Decade of Ocean Science, emphasizing the role of scientific evidence in informing regional and global decisionmaking. By convening scientists, policymakers, and regional institutions, the workshop aims to translate research findings into practical policy guidance. Through dialogue, collaboration, and targeted thematic discussions, the initiative seeks to strengthen regional cooperation and advance resilient, sciencebased ocean governance.



SESSION 1 - GLOBAL POLICY TRENDS: PRESENTATION OF THE GLOBAL OCEAN GOVERNANCE TRENDS INCLUDING BBNJ, THE PLASTIC TREATY, THE 2030 TARGETS, ETC.

Session 1 summarises four keynote addresses by experts on ocean governance, ocean conservation and blue economy. The workshop was chaired by Carl Gustaf Lundin. Each presentation was followed by a question-and-answer session.

The following texts are abstracts of the presentations delivered during the session. The full presentations are accessible through the provided links.

1. UPDATE ON THE BBNJ AGREEMENT, RONÁN LONG, DIRECTOR OF THE WORLD MARITIME UNIVERSITY (WMU)-SASAKAWA GLOBAL OCEAN INSTITUTE

<https://urls.fr/6r0Qtr>

This presentation provides a comprehensive update on the Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement). It highlights the significance of the Agreement, adopted on 19 June 2023, opened for signature on 20 September 2023, and set to enter into force on 17 January 2026, with the first Conference of the Parties (COP) scheduled for August 2026.

Key topics include:

- The legal and institutional framework underpinning the BBNJ Agreement, referencing the United Nations Convention on the Law of the Sea (UNCLOS), the Triple Planetary Crisis, and the New International Economic Order.
- Ratification status, with 145 signatories and 75 parties as of November 2025, and a detailed breakdown of Small Island Developing States (SIDS) and Least Developed Countries (LDCs).
- The role of the Indian Ocean Rim Association (IORA) member States in the ratification and implementation process.
- Institutional arrangements, including the establishment of the COP, Secretariat, Scientific and Technical Body, Clearing-House Mechanism, and subsidiary bodies for implementation and compliance of the BBNJ treaty.
- The BBNJ Clinic programme supporting Small Island Developing States (SIDS) and coastal Least Developed Countries (LDCs) efforts to ratify and implement the BBNJ Agreement.
- Legal interpretations and sovereignty issues, with States' positions on retroactive declarations, interpretive statements, and the relationship with other international legal instruments.
- Advisory opinions on climate change from international tribunals, emphasizing States' obligations to prevent marine pollution from greenhouse gases and the enduring nature of baselines and statehood in the face of sea-level rise.
- The call for a moratorium on deep-sea mining, reflecting precautionary approaches to ocean conservation.

The presentation concludes with reflections on the need for inspirational leadership, scientific engagement, and multi-stakeholder collaboration to ensure the conservation and sustainable use of marine biodiversity beyond national jurisdiction.



The first 60 countries whose ratifications triggered the entry into force of the BBNJ Agreement are circled in green ©The High Seas Alliance

2. BBNJ AND GOVERNANCE TRENDS IN THE SOUTHWEST INDIAN OCEAN,

BARKHA MOSSAË, REGENERATIVE BLUE ECONOMY MANAGER, IUCN

<https://urls.fr/rmnr6>

This presentation provides a comprehensive overview of the implications of the BBNJ Agreement for governance trends in the Southwest Indian Ocean (SWIO) region. Both Seychelles, as co-chair of the BBNJ High Ambition Coalition, and Mauritius, as member of the Bureau of the Preparatory Commission for the entry into force of the Agreement, provide leadership in the region. The SWIO is characterized by its dominance of Small Island Developing States (SIDS) and developing countries, with significant ecological connectivity and economic dependency on the health of adjacent Areas Beyond National Jurisdiction (ABNJ). The region faces unique pressures, including fragmented governance, climate change, overfishing, pollution, and emerging industries operating in legal grey zones.

The BBNJ Agreement addresses these challenges through four key pillars:

1. **Marine Genetic Resources (MGRs) & Digital Sequence Information (DSI):** The Agreement establishes fair and equitable benefit-sharing mechanisms for genetic resources found in ABNJ, providing a legal basis for marine biodiversity and fostering regional collaboration on bioprospecting.
2. **Area-Based Management Tools (ABMTs):** ABMTs, including High Seas Marine Protected Areas (MPAs), are essential for achieving global biodiversity targets such as the 30x30 goal. The Agreement enables coherent protection of transboundary ecosystems and migratory routes, aligning with the ambitions of Mauritius and Seychelles.
3. **Environmental Impact Assessments (EIAs):** EIAs are now mandatory for activities in ABNJ with significant potential harm. The agreement standardizes assessment processes, emphasizes cumulative impacts, and raises the bar for environmental standards, directly linking activities to coastal health in the WIO.
4. **Capacity Building & Technology Transfer (CB&TMT):** The agreement mandates capacity building and technology transfer, focusing on the scientific and technical needs of developing countries. A Clearing-House Mechanism is established to match resources and expertise, supporting interoperable capacity building for ocean governance and the blue economy.



The presentation also explores the complex governance architecture of the region, highlighting the roles of regional political and economic integration organizations (REIOs) (AU, SADC, EAC, COMESA, IORA, IOC), and expert networks. It discusses the legal basis for REIOs participation, the importance of harmonizing national legislations, and the potential for a unified African voice in negotiations.

Key insights from needs assessments reveal a general appreciation of the importance of the agreement but highlight gaps in technical understanding, stakeholder engagement, and policy-practice coherence. The BBNJ Agreement is shown to have direct relevance for local communities, offering livelihood assurance, climate resilience, decentralized investment, and participatory governance through public consultation processes and focusing global attention on areas with a high concentration of conservation features worthy of protection such as Saya de Malha.

Finally, the presentation identifies implementation challenges, including fragmented governance, competing economic interests, data gaps, and capacity constraints. It concludes with recommendations for raising awareness, strengthening legal frameworks, fostering cooperation, and consolidating the science-policy interface to catalyse ratification and effective implementation of the BBNJ Agreement in the SWIO region, in particular through technical assistance mechanisms such as the IUCN Global Ocean Programme (GOP) Technical Assistance Facility.

3. OCEAN GOVERNANCE FROM SCIENCE AND CONSERVATION PERSPECTIVES,

ALEX ROGERS, DEPUTY DIRECTOR OF STRATEGIC SCIENCE PROGRAMMES AND PARTNERSHIPS, NATIONAL OCEANOGRAPHY CENTRE (NOC), UNITED KINGDOM

<https://urls.fr/70EqNW>

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This presentation explores the multifaceted landscape of ocean governance through the lens of scientific research and conservation imperatives. It provides a comprehensive overview of international legal frameworks, key agreements, and the challenges facing marine biodiversity, with a particular focus on the Saya de Malha Bank and the Western Indian Ocean.

The presentation begins by outlining the foundational principles of international ocean law, notably UNCLOS. It highlights critical provisions such as Article 61, which mandates coastal States to use the best scientific evidence to ensure the sustainable management of living resources within their exclusive economic zones, and Part IX, which designates the deep-sea "Area" and its resources as the common heritage of mankind. The responsibilities of States and international organizations to ensure compliance and benefit sharing in the Area are emphasized, underscoring the global nature of ocean stewardship.

The evolution of ocean governance is traced through supplementary agreements, including the 1995 UN Fish Stocks Agreement, which addresses the management of straddling and highly migratory fish stocks, the implementation arrangements related to the administration of mining in the Area through the International Seabed Authority (ISA) and the BBNJ Agreement. These frameworks introduce concepts such as the precautionary principle, regional fisheries management organizations, and the necessity of environmental impact assessments for activities beyond national jurisdictions.

A case study of the Saya de Malha Bank, within the context of the western Indian Ocean identified as possibly the second most diverse shallow water region globally, illustrates the complexity of marine ecosystems and the urgent need for conservation. The region is identified as a biodiversity hotspot, with unique habitats ranging from extensive seagrass beds to charismatic megafauna and deep-water coral communities. Despite its major ecological significance, the area faces numerous threats, including climate change, overfishing, destructive fishing practices, deep-sea mining, and pollution. Fisheries data are incomplete and reveal patterns of overexploitation and bycatch, while the emergence of deep-sea mining and plastic pollution pose additional risks to marine life and ecosystem health.

The presentation concludes by advocating for robust policy responses grounded in scientific evidence and international law. Referring to the example set by the Sargasso Sea Commission, it calls for integrated management approaches, enhanced data collection, and global cooperation to address the challenges of ocean governance. The science from recent expeditions and studies reinforces the high diversity and endemism of the Saya de Malha Bank, highlighting its biogeographic importance and the need for sustained conservation efforts.

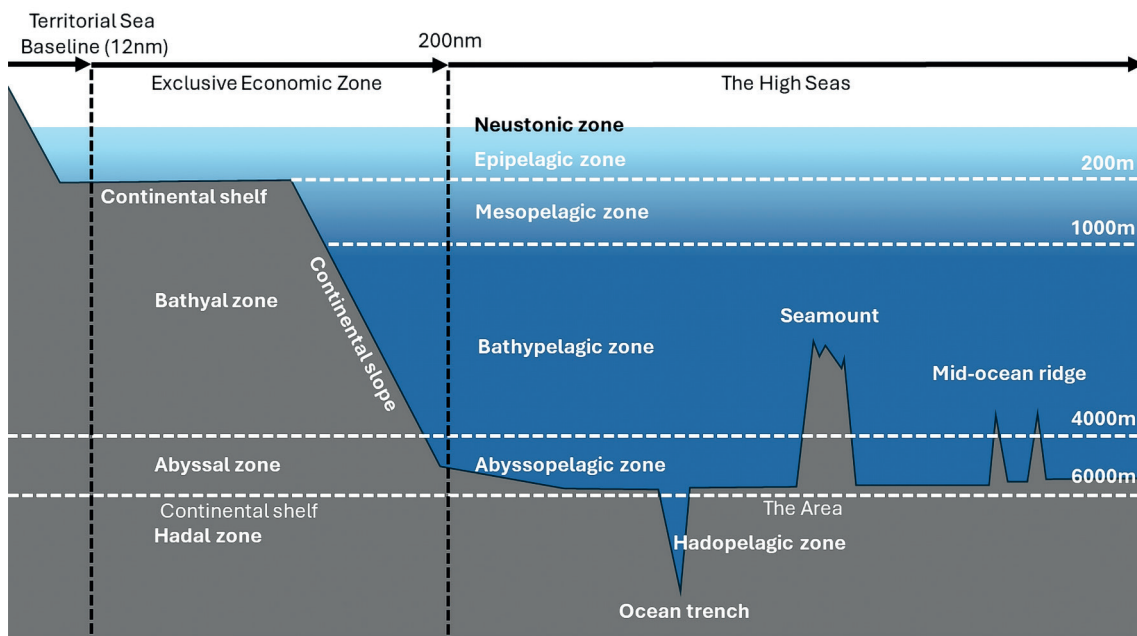


Illustration of maritime zones defined by the UN Convention on the Law of the Sea ©DR

4. THE GOVERNANCE OF THE MASCARENE PLATEAU AND THE DEVELOPMENT OF THE BLUE ECONOMY IN THE WESTERN INDIAN OCEAN (WIO) REGION, DOMINIQUE BENZAKEN, AUSTRALIAN NATIONAL CENTRE FOR OCEAN RESOURCES AND SECURITY

<https://urls.fr/t5qE>

This presentation begins by outlining the complex and fragmented nature of Indian Ocean governance, characterized by overlapping international and regional agreements, sector-based mandates, and institutions such as UNCLOS, the Rio Conventions, UNEP Regional Seas, RFMOs, WIOMSA, CIO-IOC and the Indian Ocean Rim Association (IORA). These frameworks reflect the challenges of coordinating ocean governance across diverse political, scientific, and environmental interests.

The concept of the blue economy is introduced as a pathway for sustainable ocean development, emphasizing the integration of economic, social, and environmental objectives. The presentation highlights the importance of the blue economy for SIDS and LDCs, which are highly dependent on ocean resources but vulnerable to climate and economic shocks. Key international milestones, such as the Rio+20 Conference and the UN's Sustainable Development Goals (SDGs), are referenced as foundational to the blue economy agenda.

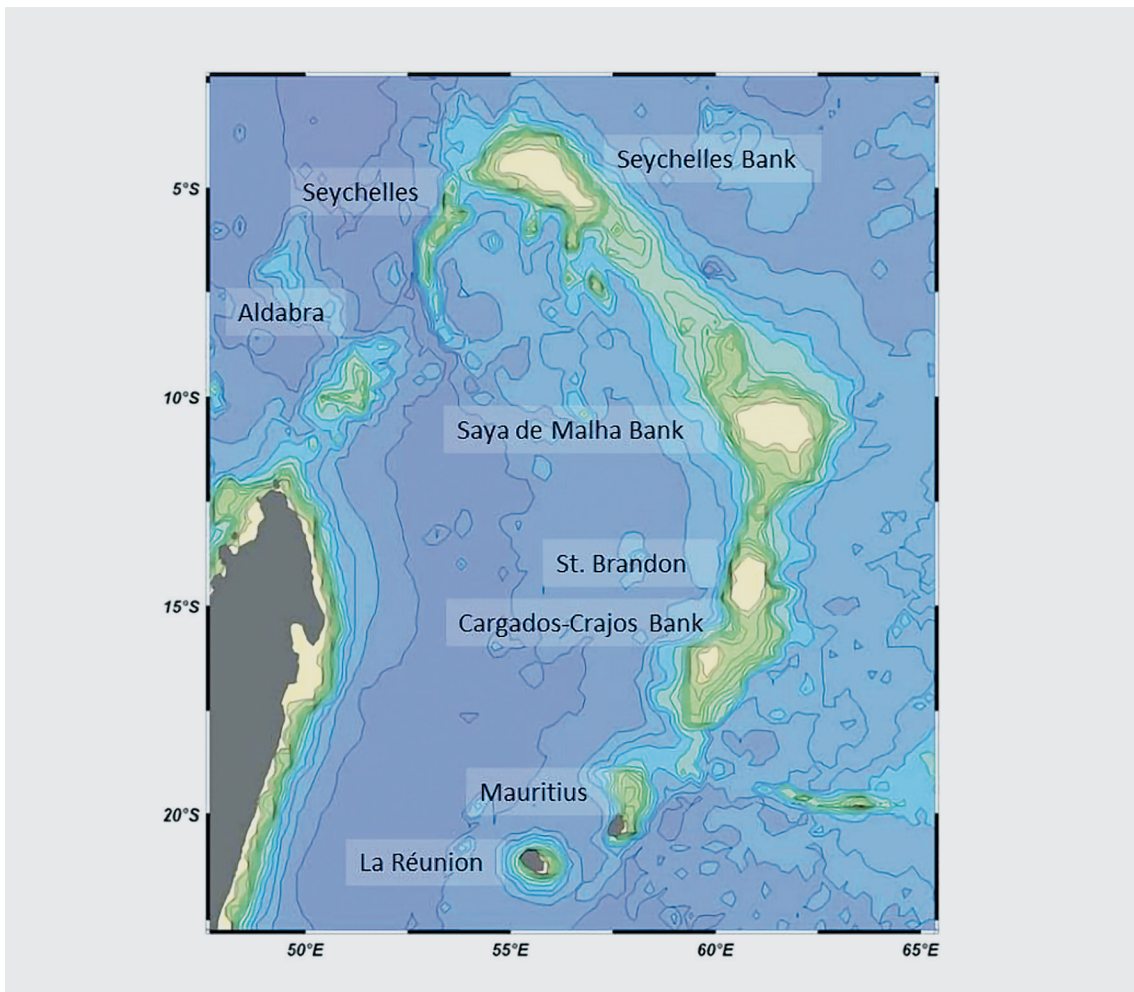
The development of the blue economy in the WIO is traced through regional initiatives, including the Sustainable Blue Economy Conference (Kenya, 2018), the African Union Blue Economy Strategy (2019), and the IORA Blue Economy Strategy (2014). These efforts are aligned with the SDGs and supported by programs such as the partnership between



the UN Development Programme (UNDP) and the African Union (AU), aiming to foster innovation, investment, and scientific advancement in the region. Both Mauritius and Seychelles are early adopters of blue economy strategies, with dedicated institutions and policies to promote sustainable ocean use, conservation, and economic growth. The presentation provides specific examples of implementation, such as Mauritius's ocean economy priorities and Seychelles' achievements in marine spatial planning (MSP) and innovative finance.

A detailed examination of the governance structures for the Mascarene Plateau follows, focusing on the maritime zones under UNCLOS and the management arrangements between Mauritius and Seychelles for the Joint Management Area (JMA) of the Extended Continental Shelf (ECS, the Saya De Malha Bank) under UNCLOS Part VI. The JMA is presented as a case study in bilateral cooperation, legal complexity, and challenging resource management as a result of the dual legal status of the ECS and the water column above it (high seas) under UNCLOS, with potential for overlapping mandates. Opportunities for improved governance and management of natural resources are identified, including MSP process, stakeholder engagement, collaboration with high seas institutions, and the potential of the new BBNJ treaty.

Finally, the presentation emphasizes the role of science-based policy for the next steps, referencing the Monaco Explorations expedition and the need for new knowledge to inform national and regional priorities. It concludes with reflections on policy gaps, information needs, and the importance of cooperation among coastal States, regional organizations, and international frameworks to achieve sustainable ocean governance.



Map showing the location of the Mascarene Plateau

SESSION 2 - PRESENTATION OF THE RESULTS OF MEIO2022 EXPEDITION

Session 2 includes the presentation of the scientific results from the MEIO2022 Expedition. Presentations are made by members of the Expedition Advisory Committee and scientists on board.

The following texts are abstracts of the presentations delivered during the session. The full presentations are accessible through the provided links.

1. SCIENTIFIC OBJECTIVES OF THE MEIO2022 EXPEDITION, FRANCIS MARSAC, EMERITUS PROFESSOR AND MARINE SCIENTIST, FRENCH NATIONAL RESEARCH INSTITUTE FOR SUSTAINABLE DEVELOPMENT (IRD)

<https://urls.fr/51n4oS>

This presentation outlines the multidisciplinary scientific objectives of the MEIO2022 Expedition. The expedition, supported by the oceanographic research vessel *S.A. Agulhas II* from South Africa, brought together 150 participants from 20 nationalities, including marine scientists, young researchers, students, divers, filmmakers, photographers, artists, and communicators.

The scientific program interlaced natural and social sciences aiming to bridge science, marine governance and planning. It focused on three key marine domains: the regional dynamics, the island ecosystems of Aldabra and Saint-Brandon and the Saya de Malha Bank. The regional dynamics was addressed through the deployment of Argo floats and surface drifters, the sampling of microplastics and coral pathogens, the monitoring of marine megafauna and routine underway oceanographic observations. The investigation of island ecosystems included research on the genetic origins of green turtles, coral monitoring and conservation, bioprospecting of sponges, ROV surveys of the seafloor and biodiversity mapping. The work packages devoted to the Saya de Malha Bank included seafloor mapping, oceanography, phytoplankton and zooplankton sampling, inventory of benthic fauna, photo-physiology of photosynthetic organisms and ROV surveys. A training session on international law of the sea and marine governance was also organized.

Key outcomes include the publication of scientific papers in leading journals (see [Appendix 6](#)), contributions to the GEBCO Seabed 2030 project, and the generation of knowledge to support ocean governance and decision-making. The expedition fostered collaboration between Mauritius and Seychelles, bonding students and early-career scientists from both countries and merging their expertise and strengths in marine research.

Outreach and education were central, with the onboard school for master's course students, onboard training sessions, public engagement activities, art workshops, exhibitions, and contests designed to enhance ocean literacy and share scientific knowledge with diverse audiences.

Overall, the presentation highlighted the expedition's commitment to advancing marine science, fostering international collaboration, and promoting sustainable ocean stewardship in the Southwest Indian Ocean.



Microscopic observation of plankton collected during the Indian Ocean Expedition, as depicted by the artist Remi Leroy.

2. MEIO2022 EXPEDITION'S RESULTS FOR REGIONAL DYNAMICS,

NICK D'ADAMO, MEMBER OF MEIO2022 EXPEDITION ADVISORY COMMITTEE

<https://urls.fr/nial-8>

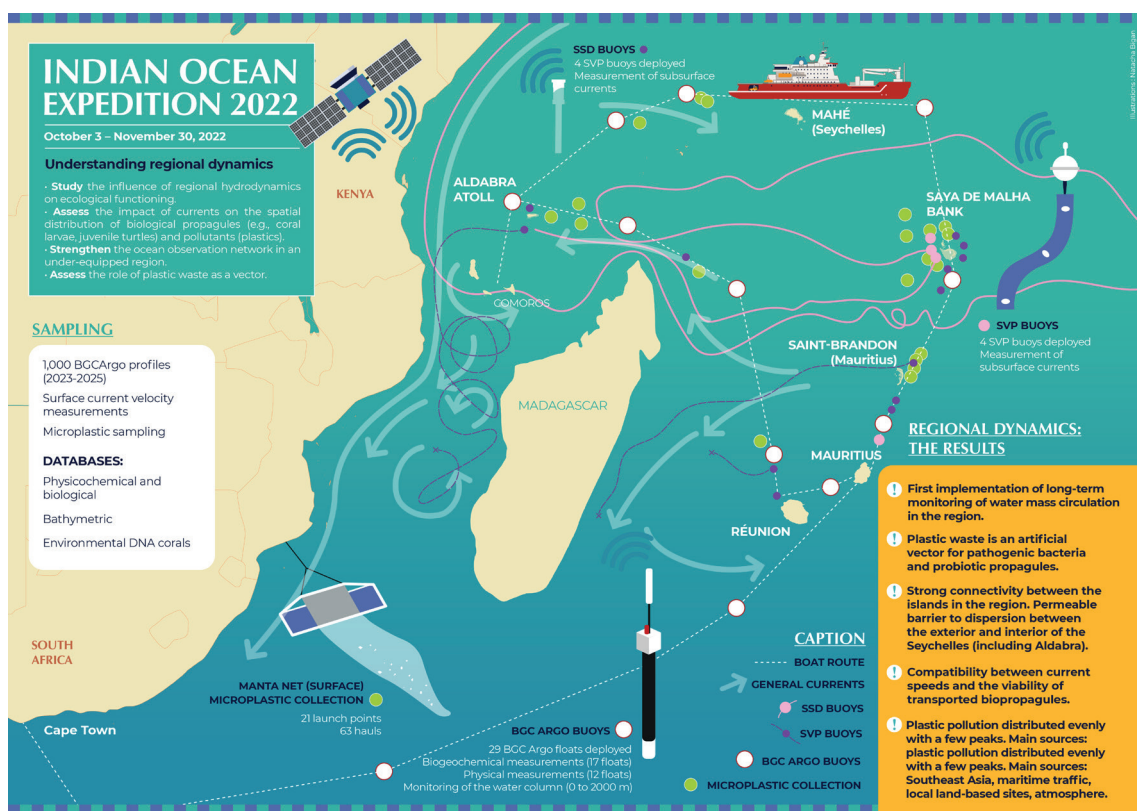
This presentation synthesizes the scientific results of the expedition relevant to the SWIO regional dynamics. It highlights advances in oceanography that underpin improved ecological understanding and natural resource management across the region.

Key achievements include:

- An oceanographic review in the Expedition Baseline Study highlighting the importance of improving the understanding of the interconnectivity of biota and pollutants driven by the hydrodynamic processes that carry them.
- Filling significant gaps in the global Argo float network for the SWIO, enabling robust 3D characterization of biogeochemical and physical ocean properties through the deployment of 17 biogeochemical and 12 salinity-temperature Argo floats, providing more than 1,000 profiles and revealing seasonal modulations in nutrient levels and primary productivity, as well as strong exchanges between major oceanic features such as the Seychelles-Chagos Thermocline Ridge and the South Equatorial Current.

- 18 sea surface drifters and four 15m deep drogues tracked by satellite mapped surface and subsurface currents, elucidating pathways and speeds of biological propagules (e.g., coral larvae) and pollutants (e.g., plastic debris), with interconnectivity between key sub-regions occurring over periods from 1-2 weeks to a few months.
- The MADCAPS project confirmed that plastic debris acts as a vector for both pathogenic and probiotic bacteria, with implications for coral health and broader ecosystem risks.
- The Coral Connect project demonstrated genetic connectivity among coral populations, identifying central Indian Ocean atolls and banks as stepping stones for coral recruitment and biodiversity.
- The GECOS project found stable genetic composition in juvenile green turtles, potentially linked to the stability of regional currents.
- Routine underway observations, including bathymetry, contributed essential data for oceanographic modelling.

The findings emphasize the ecological interconnectivity of SWIO habitats, underscoring the need for multinational collaboration and coordinated management to address both natural and anthropogenic threats and pressures on marine ecosystems.



The contribution of the MEIO2022 Expedition to understanding regional dynamics ©Natacha Bigan - Monaco Explorations

3. MEIO2022 EXPEDITION'S SCIENTIFIC RESULTS FOR "VISIBLE ISLANDS",

TESSA HEMPSON, MISSION BLUE, AND RANJEET BAGHOOLI, PROFESSOR, MAURITIUS UNIVERSITY.

The first presentation addresses the overall results relevant to the islands of Seychelles and Mauritius that were investigated by the expedition, Aldabra and Saint-Brandon.

The second presentation is specifically about coral reef resilience.



THE VISIBLE ISLANDS

<https://urls.fr/rNt8qT>

The presentation reports on the *Visible Islands* component of the expedition. Focusing on Aldabra Atoll (Seychelles) and Saint-Brandon Atoll (Mauritius), the expedition sought to establish ecological baselines, evaluate biodiversity and connectivity, and provide actionable science-to-policy insights for regional stewardship. It represents one of the most comprehensive multidisciplinary assessments of remote Indian Ocean ecosystems to date.

The expedition deployed a suite of innovative methodologies.

- Low-cost drone and autonomous surface vehicles were deployed to produce georeferenced habitat mapping through photogrammetry and single-beam bathymetry and AI-based data processing.
- A macro-waste survey on Aldabra catalogued over 800 debris items, with plastics comprising 71% of collected material. Strikingly, accumulation rates on Aldabra mirrored those of inhabited coasts, underscoring the transboundary nature of marine pollution and its reach into even the most isolated ecosystems and highlighting the high level of connectivity in the region.
- Marine turtle studies encompassed GPS tagging, biopsies of 40 juveniles, and stress biomarker analyses, revealing genetically stable populations with low stress hormones but elevated detoxification markers, indicative of chronic pollutant exposure. Tracking confirmed Aldabra as a closed nursery system.
- Biological sampling by divers collected 58 living coral colonies across 21 species, later integrated into the World Coral Conservatory as a “living ark” for reef research, conservation and restoration. In addition, 55 coral fragments across 5 species were collected for regional connectivity studies. eDNA sampling addressed the biodiversity of reef-associated cryptic marine invertebrates.
- Underwater surveys with a remotely operated vehicle (ROV) down to 700m yielded the first biodiversity inventories for these sites, including sponge collections across multiple depth gradients and eDNA evidence linking benthic and pelagic communities.

Results strongly support the “stepping-stone” hypothesis of genetic connectivity among western Indian Ocean atolls, with Aldabra emerging as a source site for coral and turtle recruitment. Baseline georeferenced maps of coral, seagrass, and sand habitats offered scalable monitoring solutions for regional nations. The expedition also demonstrated the feasibility of long-term coral conservation ex situ, with 88% survival of colonies after 18 months in European aquaria.

Collectively, these findings highlight both resilience and vulnerability: while isolated ecosystems maintain strong internal connectivity and genetic stability, they remain globally exposed to pollution, warming, and other anthropogenic pressures. The expedition provides a regional benchmark for ecosystem health and emphasizes the necessity of integrating science and policy to safeguard oceanic biodiversity. By reinforcing collaboration among Southwest Indian Ocean nations, the *Visible Islands* initiative positions the region to lead in evidence-based, cooperative ocean management, reminding us that even the most remote islands are inseparably linked within a single connected ocean.



Aldabra Atoll ©Filip Kulisev - AmazingPlanet / Monaco Explorations

CORAL RESILIENCE

<https://urls.fr/ZIRduR>

This presentation explores the thermal stress responses of corals from the Saya de Malha Bank, Saint-Brandon, and Mauritius within the Mascarene Plateau. The research, featured in the Deep-Sea Research Part II Special Issue - The Monaco Explorations Indian Ocean Expedition 2022: advancing scientific interactions in the Mascarene Region (Munbodhe et al. 2025), investigates variable photosystem II (Φ PSII) responses in reef-building corals, specifically *Pocillopora indiana* and *Heliopora coerulea*, under experimental thermal stress conditions.

Key findings include:

- A 1.2°C increase in sea surface temperature (SST) anomaly over the past 28 years, with no significant latitudinal variation within the Mascarene Plateau.
- Significant intra- and interspecific differences in Φ PSII when corals were exposed to 32°C, with *P. indiana* being more susceptible than *H. coerulea*.
- Corals from Saint-Brandon exhibited relatively higher thermal tolerance compared to other sites.

The study highlights the importance of understanding species-specific and site-specific coral resilience to inform conservation strategies in the face of climate change.



Scientists from the Indian Ocean Expedition are collecting coral samples on Aldabra Atoll ©Nicolas Mathys - Agence Zeppelin / Monaco Explorations

4. MEIO2022 EXPEDITION'S SCIENTIFIC RESULTS FOR SAYA DE MALHA, FRANCIS MARSAC

<https://urls.fr/WWY3Co>

This presentation details the multidisciplinary scientific study of the Saya de Malha Bank, led by Francis MARSAC (IRD) and supported by a consortium of international institutions. The Saya de Malha Bank, located in the SWIO, is an understudied area, especially for biodiversity. Since 2011 it has been a Jointly Managed Area (JMA) between Seychelles and Mauritius, with sovereign rights over seabed resources but high seas status for the water column.

The MEI02022 Expedition surveyed the area over 1,600 nautical miles, employing advanced sampling techniques and covering five main sampling zones plus a dedicated seagrass survey. The research activities included CTD profiles, water sampling, biodiversity inventories, and habitat mapping using tools such as CTD and XBT casts, bongo nets, dredges, trawls, and visual sampling by expert divers.

These methods enabled comprehensive data collection on water chemistry, physical oceanography, and benthic and pelagic biodiversity.

Key scientific achievements include the inventory of benthic fauna and flora, with approximately 300 species of molluscs, 250 species of crustaceans, and 100 species of algae and sponges identified. The faunistic biodiversity is characterized by small specimens, and the expedition led to the discovery of several new species, including 20 new gastropods, 4 crustaceans, and 1 annelid. Iconic and rare species were also re-discovered, such as the giant clam *Tridacna rosewaterii* and the long-pincer crab *Praebebalia extensiva*, which had not been observed for over a century. Notably, up to 20% of molluscs and 80% of coralline algae may be endemic or new to science, highlighting the area's high singularity rather than its status as a biodiversity hotspot.

The expedition also documented the ecological importance of the Saya de Malha Bank, particularly its vast seagrass meadows which play a significant role in carbon sequestration for the southwest Indian Ocean. The water masses shaped by the bank exhibit distinct salinity gradients, influencing regional oceanography and primary productivity. Despite the ecological richness, pelagic wildlife observations were limited, with few large fish, sharks, seabirds, or marine mammals recorded. Human activities, especially fishing by distant fishing fleets, were noted, underscoring the need for strengthened surveillance to combat illegal, unreported, and unregulated (IUU) fishing.

Capacity building was integral to the project, with training sessions on data analysis, marine law, and the use of scientific data formats. The launch of the WIO N.O.I.S.E. research network aims to foster collaboration among researchers working on seamounts, banks, and submarine structures in the Western Indian Ocean. The expedition's datasets are critical for developing marine spatial plans and informing integrated management of coastal and marine environments. The study concludes that, while the Saya de Malha Bank may not be a biodiversity hotspot, its high level of endemism, ecological functions, and potential for new discoveries make it a region of global scientific and conservation significance.

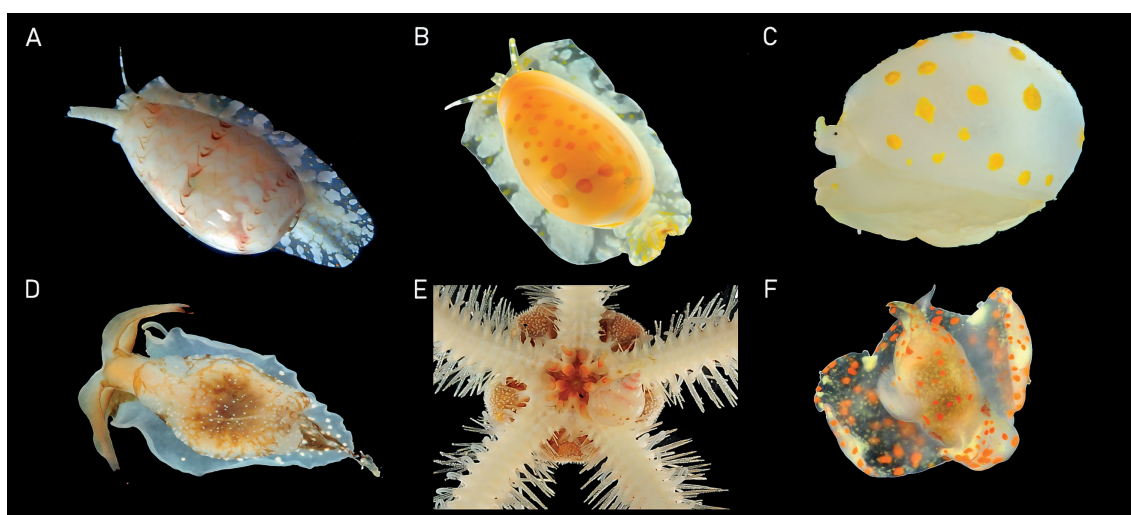


Illustration of the faunistic biodiversity of the Southwest Indian Ocean:

A. *Persicula* [Cystiscidae], B. *Closia* [Marginellidae], C. *Velutinidae*, D. *Bathyhedyle boucheti*, Mozambique, E. *Eulimidae* (gastropod), F. *Gastropteridae* (sea slug)

©Grégoire Moutardier & Laure Corbari - MNHN / Monaco Explorations

5. RESULTS OF THE WIO-NOISE WORKSHOP (MAURITIUS, 10-11 NOVEMBER),

FLORENCE GALLETI, RESEARCH FELLOW IN PUBLIC LAW, IRD AND FRANCIS MARSAC

<https://urls.fr/4QqW6u>

The presentation by Florence GALLETI provides a comprehensive overview of the WIO N.O.I.S.E. (Western Indian Ocean National Or International SEamounts, banks, and submarine structures) scientific network, highlighting its trajectory, achievements, and ongoing initiatives from 2022 to 2025. The network, comprising multidisciplinary researchers from Mauritius, Seychelles, France, Madagascar, and Monaco, focuses on the study and governance of remote marine heritage, including high seas, deep seabed, and areas beyond national jurisdiction (ABNJ).

Key milestones include the establishment of the network, organization of symposia and workshops, and the development of collaborative partnerships with regional institutions such as CSZMAE and the University of Mauritius. The network has facilitated knowledge exchange through interdisciplinary training, scientific workshops, and the production of downloadable resources. Notable events include the 1st and 2nd WIO N.O.I.S.E. Workshops, which addressed scientific, economic, and legal challenges in managing remote marine heritage in the Western Indian Ocean.

The presentation also synthesizes knowledge gaps identified during the latest meeting (November 2025) and outlines the network's contributions to regional ocean governance, capacity building, and policy harmonization. The DIDEM project, with support from international partners, underpins these efforts, aiming to strengthen science-to-policy interfaces for the sustainable management of marine biodiversity and resources in the region.

<https://urls.fr/9jvBSo>

This presentation by Francis MARSAC of the WIO N.O.I.S.E. 2nd Workshop outlines a comprehensive approach to ocean governance for the Mascarene Plateau region. It details the workshop structure, which spans four sessions covering the description and valuation of marine heritage, preservation strategies, and technical recommendations for improved governance. Key topics include oceanographic methods, biodiversity assessment outcomes, coral resilience, genetic tools for conservation, economic evaluation of ecosystem services, Blue Carbon challenges, biotechnological valorisation, marine mammals as transboundary heritage, plastic pollution management, anthropogenic pressures, legal frameworks, and marine spatial planning.

The presentation emphasizes the need for science-based, sustainable, and inclusive decisions in ocean policy, supported by reliable and cross-sectoral data. It highlights the importance of balancing ecological, economic, and social interests through effective governance and legal measures. The identification of critical data sectors—environmental, human activities, governance/legal/institutional, and socio-economic—is discussed, along with the technicalities of cross-cutting and supporting data.

A reporting grid is proposed to capture essential information, characterize data gaps, and measure performance in data collection over time. The presentation includes templates for each data sector, designed to be filled by relevant institutions in each country, facilitating a common structure for ocean governance data sheets. The session concludes with 43 technical recommendations aimed at enhancing ocean governance and management in the Western Indian Ocean region (see [Appendix 7](#)).



SESSION 3 - RELEVANCE OF THE RESULTS FOR MANAGEMENT AND GOVERNANCE

The objective of this session was to discuss and to draw conclusions about the relevance of the expedition scientific results for informing the governance and the management of the region.

This session was structured in three group parallel sessions according to three areas: the whole Southwest Indian Ocean, the “visible islands” of Aldabra and Saint-Brandon’s Atolls, and the “invisible island” Saya de Malha Bank.

The following texts are based on the reports presented in plenary by the facilitators and rapporteurs of the parallel sessions, enriched by the notes taken by the rapporteurs’ teams.

1. SOUTH-WEST INDIAN OCEAN GROUP

Nick D’ADAMO reported on the parallel session devoted to the regional component of the Expedition.

The group focused on the strategic relevance of the expedition data for environmental management and governance in the SWIO region, with a particular emphasis on emerging threats, policy responses, and the integration of scientific knowledge into decision-making processes.

The key themes considered by the group were presented and discussed.

POLICY RELEVANCE OF MEIO EXPEDITION DATA

- The group highlighted the urgent need for Mauritius and Seychelles to review and update, if appropriate, their mechanisms for utilizing the expedition data in governance.
- For Seychelles, this is especially timely due to its newly installed government and evolving environmental policies.
- Agencies are encouraged to develop new mechanisms if current ones are inadequate, ensuring that policy is informed by robust scientific evidence.

PLASTIC POLLUTION

- Plastic pollution, including microplastics and macro-litter, was a central concern as illustrated by the recent adoption of a *Roadmap for a Plastic Pollution-Free Mauritius*.
- The MADCAPS project’s data was recognized as highly relevant for understanding both local and transboundary sources of plastics.
- The group stressed the importance of regional dynamics and horizontal transport processes in the movement and dilution of plastic threats, emphasizing the need for coordinated regional action.

THREAT-VALUE-KNOWLEDGE FRAMEWORK

- A framework linking ecological and social values (V), threats (T), and knowledge (K) was introduced.
- The adequacy of knowledge regarding the impact of plastics—especially bacterial pathogens on microplastics—was questioned.
- Governments were urged to lead technical reviews of knowledge on cause-effect pathways between threats and prioritized values, and to establish monitoring systems with clear thresholds for impacts.

PRIORITIZATION AND RESOURCE ALLOCATION

- The group recommended a structured process to prioritize research, monitoring, and geopolitical measures for key environmental issues, using MEIOE data as input.
- The potential and limitations of international mechanisms were discussed, noting that a prospective international treaty on plastics may take time to materialize.
- The BBNJ clearing house mechanism could assist in strengthening financing capabilities.

KNOWLEDGE GAPS AND ENDEMISM

- Addressing knowledge gaps, especially at local scales, and circumventing the limited number of research vessels in the SWIO region were recognized as critical.
- The discovery of high endemism at Saya de Malha Bank was noted as a significant value for the SWIO, with international relevance.
- The limited spatial coverage of surveys was acknowledged, and future expeditions were encouraged to use platforms capable of accessing shallower habitats.

DATA INTEGRATION AND OBSERVING SYSTEMS

- The importance of integrating MEIOE findings with broader observing systems, such as the Indian Ocean Observing System (IndOOS-2), was highlighted.
- Maintaining Argo float density and considering fixed moorings and submarine cables for time series data were suggested as future objectives.

The session concluded with actionable recommendations for governments:

- Review and, if necessary, update mechanisms for utilizing the expedition data.
- Enhance the connectivity between regional organizations and initiatives and national policies.
- Lead technical reviews of knowledge on environmental threats and values.
- Prioritize research and monitoring efforts based on MEIO expedition input.
- Facilitate further expeditions and improve spatial coverage of surveys.
- Integrate findings with regional and international observing systems.

These actions aim to enhance the management and governance of the SWIO environment, address plastic pollution, and fill critical knowledge gaps, ensuring that policy and resource allocation are informed by robust scientific evidence.

2. “VISIBLE ISLANDS” GROUP

Tessa HEMPSON and Ranjeet BHAGOOLI reported on the parallel session devoted to the Coral Reefs component of the MEIO2022 Expedition.

The group focused on translating the latest coral-reef science from this component into actionable policy and management recommendations. Participants identified key gaps and regional priorities to enhance coral resilience and connectivity, emphasizing the importance of aligning policy with frameworks such as the BBNJ Agreement and the blue economy model.

The integrated findings and gaps identified by the group were presented and discussed.



CONNECTIVITY AND SOURCE REEFS

Connectivity across the SWIO is crucial for coral resilience, with Aldabra and Saint-Brandon recognized as key larval source reefs. However, the region remains under-explored, with major gaps in data on ecological corridors and limited understanding of east-west connectivity. The session highlighted the urgent need for future coordinated expeditions to address these gaps and called for rapid response mechanisms to climate-driven coral loss. Integrating connectivity science into marine spatial planning (MSP) was identified as a priority for effective management and policy development.

WORLD CORAL BANK AND GENETIC RESOURCES

The successful trialling of the World Coral Conservatory—soon to become the World Coral Bank—confirmed the potential for creating living repositories of coral species to safeguard coral genetic diversity, while eDNA sampling demonstrated the immense value of this technique for cryptic biodiversity monitoring. Despite these advances, significant gaps remain, including unsequenced regional coral species, limited regional capacity, restricting access to genetic material, and the absence of a regional DNA library. The session recommended establishing a harmonized permitting process and open data access to facilitate research and resilience-building. Creating a regional DNA library and sequencing uncharacterized coral species were also highlighted as essential steps for supporting necessary research to promote coral resilience and policy innovation. It was mentioned that the Global Coral Reef Monitoring Network (GCRMN) could potentially help in identifying relevant stakeholders and provide a reporting mechanism for results.

RESTORATION AND ASSISTED EVOLUTION

Restoration efforts in parts of the region are currently restricted to sexual reproduction, with fragmentation methods banned. There is a pressing need to scale up larvae production of resilient species and to develop standard metrics for assessing restoration success. Assisted evolution offers a proactive framework for these efforts by employing interventions, such as selective breeding for heat tolerance and the manipulation of coral-associated microbes, designed to accelerate the natural adaptation of reefs to warming oceans. The session emphasized the importance of increasing engagement with local NGOs and recognized that policymakers often underestimate the investment required for effective nature-based solutions (NbS). Embedding assisted-evolution and NbS approaches in national strategies, along with developing shared standards and financing mechanisms, were recommended to enhance restoration outcomes.

POLLUTION, PATHOGENS AND DISEASE

Pathogens detected in coral biofilms are not yet causing disease but may activate with thermal stress. The session identified poor understanding of microplastic sources and pollutant dispersal as a major gap, underscoring the need for standardized monitoring to better understand the links between pollution and reef health. Regional pollutant-source mapping and the integration of microplastic and pathogen surveillance into coral-health monitoring were recommended as policy priorities to safeguard reef ecosystems.

MESOPHOTIC AND DEEP-SEA ECOSYSTEMS

New insights into deepwater biodiversity reveal the importance of mesophotic and deep-sea habitats as refugia and for connectivity. However, taxonomist capacity and knowledge of species distribution and ecological connectivity are limited, both for the visible islands and the region as a whole. The session called for capacity building, strengthened regional expertise, better collaboration between research expeditions, consolidated protocols, and expanded protection and research within national frameworks and BBNJ implementation to ensure these ecosystems are effectively conserved and understood.

GOVERNANCE, COMMUNICATION AND ENGAGEMENT

Fragmented governance and complex permitting processes continue to hinder integrated management of coral reefs. Policymakers often lack understanding of coral ecology, and conservation is still viewed as a burden rather than an opportunity. The session advocated for professional storytelling to increase the visibility of regional collaborations and for active engagement of private and tourism sectors. Developing integrated governance frameworks, building coral-policy literacy, and strengthening international visibility were identified as key steps to improve management and stakeholder engagement.

Key priorities emerging from the discussion include protecting source and resilient reefs before restoration, conducting stakeholder mapping and creating a regional coordination mechanism for coral and deep-sea research, establishing a Western Indian Ocean (WIO) genetic reference database, integrating connectivity into MSP, harnessing remote tools for enforcement, expanding partnerships with civil society and the private sector, and promoting SWIO leadership in linking coral science, governance, and blue-economy policy.

A summary table (see [Appendix 8](#)) outlines the relevance to policy and governance, key gaps, and recommendations for major focus areas such as the World Coral Bank, Coral Connectivity, Microplastics & Pathogens, Restoration & Nature-based Solutions, and Mesophotic/Deep-Sea Ecosystems & BBNJ.

3. "INVISIBLE ISLAND" GROUP

Alex ROGERS and Dominique BENZAKEN reported on the parallel session devoted to the Saya de Malha component of the MEIO2022 Expedition.

First, the group noted the uniqueness of the Saya de Malha Bank and the major challenges that it faces:

- **Geographical and Ecological Significance:** The Saya de Malha Bank is a large, submerged bank (41,000 km²), hosting one of the world's largest seagrass beds and a diversity of mostly unexplored habitats. It plays a crucial role in ocean currents, upwelling, and connectivity, and is home to megafauna (partly depleted) and potentially high levels of endemism (~20%). The area is governed under a unique regime involving an extended continental shelf and a Joint Management Area (JMA) between Mauritius and Seychelles.
- **Socioeconomic and Conservation Value:** The Bank holds significant socioeconomic importance, including potential oil and gas exploration, fisheries and carbon sequestration, alongside its high conservation value. The session highlighted the need for policies that address all threats (including shipping, identified as a previously missing threat) and improve sustainability and conservation. The discussion emphasized the importance of prioritizing recommendations for Mauritius and Seychelles, identifying knowledge gaps, and engaging stakeholders such as UN implementing organizations, regional bodies, flag/coastal States, and civil society.
- **Governance Complexity:** Managing the extended continental shelf is challenged by its remoteness and overlapping jurisdictions (seafloor/resources vs. water column/living resources). Although the JMA legal framework is established, further harmonization and strategic planning (including Marine Spatial Planning for 2023-2027) are needed.

The recommendations from the group were presented and discussed under four themes.

DATA AND KNOWLEDGE PRIORITIES

- **Marine Spatial Planning (MSP):** Data gathering for MSP is ongoing, with Phase 1 completed and Phase 2 pending data availability. Recommendations include multibeam mapping of the entire Bank and ultimately of the whole JMA, habitat mapping, mapping and valuation of living and non-living resources, through the use of autonomous and low-cost survey technologies. Establishing a data platform for JMA management is crucial for knowledge-based decision-making, emphasizing trust, transparency, and alignment of policies and sharing of expertise between Mauritius and Seychelles.
- **Existing Data:** the results of past expeditions produced physical, biogeochemical and remote sensing datasets and models. Improved access to existing data and capacity building in technology and mapping tools are needed.



MARITIME SECURITY AND SURVEILLANCE

- **Jurisdictional Issues:** Maritime security concerns (IUU fishing, overlapping jurisdictions) require a study on legal frameworks including Port State Measures and RFMO provisions, especially in light of the new BBNJ Agreement. Strategies to unite stakeholders, distribute responsibilities at the regional level, value resources and costs and develop a creative investment plan, considering public and private sources, are recommended.
- **Monitoring, Control, and Surveillance (MCS):** Strengthening regional approaches (e.g. Indian Naval Ocean Symposium, IORA, WIOMSA, IOC/COI, etc.), leveraging satellite/aerial remote sensing, and investigating the potential of autonomous platforms are key recommendations for effective MCS.

SPATIAL CONSERVATION MEASURES

- Investigating spatial conservation measures (e.g., MPAs, zoning, BBNJ ABMT approaches) and resolving jurisdictional overlaps are essential for protecting the bank's unique biodiversity.

BLUE FINANCE VALUATION

- Recommendations to fully realize all possible blue economy income streams include developing blue-carbon financing structure for seagrass meadows, valuing biodiversity conservation and marine genetic resources, and training in accounting and verification of blue carbon and biodiversity credits. It should be noted that the dominant seagrass, *Thalassodendron ciliatum*, is unusual in that it attaches to hard substrata rather than living in sediments. Carbon sequestration for this species on the Saya de Malha Bank is therefore not understood and requires study of how the detached seagrass leaf's is transported across the Saya de Malha Bank and sequestered into sedimented areas as well as the deep sea. It was suggested to consider long-term user rights approach and the lessons learned from the management arrangements that have been in place in Saint-Brandon for a long time.

The session concluded with clear priorities for Mauritian and Seychelles governments: data acquisition for MSP and resource valuation, investigation of institutional arrangements for maritime security/MCS, and exploration of conservation management models. The overarching needs include comprehensive data, security, and sustainable use measures.

SESSION 4 - RECOMMENDATIONS FOR IMPROVING THE GOVERNANCE AND THE MANAGEMENT OF THE STUDIED AREAS

The objective of this session was to draft policy-oriented recommendations taking stock of the previous sessions information and conclusions.

This session was structured in three parallel sessions gathering participants for discussing the relevance of the expedition scientific results according to three areas: the whole Southwest Indian Ocean, Seychelles and Mauritius, and the JMA.

The following texts are based on the reports presented in plenary by the facilitators and rapporteurs of the parallel session, enriched by the notes taken by the rapporteurs' team.

Special attention was given to presenting policy priorities and needs, knowledge gaps, targeted audience and potential funding mechanisms for each recommendation.

1. SCIENCE-TO-POLICY RECOMMENDATIONS FOR THE SWIO

Ronán LONG and Suriya NARAYANAN reported on the parallel session devoted to developing recommendations related to the regional component of the Expedition.

The session involved a diverse group of participants from regional organizations, governments, universities, research institutions, and NGOs, focusing on policy priorities, knowledge gaps, issues, responsible entities, and funding mechanisms.

The group noted that the SWIO is a global hotspot for marine biodiversity and endemism, driven by complex ocean currents and unique topographic features such as seamounts and hydrothermal vents. The region hosts one of the world's most extensive coral reef systems, vital for coastal protection, fisheries productivity, and carbon sequestration, but faces severe threats from climate-induced mass coral bleaching. It serves as a migratory corridor and feeding ground for threatened marine megafauna and contains mangrove forests and seagrass beds that play a significant role in climate change mitigation.

The deliberations centred on the following issues:

- Best-available science, identified as a cross-cutting theme
- Plastic pollution (micro and macro)
- Fisheries and living resources
- Ecosystem and climate resilience
- Marine Genetic Resources (MGR) and Digital Sequence Information (DSI)
- Shipping
- Seabed mining
- Civil society and indigenous people
- Jurisdictional mandates
- Political will and public awareness

The following recommendations emerged from the deliberations:



1. BEST AVAILABLE SCIENCE

- Address knowledge gaps in real-time monitoring, benthic resources, ecosystem science, and ecological connectivity.
- Tackle issues of data scarcity, management systems, and capacity building.
- Engage international organizations (IOC-UNESCO, WMO, WIOMSA, etc.), universities, citizen science, and industry.
- Mobilize funding from GEF, BBNJ Art 52, and private foundations.
 - › **Policy Relevance:** Supports evidence-based decision-making for marine governance and management.
 - › **Gaps:** Real-time monitoring, benthic resources, anthropogenic impacts, ecosystem science, ecological connectivity, lack of data, and data management systems.
 - › **Needs:** Capacity building, technology transfer, improved data management (Clearing House Mechanism).
 - › **Target Audience:** IOC-UNESCO, WMO, WIOMSA, IOTC, COI-IOC, IORA, SIOFA, Nairobi Convention, private actors, universities, research institutions, citizen-science, philanthropy, industry (fishing, cable, seabed mining).
 - › **Potential Funders:** GEF, BBNJ Art 52, private foundations.

2. PLASTIC POLLUTION

- Focus on exposure to biota, ecosystem impacts, and cumulative effects.
- Prioritize food safety, human and marine life health, waste management, and capacity building.
- Involve States, regional bodies, industries, and support multilateral treaty development (e.g., Plastic Treaty).
 - › **Policy Relevance:** Addresses marine pollution, food safety, and ecosystem health.
 - › **Gaps:** Exposure to biota, ecosystem impact, real-time monitoring, cumulative impacts.
 - › **Needs:** Capacity building, technology transfer, waste management, health and safety measures.
 - › **Target Audience:** States within and beyond the region, regional bodies, sectoral bodies, industries, multilateral treaty development (Plastic Treaty).
 - › **Potential Funders:** (Not explicitly listed; typically, international organizations, treaty mechanisms, industry contributions).

3. FISHERIES AND LIVING RESOURCES

- Fill gaps in understanding of IUU fishing, bycatch, new fisheries, and abandoned gear.
- Promote sustainability and address catch trans-shipment.
- Assign responsibilities to port/flag States and RFMOs.
- Utilize FAO and Port State Measures Agreement for capacity building.
 - › **Policy Relevance:** Ensures sustainable fisheries, combats IUU fishing, and supports biodiversity.
 - › **Gaps:** IUU fishing, bycatch (especially tuna), new/exploratory fisheries, abandoned/lost/discarded gear, cumulative impacts.
 - › **Needs:** Sustainability measures, trans-shipment controls, capacity building.
 - › **Target Audience:** Port and flag States, RFMOs.
 - › **Potential Funders:** FAO (capacity building), Port State Measures Agreement.

4. ECOSYSTEM AND CLIMATE RESILIENCE

- Study climate impacts, extreme events, and cumulative stressors.
- Enhance primary productivity, biodiversity conservation, and nature-based solutions.
- Engage coastal States, regional bodies, and research institutes.
- Access climate adaptation finance via UNFCCC.
 - › **Policy Relevance:** Promotes climate adaptation, biodiversity conservation, and nature-based solutions.
 - › **Gaps:** Climate impacts, extreme weather events, cumulative impacts.
 - › **Needs:** Capacity building, technology transfer, conservation, sustainable use, nature-based solutions.
 - › **Target Audience:** Coastal States, regional bodies, sectoral bodies, research institutes.
 - › **Potential Funders:** Climate Adaptation Finance (UNFCCC).

5. MARINE GENETIC RESOURCES (MGR) & DIGITAL SEQUENCE INFORMATION (DSI)

- Bridge gaps in scientific knowledge, expertise, and data.
- Ensure access, benefit sharing, and technical cooperation.
- Involve WIOMSA, universities, States, and private companies.
- Leverage BBNJ Art 52 for funding.
 - › **Policy Relevance:** Facilitates access and benefit sharing, supports scientific research and policy development.
 - › **Gaps:** Scientific knowledge, expertise, data.
 - › **Needs:** Capacity building, technology transfer, legislative/policy measures, technical cooperation, intellectual property rights.
 - › **Target Audience:** WIOMSA, universities, research institutions, States, private companies.
 - › **Potential Funders:** BBNJ Art 52.

6. SHIPPING

- Monitor traffic volume, acoustic pollution, and biodiversity impacts.
- Address vessel source pollution, lost containers, and IMO implementation.
- Engage IMO, flag/port/coastal States, and industry.
- Seek support from IMO and private philanthropy (The Nippon Foundation).
 - › **Policy Relevance:** Regulates vessel-source pollution, including acoustic pollution, and biodiversity impacts.
 - › **Gaps:** Traffic volume, acoustic pollution, impact on biodiversity (including invasive species).
 - › **Needs:** Pollution control, IMO implementation, monitoring, compliance.
 - › **Target Audience:** IMO, flag States, port States, coastal States, industry.
 - › **Potential Funders:** IMO, private philanthropy (The Nippon Foundation).



7. SEABED MINING

- Assess environmental impacts and resource inventories.
- Implement ISA Mining Code, regional strategies, and compliance monitoring.
- Assign roles to ISA, industry, and coastal States.
- Fund via ISA and industry.
 - › **Policy Relevance:** Ensures environmental management and compliance in seabed mining activities.
 - › **Gaps:** Environmental impacts, resource inventory, cumulative impacts.
 - › **Needs:** Strategic environmental assessment, monitoring, compliance, regional/national regulations.
 - › **Target Audience:** ISA, industry, coastal States.
 - › **Potential Funders:** ISA, industry.

8. CIVIL SOCIETY AND INDIGENOUS PEOPLE

- Map actors and integrate indigenous/local knowledge.
- Build trust and communication.
- Coastal States are key actors.
 - › **Policy Relevance:** Integrates local and indigenous knowledge, builds trust, and enhances communication.
 - › **Gaps:** Mapping of actors, indigenous/local knowledge.
 - › **Needs:** Capacity building, improved communication.
 - › **Target Audience:** Coastal States.
 - › **Potential Funders:** (Not explicitly listed; typically, government, NGOs, philanthropy).

9. JURISDICTIONAL MANDATES

- Clarify definitions (e.g., sedentary species).
- Strengthen governance and management measures.
- Coastal States and States parties to existing institutions, frameworks, and bodies (IFBs) are responsible.
 - › **Policy Relevance:** Clarifies governance and management measures, especially for sedentary species.
 - › **Gaps:** Definitions (e.g., coastal State's sedentary species).
 - › **Needs:** Governance and management measures.
 - › **Target Audience:** Coastal States, States parties to IFBs.
 - › **Potential Funders:** (Not explicitly listed; typically, government, international bodies).

10. POLITICAL WILL AND PUBLIC AWARENESS

- Highlight ecological values and benefits.
- Promote media, communications, and storytelling.
- Engage coastal States, research institutes, philanthropy, and high ambition coalitions.
 - › **Policy Relevance:** Enhances ecological values, benefits, and public engagement.
 - › **Gaps:** Ecological values and benefits.
 - › **Needs:** Media, communications, storytelling.
 - › **Target Audience:** Coastal States, research institutes, philanthropy, high ambition coalitions.
 - › **Potential Funders:** (Not explicitly listed; typically, government, philanthropy, coalitions).

The review of the proposed recommendations that followed the presentation highlighted the following considerations:

Increasing the science has to be a global priority. Real time monitoring was identified as a priority in the region and should involve governments and national agencies to strengthen, connect and build on existing initiatives at the national and regional levels (e.g. IOCAFRICA, IOCINDIO, IndOOS, IIOE-2). It requires to address data collection, digestion and communication. Data transparency is a key issue. The restrictions on sharing fisheries data resulting from Conservation and Management Measures (CMMs) were acknowledged. The lack of bathymetric data for the region in the GEBCO database was highlighted.

In relation to plastic pollution, it was noted that the threat from seafood pollution had to be considered in relation with the threats from other sources, such as the presence of plastic pollution in the drinking water or the atmosphere.

Monitoring, control and surveillance (MCS) was recognized as the number one issue in terms of fisheries and living resources. It was noted that the fishing communities from Mauritius and Seychelles active in the Saya de Malha area could contribute to and should be involved in MCS.

Monitoring and early warning systems were identified as a major issue in relation to ecosystems and climate resilience. It was noted that real time observations are critical, including in remote areas. Capacity building in resilience science, adaptation and mitigation measures is essential, notably to develop and implement nature-based solutions. Vulnerability mapping of marine species needs to be developed.

It was agreed that MGR funding through BBNJ Article 52 should focus on SIDS.

Shipping issues were considered well taken care of by existing arrangements and projects.

In relation with seabed mining, the importance of a strategic environment assessment was stressed to address transboundary effects (e.g. from EEZ to ABNJ and vice-versa).

2. SCIENCE-TO-POLICY RECOMMENDATIONS FOR SEYCHELLES & MAURITIUS

Dominique BENZAKEN and Tessa HEMPSON reported on the parallel session devoted to developing recommendations for Seychelles and Mauritius related to the Visible Islands component of the MEIO2022 Expedition.

Building on previous sessions, the group adopted a structured table approach to systematically address key questions and gaps, focusing on ecosystem connectivity, coral conservation, pollutant threats, deep-sea research, and cross-cutting governance issues.

The following recommendations emerged from the deliberations:

1. ECOSYSTEM CONNECTIVITY

Recommendation: Integrate ecological connectivity into marine spatial planning (MSP), protect source reefs, and foster regional collaboration and funding.

- › **Policy Relevance:** Supports recognition of transboundary connectivity under international frameworks (BBNJ, CBD).
- › **Gaps:** Data deficiencies in mapping corridors (e.g., larval connectivity), need for improved understanding of east-west linkages, and rapid climate-driven ecosystem loss.
- › **Needs:** Expertise (taxonomy, GIS), finance, technology transfer, and data access.
- › **Target Audience:** Governments, regional organizations (WIOMSA, IOC, RFMO, Nairobi Convention).
- › **Potential Funders:** World Bank, UNDP, Global Fund for Coral Reefs, EU, biodiversity credits.



2. REGIONAL COORDINATION / COLLABORATION

Recommendation: Establish a regional mechanism for research continuity and cumulative knowledge-building.

- › **Policy Relevance:** Harness external opportunities to address knowledge gaps and support implementation.
- › **Gaps:** Absence of a platform coordinating expeditions and research.
- › **Needs:** Integrated coordination entity within existing organizations.
- › **Target Audience:** Governments, regional organizations, international partners. Ideally identify an existing organisation/entity with the capacity for supporting this coordination, rather than creating a new entity.

3. CORAL DIVERSITY & CONNECTIVITY, & THE WORLD CORAL BANK (CONSERVATORY)

Recommendation: Support a regional eDNA database and coral repository node.

- › **Policy Relevance:** Validates biobanking protocols and international coordination.
- › **Gaps:** Unsequenced species, limited genetic material access, lack of regional DNA library, insufficient resilience research.
- › **Needs:** Permit facilitation and streamlining approvals, open data access, hosting institution identification.
- › **Target Audience:** Governments, scientific institutions, aquariums, NGOs.

4. MICROPLASTICS & PATHOGENS

Recommendation: Conduct regional pollutant mapping and integrate findings into ecosystem-health monitoring.

- › **Policy Relevance:** Addresses emerging threats to reef health.
- › **Gaps:** Limited data on sources/distribution, need for standardized monitoring and long timeseries.
- › **Needs:** Access to environmental impact assessments (EIA) and industry data.
- › **Target Audience:** Governments, public health authorities, plastic pollution prevention NGOs...

5. MESOPHOTIC / DEEP-SEA ECOSYSTEMS

Recommendation: Expand deep-sea ecosystem surveys and develop national management plans.

- › **Policy Relevance:** Informs protection strategies.
- › **Gaps:** Insufficient research, data, expertise, and integration into management plans.
- › **Needs:** Expedition coordination, capacity development.
- › **Target Audience:** Governments.

CROSS-CUTTING THEMES

- **Governance, Communication, Engagement:** Develop integrated governance frameworks, streamline research permitting, build ecosystem - literacy among policy makers, and employ professional communicators for science-policy messaging. Increase visibility of Seychelles-Mauritius collaboration through international events (Our Ocean Kenya 2026, UN Ocean Decade 2026+, ICRS 2026).
- **Means of Implementation:** Engage private sector, civil society, and research institutions in regenerative blue-economy models. Strengthen international visibility and shift conservation from a perceived burden to an investment opportunity.
- **Climate Resilience & Nature-Based Solutions (NbS):** Develop national standards and indicators for restoration, ensure community participation, and align NbS with blue-economy frameworks. Address gaps in success metrics, local participation, and policy communication.

The review of the proposed recommendations that followed the presentation highlighted the following considerations:

- It was noted that ecosystem connectivity issues need to pull together various initiatives already underway through enhanced regional collaboration and should address not only shallow-water coral reefs but also mesophotic systems.
- No satisfactory solution has yet been identified for locating a regional World Coral Bank node which is sustainable in the long term.
- It was agreed that permitting processes for collecting samples were well established in Mauritius and Seychelles.
- It was also agreed that addressing governance, funding and communication would benefit from more engagement with the private sector as it was recognized as a key stakeholder in developing regenerative blue economy initiative.
- Although nature-based solutions (NbS) were preferable, they were not always adapted to address all climate and resilience issues at different timescales. Engineering and hybrid solutions should also be considered.
- Finally, financing was also acknowledged as a key factor and the need for countries to identify and mobilise funding from a range of sources and mechanisms. The action initiated by Mauritius and Seychelles to set up a dialogue platform to assist in this endeavour, to be brought to the next Our Ocean Conference in Kenya, was noted.

3. SCIENCE-TO-POLICY RECOMMENDATIONS FOR THE SAYA DE MALHA BANK AND THE JOINT MANAGEMENT AREA (JMA).

Barkha MOSSAË reported on the parallel session devoted to developing recommendations related to the Saya de Malha component of the Expedition.

Six key recommendation packages for the governance and management of the Saya de Malha Bank and the JMA emerged from the deliberations:

1. **Data for Marine Spatial Planning (MSP):** Prioritize foundational mapping, habitat/resource mapping, and integrated valuation of living and non-living resources. Emphasize pragmatic, opportunistic data strategies using autonomous and low-cost technologies, and advocate for protocols ensuring data accessibility and sharing.
2. **Maritime Security, Monitoring, Control, and Surveillance (MCS):** Strengthen regional approaches to maritime security, clarify jurisdictional mandates, and integrate emerging surveillance technologies (AI, SAR, autonomous platforms). Address operational gaps such as limited patrol coverage and “going dark” vessel behaviour and enhance observer presence.
3. **Conservation Measures, Environment, and Sustainable Management:** Adopt a zoned, science-based approach to conservation, leveraging MSP as a baseline. Investigate models for spatial conservation, apply precautionary bans (e.g. bottom trawling), and use best practices from seamount protection.
4. **Blue Finance Valuation:** Unlock blue economy financing through seagrass-related blue carbon, biodiversity credits, and nature-positive investment mechanisms. Focus on scientific baselines, robust verification, and policy frameworks.
5. **Governance Frameworks:** Clarify jurisdictional approaches, ensure transparency, and align with regional/international frameworks. Position Saya de Malha as a pioneering “living lab” for science and governance.
6. **Outreach, Advocacy, and Investment:** Develop clear, non-prescriptive narratives for policy advocacy, emphasizing iterative science-policy feedback and gradual implementation.

The group discussed the policy relevance of each recommendation:

- **MSP Data:** Foundational for effective management, zoning, conservation, and blue finance. Data-driven decisions enable evidence-based policy and sustainable resource use.



- **Maritime Security/MCS:** Regional coordination and legal clarity are essential for enforcing conservation and combating IUU fishing. Integration of new technologies supports compliance and operational effectiveness.
- **Conservation Measures:** Science-based zoning and precautionary bans align with international best practices and legal mandates, supporting biodiversity and sustainable use.
- **Blue Finance:** Scientific credibility and robust policy frameworks are prerequisites for attracting investment and operationalizing blue carbon and biodiversity credits.
- **Governance & Outreach:** Transparent, adaptive governance and effective advocacy are vital for policy uptake, stakeholder engagement, and long-term success.

The group identified the following gaps, needs, target audience and potential funders:

GAPS

- **Data Gaps:** Incomplete mapping of habitats, resources, and plateau edges; scattered and inaccessible datasets; need for ground-truthing and consolidation.
- **Jurisdictional Gaps:** Overlapping mandates, unclear water-column vs seabed governance, and legal ambiguities in enforcement and AI-derived evidence.
- **Capacity Gaps:** Limited patrol and observer coverage, insufficient regional capacity in technology, mapping, and legal interpretation.
- **Scientific Gaps:** Need for more biodiversity and habitat data, valuation methodologies, and verification protocols for blue finance.

NEEDS

- **Data Acquisition & Sharing:** Improved access, consolidation, and protocols for data sharing among stakeholders.
- **Capacity Building:** Training in technology, mapping, surveillance, legal standards, and resource economics.
- **Regional Coordination:** Strengthened frameworks for maritime security, conservation, and governance.
- **Scientific Research:** Continued science-to-policy engagement, strategic research planning, and iterative updates.
- **Policy Development:** Clear, adaptive policies for blue carbon, biodiversity credits, and conservation zoning.

TARGET AUDIENCE

- **National Governments:** Mauritius and Seychelles, as primary stewards of the JMA.
- **Regional Bodies:** Commissions and organizations involved in maritime governance and conservation.
- **International Stakeholders:** Entities engaged in BBNJ, SIOFA, IOTC, and global ocean governance.
- **Scientific Community:** Researchers, universities, and technical experts in marine science, policy, and economics.
- **Policy Makers & Advocates:** Those responsible for translating scientific recommendations into actionable policy.

POTENTIAL FUNDERS

- **International Donors:** Organizations supporting blue economy, biodiversity, and climate initiatives (e.g. GEF, World Bank, UN agencies).
- **Philanthropic Foundations:** Funders interested in ocean conservation, innovation, and capacity building.
- **Private Sector:** Investors in blue carbon, biodiversity credits, and nature-positive finance.
- **Regional Governments:** Mauritius, Seychelles, and regional commissions.

Finally, a streamlined set of “final” recommendations was presented for further consideration by the plenary:

1. Clarify jurisdictional approaches early, ensuring full transparency and coherence with existing regional and international frameworks.
2. Use the current lull in bottom trawling as a strategic window to consider precautionary measures, including prohibition.
3. Strengthen capacity building under the BBNJ Agreement, including through regional platforms.
4. Position Saya de Malha as a proof-of-concept and pioneering initiative – a globally unique project with high scientific and governance value.
5. Highlight its role as a living laboratory for science, enabling long-term research and innovation.
6. Reinforce the importance of the science-law interface: recommendations should be transmitted to policymakers, with feedback loops returning to scientists to ensure an iterative, evidence-based process.
7. Develop a clear, consistent narrative to support gradual policy-level uptake and implementation.
8. Ensure recommendations remain non-prescriptive, allowing for flexibility, national ownership, and adaptive management.

The discussion that followed highlighted the following considerations:

It was noted that the issue related to different jurisdictional regimes mentioned in the first recommendation has more to do with how to deal with them than with clarifying them. The question is whether the JMA should become the first example in terms of legal setup, in relation with the implementation of the BBNJ Agreement. This relates to recommendation n° 4. There is avenue such as the Bezos Earth Fund to support such a project, but the initiative must come from both Mauritius and Seychelles. It was also noted, in relation with recommendation n° 6, that the dialogue between policy, law and science should start from the beginning of a project, in a collaborative, co-design and iterative approach.

Recommendation n° 2 on bottom trawling was welcome by Mauritius and Seychelles in relation with their previous unsuccessful submission to SIOFA. It was noted that the impact of bottom trawling on blue carbon processes associated with seagrass fields needs to be considered in relation with regenerative blue economy.

Finally, it was noted that the approach of Monaco Explorations and the policy of Monaco have been fully in line with recommendations n° 7 and 8.



SESSION 5 - PRESENTATION OF RECOMMENDATIONS

The following set of recommendations, drafted by Gilles BESSERO and François SIMARD based on the outcomes of the previous session, was presented by Ashley DIAS, Gilles BESSERO and Dass BISSESSUR. The recommendations address policy relevance, gaps, needs and target audience.

KEY THEMES & ENRICHED RECOMMENDATIONS

1. ECOSYSTEM CONNECTIVITY

Recommendation: Integrate ecosystem connectivity into marine spatial planning (MSP), protect source reefs, and foster regional collaboration and funding. This supports recognition of transboundary connectivity under international frameworks such as BBNJ and CBD.

- › **Policy Relevance:** Essential for evidence-based management and alignment with international commitments.
- › **Gaps:** Data deficiencies in mapping corridors (e.g., larval connectivity), need for improved understanding of east-west linkages, and rapid climate-driven ecosystem loss.
- › **Needs:** Technical expertise (taxonomy, GIS, molecular biology), finance, technology transfer, and data access.
- › **Target Audience:** Governments, regional organizations (WIOMSA, IOC, RFMO, Nairobi Convention).

2. REGIONAL COORDINATION

Recommendation: Establish a regional coordination mechanism for research continuity and cumulative knowledge-building.

- › **Policy Relevance:** Essential for evidence-based management and alignment with international commitments.
- › **Gaps:** Absence of a platform coordinating expeditions and research.
- › **Needs:** Integrated coordination entity within existing organizations.
- › **Target Audience:** Governments, regional organizations, international partners.

3. WORLD CORAL BANK (CONSERVATORY)

Recommendation: Support the establishment of a regional eDNA database/reference library and coral repository node.

- › **Policy Relevance:** Validates biobanking protocols and international coordination.
- › **Gaps:** unsequenced Genome sequencing or at least DNA barcoding of insufficient DNA sequencing of coral species is required given the limited access to genetic materials and lack of regional DNA library, insufficient resilience research.
- › **Needs:** Permit facilitation, open data access, hosting institution identification.
- › **Target Audience:** Governments, scientific institutions, aquariums, NGOs.

4. MICROPLASTICS & PATHOGENS

Recommendation: Conduct regional pollutant mapping and integrate findings into ecosystem-health monitoring.

- › **Policy Relevance:** Addresses emerging threats to reef health and human health.
- › **Gaps:** Limited data on sources/distribution, need for standardized monitoring.
- › **Needs:** Access to EIA and industry data.
- › **Target Audience:** Governments, public health authorities.

5. MESOPHOTIC / DEEP-SEA ECOSYSTEMS

Recommendation: Expand deep-sea ecosystem surveys and develop national management plans.

- › **Policy Relevance:** Informs spatial conservation strategies.
- › **Gaps:** Insufficient research, data, expertise, and integration into management plans.
- › **Needs:** Expedition coordination, capacity development.
- › **Target Audience:** Governments, research institutions, philanthropies.

6. MONITORING AND WARNING SYSTEMS

Recommendation: Contribute to the development of real-time monitoring and warning systems through capacity building.

- › **Policy Relevance:** Enhances preparedness and response to environmental threats and disasters.
- › **Gaps:** Limited real-time data, lack of integrated warning systems.
- › **Needs:** Technology transfer, training, and regional cooperation.
- › **Target Audience:** Governments, research institutions, disaster management agencies.

7. MONITORING, CONTROL, AND SURVEILLANCE (MCS)

Recommendation: Assess existing MCS systems and explore new technologies for collaborative enhancement.

- › **Policy Relevance:** Strengthens enforcement of marine protection, combats IUU fishing, and supports compliance.
- › **Gaps:** Outdated systems, limited patrol coverage, operational gaps.
- › **Needs:** Integration of new technologies (AI, SAR, autonomous platforms), capacity building.
- › **Target Audience:** Governments, regional bodies, enforcement agencies, NGO involved in satellite surveillance (e.g. Global Fishing Watch).

8. BLUE ECONOMY

Recommendation: Engage with private sector, civil society, and research institutions to develop regenerative blue-economy models. Investigate Blue Carbon potential of Saya de Malha Bank for inclusion in strategy.

- › **Policy Relevance:** Promotes sustainable economic growth, climate mitigation, and investment in ocean health.
- › **Gaps:** Limited engagement of stakeholders, insufficient blue carbon valuation, patchy policy frameworks.
- › **Needs:** Stakeholder engagement, scientific baselines, robust verification, policy development.
- › **Target Audience:** Private sector, civil society, governments, research institutions.



9. GOVERNANCE AND ENGAGEMENT

Recommendation: Strengthen capacity building efforts on the BBNJ Agreement and encourage Southwest Indian Ocean States to advance the ratification and implementation of relevant international agreements by:

- › **Policy Relevance:** Aligns regional governance with international standards and strengthens legal frameworks.
- › **Gaps:** Fragmented governance, complex permitting, lack of policy literacy.
- › **Needs:** Training, streamlined procedures, policy communication.
- › **Target Audience:** Governments, policymakers, legal experts.

10. COMMUNICATION AND ENGAGEMENT

Recommendation: Build ecosystem-policy literacy and science-policy messaging for civil society.

- › **Policy Relevance:** Increases public awareness, supports policy uptake, and fosters stakeholder engagement.
- › **Gaps:** Low ecosystem-policy understanding among policymakers and the public.
- › **Needs:** Professional communicators, outreach programs, educational materials.
- › **Target Audience:** Civil society, NGOs, policymakers.

11. CLIMATE RESILIENCE

Recommendation: Prioritize Nature-based Solutions within blue-economy frameworks.

- › **Policy Relevance:** Supports climate adaptation, biodiversity conservation, and sustainable development.
- › **Gaps:** Lack of national standards, insufficient community participation, gaps in success metrics.
- › **Needs:** Development of standards and indicators, community engagement, policy alignment.
- › **Target Audience:** Governments, local communities, research institutions.

12. JMA (JOINT MANAGEMENT AREA)

Recommendation: Investigate management options for coherence between water column and continental shelf regimes. Use the lull in bottom trawling to promote precautionary measures. Highlight JMA as a pioneering initiative and living laboratory for science and governance.

- › **Policy Relevance:** Demonstrates innovative governance and science-policy integration for shared marine areas.
- › **Gaps:** Unclear management regimes, legal ambiguities, limited precautionary measures.
- › **Needs:** Policy development, legal clarification, stakeholder engagement.
- › **Target Audience:** National governments (Mauritius, Seychelles), regional bodies, international partners.

13. CROSS-CUTTING THEMES

Science-Law-Policy Interface: Strengthen the interface with feedback loops for evidence-based processes.

Data Transparency: Ensure data transparency and sharing through collaborative mechanisms.

- › **Policy Relevance:** Enables adaptive management, transparency, and effective policy implementation.
- › **Gaps:** Weak feedback mechanisms, limited data sharing.
- › **Needs:** Collaborative platforms, open data protocols, regular policy reviews.
- › **Target Audience:** Governments, research institutions, NGOs, international organizations.

Funding aspects were not addressed in relation with each recommendation, due to lack of time for the drafting group. As discussed during the workshop, a diverse range of potential funders and funding mechanisms can support the implementation of the proposed recommendations. International organizations such as the World Bank, UNDP, and the Global Fund for Coral Reefs are identified as key sources for large-scale financial support, particularly for projects related to ecosystem connectivity, coral conservation, and blue economy initiatives. The European Union (EU) and other multilateral donors also play a significant role in financing regional coordination, research platforms, and capacity-building efforts. Innovative funding streams, including biodiversity credits and blue carbon finance, offer opportunities to unlock private sector investment and nature-positive finance, especially for initiatives like the Saya de Malha Bank and regenerative blue economy models. Philanthropic foundations and international agencies are well-positioned to fund research, technology transfer, and capacity development, while national and regional governments are essential for sustaining long-term governance and management activities. For specific themes such as microplastics, pathogens, and public health, targeted funding from industry and public health authorities may be required. Overall, a blended approach leveraging international, regional, private, and philanthropic resources is recommended to ensure the effective and sustainable implementation of these science-to-policy recommendations.

CLOSING ADDRESSES

Carl Gustaf Lundin thanked all the participants for an excellent workshop and highlighted some of the main accomplishments of the meeting. He complimented Monaco Explorations for their excellent organisation of the meeting. Chrissant BARBE, Xavier PRACHE, and Rezah BADAL gave closing remarks. Their statements are provided in [Appendix 5](#).

CHRISSANT BARBE

These closing remarks reflect on the outcomes of the threeday SciencetoPolicy workshop focused on the Mascarene Plateau in the Western Indian Ocean. The workshop explored the ecological uniqueness, economic potential, and governance challenges of the Plateau, emphasizing the critical role of scientific evidence in informing policy decisions. Through expert presentations and collaborative discussions, participants developed key recommendations to strengthen sciencepolicy integration, promote evidencebased ocean governance, and support sustainable development. The workshop highlighted the value of partnerships between scientists and policymakers and reaffirmed a shared commitment to translating knowledge into concrete actions for ocean sustainability.

XAVIER PRACHE

The closing speech reflects the richness and complexity of the Science to Policy Workshop, highlighting the value of collective intelligence and crosssector collaboration in addressing challenges in the Indian Ocean. It emphasizes how individual expertise, when shared, becomes a powerful driver of change, embodying a true “crew spirit.” The workshop has successfully transformed scientific results and outreach efforts into concrete policyrelevant recommendations, now destined for partner States. While acknowledging the work still ahead, the speech concludes with a hopeful message, framing utopia not as an illusion, but as a goal achievable through collective forward action.

REZAH BADAL

The Indian Ocean Monaco Explorations “Science to Policy” Workshop highlights the region’s urgent need for stronger science-policy integration, sustained ocean observation, and coordinated research capacity. Emphasis is placed on the ecological importance and vulnerability of deepsea ecosystems, the necessity of open data systems, and the central role of partnerships in addressing shared challenges. For small island developing States, the workshop reinforces the value of evidencebased marine governance and responsible ocean exploration. The remarks conclude with commitments to rigorous science, actionable policy, and regional solidarity, recognising the ocean as foundational to climate, economies, and future generations.

Rezah BADAL officially closed the workshop



ACKNOWLEDGEMENTS

Monaco Explorations would like to thank all those who made the Science to Policy Workshop possible, attended and contributed to the recommendations.



Participants at the Science to Policy Workshop in Port Louis, Mauritius © Government Information Service

APPENDICES

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- **Appendix 2:**
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- **Appendix 8:**
Regional Priorities and Opportunities



APPENDIX 1

LIST OF ACRONYMS

ABMT	Area-Based Management Tools
ABNJ	Areas Beyond National Jurisdiction
ATBA	Area to be avoided
AU	African Union
BBNJ	Biodiversity Beyond National Jurisdiction
CBD	Convention on Biological Diversity
CMM	Conservation and Management Measures
COI-IOC	Commission de l'océan Indien - Indian Ocean Commission
COMESA	Common Market for Eastern and Southern Africa
COP	Conference of the parties
CSMZAE	Continental Shelf, Maritime Zones Administration and Exploration
CTD	Conductivity, Temperature, Depth
DIDEM	Dialogue science-decision makers for the integrated management of the coastal and marine environment
DNA	Deoxyribonucleic acid
DSI	Digital Sequence Information
EAC	East African Community
ECS	Extended Continental Shelf
EDB	Economic Development Board Mauritius
EEZ	Exclusive Economic Zone
EIA	Environmental impact assessments
GCRMN	Global Coral Reef Monitoring Network
GEBCO	General Bathymetric Chart of the Oceans
GECOS	Group for Scientific Study and Cooperation
GEF	Global Environment Facility
GOP	Global Ocean Programme
IFB	Institutions, Frameworks, and Bodies
IFREMER	French Research Institute for Exploitation of the Sea
IIOE	International Indian Ocean Expedition
IMO	International Maritime Organization
INDOOS	Indian Ocean Observing System
IOC	Intergovernmental Oceanographic Commission
IOCAFRIKA	IOC Sub Commission for Africa and the Adjacent Island States
IOCINDIO	IOC Sub Commission for the Central Indian Ocean

IORA	Indian Ocean Rim Association
IOTC	Indian Ocean Tuna Commission
IRD	French National Research Institute for Sustainable Development
ISA	International Seabed Authority
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported and Unregulated fishing
JMA	Joint management area
LDC	Least Developed Countries
MADCAPS	Microplastics and corals pathogens
MCS	Monitoring, Control, and Surveillance
MEIOE	Monaco Explorations Indian Ocean Expedition
MGR	Marine Genetic Resources
MNHN	French National Museum of Natural History
MPA	Marine protected area
MSP	Marine spatial planning
NBS	Nature-based solutions
NeMMO	Network of Marine Mammal Observers
NOC	National Oceanography Centre
REIO	Regional political and economic integration organizations
RFMO	Regional Fisheries Management Organization
ROV	Remotely Operated Vehicle
SADC	Southern African Development Community
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
SIOFA	Southern Indian Ocean Fisheries Agreement
SOP	Standard Operating Procedure
SWIO	Southwest Indian Ocean
TMT	Technology Transfer
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WIO	West Indian Ocean
WIO N.O.I.S.E.	Western Indian Ocean National Or International SEamounts, banks, submarine structures
WIOMSA	Western Indian Ocean Marine Science Association
WMO	World Meteorological Organization
WMU	World Maritime University



APPENDIX 2

LIST OF PARTICIPANTS

ARNAUD-HAOND SOPHIE	University of Montpellier
BADAL REZAH	Government of Mauritius, CSMZAE
BARBE CHRISSANT	Government of Seychelles, Blue Economy Department
BENZAKEN DOMINIQUE	Member of the MEIOE Advisory Committee
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BOVAL MARGOT	IORA
CONSTANCE ANNABELLE	Seychelles Islands Foundation
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RANA KARUNA	Big Ocean States Initiative
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ROGERS ALEX	Member of the MEIOE Advisory Committee
ROY PRERNA	Mauritius Oceanography Institute
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RUNGHEN RAVI	Government of Mauritius, CSMZAE
SIMARD FRANÇOIS	Member of the MEIOE Advisory Committee
TATAYAH VIKASH	Mauritius Wildlife Foundation
TERNON JEAN-FRANÇOIS	IRD
THERON DIDIER	Monaco Explorations
YOUNG KATHY	Reef Conservation



APPENDIX 3

AGENDA

WEDNESDAY 12 NOVEMBER

OFFICIAL OPENING

Opening address from Mauritian and Seychellois authorities, and Monaco Explorations
The meeting was Chaired by Carl Gustaf Lundin

SESSION 1

GLOBAL POLICY TRENDS: PRESENTATION OF THE GLOBAL OCEAN GOVERNANCE TRENDS INCLUDING BBNJ, THE PLASTIC TREATY, THE 2030 TARGETS, ETC

Speakers:

- Ronan LONG (World Maritime University): Update on the BBNJ Agreement
- Barkha MOSSAË: The BBNJ Agreement and other governance trends in the SWIO
- Alex ROGERS: Ocean Governance from science and conservation perspectives
- Dominique BENZAKEN: Ocean Governance and Blue Economy in the SWIO

SESSION 2 - PART 1

PRESENTATION OF THE RESULTS (THE PRESENTATION OF THE RESULTS WILL NOT INCLUDE METHODS AND TOOLS, BUT RESULTS THAT ARE RELEVANT TO MANAGEMENT AND GOVERNANCE)

Speakers:

- Francis MARSAC: Scientific objectives of the Expedition
- Nick D'ADAMO: Scientific results relevant to the SWIO Regional Dynamics
- Ranjeet BHAGOOLI and Tessa HEMPSON: Scientific results relevant to the 'visible islands'
- Francis MARSAC: Scientific Results relevant to the Saya de Malha

SESSION 2 - PART 2

KNOWLEDGE GAPS, PRESENTATION OF THE OUTCOME OF THE WIO-NOISE MEETING

Speakers:

- Francis MARSAC and Florence GALLETTI

SESSION 3 - PART 1

RELEVANCE OF THE RESULTS FOR MANAGEMENT AND GOVERNANCE

- Group South-West Indian Ocean - Moderator: Arshad RAWAT - Rapporteur: Nick D'ADAMO
- Group Coral Reefs - Moderator: Ranjeet BHAGOOLI - Rapporteur: Tessa HEMPSON
- Group Saya de Malha - Moderator: Alex ROGERS - Rapporteur: Dominique BENZAKEN

THURSDAY 13 NOVEMBER

SESSION 3 - PART 2

REPORT BACK IN PLENARY, INCLUDING RECOMMENDATIONS AND DISCUSSION

SESSION 4 - PART 1 - PARALLEL SESSIONS

RECOMMENDATIONS FOR IMPROVING THE GOVERNANCE AND THE MANAGEMENT OF THE STUDIED AREAS

- Group South-West Indian Ocean - Moderator: Ronan LONG - Rapporteur: Jean-François TERNON
- Group Mauritius and Seychelles - Moderator: Dass BISSESSUR - Rapporteur: Dominique BENZAKEN
- Group Saya de Malha - Moderator: Barkha MOSSAË - Rapporteur: Francis MARSAC

FRIDAY 14 NOVEMBER

SESSION 4 - PART 2 - PARALLEL SESSIONS

REPORT BACK IN PLENARY, INCLUDING RECOMMENDATIONS AND DISCUSSION

SESSION 4 - PART 3

DRAFTING OF THE RECOMMENDATIONS

Recommendations drafting committee (Gilles Bessero & François Simard)

SESSION 5

PRESENTATION OF RECOMMENDATIONS TO THE GOVERNMENTS AND INTERNATIONAL BODIES WITH COMPETENCE IN THE STUDIED AREAS

Speakers:

- Dass BISSESSUR
- Ashley DIAS
- Gilles BESSERO

CONCLUSION AND CLOSING



APPENDIX 4

OPENING ADDRESSES

REZAH BADAL - DIRECTOR GENERAL, CSMZAE

Good morning,

Mons Xavier Prache, Director Societe des Exploration de Monaco

Mons Chrissant Barbe, Director General & JMA Point Focal

Gilles Bessero, Former Director Societe des Exploration de Monaco

Dr Florence Galetti, Chargée de recherche en droit public, Institut de Recherche Pour le développement

Dr Francis Marsac, Directeur de recherche émérite, IRD

Mrs Sewraj, Acting Permanent Secretary, Prime Minister's Office

Head of Institutions

Esteemed members of the scientific community,

Colleagues from Abroad

Membre de la Presse

Good morning,

Allow me to begin by extending a very warm welcome to you all. It is truly a pleasure to be among you here, this morning, as we open the **Monaco Explorations - Science to Policy Workshop**. I am indeed very happy and privilege to host this event in collaboration with the Societe des Exploration de Monaco and along with my colleague the Seychelles.

Your presence here—regional leaders, scientists, diplomats, and policy makers—speaks volumes and demonstrates our common commitment to advance the **science-based governance of the South-West Indian Ocean (SWIO)**.

A partnership built on vision and persistence

At the very outset, I would like to share with you a short story. Our association with the *Société des Explorations de Monaco* began in **2019**. **I must say though it is a relative young one**, it has been nonetheless build-up and strengthen over the years and been driven by a strongly shared objective; which is:

To generate new knowledge that would guide responsible decisions for the ocean.

Although the global pandemic delayed the planned expedition, but it never slowed our resolve. In **2022**, aboard the South African research vessel *S.A. Agulhas II*, the **Monaco Explorations Indian Ocean Expedition** was realised—covering the Joint Management Area shared by Mauritius and Seychelles, as well as our respective vast Exclusive Economic Zones.

This Expedition was endorsed under the **UN Decade of Ocean Science for Sustainable Development (2021–2030)** and focused on four pillars:

- Ecosystem conservation
- Megafauna research
- Marine Benthic surveying and mapping and application of
- New ocean exploration technologies

Since then, we have presented early results at **Monaco Ocean Week 2023** and **2024**, showing that this collaboration is not episodic—it is strategic, transformational, and continuous.

Today, the partnership moves into its most important phase:

That is, turning science into policy

From Science to Impact: The Objective and Purpose of This Workshop

Over the next three days, our task is clear:

<<we must ensure that scientific discoveries become actionable guidance for governments.>>

I understand that the workshop is structured around three main objectives, aligned with global ocean governance developments

1. Interpret scientific results within global and regional policy frameworks

(Session 1 - *Global Ocean Policy Trends*)

We begin by connecting our work to contemporary ocean governance:

- The High Sea or BBNJ Agreement
- The emerging Global Plastics Treaty
- The 2030 biodiversity and climate targets

We shall have the opportunity to be apprised of how these instruments are being implemented in the SWIO region—through convention, regional fisheries bodies, and other mechanisms.

This session reminds us that **science is not optional—it is essential for decision-making**

2. Understand the scientific results of the Expedition and their relevance to governance

(Session 2 - *Presentation of Scientific Findings*)

I am also made to understand that instead of technical presentations, results will be presented through three thematic lenses:

- **Regional Dynamics** - ocean currents, connectivity, plastic pollution
- **Visible Islands** - coral reefs atolls, Aldabra, St. Brandon, megafauna
- **Undersea formation** - Saya de Malha Bank, seagrass, deep ecosystems

These findings, combined with outcomes of the **WIO-NOISE regional workshop** held this week, will highlight knowledge gaps and emerging priorities—telling us **what we know**, and importantly, **what we still need to know**.



3. Convert scientific evidence into policy and management actions

(Session 3, Session 4 and Session 5)

Through parallel group discussions, we will address:

- How expedition data can guide conservation, ocean activities planning, and resource management,
- Which results are most relevant for governments and regional bodies,
- What recommendations should be made—and to whom.

Outputs of the groups will then be consolidated and churned into proposed **recommendations** to support our decision-making process, that include ourselves i.e government bodies, regional organisations and relevant institutions.

I believe:

This is how science becomes governance.

This is how knowledge becomes impact.

Dear Colleagues,

The South-West Indian Ocean is one of the last relatively pristine regions of the planet. The work we undertake here is not academic—it is existential.

We owe it to future generations to ensure that decisions on exploitation, conservation, and stewardship are based on evidence, not assumptions.

By the end of these three days, we shall aim to have:

- Clear, prioritised recommendations;
- Actions that support resilient and sustainable marine governance;
- Stronger regional collaboration under science-based policy

On behalf of the Government of Mauritius and in my own name I extend sincere appreciation to:

- **Monaco Explorations**, for their vision and enduring partnership;
- The scientists and experts from Mauritius, Seychelles, France, South Africa, the United Kingdom and beyond;
- The facilitators, rapporteurs, and moderators that will have the daunting tasks of guiding these discussions.

Thank you for your leadership, your expertise, and your commitment.

Ladies and Gentlemen,

With confidence in the transformative work we will accomplish,
With gratitude for the spirit of partnership that brought us here,
I am pleased to declare the Monaco Explorations - Science to Policy Workshop officially open.

Thank you.

CHRISSANT BARBE – DEPARTMENT OF BLUE ECONOMY, SEYCHELLES

Minister for
Delegates
Ladies and Gentlemen,

Good morning,
I bring you warm greetings from our country Seychelles and I am very honored to deliver this opening remark this morning.

We are deeply grateful to the Government and people of Mauritius for the warm hospitality and for so graciously hosting us.

As a **Large Ocean State**, Seychelles' livelihoods, economy, and culture is deeply rooted in the health of our marine ecosystems

In today's interconnected world, **scientific evidence forms the foundation of effective governance**, guiding policymakers to make informed and inclusive decisions. For **Small Island Developing States (SIDS)** like Seychelles, this reliance on science is not optional, it is essential.

It is an **honour to be invited to this workshop**, and to have the opportunity to **share Seychelles' perspectives** on ocean governance, science, and sustainability while also **learning from the experiences and expertise of the many distinguished participants gathered here today**. Such exchanges are vital, as they allow us to strengthen collaboration, share lessons, and advance our collective commitment to the sustainable use and protection of the ocean.

The **application of scientific findings** not only shape policies but also **builds public confidence** in governance. When decisions are anchored in robust research, they inspire trust and transparency. This connection underscores the importance of **open dialogue between scientists, policymakers, and citizens**, ensuring that evidence-based policies are both effective and widely supported.

In Seychelles, **all our major policies, strategies, and governance frameworks are shaped by science**. Our **Marine Spatial Plan (MSP)**, a globally recognized model for integrated ocean management, was built entirely on the foundation of scientific research, spatial data, and ecosystem assessments. Similarly, the **Blue Economy Strategic Policy Framework and Roadmap** is grounded in science, ensuring that our national decisions reflect the best available evidence.

Our requests for international funding and partnerships are increasingly tied to strong scientific justification. Whether we are seeking support for marine conservation, blue economy development, or climate adaptation, donors and partners expect clear, data-driven evidence of impact and feasibility. Science, therefore, not only informs our national priorities but also **strengthens our ability to attract investment, build credibility, and demonstrate accountability** in the global arena.

The **Monaco Explorations Mission** perfectly illustrates the value of such science-based collaboration. This important expedition explored the unique and biodiverse waters surrounding the Seychelles archipelago and the **Saya de Malha Bank**, one of the world's largest and most ecologically significant submerged banks. The mission produced **new scientific discoveries**, deepened our understanding of marine biodiversity, and provided data that will inform both conservation planning and sustainable development.

Equally important, the expedition **helped develop local capacity**, empowering Seychellois scientists, students, and institutions through direct participation, training, and collaboration. It also created **new partnerships and opportunities for future research**, reinforcing Seychelles' role as a regional leader in science-driven ocean governance.

Ultimately, the Monaco Explorations reaffirm that **science is not just a pursuit of knowledge, it is the foundation of sustainable development, a bridge between nations, and a guide for responsible ocean stewardship**.



Seychelles remains deeply committed to advancing this vision, ensuring that our policies, partnerships, and practices continue to be informed by the best available science, for the benefit of our people, our ocean, and our shared planet.

In closing, Seychelles is proud to stand among partners who share a common vision, one where science, collaboration, and innovation drive sustainable ocean stewardship. As we continue our dialogue over the coming days, I am confident that the rich exchange of ideas, experiences, and expertise will further strengthen our collective efforts to protect and sustainably manage our shared marine resources.

I wish all participants a productive and successful workshop, filled with insightful discussions, new connections, and renewed determination to translate science into impactful policy and lasting change.

XAVIER PRACHE, DIRECTOR OF MONACO EXPLORATIONS

Reconciling humanity and the sea is the motto of Monaco Explorations, a collaborative platform dedicated to the commitment of H.S.H. Prince Albert II of Monaco to knowledge, sustainable management and protection of the ocean. Created on the initiative of the Government of the Principality of Monaco in 2017 and under the impetus of the Sovereign Prince, thus continuing the legacy of his great-great-grandfather Prince Albert I, Monaco Explorations perfectly illustrates His Highness's desire to preserve the oceans in order to protect humanity.

In his book *L'Homme et l'Océan* (Man and the Ocean), published in 2023, H.S.H. Prince Albert II of Monaco expresses His love for the blue waves and His commitment to environmental issues and the marine environment. Through the 20 multidisciplinary missions already carried out since its creation, Monaco Explorations has always combined scientific research, public outreach and governmental cooperation.

Better than words, for those who are not yet familiar with our organisation, I offer you these few images, largely inspired by the mission that has brought us together for these three days. ----- (Teaser EDM) -----

As a concrete expression of the commitment of H.S.H. Prince Albert II of Monaco to the ocean, the Indian Ocean mission of Monaco Explorations, carried out in October and November 2022, mobilised significant resources: one of the largest oceanographic vessels in service and an international team of around 150 people representing some 20 nationalities and a variety of profiles: scientists, young researchers and students, artists, filmmakers and photographers, divers, communicators and civil society actors. At the head of this mission, Gilles Bessero declared: "All the partners in the mission share a single ambition: to understand, share and mobilise so that the ocean remains a common good for humanity in the long term." Gilles is doing us the honour of being with us for these three days, and I would like to take this opportunity to thank him for the wonderful way in which he prepared and led this mission.

This mission would not have been possible without the cooperation of the States of Mauritius and Seychelles, and today, this cooperation is continuing well. I would like to thank them, with a special mention for the Department for Continental Shelf, Maritime Zones Administration & Exploration led by Rezah Badal, particularly Dass Bissessur, who helped us greatly in organising this workshop.

A big thank you also goes to the members of the Advisory Committee, composed of 14 international experts, to Carl Gustav Lundin, talented head of this committee as well as to François Simard, its secretary. They have been working tirelessly since February 2021 to ensure the success of this mission. The most loyal members are with us during these three days. Thank you for your presence among us, and your still active participation.

This mission was the first element of the "Monaco Explorations" project endorsed by the United Nations Decade of Ocean Sciences for Sustainable Development 2021-2030. The expedition itself was also endorsed by the 2nd International Indian Ocean Expedition. It took place between Réunion, Mauritius, and Seychelles onboard the South African oceanographic research and supply ship *S.A. Agulhas II*. The two months of navigation were dedicated to various research and field operations.

In terms of diplomacy, the expedition was coordinated with an official visit to the region by HSH Prince Albert II of Monaco from 24 to 26 October 2022.

The expedition's purpose was also to promote the contents, knowledge and resources resulting from the operations by encouraging the exchange and transmission of knowledge to as wide an audience as possible through an outreach programme. Its various components were aimed at a broad public: schools, civil society, and decision-makers. The expedition has been wonderfully described in the production of a documentary film for international distribution and other educational and artistic content. Monaco Explorations is delighted to offer you a screening of this documentary on Thursday 13 November at 6pm at the MCINE Caudan, just at a 10-minute walk from here.

For Mauritian residents who are with us today, please feel free to bring your family, including kids: the ocean is an adventure to be enjoyed with the whole family.

The scientific programme carried out by international teams was guided by the four main themes of Monaco Explorations: coral protection, megafauna protection, marine protected areas and new exploration techniques.

The study programme was structured around the study of the Saya de Malha Bank, co-managed by Mauritius and Seychelles, Aldabra and Saint Brandon Islands, and seamounts located along the mission's route. It aimed to prioritise the needs of the governments of Seychelles and Mauritius, while also ensuring effective coordination with relevant international and regional bodies and initiatives, such as the Second International Indian Ocean Expedition and the Seabed 2030-GEBCO project.

The Science-to-Policy Workshop that brings us together for the next three days, is part of the preparation of the final report of the Monaco Explorations Indian Ocean Expedition, which is due by the end of 2025. This workshop is part of the activities that are put in place to meet the overall objectives of the expedition, which were:

- to understand through a multidisciplinary scientific approach the ecosystemic status and functioning of the area explored and to advise stakeholders through a holistic scientific approach;
- to share the issues and knowledge with the greatest number of people through an ambitious outreach programme;
- to mobilize and support governments, through diplomatic action, by making available information and analyses to support the sustainable management of maritime areas.

to gather information to determine whether these areas require special protection and, if so, to identify and propose recommendations for management measures to be considered for these natural areas and the pressures they face.

A challenge and issues commensurate with the role and commitment of the Principality and its Sovereign within the international community for the protection and sustainable management of the ocean, as mentioned by Robert Calcagno, Director General of the Oceanographic Institute and President of Monaco Explorations.

These objectives are ambitious, but in my view doubly necessary. Firstly, because we do not do science for science's sake, but as I said earlier, science is at the service of action. Secondly, because all the scientific projects carried out during this expedition in the Indian Ocean have once again revealed its fragility and vulnerability. We must therefore ensure that today and tomorrow, for future generations, it is protected by maintaining a balance between sustainable exploitation and respect for biodiversity. That is why this S2PW will seek:

- to inform the stakeholders and partners about the scientific results from the Monaco Explorations Expedition;
- to analyse the relevance and importance of these scientific results and to address management issues in the studied areas;
- to discuss identified issues and to propose recommendations for improving governance and management.

Based on the proposition of recommendations you will make at the end of these three days, the Principality of Monaco will finalise the final report of this Monaco Explorations Indian Ocean expedition, which has mobilised so much talent, in a few weeks' time. This report will then be officially presented to the States, and the time for political action will then begin.

At this time, we will have done our job.

And I thank you in advance.



APPENDIX 5

CLOSING STATEMENTS

CHRISSANT BARBE, DEPARTMENT OF BLUE ECONOMY, SEYCHELLES

Good afternoon everyone,

As we come to the close of our five-day workshop on **“Science to Policy”**, I want to take a moment to express my deepest gratitude to each of you for your energy, and commitment throughout these sessions.

Over the past five days, we have undertaken a comprehensive journey of the critical interface between marine research and public policy. Our discussions have examined how scientific evidence can serve as a foundation for more informed and effective decision-making. We have analyzed case studies focused on the Mascarene Plateau—the largest undersea mountain in the Indian Ocean—considering its ecological wealth, economic potential, and associated management challenges.

Furthermore, we have reflected on the processes through which data and research findings can be translated into practical policy recommendations and actionable strategies for sustainable development.

As a policy formulator in the field of ocean governance and sustainability, growing up on the beautiful island nation of Seychelles, I have always appreciated the ocean’s beauty and bounty. However, I never fully grasped the immense richness, untapped potential, and complex challenges of this vast undersea mountain, that shapes our marine ecosystems and supports the livelihoods of the Indian Ocean Community. This understanding was deepened profoundly, when I had the opportunity to engage with all of you.....leading legal and scientific experts who have conducted indirect or first-hand research and exploration of the Plateau, itself.

It all began on Monday and Tuesday, this week, with a series of approximately 20 presentations, organized into three distinct segments.

The first segment, focused on the marine ecosystem of the Mascarene Plateau, showcasing a remarkable number of newly identified and unique species, highlighting the singularity endemism the region.

The second segment, emphasized on the economic significance of the Mascarene Plateau’s marine heritage. We explored both the opportunities and challenges associated with blue carbon credits in the Western Indian Ocean region, underscoring the potential for sustainable development.

Finally, on Tuesday afternoon, we compiled a comprehensive set of key recommendations to guide the three-day workshop on science-to-policy engagement.

From Wednesday onwards, to date...our focus shifted to strategizing how to effectively present these recommendations to decision-makers back home. The Mascarene Plateau provided a captivating backdrop for this work—soo much - that scientists significantly outnumbered policymakers in the room.

Remarkably, every session—from technical presentations to collaborative group discussions—demonstrated the power of partnership. When scientists, policymakers, and practitioners unite under a common goal, extraordinary progress.. is possible. This workshop truly underscored our shared mission: to protect and sustain our oceans for generations to come.

This workshop was not just about exchanging knowledge, but about **building bridges** – between disciplines, between institutions, and between ideas. The insights and experiences you've shared have enriched our collective understanding, and I'm confident that many new partnerships between policy and science, have just begun right here in this room.

As we return to our respective roles, I encourage all of us to **keep the dialogue alive**.

Let's advocate the list of recommendations to our decision makers –

Let's ensure that science data collected from the Mascarene Plateau, presented and discussed in this workshop, are prioritized into decision-making, and actions..

Let's advocate, for evidence-based policies, and,

Let's inspire others to value the ocean, as the life system it truly is. The real success of this workshop will be measured not by what we have discussed here, but by how we put the recommendations into actions --- in the weeks and months ahead.

On behalf of the Government of Seychelles, I would like to thank the government and the people of Mauritius for the warm hospitality and for so graciously hosting us.

Thank you, to the Monaco Mission for leading this expedition which has helped local capacity, empowering island scientist, and institution through direct participation, discussion and collaboration, --which has created new partnerships and opportunities for future research, reinforcing Seychelles and Mauritius as regional leaders in science-driven governance.

I would also like to thank our distinguished speakers and facilitators for sharing their expertise, our participants for their enthusiasm and insight, and everyone behind the scenes who helped make this event possible.

Let's carry forward the spirit of collaboration that has defined these past five days. Together, we can ensure that the link between marine science and policy grows stronger – for the health of our oceans and the generations to come.

Thank you, safe travels, and may the waves of knowledge we've shared continue to guide our work ahead.

XAVIER PRACHE, DIRECTOR OF MONACO EXPLORATIONS

It is always difficult to be the last to speak at a workshop like the one we have just lived, because the last words spoken may be the ones that are remembered. What a heavy responsibility.

Many questions were asked. Many answers were given, sometimes several answers to a single question, showing the complexity of the environments studied. This is reassuring in terms of our ability to mobilise and make proposals. It was both challenging and inspiring.

However, I note that no one, absolutely no one, provided an answer to one of the questions asked by one of you on the first day of our workshop: which of Mauritius and the Seychelles had the best rum? The question will therefore remain unanswered...

Anyway, on this subject, as on others, I believe that one of the great merits of this workshop was that it broke down the walls that can exist between the various actors committed to protecting the Indian Ocean. Each person in this room is committed to their role and is proud of what they do, which is normal and perfectly justified. But it is



remarkable to see how individual and isolated efforts become real forces for change and useful waves when they are shared and taken into account collectively. This is what seamen call the crew spirit, l'esprit d'équipage. This spirit can move mountains.

So how many seamounts has been moved by this spirit, which has inspired us for the past three days? The tide of recommendations is certainly high, and Monaco Explorations will leave with a significant list of proposals in its luggage. I thank you for the work that has been done. I have really appreciated everyone's contributions, and I am delighted with the quality and high level of the discussions we have had. Although this may disappoint some, now is not the time to say whether the Principality of Monaco will take up this or that recommendation. Quite simply because I am not authorised to do so: I am only representing the tool that has enabled this project to take place in order to meet the objectives that had been set as closely as possible. At this stage, I have the material! The results of the scientific projects, the feedback from the outreach activities, their translation into proposed recommendations: from my point of view, the objective has been achieved, that of bringing together your proposals with the aim of raising them to the political level: science to policy. The final report will convey the political message that Monaco has taken away from this expedition: this message will be presented in a few months' time to the partner States and organisation, Mauritius, Seychelles and JMA, who will then be responsible for deciding whether or not to go further. This is why it is important that these recommendations need to be ambitious, but also realistic and pragmatic.

Before we get to that point, we still need to finalise the report of this workshop and then the final report for its science and outreach fields: so there is still work to be done.

Monaco Explorations will then continue its governmental cooperation, scientific and outreach activities, as long as I am asked to promote the commitment of HSH Prince Albert II of Monaco in this field, and this will be a source of great pride for the entire Monaco Explorations team. I would like to take this opportunity to thank my team, who are always there to help me organise these activities, Océane and Noëlie, who are here with me in Mauritius, not to mention those who have stayed in Monaco. A big thank you to them.

There are still many questions to be asked and answers to be found. The ocean is so vast compared to our desire to understand it better: we actually have the same desire for discovery and protection as Prince Albert I of Monaco at the end of the 19th century, with much more sophisticated technical means, except that the pressure on the marine environment has since accelerated considerably and the decision-making process has unfortunately not kept pace. Just have a look at the marathon that preceded the BBNJ treaty.

In conclusion, I would like to say that for this wonderful Indian Ocean, for which I have a particular affection having travelled it so extensively, we all have an utopia in mind. But beware, this word, utopia, carries an ambiguity: some would like to translate it as something unattainable, when in reality it is something we would like to reach. I will therefore conclude with a nod to our Mauritian friends who welcomed us so warmly in Port Louis: "Utopi pa dan lesiel, li dan to pas danavan", which means, "Utopia is not in the sky, it is in your forward march".

Have a nice trip back to your families and thank you for your commitment.

REZAH BADAL, DIRECTOR GENERAL, CSMZAE

Dear Friends Distinguished scientists, colleagues, and partners,

As we come to the close of this Indian Ocean Monaco Explorations "Science to Policy" Workshop, allow me first to express my profound appreciation to all who have contributed to the richness of this dialogue. Over the past days, we have shared knowledge, debated approaches, and reaffirmed our collective commitment to advancing the sustainable future of our ocean. Your expertise and passion have made this gathering both inspiring and deeply meaningful.

This workshop has reminded us that the Indian Ocean remains one of the least observed and least understood ocean basins, yet it supports some of the most vital ecological, climatic, and socio-economic systems on Earth. It is therefore fitting that the collaboration between Monaco Explorations, regional governments, research institutions, and international organisations continues to grow stronger. What unites us is the recognition that **high-quality science, responsibly governed and translated into tangible policy, is indispensable for the long-term stewardship of marine spaces.**

Key Takeaways and Reflections

Several clear messages have emerged throughout these sessions:

1. Science–Policy Integration Must Be Continuous, Not Occasional. We re-acknowledged that science cannot sit on one side and policymakers on the other. Effective governance of the Indian Ocean demands continuous interfaces, mutual learning, and timely communication. The expedition data, new species records, habitat assessments, and oceanographic measurements presented here must now find their way into decision-making machinery—into management plans, legal frameworks, climate strategies, and regional cooperation platforms.

2. The Region Needs Stronger, Coordinated Scientific Infrastructure. The discussions highlighted significant progress—autonomous sensors, ocean observatory platforms, biodiversity imaging, and deep-sea sampling techniques. However, they also exposed gaps: insufficient long-term observation, uneven national capacities, and fragile data-sharing mechanisms. The Indian Ocean cannot rely solely on sporadic research cruises; it needs a sustained presence. Strengthening partnerships with partner institutions such as Monaco Explorations will be essential, not only for science generation but also for training the next generation of ocean professionals.

3. The Deep Sea Requires Strategic Priority. Evidence presented during this workshop shows that deep-sea ecosystems in the Western Indian Ocean are far richer and more complex than previously assumed. The microbial communities, seamount biodiversity, coral structures, and geomorphological features mapped during the Monaco Explorations missions suggest that this region holds globally significant natural assets. At the same time, they remain vulnerable to climate stressors, destructive extraction, and pollution. We must therefore reinforce a precautionary approach.

4. Data Sharing and Open Access Are Not Optional. A strong consensus emerged that ocean science in our region cannot be siloed. The data platforms, visual repositories, and species libraries developed through the expeditions should be strengthened through interoperable, transparent systems. This is essential not only for research but also for accountability: policymakers can only act wisely when data is accessible, quality-assured, and contextualised.

5. Partnerships Will Determine Our Success. Perhaps the strongest takeaway is the reaffirmation that no country, no institution, and no programme can alone address the environmental, economic, and governance challenges of the Indian Ocean. The value of this workshop lies precisely in its diversity—bringing together scientists, legal experts, planners, explorers, NGOs, and government officers. The collaboration between Monaco Explorations and Indian Ocean institutions stands as a model: a blend of scientific rigor, diplomatic maturity, and shared vision.

Relevance for Small Island Developing States

For small island developing States like Mauritius and Seychelles, this workshop carries special significance. We live on the frontlines—frontlines of climate change, biodiversity loss, ocean warming, and coastal vulnerability. But we also sit atop immense ocean spaces filled with opportunities for science, sustainable blue economy development, and global leadership.



These discussions reinforce the importance of:

- Strengthening marine scientific research capacities;
- Building resilient ocean observation networks;
- Developing marine spatial planning grounded in evidence;
- **Ensuring that exploration, whether for biodiversity, minerals, or energy, remains responsible and aligned with international law;** and
- **Promoting a coherent narrative of stewardship and innovation across the Indian Ocean community.**

Looking Forward

As we move beyond this workshop, I wish to offer three commitments—commitments that I believe we all share:

First, we will continue to champion rigorous, independent, and collaborative marine science. **Second**, we will ensure that the knowledge generated by Monaco Explorations and our regional partners translates into actionable policy, supporting sustainable management of our marine spaces. **Third**, we will work to strengthen regional unity—because the Indian Ocean, in all its beauty and complexity, demands solutions that are shared, equitable, and rooted in solidarity.

Let me take this opportunity to extend special appreciation to the Monaco Explorations team—the researchers, crew, coordinators, and all those who made the expeditions and this workshop possible. Your work has given the Indian Ocean an indispensable scientific legacy.

I also thank our regional institutions, universities, ministries, NGOs, and young scientists for your unwavering commitment to advancing ocean knowledge. The energy and ideas shared here will undoubtedly shape the next chapter of ocean governance in our region.

Closing

As we conclude, let us leave here with renewed determination. The ocean is not a distant concept or a scientific abstraction—it is the foundation of our economies, our climate, our cultures, and our shared future. The knowledge we gain today will influence the decisions we make tomorrow. And those decisions will define the world we leave for the generations after us.

Thank you all for your contributions, your insights, and your dedication. I wish you safe travels and continued success in your important work

Thank You.

APPENDIX 6

LIST OF SCIENTIFIC PAPERS RESULTING FROM THE MEIO2022 EXPEDITION

PAPERS PUBLISHED IN DEEP SEA RESEARCH PART II SPECIAL ISSUE "THE MONACO EXPLORATIONS INDIAN OCEAN EXPEDITION 2022: ADVANCING SCIENTIFIC INTERACTIONS IN THE MASCARENE REGION"

Variable photosystem II thermal stress responses of reef-building corals *Pocillopora indiana* and *Heliopora coerulea* across latitudes from the Mascarene Plateau, Indian Ocean

Papers published in *Deep Sea Research Part II* Special Issue "The Monaco Explorations Indian Ocean Expedition 2022: advancing scientific interactions in the Mascarene region

Vikash Munbodhe, Sundy Ramah, Deepeeka Kaullysing, Shakeel Yavan Jogee, ... Ranjeet Bhagooli

June 2025

Article 105467

<https://doi.org/10.1016/j.dsr2.2025.105467>

New insights in benthic biodiversity of the Saya de Malha Bank

Laure Corbari, Philippe Bouchet, Line Le Gall, Stéphane Hourdez, ... Sven Bender

August 2025

Article 105500

<https://doi.org/10.1016/j.dsr2.2025.105500>

Biogeochemical float deployment strategy in the Southwestern Indian Ocean

Wilhem Riom, Vincent Taillandier, Céline Dimier, Fabrizio D'Ortenzio, Hervé Claustre

August 2025

Article 105504

<https://doi.org/10.1016/j.dsr2.2025.105504>

Establishment of a Global Coral Biobank: Implementation of the protocols from coral collection to long distance shipping and long-term maintenance in public aquariums

Olivier Brunel, Dominique Barthelemy, Max Janse, Renaud Herbert, ... Didier Zoccola

September 2025

Article 105516

<https://doi.org/10.1016/j.dsr2.2025.105516>

Awareness-raising, communication methods and objectives for an ocean expedition: the example of the Monaco Explorations Indian Ocean expedition 2022

Didier Théron, Océane Gasquy, François Simard, Dominique Benzaken, ... Carolyn Scheurle

December 2025

Article 105551

<https://doi.org/10.1016/j.dsr2.2025.105551>

Temporal stability in genetic origin of juvenile green turtle recruits at remote western Indian Ocean islands

Jérôme Bourjea, Quentin Schull, Sylvie Lapègue, Corinne Bouvier, ... Michael Jensen

December 2025

Article 105545

<https://doi.org/10.1016/j.dsr2.2025.105545>



Distribution and drivers of phytoplankton biomass along the Saya de Malha Bank in the Western Indian Ocean

Nuette Gordon, Margaux Noyon, Deepeeka Kaulysing, Ranjeet Bhagooli, ... Francis Marsac

June 2025

Article 105480

<https://doi.org/10.1016/j.dsr2.2025.105480>

Plastic pollution: A potential vector of both pathogens and probiotics for corals on the Mascarene Ridge, Indian Ocean

Vyctoria Marillac, Philippe Jourand, Pierre-Louis Stenger, Gwennais Fustemberg, ... Margot Thibault

December 2025

Article 105556

<https://doi.org/10.1016/j.dsr2.2025.105556>

ARTICLES PUBLISHED IN OTHER JOURNALS

The use of three-dimensional uCT imaging technique in the description of a new species of *Stenopus* Latreille, 1819 (*Decapoda: Stenopodidea: Stenopodidae*), with a revised key to the species of *Stenopus*

Chien-Lin Chen, Tin-Yam Chan

July 2023

Journal of Crustacean Biology, Vol 43, Issue 3, 1-12

<https://doi.org/10.1093/jcobiol/ruad041>

Long time no see - 117 years after its first and only record *Praebebalia extensiva* Rathbun 1911 (*Decapoda, Leucosiidae*) was collected from Saya de Malha

Bella S. Galil

April 2025

Western Indian Ocean Journal of Marine Science, Vol 24, No 1, 39-42

<https://doi.org/10.4314/wiojms.v24i1.5>

Squat lobsters (*Decapoda: Chirostyloidea* and *Galattheoidea*) from Saya de Malha Bank, SW Indian Ocean, with the descriptions of three new species

Enrique Macpherson, Annie Machordom

August 2025

European Journal of Taxonomy, Vol 1012, 27-48

<https://doi.org/10.5852/ejt.2025.1012.3031>

APPENDIX 7

TECHNICAL RECOMMENDATIONS PRODUCED BY THE PARTICIPANTS IN THE 2ND WIO N.O.I.S.E WORKSHOP

10-11 NOV 2025, CSMZAE HEADQUARTERS, PORT-LOUIS, MAURITIUS

CROSS-CUTTING MATTERS

1. To promote good practices, with data traceability, following the FAIR principles: Findable, Accessible, Interoperable and Reusable
2. To promote application of Standardised Operating Procedures and methods
3. To develop a regional research platform/vessel to be shared by the SWIO countries
4. To promote the exchange of technology and expertise on specific research fields of common interest
5. To promote the exchange of capacity building activities in data collection and analysis within the region
6. To encourage partner countries to contribute in an inventory exercise to identify data needs (and gaps) supporting ocean governance and management (data sheet attached)
7. To harmonise policy frameworks for effective governance across transboundary areas inline with international conventions
8. To support regional and national science-policy dialogues for scientists, practitioners and policy makers in decision-making

SESSION 1 - DESCRIPTION OF THE MARINE HERITAGE

OCEANOGRAPHY AND CLIMATE CHANGE

9. To promote and facilitate marine scientific expeditions in the region
10. To promote the use of low cost (or cost-effective) oceanographic instruments to achieve monitoring of the essential ocean variables (EOV), from the coast to the open sea
11. To develop a protocol for metadata and data exchange of existing information on the marine environment and ecosystems within the region
12. To improve our understanding of processes and impacts of climate change on marine ecosystems



BIODIVERSITY AND HABITATS

13. To complement benthic biodiversity surveys on Saya de Malha with research vessels, based on generally accepted SOPs (e.g those of the National Museum of Natural History, France, operating towed gears and collection by expert divers)
14. To develop proper facilities for curating collected specimen in the region
15. To facilitate habitat description, taxonomic description and mapping of key ecosystems (coral reefs, seagrass meadows...)
16. To identify sensitive areas and hot spots, and to promote the use of existing information to expand the knowledge on biodiversity
17. To ensure the protection of seagrass, not only for their contribution to sequester carbon, but also for the ecosystem services they provide
18. To develop habitat restoration plans with regards to species under stress caused by climate change
19. To identify and promote the socio-economics potential of marine ecosystems services

MARINE MAMMALS

20. To increase survey coverage with dedicated on Marine Mammals Observations on platforms of opportunity (e.g. NeMMO initiative)
21. To include focus on megafauna in future research dedicated surveys (multidisciplinary and complementary)

GENETIC APPROACH FOR MANAGEMENT AND CONSERVATION OF BIODIVERSITY

22. To apply standard methods for regional coordination of genetic monitoring (temporal dimension)
23. To develop regional DNA reference libraries
24. To strengthen capacity building to apply DNA-based methods

SESSION 2 - ASSETS OF THE MARINE HERITAGE AND THEIR ECONOMIC VALUATION

BLUE CARBON

25. To plan seagrass surveys (including in situ and remote sensing) on the Mascarene plateau region to assess the actual area of seagrass meadows
26. To assess the potential for carbon sequestration
27. To adopt standardized methodologies for carbon accounting and verification in marine ecosystems
28. To quantify the transport and sequestration capacity of the additional components of the deep-sea carbon pump (long-term carbon storage in the deep ocean)
29. To promote capacity-building in blue carbon accounting
30. To integrate Blue Carbon into national climate policies

VALORISATION THROUGH THE DEVELOPMENT OF BIOTECHNOLOGIES

31. To develop a regional strategy to identify relevant resources most likely to deliver innovative biotechnologies

SESSION 3 – PLASTIC POLLUTION AND PRESERVATION

PLASTIC POLLUTION, INCLUDING ABANDONED, LOST AND OTHERWISE DISCARDED FISHING GEARS (ALDFG)

- 32.** Acknowledging the ecological and health issues caused by the increasing concentration of microplastics in the ocean, mostly from land activities, it is recommended, in line with waste hierarchy:
1. to promote the reduction of plastic usage (especially the single-use plastics),
 2. to promote innovation for development of substitutes to plastic items,
 3. to facilitate recycling,
 4. to promote clean-up activities as a tool for public awareness
- 33.** To promote mechanisms and incentives to reduce plastic production
- 34.** To improve waste management infrastructure to prevent leakage into the ocean
- 35.** To promote the conduct of long-term collaborative monitoring programs in the region, to characterise the type of plastics used, to measure microplastic levels in water, sediments, and marine organisms, and to determine their origin
- 36.** To characterise the ecological and toxicological effects of microplastics on marine food webs and coral reefs and its effect on human health
- 37.** To map point source of microplastic pollution to guide mitigation efforts
- 38.** To support citizen science initiatives for microplastic data collection

ANTHROPOGENIC PRESSURES

- 39.** To encourage the establishment of Marine Spatial Planning (zoning exercises)
- 40.** To review existing legal framework and compliance mechanisms to address common specific stressors in the region (marine pollution, maritime transport, coastal development, ATBAs,...)
- 41.** To strengthen MCS to mitigate anthropogenic pressures
- 42.** To promote the use of novel technologies (remote sensing, ...) to monitor marine pollution
- 43.** To encourage the domestication and implementation of the provisions of the instruments of the BBNJ Agreement



APPENDIX 8

REGIONAL PRIORITIES AND OPPORTUNITIES

RESULT / FOCUS AREA	RELEVANCE TO POLICY & GOVERNANCE	KEY GAPS IDENTIFIED	ISSUES / RECOMMENDATIONS
WORLD CORAL BANK (CONSERVATORY)	High - validates coral biobanking protocols and international coordination	Incomplete regional genetic data; lack of WIO eDNA reference library	Harmonise permits; create regional node; open access to data; strengthen public communication and NGO engagement
CORAL CONNECTIVITY (CORAL CONNECT PROJECT)	Very High - supports recognition of corals as transboundary genetic resources under BBNJ	Sparse east-west data; limited monitoring coverage Need for protection of connectivity processes (e.g. larval dispersal)	Integrate connectivity into MPA planning; protect source reefs; foster regional collaboration and funding
MICROPLASTICS & PATHOGENS	High - emerging cross-sector threat to reef health	Limited information on sources, movement, and impacts	Conduct regional pollutant mapping; include EIA and industry data; integrate into coral-health monitoring
RESTORATION & NATURE-BASED SOLUTIONS	High - links biodiversity protection to climate resilience and coastal defence	Absence of success metrics; limited climate resilience and coastal defence local participation; lack of effective communication to improve understanding in policy makers	Develop national standards and indicators; ensure community participation; align NbS with regenerative blue-economy frameworks
MESOPHOTIC / DEEP-SEA ECOSYSTEMS & BBNJ	High - informs management and protection under BBNJ	Insufficient research, data and regional expertise	Expand surveys via improved coordination of expeditions, explore support from 'Neptune'; protect Vulnerable Marine Ecosystems (VMEs)



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