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THIRD UNITED NATIONS OCEAN CONFERENCE

RECOMMENDATIONS TO HEADS OF STATE AND GOVERNMENT

FROM THE INTERNATIONAL SCIENTIFIC COMMITTEE OF THE ONE OCEAN SCIENCE CONGRESS

ONE OCEAN SCIENCE CONGRESS
NICE FRANCE
3-6 June 2025

.EXECUTIVE SUMMARY

The Ocean is a global common good, essential to sustaining life and prosperity on Earth through its vast biodiversity and critical ecosystem services. Scientists aim at delivering relevant, timely, and evidence-based guidance to decision-makers as they address global ocean challenges, including the impacts of, and solutions to climate change, biodiversity loss, and environmental degradation. At this critical juncture for our planet, there is a need to establish and nurture close interactions between scientists and decision-makers, across diverse value systems, including Indigenous and local knowledge, to advocate for science-based policies that promote long-term ocean sustainability, engage the public, foster inclusiveness, and stimulate innovation through interdisciplinary research.

Grounded in scientific evidence, we advance 10 thematic recommendations aligned with the Ocean Action Panels[1] to shape discussions at the 2025 United Nations Ocean Conference (Table 1). These recommendations are outlined below, with specific actions detailed in the following sections:

1. Inspire responsibility and respect for the ocean, integrating across knowledge systems.

2. Enable effective, equitable and environmentally safe ocean-based approaches to achieve the mitigation and adaptation goals of the Paris Agreement.

3. Effectively protect and restore marine and coastal ecosystems through equitable and sustainable management.

4. Pause harmful activities in the deep ocean while improving knowledge to enable sustainable and equitable uses.

5. Ensure equitable sharing of benefits derived from marine genetic resources.

6. End illegal, unreported and unregulated fishing and improve transparency.

7. Ensure sustainable, equitable, and safe ocean-based food systems.

8. Adopt comprehensive measures to end marine plastic pollution.

9. Decarbonize shipping and reduce the environmental impact of maritime transport.

10. Ensure ambitious investments in inclusive fundamental transdisciplinary knowledge generation to inform ocean action.

We also outline five cross-cutting recommendations to underpin these efforts:

> **Reinforce** support to multilateral organizations to support fairness, inclusiveness, ecological safety, and precautionary principles.
>
> **Implement** the already existing regulations and international commitments to protect the ocean and its vital services to society.
>
> **Eliminate** subsidies that harm climate and biodiversity.
>
> **Strengthen** oceanographic research, particularly by enhancing observation and modeling capacity and facilitating knowledge sharing.
>
> **Sustain and build** on the momentum that will be generated by the Third United Nations Ocean Conference to strengthen the link between science and policy.

These recommendations serve as a framework for action, to ensure that science remains at the heart of efforts to secure a sustainable future for the ocean and humanity.

[1] The Ocean Action Panels of the Third United Nations Ocean Conference (UNOC) are thematic platforms designed to foster collaborative solutions and partnerships for achieving sustainable use and conservation of ocean resources, aligning with Sustainable Development Goal 14 (Life Below Water).

TABLE 1 – LINKS BETWEEN THE 10 OCEAN ACTION PANELS OF UNOC3 AND THE 10 RECOMMENDATIONS OF THE ONE OCEAN SCIENCE CONGRESS (OOSC).

OCEAN ACTION PANELS	OOSC RECOMMENDATIONS
OAP 1 – Fostering sustainable fisheries management including supporting small-scale fishers	**OOSC 3, 6, 7**
OAP 2 – Conserving, sustainably managing and restoring marine and coastal ecosystems including deep-sea ecosystems	**OOSC 3, 4, 7**
OAP 3 – Promoting and supporting all forms of cooperation, especially at the regional and subregional level	**OOSC 1, 10**
OAP 4 – Preventing and significantly reducing marine pollution of all kinds, in particular from land-based activities	**OOSC 3, 7, 8**
OAP 5 – Leveraging ocean, climate and biodiversity interlinkages	**OOSC 2, 3, 4**
OAP 6 – Advancing sustainable ocean-based economies, sustainable maritime transport and coastal community resilience leaving no one behind	**OOSC 1, 2, 4, 7, 9**
OAP 7 – Promoting the role of sustainable food from the ocean for poverty eradication and food security	**OOSC 7**
OAP 8 – Increasing ocean-related scientific cooperation, knowledge, capacity building, marine technology and education to strengthen the science-policy interface for ocean health	**OOSC 1, 10**
OAP 9 – Enhancing the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the UNCLOS	**OOSC 4, 5, 10**
OAP 10 – Mobilizing finance for ocean actions in the support of SDG 14	**OOSC 10**

RECOMMENDATIONS OF THE OOS CONGRESS

OOSC 1 - Inspire responsibility and respect for the ocean, integrating across knowledge systems

OOSC 2 - Enable effective, equitable and environmentally safe ocean-based approaches to achieve the mitigation and adaptation goals of the Paris Agreement

OOSC 3 - Effectively protect and restore marine and coastal ecosystems through equitable and sustainable management

OOSC 4 - Pause harmful activities in the deep ocean while improving knowledge to enable sustainable and equitable uses

OOSC 5 - Ensure equitable sharing of benefits of marine genetic resources

OOSC 6 - End illegal, unreported and unregulated fishing, and improve transparency

OOSC 7 - Ensure sustainable, equitable, and safe ocean-based food systems

OOSC 8 - Adopt comprehensive measures to end marine plastic pollution

OOSC 9 - Decarbonize shipping and reduce the environmental impacts of maritime transport

OOSC 10 - Ensure ambitious investments in inclusive fundamental transdisciplinary knowledge generation to inform ocean action

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GLOSSARY

BBNJ	2023 UN Agreement on the Conservation and Sustainable Use of Marine Biodiversity beyond national jurisdiction
CBD	Convention on Biological Diversity
CCUS	Carbon Capture, Utilisation and Storage
IPLCs	Indigenous Peoples and Local Communities
IUU fishing	Illegal, Unreported and Unregulated Fishing
mCDR	Marine Carbon Dioxide Removal
MPA	Marine Protected Area
MGRs	Marine Genetic Resources
OOSC	One Ocean Science Congress
ORE	Offshore Renewable Energy
PSSAs	Particularly Sensitive Sea Areas
SDG 14	Sustainable Development Goal 14
UNEP	United Nations Environment Programme
UNOC3	Third United Nations Ocean Conference

.INTRODUCTION

A VITAL OCEAN

The ocean is crucial for our survival and underpins sustainable development. It regulates climate, supports biodiversity, and sustains livelihoods. Covering 71% of the planet, the ocean absorbs about 25% of anthropogenic CO_2 emissions and stores 90% of the excess heat from human activities. It is home to diverse ecosystems, from coral reefs to deep-sea habitats, providing food security for over three billion people and supporting industries like fisheries, aquaculture, and tourism. The ocean also enriches our cultural heritage and offers opportunities for recreation and scientific discovery.

A BENEFICIAL OCEAN

Annually, the ocean's ecosystem services – benefits to people – contribute approximately $2.5 trillion to the global economy. Coastal ecosystems such as seagrass and mangroves sequester carbon, and shield coastlines from strengthening and increasingly frequent storm surges, reducing disaster risks. The ocean's potential for renewable energy through offshore wind, tidal, and wave power aids in decarbonization efforts. Its rich biodiversity fosters advancements in marine biotechnology, enhancing medicine, food security, and the development of sustainable materials. The ocean plays a vital role in promoting mental health, recreation, and spiritual well-being.

AN OCEAN UNDER THREAT

However, the ocean is facing significant threats from human activities. Climate warmed waters cause coral bleaching and alter marine ecosystems and currents. Ocean acidification[2] and deoxygenation[3] pose risks to coral reefs and shellfish, destabilizing food webs. Overfishing, pollution (e.g. plastic, excess nutrients, and chemicals), oxygen loss, and habitat destruction (e.g. coastal development, deep-sea mining) are pushing marine ecosystems toward collapse. Weak governance and unequal resource access hinder effective conservation and sustainable management. This changing ocean creates knowledge gaps which expand faster than science can address them.

AN OCEAN OF SOLUTIONS

Despite these challenges, the ocean holds immense potential for solutions to global crises. The scientific community enhances the understanding of our ocean's resources and intrinsic value to preserve and use them sustainably. Embracing the blue economy[4] to support the application of these solutions improves livelihoods, economic growth, and ocean health. Prioritizing ocean-based solutions increases resilience, reduces greenhouse gas emissions, unlocks economic opportunities, and safeguards vital ecosystems for future generations.

RECOMMENDATIONS

The International Scientific Committee of the One Ocean Science Congress (OOSC) proposes recommendations for the Heads of State and Government at the Third United Nations Ocean Conference. These recommendations are based on published scientific literature, major UN reports, and initial outcomes of the United Nations Decade of Ocean Sciences for Sustainable Development (2021-2030).

[2] Ocean acidification is a result of excess carbon dioxide being absorbed by the ocean from the atmosphere.
[3] Deoxygenation is a reduction in oxygen levels. It can be caused by algal blooms or ocean warming and negatively impacts ocean ecosystems.
[4] The blue economy refers to the sustainable use of marine resources.

.1

OAP 3
OAP 6
OAP 8

.INSPIRE RESPONSIBILITY AND RESPECT FOR THE OCEAN, INTEGRATING ACROSS KNOWLEDGE SYSTEMS

Integrating diverse knowledge systems and transforming our relationship with the ocean into one based on responsibility and respect for its intrinsic value enables people to become effective and informed stewards of marine ecosystems.

1.1. INSPIRE RESPONSIBILITY AND RESPECT

Humanity's extractive relationship with the Ocean must be transformed to one of responsibility, respect and reverence.

1.2. VALUE AND INCLUDE DIVERSE KNOWLEDGE SYSTEMS

Recognizing the global importance of Indigenous Peoples and Local Communities (IPLCs) as stewards of the land and ocean, we call for the amplification of diverse value and knowledge systems. Indigenous knowledge and scientific research together strengthen our understanding of and connection with the ocean.

1.3. RECOGNIZE HUMAN AND NON-HUMAN RIGHTS TO A HEALTHY OCEAN

Embracing the intrinsic value of the ocean and its inhabitants is consistent with the emerging concept of 'rights of nature' to exist and thrive. We advocate for legal personhood initiatives for marine ecosystems to advance conservation and raise awareness.

1.4. ADVANCE INITIATIVES TO PROMOTE OCEAN STEWARDSHIP, GUARDIANSHIP, AND TRUSTEESHIP

Initiatives empowering IPLCs and other ocean representatives are needed to increase ocean stewardship, guardianship, and trusteeship. Shifting to collective responsibility maintains ecosystem integrity and respects the intrinsic value of the ocean.

1.5. ENSURE THE PROTECTION PRINCIPLE

We support transformation of the decision-making process to require proponents to demonstrate environmental safety of activities before approval. Ongoing operations should be held to the same standard, including mitigation and restoration measures.

1.6. PROTECT UNDERWATER CULTURAL HERITAGE

We advocate for preserving underwater intangible and tangible cultural heritage connecting humanity to our marine realm. The ocean is an inseparable thread, intricately woven into the fabric of human cultures and fosters deep emotional connections.

1.7. SUPPORT THE VITAL OCEAN EXPLORATION

We call for sustained, increased and inclusive ocean exploration to unravel and connect with the ocean's mysteries, to foster awe, appreciation and value for the ocean's complexity and diversity, and to highlight its vulnerability to anthropogenic pressures.

1.8. EMPOWER INFORMED DECISION-MAKING THROUGH OCEAN LITERACY

We support knowledge informed decisions for a sustainable and equitable future for all, by promoting comprehensive and inclusive ocean literacy to empower individuals, communities, institutions, and governments to be responsible stewards.

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OAP 5
OAP 6

.ENABLE EFFECTIVE, EQUITABLE AND ENVIRONMENTALLY SAFE OCEAN-BASED APPROACHES TO ACHIEVE THE MITIGATION AND ADAPTATION GOALS OF THE PARIS AGREEMENT

As climate change intensifies, the ocean plays a pivotal role in mitigation and adaptation strategies needed to achieve the Paris Agreement goals. Effective, equitable, and environmentally safe ocean-based approaches are critical for addressing climate impacts while preserving marine biodiversity and supporting vulnerable communities.

2.1. DECREASE GLOBAL GREENHOUSE GAS EMISSIONS

A strong and urgent phase out of fossil fuel use, including no new investments, is needed to achieve the goals of the Paris Climate Agreement.

2.2. PROMOTE TRANSITION TO NET-ZERO EMISSIONS THROUGH NEW OCEAN INFRASTRUCTURE

Accelerating the transition to net-zero through new technologies and infrastructures[5] must be done in accordance with the precautionary principle[6] to support a more resilient marine environment and in harmony with ecosystems and communities.

2.3. IMPROVE KNOWLEDGE OF MARINE CARBON DIOXIDE REMOVAL APPROACHES

Understanding the effectiveness, risks, co-benefits, and social and equity impacts of marine Carbon Dioxide Removal (mCDR) before large-scale deployment is paramount. We advocate for approaches providing co-benefits for climate and biodiversity.

2.4. STRENGTHEN OCEAN OBSERVING AND MODELING CAPABILITIES

Investing in local to global long-term ocean observing systems improves understanding and prediction of ocean variability and extreme events, which is essential for effective adaptation strategies. We need improved climate models that are integrated with a wider range of Earth processes and supported by high-performance computing facilities.

2.5. IMPROVE KNOWLEDGE OF CLIMATE RISKS AND IMPACTS

We advocate for assessments of impacts and risks of slow-onset ocean changes, extreme climate events, compounding effects with non-climatic ocean stressors, and drivers of ecosystem and societal vulnerability. Filling these knowledge gaps informs effective and timely adaptations, and prevents irreversible losses to marine and human communities.

2.6. DEVELOP ADAPTATION STRATEGIES FOR UNAVOIDABLE SEA LEVEL RISE

Prioritizing holistic approaches is crucial for enhancing coastal resilience, as it allows for the integration of environmental, social, economic, and equity considerations. Such approaches can produce multiple benefits, enhancing biodiversity, climate stability, and community welfare simultaneously.

2.7. ADDRESS THE UNIQUE CLIMATE RISKS OF INDIGENOUS, MARGINALIZED AND GLOBAL SOUTH COMMUNITIES

Supporting the resilience of these groups to the impacts of climate change on marine ecosystems, policy development and resource allocation should prioritize inclusive, culturally relevant, and equitable adaptation strategies.

[5] E.g. Offshore Renewable Energy (ORE), Carbon Capture, Utilisation and Storage (CCUS), and hydrogen production.
[6] The precautionary principle refers to an approach for decision-making which takes preventative action in the face of uncertainty.

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OAP 1
OAP 2
OAP 4
OAP 5

.EFFECTIVELY PROTECT AND RESTORE MARINE AND COASTAL ECOSYSTEMS THROUGH EQUITABLE AND SUSTAINABLE MANAGEMENT

Effective protection and restoration of marine and coastal ecosystems are crucial to achieving the Global Biodiversity Framework targets. To balance biodiversity goals, marine biodiversity research must match the depth of knowledge available for terrestrial ecosystems.

3.1. ACCELERATE THE IMPLEMENTATION OF THE 2023 BIODIVERSITY BEYOND NATIONAL JURISDICTION (BBNJ) AGREEMENT

Swiftly implementing this Agreement promotes international cooperation for the conservation and sustainable use of marine biodiversity beyond national boundaries.

3.2. ESTABLISH CLIMATE-SMART AND AREA-BASED MANAGEMENT OF MARINE ECOSYSTEMS

Strive to allocate at least 30% of marine areas to adaptive Marine Protected Area (MPA) networks, ensuring these areas uphold protection levels capable of delivering tangible benefits for biodiversity conservation. Enhance transboundary marine spatial planning to safeguard fish stocks, ecosystems, and the ocean economy.

3.3. ADOPT INTEGRATED AND SUSTAINABLE OCEAN PLANNING AND MANAGEMENT

We support the development of port risk assessments, ecosystem-based management, and strategic environmental assessments[7] in all aspects of ocean governance.

3.4. MAXIMIZE EFFORTS TO ACHIEVE RESTORATION SUCCESS

We advocate for the restoration of 30% of degraded marine and coastal ecosystems to address human-induced pressures by using a holistic source-to-sea approach and integrating social-ecological systems.

3.5. EXPAND OBSERVATION AND MONITORING

Strengthening international frameworks should aim at harmonizing data collection, promoting inclusiveness through citizen science, and developing advanced technologies to improve ecosystem assessment and management.

3.6. TACKLE POLLUTION AND HUMAN-INDUCED ENVIRONMENTAL DEGRADATION

We advocate for integrated land-to-ocean strategies, aligned with the United Nations Environment Programme's (UNEP) Global Programme of Action, addressing pollution from hazardous chemicals, oil spills, nutrient runoff, and industrial activities.

3.7. PROMOTE A NATURE-POSITIVE BLUE ECONOMY

Advancing equitable and regenerative activities in ocean economic sectors such as port operations and marine renewable energy, coastal tourism and traditional fisheries sustains livelihoods through healthy ecosystem services.

3.8. ADOPT A ONE HEALTH APPROACH TO BIODIVERSITY CONSERVATION

Promote a cohesive One Health strategy that fosters collaboration between environmental and health sectors to enhance medical innovations and reduce risks of disease and pollution arising from the utilization of marine biodiversity.

3.9. ELIMINATE HARMFUL SUBSIDIES

Removing harmful subsidies is crucial for maintaining marine ecosystem health as it helps decrease pollution both on land and at sea, promotes sustainable and equitable fisheries practices, and improves policy coherence across national boundaries.

[7] A Strategic Environmental Assessment evaluates the environmental impacts of proposed policies before their implementation to ensure that environmental considerations are integrated into decision-making processes.

.4

OAP 2
OAP 5
OAP 6
OAP 9

.PAUSE HARMFUL ACTIVITIES IN THE DEEP OCEAN WHILE IMPROVING KNOWLEDGE TO ENABLE SUSTAINABLE AND EQUITABLE USES

The deep ocean[8] is the largest ecosystem on Earth and mostly unexplored. Most of its species are undiscovered, yet support key processes for the functioning of our planet. Without fully understanding the risks and trade-offs of deep-sea activities, there is an urgent need to pause uninformed decision making and invest in research.

4.1. PREVENT HARMFUL IMPACTS FROM HUMAN ACTIVITIES IN THE DEEP OCEAN

There are no known substitutes for deep-ocean ecosystem services that operate over vast distances and timescales, such as climate regulation. We recommend a precautionary approach to preserve their benefits while avoiding losses. This entails reevaluation of human activities that could harm the deep ocean, such as oil and gas extraction, bottom-trawling, deep-sea mining, and mCDR.

4.2. IMPROVE OUR UNDERSTANDING OF DEEP-SEA ECOSYSTEMS

Justifying the challenges and costs of deep-sea activities requires improvement to the limited knowledge of deep-sea ecosystems and their vulnerability, ecosystem services, and disturbance response. Including robust data collection and syntheses of different types of knowledge, uncoupled from extractive motives, informs sustainable decision-making and management.

4.3. GOVERN AND MANAGE THE DEEP OCEAN EFFECTIVELY AND INCLUSIVELY

Maintaining the integrity and resilience of deep ocean ecosystems, based on sound science and monitoring, requires developing, implementing and modernizing policies, regulations and agreements with stakeholders and rights holders for inclusive and holistic governance and management of the deep ocean.

4.4. USE THE DEEP OCEAN SUSTAINABLY

We advocate for equitable and sustainable use of the deep sea including restoring and integrating the rights and interests of IPLCs in activities; providing benefits to present and future generations; restoring, protecting and maintaining diverse, productive and resilient ecosystems; and embracing clean technologies, renewable energy and circular material flows.

4.5. INTEGRATE EQUITY IN DEEP OCEAN SCIENCE

Deep-sea exploration, science, and technology have predominantly been controlled by economically advanced nations. There is a need to transform the approach to deep ocean science to shift from superficial inclusion to practices that are equitable, fair, and inclusive. It is important to foster partnerships that are authentic, long-lasting, and equitable; sustainable; attentive to self-identified needs; and collaboratively designed and implemented.

[8] *The deep ocean includes ocean and seafloor more than 200 metres below the sea surface.*

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OAP 9

.ENSURE EQUITABLE SHARING OF BENEFITS DERIVED FROM MARINE GENETIC RESOURCES

Marine genetic resources (MGRs) are increasingly valuable in industries such as pharmaceuticals, biotechnology, and environmental conservation. However, the equitable sharing of benefits derived from MGRs poses significant challenges, particularly between economically developed and developing countries, as well as with IPLCs.

5.1. IMPROVE MGRs LEGAL FRAMEWORKS

We call for the ratification and implementation of the 2023 BBNJ Agreement to extend guidelines for access to genetic resources and benefit-sharing outlined in The Convention on Biological Diversity (CBD) and its Nagoya Protocol to areas beyond national jurisdiction and the seabed. We also call for the implementation of the rules recently adopted by the World Intellectual Property Organisation to guarantee transparency on the origin and nature of genetic resources.

5.2. INCLUDE NON-MONETARY BENEFITS IN SHARING FRAMEWORKS

Incorporating non-monetary benefits, such as access to research results and participation in collaborations, into MGRs sharing frameworks empowers less economically developed nations and IPLCs thereby enhancing their participation in the blue economy.

5.3. ESTABLISH OPEN DATABASES ON MARINE GENETIC RESOURCES

Open MGRs databases that respect FAIR[9] principles promotes the development of scientific research and ensures the transparency and traceability of related bioprospecting and exploitation activities. When applicable, taking CARE[10] data sovereignty principles into account is key to ensure the equitable use of MGRs.

5.4. FOSTER CAPACITY SHARING AND TECHNOLOGY TRANSFER

Enabling equitable benefit-sharing, we advocate for the development of capacity-building initiatives within international agreements, supported by public and private sectors. Addressing the limitations faced by many developing countries and IPLCs in exploring and utilizing MGRs requires the transfer of marine technology, including advanced equipment and training programs, to level the playing field.

5.5. STRENGTHEN INTERNATIONAL COOPERATION

We urge developed countries and private corporations dominating MGR exploration to engage in dialogue and adhere to standards for transparent, equitable practices that respect IPLCs' rights and knowledge. Ensuring equitable benefit-sharing with nations and communities with reduced access to MGRs can be facilitated by international organizations such as the United Nations.

[9] FAIR stands for Findable, Accessible, Interoperable, and Reusable.
[10] CARE stands for Collective Benefit, Authority to Control, Responsibility, and Ethics, https://www.gida-global.org/care

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OAP 1

.END ILLEGAL, UNREPORTED AND UNREGULATED FISHING, AND IMPROVE TRANSPARENCY

Non-compliance with fishing regulation undermines management regimes and creates tensions between resource users and regulators, threatening the sustainability of marine ecosystems. Research to improve transparency and implement measures is needed to support the policies and actions that are required to end illegal, unreported and unregulated (IUU) fishing.

6.1. IMPROVE DETECTION, DETERRENCE AND ENFORCEMENT

We urge for investments to advance methods for tracking vessel movements and catches, co-developed with fisheries authorities, which address underlying non-compliance motivations.

6.2. SUPPORT COMPLIANCE AND LAW ENFORCEMENT THROUGHOUT SUPPLY CHAINS

Understanding supply chains and how markets drive unsustainable fishing is key for preventing overfishing. We call for improving compliance, law enforcement and identifying leverage points to reduce illegality throughout supply chains. This includes consolidating and creating new partnerships to address the impact of IUU fishing in markets and implementing intelligence-led, skills-based cooperative law enforcement actions at multiple scales.

6.3. INTEGRATE HUMAN RIGHTS DIMENSIONS

Human rights violations at sea are often linked to IUU fishing practices. We support measures to ensure human rights in fishing, processing, and implementation of enforcement and deterrence measures, including addressing forced labor, child labor, slavery, and the welfare of crew and operators.

6.4. ELIMINATE HARMFUL SUBSIDIES

We advocate for a halt to government subsidies incentivizing overcapacity and overfishing in distant-water fishing fleets and in national jurisdictions. Supporting the transition needs robust work on legal and policy dimensions, including policy coherence and international cooperation.

6.5. IMPROVE TRANSPARENCY IN AGREEMENTS

International coordination is needed to harmonize and effectively implement transparency standards to address issues such as movement of goods from ship to ship, vessel tracking, fishers' government database records, foreign fishing access, joint venture terms and trade. We call for port states to ratify and implement the United Nations' Food and Agriculture Organization's Port State Measures Agreement to stop IUU fishing.

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OAP 1
OAP 2
OAP 4
OAP 6
OAP 7

.ENSURE SUSTAINABLE, EQUITABLE, AND SAFE OCEAN-BASED FOOD SYSTEMS

Well-managed ocean-based foods can contribute to sustainable diets, supply critical nutrients, and support diverse livelihoods. However, for ocean-based foods to support equitable consumption now and in the future, it is important to consider all forms of access, address tradeoffs with other foods and ensure their safety.

7.1. PROMOTE SUSTAINABLE FISHERIES AND AQUACULTURE

We call for sustainable and ecosystem-based management approaches to ocean-based food systems that incorporate Indigenous knowledge and customary practices to be implemented, continued or expanded. Addressing transboundary issues, reducing excess capacity, preparing for climate change and reducing environmental stressors, including biodiversity impacts and greenhouse gas emissions, is key to their success.

7.2. SUPPORT SMALL-SCALE ACTORS

Small-scale actors play an outsized, yet often overlooked, role in supporting livelihoods and local food consumption. We advocate for fisheries and aquaculture policies that recognize and support the diverse contributions of small-scale actors, including women, in ocean-based food production and post-harvest activities.

7.3. INCREASE EQUITABLE AND TRANSGENERATIONAL ACCESS TO OCEAN-BASED FOODS

We support research on infrastructure supporting physical access, governance frameworks that foster equitable and inclusive access, and recognize cultural aspects of access. This supports fisheries and production policies for an equitable distribution of benefits, which are inclusive of gender dimensions, and monitor success across value chains.

7.4. INTEGRATE OCEAN-BASED FOODS INTO BROADER FOOD POLICIES

Food production and consumption policies fully considering ocean-based foods create synergies and avoid potential tradeoffs with other sectors. We urge the inclusion of food waste reduction policies to support by-product utilization, and alignment of production and environmental policies to minimize natural resource competition and negative environmental impacts.

7.5. VALUE THE NUTRITIONAL BENEFITS OF SEAFOOD AND ENSURE ITS SAFETY

A thorough understanding of seafood value and safety risks due to ecological hazards (e.g., harmful algal blooms), pollution and handling and transformation processes is needed. National policies and international agreements need to formally recognize the nutritional benefits of seafood and support institutions and infrastructure to detect, monitor and minimize food safety risks.

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OAP 4

. ADOPT COMPREHENSIVE MEASURES TO END MARINE PLASTIC POLLUTION

Effective plastic management requires a life-cycle approach, advancing recycling technology, fostering a circular economy, and advancing solutions to marine plastic pollution. It is crucial to establish globally accepted monitoring and assessment methodologies for marine plastic pollution in compliance with the Plastic Treaty under negotiation, to quantify the various behaviors and impacts on ecosystems and livelihoods.

8.1. ADOPT A LIFE-CYCLE APPROACH

Prioritizing upstream measures, such as reducing the production and consumption of unnecessary, avoidable, and problematic plastic products, we call for effective management of wastewater treatment and waste transport, while promoting behavioral changes to address middle and downstream pollution.

8.2. INNOVATE IN TECHNOLOGIES AND ALTERNATIVE MATERIALS

We support science-based Extended Producer Responsibility[11] which promotes durable and recyclable product designs, advances recycling and remediation technologies, and develops alternative materials.

8.3. PREVENT THREATS TO LARGE MARINE ANIMALS FROM OCEAN PLASTIC DEBRIS

We advocate for strict adherence to existing agreements such as the International Convention for the Prevention of Pollution from Ships, regulating ship and cargo discharges. Promoting ocean literacy drives behavioral changes among fishing communities, mariners, citizens, and tourists.

8.4. DEVELOP GLOBALLY HARMONIZED STANDARDS FOR MONITORING AND ASSESSMENT

We urge the coordination of monitoring strategies across marine environments to address various types and sizes of plastics, and the creation of standardized risk assessments for plastics and chemical additives to safeguard human and environmental health.

8.5. QUANTIFY THE COMBINED SOCIO-ENVIRONMENTAL-ECONOMIC IMPACTS

Accelerating policy development and mitigation measures as part of ongoing Plastic Treaty negotiations is needed, including mechanisms to account for financial costs and losses across economic sectors.

[11] Extended Producer Responsibility refers to an environmental policy approach holding producers responsible for the lifecycle of their products.

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OAP 6

.DECARBONIZE SHIPPING AND REDUCE THE ENVIRONMENTAL IMPACT OF MARITIME TRANSPORT

The International Maritime Organisation's mandate for zero-emission shipping by 2050 provides regulatory impetus and an opportunity to stimulate economic growth and create jobs. A comprehensive approach is essential to address the triple planetary crises of climate change, pollution and biodiversity loss by reducing the environmental footprint of shipping.

9.1. DEVELOP ALTERNATIVE FUELS, PROPULSION TECHNOLOGIES AND SYSTEMS

We recommend a focus on the viability, efficiency, economic performance, and life-cycle analysis of alternative technologies to support innovative ship design from construction to decommissioning, low-impact autonomous vessels, efficient voyage planning and routing. Key examples include leveraging digital twins (real-time data and artificial intelligence) and adopting circular economy models.

9.2. STRENGTHEN INTERNATIONAL REGULATIONS

We urge the development of monitoring, reporting and verification systems of greenhouse gas emissions from shipping that integrate satellite technology and remote sensing. Also, the creation of standards and certification schemes must be expedited by regulators to incentivize the adoption of green technologies, penalize high-emission practices, and avoid gaps which may slow the transition to new sustainable fuels. Addressing the safety, cybersecurity and regulatory challenges associated with autonomous shipping and their integration into global shipping lanes is also crucial.

9.3. UPGRADE PORT FACILITIES

We advocate for rapid enhancement of port infrastructure to support decarbonized maritime shipping and the shift towards net-zero emissions. This includes smart port technology (e.g. handling decarbonized ships and cargo), shore power, liquified natural gas storage, alternative fuel infrastructures, Offshore Renewable Energy (ORE), and Carbon Capture, Utilisation and Storage (CCUS), while ensuring these also benefit marine biodiversity.

9.4. IDENTIFY, CHARACTERIZE AND PROTECT PARTICULARLY SENSITIVE SEA AREAS (PSSAs)

An expansion of PSSAs use is required to reduce environmental risks associated with potential oil spills, noise pollution, ship strikes on marine life and other disturbances to marine ecosystems, and measures to enhance monitoring and compliance.

9.5. REDUCE THE CARBON FOOTPRINT OF OCEANOGRAPHIC FLEETS

We support the use of alternative fuels, propulsion technologies and systems for oceanographic fleets while preserving their specific characteristics. Using heavy equipment and accommodation of scientific teams is balanced with using autonomous equipment and alternating transit and work phases, to reduce environmental impact.

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OAP 3
OAP 8
OAP 9
OAP 10

.ENSURE AMBITIOUS INVESTMENTS IN INCLUSIVE FUNDAMENTAL TRANSDISCIPLINARY KNOWLEDGE GENERATION TO INFORM OCEAN ACTION

Addressing the numerous challenges facing the ocean requires transdisciplinary[12] approaches. Integrating diverse perspectives, strengthening research infrastructure, and translating science into policy-relevant information are essential. Long-term funding is needed to support sustainable ocean management and fill critical funding gaps to ensure a resilient and equitable blue economy.

10.1. GENERATE TRANSDISCIPLINARY KNOWLEDGE

Ocean challenges are complex and interconnected: they thus require collaboration across disciplines, including natural, engineering, digital, and social sciences. We advocate for the inclusion of multiple knowledge systems and diverse perspectives, led by IPLCs, scientists from developing countries, and other underrepresented groups.

10.2. STRENGTHEN INNOVATION RESEARCH CAPABILITIES

We call for research activities in areas such as materials science, low energy sources, new sensors, autonomous vehicles, and renewed infrastructure tools that perform better and are less costly, to address emerging challenges and guide governance and management.

10.3. ENHANCE RESEARCH INFRASTRUCTURE

Maintaining, expanding, and integrating observations, monitoring, modeling, and digital twins for effective management of marine ecosystems requires robust infrastructure and partnerships at all levels: regional, national, institutional, and across communities. Success includes equitable access to data and tools, long-term and stable funding for essential services (e.g. modelling and forecasting), and tracking of international agreement progress across nations, with a focus on sharing capacity and incorporating IPLCs' knowledge.

10.4. DEVELOP AND MAINTAIN LARGE-SCALE OBSERVATIONS

We need space-based and *in situ* supported systems collecting a wide range of data, establishment of open databases of marine genetic resources, and promotion of knowledge transfer to regions lacking ocean observing resources.

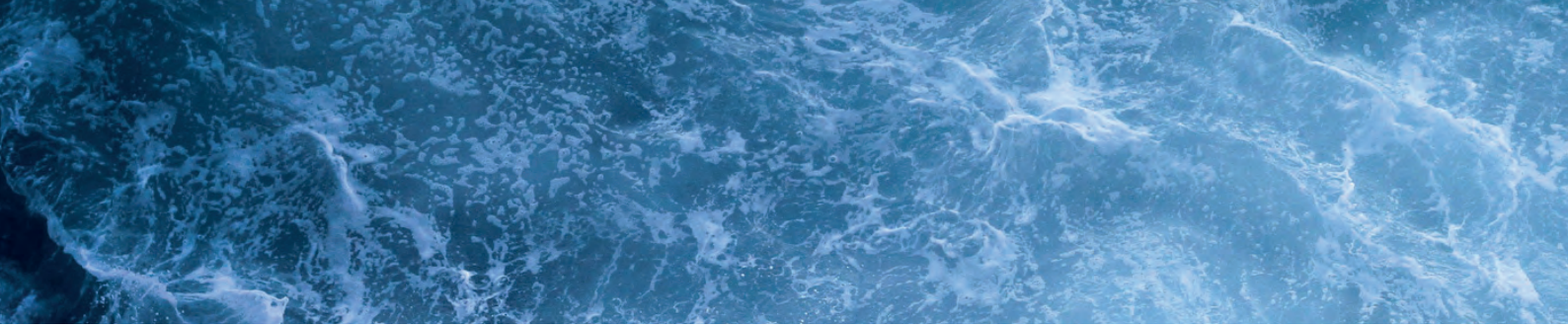
10.5. SUPPORT INCLUSIVE SCIENCE-POLICY-SOCIETY INTERFACES

Engaging scientists in policy discussions, offering evidence-based recommendations to policymakers, and evaluating the effects of governance on ocean health are strategies we must employ to convert scientific insights into actionable policy opportunities. These approaches ensure that management is adaptive and grounded in scientific understanding.

10.6. INVEST IN A SUSTAINABLE BLUE ECONOMY

The significant funding shortfall for SDG14 jeopardizes the 2030 Agenda because of its interconnectedness with other Sustainable Development Goals. We urge governments, development aid agencies, the private sector, and philanthropic organizations to invest in fundamental ocean research and the application of this knowledge to develop practical ocean solutions.

[12] *Transdisciplinary approaches integrate insights from multiple disciplines, along with inputs from, and interactions with stakeholders outside the academic sphere to address complex real-world problems.*



The **One Ocean Science Congress** is co-organized by CNRS and Ifremer. It is a UN special event of the 2025 United Nations Ocean Conference co-chaired by the governments of Costa Rica and France.

Nice, 3-6 June 2025
A special Event of the 3rd United Nations Conference on the Ocean
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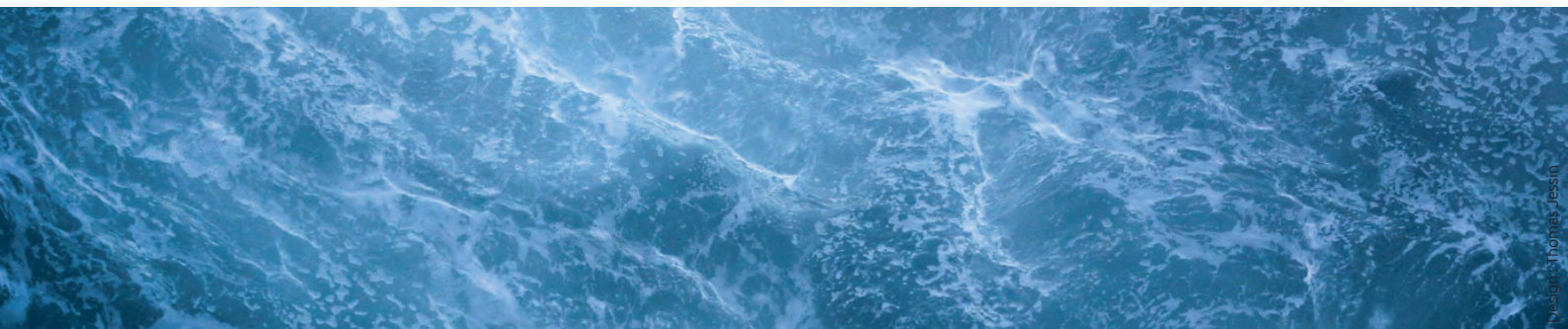

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