



The *Académie des Sciences d'Outre-Mer* (ASOM), France,
and
the *Royal Academy for Overseas Sciences* (RAOS), Belgium,
held an international conference at ASOM on November 16 and 17, 2023
on



OCEAN GOVERNANCE

Banc de carangues en Indonésie © J. Mallefet

**Marine Resource Management, Biodiversity Conservation,
Food and Maritime Security, and Sustainable Development**

Recommendations

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On November 15 and 16, 2023, at the initiative of the Académie des Sciences d’Outre-Mer (ASOM, France) and the Royal Academy for Overseas Sciences (RAOS, Belgium), a group of French and Belgian academicians and experts from various national and international organizations debated the future of the oceans and the well-being of humanity, following the United Nations summits on the SDGs and on climate ambition in New York in September 2023 and in view of the third United Nations Oceans Conference scheduled for June 2025 in Nice.

During these two days, 22 presentations (see appendix) were delivered on all the important themes on the subject with a multi-disciplinary and integrated approach. At the end of the session, participants identified recommendations for better governance of oceans and seas.

Observation of the current situation

Oceans and seas cover more than 71 % of the surface of our globe and represent approximately 97 % of the earth’s water.

The world’s oceans and seas perform numerous functions and provide multiple services that are of crucial importance to our daily well-being and long-term survival.

Knowledge and scientific monitoring are essential for understanding how the oceans and seas work and for decision-making by political authorities.

Increasing anthropogenic pressures on the coastal zone and at sea can lead to the loss of biodiversity, the extinction of ecosystems, hypoxia of waters, new diseases for organisms, the proliferation of algae or harmful animals, the reduction in water quality, depletion of resources, presence of toxins in consumed species, representing a danger to human health.

Global changes and their impacts on the climate, in particular the rise in sea levels and the increase in storms, endanger coastal populations and more particularly low-lying islands.

As part of the fight against the increase in carbon in the atmosphere, new technologies require more and more metals which occur on the ocean floor and their exploitation at sea could have consequences on the environment more serious than their mining on land and recycling.

Marine resources are essential for the nutrition of almost half of the world’s population. Today, many stocks of fish, invertebrates and crustaceans are fully exploited or overexploited.

Borders don’t really have any meaning in the world’s oceans and seas, where water is a unifying environment. Only a systemic perspective uniting water movements, primary productivity, food webs, animal migrations, pollutant transport, biogeochemical cycles, global change, human uses and their impacts, can provide a scientifically solid basis. for the governance of the world’s oceans and seas.

Predictions of experts from all disciplines see many problems ahead:

- Sea level rise is accelerating, with an estimate of 1.2m to 2m in 2100.
- It is estimated that more than 600 million people will be displaced by 2100.
- Many cities and coastal infrastructure are vulnerable as the coastline recedes and many islands will disappear partially or completely.
- With the rapid warming of both Earth’s poles, the melting of the ice caps may become irreversible.
- Climates are and will be disrupted in many countries, with social and health problems, epidemics and famines, causing major migrations and increasing security problems for people and property.
- ...

With the aim of integration, the regulation of human uses of the oceans and seas must include numerous activities whose management is the responsibility of different national institutions..

The table shows the list of the main sectors of activity, their main purpose and the ministries or administrations concerned for good management of the oceans and seas.

Sectors at sea and on the coast	Themes
1. Fishing	Food, health
2. Mariculture	Food, health

3. Commercial and cruise shipping	Transportation of people and goods
4. Tourism	Water activities
5. Infrastructure linked to the coast	Ports, piers, pumping stations and discharges at sea (desalination, cooling, mariculture on land)
6. Long-distance infrastructure on the bottom	Underwater pipes (all products), communication cables, energy, etc.
7. Energy-producing infrastructure	Wind farms, energy plants (tides, currents and swells) or thermal
8. Large works with dredging and dumping at sea or on land,	Tunnels, bridges, maintenance of navigation routes, recharging of coastlines
9. Mining at sea	Oil, gas, minerals, sand and gravel,
10. Military activities	
11. Scientific research	Study and monitoring of the marine environment
12. Prospecting for genetic resources	Health, medical research
13. Conservation of natural heritage	Protected areas, conservation areas, sanctuaries, fishing reserves, etc.
14. Conservation of cultural heritage	Cultural sites, seascapes or underwater landscapes, wrecks
15. Marine spatial planning	Definition of uses on the surface, in the water zone, at the bottom and underground

Current governance of oceans and seas is fragmented between numerous international or regional instruments or organizations and in particular: the Law of the Sea, the International Seabed Authority, the International Maritime Organization, UNEP regional seas, Conventions on Climate, Biodiversity, Migratory Species, Chemicals, Whale Hunting, Regional Fisheries Organizations.

A new instrument has just been signed in June 2023, the Treaty for the Protection of the High Seas, which should make it possible to fill a gap with regard to the management of the oceans beyond national jurisdictions, but which makes the process even more complex for integration of different instruments and their application.

UN Conferences on the Oceans in support of their governance must be held every five years: 2017, 2022, 2027, etc. with the power of recommendations. The 2022 conference highlighted the collective failure to achieve ocean-related goals, and the weakness of ocean governance at all geographic scales.

The communications will be published, along with the conclusions and recommendations in a peer-reviewed multilingual special issue of the *Proceedings of the Royal Academy for Overseas Sciences* (PRAOS).

Recommendations

We need to innovate in the governance of oceans and seas. Academicians and experts have identified a certain number of points that can allow us to improve the current system.

R1. Ocean and sea governance is fragmented at the global and regional levels, as well as at the national level, and requires a systemic approach

Boundaries have no meaning in the ocean, where water binds everything. Only a systemic perspective that unites ocean dynamics and connectivity, primary productivity, food chains, migrations, pollutant transport, biogeochemical cycles, and human uses and impacts can provide a reliable scientific basis for governance of the oceans.

The oceans also serve as a support for many human activities and are subject to their impacts as well as those of terrestrial activities, requiring conscious and coordinated management.

R2. Governance of oceans and seas must become a priority at the international level

The central importance of the environment to all aspects of our lives and our collective well-being must be accompanied by an elevation of the environment within our system of global governance.

This calls for the strengthening of the United Nations Environment Program (UNEP) and the UN Environment Assembly (UNEA) with mandates and resources comparable to the UN institutions for development, peace and security and human rights. Precisely, UNEP must have the capacity to act as an effective global environmental agency, capable of monitoring our impacts on the environment in interaction, of consolidating and measuring our commitments, of conditioning our global financial investments, and of pursuing a transformative agenda for humanity and the planet through multilateralism.

R3. Consider that the political boundaries in oceans and seas are an obstacle to integrated governance

All artificial boundaries in the ocean should be seen as administrative responsibilities, not a symbol of absolute sovereignty.

In particular, the law on Exclusive Economic Zones (200 nm) and the extension of the continental shelf (360 nm) must be revised to adapt to changes in coastlines with rising sea levels, so that small island states that lose all of their national territory can keep their right to the resources of their EEZ in compensation.

R4. The integration of all scientific disciplines is necessary to define the governance of oceans and seas

Because the global ocean is a single integrated system, we must overcome fragmentation in our current ocean governance.

All decision-making must be based on the best possible science (all disciplines included) regarding the state and evolution of the ocean, and human activities and their impacts. We need to strengthen research technically and financially and institutionalize data collection, modelling, scientific advice, and, if useful, with the help of artificial intelligence for data management, monitor changes and identify tipping points.

Apart from current initiatives for improving ocean knowledge, such as the UNESCO/IOC Ocean Decade for Scientific Capacity (2021-2030), the creation of an international group of experts for the sustainability of Oceans (IPOS for International Panel for Ocean Sustainability) accompanied by an institutionalized ocean observation system, should be considered as an essential mechanism for recommending decisions without political consideration. This group could, among other things, verify that ocean observation data are reliable and used systematically by the parties involved in ocean governance.

R5. Develop a binding legal framework integrating all human activities implemented by a global environmental agency for the world's oceans and seas

A new legal framework must prioritize the well-being of the entire ocean system beyond national sovereignty and exclusive economic zones, and involve non-state actors.

Comprehensive ocean governance with legislative, executive and judicial functions can be implemented as part of general reforms of the UN system, or separately as an environmental or ocean governance institution.

This institution could be a global environmental agency with responsibilities for the planetary commons including the oceans, the capacity to adopt binding laws for the protection of planetary boundaries, the authority to orchestrate all the institutions and participants who occupy the oceans, and the responsibility to protect the ocean and ensure the sustainable use of its resources (recommendation of the UN High Level Advisory Board, 2023).

It would also be appropriate to have a Court of Environmental Justice to interpret the various instruments concerning the marine environment and resolve disputes.

R6. Reduce or eliminate the negative impacts of human activities

It is necessary to clearly identify those responsible for all impacts on the oceans, by imposing environmental impact studies, relying on the precautionary principle and developing a system of penalties commensurate with the immediate damage and taking into account the restoration of environments (ecosystems, species).

In the case of marine pollution, due to land or maritime activities, the “polluter pays” principle must apply at the source.

In the case of illegal fishing, overfishing and the destruction of sites responsible for high productivity, these activities must be sanctioned with significant penalties in relation to the immediate and long-term damage.

In the context of the destruction of biodiversity and ecosystems, penalties must consider immediate damage and the time to restore them.

Every potentially negative human activity must be considered.

R7. Give a positive meaning to the terms “blue economy, blue growth, blue industry” by placing them in a context of sustainability meeting the economic and social needs of humanity while respecting the most demanding environmental standards

The current trend is to want to give a monetary value to the oceans, seas, their ecosystems and their resources, in order to raise awareness among decision-makers and influence development policies, without including in their development a study of their impacts. potential, immediate and future.

R8. Promote the participation of all stakeholders

No activity should take place without having first carried out an impact study with the strong involvement of stakeholders, including local communities and without being limited to the economic values of the oceans and seas but considering the cultural aspects, knowledge and traditional uses.

R9. Carry out the sea cadastre, on the surface, in the water column and at the bottom, in order to assign a use to each zone and allow efficient management, effective control and appropriate penalties

At the level of each country, carry out marine spatial planning of the part of the oceans and seas under national jurisdiction, and set up monitoring of maritime activities on the high seas, using the most modern means of monitoring (e.g. VMS on ships and tracking by satellite) to identify and penalize illicit activities.

R10. Encourage countries to ratify as soon as possible the new Treaty on the Protection of the High Seas

The High Seas Protection Treaty adopted in 2023 is now open for ratification. It will come into force at the 60th ratification. This Treaty should make it possible, within a reasonable period of time, to:

- Scientifically define what the common heritage of humanity is and consider it as the legal basis for binding legislation,
- Define a regulatory framework for the high seas, which could also apply to EEZs,
- Apply the carrying out of environmental impact studies to activities on the high seas and in EEZs,
- Define what is the fair and equitable sharing of benefits arising from the exploitation of marine resources and in particular marine genetic resources, develop a sharing mechanism and implement it,
- Support the creation of protection and conservation areas in the marine environment in order to preserve, manage, restore and maintain biodiversity,
- Strengthen the production of knowledge, technical innovations and a better scientific understanding of the marine environment.
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All these recommendations highlight the need for a fundamental transformation of the economic system from short-term financial benefit measured in terms of profit and GDP, to be based on another approach, that of human and environmental well-being. It will be necessary to find indicators of ocean well-being based on scientific criteria and to define limits for the use or exploitation of marine resources that must not be exceeded. These indicators would make it possible to measure the effectiveness of the ocean governance system.

Annex

LIST OF PRESENTATIONS AND SPEAKERS

The personal or institutional opinions of the speakers may differ from the recommendations made by the conference rapporteurs. The titles of the lectures below were all translated into English.

WELCOME SPEECH

The presidents of the Academy of Overseas Sciences (ASOM) and the Royal Academy of Overseas Sciences (RAOS).

OBJECTIVES OF THE CONFERENCE

V. Tilot de Grissac (ASOM, RAOS) and Arthur Dahl (President of the International Environment Forum (IEF), former UNEP).

GENERAL CONTEXT

- Admiral Emmanuel Desclèves (ASOM, Marine Academy): “The ocean, a common good of humanity”;
- Admiral Bernard Rogel (Marine Academy): “The new maritime challenges”;
- Elie Jarmache (ex SGMer) international lawyer, “Ocean governance through the prism of developments in the Law of the Sea”;
- Sophie Mirgaux (Belgian Federal Public Service for the Environment, special envoy for the Ocean, lawyer/environment) “The history of the negotiation of a new agreement for the protection of the ocean and why it could be historic”;
- Françoise Gaill (CNRS): “What international platform for a sustainable ocean?”;
- Olivier Dufourneaud (Unesco/COI): “The United Nations Decade of Ocean Sciences for Sustainable Development, a global momentum to put the ocean at the heart of the 2030 Agenda”.

MARINE ENVIRONMENT RESEARCH

- Serge Scory (Operational Directorate for Natural Environments of the Royal Belgian Institute of Natural Sciences): “Belgian marine research, marine planning strategy for the North Sea”;
- Gilles Lericolais (President of the European Marine Board, Ifremer): “Recommendations for maintaining ocean observation and monitoring of the marine and coastal environment necessary for a European perspective towards a digital twin of the ocean”;
- Gilles Ollier (ex-EU DG research): “Earth Observation as a tool for ocean governance”.

BLUE ECONOMY

- Christophe Yvetot (UNIDO): “Blue economy, case study”;
- Jacques Charlier (RAOS, University of Louvain): «South Africa in the era of the blue economy. Between coastal development and effective control of the EEZ»;
- Patrick Sorgeloos (RAOS, Ghent University): “Modern aquaculture is at a turning point: from monoculture to integrated systems - a necessity but an opportunity as well”;
- Farid Dahdouh-Guebas (RAOS, Université Libre de Bruxelles): “A global overview of the functions, goods and services of mangrove socio-ecological systems”.

MANAGEMENT OF MARINE RESOURCES AND CONSERVATION OF BIODIVERSITY

- Samantha Smith (DEME-Global Sea mineral resources (GSR): “Pilot studies of commercial seafloor polymetallic nodule collection in the Clarion Clipperton Zone, Eastern Pacific”;
- Ann Vanreusel (Ghent University) and Virginie Tilot (ASOM, RAOS): “Biodiversity and vulnerability of abyssal benthic fauna (with a focus on the expected impact of deep-sea mining)”;
- Alain Jeudy de Grissac (ASOM): “Conservation and Protection of the Marine Environment: Traditional approaches, new options and new actors”;
- Virginie Tilot-de Grissac (ASOM, RAOS): “Ecosystemic and integrated approach to regional projects in the marine environment; from the coast to the islands, the high seas and the deep environment”.

OCEANS, GLOBAL CHANGES, FOOD SECURITY

- Maria Darias (IRD): “Nutrition-sensitive aquaculture for a more sustainable aquatic food system”;
- Eric Verger (IRD/ MoISA): “The food system approach to (re)think the oceans.”;
- Alain Miossec (Marine Academy): “Sea level rise, observation and perspective”;
- Jean-Philippe Chippaux (ASOM) and Philippe Goyens (RAOS) “The medical emergency linked to oceans and climate change”.

CONCLUSIONS

Arthur Dahl (President of the International Environment Forum (IEF), former UNEP): “A systemic perspective on the environmental governance of the oceans”.

SUMMARY OF THE DAYS

The permanent secretaries of the two academies ASOM and RAOS and Virginie Tilot-de Grissac (ASOM, RAOS)¹.

¹ For additional information on this event, please contact contact@kaowarsom.be or dircab@academiedoutremer.fr