

IMDOS



INTEGRATED MARINE DEBRIS OBSERVING SYSTEM

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Outline

- I. Context of marine debris pollution and challenges
- II. The role of IMDOS
- III. Where are we now and next steps



I. What is Marine Litter ?

“any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment” UNEP

- **transboundary** and multi-dimensional problem **with environmental, cultural, economic, and human health risks** and associated costs.
- **Plastic waste = more than 80%** of the total debris by number.
- In 2021, **75 – 200 million tons** estimated in the oceans
- **Annual emissions** are projected **to double by 2030**



I. Political momentum

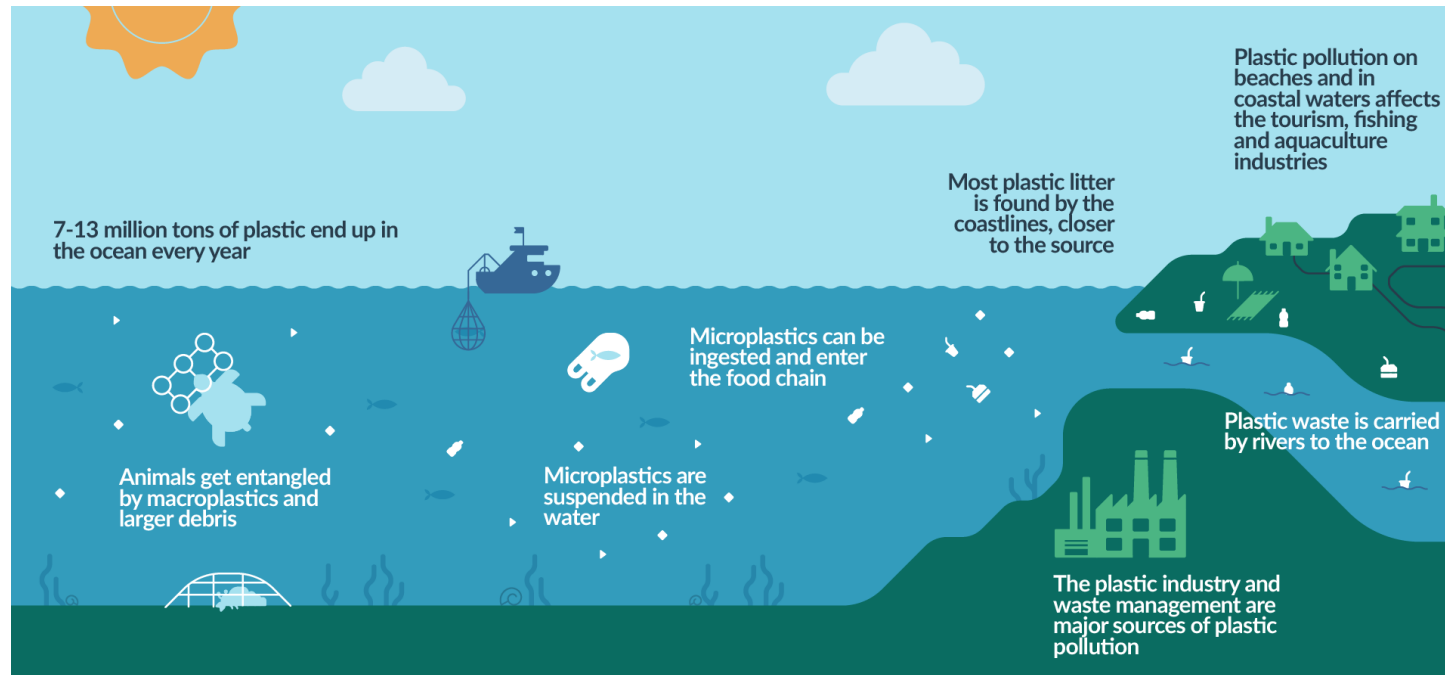
- March 2022 (UNEA-5.2) : to develop **an international legally binding instrument on plastic pollution**, including in the marine environment, by 2024
- Address **the full life cycle of plastic** - production, design, and disposal.
- Negotiations are lead by an **Intergovernmental Negotiating Committee (INC)**
- The fifth session (INC-5) is scheduled from 25th November to 1st December 2024 in Busan, Republic of Korea.



I. A wide range of forms and size

Marine debris varies in forms and size, from fishing gear to cosmetic microbeads

- Break down into **micro- and nano-plastics**
- Found **from pole to pole, from coastal shores to the depths of the oceans.**
- Varying polymer composition + **associated with toxins and pathogens.**

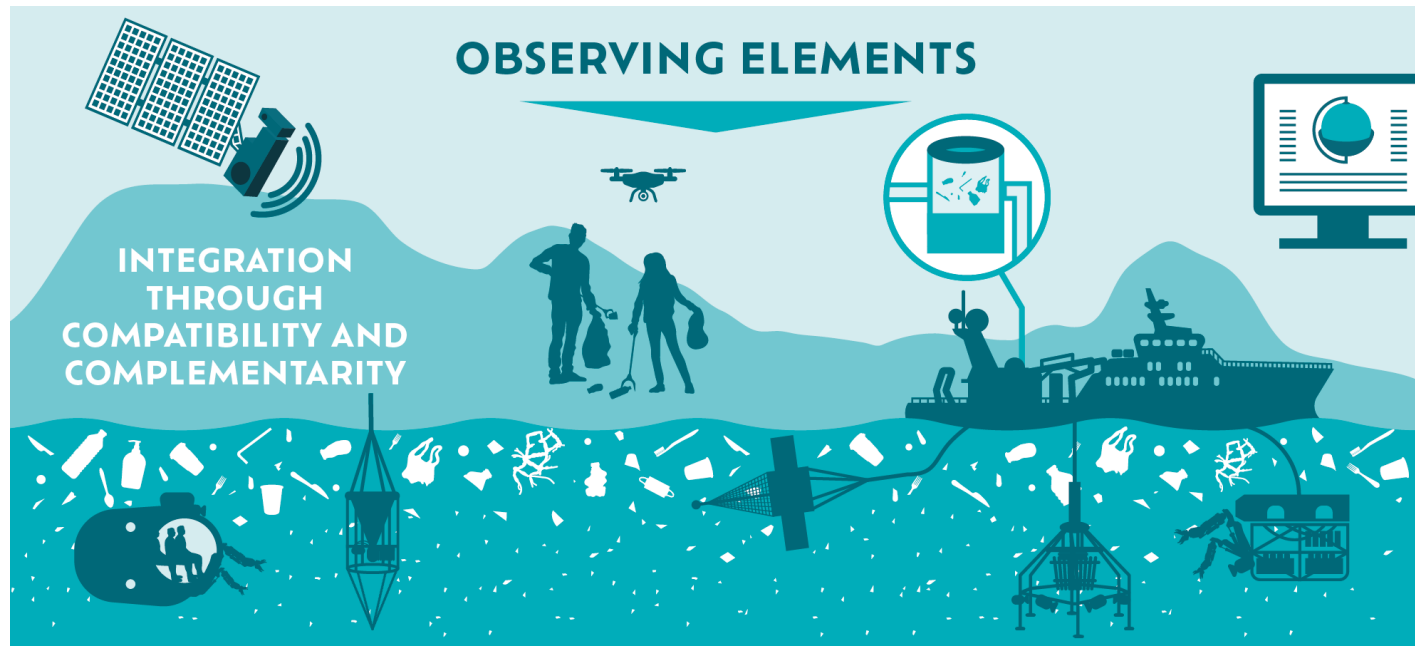


Marine plastic enters the food chain

- Ingested by the biota
- Accumulate by the coast and in shallow waters
- Entangle/choke marine life

I. A diversity of studies

Tool for capturing information : from **citizen science initiatives** to **scientific expeditions**.



- Satellite remote sensing, drones, remotely operated vehicles (ROVs).
- Sparse sampling campaigns, based on different protocols, different locations.
- Local citizen science events

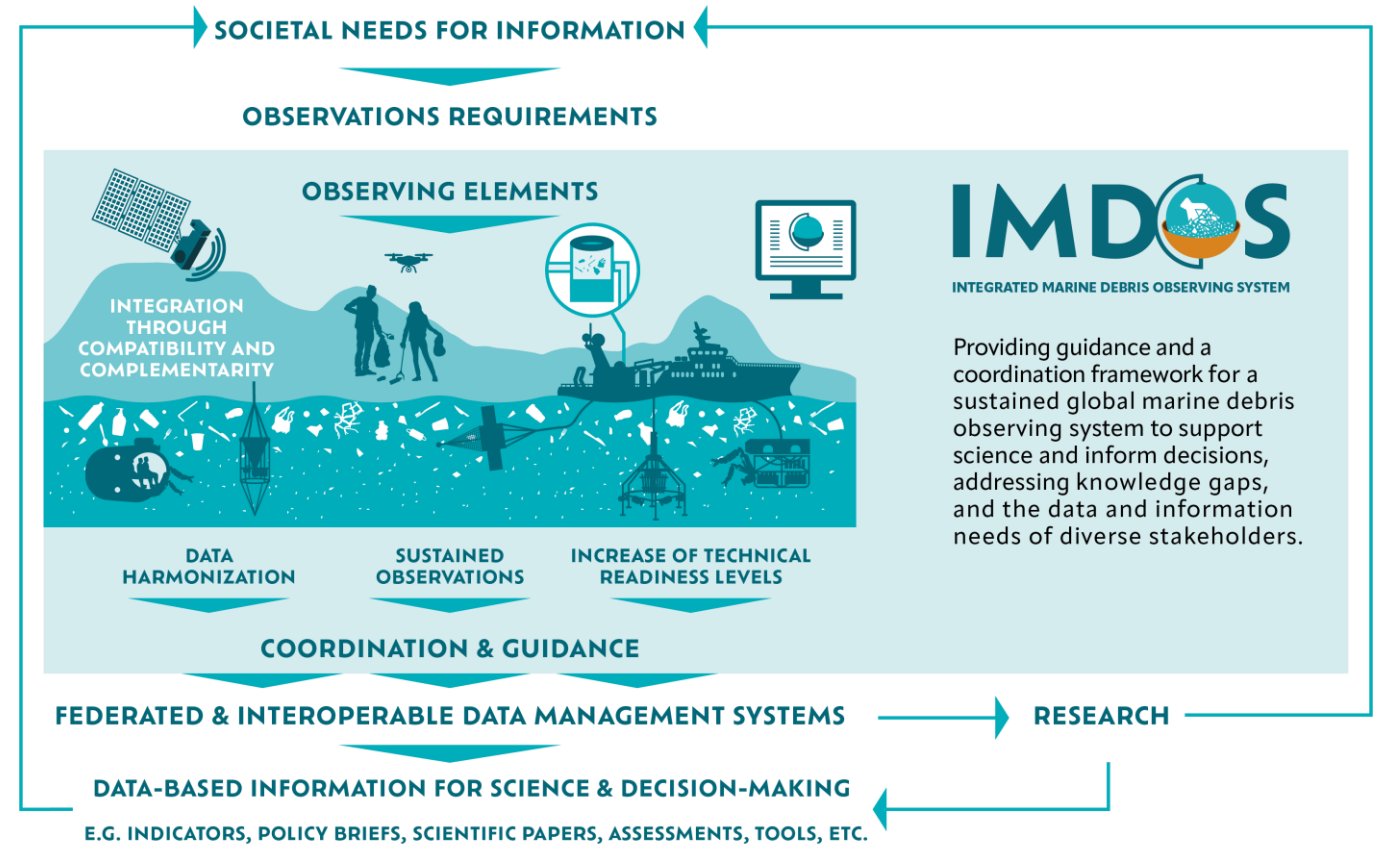
➔ Leading to un-unified datasets

II. What is IMDOS ?

The Integrated Marine Debris Observing System

Our Vision

A globally coordinated and sustained observing system of marine debris addressing knowledge gaps and diverse stakeholder needs with adequate data and information.



- support the development of a **global interoperable marine debris monitoring system**
- benefit the research community, as well as **policy- and decision-making bodies and the private sector.**

II. History

BORN OUT OF COLLABORATION

IMDOS has been developed as a joint project between :

- the Group on Earth Observations (GEO) Blue Planet Initiative,
- the Global Ocean Observing System (GOOS)
- the UNEP Global Partnership on Plastic Pollution and Marine Litter (GPML)

→ Governments / end-users are taking part in the process from the start



OCEANOBS'19 WHITE PAPER

Based on recommendations from the OceanObs'19 Conference Breakout Session on Marine Debris

Planning for a harmonized approach to marine debris monitoring

II. IMDOS Mission

Our Mission

*Provide **coordination and guidance** to lead the marine debris community in establishing a **sustained global observing system** and facilitating open access to data.*

- **Harmonize existing guidelines** towards globally recognized standards.
- **Establish federated data management systems** in line with marine debris research requirements.
- **Generate standardized data** : adequate, FAIR (Findability, Accessibility, Interoperability, and Reuse) and open.
- **Feed the GPML Digital Platform** and enable the **Digital Twin of the Ocean** for marine debris.
- **Inform** regional and global marine debris **indicators**.

IMDOS will enable the integration and synthesis of global marine debris monitoring and modelling efforts into indicators and decision-support tools through relevant data centres and knowledge platforms.

II. Coordination and co-design

- Built on **existing partnerships** : IOC-UNESCO, UNEP, the G7/G20 countries, GOOS
- Integrate existing **data harmonisation guidelines** from : **MOEJ**, European Marine Observation and Data Network (**EMODnet**) and **NOAA** National Centers for Environmental Information (**NCEI**), among others.
- Target the whole Earth Observation value chain : remote sensing, data harmonisation, modelling.



Co-design

II. Connection with the UN Agenda 2030 and the UN Ocean Decade



Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Target 14.1 : REDUCE MARINE POLLUTION

*By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, **including marine debris** and nutrient pollution.*

Answering UN Decade Challenges

#1 Understand and Beat Marine Pollution



Understand and map land- and sea-based sources of pollutants and contaminants and their potential impacts on human health and ocean ecosystems, and develop solutions to remove or mitigate them.

#7 Expand the Global Ocean Observing System



Ensure a sustainable ocean observing system across all ocean basins that delivers accessible, timely and actionable data and information to all users.

III. Where are we now ?

- **An interim Scientific Committee** has been established in 2022 with members from international organizations and regional initiatives.
- The interim Scientific Committee developed and adopted the **IMDOS Strategy** in November 2023
- **A Call for Participation** has been launched July – October 2024
 - 84 respondents
 - From 33 countries
 - Representatives of the academia, governments, businesses and civil society



III. 14 Task Teams

Thematic Data Groups

| | Particle Size | Observing Platform | Compartment |
|-----------------------------|---------------|-------------------------------------|------------------------------|
| 1 Remote Sensing | Macro | Remote Sensing | Sea surface |
| 2 Sea Surface Microplastics | Micro | In situ | Sea surface |
| 3 Seafloor Litter | Macro | In situ | Seafloor |
| 4 Modelling | All | Modelling | Sea surface and Water Column |
| 5 Beach Litter | Macro | In situ (+ remote sensing by drone) | Coastlines |

Join as member
starting January 2025

Technical coordination activities

- 6. Data Harmonization and Management
- 7. Design of Monitoring System
- 8. Technical Innovations
- 9. Citizen Science in situ Monitoring
- 10. Professional Science in situ Monitoring
- 11. Development of Indicators

Engagement activities

- 12. Data for Policy
- 13. UN Global treaty
- 14. Regional Observing Systems/Groups

III. Next steps : Steering Committee

IMDOS will be headed by a main decision-making body, the **Steering Committee** formed by two committees:

- The **Advisory Committee** will be providing advice on high level strategic directions and connections. It will identify and, where possible, contribute resources. (ex-officio seats)
- The **Work Programme Committee** will be responsible for coordinating IMDOS activities. It will be made up of **Task Teams chairs and co-chairs**.

Next steps :

- **Members of the SC will be announced by the end of October**
- 1st in-person meeting of the Steering Committee will be held in January in Paris (*by invitation*)
- Discussion on the implementation of the Strategy

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THANK YOU

Join us !



**MERCATOR
OCEAN**
INTERNATIONAL

<https://imdos.org/news/call-for-participation-integrated-marine-debris-observing-system>