A GLOBAL OCEAN FREE FROM THE HARMFUL IMPACTS OF POLLUTION BY 2050

IOC UNESCO - UNEP Proposal for a UN Ocean Decade Programme

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INTRODUCTION

The proposed UN Ocean Decade initiative will build on IOC UNESCO and UNEP's extensive progress over the last 50 years preventing and addressing ocean pollution. IOC UNESCO promotes international cooperation in ocean science and research to improve the management of the ocean, coasts, and marine resources, and strives to "understand and beat marine pollution," identified as Challenge #1 of the UN Ocean Decade.

UNEP is the leading global authority on the environment with the mission to inspire, inform, and enable nations and peoples to improve their quality of life without compromising that of future generations, and is driving transformational change by focusing on the root causes of the triple planetary crisis of climate change, nature and biodiversity loss, and pollution. IOC UNESCO and UNEP's mandates and work are aligned with the envisaged outcome of *A Global Ocean Free from the Harmful Impacts of Pollution: Roadmap for Action*, launched in 2024 by Back to Blue, an initiative of Economist Impact and The Nippon Foundation.

The '*Roadmap for Action*' followed a robust stakeholder consultation process spanning the UN system, science, industry, policy and finance to understand their perspectives on ocean pollution and how to address it. Framed as a programme of the UN Decade of Ocean Science for Sustainable Development (UN Ocean Decade), the proposed initiative envisages a collaborative, global approach to harmonizing existing projects, catalyzing new initiatives, and increasing action to prevent and address ocean pollution.

THREE ENVIRONMENTAL PLANETARY CRISES

Climate change, biodiversity loss, and pollution disrupt the planet's balance.

CLIMATE CHANGE

NATURE AND BIODIVERSITY LOSS

POLLUTION (ocean pollution)

Interconnected crises
Better understanding of ocean pollution could reveal its role in CO_2 absorption and marine biodiversity loss.

Key to global solutions
Enhanced knowledge on marine pollution could help mitigate climate change and biodiversity loss, supporting agreements like the Paris and Kunming-Montreal accords.

Lack of data on ocean pollution
Unlike climate change and biodiversity loss, there is no global assessment providing evidence of its socio-economic impacts.

BACKGROUND & CONTEXT

Ocean pollution remains a critical challenge, with pressures from industrial activity and population growth intensifying its impacts on ecosystems, economies, and human health. As of 2025, achieving Sustainable Development Target 14.1 of the 2030 Agenda to "prevent and significantly reduce marine pollution of all kinds" and meeting the UN Ocean Decade Challenge #1 to "understand and beat marine pollution by 2030" are increasingly ambitious and urgent objectives.

This proposed UN Decade initiative builds on the extensive progress of IOC UNESCO and UNEP over the last 50 years preventing and addressing ocean pollution and contributes to key UN initiatives, including UNEP's Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, the Regional Seas Conventions and Action Plans, and IOC UNESCO's State of the Ocean Report.

GUIDING PRINCIPLES

Evidence-Based Decision-Making

- Closing priority knowledge gaps
- Integrating diverse, open, interoperable data
- Balancing known and emerging contaminants of concern
- Science-policy-business guidance
- Sustainable development

Leave No One Behind

- Indigenous Peoples and local communities
- Vulnerable, marginalized people
- Human rights
- Equity, inclusion and gender equality
- Social and environmental safeguards

Partnership of Partnerships

- Interdisciplinary, multi-stakeholder effort
- International cooperation in ocean research, services and capacity development
- Active science, government, business and investor collaboration

OVERARCHING VISION & APPROACH

The proposed UN Decade initiative aspires to achieve the bold vision of "a global ocean free from the harmful impacts of pollution by 2050." To support this goal, the proposal describes how IOC UNESCO and UNEP will:

- Coordinate a global "partnership of partnerships" uniting stakeholders across science, technology, policy, business and finance.

- Generate comprehensive scientific evidence on ocean pollution, its impacts, sources, and viable prevention and mitigation strategies.

- Facilitate informed decision-making among governments, businesses, and the financial sector to drive a coordinated global response.

DELIVERABLES & EXPECTED OUTCOMES

The proposed initiative will deliver targeted outputs designed to achieve measurable outcomes over the next 25 years.

	Key Deliverables	Expected Outcomes by 2030
Global Ocean Pollution Assessment	A comprehensive recurring assessment of ocean pollution and its impacts, highlighting priority areas for action.	A holistic global understanding about the current state of ocean pollution, its impacts on ecosystems, economies and human health, and knowledge gaps.
Online Interactive Data Interface	An online interactive data interface addressing data gaps and enabling globally consistent protocols.	Stakeholders generate and share data on ocean pollution through a harmonized approach.
Decision-Maker Guidance	Guidance for decision-makers in industry, finance, and governance to prevent and mitigate pollution and identify related economic opportunities.	Decision-makers in government, business and investment have the necessary information to understand how to address ocean pollution and why to prioritize it over other actions.
Global Ocean Pollution Action Plan	A collaborative action plan that aligns stakeholders, identifies funding needs and directs efforts toward sustainable marine pollution solutions.	A wide range of initiatives and stakeholders working in the public and private sectors are actively collaborating to address ocean pollution through a partnership of partnerships.

REALIZING THE VISION

This proposed UN Decade initiative will pursue its bold vision by convening a partnership of multidisciplinary, multisectoral stakeholders and generating evidence-based actions needed to beat marine pollution. The proposal aims to build on the strategic framework outlined in the Roadmap for Action, synthesizing diverse stakeholder perspectives to foster knowledge-sharing and coordinated global action. By strengthening the scientific evidence base, delivering decision-ready information, and promoting multi-stakeholder collaboration, the initiative will contribute to safeguarding the ocean and securing its sustainable future.

THEORY OF CHANGE

MISSION — Coordinate a global partnership of partnerships to build a comprehensive scientific evidence base about ocean pollution, its harmful impacts and mitigation options to strengthen government, business and investor decisions and enable collaborative actions that foster solutions addressing ocean pollution impacts.

OUTCOMES

1. A holistic global understanding about the current state of ocean pollution, its impacts on ecosystems, economies and human health, and knowledge gaps.

2. Stakeholders generate and share data on ocean pollution through a harmonized approach.

3. Decision-makers in government, business and investment have the necessary information to understand how to address ocean pollution and why to prioritize it over other actions.

4. A wide range of initiatives and stakeholders working in the public and private sectors are actively collaborating to address ocean pollution through a partnership of partnerships.

OUTPUTS

1. Global Ocean Pollution Assessment.

2. Online Interactive Interface for Datasets in Support of the Assessment.

3.1 Best-practice guidance for industry and financial sectors on preventing and addressing the effects of ocean pollution, and identifying related economic opportunities.

3.2 Technical assistance, capacity development, and advisory services provided to governments for ocean pollution protection.

4. Global Ocean Pollution Action Plan (with a budget of secured and not secured resources).

ACTIVITIES

Act. 1.1: Develop structure and process for recurring assessment, review and integration with other initiatives..

Act. 1.2: Carry out interactive recurring assessment of global ocean pollution and its impacts.

Act. 1.3: Combine existing knowledge and data from diverse sources using data mining and AI.

Act. 1.4: Develop concept for an online interactive interface for datasets.

Act. 1.5: Synthesize collected knowledge into a regular Global Ocean Pollution Assessment.

Act. 1.6: Implement review and edition processes with an interdisciplinary Editorial Board.

Act. 1.7: Produce interactive publication of the assessment report.

Act. 1.8: Conduct a global communications campaign to translate and disseminate emerging ocean pollution knowledge.

Act. 2.1: Develop and maintain online interactive interface for ocean pollution datasets.

Act. 2.2: Progressively populate interactive interface with ocean pollution datasets.

Act. 2.3: Conduct periodic data gap analysis for ocean pollution.

Act. 2.4: Carry out a needs assessment to identify barriers in closing data gaps.

Act. 2.5: Prepare globally consistent protocol for pollution monitoring, data collection, and sharing.

Act. 2.6: Carry out capacity development on pollution monitoring and data analysis.

Act. 2.7: Maintain an updated repository on emerging technologies for pollution analysis.

Act. 2.8: Develop concept note on feasibility of modelling pollutants, impacts and multiple stressors.

Act. 2.9: Develop database architecture for incorporating modelling data into the interface.

Act. 2.10: Develop simple infographics and data stories for non-expert audiences.

Act. 3.1.1: Build knowledge base on integrating ocean pollution indicators into financial decisions.

Act. 3.1.2: Co-design and develop long-term framework for industry and financial sector response to ocean pollution.

Act. 3.1.3: Support corporate sustainability frameworks to include ocean pollution in financial decisions.

Act. 3.2.1: Undertake assessment of governance strategies and gaps for preventing ocean pollution.

Act. 3.2.2: Assess capacity gaps and formulate a response for ocean pollution governance.

Act. 3.2.3: Carry out capacity development to facilitate public sector actions on ocean pollution.

Act. 4.1: Conduct a stakeholder mapping to identify priority collaboration areas for ocean pollution action.

Act. 4.2: Engage stakeholders in developing and implementing the action plan.

Act. 4.3: Convene a community of stakeholders committed to driving ocean pollution solutions.

Act. 4.4: Host spaces for structured dialogue on innovative solutions to ocean pollution issues.

Act. 4.5: Participate in existing fora for ocean pollution prevention and mitigation.

Act. 4.6: Facilitate development of measurable sectoral, national, and regional actions on ocean pollution.

Act. 4.7: Formulate a regular Global Ocean Pollution Action Plan, assessing funding needs and guiding future actions.

ROOT PROBLEMS

1. A lack of holistic global understanding of the extent of ocean pollution and its impacts on ecosystems, economies and human health.

2. Data limitations, including geographic, temporal and thematic coverage. Inadequate standardization, interoperability, and useability for decision-makers.

3 Decision-makers in government, business and investment lack the necessary information, incentives or opportunities to prioritize addressing ocean pollution over other actions.

4. A wide range of initiatives and stakeholders are working to address different aspects of ocean pollution that do not systematically connect.

CENTRAL PROBLEM

Decision-makers in government, business and investment are limited from taking informed, widespread actions at global, regional and national levels to effectively address the harmful impacts of ocean pollution due to the absence of a comprehensive scientific evidence base and a coordinated global response.

Global Ocean Pollution Assessment

The recurring, open-access assessments will drive informed decision-making and support widespread efforts to effectively address ocean pollution impacts.

Comprehensive and Interactive Assessment

The process will include a dynamic evaluation of ocean pollution, its sources, and its impacts on ecosystems, economies, and human health. This will involve regional analyses and intuitive visualizations to ensure accessibility for diverse stakeholders.

Engaging Stakeholders Across Sectors of Society

The assessment's methodology and implementation will be strengthened by input from key stakeholder groups uniting experts in Science, Data & Technology, Policy, and Business & Finance.

Data Collection and Integration

Multiple approaches will be considered and applied, including:

- Gathering pollution data from national environmental agencies
- Compiling datasets from international data repositories
- Integrating global ocean gridded datasets from models and remote sensing sources
- Synthesizing published scientific literature through reviews and meta-analyses

Pollutant Modeling

A feasibility concept for pollutant modeling will evaluate multiple stressors, including climate change and biodiversity loss, and their cumulative effects.

Decision-Ready Information for Action

The output will provide actionable insights, highlighting priority pollutants and areas requiring intervention. It will also support policy, business and investor decisions by transforming raw pollution data into open-access evidence of its impacts on ecosystems, economies and human health.

Deliverable

The recurring Global Ocean Pollution Assessments will include:

- The current state of ocean pollution.
- The impacts of pollution on ecosystems, economies, and human health.
- The cumulative effects of multiple stressors, including climate change and biodiversity loss.
- Identified priority areas for action.
- A dynamic, interactive platform for ongoing updates and engagement.

Online Interactive Data Interface

This open-access platform will integrate diverse datasets on ocean pollution, promoting global consistency in data collection, analysis, and reporting. With the support of stakeholders with expertise in Data & Technology, the initiative will drive data harmonization, visualization, and decision-making support.

Harmonized Data Collection & Integration
A structured approach will align global pollution datasets with FAIR principles (Findability, Accessibility, Interoperability and Reusability). A periodic data gap analysis will assess geographic, temporal, and thematic coverage, informing targeted strategies to close critical data gaps.

Digital Platforms & Knowledge Sharing
The initiative will leverage digital transformation tools, following a human-centered design approach. Building on the experience of platforms such as UNEP's Solutions Hub, the interface will offer interactive data visualization tools accessible to decision-makers and non-expert, AI-driven integration of datasets, and user-friendly analytics for policymakers, businesses and investors.

Capacity Development & Stakeholder Engagement
Training and guidance will promote best practices in pollution monitoring and data management. Engagement activities will target policymakers, businesses and investors to support the use of decision-ready data.

Advanced Technologies
A dedicated repository will track emerging technologies to improve pollution monitoring and mitigation solutions (e.g. machine learning, digital twins, remote sensing, buoys and sentinel stations). This knowledge base will help identify strategies to overcome barriers in pollution data generation and support efforts to close critical data gaps.

Deliverable
The Online Interactive Data Interface will provide:

- A global strategy to close data gaps
- Globally consistent data and metadata protocols
- A harmonized data repository for ocean pollution and its impacts
- Decision-support tools for policymakers and investors
- Dynamic data visualization and a user-centric approach

Decision-Maker Guidance

Guidance for decision-makers in industry, finance, and governance will support pollution prevention, mitigation, and the identification of economic opportunities while aligning with existing environmental policies and regulatory frameworks. With the support of stakeholders with expertise in Policy and Business & Finance, this approach will ensure that scientifically driven and economically viable strategies are practical for implementation.

Alignment with National Policies & Instruments
- The guidance will be informed by assessments of existing national regulations, sectoral policies, and financial mechanisms to ensure alignment.
- It will be flexible enough to incorporate new and emerging regulatory frameworks and industry best practices.

Targeted Actions for Effective Governance
To bridge gaps between national and global efforts, activities will be developed to:

- Identify governance gaps in current national frameworks related to ocean pollution.
- Accelerate priority actions by providing structured decision-making support.
- Promote coherence between public policy, industry regulations, and financial incentives.

Capacity Development for Public & Private Sectors
Training activities will provide support to facilitate public and private sector actions to address ocean pollution, including:
- Best practices in governance for pollution mitigation.
- Technical solutions for pollution prevention and control.
- Strategies to align public policies with industry and financial sector actions.
- Standardized ocean pollution indicators for financial risk assessments and investment opportunities.

Promoting Sustainable Economic Opportunities
- The guidance will highlight market incentives and sustainable business models that promote pollution prevention.
- It will help the financial sector align investments with high-ambition environmental goals, supporting a blue economy transition.
- Support will be provided for integrating ocean pollution into corporate and investor sustainability frameworks to enhance engagement.

Global Ocean Pollution Action Plan

The proposed initiative's action plan will enhance coordination and accelerate efforts to combat marine pollution by aligning with global and regional frameworks, fostering multi-stakeholder partnerships, and integrating governance instruments with existing initiatives.

Alignment with Global & Regional Governance Frameworks
- The initiative supports the long-term ambitions of the UN Ocean Decade, IOC UNESCO, UNEP, and Agenda 2030, ensuring alignment with established global ocean protection goals.
- The action plan will develop linkages with ongoing efforts, including initiatives addressing plastic pollution, nutrient management, and wastewater treatment, ensuring a comprehensive approach to pollution reduction.

Building on Existing Multi-Stakeholder Partnerships
- The initiative will coordinate a long-term global "partnership of partnerships", leveraging knowledge from global multi-stakeholder initiatives including:
  – Regional Seas Conventions and Action Plans
  – Global Partnership on Nutrient Management
  – Global Wastewater Initiative
  – Global Partnership on Plastic Pollution and Marine Litter

- These platforms bring together over 1,000 member entities from government, civil society, academia, and the private sector, providing a proven model for collaborative action against pollution.
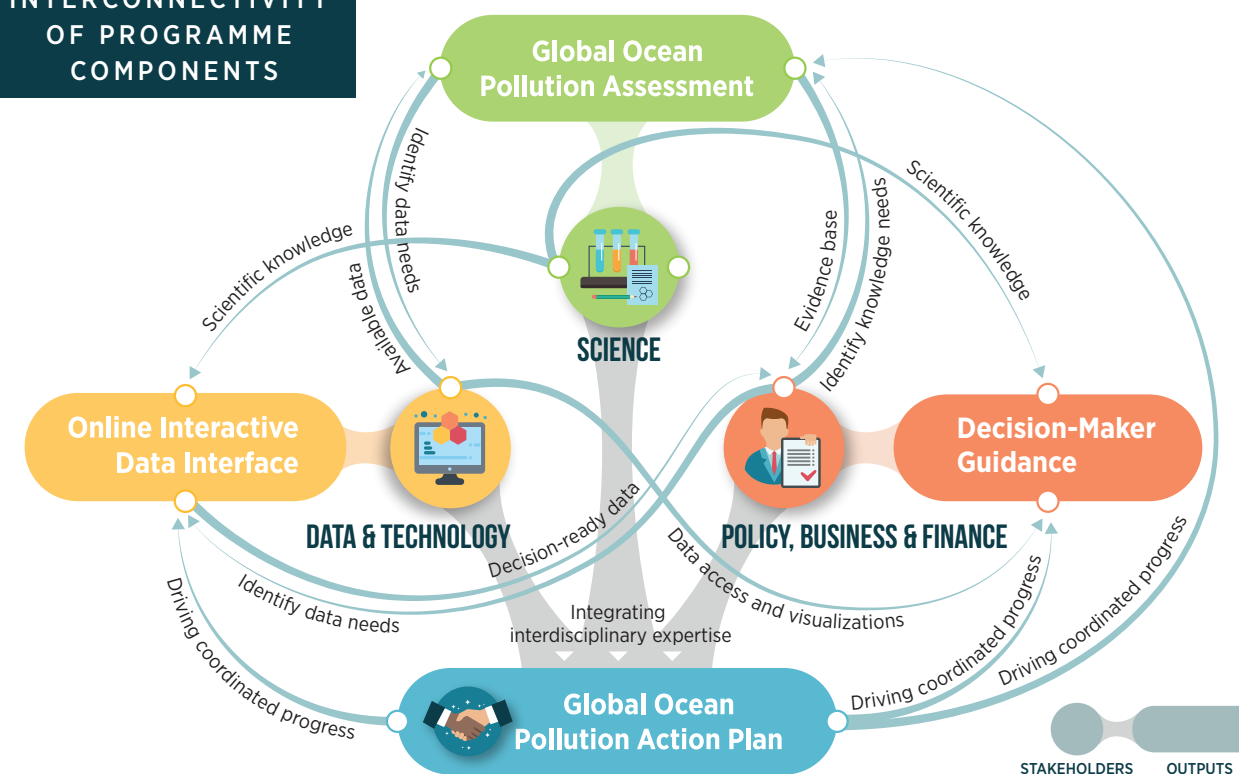
Addressing Governance Gaps
- Enhanced coordination is essential, as many global and regional governance frameworks focus on specific pollutants, economic activities, or geographic areas.
- The initiative will facilitate data-sharing across governance instruments, linking regional pollution data with global instruments targeting specific pollutants and activities.
- By bridging these gaps, the action plan will contribute to a more comprehensive global picture of marine pollution.

Cohesive Collaborative Actions
- The initiative will develop measurable sectoral, national, and regional actions to address pollution, including stakeholder action plans and integration with digital dashboards.
- The Global Ocean Pollution Action Plan will facilitate collaboration between existing initiatives, identify critical gaps, and accelerate actions needed for transformational change.

INTERDISCIPLINARY & INTERCONNECTED

Achieving these outcomes will require interdisciplinary collaboration between key stakeholder groups focused on Science, Data & Technology, Policy, and Business & Finance. These groups will collaborate closely, ensuring that scientific knowledge informs decision-making, data platforms address user needs, and policy and business strategies align with evidence-based solutions.

The Global Ocean Pollution Assessment will integrate expertise across disciplines, while the Online Interactive Interface will be developed with cross-sectoral input to ensure usability. Decision-Maker Guidance will be shaped by dynamic data and scientific insights, fostering informed policies and investments. Ultimately, the Global Ocean Pollution Action Plan will unify all efforts, driving coordinated progress toward a pollution-free ocean.

CALL TO ACTION

Success in combating ocean pollution requires a strong and inclusive partnership of partnerships, bringing together UN agencies, governments, academia, industry, civil society, and financial institutions. Collaborative engagement across these sectors will be the key to delivering the proposed initiative's outputs, achieving its outcomes, and ensuring sustainable impacts.

This proposal is currently under development in preparation for the 2025 UN Ocean Conference. Stakeholders are invited to contribute their expertise, resources, and leadership to shape this critical initiative. All interested parties are encouraged to reach out, get involved, and join the global effort to safeguard the ocean for future generations.

Get in touch

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