# 2022 United Nations Ocean Conference Side Event

## *Ocean and Coastal Observation and Monitoring at scale: Co-Designing the value chain from data to impact through a partnership approach*

[01/07/2022, 16:00-17:15, Altice Arena Side Event Room 2]

Organized by: United Nations Environment Programme (UNEP) – Intergovernmental Oceanographic Commission of UNESCO (IOC) - Mercator Ocean International (MOi) – Global Ocean Observing System (GOOS) – G7 Future of the Seas and Ocean Initiative (FSOI)

**Background on the event (one paragraph)**

Monitoring our ocean and coasts to provide accessible, interoperable, and relevant data is a requirement for effective environmental management, policy, and decision-making. Ocean prediction and its relevance for ecosystem services relies on continuous advancement of observations, modelling and in future mirroring system functions towards service-oriented predictions in form of a digital ocean twin. While the observation systems progressed in harmonizing and standardizing knowledge, much more needs to be done to make decision makers aware of and provided with tailored evidence to safeguard livelihoods and the environment. It is key to not only fill certain data gaps reflecting at system scale such as from near shore to open ocean and including land, i.e., source to sea, or defined by global, regional, national, and local demands, but do so in an integrative way. This entails looking at cumulative pressures on coastal and sea space originating in competing demands and blue economy sectors and to define and describe the environmental and social dimensions over time and space. Only then can we take on challenges such as coastal erosion, sea-level rise, marine pollution, habitat degradation, ocean acidification and overfishing but also rapid new mitigation and adaptation transformations such as renewable offshore energy in a coherent and impactful way. Data and analysis must lead to improved conservation, management and sustainable use of ocean and coastal resources by informing marine spatial planning and protected areas and by evaluating their value added. The event acted as a “bridge” connecting existing ocean and coastal observing and monitoring systems, in dialogue with stakeholders and facilitating a feedback loop to address needs in support of innovative ocean solutions. It invited to co-design innovative monitoring that can leverage available and new data and steer action based on input and engagement from governments and Regional Seas, and by sharing of experiences, partnership models, initiatives, and emerging issues. The event highlighted the roles the UN and the Observation Community can play together with local users and countries in the Decade.

## Key Issues discussed (5- 8 bullet points)

Availability of fit-for-purpose data: there is strong interest at a political level on topics such as acidification, deoxygenation, climate change, and multiple stressors on biodiversity. But, for large parts of the Ocean we do not have enough information and data. This is especially evident when considering biogeochemistry, ecosystem status and climate change adaptation. There is not enough process-level knowledge to improve the models to understand how these complex processes interact and to predict a "Future Ocean System". Monitoring and observation need to increase connection and connectivity between open and coastal ocean.

Different regional monitoring and observation "pace": in Small Island Developing States and Developing Countries, which rely on marine and coastal resources, technology transfer and capacity development in monitoring and observation is essential. Here, we still face an evident gap, and past initiatives have not proven to be sustainable. Enabling Member States to be autonomous, to monitor and manage their coasts, and to be part of a global community willing to openly share data and knowledge is imperative.

Disconnection between providers and users: globally there are many different data already collected but they are usually not available, visible, and/or easy to access for end users. Consequently, there is a gap in awareness, communication and cooperation between data providers and users. We are missing a continuous feedback loop and dialogue to connect data users with the data providers.

## Key recommendations for action (5 - 6 bullet points)

- There is a pressing need for more innovation in ocean prediction, which can be fulfilled by focusing on artificial intelligence and the development of sophisticated digital shadows or twins to guide action. The UN Decade of Ocean Science for Sustainable Development will foster science technology innovation. The Decade Collaborative Centre for Ocean Prediction at Mercator Ocean International will be working to translate scientific discoveries into models, digital shadows, and twins using the latest high-performance computing technologies and artificial intelligence that will be capable of providing accurate predictions and guidance for action on adaptation and mitigation.

- Effort needs to grow to bridge from data to engagement and action/solutions. UNEP's role at the science-policy and action interface and its support to the Regional Seas can serve as the critical extension of the data and observation providers. UNEP strongly focuses on 'theory of change,' engaging social science to understand national and individual motivation to act. It is well positioned to convene partnerships like GEMS Ocean in an "all of society" process, translating science to action.

- Multi-stakeholder partnerships such as GEMS Ocean shall incubate co-design and action to achieve impact at regional or national levels. Key is to engage data providers and users to distill and deliver information that enables testing and demonstrating evidence based innovative solutions as use cases for upscaling. The partnership approach is instrumental in scoping demand, informing users of pathways for deriving ocean and coastal information and to use in sustainable blue economy action.

- Foster capacity development on key aspects of ocean monitoring, including data management, quality assurance and information sharing, digital capacities, and citizen science, especially at regional and national level with focus on Small Islands Developing States (SIDS) and Developing Countries.

- Explore how global common frameworks, including the UN Decades of Ocean Science for Sustainable Development, of Ecosystem Restoration and of Water Action, can be used to galvanise actors around the world to improve the uptake of science for policy, management and decision making.