

Intervention by

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*On behalf of the UN Mayor Group of Science*

**Lead Discussant:**

**SDG14 Implementation, Challenges and Opportunities**

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Distinguished President of ECOSOC,  
Excellencies, ladies and gentlemen, friends of the ocean.

It is a great privilege as a member of the International Science Council's Governing Board to speak to you on behalf of 'the global voice for science':

We have just heard about the challenges in making progress in the implementation of the 2030 agenda in general and the ocean's dimension in particular in the face of ongoing armed conflicts, declining economies and a global pandemic.

On the other hand the science is clear, there is not time for delay, it is time for action! Science, innovation and knowledge are ready to inform you and support your actions.

Mr Chair I would like to make 6 points:

### **1 Global Cooperation:**

Comprehensive and shared knowledge underpinned by the world's best science is needed to support solving the mayor global challenges. Climate, biodiversity, and environmental research, and especially ocean science, benefit substantially from international cooperation. No nation can advance these issues alone.

The International Science Council and its partners support international research programs, they conduct well-coordinated ocean observations, model experiments, relevant knowledge generation, and data and information sharing in the most inclusive way possible.

## **2 Sustainable human ocean interactions:**

You, the signatories of the 2030 Agenda, are committed to a sustainable world that takes into account the opportunities of current and future generations.

A rapidly growing and increasingly affluent population is leading to ever-increasing anthropogenic pressure on natural resources also the Ocean. Pollution, overexploitation, and the loss of natural areas are leading to a significant reduction in marine biodiversity; some speak of the emerging "biodiversity crisis."

At the same time, the growing demand for energy, unfortunately still mostly carbon based, leads to further warming and undesirable climate change. This has also strong impacts on the world ocean; often referred to as the ocean dimension of the "climate crisis".

Land and ocean-based pollution and overuse of natural resources is still growing and resulting in compromised marine eco-systems we speak of "declining ocean health".

Together, the loss of biodiversity, climate change and pollution are closely linked and need to be understood and addressed holistically. In the future they will have even more dramatic effects on the ocean and compromise the future of mankind, including human health.

Science and innovation support the urgent need to transform human actions toward a more sustainable human-ocean relationship!

## **3 We need Expand and sustained observation systems.**

For example the International Science Council and UN organizations support the Global Ocean Observing System which uses all data from satellites and ship and robot based direct in-situ measurements.

However, better arrangements in our nations are needed. We need to transform ocean observations from niche to norm. What works well for weather is far from being achieved for the ocean.

We also need Improved ocean system models.

Ocean understanding allows science to develop powerful Earth system and ocean models. These models are able to represent past and anticipate future changes.

#### **4 Ocean science makes robust statements about human-induced changes.**

The diagnosis from observations and models is clear.

Human activity is undoubtedly causing changes in the environment. Ocean biodiversity is declining at unprecedented rates. Coastal regions are heavily overused and polluted by humans. And the deep sea is not spared. Coral reefs, mangrove forests or seagrass meadows are coming under growing stress from pollution, invasive species, overexploitation, but also especially climate change.

Rising sea levels, marine heat waves and chemical changes lead to coral bleaching, oxygen- depleted zones and thus massive changes or even the extinction of species.

Without a transformation of human activities, the ocean health will further decline dramatically.

#### **5 From knowledge to action - Digital twin opportunities.**

Science, innovation and engineering also shows ways to mitigate change through smart sustainable development actions. To keep global warming near 2°C, CO<sub>2</sub> emissions must be massively reduced and brought to 'net zero' in a few years.

Digital twins of the ocean offer a new way to optimize human actions in terms of sustainability.

Digital twins of the ocean map parts of the ocean into the virtual space supported by ocean observations, data and models. They help to answer 'what if' action questions.

They can be used to future proof sustainable development actions and guide rules-based management such as marine spatial planning.

They can support optimizing a sustainable blue economy the management of protected areas, or needed adaptation actions.

## **6 Accelerate global interdisciplinary science in the context of SDG implementation.**

Ocean science is now accelerated and transformed through the "UN Decade of Ocean Science for Sustainable Development (2021-2030)".

The motto of the Ocean Decade is "The Science We Need for the Ocean We Want."

The Ocean Decade is about nothing less than co-creating transformations in science and ocean, environmental, and climate policy and implementing them through strong international research, business, society and policy cooperation.

It's science agenda has been informed by the specific needs to make progress on the implementation of SDG14 but also more widely the ocean dimension of the 2030 Agenda.

It is the frame for action connecting interdisciplinary ocean science capabilities with the needs to implement an ambitious ocean agenda.

Only by working together it will be possible to find wise and acceptable solutions for both

In summary science is already providing indispensable knowledge to inform the ocean dimension of sustainable development. Sustained ocean observations, improved ocean system models and digital twins of the ocean combined with co-delivery of the information are tremendous opportunities to transform the human-ocean relationship to become more sustainable.

Science can help to find optimal development pathways and thus 'future proof' sustainable development actions.

I look forward to the discussion, thank you very much for your attention!