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OCEAN DECADE U.S.
U.S. National Committee for the Decade of Ocean Science for Sustainable Development

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Ocean Decade: U.S Launch Meeting Synopsis

From 2021-2030, the UN Decade of Ocean Science for Sustainable Development will focus scientific initiatives across the globe on the science needed to ensure sustainable use of ocean resources and long-term ocean health. The U.S. has established a National Committee to serve as the communications center and to engage the U.S. ocean science community throughout this international effort. The U.S. National Committee – hosted by the National Academies of Sciences, Engineering, and Medicine – organized a 2-day virtual meeting on February 3-4, 2021 to launch U.S. efforts. The event was free and open to all; there were more than 1200 registrants from federal agencies, research institutions, NGOs, foundations, and industry.

This meeting was designed to highlight U.S. and international interests in the Ocean Decade and foster engagement and dialogue around transformative research efforts in support of the Decade as outlined in the UN Ocean Decade Implementation Plan (available at: oceandecade.org). The U.S. National Committee issued a call for Ocean-Shots, bold and transformative concepts to address the challenges identified in the Implementation Plan. The submissions from that call were featured in Ocean-Shots Plenary Sessions, an Ocean-Shot Poster Hall, and were discussed in five Concurrent Sessions organized by challenge themes.

Event Statistics of Note

- Over 1,000 registrants
- More than 700 U.S. organizations and agencies participated
- 86 Ocean-Shot posters
- 65 participants in the Early Career Professional and U.S. Youth Advisory Council Meet & Greet
- 13 Nexus Members in the Exhibit Hall

Plenary sessions on Day 1 and Day 2 focused on the impetus behind the Decade, roles for stakeholders, and how the Decade potential might be achieved. The speakers included Marcia McNutt (President, National Academy of Sciences), Margaret Leinen (Director, Scripps Institution of Oceanography, member of the UN Ocean Decade Executive Planning Group), Peter Thomson (UN Secretary General's Special Envoy for the Ocean), Monica Medina (Co-Founder, Our Daily Planet), Kei Koizumi (Acting Director and Chief of Staff, Office of Science and Technology Policy, Executive Office of the President), Sandra Whitehouse (Consultant, Ocean Conservancy), Representative Suzanne Bonamici (OR) and Representative Don Young (AK) (Co-Chairs of the House Ocean Caucus), William E. Easterling (NSF Assistant Director for Geosciences), Terrence M. Quinn (NSF Director for the Division of Ocean Sciences), and Craig McLean (NOAA Deputy Assistant Administrator). The US National Committee selected eight Ocean-Shots for presentation in plenary to illustrate a variety of challenges and provide examples of exciting, innovative, and relevant areas of research. These presentations covered various aspects of ocean technology, partnership development across public and private sectors, and regionally-focused, multidisciplinary initiatives. In the virtual Poster Hall, 86 Ocean-Shots concepts were presented to more than 400 meeting participants.

The virtual meeting platform provided spaces for networking opportunities during a Meet & Greet for Early Career Professionals and the U.S. Youth Advisory Council and in the exhibit hall featuring Ocean Decade U.S. Nexus organizations. The U.S. National Committee invited organizations to join the Ocean Decade U.S. Nexus to provide an opportunity for cross-organizational and multi-sectoral collaboration in pursuit of global sustainable development goals.

Concurrent Session Highlights

Each day of the meeting featured five concurrent sessions to facilitate discussion of research areas that correspond to the Ocean Decade challenges, organized by the themes as listed in the UN Ocean Decade Implementation Plan. Participants were asked to address four questions for each challenge area: (1) what are the big topics; (2) who needs to be involved; (3) what are the expected outcomes or impact; and (4) what are the major obstacles to achieving these outcomes. The discussions generated a rich trove of ideas, summarized by rapporteurs in the end-of-day plenary sessions. The following section provides a few highlights from these discussions.

Knowledge and Solutions: Climate and Ecosystem Change

Two of the major scientific topics were (1) the ocean's role in Earth's carbon cycle and (2) the change in ocean ecosystems with climate change and other stressors, and the associated changes in ecosystem services. Participants recognized the linkages across these two topics and similar needs for participation amongst diverse stakeholders and challenges in establishing baselines and observing systems that can both detect changes and reveal the processes underlying these changes. Overcoming these challenges would yield improved predictions for both climate and resource modeling that will help communities anticipate and adapt to future conditions.

Knowledge and Solutions: Sustainable Development

One major topic emerged: how to feed a growing population, especially to meet protein needs, in the context of both population growth and climate change. Since wild capture fisheries cannot meet this demand, the issue is how to develop sustainable aquaculture to both supply essential foods while minimizing the disturbance to ocean ecosystems. Solutions will require participation of coastal communities and people involved in resource use, ranging from subsistence harvesters to the seafood industry. Opportunities include capitalizing on technology development for other offshore industries, potential for expanding aquaculture production at lower trophic levels, and reducing pollution (including carbon dioxide) relative to land-based agricultural practices.

Essential Infrastructure: Observing Technology and Implementation

Participants in this concurrent session identified building out the ocean observing systems to address ocean processes encompassing climate change, hazards, and ocean ecosystems. In addition, mapping the seafloor was identified as an essential, complementary effort to water column observations. Engagement of marine industries (offshore energy, shipping, cable companies), coastal communities, and local experts and educators would increase the use and hence support for these observations. Participants identified several challenges: (1) meeting power requirements for data collection and transmission, (2) developing interest, public support and engagement for observing systems, and (3) bridging disciplines and overcoming institutional silos.

Essential Infrastructure: Transforming Data into Actionable Knowledge

Developing a "digital twin" to model the global ocean – encompassing the physics, chemistry and biology – arose as the major scientific topic. Achieving this type of model presents challenges for data collection and assimilation, analytic capacity, and methods for handling propagation of uncertainty in models. In addition, applications of the digital twin will require translating data into information accessible to users.

Foundational Challenges

Include capacity development, ocean literacy – encompassing the spectrum of values and services provided by the ocean, and equitable access to ocean science. One of the major topics in this session addressed the interplay of science and applications of science. The interplay requires participation of stakeholders in identifying the scientific needs and the translation of scientific findings into information that supports action at the individual, community, and government levels.

The **Foundational Challenges** session covered issues that cut across the other themes, including: partnerships across sectors, disciplines, and nations, to include international organizations and industries; the value of integrated and standardized data that can be widely shared and utilized; the need to increase the diversity of the ocean science community to better represent and speak to the communities who require this scientific information; and the overarching need for greater and more effective communications across cultures, disciplines (in particular social sciences and behavioral sciences), sectors, and organizations.

Where to Go From Here?

The launch meeting represents the start of a process to foster the further development of Ocean-Shot concepts. The U.S. National Committee will now undertake a number of activities to continue the development of critical ideas and communities to support the goals of the Decade, fostering further discussion and expanded engagement. Initially, the 10 scientific challenges identified in the Ocean Decade implementation plan facilitated the solicitation of Ocean-Shots and helped stimulate creative discussion. For the next step, the Committee will focus on the impact of science to reach the vision of "the ocean we want" for the UN Decade of Ocean Science for Sustainable Development. To this end, the Committee recommends a series of dialogues around the outcomes described in the Decade implementation plan with the goal of developing these concepts into mature program plans:

- A clean ocean
- A healthy & resilient ocean
- A productive ocean
- A predicted ocean
- A safe ocean
- An accessible ocean
- An inspiring and engaging ocean

The U.S. National Committee will invite the originators of Ocean-Shot concepts to join teams organized around the Decade outcomes. Meetings for the outcome teams will be convened over the next 2 years to develop the most compelling, large-scale program concepts, further defining the critical challenges and opportunities and building a program plan that can be presented to potential funders.

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