Report

Co-Designing the Ocean Science we need for the Western Tropical Atlantic (WTA).

Introduction

The United Nations Decade of Ocean Science for Sustainable Development (2021-2030) has the ambition to trigger a revolution in ocean science that will take us from 'the ocean we have' to 'the ocean we want'. **Co-design and co-production** refer to the participatory development and implementation of research projects with experts from different disciplines (inter-disciplinarity) and a variety of stakeholders (trans-disciplinarity). **Co-delivery** consists in developing strategies for appropriate use of research, for establishing knowledge sharing and data platforms, and for reaching out to communities, industry, and current and potential users. This regional meeting was part of a series of virtual dialogues on "**Co-designed, solution-oriented research"**. Thirteen panelists and 142 participants discussed best practices and lessons learned through regional case studies. Following recommendations from the first global meeting in this series in September 2020, this regional meeting was structured to explore 1) the main challenges and opportunities for co-designed, co-produced and co-delivered science, including for the integration of indigenous and local knowledge and 2) the capacity development, training, education and resource needs, both in terms of academic outputs and in terms of formal and informal training activities for non-academic partners. Observations and recommendations from this meeting should complement the work being done by the Interim Planning Group and others to develop a regional decade action plan.

Main challenges and opportunities for Co-Designed, Co-Produced and Co-Delivered Science

Engaging a diverse set of stakeholders at local, national and regional levels can be extremely challenging. A poll question indicated that participants felt that the most pressing challenges in the

region for advancing co-design where “identification and engagement of multi-stakeholders” and “funding”:

Two examples in the WTA region further provided valuable insights about challenges and opportunities in the region. The Caribbean and North Brazil Shelf Large Marine Ecosystem - CLME comprises over 35 states and territories in the Caribbean and North Brazil. The CLME+ Initiative has managed to navigate the complexity of the region, with a range of languages, cultures and development levels to improve the science and coordination mechanisms for regional fisheries. Another case study was the Intergovernmental Coordination Group for Tsunamis and Other Coastal Hazards of the Caribbean and Adjacent Regions - ICG/CARIBE-EWS. In this initiative, over 28 countries and territories collaborate to improve preparedness for tsunamis and other hazards. Insights from these examples led to a dialogue between panellists and participants and some specific recommendations:

1. **How to build and maintain motivation to participate in collaborative approaches?**

   At the start, not all stakeholders might understand the benefits of participating, so it is important to evaluate and communicate potential benefits clearly. Once a process or project is underway, maintaining the initial engagement can be difficult, particularly as diverse stakeholders have different values and expectations. Also, participating requires an investment of time, effort and money that not all are able or willing to provide. It is therefore important to develop shared purpose, clear roles for different stakeholders and expected investments. Unequal resources (financial, human and other) must be considered to ensure equitable participation opportunities. Generating false expectations needs to be avoided at all costs, particularly in zones where paternalistic cooperation projects have created an entitlement attitude. Collaborative processes should be iterative, and a broker might be

necessary, especially when dealing with controversial issues. An inspiring leader is fundamental to maintain motivation throughout.

2. **How to increase participation of the private sector?**

   There are multiple examples of active participation of the private sector in the generation of key information to increase social and environmental wellbeing. There are important opportunities to involve other sectors beyond fisheries and tourism, such as health, energy and others (blue economy). However, there are multiple factors that prevent wider participation of individual entrepreneurs or industry representative organisations. Analysing and communicating clearly what the expected benefits would be for these stakeholders would be an initial requirement to increase participation. The private sector has been disappointed when government proposals in particular have been unclear or inefficient. Transparency, efficiency and commitment must improve in order to generate the necessary trust. As an example, the private sector has sometimes provided funds only to see government divestment. Private sector funds therefore need to be seen as matching or leveraging funds rather than "replacement" funds. Increased private sector funds would help diversify the science funding infrastructure.

3. **How to reinforce the science-policy interface?**

   The support of government for an effective science-policy interface is crucial. Government institutions are diverse (policy makers, research institutions, national, subnational and local governments, regulators, etc) and have different roles in the production and utilisation of science. Communication between these institutions and among other key stakeholders needs to be effective and transparent, but policy makers are often perceived as detached from on-site realities, when their decisions are made without proper consideration of environmental, social, economic, political and cultural settings. It is commonplace that decision makers work from the main cities without considering local conditions, diverse knowledge sources and without developing a common purpose between relevant stakeholders ("government policies"). Therefore, they need to start working directly with stakeholders to develop more meaningful policies and projects ("public policies"). When projects include science providers and users from the start, political will is likely to be higher and decisions based on sound science. The two examples provided illustrate this, showing that science can support policy decisions, not only at a local or national level, but an intergovernmental level.

4. **Principles of good governance underly trust among different stakeholders.**

   Transparency, accountability and use of best available information were mentioned, but the most important principles discussed were inclusivity and fairness. Traditional and local knowledges need to be integrated into knowledge systems, as these provide long-term, site-

specific, daily observations that are otherwise unattainable. To access such information, however, horizontal cooperation is required, where scientists, practitioners and local experts respect and value each other. Projects need to be inclusive of sector, culture, age and gender. The role of youth and young professionals is going to be critical to advance the transformative change in societal behaviour and policy throughout the following decade, but younger generations are often dismissed in formal meetings or left out altogether. The role of local women was also highlighted, as they not only possess invaluable information, but they have proved to be key agents behind positive change. Biases against some specific groups and worldviews need to be identified, acknowledged and managed to ensure not only fairness, but also to ensure that their valuable views and ideas are considered. Reflection on, sometimes unconscious, biases has to start from ourselves as leaders and facilitators (scientists, practitioners or government); even high-level meetings, such as this Decade series, have to ensure wide representation of gender, ethnicity and age, among others.

5. **Ocean literacy as a key element to inspire society-wide action**
   Education, science communication and outreach of key information about the ocean needs to be boosted significantly to inspire all of society to engage in ocean science, sustainable use and conservation. Only by understanding the ocean and anthropogenic impacts, can people really support proper management of oceans and coasts.

6. **Designing appropriate multi-level, multi-stakeholder governance structures is fundamental to allow collaborative science and management of ocean resources.**
   Governance pathways can be extremely complex, particularly when they involve multiple levels of decision, as in the two examples provided. While many collaborations have relied on "learning by doing" to generate positive outcomes, it is important to recognize that existent governance frameworks and associations can provide a starting point or a stepping stone for different or larger collaborations. Currently, there are a multitude of organisations, networks and initiatives in the WTA region, and increasing coordination between them can accelerate the transformative change envisaged for the Decade. Understanding a governance regime can assist multi-directional communication and coordination mechanisms. Identifying different science users and providers in such regimes is fundamental to increase their capacity, as training and capacity building should not be limited to science providers, but should include science users as well, like brokers and decision makers.

Capacity development, training, education and resource needs for the region

In this section, panellists used their experiences in different initiatives to reflect on the key questions of this meeting (Geo Blue Planet on brokerage between science providers and users, the Colombian

Marine and Coastal Research Institute on science-policy interface and ocean literacy, Arely Paredes-Chi research work on environmental education and participatory action research, and a multi-stakeholder hotel/tourism initiative in Tulum, Mexico, on private sector participation) . Some of the key insights and recommendations from panellist interventions and a dialogue with participants included:

1. **An inventory of existent and missing information and capacities is a first step to improve capacity in the region.**

   In order to build local, national and regional capacity, it is necessary to identify strengths, opportunities and gaps, including formal and informal education platforms and soft skills like communication and community engagement. Easily accessible detailed records of training and education initiatives and platforms would allow better coordination between training providers. These records should detail who is involved, which capacity gaps are targeted, when does the action occur and which methods are used. The Ocean InfoHub aims to provide a unified platform to access data, information and knowledge sources about the ocean. This could be a valuable tool to assess information and capacity needs. As mentioned before, capacity building, training and education should target not only science providers, but users as well.

2. **Integration of different knowledges is as important in capacity building as it is to enhance collaborative research.**

   In the generation of information, there is a historical dominance of western worldviews, ontologies and epistemologies. However, the way local and indigenous communities perceive nature and human relationships with the natural world can provide an integral view of environmental processes and issues. For this reason, it is important that capacity building initiatives include local actors and foster an appreciation of local and traditional knowledges. Participatory action research has great potential to develop shared research objectives, to bring together scientific and local expertise and to help solving site-specific problems. Citizen science programs also have a key role to play in gathering long-term information, but also to inspire people to learn and care about the ocean.

3. **Inclusivity and fairness are fundamental to build the necessary capacity to create, share and use ocean science.**

   In the same manner that including the diversity of stakeholders is important to develop collaborative processes, the consideration of misrepresented groups is key to design integral and meaningful projects. Past interventions that have used communities to access funds or that had a paternalistic approach created distrust in external organizations, and in those cases rebuilding trust is a necessary first step for working together. In addition to indigenous and local communities, women are keepers of key information that is often neglected. Women can also be agents for positive change, so training and education initiatives need to ensure

appropriate participation. Younger generations, as the future science providers and users, should be included in all capacity building activities. At the same time, older generations have accumulated valuable information, and they often have time on their hands to contribute to capacity building processes and to participate in volunteer programs.

4. **Information needs to be accessible and understandable to all science providers and users.** Data and resulting knowledge should be easily available to the public. This includes not only open platforms and publications, but also information translated into all relevant languages, and communicated in a way that different audiences can understand. Considering the vast inequalities in socio-economic conditions and basic education, an effort should be made to reduce that gap, thus opening up opportunities to coastal inhabitants who are often left out of formal careers.

5. **Innovative learning methods need to be developed to reach all of society.** Embracing different technologies (videos, artificial intelligence, social media, among others) and developing new learning methods and platforms can increase the range of stakeholders engaged in capacity building activities. In particular, industries' platforms could potentially increase participation of otherwise disengaged people. This could potentially increase capacity to protect the oceans and the general awareness about the importance of managing the ocean in a sustainable way.

6. **A unified periodic report on the state of ecosystems can enable communication.** In the same way that such a report could enhance collaboration and coordination among different stakeholders, a unified report would be fundamental to underpin education, capacity building and outreach.

Next steps

Important next steps for the WTA region included the following:

1. Identification of key national and regional stakeholders and partners to support delivery of objectives, with a special focus on private sector, women, youth, elders and indigenous communities;
2. Identify the varied pathways for engagement with those stakeholders;
3. Assess and select the communications processes and systems to be utilized throughout the decade; and
4. Build on existing networks of actors, as well as existing public policies, ensuring the delivery of science to support those policies.

The first Call for Action for the Decade aims to include a wider range of stakeholders and sectors, with a deadline for proposals for programmes and major contributions set for January 15, 2021 (Call for Decade Actions).

To advance and coordinate strategic partnerships and actions for Western Tropical Atlantic engagement in the UN Decade of Ocean Science for Sustainable Development, the WTA Steering Committee established a Regional Planning Group (WAT RPG).

The main objectives of the WTA Planning Group are: (i) Advance and coordinate Strategic Partnerships and Actions; (ii) Advise IOCARIBE and the IOC of UNESCO and its Governing Bodies on the WTA preparatory process for the UN Decade of Ocean Science; (iii) Continue socialization / communication on the UN Decade in/for the WTA region with existing networks, institutions, experts and stakeholders; (iv) Establish Working Groups (WGs) clustered around the seven societal outcomes and the cross-cutting issues identified in the Implementation Plan; (v) Identify opportunities, jointly with WGs, for integrated regional programmes, projects, and activities as well as for engagement and support at the global, regional and national scales to advance the seven societal outcomes and the cross-cutting issues identified in the Implementation Plan and in the WTA Regional Workshop; (vi) Define an action plan and timetable, including the planning of a regional Ocean Decade launch event in 2021 and mobilize financial resources and involvement of potential funding leaders secure renewed funding

Contact: Cesar TORO, Head IOC-UNESCO Regional Secretariat for IOCARIBE: c.toro@unesco.org

Initial recommendations to foster inclusive and collaborative approaches for co-designing Ocean Decade Actions for the Western Tropical Atlantic

- Collaborative research initiatives need to adhere to **principles of good governance**, particularly inclusivity and fairness, to ensure meaningful participation of all relevant stakeholders.
- Integrating **local and traditional knowledges** into research initiatives enriches resulting outputs and fosters local empowerment.
- Better **communication pathways with policy makers and regulators** can promote knowledge-based decisions.
- **Private sector participation** can improve ecosystem-based decisions and financing; to motivate their involvement, it is necessary to have a clear statement of benefits and roles, high transparency and commitment, and efficient solutions to shared problems. A sustainable blue economy should look beyond fisheries and tourism.
- A **fair and effective governance structure** can ensure the success of co-designed actions; existent subnational, national and regional structures and networks can be the starting point for new and more ambitious initiatives.
- A periodic, unified regional **report on the state of the environment** should underlie research, capacity building and outreach actions.
- A first step to improve regional capacity is making an **inventory of the current knowledge base and capacity building initiatives**, to target capacity gaps and address inequalities.
- **Ocean literacy** is fundamental to increase society's understanding of the ocean and its problems and to inspire all to care for the oceans. Innovative learning methods and accessible and understandable information are crucial to support societal ocean literacy.

Annexes

A. Panellists and organizers

Dr. Elva Escobar Briones is a full time professor in oceanography at Instituto de Ciencias del Mar y Limnología (ICML) UNAM. She has contributed with new knowledge to deep sea biodiversity conservation and sustainable use through scientific research on board UNAM's Research Vessels and publications in collaboration with national and international institutions. These results have been used to define policies, design conservation networks and programs in the deep ocean. In addition she contributes with capacity building programs in oceanography. She is a lead member of the Deep Ocean StewardshipInitiative (DOSI).

Engineer Mr. Arnulfo Sánchez Morales is the current Chair-Person of the IOC of UNESCO Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE) after serving for two consecutive terms as Vice-Chairperson. Between 2011 and 2013 he worked as Head of the Environmental Division of the Panama Canal Expansion. He has promoted the development of ocean sciences in the Caribbean region and was the founder of the Environmental Division for the Maritime Authority of Panama. Mr. Sanchez is involved in several regional projects and was also the Chairperson of the Panama Tsunami National Committee until 2019. Mr. Sanchez is an Engineer on Maritime Economics and Ports with a M.Sc. in Maritime Transport from the Maritime University of St. Petersburg, Russia. He also has experience working for the academia's Professor of Master's Degree for the Universidad del Istmo on "Environmental Management of Ports" and "Social Evaluation and Environmental Impact Analysis."

Mr. Craig McLean is responsible for NOAA's research enterprise as the Assistant Administrator for Oceanic and Atmospheric Research and acting NOAA Chief Scientist. He also serves as the U.S. Representative to the Intergovernmental Oceanographic Commission(IOC), and as the Co-chair of the U.S. European Union Marine Working Group, and in the US-Canada-EU North Atlantic Ocean Research Alliance under the Galway Statement. Mr. McLean previously served in NOAA as Deputy Assistant Administrator of the National Ocean Service, the founding Director of NOAA's Ocean Exploration program, and served in uniform for nearly 25 years in NOAA's Commissioned Corps. Craig is also an attorney and has practiced marine resource law for NOAA.

Christa von Hillebrandt-Andrade is the Manager of the Caribbean Tsunami Warning Program of NOAA's National Weather Service in Mayagüez, Puerto Rico. Christa's work focuses on earthquake and tsunami hazards, warning systems and readiness and is actively engaged in scientific actions, capacity building, community outreach and communications. She is a member of the Executive Planning Group for the UN Decade of Science for Sustainable Development and past Chair of the UNESCO IOC Tsunami and other Coastal Hazard Warning Systems for the Caribbean Sea and Adjacent Regions). In 2019 she was named Fellow of the American Association for the Advancement of Science (AAAS). She holds a BSc in Geology from the University of Delaware and a Masters in Geology from the Escuela Politécnica Nacional Christa von Hillebrandt-Andrade of Quito, Ecuador.

Dr. Maria Concepcion Donoso holds the UNESCO Chair on Sustainable Water Security and is the Director for International Programs at the Institute of the Environment at Florida International University, where she served for 8 years as the Director of the Global Water for Sustainability Program (GLOWS), leading a consortium implementing an 85 million dollar portfolio of water-related projects around the world. Previously, Dr. Donoso was the Regional Hydrologist of UNESCO for Latin America and the Caribbean (LAC), 2003-2010. Dr. Donoso's research and professional interests are in water security, integrated water resources management, and in climate change and variability impacts on

the natural environment and society. She has served as Technical Adviser to national and regional organizations, and to private consulting firms. In this context, she served as a member of the Global Environmental Facility (GEF) Overall Performance Study International Team of Experts (2001-2002) and of the UNEP Scientific Advisory Group on Water (2011), as well as the Coordinator of the Task Force of Experts in charge of the development of the Strategy for the VIII Phase (being implement for the period 2014-2021) of the Intergovernmental Hydrological Programme of UNESCO (2009-2013).From November 2018 to June 2019, Dr. Donoso was invited by UNESCO to serve as Director a.i. of the Water Sciences Division. Dr. Donoso pursued graduate studies at the People's Friendship University (Moscow, Russia) and the Rosenstiel School of Marine and Atmospheric Science of the University of Miami (Miami, USA). She also holds a Doctor Honoris Causa degree from the Universidad Federico Villarreal (Lima, Peru).

Robin Mahon (BSc University of the West Indies, MSc, PhD University of Guelph) is Professor Emeritus Marine Affairs at the Centre for Resource Management and Environmental Studies (CERMES), University of the West Indies, Cave Hill Campus, Barbados. Before joining CERMES he worked with Fisheries and Oceans Canada, FAO, the CARICOM Fisheries Programme, Caribbean Conservation Association and as a consultant. His interests and research are on marine resource governance, particularly assessment of governance arrangements for transboundary systems. This includes governance architecture for sustainable use of transboundary living marine resources at the regional or Large Marine Ecosystem (LME) level, in particular the Caribbean LME. Prof. Mahon is involved in several regional projects and activities in the Wider Caribbean Region, including the UNESCO-IOC GEF funded Caribbean Large Marine Ecosystem (CLME+) Project.

Presentation abstract - Connecting science to policy: Progress through the CLME Initiative

This presentation addressed four questions. The first was “How was the science program developed and what was the process used to bring the multi/transdisciplinary group together and generate trust and a common vocabulary?”. The GEF supported Caribbean Sea Large Marine Ecosystem Initiative comprised two development phases (1998-1999 & 2006-2008) and two implementation phases. The first implementation phase was the 2009-2013 CLME Project, which produced a series of Transboundary Diagnostic Analyses (TDAs) and a Strategic Action Programme (SAP) for the period 2015 to 2025. The second implementation phase was the 2015-2021 CLME+ Project which focused on SAP Implementation. The second question was “What challenges were experienced and how were they resolved?” There were many challenges which have been well documented in the literature . These included sustained engagement of IGOs and countries. The third question was “What were the benefits to science/data/applications”. Again there were many benefits including: development of a Regional level framework and Strategic Action Programme (SAP) for transboundary ocean governance in the Wider Caribbean Region; Experience among partners working together at the regional level; Substantial progress with a regional coordination mechanism for transboundary ocean governance in the Wider Caribbean Region; Progress in learning by doing with EAF/EBM for several key fisheries and;

Better understanding of the science policy interfaces and needs in the region . As regards the fourth question “How did the science impact public policy and behavioral change”, the key implications for the UN Decade of Ocean Science for Sustainable Development 2021-2030 were thought to be: To be mindful of the diversity and complexity of science-policy pathways and actors in multilevel ocean governance (providers, brokers, advisors, decision makers); Seek to understand, build and strengthen these processes according to good governance principles (transparency, accountability, use of best available information); Promote bidirectional communication. The presentation concluded noting that building these processes and the capacity of brokers, advisors, decision makers is as important as building capacity to provide science.

Dr. Silvia Elena Chacón-Barrantes. Coordinator and founder of Program SINAMOT (National Tsunami Monitoring System) at National University Costa Rica. She is a Professor of the Physics Department. She has a bachelor’s degree in Physics from the University of Costa Rica, a master’s degree in Physical Oceanography at CICESE, Baja California, Mexico and a Doctorate in Natural Sciences in Coastal Geosciences at the University of Kiel, Germany. She is Costa Rica Tsunami National Contact (TNC) since2015. She is the President of the Intergovernmental Coordination Group for Tsunamis and Other Coastal Hazards of the Caribbean and Adjacent Regions(ICG/CARIBE-EWS) and President of the Regional Working Group on Tsunami Warning and Mitigation System on the Central American Pacific Coast of the Intergovernmental Coordination Group for the Pacific Tsunami Warning System (ICG/PTWS).

Presentation abstract - UNESCO-IOC Intergovernmental Coordination Group for Tsunamis and other Coastal Hazards Warning System CARIBE-EWS

The Caribbean region has experienced at least 75 tsunamis over the past 500 years, causing at least 4000 deaths. ICG/CARIBE-EWS started in 2005 and currently has 32 Member States and 16 Territories, including 16 Small Island Developing States, it extends from Canada to Brazil, including observers. It is structured in four permanent Working Groups in Tsunami Monitoring and Detection Systems, Tsunami Hazard Assessment, Tsunami Related Services, and Preparedness, Readiness and Resilience. It also has Task Teams in Volcanic Activity and Potential Tsunamis, Tsunami Ready, Evacuation Maps, Implementation Plan and Caribe Wave Exercise, besides a Group of Experts in Other Coastal Hazards. The CARIBE-EWS was born in the aftermath of the 2004 Indian Ocean tsunami, for the need of the Member States to be prepared for tsunamis and other coastal hazards. Major challenges range from underrepresentation in yearly sessions, shortage of monitoring and bathymetric data and limited human resources. Some of them have been solved by strategical alliances and some by funding proposals, and capacity building is held in a constant basis. There have been major benefits to science, like data collected by seismic and sea level stations, bathymetric data surveys, definition of tsunami sources and numerical modelling of tsunamis, resulting in many papers in scientific journals and presentations and posters in scientific conferences. This science has impacted public policy and behavioral change in many ways. For example, in territorial ordering and the creation of tsunami

evacuation plans and protocols for many communities, in their path to become Tsunami Ready. The major behavioral change has been provoked by the annual exercise CARIBE WAVE held every March, which in 2019 had 500 thousand participants all over the region. The work of CARIBE-EWS is performed by committed people for people living and visiting the Caribbean, so when the next tsunami strikes, we can all be Tsunami Ready.

Dr. Emily Smail, Ph.D. Executive Director | GEOBlue Planet Initiative Senior Faculty Specialist | Cooperative Institute for Climate and Satellites-MD

Dr. Paula Cristina Sierra-Correa, Head of Research and Information for Marine and Coastal Management Marine and Coastal Research Institute –INVEMAR-, Santa Marta, Colombia.

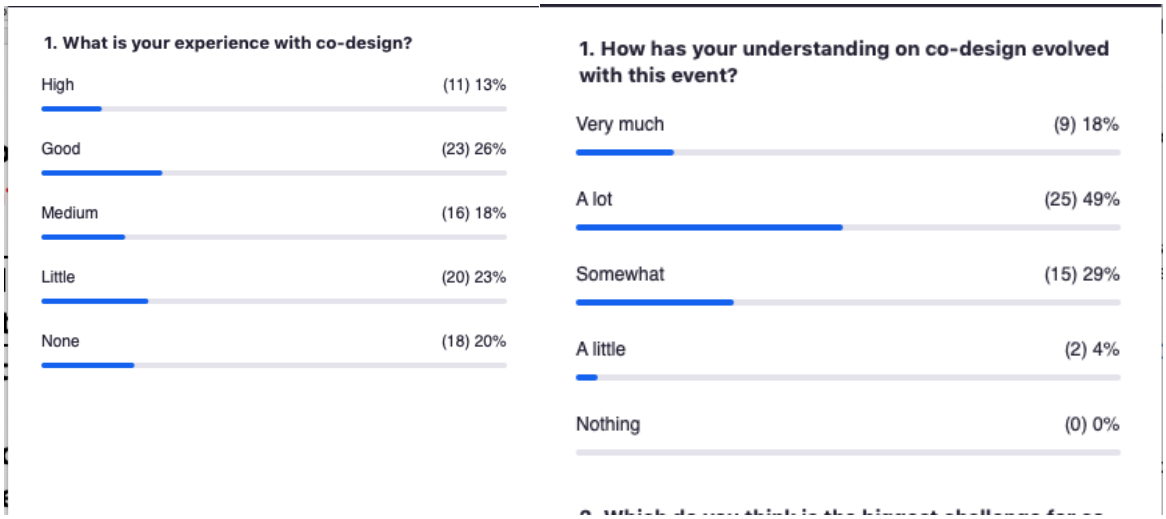
Dr. Arely Paredes-Chi. CONACYT Facultad de Ciencias, UNAM, Mexico

Mr. David Ortiz Mena, Multi-stakeholder Hotel/Tourism Initiative, ECOPS President Hotel Association of Tulum

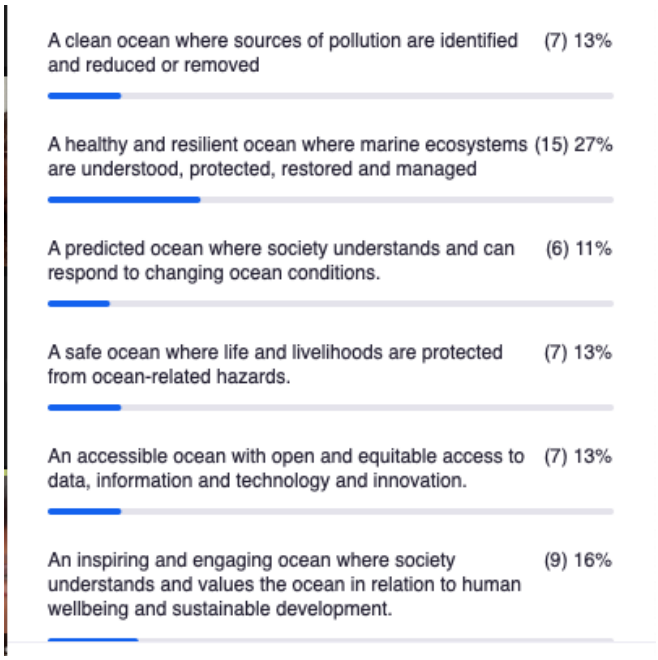
B. Poll results and chat of the session

There were 142 participants during this session. From those who answered the questions, most participants in this meeting were from the United States and from the academic sector:

Other polls during the meeting showed that prior understanding of the co-design concept ranged equally from “none” to “good”, but most participants (67%) felt that they had learned “a lot” or “very much”.



A final poll asked participants to indicate their interest in participating in different working groups into the future:


A clean ocean where sources of pollution are identified and reduced or removed (7) 13%
A healthy and resilient ocean where marine ecosystems are understood, protected, restored and managed (15) 27%
A predicted ocean where society understands and can respond to changing ocean conditions. (6) 11%
A safe ocean where life and livelihoods are protected from ocean-related hazards. (7) 13%
An accessible ocean with open and equitable access to data, information and technology and innovation. (7) 13%
An inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable development. (9) 16%

C. Chat and Q&A sessions

15:44:56 From María Concepción Donoso to All panelists : Good day Elba, are we having a rehearsal?

15:45:39 From vivienc@hotmail.com to MPR IOC(Privately) : Hi again, could you please assign me the interpreter's role

15:45:51 From Christa G. von Hillebrandt-Andrade : Hello! Thank you for joining us. You are invited to write your country and name of organization in the Chat.

15:46:36 From Ediniel Trejos to All panelists : Buenos días a todos desde Panamá

15:46:57 From Erik Coria-Monter to All panelists : Hi, Erik Coria-Monter from the National Autonomous University of Mexico. Institute of Marine Sciences and Limnology.

15:47:11 From Emily Smail : Emily Smail representing the GEO Blue Planet Initiative (https://protect-au.mimecast.com/s/2JGHCZYM5DFvPQEnhjypVR?domain=geoblueplanet.org)

15:47:42 From Carlos René Green-Ruiz to All panelists : I am Carlos Green Ruiz, from UNAM, Mexico.

15:48:07 From Elizabeth Duran to All panelists : Instituto de Ciencias del Mar y Limnología, UNAM, México

15:48:17 From Eva Dubois to All panelists : Eva Dubois Ministerio de Ecosocialismo (Ministerio del Ambiente), Venezuela.

15:48:45 From Christa G. von Hillebrandt-Andrade : Hola! Christa von Hillebrandt-Andrade, NOAA Caribbean Tsunami Warning Program, Mayaguez, Puerto Rico.

15:49:24 From Erik Coria-Monter : Erik Coria-Monter, Institute of Marine Sciences and Limnology, National Autonomous University of Mexico.

15:49:42 From Paula Sierra to All panelists : Good Morning. Buenos días. Paula Cristina Sierra-Correa, Coordinadora RTC-LA OTGA; Jefe investigación e información Marina y Costera INVEMAR

15:49:49 From Arely Anahy Paredes Chi to All panelists : Hola, buen día Arely Paredes Chi, Catedrática Conacyt, Facultad de Ciencias, UMDI Sisal

15:49:49 From Christa G. von Hillebrandt-Andrade to All panelists : I (web application) see Elva's picture, not the presentation.

15:50:40 From Isabel Chavez - IOC to All panelists : Hi Christa, We are not sharing the presentation yet

15:51:13 From Isabel Chavez - IOC to All panelists : Can you see it now?

15:51:23 From Craig Mc Lean : yes

15:51:33 From Emily Smail : Yes

15:52:06 From maria escallon to All panelists : soy maria isabel escallón, intérprete. No me ha llegado el link para mi asignándome como intérprete. Mi correo: miescallon@yahoo.com

15:52:18 From maria escallon to All panelists : estoy atenta para poder entrar en calidad de intérprete

15:53:00 From vivienc@hotmail.com to MPR IOC(Privately) : Maria already join the session could you assign her as interpreter please

15:55:13 From Robin Mahon to All panelists : hello every one

15:58:12 From kim ley-cooper : Hello buenos dias, good morning

15:58:31 From maria escallon to All panelists : my e mail address: miescallon@yahoo.com

15:58:34 From ADRIANA MILENA SUAREZ QUINTERO to All panelists : Good morning

15:58:35 From María Concepción Donoso to All panelists : Good day, Buenos dias, I am Maria Concepcion Donoso, UNESCO Chair on Sustainable Water Security and Director International Programs at the Institute of Environment, Florida International University

15:58:55 From Alejandro Acosta to All panelists : Good morning, buenos dias

15:59:07 From Douglas Wilson to All panelists : Hi Christa. and Cesar.

15:59:17 From Ariel Troisi : Buenos días a todos

15:59:25 From Digna Rueda-Roa to All panelists : Good morning Everyone

15:59:32 From Julio Morell to All panelists : Buen dia

15:59:42 From Edgar Salazar Francis to All panelists : Buenos días a todos, Good morning.

16:00:09 From Christa G. von Hillebrandt-Andrade : Hello! Thank you for joining us. You are invited to write your country and name of organization in the Chat.

16:00:14 From MPR IOC to maria escallon(Privately) : Hello Maria, the email address I have for the second interpreter is chiagar@hotmail.com, I cannot grant you access now

16:00:37 From maria escallon to All panelists : oh, so what can I do?

16:00:48 From Edgard Cabrera to All panelists : Edgard Cabrera

16:00:55 From Edgard Cabrera to All panelists : Colombia, Suiza

16:00:59 From kim ley-cooper : Mexico, Kim Ley Cooper, Colectividad RAZONATURA A.C.

16:01:01 From MPR IOC to maria escallon(Privately) : I have no idea, sorry

16:01:04 From Elva Escobar : Elva Escobar, Mexico

16:01:07 From Julio Morell to All panelists : Julio Morell

16:01:09 From Taco DE BRUIN to All panelists : Taco de Bruin

Netherlands

IODE Co-chair

16:01:18 From Valerie Le Guennec to All panelists : Hello, I am Valérie Le Guennec from France, working with the National Oceanography Center in Liverpool.

16:01:20 From Fernando Oropeza to All panelists : Good morning, Fernando Oropeza, Fugro, México

16:01:20 From Julio Morell to All panelists : Julio Morell

16:01:22 From Douglas Wilson to All panelists : Doug Wilson USA

16:01:30 From Assia Edderouzi to All panelists : Assia Edderouzi, Netherlands, Fugro

16:01:31 From wendy chavez : hello! my name is Wendy Chávez I am from Ecuador and I work in Fundación Cerro Verde a local NGO

16:01:35 From Arminda Franken-Ruiz to All panelists : Bon dia, Arminda Franken-Ruiz, Aruba

16:01:43 From Ariel Troisi : Buenos días desde BsAs, Argentina. Ariel Troisi, Presidente COI-UNESCO

16:01:44 From Edgar Salazar Francis to All panelists : Nicaragua, Gobierno de Nicaragua Ministerio de Educación.

16:01:47 From maria escallon to MPR IOC(Privately) : I do not know what to do if i can not have access as an interpreter

16:01:49 From Alejandro Acosta to All panelists : Alejandro Acosta. GCFI, U.S.

16:01:52 From Arely Anahy Paredes Chi : Arely Paredes Chi, México

16:01:53 From Julio Morell to All panelists : Julio Morell University of Puerto Rico, CARICOOS

16:01:53 From José Eduardo Martinelli Filho to All panelists : Greetings to all!

José Martinelli - Brazilian Amazon - Federal University of Pará

16:01:57 From vivienc@hotmail.com to MPR IOC(Privately) : Maria has not been assigned yet as interpreter, could you do it please?

16:01:58 From Frank Muller-Karger to All panelists : Hello, Frank Muller-Karger / Univ of South FLorida

16:02:05 From Cassandra Nanlal to All panelists : Trinidad and Tobago, Cassandra Nanlal, Institute of Marine Affairs

16:02:13 From Doukeni Kesisoglou to All panelists : Hello! My name is Doukeni Kesisoglou and I am a PhD student in Aristotle University of Thessaloniki in Greece

16:02:18 From Andrew J to All panelists : Andrew, Florida Keys

16:02:19 From maria escallon to MPR IOC(Privately) : when we did the test I said i would need access as an interpreter…

16:02:26 From Andrea Sanchez Davidson to All panelists : Good morning! - Andrea Sanchez Davidson, San Diego, CA USA

16:02:34 From Nina Palie to All panelists : Nina Palie, France

16:02:35 From Rafael Schiller to All panelists : Greetings, Rafael Schiller, Fugro, USA

16:02:37 From Hayley Drennon to All panelists : Hayley Drennon at Lamont-Doherty Earth Observatory

16:02:37 From Yolanda López to All panelists : De Yolanda López Hello buenos días good morning I am from of Panamá. Thanks.

16:02:47 From Ediniel Trejos to All panelists : hello'

16:03:06 From Patricia Wills : Patricia Wills (Colombia) IOCARIBE of IOC UNESCO

16:03:10 From Ediniel Trejos to All panelists : EDINIEL TREJOS DE PANAMÁ

16:03:19 From Travis Miles to All panelists : USA, Rutgers University

16:03:21 From Yolanda López to All panelists : Good morning I listen now

16:03:34 From Luis A. Ladino to All panelists : Luis Ladino (UNAM,Mexico)

16:04:02 From Luis A. Ladino : Luis Ladino (UNAM,Mexico)

16:04:44 From Eveline Aquino to All panelists : Eveline Aquino (Brazil)

16:04:53 From maria escallon to MPR IOC(Privately) : if you can please help me since i have to receive the shift handover from Vivien at 10:30 am

16:04:58 From Taco DE BRUIN : Taco de Bruin

Netherlands

IODE Co-chair

16:04:59 From Danna Rodríguez to All panelists : Hello!! Danna Rodríguez (Colombia) Colombian Ocean Commission

16:05:50 From Jim Todd to All panelists : Ann-Christine Zinkann, NOAA, US

16:05:54 From ADRIANA MILENA SUAREZ QUINTERO to All panelists : I am Adriana Suárez - Colombia - FUNDAMAR

16:06:25 From Maria Pentzel to All panelists : Greetings from Tanzania

16:06:41 From Maria Pentzel : Greetings from Tanzania

16:06:42 From Tatiana María Lorenzo Curbelo to All panelists : Buenos días desde el Ministerio de Educación de Nicaragua

16:09:39 From maria escallon to MPR IOC(Privately) : please try to contact me with someone that could help me, i need to be ready working at 10:30

16:10:42 From MPR IOC to maria escallon(Privately) : Please write to Cesar Toro in the Chat box

16:10:50 From Cesar Toro to ADRIANA MILENA SUAREZ QUINTERO and all panelists : Welcome Adriana!

16:11:30 From maria escallon to MPR IOC(Privately) : ok

16:13:44 From Cassandra Nanlal : Trinidad and Tobago, Institute of Marine Affairs

16:18:51 From Elva Escobar : What sector do you represent?colleagues we have the first poll open, if you have not participated you can still do.

16:20:07 From Elva Escobar : You can still vote

16:21:13 From Digna Rueda-Roa to All panelists : Digna Rueda-Roa, Biological Oceanographer. I work at the University of South Florida.

16:25:32 From Digna Rueda-Roa : Digna Rueda-Roa. Biological Oceanographer. I work at the College of Marine Science from the University of South Florida

16:30:12 From Julio Morell to All panelists : Will the presentations be shared?

16:31:41 From Cesar Toro to All panelists : Yes. All the presentations will be available at the UN Decade website

16:32:08 From Elva Escobar to Julio Morell and all panelists : Hola Julio, they are being recorded and will be available at the ocean decade web page

16:32:40 From Julio Morell to All panelists : Gracias!

16:40:41 From Alyson Myers to All panelists : Good to join. Alyson Myers (https://protect-au.mimecast.com/s/dQyXC1WZ5zsgnq1whpCXWN?domain=fearlessfund.org)

16:40:47 From Naetê Barbosa Lima Reis to All panelists : Hi from Brazil! This point is very important! Inter and trandisciplinarity. In my perspective, it is also important to provoke discussions about other cultures, the different meanings of the ocean and the importance of the ecology of knowledge (Boaventura De Sousa Santos). For the young researchers and specialists involved in the oceanic science, it is necessary to reinforce the need for an epistemological perspective of complexity, which goes beyond the dichotomous view in which only one teaches and the other only learns. We need to overcome the barriers between the humanities and the biological and exact sciences, through interdisciplinarity. And include traditional knowledge through transdisciplinarity.

16:46:31 From Ediniel Trejos to All panelists : Qué están haciendo los Países desarrollados por la Sobre pesca industrial -Artesanal. La contaminación. aumento en el nível del mar.

16:47:13 From Elva Escobar : @Ediniel voy a mencionar su pregunta en este bloque de la parte 2

16:47:19 From Paul Geerders to All panelists : So far the presentations look ahead when dealing with the collection of data and information to support the concepts proposed. But how is it proposed to deal with the wealth of existing (but highly disorganized) data and information and make these available to this process? I imagine this could be a major activity. Please consider where and when to bring this in, unfortunately I have to leave the meeting in about 10 minutes, sorry.

16:48:51 From Erik Coria-Monter : For submit a research project at January 2021. My questions are: 1) What are the requirements for co-design and submit these projects, there is guide?, 2) the projects must be submitted individually or institutional?, 3) must be submit multi-countries at large-scale?, 4) any contact for questions about this topic?

16:50:51 From Ediniel Trejos to All panelists : Excelente

16:52:33 From Elva Escobar : @Paul gracias. We will bring your question in and reply both written to your e-mail as in the session block

16:53:30 From Elva Escobar : @Erik you can check the call for Action in the Ocean UN Decade web page, we will anyway reply at the end of the block

16:55:33 From Carlos FULLER to All panelists : Is session being recorded for others to see later?

16:57:24 From Elva Escobar : @Carlos Yes the session is being recorded for others to watch later

16:57:44 From Carlos FULLER to All panelists : thanks, Elva

16:57:54 From Yolanda López to All panelists : De Yolanda López: I have 2 questions 1.Will they provide proff of participation in this important talk? 2.would it be possible to have a summary in spanich to socialize in my institution? Thank you so much.

16:58:41 From Digna Rueda-Roa to All panelists : Digna Rueda-Roa. Biological Oceanographer from the University of South Florida

In Co-designing the Science we need for the Ocean Decade, we need to stress the importance of biological measurement.
In spite of the great importance that biological resources have for humanity, the majority of Ocean Observing Systems (e.g. buoys) lack of biological measurements.
We need to do brainstorming sessions to find a list of biological measurements that provide important

information about the biological resources and its changes along time, and that are feasible to use onboard of different types of ocean observing systems.

16:59:25 From Ediniel Trejos to All panelists : Sumado a la pregunta anterior, Qué medidas concretas podríamos acordar para mitigar el cambio climático; en consecuencia el aumento del nivel del mar y las más de 1000 millones de personas que estarían en peligro sus vidas?

17:02:37 From Elva Escobar : @Digna thank you for your important comment

17:03:11 From Elva Escobar : @Ediniel Voy a integrar estas preguntas con su pregunta previa

17:04:13 From Ediniel Trejos to All panelists : Así es muchas gracias

17:04:59 From Alejandro Acosta to All panelists : For those interested on the GCFI cited by Dr. Mahon, here is the link: https://protect-au.mimecast.com/s/ecazC2xZ6AHrK8voc2cc3B?domain=dropbox.com

17:05:08 From Ediniel Trejos to All panelists : Soy Profesor de Biología Marina , Universidad de Panamá.

17:08:56 From Elva Escobar to Alejandro Acosta and all panelists : Gracias @Alejandro Acosta

17:09:31 From Edgard Cabrera to All panelists : Pienso que debe mencionarse los esfuerzos cooperativos del Caribbean Tsunami EWS con otros mecanismos en la region como el Comité de Huracanes ,Programas de Predicción de Inundaciones Costeras de la OMM y el proyecto del Banco Mundial CREWS..

17:13:57 From Ediniel Trejos to All panelists : Muchas gracias

17:14:18 From Silvia Chacón to All panelists : definitivamente las alianzas que ha hecho el Caribe EWS con las organizaciones que usted menciona han sido trascendentales en nuestro trabajo. Por razones de tiempo era imposible mencionarlas a todas

17:14:56 From Gaby Mayorga Adame to All panelists : @ Silvia Chacon, Is there a process to integrate bathymetric data into your datasets? through projects under the Commonwealth Marine Economies Programme the UK National Oceanography Centre has collected some high resolution bathymetry in the Caribbean region. I think data portals and networks are indeed required to maximize the impact of our efforts. Feel free to get in tough gmaya@noc.ac.uk

17:16:51 From Frank Muller-Karger to All panelists : Robin Mahon - Hello -could you please contact me about the biodiversity observing program you mentioned? Would like to talk to the Marine Biodiversity Observation Network. How to possibly contribute to the Ocean Decade. Thanks / Frank Muller-Karger (carib@usf.edu)

17:20:08 From Robin Mahon to Frank Muller-Karger and all panelists : Hi Frank, yes we can talk. email me at rmahon@caribsurf.com or skype robinmahon

17:35:42 From Naetê Barbosa Lima Reis to All panelists : Perfect perspective Dr. Arely! I like very much the idea of non extractive methodologies proposed by Boaventura de Sousa Santos to decolonize science and promote intercultural dialogue.

17:39:24 From Cesar Toro : @Gaby Mayorga: IOCARIBE & MACHC (Meso-american Caribbean Hydrographic Commission are working in an initiative for mapping the entire MACHC Region by 2030 as a contribution to the SeaBed 2030 initiative (https://protect-au.mimecast.com/s/MexSC3Q870U372wYuQWWQK?domain=seabed2030.org) . UK is Member of both IOCARIBE and MACHC

17:43:05 From Divine M. Ann Crocheron to All panelists : DivineMAC's Private Sector Ocean Wealth, Ocean Stewardship Professionalism SDG's Are Fantastic!..*Stop* Polluting Our Oceans, 11.4.2020..*Mi Pais Mejico, MX* GDP @ 8% Could Be Better, Our Private Sector Growth & Development Agenda Is A Priority..

17:45:33 From LYDIA MEADE OCARANZA to All panelists : Buenos días, se puede acceder a las presentaciones lydia.meade@semarnat.gob.mx,

17:55:31 From Edgard Cabrera to All panelists : Excelente el panel de la parte 2 y mensajes para tener en cuenta en las políticas publicas y esfuerzos de creación de capacidades

17:55:35 From Arely Anahy Paredes Chi to Naetê Barbosa Lima Reis and all panelists : Thank you very much. Orlando Fals Borda also developed and implemented very useful methodologies

17:58:44 From Naetê Barbosa Lima Reis to All panelists : Yes dear Dra. Arely! I agree, he is an important author! Thank you so much!

18:02:06 From Naetê Barbosa Lima Reis to All panelists : Great speech dear Dra. Lorna!

18:05:20 From Ediniel Trejos to All panelists : Saludos Dra. Elva

18:07:31 From Douglas Wilson to All panelists : Thank you all!

18:08:09 From Naetê Barbosa Lima Reis to All panelists : Thank you Dra. Elva Escobar!

18:09:39 From María Concepción Donoso : Thanks you to the organizers and panelist, as well to the participants that provided questions and comments for a very interesting event

18:09:57 From Alyson Myers : Can those working on biodiversity in Sargassum mats in the tropical Atlantic reach out? Thanks. alysonmyers1@gmail.com (https://protect-au.mimecast.com/s/dQyXC1WZ5zsgnq1whpCXWN?domain=fearlessfund.org)

18:10:00 From Maria Pentzel : Thank you for an informative event

18:10:02 From Christa G. von Hillebrandt-Andrade : Thank you very much for your participation!!!

18:10:07 From Yolanda López to All panelists : De Yolanda Lópes:Muy interesante esta reunión los países de la región enfrentamos las mismas debilidades cierto más políticas

gubernamentales que Políticas Públicas es un gran reto por superar. Muchas gracias por esta valiosa oportunidad a los organizadores de esta reunión y a todos los participantes.

18:10:13 From Alyson Myers : Thank you for a great meeting.

18:10:20 From Maysa Ueda de Carvalho to All panelists : thank you

18:10:24 From Maribelle Vargas-Montero to All panelists : Thank you very much

18:10:49 From Ana Carolina Ruiz Fernández : Gracias Elva.

18:10:50 From Adriana Gaytán-Caballero to All panelists : Thank you, excellent webinar!!

18:10:52 From Edgard Cabrera : Excelente evento y felicitación a IOCARIBE, panelistas y presentadores

Alejandro Acosta 05:19 PM

This a comment from all presentations: It was clear that the region needs to implement a multidisciplinary and transboundary to answer all the existing questions. It was clear that science alone will not answer the needs of the decision makers. Likewise, strong governance in the absence of a good scientific baseline will have limited value. So as mentioned by the presenter and improved cooperation among stakeholders will be necessary to achieve robust management and sustainable results

Naetê Barbosa Lima Reis 05:25 PM

Thank you Elva Escobar!

Arminda Franken-Ruiz 05:30 PM

I believe developing common resources e.g. framework/guidelines for local governments and other stakeholders to approach the co-design, co-production and co-delivery proces in their countries would be usefull.

Alejandro Acosta 05:30 PM

Due to COVID 19 the tourist industry has been impacted and as result revenues from tourism dedicated to the conservation of natural resources such as MPA conservation have been impacted. What is the tourist or hotel industry doing to help with the conservation of this important areas?

Elva Escobar would like to answer this question live.

Arminda Franken-Ruiz 05:35 PM

Fantastico! Gracias @Arelys

Chat :

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