

SUMMARY OF THE EIGHTEENTH MEETING OF THE UNITED NATIONS OPEN-ENDED INFORMAL CONSULTATIVE PROCESS ON OCEANS AND THE LAW OF THE SEA: 15-19 MAY 2017

The eighteenth meeting of the UN Open-ended Informal Consultative Process on Oceans and the Law of the Sea (Consultative Process or ICP-18) convened from 15-19 May 2017 at UN Headquarters in New York. The meeting brought together representatives from governments, intergovernmental organizations, non-governmental organizations and academic institutions to examine this year's topic: "The effects of climate change on oceans."

On Monday and Thursday, there was a general exchange of views. On Monday afternoon and Tuesday, delegates heard panel presentations and engaged in discussions on the first segment, "The effects of climate change on oceans, including environmental, social and economic implications." On Wednesday, delegates engaged with the second segment on: "Cooperation and coordination in addressing the effects of climate change on oceans – current actions and opportunities for further enhancement."

On Thursday, delegates convened in plenary to discuss: inter-agency cooperation and coordination; the process for the selection of topics and panelists so as to facilitate the work of the UN General Assembly (UNGA); and issues that could benefit from attention in the future work of the UNGA on oceans and the law of the sea. On Friday morning, the Co-Chairs distributed a Co-Chairs' summary of discussions, providing an overview of the discussions under each of the agenda items

A BRIEF HISTORY OF THE LAW OF THE SEA AND THE CONSULTATIVE PROCESS

On 1 November 1967, Malta's Ambassador to the UN, Arvid Pardo, asked the nations of the world to recognize a looming conflict that could devastate the oceans. In a speech to the UNGA, he called for "an effective international regime over the seabed and the ocean floor beyond a clearly defined national jurisdiction." The speech set in motion a process that spanned 15 years and saw: the creation of the UN Seabed Committee; the signing of a treaty banning the emplacement of nuclear weapons on the seabed; the adoption of a UNGA declaration that all resources of the seabed beyond the limits of national jurisdiction are the "common heritage of mankind"; and the convening of the Stockholm Conference on the Human Environment. These were some of the factors that led to the Third UN Conference on the

Law of the Sea during which UN Convention on the Law of the Sea (UNCLOS) was adopted.

UNCLOS: Opened for signature on 10 December 1982 in Montego Bay, Jamaica, at the Third UN Conference on the Law of the Sea, UNCLOS sets forth the rights and obligations of states regarding the use of the oceans, their resources, and the protection of the marine and coastal environment. UNCLOS entered into force on 16 November 1994, and is supplemented by the 1994 Deep Seabed Mining Agreement and the 1995 Agreement for the Implementation of the Provisions of UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

UNGA RESOLUTION 54/33: On 24 November 1999, the UNGA adopted resolution 54/33 on the results of the review undertaken by the UN Commission on Sustainable Development at its seventh session on the theme of "Oceans and Seas." In this resolution, the UNGA established an Open-ended Informal Consultative Process (ICP) to facilitate the annual review of developments in ocean affairs. The UNGA decided that the Consultative Process would meet in New York and consider the Secretary-General's annual report on oceans and the law of the

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sea, and suggest particular issues to be considered by the UNGA, with an emphasis on identifying areas where intergovernmental and inter-agency coordination and cooperation should be enhanced. The resolution further established the framework within which ICP meetings would be organized, and decided that the UNGA would review the effectiveness and utility of the ICP at its 57th session.

ICP-1 to 3: The first three ICP meetings identified issues to be suggested and elements to be proposed to the UNGA, and highlighted issues that could benefit from attention in its future work. The first ICP meeting (30 May - 2 June 2000) held discussion panels addressing fisheries and the impacts of marine pollution and degradation. The second meeting (7-11 May 2001) focused on marine science and technology, and coordination and cooperation in combating piracy and armed robbery at sea. The third meeting (8-15 April 2002) held discussion panels on the protection and preservation of the marine environment, capacity building, regional cooperation and coordination, and integrated oceans management.

UNGA RESOLUTION 57/141: On 12 December 2002, the 57th session of the UNGA adopted resolution 57/141 on "Oceans and the law of the sea." The UNGA welcomed the ICP's previous work, extended it for an additional three years, and decided to review the ICP's effectiveness and utility at its 60th session.

ICP-4 to 6: The fourth meeting of the ICP (2-6 June 2003) adopted recommendations on safety of navigation, the protection of vulnerable marine ecosystems, and cooperation and coordination on ocean issues. The fifth meeting (7-11 June 2004) adopted recommendations on new sustainable uses of oceans, including the conservation and management of the biological diversity of the seabed in areas beyond national jurisdiction. The sixth meeting of the Consultative Process (6-10 June 2005) adopted recommendations on fisheries and their contribution to sustainable development, and considered the issue of marine debris.

UNGA RESOLUTION 60/30: On 29 November 2005, the 60th session of the UNGA adopted resolution 60/30 on "Oceans and the law of the sea." The UNGA decided to continue with the Consultative Process for the next three years, in accordance with resolution 54/33, with a further review of its effectiveness and utility by the Assembly at its 63rd session.

ICP-7 to 9: The seventh meeting (12-16 June 2006) enhanced understanding of ecosystem-based management, and adopted recommendations on ecosystem approaches and oceans. The eighth meeting (25-29 June 2007) discussed issues related to marine genetic resources. Delegates were unable to agree on key language referring to the relevant legal regime for marine genetic resources in areas beyond national jurisdiction (ABNJ), and as a result no recommendations were adopted and a Co-Chairs' summary report was forwarded to the UNGA for consideration. The ninth meeting (23-27 June 2008) adopted recommendations on the necessity of maritime security and safety in promoting the economic, social and environmental pillars of sustainable development.

UNGA RESOLUTION 63/111: On 5 December 2008, the 63rd session of the UNGA adopted resolution 63/111 on "Oceans and the law of the sea." The UNGA decided to continue with the Consultative Process for two more years, and decided that the Consultative Process at its tenth meeting will focus its discussions on the implementation of the outcomes of the Consultative Process, including a review of its achievements and shortcomings in its first nine meetings.

ICP-10 and 11: The tenth meeting (17-19 June 2009) produced a Co-Chairs' summary report collating outcomes of its discussions on the implementation of the ICP outcomes,

including a review of achievements and shortcomings in its first nine years, which was forwarded to the UNGA for consideration. The outcome of the eleventh meeting (21-25 June 2010) was a Co-Chairs' summary of discussions, including on the theme capacity building for marine science.

UNGA RESOLUTION 65/37: On 7 December 2010, the 65th session of the UNGA adopted resolution 65/37 on "Oceans and the law of the sea." The UNGA decided to continue with the Consultative Process for two more years.

ICP-12 and 13: The outcome of the twelfth meeting (20-24 June 2011) was a Co-Chairs' summary of discussions forwarded to the UNGA, regarding, *inter alia*: progress to date and the remaining gaps in the implementation of oceans- and seas-related outcomes of the major summits on sustainable development; new and emerging challenges for the sustainable development and use of oceans and seas; and the road to the UN Conference on Sustainable Development (UNCSD, or Rio+20) and beyond. The thirteenth meeting (29 May - 1 June 2012) produced a Co-Chairs' summary of discussions including on the theme marine renewable energies.

UNGA RESOLUTION 67/78: On 11 December 2012, the 67th session of the UNGA adopted resolution 67/78 on "Oceans and the law of the sea." The UNGA decided to continue with the Consultative Process for two more years.

ICP-14 and 15: The outcome of the fourteenth meeting (17-20 June 2013) was a Co-Chairs' summary of discussions including on the theme ocean acidification. The fifteenth meeting (27-30 May 2014) considered, among other things, the role of seafood in global food security, and issued a Co-Chairs' summary.

UNGA RESOLUTION 69/245: On 29 December 2014, the 69th session of the UNGA adopted resolution 69/245 on "Oceans and the law of the sea." The UNGA decided to continue with the Consultative Process for two more years, with a further review of its effectiveness and utility by the UNGA at its 71st session in 2016.

ICP-16: The sixteenth meeting (6-10 April 2015) convened under the theme of oceans and sustainable development. Topics included: the environmental, social and economic dimensions of oceans as well as activities, initiatives, progress, opportunities and challenges related to integrating the three dimensions. Among others, participants also considered inter-agency cooperation and issues that could benefit from attention in future UNGA work on oceans and the law of the sea.

ICP-17: The seventeenth meeting (13-17 June 2016) convened under the theme marine debris, plastics and microplastics. Topics discussed during the week included: the environmental, social and economic dimensions of marine debris, plastics and microplastics; and challenges, lessons learned, best practices and the way forward to prevent, reduce and control pollution from these sources. Among others, participants also considered inter-agency cooperation and issues that could benefit from attention in future UNGA work on oceans and the law of the sea.

UNGA RESOLUTION 71/257: On December 23, 2016, the 71st session of the UNGA adopted resolution 71/257 on "Oceans and the law of the sea." The UNGA decided to continue with the Consultative Process for two more years, with a further review of its effectiveness and utility by the UNGA at its 73rd session.

ICP-18 REPORT

Co-Chair Gustavo Meza-Cuadra, Permanent Representative of Peru to the United Nations, opened ICP-18 on Monday morning.

Stephen Mathias, Assistant Secretary-General for Legal Affairs, highlighted the role of the General Assembly as the only global policy making body that addresses climate change and oceans in a general and non-sector-specific manner. He noted

the instruments addressing the impacts of climate change on oceans, including the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention on the Law of the Sea (UNCLOS), and the Convention on Biological Diversity.

Thomas Gass, Assistant Secretary-General for Policy Coordination and Inter-Agency Affairs, United Nations Department of Economic and Social Affairs, speaking on behalf of Under-Secretary-General Wu Hongbo, highlighted increased socio-economic impacts of climate change on vulnerable groups such as women, children and indigenous peoples. He invited participants to register commitments and partnerships on Sustainable Development Goal (SDG) 14 on the website for the June 2017 Ocean Conference, emphasizing that the Conference will provide a “solid input” into the High-level Political Forum on Sustainable Development (HLPF) in July 2017.

Shifaana Thowfeequ, Office of the High Representative for Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States (UN-OHRLLS), on behalf of Acting Under-Secretary-General Heidi Schroderus-Fox, emphasized the need for action, including on: enhanced international cooperation and scientific activity; using data to assess climate-related risks and damage to oceans; increased financial support to ensure participation of least developed countries (LDCs) and small island developing states (SIDS) in regional and global forums; accelerating technology transfer to sustainably harness ocean resources; and promoting SDG 12 (responsible consumption and production).

Co-Chair Meza-Cuadra highlighted the impacts of increased ocean acidification, ocean warming, sea level rise, deoxygenation and extreme weather events and said that sudden ocean warming in Peru has affected more than 1 million people. He drew attention to the 2030 Agenda and the conservation of marine biological diversity of areas beyond national jurisdiction (BBNJ), and said that ICP-18 and other processes could make significant contributions to the high-level UN Conference to Support the Implementation of SDG 14 (the Ocean Conference).

Co-Chair Kornelios Korneliou, Permanent Representative of Cyprus to the United Nations, highlighted the importance of a holistic approach and the need for universal acceptance that the ocean plays a key role in addressing climate change. He said ICP-18 could be a platform for raising awareness. He introduced the Secretary-General’s Report, “Oceans and the law of the sea” (A/72/70), and presented the format and annotated provisional agenda (A/AC.259/L.18), which was adopted.

UNGA President Peter Thomson noted the importance of oceans to the future of humanity, the existential threat of climate change and the effects of climate change on oceans. He said without the speedy ratification of the Paris Agreement, challenges of mitigation and adaptation lie ahead. He highlighted the need for increased ambition, cooperation and science-based policymaking, and urged delegates to register their voluntary commitments in support of SDG 14 before the Ocean Conference.

Co-Chairs Juliette Babb-Riley and Carolyn Schwalger of the *Ad Hoc* Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects, reported on the working group’s efforts and progress. Babb-Riley highlighted the programme of work, including a second World Ocean Assessment and Regular Process, and support for other ocean-related intergovernmental processes. These processes include: preparation of Technical Abstracts tailored to meet the needs of the 2030 Agenda for Sustainable Development; and General Assembly resolution 69/292 on the development of an international legally binding instrument under the UNCLOS on BBNJ.

Co-Chair Schwalger presented a summary of the First Global Integrated Marine Assessment. Highlights included, *inter alia*: the ocean and the atmosphere are interconnected systems and climate change affects both, resulting in warming of both surface and deeper water layers; rising temperatures affect distribution and abundance of marine species and will affect large and small scale fisheries; sea level rise will vary globally, leading to increased incidences of inundation and tidal flooding on coastal communities, affecting coastal habitats, including mangroves; and the impact on food webs and systems will be unpredictable and significant.

GENERAL EXCHANGE OF VIEWS

On Monday morning, delegates delivered general statements on the meeting’s topic. Ecuador, on behalf of the Group of 77 and China (G-77/China), emphasized the social and economic effects of climate change for LDCs and low-lying countries, called for enhanced cooperation, and stressed the need for developed countries to provide knowledge and technology transfer for the sustainable use of marine resources. He expressed concern about: impacts of redistribution of fish stocks on tropical fisheries; extreme weather events, including the need for improved early warning systems; and potential costs and environmental footprints of geoengineering solutions. He highlighted the importance of the Kyoto Protocol for reducing greenhouse gas emissions (GHGs) and the need to make good on the pledge of US\$100 billion by 2020 under the Paris Agreement.

Nauru, on behalf of the Pacific small island developing states (PSIDS), said that without drastic action, the road to sustainable development will be closed off. She highlighted the need to scale up adaptation, noted that international law does not address the effect of rising sea levels on maritime boundaries, and stressed the importance of marine protected areas (MPAs), land-based sources of marine pollution and the need to monitor ocean acidification (OA). She called for an integrated approach to solutions to address the complex nature of the threats.

The European Union (EU) reiterated the importance of oceans in climate regulation systems and expressed support for furthering understanding of the impacts of climate change on oceans. She noted the conclusions on oceans governance adopted by the Council of the European Union in April 2017 and looked forward to the Intergovernmental Panel on Climate Change (IPCC) Special Report on climate change and oceans and the cryosphere. She mentioned EU contributions to oceans observation, monitoring and research under the Horizon 2020 project, the Copernicus Atmosphere Monitoring Service programme and the EU’s contribution to the Group on Earth Observation (GEO) initiative. She highlighted the AtlantOS project’s contribution to understanding links between sulphur dioxide and ocean acidification and commended the International Maritime Organization (IMO) for its recent decision regarding the entry into force of the marine fuel sulphur cap.

Algeria, for the African Group, stressed the commitment of African states to oceans and noted the particular vulnerability of the African region to climate change impacts. He highlighted the role of fisheries as a source of food security in Africa and expressed disappointment that the Secretary-General’s report did not reference the Doha Amendment to the Kyoto Protocol. He called for recognition of the specific vulnerabilities and needs of the African region and underlined the importance of capacity building, partnerships and finance, in accordance with the principle of common but differentiated responsibilities (CBDR). He noted the need to enhance scientific cooperation at

all levels regarding implementation of SDG 14 and expressed hope for an ambitious political declaration at the upcoming Ocean Conference.

Indonesia highlighted the need for collaborative action to ensure that archipelago countries such as his receive help in responding to climate change impacts that affect coastal areas and communities. He highlighted key initiatives in Indonesia, including the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF), a multilateral partnership of six countries formed in 2007 to address the urgent threats facing coastal and marine resources.

Venezuela expressed solidarity with SIDS and said his country would consider supporting an UNGA Sixth Committee agenda item and referral to the International Law Commission (ILC) addressing the impacts of climate change on state sovereignty. He noted that the atmosphere is a common resource of humankind, which needs to be protected for sustainable use. He encouraged strong partnerships and science-based actions.

Jamaica said that data over the last five years confirm increasing sea surface temperatures, resulting in increased extreme weather events, which pose a risk to 60% of Jamaica's population. She highlighted Jamaica's dependence on and need for increased monitoring of coral reefs. She called for capacity building and noted the impacts of harmful species such as *Sargassum* that come from ABNJ.

Noting the importance of oceans as a natural sink for CO₂, Colombia highlighted the need to approach the problem from different angles, including land-use management rules and regulations, and through National Adaptation Plans (NAPs) under the UNFCCC. Colombia said that it is committed to conserving and protecting at least 10% of its ocean area and will be ensuring special emphasis on marine and ocean resources as part of compliance with its Intended Nationally Determined Contributions (INDCs).

Tonga stressed that the impacts of climate change on ocean ecosystems pose threats to its existence as a nation state and to international peace and security as a threat multiplier. He reiterated the importance of MPAs, marine spatial planning and food security, and called for capacity building, financial commitments, strengthening of institutions, and technology transfer. He supported Venezuela's suggestion for an UNGA Sixth Committee agenda item to discuss the impact of climate change on state sovereignty and maritime boundaries. Noting the gap in international law in this regard, he suggested this may be an appropriate topic for the ILC to consider.

Iceland emphasized the challenges that both her country and the world face due to impacts of climate change on oceans and marine ecosystems. She stressed, *inter alia*: the importance of effective implementation of UNCLOS; increased monitoring; awareness of OA; and the effective implementation of the Paris Agreement.

Vietnam stressed his country's high vulnerability to climate change, stating that floods and typhoons negatively impact agriculture, fisheries and efforts to eradicate hunger and reduce poverty. He highlighted his country's efforts to reduce GHG emissions by 25% and emphasized the critical role of partnerships at all levels.

Fiji supported the G-77/China and PSIDS on scaling up global action to address impacts of climate change and Venezuela's suggestion for an UNGA Sixth Committee agenda item. He highlighted Fiji's actions on climate change adaptation, which include relocation of over 40 coastal villages due to sea level rise, and supported a call by the UNGA President for countries

to register their voluntary commitments made with individual, national, regional and international stakeholders in the lead-up to the Ocean Conference.

Malaysia highlighted measures to address climate change impacts, which are included in his country's INDCs. At the national level, this includes a review of the CTI-CFF Malaysia National Plan of Action, which addresses national seascape, ecosystem approach and MPAs.

The Philippines said the Ocean Conference could be a game-changer for ensuring that the oceans and planet don't perish due to inaction, noting that climate change undermines sustainable development, human rights and national, regional and international peace and security. He cited 2013's Typhoon Haiyan that killed 6,300 people in the Philippines as an example of the impacts of warming trends in the Pacific's deep ocean waters, and noted the importance of forging new paths for cooperation.

Noting the worst coral bleaching ever is currently in progress due to increased ocean acidity, the US said healthy coral reefs provide US\$3.4 billion in services annually to her country. She emphasized the need for increased scientific research, ocean and coastal monitoring, mapping, and place-based protection. She also highlighted the US National Oceanic and Atmospheric Administration's (NOAA) world ocean database and assessments of fish-stock response to changing acidity, and a 66-country collaboration regarding OA and data sharing.

New Zealand emphasized its commitment to maintaining healthy and productive oceans and to contributing to efforts to combat the effects of climate change. She welcomed the First Global Integrated Marine Assessment of the Regular Process and called for further research on the impacts of climate change on oceans. She looked forward to the IPCC Special Report on climate change and oceans and the cryosphere and noted New Zealand's efforts regarding, *inter alia*, the implementation of the Paris Agreement, the New Zealand-Pacific Partnership on Ocean Acidification, and the establishment of an MPA in the Ross Sea.

Argentina stressed, *inter alia*, the social and economic impacts of climate change, noting the IPCC's work and the World Ocean Assessment. She emphasized the need to improve existing programmes and to develop further research initiatives, particularly on-site monitoring programmes. She called for enhanced cooperation and coordination, and interdisciplinary work on the risks climate change poses for oceans, and highlighted the importance of capacity building, technology transfer and finance.

On Thursday morning, the general exchange of views continued. Noting that its country is bounded by the Pacific, Atlantic and Arctic Oceans, Canada outlined its efforts to address climate change, including a proposed 10% increase in protected marine areas by 2020, support for workshops on hypoxia, and financing for developing countries.

China pointed to science and policy gaps in addressing ocean warming and OA. He emphasized implementation of the Paris Agreement, highlighted impacts on developing countries, LDCs and SIDS, and affirmed China's commitment to the global process of climate management and the Paris Agreement, both domestically and internationally.

Norway noted that the Arctic is warming at twice the rate of other oceans and said portions of the Arctic could be ice-free in 20 years. Highlighting GHG emissions, he said Norway has committed to reducing its emissions by 40% by 2030. He also highlighted blue forests and his country's commitments to climate finance for vulnerable nations.

Australia highlighted initiatives supported by his country in addressing the impacts of climate change on oceans, including, among others, participation in the Global Ocean Observing

System (GOOS) and the Scientific Committee on Oceanic Research. He further highlighted the work of Australia through the International Coral Reef Initiative with over 60 members working on building the resilience of coral reefs globally.

Brazil called on Member States to step up engagement in discussions and the exchange of views on the development of an international legally binding instrument under UNCLOS on BBNJ.

Honduras recognized the work of the Intergovernmental Oceanic Commission (IOC) as the endorsed mechanism to study and observe oceans under the UN Educational, Scientific and Cultural Organization (UNESCO). He urged Member States to recognize the role that non-governmental organizations (NGOs) play in advancing work on climate change and oceans. He underscored the need to strengthen cooperation between Member States through multilateral agreements and the ratification of existing international legal instruments that complement and strengthen UNCLOS.

Senegal highlighted the need for countries to not only reduce GHG emissions, but commit to developing a broad range of marine sanctuaries to improve the resilience of marine ecosystems as well as the chance of successful adaptation. She noted the effects of climate change on oceans in Senegal, including decreases in fish stocks and effects on coastal communities, and outlined her country's approaches to adaptation and mitigation.

Cuba stressed the need to establish and uphold commitments regarding both climate change and oceans. She noted that the commitments made under the Paris Agreement's nationally determined contributions (NDCs) are not sufficient to remain within the 2°C target, and are not proportional to historical responsibilities. She called for increasing financial support, and expressed disappointment that the Kyoto Protocol's Second Commitment Period has not yet entered into force. She called for increased political will and commitment to the Paris Agreement.

Peru highlighted threats resulting from the effects of climate change on oceans, including El Niño and hypoxia. He stated that basic human rights, such as the rights to food, sanitation and housing, are threatened. He reaffirmed Peru's commitment, following its ratification of the Paris Agreement, to the protection of oceans, and the fight against climate change.

Nepal discussed the connections between marine and mountain ecosystems, and the effects of climate change. She expressed solidarity with SIDS, and stated that it is the responsibility of the entire international community to deal with global warming and sea level rise. She stated that Nepal supports a multi-stakeholder approach, and highlighted the need for capacity building, technology transfer, and raising awareness.

Sri Lanka reiterated its firm commitment to the Paris Agreement and the 2030 Agenda; highlighted the importance of sustainable fisheries for its economy and livelihoods; described efforts to mitigate GHG emissions, including public awareness raising, protecting and planting mangroves; and welcomed a focus on regional workshops to build expertise.

Japan said the entire international community must make efforts to address the impacts of climate change on oceans. He highlighted the vulnerability of SIDS and LDCs and his country's efforts to support these countries. He also noted Japan's actions related to long-term research and monitoring, including using research vessels and buoys in cooperation with the IOC.

Singapore said that continued sea level rise poses an immediate threat to his country. He noted that Singapore has 250 coral species and has launched a climate action plan and bleaching monitoring plan. He highlighted UNCLOS as the legal framework

for oceans issues and called for enhanced coordination and cooperation across all sectors. He also underscored the need to address the unique challenges faced by SIDS.

Guatemala emphasized his country's vulnerability to climate impacts and highlighted increasing coverage of MPAs; promotion of the sustainable use of marine biodiversity in ABNJ; and the need to share information about the marine environment with other states, organizations and the public. He urged other countries to sign and ratify the Paris Agreement, and said the ocean is the "food and life-stuff of all."

The Dominican Republic acknowledged the Secretary-General's Report on Oceans and the Law of the Sea and noted that the ICP is the appropriate forum to address impacts of climate change on oceans.

The Republic of Korea reflected on the work of his country on climate change and oceans, which includes, *inter alia*: the National Information System on Blue Carbon; the revision of relevant laws and regulations to address carbon sinks; and continued work with other countries to strengthen responses of coastal states to the impacts of climate change.

Sudan reiterated the need for reliable high quality data on the science of climate change impacts on oceans. He called for, *inter alia*: innovative ideas; capacity development; the comprehensive implementation of UNCLOS; and support from developed countries in technology transfer and financing.

The Marshall Islands reflected on her country's vulnerabilities to impacts of climate change on coastal and marine resources. She underscored the need for the international system to effectively collaborate and make connections between local action and international progress. She urged consideration of and follow up and engagement on UNGA Resolution 65/150, "Protection of coral reefs for sustainable livelihoods and development." She reiterated the need to focus on legal issues regarding sea level rise, climate-driven impacts and continued definition of maritime boundaries under UNCLOS and said her country has already submitted full boundaries as required by UNCLOS instruments to ensure national boundaries and "political identity therein."

Morocco expressed hope that the Ocean Conference will adopt a call of action that is precise, concise, and able to give new momentum to oceans protection and preservation. He noted concern regarding the contents of the Secretary-General's report. He called for a move beyond "small political calculations," and stressed the need for North-South cooperation, technology transfer, and capacity building.

Cameroon noted that his state is facing the full effects of climate change, despite hardly contributing to it. He outlined Cameroon's NDC, including targets related to GHG emissions reduction and clean energy, and a NAP. He called for the cooperation of the entire international community in combating climate change and ocean degradation, and highlighted the need to support commitments on the financing of adaptation measures, technology transfer, and capacity building.

The US noted the interest expressed by some to further consider the legal implications of sea level rise. She said the US does not have a position regarding the discussion of these issues in the UNGA Sixth Committee, but was open to discussions.

DISCUSSION PANELS

On Monday afternoon and Tuesday, delegates heard panel presentations on "The effects of climate change on oceans, including environmental, social and economic implications." On Wednesday, presentations focused on "Cooperation and coordination in addressing the effects of climate change on oceans – current actions and opportunities for further enhancement."

The effects of climate change on oceans, including environmental, social and economic implications: On Monday afternoon, Ko Barrett, Vice-Chair, IPCC, presented on findings from the IPCC's Fifth Assessment Report (AR5) and preparation for the Sixth Assessment Report (AR6). Key points from AR5 included, *inter alia*: human influence on the climate system is clear; the more we disrupt our climate, the more we risk severe, pervasive and irreversible impacts; and we have the means to limit climate change and build a more prosperous sustainable future. She said the IPCC is tasked with producing three Special Reports for 2018-2019. The first report will address the impacts of global warming of 1.5°C above pre-industrial levels and related global GHG emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development and efforts to eradicate poverty. The other reports will be the Special Report on the Ocean and Cryosphere in a Changing Climate and the Special Report on Climate Change and Land.

Françoise Gaill, Committee for Marine and Coastal Research, France, spoke about ecosystem services, which contribute to human wellbeing. She highlighted the work of the World Ocean Assessment, and in particular, the relationship between natural capital, functions and processes, services, benefits and value. She compared approaches to placing value on oceans, including the 2017 report of the Boston Consulting Group and the World Wildlife Fund, which placed a US\$338 billion value on the Indian Ocean. She described ocean ecosystem services that mitigate climate change, reporting that the ocean has absorbed 93% of CO₂ emissions and more than 90% of additional thermal energy to date due to climate change. She noted recent research on, *inter alia*, climate-driven changes in the distribution of life on earth and the adaptive capacity of species. She highlighted the need for future research regarding tipping points in specific ecosystems.

Fangli Qiao, Government Secretary General and Deputy Director General, First Institute of Oceanography (FIO), State Oceanic Administration (SOA), China, presented on climate projections and predictions: challenges and possible solutions. He described the challenges of climate modeling and observation and emphasized the values of models towards adaptation and mitigation as they provide information on future scenarios. He highlighted methodology and experiments by FIO and SOA on upper ocean mixing and climate modeling. He reiterated that climate change prediction and projection still have large amounts of uncertainty. Regarding impacts of climate change, he highlighted sea level rise of 3.2mm per year for China from 1980 to 2016, which was double the global average, and offered his organization's support for climate change research on observation and projection.

Francisco Armando Arias Isaza, Institute of Marine Research, Colombia, presented on Colombian responses to the effects of climate change on the ocean. He outlined a five-step approach to the issue: diagnosis, planning, decision support, community-based projects, and monitoring and evaluation. Regarding diagnosis, he spoke about challenges to knowledge production and stated that Colombian coastlines are very vulnerable to sea level rise in terms of habitat destruction, flooding, and loss of fresh water and biodiversity. He reported estimated annual gross domestic product (GDP) loss due to climate change ranging from 0.5% to 3%. On planning, he mentioned, *inter alia*, the establishment of MPAs. He noted the challenges of incorporating scientific data into policy decision making, mentioned ecotourism partnerships with local communities, and spoke about actions in cooperation with the private sector. On monitoring, he called for increased research on, *inter alia*, blue carbon, OA, and specific scenarios for all climate change indicators.

During the ensuing discussion, delegates raised issues relating to improving and strengthening climate and ocean research, knowledge sharing and transfer, climate modeling, scientific data, and collaboration.

Elva Escobar Briones, National Autonomous University of Mexico, presented via teleconference on climate change impacts on oceans in Mexico. She described existing work, strengths and challenges in addressing these impacts. Referring to Mexico's Biodiversity National Strategy Action Plan 2016-2030, she highlighted chapters on: knowledge, conservation and restoration; sustainable use and management; attention to pressure factors; education, communication and environmental culture; and mainstreaming governance. Briones identified challenges, including: identification of reachable goals; quantifying adaptation commitments; and integrating clear measurements that can be monitored. She noted Mexico's local, regional and global actions. Local actions include, among others, an increase in scientific knowledge on minimum oxygen thresholds and persistence, and preservation and restoration of ecosystems to increase ecological connectivity. Regional actions include integration of regional programmes on coral bleaching, ocean acidification and *Sargassum* aggregation for the Caribbean Sea. On global actions, she noted the integration of scientific, socio-economic and interdisciplinary research initiatives such as the Global Ocean Oxygen Network and the Peer2Peer Mentoring Programme.

Philip Sutton, National Institute of Water and Atmospheric Research, New Zealand, presented on oceanic impacts of regional climate change and the Argo programme. He stressed the interconnectivity of oceans and climate, stating that it is a "coupled system," which should not be separated. He described the Argo research programme, a global, open-access project consisting of approximately 4000 floats collecting data on temperature and salinity at depths up to 2000 meters. He discussed several results, including: ocean warming varies widely according to geography and most warming has occurred in the southern hemisphere; warming varies throughout the water column; the ocean has shown no pause in warming since 2006; salty places are becoming saltier while fresh ones are becoming fresher; and thermal expansion of the water causes most sea level rise. He explored several regional case studies, including the relationship between the temperature of the Tasman Sea and New Zealand air temperature, the South Pacific Subtropical Gyre, the Pacific Warm "Blob," and the flooding in Peru in March 2017. He emphasized the importance of maintaining the Argo programme and expanding it to under-sampled regions including ocean areas deeper than 2000 meters, marginal seas, and seasonal ice zones.

During the subsequent discussion, delegates exchanged views on the sharing of scientific data, the effectiveness and reach of Argo, open science and the need for concentrated and effective data collection in vulnerable areas.

On Tuesday morning, Lisa Beal, School of Marine and Atmospheric Science, University of Miami, US, presented on Western boundary currents in a changing climate. She reported that they are among the strongest ocean currents and play a crucial role in regulating the planet's temperature as they transport heat from the tropics towards the poles. She highlighted the possibility of either positive or negative feedbacks on climate change, depending on how these currents change, but noted the need for more research. Regarding a twenty-year case study of the Agulhas Current, she reported that it has been broadening and weakening over time due to an increase in turbulence, contrary to models suggesting that it would intensify. She emphasized the importance of ocean measurements, rather than reliance on predictions from climate models.

Elizabeth Jewett, NOAA, presented on increasing understanding and action on OA. She noted that the OA rate is 10-100 times faster than any period in the last 50 million years, and described US waters that had become too corrosive for oysters to build shells. She described the US response, including passage of the only national OA law, which focuses on monitoring and forecasting. She highlighted global actions, including: development of the Global Ocean Acidification Observing Network, which supports data collection on OA metrics, including biological and ecosystem responses, and modeling. She also highlighted the development of low-cost technology for resource-limited areas; coordination among regional networks; and adaptation strategies, including increased emphasis on blue carbon approaches to sequester CO₂ and cultivation of acid-tolerant oyster breeds.

Katharina Fabricius, Australian Institute of Marine Science, presented on the implications of OA and ecosystem management. She said coral reefs are the most species-diverse marine ecosystems in the world, hosting over a million species, which depend on corals for protection and shelter. Fabricius elaborated that coral reef structural complexity will continue to progressively diminish globally and will slowly “dissolve” if we continue as normal. She said OA is irreversible in the human timescale and that it is “impossible” to remove CO₂ from the ocean because the technology doesn’t exist. On solutions, she recommended breeding more resilient species for aquaculture, identifying OA-resilient regions for MPAs, and prioritizing local ecosystem management.

Discussions focused on: effects of OA in the Red Sea and the Persian Gulf; the importance of MPAs for protecting seagrass sites; the possibility of reversing dead zones using MPAs, combined with limiting nutrient inputs; effects of OA on calcium carbonate shell organisms; climate migration of fish species in the tropics and sub-tropics; and the impossibility of controlling Western boundary currents to direct heat transport.

Dimitri Gutiérrez Aguilar, Peruvian Institute of Marine Research, presented on climate change effects on ocean productivity and oxygenation in the South Eastern Pacific. He described impacts of deoxygenation, including: loss of biodiversity and deep faunal biomass, habitat compression for marine species, and overall decreased productivity. He reviewed impacts from El Niño events over time and observed that forecasted changes differ by area, with increased warming predicted for open ocean areas, while regional changes in oxygen content are less certain. He noted increased reports of coastal hypoxic areas, or dead zones, resulting from anthropogenic sources of nutrient loads. He highlighted research needs, including, *inter alia*: improved regional modeling on coastal upwelling, and equatorial dynamics and El Niño behavior under climate change. He identified the need for more capacity building on monitoring and modeling and more international collaboration on knowledge and technology transfer.

Jennifer Howard, Conservation International, presented on clarifying the role of coastal and marine systems in climate mitigation. She described blue carbon as the carbon stored in coastal and marine ecosystems, such as mangroves, tidal marshes and seagrass meadows, which includes the carbon inside and beneath plant biomass. She highlighted the need to protect ecosystems to safeguard the critical benefits they provide; however, developments in aquaculture, agriculture, infrastructure and pollution continue to threaten these systems. She said up to 67% of the historical mangrove range, 35% of tidal salt marshes, and 29% of seagrass have already been lost. On

climate mitigation policy, she noted that 151 countries have some blue carbon coastal ecosystems, 71 countries contain all three ecosystems, but only 28 mention them in their NDCs.

Ambassador Marlene Moses (Nauru), on behalf of the Alliance of Small Island States (AOSIS), presented on the impacts of climate change on oceans for SIDS, noting the deep cultural, historical and economic ties between people in SIDS and the oceans. She emphasized the vulnerability of SIDS due to, *inter alia*: concentration of population and infrastructure near the coastline; limited resources and inadequate infrastructure; small and highly vulnerable economies; lack of financial, technological and institutional capacity to mitigate and adapt to climate change; and vulnerability to extreme weather events. She highlighted adverse impacts of climate change that are particularly concerning for SIDS, including: changes in fish migration and fish production; saline intrusion undermining freshwater supplies; increased storm intensity; coral bleaching and corresponding impacts on biodiversity and tourism; food security; marine inundation of coastlines; and the very survival of some SIDS. She called for technology transfer and capacity building to address the impacts of climate change and stressed the need to take urgent steps to limit GHG emissions, meet NDCs, and continually work to strengthen commitments under the Paris Agreement.

In the ensuing discussions, delegates highlighted national actions that address climate change impacts, clarification of scientific data on OA, and challenges and strengths of various approaches identified by experts on carbon sequestration.

On Tuesday afternoon, Carlos Garcia-Soto, Spanish Institute of Oceanography, presented on forecasting and anticipating effects of climate change on fisheries and aquaculture. He explained that the physical and chemical changes in oceans, such as temperature, salinity, currents and oxygen concentration, have led to shifts in distribution of marine species and timing of biological events. On adaptation options, he recommended, *inter alia*: delaying and reducing global shellfish production; relocating aquaculture production; growing resilient species; and changing food consumption patterns. On impacts to fisheries, he highlighted that fish migration into areas of fleet operations could affect the distances fishing vessels travel to reach “exploited” fisheries populations, leading to higher fuel costs and time spent at sea. In the case of SIDS, he said the high vulnerability of LDCs’ national economies will impose higher adaptation costs.

William Cheung, University of British Columbia, Canada, presented on global fisheries under climate change. He said distribution shifts will lead to local extinctions in some areas and increased diversity elsewhere, with negative impacts for tropical and vulnerable communities. He noted that: warmer water species are already becoming more dominant and tropical areas are seeing decreased catch rates for cooler water species; migrations of fish into transboundary waters could lead to disputes in sharing fish stocks; and economic costs could reach US\$10 billion per year. On other implications, he noted the nutritional health of coastal communities that obtain micro-nutrients from fish; cultural impacts; and OA impacts on subsistence and fisheries conducted by women. On potential solutions, he emphasized: meeting carbon emission reductions under the Paris Agreement; protecting and restoring habitats to slow impacts; and better fisheries management in the high seas.

Nathalie Hilmi, Monaco Scientific Center, presented on three workshops that brought together scientists, economists, sociologists and anthropologists to economically value the impact of OA on the marine environment. She reported that the first workshop focused on natural resources and biodiversity management, fisheries, aquaculture, and tourism. The second focused on economic valuation of OA impacts in terms of

revenue, employment, and vulnerability of species on a regional basis. The third workshop covered coastal economic activities such as fisheries, aquaculture, and tourism; economic modeling; and measures to address OA. A planned fourth workshop will focus specifically on coral reefs. She identified key recommendations, including: reducing GHG emissions; establishing *ad hoc* coastal networks for measuring OA; researching impacts on valuable aquaculture species; making OA projects eligible for support under the Green Climate Fund; and mainstreaming OA into global, regional and national policies.

During the discussion, delegates reflected on issues relating to the science and further clarifications on the impacts of climate change on fisheries and aquaculture. Some shared success stories in their countries and regions in adapting to the impacts of climate change on coastal fisheries. The concept of “dynamic MPAs” was discussed at length as delegates sought further understanding of the mechanisms. Cheung explained that there is no single set of rules for dynamic MPAs and referred to an example of a method applicable in open oceans, which uses remote sensing to determine the locations of pelagic resources in ABNJ. He said such information could be used to define areas to be protected.

Essam Yassin Mohammed, International Institute for Environment and Development, presented via webcast on impacts on fisheries and implications for food security in Sub-Saharan Africa. He highlighted the role of fisheries for food supply, income generation and nutrition, adding that the sector employs over 10 million people and provides the main source of animal protein for 20% of the region’s inhabitants. He elaborated on the threats, including lower fish yields, displacement of fish species, reduced fish exports and lower resilience of coastal communities. He noted that climate change impacts on fisheries have led to income loss, and proposed exploring investments to support sustainable artisanal fisheries and minimize post-harvest loss. On adaptation strategies, he recommended establishing social protection systems to build resilience of local communities and concluded that meaningful and transformative technology transfer and capacity building is needed for Sub-Saharan Africa to cope with adverse impacts of climate change on the fisheries sector.

Maria Fosshem, Norwegian Institute of Marine Research, reported on ecosystem effects of climate change in polar waters. She stressed that the Arctic Ocean is warming more than twice as fast as the global average, which has caused major effects on species and ecosystems, and noted the importance of the type and quality of Arctic sea ice, not just its extent. She outlined a case study on the Barents Sea, a highly productive biological system that has experienced the most warming of any ocean area. She emphasized that although some species in this area have been “climate change winners,” such as the Northeast Arctic cod, such winners cause major adverse ecosystem effects, cascading throughout the entire system.

Questions and discussion topics included: the effects of reduced sea ice on underwater algal blooms and benthic production, and a resulting shift to systems dominated by pelagic species; and justifications for focusing on small-scale fisheries, including in the context of the SDGs and the need to realize the ambition of “leaving no one behind.”

Cooperation and coordination in addressing the effects of climate change on oceans – current actions and opportunities for further enhancement: On Wednesday morning, Hernan Garcia, NOAA, presented on science stewardship projects and programmes. He stressed that a global ocean climate data enterprise is needed to inform decision making at the global, regional and local levels. He explained that while many historical oceanographic data have been integrated into public access databases, such as the NOAA World Ocean Database, much

valuable international data remain unavailable for use by the scientific community. He highlighted that data are a public good, and that open access creates a return on investment in terms of reliable global scientific assessments. He urged a planet-wide collaboration to openly share and integrate available data into global databases for analysis and modeling to create on-demand information for decision makers.

Vladimir Ryabinin, IOC, presented on the GOOS. He underscored the need to shift from curiosity or meteorologically-oriented systems to a focus on societal needs, such as fisheries, regional priorities, real-time events and ecosystem assessment. He noted that every US\$1 invested returns US\$10 in value, in addition to lives saved. Regarding the status of Essential Ocean Variables, he said that most physics and biochemistry metrics have been fully developed, while those related to biology and ecosystems are either in the pilot or concept phases. He described the three elements of the GOOS process: scientific oversight, with expert panels; observation coordination, using global observing networks and platforms, with regional and national organizations; and project development. He highlighted the many contributions from partners, including regional alliances, noted the need for increased data on deep ocean and polar regions, and said IOC is proposing a decade of ocean science for sustainable development from 2021-2030 to support “The Future We Want.”

Sindre Langaas, Norwegian Institute for Water Research, spoke about the role of “blue forests” in capturing and storing atmospheric carbon and their ability to provide a variety of other beneficial ecosystem services. He highlighted the work of the National Blue Forests Network of Norway in mobilizing expertise for sustainable management of blue forests. He described the types of blue forests and their carbon sequestration, storage capacity, and pertinent ecosystem services. He defined blue services as marine and coastal, which provide multiple ecosystem services, including carbon sequestration and storage. Blue carbon, he explained, is carbon stored, sequestered or released from coastal ecosystems such as tidal marshes, mangroves, seagrass meadows and kelp forests. In comparing the carbon sequestration abilities of blue forests, he noted that seagrass meadows have the lowest carbon storage and mangroves offer the highest for both estuary and oceanic mangroves. He stressed the need to conserve and sustainably manage mangroves. In an analysis of NDCs, he highlighted that 28 countries recognized blue forests under mitigation and 59 recognized it under adaptation.

The ensuing discussion focused on: collaborations between various research organizations; the location of kelp forests in temperate and polar regions; capacity building in ocean science; the difficulties in predicting El Niño events, which are stochastic in nature; and the importance of taking mitigation and adaptation action, despite the need for further scientific developments.

Elliott Harris, Assistant Secretary-General, UN Environment (UNEP), spoke on regional strategies to address climate change using ecosystem-based adaptation (EbA). He noted that even under ambitious mitigation strategies, climate change will still have impacts, with most linked to the marine environment. He characterized EbA approaches as “low regret,” due to their cost-effectiveness and easily implementable nature. Noting that marine and coastal ecosystems are often transboundary, he said regional strategies are likely to be more effective and can lead to reduced costs by sharing data, tools, and best practices. He highlighted the UNEP Regional Seas programmes, where neighboring countries work together to protect common and shared marine environments. He outlined three examples: the Mediterranean adaptation framework designed to increase the resilience of marine and coastal natural and socio-economic systems; support for adaptation planning by PSIDS, which combines conventional

and EbA strategies; and the use of blue carbon strategies, including a mangrove protocol considered at the Abidjan Convention's COP12. He emphasized the collaborative nature of EbA strategies, which support upscaling successful pilot projects.

Bethan O'Leary, University of York, UK, presented on building resilience into ocean management: marine reserves in a changing climate. She compared the benefits of MPAs and marine reserves and noted that reserves offer greater benefits since they are "strongly" protected with enforced measures, such as prohibition of commercial and extractive activities. She highlighted various reserve benefits including, *inter alia*: increasing biodiversity, biomass, abundance, and body size of exploited species and those indirectly impacted by fishing; protecting habitat from damage or destruction and promoting recovery; increasing ecological complexity; and promoting ecosystem resilience and ecosystem services. She stressed the importance of healthy and resilient ecosystems to sustain and promote the "invaluable" services they offer and underscored the need for effective enforcement of MPAs, saying they are essential in rebuilding and restoring life in the sea.

During the ensuing discussion, panelists and delegates highlighted, *inter alia*: the issue of cooperation between international agencies such as the IOC, the UN Food and Agriculture Organization's (FAO) regional fisheries management organizations, and UNEP's Regional Seas programme; the potential for sharing best practices and lessons learned under the Regional Seas programme; the importance of building capacity in marine research and observation at the regional level; the need to incorporate a range of approaches to climate-migratory species in addition to dynamic MPAs; and national security and resource development concerns relating to Argo floats.

On Wednesday afternoon, Cyrille Frederic Marie Barnerias, Global Environment Facility (GEF), presented on the GEF and climate financing, lessons learned and the way forward. He provided an overview of the work of the GEF globally and how it relates to other climate finance mechanisms under the UNFCCC and relevant in adaptation and mitigation. He highlighted the differences between the funds, such as the Least Developed Country Fund, the Adaptation Fund and the Special Climate Change Fund. He noted that the GEF supports both small- and large-scale projects in biodiversity, climate change, chemicals, water, land degradation, international waters and other areas. At the national level, he highlighted the Small Grants Programme, which helps finance projects up to US\$50,000 in local communities and are ongoing in many countries, including Vanuatu, Mozambique and Myanmar.

Hassan Moustahfid, FAO, presented on opportunities and solutions to address the effects of climate change on fisheries and aquaculture. He outlined several FAO projects and programmes in this regard, including regional adaptation workshops, an expert workshop on vulnerability assessment methodologies, and a workshop in 2018 that will provide a knowledge update regarding climate change implications for fisheries and aquaculture. He emphasized that there are three levels of adaptation that need to be carried out in a coordinated manner: institutional adaptation, livelihood adaptation, and resilience and risk reduction. He identified opportunities for fisheries and aquaculture adaptation, including: strengthening coordination mechanisms and cross-cutting communication; building and strengthening partnerships; assisting member states in mobilizing funds to implement NAPs; and raising awareness of the importance of incorporating fisheries and aquaculture into NDCs and NAPs.

Muhammad Lukman, Coral Triangle Initiative, presented on CTI-CFF measures and steps to address climate change-related coral reef issues in the region. He highlighted the Coral Triangle

region as a biodiversity "hot spot" and outlined threats from ocean warming and OA. He said the CTI-CFF is an investment in conservation management, with Member States from Indonesia, Malaysia, Papua New Guinea, the Philippines, Solomon Islands and Timor-Leste. Lukman outlined the CTI-CFF structure and decision-making process and shared its guiding principles, highlighting the importance of solid science. He described the use of regional and national action plans to achieve five key goals: effective management of priority seascapes; promoting an ecosystem approach to fisheries management; improved management of MPAs; improved climate change adaptation; and threatened species management. He described progress on these goals by different Member States, including, *inter alia*, the number of regional agreements, frameworks, strategies, and plans adopted. Noting that climate change challenges far exceed the region's capacity to address them, he said investment in conservation management needs international support to optimize CTI-CFF's collective effort.

In the ensuing discussion, delegates exchanged views on the process and complexities of accessing climate finance and the effectiveness of climate funds at the national level. The GEF explained the application process and encouraged delegates to communicate with GEF National Focal Points to improve knowledge about the process. FAO underscored the need for private and public financing to support proposals by countries that are not covered under agency mandates. Delegates also discussed the integration of "local wisdom" in ecosystem-based fisheries management plans.

Andi Eka Sakya, Meteorological, Climatological and Geophysical Agency, Indonesia, spoke about local adaptation strategies for fisheries management in Indonesia. He explained that Indonesia is prone to hydro-meteorological disasters, which have become more common in the last 15 years, and outlined early warning systems created between 2008 and 2013. He discussed the Climate Field School, a programme focused on helping ordinary people understand technical information about climate and weather. He explained that this programme began in the agriculture sector but has since been rolled out to the fisheries sector, among others, and has led to significant increases in harvesting yields.

Christina Hioureas, Foley Hoag, spoke on the effects of rising sea levels on maritime boundaries and deterritorialization. She highlighted the legal implications of climate change impacts on the territorial status of countries and how they can be addressed through relevant conventions. She outlined how maritime entitlements, territorial boundaries and exclusive economic zones (EEZs) are compromised by shifting baselines by sea level rise and loss of land. She stressed the need for UNCLOS and relevant conventions to address the special case of low-lying islands and SIDS, which are affected by existing definitions under these conventions, including islands, statehood and geographical features. She referenced several academic studies that proposed solutions to shifting baselines, including establishing outer limits of territorial boundaries, and declaring or keeping baselines unchanged regardless of future loss of land. On the way forward, she encouraged countries to enter into Marine Delimitation Agreements with their neighbors to avoid disputes. She further recommended that Member States consider these issues under the UNGA Sixth Committee using existing legal research, and refer them to the ILC for preparation of a possible new convention to address sea level rise implications, such as maritime features and statehood. She also suggested consideration of an UNGA resolution on these issues and amendments to interpretations of provisions relating to islands, statehood and maritime features under UNCLOS.

Discussion topics included: the need for improved early warning systems for atolls, and projected improvements to relevant precursor technology; transmitting information to users on long-term adaptation strategies; suggestions on a new agenda item under the UNGA Sixth Committee on legal implications of sea level rise for SIDS; addressing gaps related to climate-displaced persons; access to funding to address changing baselines, including potential private sector and foundation sources; the timing of and need for reopening existing joint development agreements to enforce rights under changed circumstances, along with concerns about presupposing legitimacy of claims; and whether the South China Sea arbitration case on UNCLOS Article 121 should be a standard for international recognition of the status of an island.

INTER-AGENCY COOPERATION AND COORDINATION

On Thursday morning, Miguel de Serpa Soares, Under-Secretary-General for Legal Affairs and UN Legal Counsel, in his capacity as the UN-Oceans Focal Point, reported to ICP-18 on the work of UN-Oceans as provided for by UNGA resolution 68/70. He discussed the side events organized by UN-Oceans and its members at UNFCCC COP22 and at the upcoming Ocean Conference. He also reported on the results of the UN-Oceans meeting held on 10-11 April 2017 at the International Seabed Authority headquarters. He said UN-Oceans Member States recognized the need for enhanced cooperation and coordination to effectively address the impacts of climate change on the oceans, and outlined activities undertaken by members in this regard. He emphasized that Member States are willing to expand their activities, particularly through the development of joint products and projects, but explained that this would depend on a clear mandate in the UN-Oceans terms of reference and on financial support.

Gabriele Goettsche-Wanli, Director, UN Division for Ocean Affairs and the Law of the Sea (UNDOALOS), provided an update on the status of the depleted ICP Voluntary Trust Fund. She acknowledged New Zealand's recent generous contribution and past contributions of Member States and urged Member States, NGOs, partners and others to contribute to ensure the participation of developing countries in the work of the ICP.

PROCESS FOR THE SELECTION OF TOPICS AND PANELISTS SO AS TO FACILITATE THE WORK OF THE GENERAL ASSEMBLY

Co-Chair Meza-Cuadra introduced this item on Thursday, regarding consideration of a transparent, objective and inclusive process. With no comments from the delegates, the Co-Chair closed the agenda item.

ISSUES THAT COULD BENEFIT FROM ATTENTION IN THE FUTURE WORK OF THE GENERAL ASSEMBLY ON OCEANS AND THE LAW OF THE SEA

On Thursday, Co-Chair Meza-Cuadra asked delegates for statements on this agenda item, referring delegates to the "Composite streamlined list of issues that could benefit from attention in the future work of the UNGA on oceans and the law of the sea" prepared by the Co-Chairs.

Algeria, for the African Group, supported by Argentina and the Russian Federation, said any ideas proposed should not pre-empt draft resolutions on oceans.

Peru, supported by the Dominican Republic and the Philippines, proposed adding as an issue sustainable patterns of production and consumption and the link to sustainable fisheries, suggesting it could be included in the section on conservation and management of living marine resources.

Argentina highlighted the value of the ICP as a platform for issues related to sustainable development and proposed the implementation of SDG 14 as a future topic. The Russian Federation opposed the proposal, saying review of the agenda as a whole is given to the HLPF and that such an approach would duplicate its work. He said ICP offers a unique format, which allows discussion of a wide range of issues related to the ocean.

France said the ICP would be an important forum to address underwater noise pollution. Malta agreed, saying there are still major knowledge gaps on this issue.

The meeting then adjourned to provide time for the Co-Chairs and the Secretariat to prepare the draft Co-Chairs' summary to be reviewed by delegates on Friday.

CONSIDERATION OF THE OUTCOME OF THE MEETING

CO-CHAIRS' SUMMARY OF DISCUSSIONS: On Friday morning, the Co-Chairs presented a summary document, providing an overview of ICP-18 discussions for each of the agenda items. The summary highlighted the general exchange of views and panel discussions, including text on the importance of implementing the Paris Agreement and meeting the commitments under the UNFCCC to address ocean issues. CBDR was underlined with an emphasis placed on implementation of the Kyoto Protocol and entry into force of the Doha Amendment. The summary also included text on addressing climate change and oceans under the 2030 Agenda, SDG 14, the SAMOA Pathway, the Aichi Targets and the Addis Ababa Action Agenda.

The summary includes delegates' views on the work of the Preparatory Committee established by General Assembly resolution 69/292 on the development of an international legally binding instrument under UNCLOS on BBNJ.

The summary also highlighted updates by countries on their INDCs and NAPs under the UNFCCC and underscored the continued vulnerability of SIDS, land-locked developing countries, LDCs, low-lying coastal countries, and coastal African states. References were also made to possible discussions by the Sixth Committee or referral to the ILC on the impacts of climate change on SIDS. Linkages between the two issues regarding both science and policy were noted as well as the role of scientific organizations in research and other work on climate change and oceans.

On inter-agency cooperation and coordination, the text included references and some linkages between the work of UNFCCC, UNCLOS, UN-Oceans, SDGs and relevant existing mechanisms. On issues that could benefit from attention in the future work of the UNGA on oceans and the law of the sea considering resolution 71/257 on the topic of the nineteenth meeting of the ICP, the text reflects discussions on avenues to address the links between climate change and oceans, which include the HLPF and the SDG process.

The text also highlights delegates' views on the unique nature of the ICP as an informal forum for the exchange of views between scientific and technical experts and government representatives.

FEEDBACK ON THE CO-CHAIRS' SUMMARY: Co-Chair Korneliou invited participants to review and provide feedback on the Co-Chairs' summary.

In the ensuing discussions, participants congratulated the Co-Chairs and the Secretariat for the comprehensiveness of the summary. Participants then suggested several amendments and clarifications to the text. Issues included: equitable distribution of fish protein; EU regulations identifying seagrass meadows; the appropriate forum for the discussion of climate change within the UN; and scientific data on ocean observations.

Greece highlighted wording on joint development zones as an alternative to delimitation agreements. The IPCC clarified its role in providing relevant scientific literature that will consider aspects of the connections between climate change and oceans in the IPCC Sixth Assessment Report and relevant Special Reports.

CLOSING PLENARY

Co-Chair Meza-Cuadra observed that ICP-18 had been very useful in improving understanding of the relationship between climate change and oceans, and noted the “major challenges” ahead. Along with Co-Chair Korneliou, he thanked delegates and panelists for their participation. He stated that the international community has taken up the commitment to “redouble its efforts” in coordination and cooperation to tackle the adverse effects of climate change on oceans. He noted the special value of the ICP in the informal discussions and the bonds formed between scientists, delegations, IGOs and others.

Co-Chair Meza-Cuadra announced that ICP-18 would be the last of his three years as Co-Chair and gavelled the meeting to a close at 3:35 pm.

A BRIEF ANALYSIS OF ICP-18

OCEANS: MEET CLIMATE CHANGE. CLIMATE CHANGE: MEET OCEANS.

UNCLOS turns 35 years old this year while the UNFCCC is 25. While climate change receives a lot of attention in the UN system under the UNFCCC, the IPCC and the SDGs, oceans are sharing the spotlight during 2017, including the Ocean Conference in June, the focus on implementation of SDG 14 at the HLPF in July, and the ongoing BBNJ negotiations, among others. Yet, ICP-18 was the first time that climate change and oceans have been considered together under any General Assembly process. The theme of oceans and climate change had been proposed for the ICP in previous years, but some believed it was premature to tackle the subject while negotiations toward the Paris Agreement were in progress. With the Paris Agreement’s adoption and entry into force, the time was ripe to introduce oceans to climate change, in the safe environment of an informal consultative process.

During the week, panel presentations underscored the need to hasten recognition of this relationship. Delegates heard that the ocean has absorbed 93% of the heat generated by CO₂ emissions since the 1970s, but not without costs: increased warming is accelerating deoxygenation; ocean acidification is devastating coral reefs around the world; and thermal expansion contributes more to sea level rise than sea ice melt. Coastal communities, fisheries, aquaculture, and livelihoods are feeling the socio-economic effects, with developing countries, LDCs and SIDS disproportionately bearing the brunt of the change. In some cases, survival of a nation hangs in the balance.

This brief analysis reflects on some of the issues raised at ICP-18, the complex array of interlinkages with other issues and processes, and considers how Member States and the ICP may support future work on these interrelated issues.

WILL YOU STILL LOVE ME? THE SPECIAL CASE OF SIDS

Kiribati has 33 coral atolls and reef islands scattered across a large area of the Pacific Ocean; none are higher than six feet above sea level. Makurita Baaro held back tears as she spoke about the effects of climate change on her nation and other similar island states. “My island stands to lose from climate change,” she said.

Ninety per cent of SIDS are in the tropics and most are subject to extreme weather events such as tropical storms, cyclones and hurricanes. Climate variability, droughts and flooding are now normal features of their weather patterns. The poleward shift in the distribution of fish species in response to ocean warming will continue to hurt the economies and peoples of SIDS communities.

Perhaps more than any other grouping of states, SIDS understand the connection between climate change and oceans. According to UN-OHRLLS, all SIDS that can enter into treaties have either ratified or acceded to UNCLOS. Forty-one SIDS are currently parties to the UNFCCC and 29 are signatories to the Kyoto Protocol. The call by Nauru, on behalf of PSIDS and AOSIS, to recognize the special circumstances of islands, has been heard many times before under the UNFCCC and other fora. It was first acknowledged by the United Nations Conference on Environment and Development in 1992 in Agenda 21; was recognized in the Rio+20 outcome, “The Future We Want”; and is included in SDG 13 (climate action).

Recognizing the need for urgent action for SIDS, presentations on early warning systems and regional partnerships offered hope for potential solutions, but others highlighted the huge challenges and remaining gaps in knowledge, capacity building and financing.

IDENTITY ISSUES: ABNJ & STATE SOVEREIGNTY

The high seas and deep ocean in ABNJs are highly vulnerable to CO₂-induced stress, even though most GHG emissions result from land-based activities. The need to address both environmental and socio-economic issues related to ABNJ remained a key concern throughout ICP-18, with countries focusing on implications to marine resources and territorial boundaries resulting from climate change, especially for SIDS and coastal states.

Despite advancement in the work of the BBNJ Preparatory Committee on the elements of a draft text of an international legally binding instrument under UNCLOS, which could address some of the environmental impacts of climate change, delegates still felt that other avenues should be pursued, such as NAPs, NDCs, and regional collaboration.

After a presentation on legal implications, the definitions of islands, statehood, and maritime features under UNCLOS, delegates debated the need for additional UNCLOS provisions to take into account climate change impacts. Some of these issues are being discussed in the Executive Committee of the Warsaw International Mechanism for Loss and Damage under the UNFCCC, but the process is complex and remains highly debated in that forum. Thus, at present, nations facing imminent displacement of their people have limited legal options under either Convention.

Regarding the impacts of climate change on state sovereignty, Venezuela highlighted the special case for SIDS, whose territorial boundaries can be compromised by sea level rise. He suggested consideration of a referral to the ILC or adding an UNGA Sixth Committee agenda item on the issue. PSIDS and others agreed, saying that any discussion of identity and statehood will need to address environmental and socio-economic impacts within the jurisdictions of those countries.

Many countries wanted to make sure their views on these issues were fairly reflected in the meeting’s outcomes, especially since this was the first ICP meeting on climate change and oceans.

MOVING BEYOND THE FIRST DATE: FINDING SYNERGIES & OTHER PARTNERS

Repeated references to the UNFCCC at ICP highlighted overlaps with regard to climate change and oceans under the two Conventions. The Ocean Action Day at the UNFCCC COP22 in Marrakech in 2016 highlighted activities, initiatives and roadmaps by UN entities, NGOs and others on climate change and oceans, but that event was informal in nature. What are the possibilities for a closer relationship between international agreements and bodies focused on oceans and those on climate? Presentations and discussions during the segment on cooperation and coordination helped identify areas where different conventions may help address cross-cutting issues.

One obvious benefit to addressing ocean issues under the UNFCCC is the potential to access resources tied to the various climate financing instruments, to the tune of billions of dollars annually—a stark contrast to the perennially “depleted” UNCLOS Trust Fund. Several climate finance presenters suggested that delegates explore whether their countries might be eligible for climate financing to address ocean-related impacts.

UNCLOS, on the other hand, has a dispute settlement mechanism, the International Tribunal for the Law of the Sea, among other legal avenues for addressing disputes and related issues. While the UNFCCC does not have such options, its obligatory reporting requirements through the NAPs and NDCs could help ensure accountability for national-level actions on climate change and oceans, covering, for example, adaptation and mitigation efforts. Also, the IPCC is preparing a Special Report on climate change, oceans and the cryosphere, which will provide a formal scientific basis on the two issues and perhaps prompt informed action under the UNFCCC, as previous reports have done.

An additional difference between the ICP and the UNFCCC is that the ICP offers a platform for PSIDS to directly share their concerns, experiences, and perspectives on the issue of climate change impacts. While PSIDS have representation in the UNFCCC through AOSIS, PSIDS are not an official grouping under that Convention.

Discussions during ICP-18 noted that issues such as climate refugees, displacement, and maritime features are also linked to other conventions and UN entities. For example, the International Labour Organization, International Maritime Organization, and relevant human rights conventions may provide avenues to address climate change-related issues. Although these interlinkages are referenced in the science and through the work of UN entities such as the FAO and IOC, gaps in policy and practice at the national level, and the limited capacity of some Member States to effectively address climate change and oceans through the relevant conventions, will continue if these are not dealt with.

Partnerships, capacity building, technology transfer and research are key to ensuring that these gaps are addressed. A consistent refrain during ICP-18 was a call for more oceans research, including observation and monitoring, although, as one developing country delegate noted, not at the expense of immediate climate action.

NEXT STEPS: MEETING THE REST OF THE FAMILY?

The overlap and temporal proximity of other key climate change and oceans meetings appeared to reduce the participation of Member States, especially those with limited resources, and a depleted Trust Fund likely exacerbated the problem. Representation by IGOs and NGOs was mostly limited to organizations who participated in the panels. The ICP practice of each meeting topic being a “one-off” means that different

constituencies and experts attend each one, leading to little continuity from year to year. Given this context, have discussions at ICP-18 helped move the issue of oceans and climate change to the next level?

Delegates agreed that the open and informal process on this subject was both valuable and appropriate. Policymakers heard about the depth of the problem and potential solutions; scientists had the opportunity to exchange information and share insights. Although the ICP was not supposed to feed into the Ocean Conference, many delegates referred to the Secretary-General’s comprehensive report, the Technical Abstracts for the 1st Global Marine Assessment, and the Co-Chair’s summary of ICP-18 as meaningful sources of information that could help raise the profile of these issues at the June conference. The opportunity to propose and vet issues related to oceans and climate change may well find traction in other fora. As for which fora might be most appropriate, one member of the Secretariat offered, “The more the merrier, so long as there is no duplication!”

UPCOMING MEETINGS

52nd Meeting of the GEF Council: The 52nd meeting of the GEF Council will take place from 23-25 May 2017. The meeting will be preceded by the GEF CSO Consultation, on 22 May. The GEF Council develops, adopts and evaluates the operational policies and programs for GEF-financed activities. It also reviews and approves the work programme (projects submitted for approval). On the final day, the Council will convene as the Council of the Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF), also at the same location. **dates:** 22-25 May 2017 **location:** Washington D.C., US **contact:** GEF Secretariat **phone:** +1-202-473-0508 **fax:** +1-202-522-3240/3245 **email:** secretariat@thegef.org **www:** <https://www.thegef.org/council-meetings>

High-Level UN Conference to Support the Implementation of SDG 14: The Ocean Conference, co-hosted by the Governments of Fiji and Sweden, will coincide with the World Oceans Day, and seeks to support the implementation of Sustainable Development Goal 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development). **dates:** 5-9 June 2017 **location:** UN Headquarters, New York **contact:** Permanent Missions of Fiji and Sweden **phone:** +1-212-687-4130 (Fiji); +1-212-583-2500 (Sweden) **www:** <https://sustainabledevelopment.un.org/topics/oceans/SDG14Conference>

27th Meeting of States Parties to the 1982 United Nations Convention on the Law of the Sea: This meeting will elect the members of the International Tribunal for the Law of the Sea (election of one third of the members takes place every three years) and the members of the Commission on the Limits of the Continental Shelf (election of all 21 members takes place every five years). It will consider the report of the Tribunal, its budgetary and administrative matters. It will also review information provided by the Secretary-General of the International Seabed Authority and the Chairman of the Commission on the Limits of the Continental Shelf on the activities of these bodies, among other issues. **dates:** 12-17 June 2017 **location:** UN Headquarters, New York **contact:** UNDOALOS **phone:** +1-212-963-3962 **email:** doalos@un.org **www:** http://www.un.org/Depts/los/meeting_states_parties/twentyseventhmeetingstatesparties.htm

HLPF 5: The fifth session of the High-level Political Forum on Sustainable Development, convening under the auspices of the UN Economic and Social Council, will be held under the theme “Eradicating poverty and promoting prosperity

in a changing world.” As decided in UN General Assembly resolution A/70/299, HLPF 5 will conduct in-depth reviews of the implementation of five SDGs, including SDG 14. **dates:** 10-19 July 2017 **location:** UN Headquarters, New York **contact:** UN Division for Sustainable Development, Department of Economic and Social Affairs **email:** <https://sustainabledevelopment.un.org/contact/> **www:** <https://sustainabledevelopment.un.org/hlpf>

BBNJ PrepCom 4: The fourth meeting of the Preparatory Committee established by General Assembly resolution 69/292 (Development of an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction) will address marine genetic resources, area-based management tools, environmental impact assessments, capacity building, transfer of marine technology, and cross-cutting issues. The session is expected to prepare recommendations to the UN General Assembly for a decision at its 72nd session whether to convene an intergovernmental conference to elaborate the text of the agreement. **dates:** 10-21 July 2017 **location:** UN Headquarters, New York **contact:** UNDOALOS **phone:** +1-212-963-3962 **email:** doalos@un.org **www:** <http://www.un.org/depts/los/biodiversity/prepcom.htm>

23rd Annual Meeting of the International Seabed

Authority: During the 23rd annual meeting of the International Seabed Authority, representatives from Member States of the Authority will discuss the work of the Authority and its Secretariat. **dates:** 7-18 August 2017 **location:** Kingston, Jamaica **contact:** ISA Secretariat **phone:** +1-876-922-9105 **fax:** +1-876-922-0195 **email:** <https://www.isa.org.jm/contact-us> **www:** <https://www.isa.org.jm/sessions/23rd-session-2017>

4th International Marine Protected Areas Congress: The IMPAC4 will convene under the theme “MPAs: Bringing the ocean and people together.” IMPAC4 will be one of the last milestones in the road of conferences on marine conservation before reaching the 2020 deadline for the Aichi Targets. **dates:** 4-8 September 2017 **location:** La Serena, Chile **email:** impac4@mma.gob.cl **www:** <http://www.impac4.org/>

46th Session of the IPCC: The IPCC will meet to discuss, *inter alia*, the outcome from the Sixth Assessment Report (AR6) scoping meeting, including the outlines for the AR6 working group reports, and the programme and budget. The 54th Session of the IPCC Bureau will meet prior to IPCC-46. **dates:** 6-10 September 2017 **location:** Montreal, Canada **contact:** IPCC Secretariat **phone:** +41-22-730-8208/54/84 **fax:** +41-22-730-8025/13 **email:** IPCC-Sec@wmo.int **www:** <http://www.ipcc.ch>

Ninth Meeting of the Regular Process for World Ocean

Assessment: The ninth Meeting of the *Ad Hoc* Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects (World Ocean Assessment), aims to improve understanding of oceans and to develop a global mechanism for delivering science-based information to decision makers and the public. **dates:** 6-8 September 2017 **location:** UN Headquarters, New York **contact:** UNDOALOS **phone:** +1-212-963-3962 **email:** doalos@un.org **www:** http://www.un.org/depts/los/global_reporting/global_reporting.htm

30th Meeting of the Adaptation Fund Board: The Adaptation Fund finances projects and programmes that help vulnerable communities in developing countries adapt to climate change. It was established under the Kyoto Protocol of the UNFCCC. **dates:** 10-13 October 2017 **location:** Bonn, Germany **contact:** Adaptation Fund Board Secretariat **phone:** +1-202-458-7347 **fax:** +1-202-522-3240 **www:** https://www.adaptation-fund.org/events/30th-adaptation-fund-board-meeting/?instance_id=4

UNFCCC COP 23: UNFCCC COP 23 will be organized by Fiji and hosted at the headquarters of the UNFCCC Secretariat in Bonn, Germany. The SBI, SBSTA and the APA will also meet. **dates:** 6-17 November 2017 **location:** Bonn, Germany **contact:** UNFCCC Secretariat **phone:** +49-228-815-1000 **fax:** +49-228-815-1999 **email:** secretariat@unfccc.int **www:** http://unfccc.int/meetings/unfccc_calendar/items/2655.php?year=2017

IMCC5: The Society for Conservation Biology’s 5th International Marine Conservation Congress will bring together conservation professionals and students to develop new and powerful tools to further marine conservation science and policy. **dates:** 24-29 June 2018 **location:** Kuching, Sarawak, Malaysia **www:** <http://conbio.org/mini-sites/imcc5/>

ICP-19: The dates and topic for the next meeting of the ICP will be determined by the 72nd session of the UN General Assembly in its annual debate on “Oceans and the law of the sea.” **dates:** TBD **location:** UN Headquarters, New York **contact:** UNDOALOS **phone:** +1-212-963-3962 **email:** doalos@un.org **www:** http://www.un.org/depts/los/consultative_process/consultative_process.htm

For additional meetings, see <http://sdg.iisd.org/>

GLOSSARY

ABNJ	Areas beyond national jurisdiction
AOSIS	Alliance of Small Island States
BBNJ	Biodiversity in areas beyond national jurisdiction
CBDR	Common but differentiated responsibilities
CTI-CFF	Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security
FAO	Food and Agriculture Organization of the UN
GEF	Global Environment Facility
GHG	Greenhouse gases
GOOS	Global Ocean Observing System
HLPF	High-level Political Forum on Sustainable Development
ICP	UN Open-ended Informal Consultative Process on Oceans and the Law of the Sea
ILC	International Law Commission
INDCs	Intended Nationally Determined Contributions
IOC	Intergovernmental Oceanographic Commission of UNESCO
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least developed countries
MPAs	Marine protected areas
NAPs	National Adaptation Plans
NDCs	Nationally determined contributions
NOAA	US National Oceanic and Atmospheric Administration
OA	Ocean acidification
PSIDS	Pacific small island developing states
SDGs	Sustainable Development Goals
SIDS	Small island developing states
UNCLOS	UN Convention on the Law of the Sea
UNDOALOS	UN Division for Ocean Affairs and the Law of the Sea
UNEP	UN Environment
UNESCO	UN Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
UNGA	UN General Assembly