

Ocean Risk Summit Bulletin

A publication of the International Institute for Sustainable Development

Sunday, 13 May 2018 Vol. 186 No. 12

SUMMARY OF THE OCEAN RISK SUMMIT: 8 - 10 MAY 2018

Organized by insurance and reinsurance group XL Catlin, in partnership with Ocean Unite, the International Union for Conservation of Nature (IUCN), the Bermuda Institute of Ocean Sciences, the Bermuda Business Development Agency, and other scientific and Bermuda-based partners, the first Ocean Risk Summit convened from 8-10 May 2018 at the Fairmont Southampton, Bermuda. The Summit brought together more than 200 participants, including scientists, business leaders, and policy makers.

The Summit was organized around the following themes: our changing ocean; managing and reducing ocean risk; building resilience; and applied solutions. It served as a platform to showcase the latest research on the interrelated changes taking place in the ocean, covering issues from threats to global food security and human health, to the impacts of hurricanes on communities, ecosystems, and businesses.

During the Summit, participants met in five working groups to discuss: natural capital and ecosystems services; cities, islands, coastal infrastructure and tourism; regenerating ocean life; fishing and aquaculture; and marine pollution, including litter and microplastics. The Summit also addressed technological advances for ocean data collection and discussing innovative solutions, including novel financial instruments, with the aim of creating the necessary synergies to address ocean-related challenges.

A BRIEF HISTORY OF OCEAN ISSUES

The Ocean Risk Summit took place in the midst of rising concern in the international policy arena about the ocean-related threats and challenges. The Global Ocean Commission (GOC) was launched in 2013 as an independent international commission addressing major threats to areas beyond national jurisdiction, also known as the high seas. The GOC Report, 'From Decline to Recovery: A Rescue Package for the Global Ocean,' was released in 2016, containing eight proposals on: adopting SDG 14; outlining steps to end fisheries subsidies; closing seas, ports and markets to illegal, unregulated and unreported (IUU) fishing; preventing plastics from entering the



L-R: **Karen Sack**, Ocean Unite; **John Rankin**, Governor of Bermuda; **José María Figueres**, Former President of Costa Rica and Founder of Ocean Unite; **Sean Moran**, Bermuda Business Development Agency; and **Chip Cunliffe**, XL Catlin

ocean; establishing binding global safety and liability standards for offshore oil and gas installations; establishing a Global Ocean

IN THIS ISSUE

A Brief History of Ocean Issues	1
Ocean Risk Summit Report	2
Opening of the Summit	2
Our Changing Ocean	3
‘Deep Dive’ Sessions	3
Managing and Reducing Ocean Risk	4
Building Resilience	5
Applied Solutions – Part I - Interactive Working Groups .	6
Applied Solutions – Part II – Ocean Risk Solutions .	8
Education, Innovation, and Exploration	9
Other Activities	9
Closing Plenary	10
Upcoming Meetings	10

Commission Board; and creating a high seas regeneration zone if monitoring shows after a period of five years that insufficient progress has been made.

The UN Ocean Conference ‘Our Oceans, Our Future,’ a high-level conference to support the implementation of Sustainable Development Goal 14. The UN Ocean Conference discussed the need for financial tools and mechanisms to incentivize solutions, and to engage the private sector to initiate actions and form partnerships.

The Summit also stands on the foundation of the negotiations for an international legally binding instrument under the UN Convention on the Law of the Sea (UNCLOS) on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction, which is focusing on developing effective mitigation and adaptation strategies for sustainable oceans. These negotiations led, in December 2017, to resolution 72/249, where the General Assembly decided to convene an Intergovernmental Conference, under the auspices of the UN, with a view to developing the instrument as soon as possible.

OCEAN RISK SUMMIT REPORT

OPENING OF THE SUMMIT

On Tuesday, during the reception, His Excellency John Rankin, Governor of Bermuda, elaborated on national efforts to tackle ocean-related challenges, including the establishment of no-fishing zones to protect marine mammals, efforts with the Sargasso Sea Initiative to protect endemic species, and the UK Blue Belt Programme on Overseas Territories. José María Figueres, Former President of Costa Rica and Founder of Ocean Unite, underscored that Bermuda is the best place to start the discussions on ocean risk, noting that the island is an insurance center surrounded by a vast ocean. Sean Moran, Head of Business Development, Bermuda Business Development Agency, emphasized that the ocean is an integral part of the Bermudian world, and stressed that ingenuity and innovative thinking are key elements for bringing together a wide range of stakeholders to develop solutions for sustainable ocean management.



José María Figueres, Former President of Costa Rica and Founder of Ocean Unite



H. E. Peter Thomson, UN Special Envoy for the Ocean

On Wednesday, José María Figueres called the Ocean Risk Summit a milestone for the global movement to reverse the crisis “our ocean” faces, and welcomed the risk management sector to the extended family of ocean partners. He explained that the complex ocean-related threats require a multi-sectoral response, and forecasted that 2018 will stand out as the year that the risk management sector mobilized and became a key factor in future decision making. Referencing recent natural disasters and severe storms, he recalled scientific warnings that these events are the new baseline, urging for accelerated responses through the use of “knowledge, innovation and collaboration.”

KEYNOTE SPEECHES: On Wednesday morning, the Hon. Walton Brown, Minister of Home Affairs, Bermuda, applauded the vision of the Ocean Risk Summit, sharing national impacts from increased intensity of storms caused by a warming ocean. He underscored the value of marine science and research, outlining the history of science and innovation in Bermuda that can be used for “better informed decisions.” He welcomed the wide array of stakeholders represented and encouraged participants to commit to taking the momentum home and “help create lasting change.”

Amb. Peter Thomson, UN Special Envoy for the Ocean, underscored that the Summit an opportunity to consider the risks posed by a changing ocean and provided opportunities to address these risks, associated with the economic functions that the ocean performs. Emphasizing that the ocean is the “source of life on the planet,” he elaborated on its decline by the accumulating effects of a wide range of human impacts. Thomson cited SDG 14 (conserve and sustainably use the oceans, seas, and marine resources) as the world’s collective plan to promote sustainable ocean health, and underscored the need to “stop throwing good money after bad,” calling for the abolishment of harmful fisheries subsidies.

Mike McGavick, CEO, XL Group, highlighted the rising economic impact of extreme phenomena, noting it “affects the poor more than anyone else” and stressed that “the risks are moving ashore with ferocity.” Noting that the insurance industry is at the heart of the matter, he provided an overview of XL Catlin’s efforts to support ocean-related scientific research since 1992, and emphasized that “risk modeling is the gateway to

prevention and resilience.” McGavick called for action and concrete steps to reverse ocean degradation, reminding all participants that “future generations depend upon what we do today.”

On Wednesday afternoon, Her Majesty Queen Noor of Jordan noted the need to involve the insurance industry to address climate change and ocean degradation since

they are the “primary risk managers in the global economy.” She highlighted the linkages between ecosystem destruction, human health, political instability, and conflict, stressing that ocean health is a matter of national and global security and should be dealt with as a “building block to stability and peace.” HM Queen Noor discussed the loss of mangrove forests and coral reefs, fisheries’ depletion, and ocean pollution with contaminants, noting that the long-term migration projections for food, shelter, and economic opportunity are shocking. Emphasizing the need to “reverse the damage we have inflicted on the vital oceanic system,” she stressed that the next decade will be crucial to secure a sustainable future.

On Thursday, HSH Prince Albert II of Monaco underscored the central role of the ocean, noting that 60% of the global population lives in a 60 kilometers radius from the coastline; three billion people find their main source of protein from the sea; and more than 200 million are directly or indirectly employed in the marine economy. He stressed the need to holistically consider the current development model, taking into account that a sustainable future “demands the reconciliation of humankind’s aspirations with the needs of the natural environment.” HSH Prince

Albert underscored recent international efforts to regulate the marine environment, as well as national and regional efforts for sustainable ocean management, urging businesses to “launch themselves towards blue growth.”

H.E. Ambassador Marlene Moses, Nauru, provided an intimate view of the alarming impacts of climate change, stressing that 99.99% of Nauru’s area is ocean.

Reflecting that nearly every country in the world has experienced negative impacts, she drew attention to systematic risks, such as food distribution and the subsequent challenges, particularly considering dependency on unpredictable financing. Moses called on financial institutions to invest in emissions reduction and towards building resilience.



HM Queen Noor of Jordan

OUR CHANGING OCEAN

On Wednesday morning, Carl Gustaf Lundin, Director of Global Marine and Polar Programme, IUCN, discussed key drivers of oceans degradation, stressing that humanity is witnessing dramatic changes and should be aware of the associated risks. He noted that 93% of the excess heat humans have created on the planet was absorbed by the ocean, calculating that without the ecosystem services that the ocean provides, the overall global temperature would increase by 36°C. Lundin underscored that building resilience lies “at the heart of this discussion.” Establishing causalities regarding the interrelationships of risks and considering potential pathways, he emphasized the role of the private sector in the move towards sustainable ocean management.

Craig McLean, Acting Chief Scientist, US National Oceanic and Atmospheric Administration (NOAA), described the work of NOAA to explore the science behind the air and sea interactions, now known as climate science. Highlighting the methodologies for collecting reliable ocean data, he identified the lack of understanding around the impacts of a rapidly changing ocean. He shared the commitment to create a comprehensive global ocean map by 2030 to help identify what “we do not yet know and what we need to know more about.”

Ove Hoegh-Guldberg, Director, Global Change Institute, University of Queensland, presenting via video, provided insight as a co-author, into the Intergovernmental Panel on Climate Change’s (IPCC) forthcoming chapter on the ocean. He cited the example of the Great Barrier Reef, demonstrating that increased risks from exposure to a rapidly warming ocean have resulted in the death of 50% of shallow water corals as of 2017, resulting in impacts on other species, tourism, and communities. He stressed that the importance of the ocean remains underestimated, calling for scaled up research to promote a wider understanding of impacts. He clarified that achieving the goals of the Paris Agreement will not result in a safe world, “but rather in a safer world,” and reiterated the need for improved management for the recovery of surviving ecosystems and their adaptation to inevitable changes.

Bill Curry, President and Chief Executive Officer, Bermuda Institute of Ocean Sciences (BIOS), provided an overview of BIOS, describing the relevant scientific research it performs. He stated that BIOS is known for its longevity, having sampled in the same locations for many years. Noting that international conferences often offer little opportunity to understand the impacts at the local environment, he said that this Summit is an opportunity to learn about what is happening in Bermuda and provided examples of the impacts of ocean change on the island, including positive news on the state of Bermuda’s coral reefs.

‘DEEP DIVE’ SESSIONS

WEATHER AND CLIMATE: On Wednesday afternoon, a round-table discussion, facilitated by Karen Sack, Managing Director of Ocean Unite, focused on weather and climate. Sack framed conversations, reflecting that “no matter where we live around the world,” the weather and climate is changing and becoming less predictable.



H.E. Ambassador Marlene Moses, Nauru



L-R: Dr. the Hon **Kedrick Pickering**, Deputy Premier, British Virgin Islands; **Maryam Golnaraghi**, The Geneva Association; **Kerry Emanuel**, Massachusetts Institute of Technology; **Robert Muir-Wood**, Risk Management Solutions; and **Karen Sack**, Ocean Unite

Dr. the Hon. Kedrick Pickering, Deputy Premier, British Virgin Islands, shared the recent experience of Hurricane Irma, describing the devastation as a political leader, as well as from a personal account. He stressed that regardless of who created the problem, “island communities are affected the most” by climate change impacts, urging action to address ocean-related challenges.

Kerry Emanuel, Cecil and Ida Green Professor of Atmospheric Science, Massachusetts Institute of Technology, discussed how past events may not be the best way to price risk and that risk modelling could use physical climate models to include future events. He demonstrated how physical modeling can help to forecast risks by generating synthetic events, noting the need for a cultural change to break down “academic stovepipes” and work together to bring about a “sustainable revolution.”

Maryam Golnaraghi, Director, Extreme Events and Climate Risks Programme, The Geneva Association, highlighted the critical role that the insurance industry and institutional investors have played to bring the issue of climate risk management to other multilateral entities, including the World Bank. She stated that the insurance industry is already taking action on liability, investment, and operations.

Robert Muir-Wood, Chief Research Officer, Risk Management Solutions, discussed risk modeling, stressing that “its essential grammar” includes the stochastic model, hazard, vulnerability, exposure, and loss. He underscored vulnerability as the most sensitive of all the risk modeling components, and emphasized that ‘loss’ does not merely refer to financial loss, but incorporates loss of biodiversity and biomes, as well as increased mortality rates. Muir-Wood used the example of Hurricanes Katrina and Rita to portray how the risk of category five hurricanes in the Northern Gulf of Mexico Coast is affected by ocean temperatures, emphasizing the importance of the basic risk equation.

In the ensuing discussion, participants addressed *inter alia*: parameters of future risk models; associated costs to coastal adaptation to hurricanes risks; the use of insurance to address carbon emissions reduction and the danger of seeing insurance as a panacea; and practical ways to better prepare for extreme events.

HEALTH AND SOCIETY: On Wednesday afternoon, facilitator John Podesta, Center for American Progress, Georgetown University Law Center, framed the panel discussion, reviewing evidence of a changing ocean and its implications for human health and security.

Elizabeth Robinson, Professor of Environmental Economics, University of Reading, spoke of variables that link climate change, ocean degradation, and impacts on human health, discussing efforts to incentivize mitigation of these impacts. Considering rapidly changing variables, she introduced the use of layered indicators to identify “hot spots” of geographic and climate exposure and vulnerability. She discussed the need to create a narrative aimed to convince governments to increase spending in climate change mitigation, as well as attract the insurance industry to calculate “right indicators and right costs.”

Timothy Bouley, Climate Change and Health Programme Lead, the World Bank, reviewed efforts to provide support to fisheries, Small Island Developing States (SIDS), the Disaster Risk Reduction (DRR) community, as well as the private sector. Highlighting institutional knowledge transfer, he stressed that the insurance industry could play a similar role in integrating and synthesizing data.

Yoshitaka Ota, Research Assistant Professor, University of Washington, provided a social, anthropological perspective, illustrating “climate-scapes” of future ocean scenarios. He demonstrated how predicted climate trends, such as evidence of the impact of increased ocean temperature on fisheries, have already begun to be reported. He explained that communities who depend on fish and seafood are the most vulnerable to negative impacts.

Participants considered, *inter alia*: the cause and effect of ocean health on hard security issues like piracy and drug smuggling; impacts on human health; and the effects of climate change in terms of the variability of emergency response and the acceleration of conflict.

MANAGING AND REDUCING OCEAN RISK

INSURANCE AND FINANCE PERSPECTIVE: On Wednesday, Rowan Douglas, Head of Capital Science and Policy Practice, Willis Towers Watson, presented the insurance and finance perspectives of ocean risk. He noted that understanding risk allows the comprehension of potential ecosystem services provided by the ocean. Douglas recalled 1992’s Hurricane



L-R: **Leonard Jones**, Moody's Investors Service; **John Huff**, Association of Bermuda Insurers and Reinsurers; **Kathy Baughman McLeod**, Bank of America; **Concepcion Aisa**, the World Bank Treasury; and **Charles Goddard**, Economic Intelligence Unit

Andrew that hit the east coast of the US, “bringing the insurance industry to its knees for the first time in 300 years,” and eventually revolutionizing the industry. Taking into account the concepts of hazard and vulnerability, and developing innovative forecasting models, he explained that capital became sensitive to risk. He underscored that the insurance world helps building a stronger relationship with local communities than through mere financial transactions, and urged for “a strong intellectual fusion between the worlds of sustainability and risk.”

MARKETS AND TRENDS: On Wednesday, a round-table discussion, facilitated by Charles Goddard, Editorial Director, Economist Intelligence Unit, focused on ocean volatility, exploring markets and trends. Goddard underscored the importance and difficulty of bringing insurance to the center of the ocean discussion, noting that the session will deepen the understanding of how ocean risk is appreciated by the financial sector and how multiple stressors that ocean risk entails can be taken into account.

Kathy Baughman McLeod, Global Environmental and Social Risk Executive, Bank of America, stressed that the “world is changing,” noting that banks are now accounting for social purposes in addition to financial performance. She said that banks tend to look at risk in layers, emphasizing their role to assist the transition needed to ocean management through the provision of capital. She noted that, given the urgency of the challenges facing the ocean, it is important to continue to explore how risks are assessed, while concurrently deploying the financial means to mitigate the risks that are already understood.

John Huff, President and CEO, Association of Bermuda Insurers and Reinsurers, highlighted the size of the insurance industry in Bermuda, noting that 14 of the 20 largest insurance companies in the world are located on the island. He defined the role of the reinsurance market to “take risk from around the world and diversify it with other risks,” emphasizing the sector’s expertise in defining and pricing risk, allowing mitigation of adverse effects. Noting that risk can only be addressed through innovation, regulation, and determination, he underscored the importance of multi-stakeholder dialogue, similar to the one held at the Ocean Risk Summit.

Leonard Jones, Managing Director, Moody’s Investors Service, described methodologies used to assess the impacts of climate change. He clarified that ocean risks are currently encompassed in climate change risks, such as rising sea levels and increased ocean temperatures, acknowledging that other ocean risks, such as pollution, are not currently comprehensively considered. Jones also noted the challenge for developing countries that lack the financial means to mitigate exposure to climate change impacts.

Concepcion Aisa, Senior Financial Officer, the World Bank Treasury, reflected on the growing number of requests for financial products to help governments address catastrophes caused by changing weather patterns, discussing the ocean as a public, rather than private, good. She highlighted the ocean challenges evident in biodiversity loss and fisheries’ collapse, and called for a holistic approach, requiring the development of new tools and mechanisms.

During discussions, participants considered, *inter alia*: possibilities of blending traditional and new insurance tools to deal with risk; ways and methods to identify risks, as well as approaches to mitigate them; and development of employment opportunities.

BUILDING RESILIENCE

BUILDING RESILIENCE IN FLORIDA: Kristin Jacobs, Florida House of Representatives, US, detailed causes and effects of the vulnerability to ocean change in Florida, illustrating state-wide cooperation and collaboration to build a pathway for resilience. She recounted the development of the successful Climate Task Force that joins cities with similar environmental agendas, drawing attention to the broadened resources made available and the tangible results of improved infrastructure.

BUILDING AN OCEAN RISK INDEX: Robert Powell, Senior Consultant, The Economist Intelligence Unit, presented the idea of developing an ocean risk index to better understand the ocean, and identify practical solutions necessary to address and mitigate risk. He explained the need for an ocean risk index to address the lack of measurable indicators on ocean risk in the existing literature and to link the state of the ocean directly to human vulnerability. Powell described what the ocean risk index

will entail and described it as a framework to address the vulnerability of countries or communities to ocean-related threats, urging that the creation of this tool will catalyze change.

APPLIED SOLUTIONS – PART I - INTERACTIVE WORKING GROUPS

On Thursday morning, participants divided into five working groups to focus on:

natural capital and ecosystem services; cities, islands, coastal infrastructure and tourism; regenerating ocean life; fishing and aquaculture; and marine pollution, including litter and plastics



Robert Powell, The Economist Intelligence Unit

NATURAL CAPITAL AND ECOSYSTEMS SERVICES: This working group, moderated by Kathy Baughman McLeod, focused on the economics of the ocean and related solutions, discussing opportunities for risk transfer, insurance, and financial products to protect ecosystems and the services they provide.

Rashid Sumaila, Director of the Fisheries Economics Research Unit and OceanCanada Partnership, University of British Columbia, addressed ocean risk, discussing the interplay between prevention and cure. Summarizing the functions that the ocean plays and the services provided, including employment generation, he offered concrete suggestions to improve ocean management, such as the removal of adverse subsidies, and a halt on issuing marine insurance to IUU fishing vessels. Falk Niehörster, Director, Climate Risk Innovations, underscored the notion of Green Gross Domestic Product (GDP) that incorporates natural assets and their services, noting it can lead to better decision-making and incentivize strategies for sustainability and resilience by linking them to available capital. He approached ecosystem services as resources that the blue economy is harvesting, noting that these resources, uninsured at large, need to be protected.

Mark Way, Director, Global Coastal Risk and Resilience, The Nature Conservancy, discussed a project in Quintana Roo, Mexico, which monetized the protective value of ecosystem services. He noted that, following Hurricane Wilma in 2005 that devastated the region, the protective value of the coral reef was evaluated through modeling exercises. The conclusion that the coral reef provides a powerful protective service, minimizing losses by more than half, led to an agreement among all stakeholders to protect the reef. A steady revenue stream from hotels paying taxes for beach access was created through the Coastal Zone Management Trust, and capital was redirected towards the preservation of the reef and insurance products, which ensure reef restoration in case of extreme events.

In the ensuing discussion, participants addressed, inter alia: data availability regarding ecosystem services; opportunities for public-private partnerships; ways to scale up efforts like the one in Quintana Roo; opportunities for insurance to be a sustainable way of managing, sharing, and understanding risk

among communities rather than a mere money transaction; ways to incentivize, via insurance, the internalization of economic externalities; ways to monetize ecosystem services without commodifying them; potential income streams from the blue carbon economy; ways to “make money by saving money,” focusing on future costs; ways to address market failures and incorporate in the calculations the notion of environmental justice; potential disincentives, created by insurance, for the sustainable management of ecosystems; and the underlying uncertainty in the modeling exercises.

CITIES, ISLANDS, COASTAL INFRASTRUCTURE

AND TOURISM: Charles Goddard, facilitated the working group on cities, islands, coastal infrastructure, and tourism where participants considered, inter alia, the issues impacting SIDS and cities in building their resilience to climate change and ocean risks. There were also discussions on the need for and means to increase political will and put together an enabling framework to promote an integrated approach to addressing risk.

Kristin Jacobs presented on the work done by the counties and cities in South Florida to develop the Southeast Florida Regional Climate Change Compact and the Southeast Florida Regional Climate Action Plan. She described the process towards building consensus and the leadership at the city-level to address climate change. She remarked this model can be transferred and replicated elsewhere, noting that the city of Durban, South Africa is working towards using it.

Dr. the Hon. Kedrick Pickering, Deputy Premier, British Virgin Islands (BVI), provided an overview of BVI’s recovery efforts after the major hurricanes in 2017. He noted impacts on national infrastructure and economy, including the direct loss in GDP and employment due to the destruction of tourism infrastructure and communications. He highlighted the need to support both recovery and resilience for future events, including the removal and disposal of debris from the yachting industry, and the need to revise and harmonize legislation and regulations. Noting the “inherent silos” among institutions and government departments, he stated that the lack of integration of individual initiatives is detrimental to these efforts.



Dr. the Hon Kedrick Pickering, Deputy Premier, British Virgin Islands

Justin Locke, Director, Rocky Mountain Institute's Islands Energy Program, Rocky Mountain Institute, discussed the importance of energy issues to support resilience in SIDS. He stated that these states pay high costs for electricity generation, while having access to various sources of renewable energy. He emphasized that they can be "ground zero for the global energy transition," providing a blueprint for other isolated economies. Noting increased motivation for the energy transition following the hurricane events of 2017, he discussed work with the government of the BVI to support the transition to renewable energy.

The group covered an array of topics and stressed the need for an integrated approach to tackle multi-sectoral issues. They also highlighted that in order to build resilience and recover after disasters, political collaboration is key.

REGENERATING OCEAN LIFE: This working group, facilitated by Carl Gustaf Lundin, addressed marine ecosystem restoration from human intervention, including the potential role of the insurance industry.

Alex Rogers, University of Oxford, discussed seabed exploration and exploitation, which is regulated by the International Seabed Authority, noting that the insurance sector can provide positive incentives for putting in place stringent environmental standards. Tammy Warren, Government of Bermuda, focused on the Sargasso Sea Commission as an example of a regional association to govern parts of the marine environment. Maria Damanaki, The Nature Conservancy, discussed blue carbon credits as a financing mechanism.

In the ensuing discussion, participants emphasized, among others: the development of a code of ethics for the maritime industry, offering a set of rules to ensure sustainable ocean management as well as a level-playing field; ways that insurance can encourage restoration activities and positively incentivize best practices regarding fishstock management; and ways to encourage insurance to improve the use of ocean data and related science, as well as sharing of the data in open platforms. The idea for a statement by CEOs from the top 100 insurance companies in support of key ocean objectives, such as protecting 30% of the ocean by 2030 was also tabled.



Alex Rogers, University of Oxford

FISHING AND AQUACULTURE: This working group, facilitated by Sally Yozell, Director, Environmental Security Program, The Stimson Center, focused on fishing and aquaculture, featuring speakers Tony Long, CEO, Global Fishing Watch; Greg Clough, Acting Director, Oceans beyond Policy; and Geir Myre, Head of Aquaculture, XL Catlin.

Participants discussed challenges associated with traditional fishing, noting it has plateaued and additional sources of fish are needed to meet growing demand, pointing to aquaculture, which they noted, is sensitive to climate change. Highlighting efforts to protect the ocean from IUU fishing, participants underscored issues around vessels being exempt from international rules of self-identification, including changing flags. They further stressed the need to improve security, noting that investing in the Coast Guard can have a good return as it accumulates revenue from different streams, such as additional registration licenses. Discussing the need to improve business behavior, including not insuring illegal fishing vessels, they deliberated upon incentivizing, via insurance premiums, best practices, and even using those premiums to replace adverse subsidies. Participants also emphasized the need for global rules for open ocean tracking and common regulations on aquaculture.

MARINE POLLUTION INCLUDING LITTER AND PLASTICS: Facilitator Kristian Teleki, Director, Sustainable Ocean Initiative, World Resources Institute, framed the issues under discussion, saying that we are "great at diagnosing the problem, but not at mobilizing the solutions at scale," and encouraging participants to focus on solutions.

Lucy Woodall, Marine Ecologist, University of Oxford and Nekton, reviewed literature to date on the state of plastics in the ocean, noting associated hazards, and urging a transition from impact assessments that narrow on single species to an ecosystem-level understanding. Jenna Jambeck, Associate Professor of Environmental Economics, University of Georgia, brought attention to global exposure of plastics, reporting that plastic accounts for 23 billion metric tonnes of waste as of 2017, much of which is single-use plastic packaging with less than 10% recycled. Discussing forecasts that project a four-time increase, she offered for consideration opportunities to decouple economic growth from waste generation.

During discussions, participants explored specific points of intervention where investment could offer the most transformation, including: reducing plastic production; innovating materials product design; reducing waste generation; improving litter capture; and reducing input concentrations. Discussions addressed the need to simultaneously pursue integrated solutions, considering the urgency of incentivizing solutions at scale. On practices of incineration of polymers and plastics, participants explored the life cycle of resulting toxins and discussed challenges in unregulated practices.

Participants exchanged: expertise on specific alternatives to plastic use, postulating whether these could incentivize changes in behavioral patterns; and examples of initiatives that repurpose plastic waste into usable building materials. Participants raised questions on, *inter alia*: policy clarification, citing the lack of



L-R: **Annette Detken**, KfW Development Bank; **Zacharay Harding**, Caribbean Climate-Smart Accelerator; **Amal-Lee Amin**, Inter-American Development Bank; **Torsten Thiele**, Global Ocean Trust; and **Brendan Plessis**, XL Catlin

a legal definition of “biodegradable;” impact of campaigns to raise awareness and reduce demand of plastics; opportunities to engage with those who may not share similar beliefs; specific origin and composition of marine litter in order to better inform reduction strategies; and the role of the shipping industry in waste reduction. Participants brainstormed new solutions, raising ideas to: explore economic tools to incentivize solutions and actions at scale; and internalize negative environmental externalities.

APPLIED SOLUTIONS – PART II – OCEAN RISK SOLUTIONS

FINANCING OCEAN RISK SOLUTIONS: On Thursday afternoon, Brendan Plessis, Executive Vice President, Emerging Markets, XL Catlin, framed panel discussions by reiterating the magnitude of the challenges humanity and the planet face, as well as the growing understanding of the ocean and array of innovative solutions as a cause for optimism. He invited panelists to share developments in finance, such as private public partnerships that can minimize risk in ocean investments.

Torsten Thiele, Founder, Global Ocean Trust, identified integration of ocean and climate solutions as the way forward, saying that the “ocean pathway is the most effective spending tool for climate funds.” He introduced different investment instruments, highlighting the Blue Natural Capital Finance Facility, a financial instrument supporting projects that deliver on biodiversity and climate adaptation. Amal-Lee Amin, Chief of Climate Change Division, Inter-American Development Bank (IDB), shared the Sustainable Islands Platform, an initiative in the Caribbean to strengthen resilience through innovation, such as the blue and circular economic models. She reported that in addition to the investment of US\$1 billion in capital, IDB offers a range of non-financial resources, including: knowledge generation and management to improve awareness among all stakeholders; institutional arrangements to promote integrated thinking around the ocean agenda; and support to attract other finance.

Zacharay Harding, CEO, Caribbean Climate-Smart Accelerator, shared excitement to work together with world leaders to make the Caribbean region the first climate-smart zone in the world. He discussed challenges, describing the diversity in culture and priorities across the region, and called for translating technical and academic conversations into actions. Annette Detken, Head of Division, Sector Policy Unit Economic

Development and Education, KfW Development Bank, discussed the Bank’s solutions for climate risk insurance. She outlined the Bank’s overall mandate to foster economic development and reduce poverty in partner countries. She elaborated on the new approaches developed in the last few years specific to climate risk, including the multi-stakeholder InsuResilience Global Partnership to close the insurance gap, as well as related instruments, such as the InsuResilience Solutions Fund and the InsuResilience Investment Fund.

In the ensuing discussion, participants considered, *inter alia*: the most promising and scalable options to support countries impacted by disaster and susceptible to climate and ocean risk; the barriers to the uptake of new, innovative financing approaches to ocean risk; the sort of policy and regulatory reform that will be required to support this new breed of financial products; and the future role of indicators and securities in making way for such innovative products.

NEW HORIZONS: On Thursday afternoon, Rowan Douglas facilitated a panel discussion to reflect on ways forward.

Rolando Morillo, Vice President, Sustainability and Impact, Rockefeller Capital Management, focused on progressing opportunities for capital to be transformational and influential for ocean sustainability. He reviewed challenges in marrying best financial metrics with sustainability aspects. Louise Heaps, Chief Advisor, Marine, WWF, introduced the 14 Principles for Sustainable Investment in the Blue Economy, an initiative aimed to provide guidelines to the investment sector in order to redirect mainstream finances towards a more sustainable pathway. She explained these principles are simple, and are based on existing principles and tools, but also innovative. She noted that while these principles are voluntary, widespread adoption will ensure delivery of global agreements such as the SDGs.

Leo Heileman, Regional Director for Latin America and the Caribbean, UN Environment, identified potential fragmentation caused by various global legally binding agreements and protocols, stressing the need for coordination and availability of finance. He outlined UN Environment’s activities in risk reduction; promotion of sustainable investments and parametric insurance programmes aimed at designing models of financing that ensure resilience; development of innovative finance for marine protected areas; and sustainable blue economy initiatives. Steven Adler, Chairman, Ocean Data Alliance, noted the need to work on reconciling the development of the blue economy,

sustainable development, and risk assessment, and underscored the need for agreement on relevant definitions. He stressed the importance of open data, which he defined as “data publicly available for anyone to use for any purpose, without permission,” emphasizing that the value of data lies in its utility. Adler requested participants to publish their data in open repositories and provided an overview of open-data initiatives, calling for “more chaos than a single portal.”

Falk Niehörster highlighted the need to protect blue economy’s large revenue stream to allow for stability and growth, and stressed that the real economy has an interest to protect marine ecosystems to ensure they keep providing their services and produce the relevant revenue streams. Emphasizing that the insurance industry has the tools and capacity at present to address risks to coastal infrastructure depending on the risk profile, he called for a “strategic approach for business development in the ocean risk space.”

MOVING FORWARD: On Thursday afternoon, Karmenu Vella, Commissioner for Maritime Affairs and Fisheries, European Commission, via video, noted that the benefits the ocean provides are less known than the challenges it faces, calling for sustainable, coordinated maritime activities that reduce risk. He said that while isolated risks can be managed with standard risk management approaches, complex and interconnected risks are more difficult to handle, and called for common efforts to “help insurance companies understand the risk exposure and direct money intelligently.” Vella provided an overview of international and regional governance initiatives, highlighting that maritime spatial planning will be mandatory in the EU from 2021.

EDUCATION, INNOVATION, AND EXPLORATION

On Thursday morning, Alex Rogers, Professor of Conservation Biology, University of Oxford, presented results from a four-week exploration in the deep waters around Bermuda, highlighting the long list of discoveries made, including over 100 new species. He discussed the value of ocean mapping to help face ocean-related challenges, highlighting exploration as key to addressing and supporting decision-making.



Chip Cunliffe, XL Catlin, and Jamie Buchanan-Dunlop, Digital Explorer

Underscoring that “we have the power, wealth, status, and influence in this room to make the difference,” Oliver Steeds, CEO and Mission Director, Nekton, articulated the need to create a new narrative built on human achievement that can reconnect people to the ocean. He shared a preview of his next mission in the Indian Ocean, including live broadcasts of first descents in its depths.

On Thursday afternoon, Chip Cunliffe, Director, Sustainable Development, XL Catlin, introduced the topic of increasing ocean literacy across the world, highlighting XL Catlin’s Oceans Education programme, which provides an interactive platform called ‘Encounter Live,’ linking students with scientists in Bermuda and the Arctic.

Arctic scientist Jamie Buchanan-Dunlop, Digital Explorer, reporting from the Arctic via webcast, demonstrated how the technology is allowing students from over 200 schools to join him in the Arctic via live broadcasts and livechats, inviting them to “experience” a connection to the faraway environment that would otherwise be inaccessible. He explained the need for these type of interactions, saying that “textbooks no longer cut it,” expressing hope that this connection can help promote an ocean-friendly future.

In the ensuing discussion, participants raised questions on: the average baseline understanding of microplastics among students and the potential impact of this innovative tool.

OTHER ACTIVITIES

PROGRESS SINCE THE GLOBAL OCEAN

COMMISSION REPORT: On Wednesday afternoon, a session focused on progress made since the Global Ocean Commission report ‘From Decline to Recovery,’ which was delivered in 2016. José María Figueres, John Podesta, Center for American Progress, and H. E. Peter Thomson, exchanged reflections on lessons learned, which can inform future actions for sustainable ocean management.

Figueres stressed that the report included eight concrete recommendations, rather than “a long list of things to do.” He addressed these recommendation, noting that some, including a stand-alone SDG on the oceans, have been implemented. Podesta emphasized that it was the Commission’s decision to focus on the high seas, underscoring the importance of creating holistic, regional management systems that address more than fish stocks.

Citing the efforts and obstacles in the development of SDG14, Thomson underscored the cycle of decline in which the ocean is caught, and the need to provide the foundation to assess progress. He further highlighted recent developments in high-seas management, emphasizing the negotiations for an international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction.

ANNOUNCEMENT OF NEW INITIATIVES: On Wednesday afternoon, Brendan Plessis, Executive Vice President, Emerging Markets, XL Catlin, and Sally Yozell, Director, Environmental Security Program, Stimson Center, announced a new joint initiative, which will examine IUU fishing, climate change, and urban migration in coastal

geographies, focusing first on Southeast Asia and the Caribbean. A predictive mapping model will be developed that will help identify the developing coastal nations that are most at risk from climate change.

On Thursday afternoon, Maria Damanaki, Global Managing Director for the Ocean, The Nature Conservancy, and Ed Heffernan, Head of Corporate Social Responsibility, XL Catlin, announced a breakthrough project to explore the development of ‘Blue Carbon Resilience Credits’, combining benefits from coastal resilience and carbon sequestration.

LAUNCH OF PUBLICATIONS: On Tuesday, two publications, sponsored by XL Catlin, were launched. ‘Ocean connections,’ co-authored by Dan Laffoley and John Baxter, under the aegis of IUCN, provides an introduction to rising risks from a warming, changing ocean. ‘Ocean Risk and the Insurance Industry,’ written by Falk Niehörster and Richard Murnane, assesses how the global insurance sector now needs to equip itself for far-reaching impacts caused by ocean change.

In the press conference, facilitated by Chip Cunliffe, José María Figueres, stressed that life above the surface of the ocean depends on the quality of the life beneath it, noting that “the ocean is the kidney of the planet,” purifying it and allowing life. Charles Cooper, Chief Executive, Reinsurance at XL Catlin, emphasized the private sector’s responsibility to help towards building resilience and developing solutions, while providing a clear understanding of what ocean risk entails.

Carl Gustaf Lundin, IUCN, underscored the invaluable, stabilizing role of the ocean, including excess heat absorption, and highlighted the publication of 12 IUCN briefing notes, addressing the effects of ocean warming on: the weather; seabirds; marine phytoplankton and harmful algal blooms; the contributions of fisheries and aquaculture to global food security; human health; sea levels and the consequences for ecosystems and society; mangrove species and ecosystems; plankton; pelagic tunas; coral reefs; Antarctic ecosystems and species; and the protection of coasts by habitat-forming species.

Falk Niehörster discussed: the ocean and its role in the climate system and the blue economy; impacts of ocean warming and associated changes in marine ecosystems; modelling ocean



Dominic LeBlanc, Minister of Fisheries, Oceans and the Canadian Coastguard, Canada

risk; and providing solutions, including via the multilateral environmental agreements and other partnerships, and the insurance sector.

CLOSING PLENARY

Hon. Dominic LeBlanc, Minister of Fisheries, Oceans, and the Canadian Coast Guard, Canada, acknowledged the vital role of the ocean in providing social, economic, and environmental benefits to billions of people. He stressed that without private investments, the “poor of the world will bear the burden of dramatic weather events,” impacting food security among others. He echoed the call for tougher language and actions around IUU and welcomed coordinated international responses for the sustainable development of the ocean, recalling Canada’s commitment to UNCLOS, the 2030 Agenda for Sustainable Development, the Paris Agreement, and the Hamilton Declaration. He stressed that under the Canadian Presidency, the Group of Seven (G7) will work towards securing sustainable ocean management, in collaboration with relevant UN agencies, local governments, development banks, and financial institutions.

Jose Maria Figueres provided an overview of the meeting’s deliberations, stressing that “provocative and creative discussions” during the Ocean Risk Summit will help develop the needed solutions to address the challenges of a changing ocean, and noting that “succinct recommendations, ideas, and initiatives” have been tabled during the Summit.

Sir Richard Branson, Founder, Virgin Group, via webcast, provided an account of the destruction that “the worst hurricane in history” caused in the British Virgin Islands, highlighting that 95% of the houses were damaged, and the small island state was transformed from “a wealthy nation to one of the poorest ones.” He also emphasized the resilience of local people to “stand back on their feet.” He addressed initiatives like the formation of a climate-smart zone for the Caribbean, noting that the region will be the worst affected by climate change, and underscored the role that businesses can play in that respect. Highlighting the importance of the ocean, he lamented species’ mass killings, including sharks, and focused on establishing protecting areas, noting that reaching the targets will “sustain fishing for many centuries to come.” Branson lauded the State of California’s environmental efforts, including to combat climate change and protect the ocean, noting that “others should emulate their actions and bold moves.” He also applauded the leadership of Chile, Brazil, and Mexico in establishing large scale marine reserves in their national jurisdictions. He called for “keeping up the pressure” on policy-makers for a sustainable future, expressing his optimism that “we can protect the High Seas and have a future.”

Figueres thanked all participants and closed the Summit at 20:28 pm.

UPCOMING MEETINGS

4th World Conference on Marine Biodiversity: This event will bring together scientists, practitioners, and policymakers to discuss and advance understanding of marine biodiversity issues.
dates: 13-16 May 2018 **location:** Montreal, Canada **contact:** 4th Wcmb Secretariat **phone:** +1-514-287-9898 ext. 334
fax: +1-514-287 1248 **email:** wcmb2018secretariat@jndl.com
www: <http://www.wcmb2018.org/>



Group photo of presenters at the Ocean Risk Summit

The Effects of Climate Change on the World's Oceans, 4th International Symposium: The Symposium will highlight latest information on how oceans are changing, what is at risk and how to respond, identify knowledge gaps, promote collaborations and stimulate the next generation of science and action. **dates:** 4-8 June 2018 **location:** Washington, DC, US **contacts:** Christina Chiu **phone:** +1 250-363 6878 **email:** Christina@pices.int **www:** <http://meetings.pices.int/meetings/international/2018/climate-change/scope>

28th Meeting of States Parties to UNCLOS: This meeting will discuss matters related to the International Tribunal for the Law of the Sea and the Commission on the Limits of the Continental Shelf, among others. **dates:** 11-14 June 2018 **location:** UN Headquarters New York **contact:** Secretary of the Meeting of States Parties **phone:** +1-212-963-3962 **fax:** +1-212-963-5847 **email:** doalos@un.org **www:** http://www.un.org/depts/los/meeting_states_parties/twentyeighthmeetingstatesparties.htm

19th Meeting of the UN Open-ended Informal Consultative Process on Oceans and the Law of the Sea: This meeting will focus on anthropogenic underwater noise. **dates:** 18-22 June 2018 **location:** UN Headquarters, New York **contact:** UN DOALOS **phone:** +1-212-963-3962 **fax:** +1-212-963-5847 **email:** doalos@un.org **www:** http://www.un.org/Depts/los/consultative_process/consultative_process.htm

International Marine Conservation Congress (IMCC5): This meeting 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:** Sarawak, Malaysia **contact:** IMCC5 Organizers **email:** <http://conbio.org/mini-sites/imcc5/about/contact-us/> **www:** <http://conbio.org/mini-sites/imcc5/>

CBD SBSTTA-22 and SBI-2: The twenty-second meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), and the second meeting of the CBD Subsidiary Body on Implementation (SBI) will be held consecutively. SBSTTA-22 will address ocean related issues, inter alia: protected areas, marine and coastal biodiversity, and biodiversity and climate change. **dates:** 2-7 July 2018 (SBSTTA-22) and 9-13 July 2018 (SBI-2) **location:** Montreal, Canada **contact:** CBD Secretariat **phone:** +1-514-288-2220 **fax:** +1-514-288-6588 **email:** secretariat@cbd.int **www:** <https://www.cbd.int/meetings/SBSTTA-22>

4th GEO Blue Planet Symposium: Under the theme of "Our future is blue: Linking ocean and coastal information with societal needs", the conference will serve as a forum for

discussion of ocean and coastal information needs for sustainable development, blue growth and societal awareness. **dates:** 4-6 July 2018, **location:** Toulouse, France **contact:** Symposium Secretariat **phone:** +33 825 595 525 **fax:** +33 4 38 38 18 19 **email:** geobp2018@inviteo.fr **www:** <https://symposium.geoblueplanet.org/>

24th Session of the International Seabed Authority (ISA) Assembly and the ISA Council (Part II): The ISA Council will consider the 2017 report of the Finance Committee, including the 2019-2020 budget proposals, and the 2018 report of the Legal and Technical Commission. The ISA Assembly will consider the 2019-2020 budget, a draft strategic plan for the ISA, and the Council's report. **dates:** 2-13 July 2018 for the Legal and Technical Commission; 9-12 July 2018 for the Finance Committee; 16-20 July 2018 for the Council; and 23-27 July 2018 for the Assembly. **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>

International Whaling Commission (IWC67): The IWC will continue its work on the conservation and management of whales and small cetaceans. **dates:** 4-14 September 2018 **location:** Florianopolis, Brazil **www:** <https://iwc.int/iwc67>

ICES/UNECE Symposium on Management tools and standards in support of Sustainable Development Goal 14 'Life below water': This will be the first symposium organized by the International Council for the Exploration of the Sea (ICES) that will be held in collaboration with UN Economic Commission for Europe (UNECE) regarding the SDGs, creating an opportunity for managers, policy developers, and researchers to review concepts and address scientific, policy and regulatory challenges of operationalizing the ecosystem-based management through the use of technical standards and risk management approaches. **dates:** 9-12 October 2018 **location:** Reykjavik, Iceland **www:** <http://www.ices.dk/news-and-events/symposia/Pages/Management-tools-and-standards-in-support-of-Sustainable-Development-Goal-14-Life-below-water.aspx>

Disclaimer: XL Catlin is the global brand used by XL Group Ltd's (NYSE:XL) insurance and reinsurance companies, which provide property, casualty, professional and specialty products to industrial, commercial and professional firms, insurance companies and other enterprises throughout the world. Clients look to XL Catlin for answers to their most complex risks and to help move their world forward. www.xlcatlin.com