

SUMMARY OF THE FOURTH IMPAC AND HIGH-LEVEL MEETING: 5-10 SEPTEMBER 2017

The fourth International Marine Protected Areas Congress (IMPAC4) met in La Serena – Coquimbo, Chile, from 5-8 September 2017. A high-level meeting took place on 9 September in Valparaiso, Chile. Organized by the Government of Chile, IUCN and with the World Commission on Protected Areas (WCPA), over 1000 representatives from governments, international and non-governmental organizations, and local communities, as well as members of civil society and others met to discuss issues around the theme ‘Marine Protected Areas (MPAs): Bringing the people and ocean together.’ These included: MPAs and global change, including climate change and ocean acidification; MPAs and coastal communities, including empowerment of women, and development and economic growth; effective, successful management of MPAs, including sustainable development initiatives and finance for MPAs; and, MPAs and shared future visions, including marine spatial planning and youth-led collaborative action.

IMPAC4 concluded with a high-level meeting, where participants approved a Call to Action, which called on those present to: ensure appropriate financial mechanisms for MPAs; integrate climate change considerations into MPAs; and, engage with women, youth and local communities to enhance MPA creation and management.

BRIEF HISTORY OF MPAS

MPAs have been defined by IUCN as “any area of intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.” Their benefits have been widely recognized, including that they: maintain biodiversity and provide refuge for endangered and commercial species; protect critical habitats; provide fish reproduction and spawning areas; build resilience against adverse climate and other environmental impacts; and, help maintain local culture and heritage.

The world’s first MPA was proclaimed in 1935 and the concept gained greater support, increasing in momentum—in 1985, approximately 430 MPAs had been proclaimed; a decade later, MPAs totaled nearly 1300 MPAs. Today, 6% of the world’s oceans have been proclaimed as MPAs, amounting to over 13,000 MPAs.

In 2005, in response to the growing number of MPAs, the global community established the International Marine Protected Areas Congress (IMPAC). Meeting every four years, the Congress is a platform that allows for managers and practitioners of marine conservation through MPAs to share knowledge and experiences, and join efforts to strengthen best practices on MPA application and management to ensure the effective conservation of marine biodiversity, and the natural and cultural heritage of the oceans. The vision and core principle of the IMPAC series includes “a high quality and professionally coordinated international congress with the primary aim to assist MPA managers and practitioners to exchange ideas and learn from others, in order to assist in the establishment and ongoing implementation of a global, ecologically representative system of effectively managed and lasting network of MPAs.”

IMPAC1: IMPAC1 took place from 23-28 October 2005, in Geelong, Australia. The Congress addressed a number of issues, including: sustainability and maximizing resilience; developing MPA networks; ecosystem structures and processes; high seas; and, fisheries. To address the major threats posed to the marine environment, IMPAC1 called for: responsible fishing practices; international cooperation to improve ocean governance; and, greater investment in scientific research.

IMPAC2: IMPAC2 took place as part of the International Marine Conservation Congress, which was held from 20-24 May, 2009 in Washington, D.C., US. Themes addressed by the Congress, included: global climate change; land-sea interface; ecosystem-based management; and, poverty and globalization.

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Messages emerging from the congress included: technology can provide useful opportunities to improve community-based MPA enforcement; larger MPAs are potentially more effective for fisheries management; and, oceans can play a key role in reducing carbon emissions.

IMPAC3: Held in Marseille, France from 21-25 October 2013, and Ajaccio, France on 26 October 2016, IMPAC3 culminated in the Ajaccio High-Level Policy Meeting. Six general recommendations emerged: mobilize local and national networks, bringing them into a global MPA network, to make local approaches and global strategies converge; open up to the private sector, through partnerships that will improve governance and support spatial planning processes; urgently enter into negotiations to reach an implementing agreement of the UN Convention on the Law of the Sea (UNCLOS) geared towards the conservation of the high seas; and, enter regional approaches as a necessity, particularly on governance issues; innovative, sustainable financing solutions must be devised and synergies between financing programmes be optimized as existing financial mechanisms are inadequate; and, the cultural, philosophical and spiritual value of the sea must be taken into account when engaging society as a whole in the conversation of oceans.

MEETING REPORT

The official opening of IMPAC4 took place on Monday, 4 September. Four substantive days followed, each contributing to discussions around IMPAC4's theme. The high-level meeting then took place on 9 September in Valparaiso, reflecting on the outcomes of the Congress, and looking towards what action needs to be taken to continue conserving the ocean.

Numerous events took place on each day, in the form of, *inter alia*, symposia, workshops, oral presentations, and poster presentations. This reports summarizes some of the key events that took place during the course of the Congress, and the high-level meeting.

MPAs AND GLOBAL CHANGE

On Tuesday morning, Carl Gustaf Lundin, IUCN, moderating the plenary panel discussion, opened the plenary, introducing the day's theme—MPAs and Global Change. He noted that since IMPAC3 in 2013, there has been an increased public awareness of MPAs, a focus on solutions, and the development of new tools and technologies.

Patricia Majluf, Oceana, Peru, stated a need to address species movement between protected areas (PAs) in response to El Niño events and climate change. Alan Friedlander, University of Hawaii, said that despite incomplete knowledge, a multi-tiered approach offers the best solution for managing MPAs.

Sylvia Earle, Mission Blue, outlined how people have “altered the nature of nature” in the oceans. She stressed the importance of safe havens for marine species and the need to make sure these continue to expand going forward. Alexander Tudhope, University of Edinburgh, emphasized that while MPAs cannot solve climate change, they play a key role as refuges for species in times of stress.

In the ensuing discussion, Earle encouraged “thinking big” on ways to protect the ocean. Friedlander stated the global community must harness the knowledge and adaptive capabilities of coastal communities. Tudhope outlined different ways the ocean serves as a carbon sink.

IMPAC4 SYMPOSIA: Next Steps for Ecologically or Biologically Significant Marine Areas (EBSAs): Evolving descriptions to protection under a new international treaty for marine biodiversity beyond national jurisdiction: Kristina Gjerde, IUCN, noted that the ocean is legally divided, but the legal frameworks are fragmented, and MPAs are one part of the overall package.

On tracking conservation on the high seas, Beth Pike, Marine Conservation Institute, said 7.5% of oceans are protected, and underscored the need to include high seas in MPAs given the goal of protecting 10% of coastal and marine areas by 2020 under Aichi Biodiversity Target 11 (MPAs).



(L-R) Carl Gustaf Lundin, IUCN; Patricia Majluf, Oceana, Peru; Alan Friedlander, University of Hawaii; Sylvia Earle, Mission Blue; and Alexander Tudhope, University of Edinburgh



(L-R) Kristina Gjerde, US; Daniel Dunn, Duke University; Beth Pike, Marine Conservation Institute; Tammy Davies, Birdlife International; Mauricio Gálvez, IFOP; and David Johnson, GOBI

On the possible role and value of EBSAs in marine spatial planning in Areas Beyond National Jurisdiction (ABNJ), David Johnson, Global Ocean Biodiversity Initiative, noted that EBSA coverage includes coastal, transboundary and ABNJ, and that EBSAs vary in size and dynamics. He highlighted the value of Marine Spatial Planning (MSP) as a cross-sectoral tool for management in the high seas.

On MPAs and international scientific collaboration, Mauricio Gálvez, Institute of Fisheries Development, reviewed relevant principles, actors, and incentives for collaboration and said an institutional arrangement was not needed for science on the high seas given existing coordination and benchmarks by entities such as the Intergovernmental Oceanographic Commission of the UN Educational, Scientific and Cultural Organization (IOC-UNESCO) with GEF as the financial arm to support research on high seas.

On challenges and opportunities in the evolution of EBSAs into MPAs, Tammy Davies, Birdlife International, shared project results for mapping marine Important Bird and Biodiversity Areas, and spatial and temporal overlap analysis of seabird distribution and fishing efforts in tuna fishing areas.

On incorporating EBSAs into ABNJ negotiations, Daniel Dunn, Duke University, stressed the need to have more scientists and academicians involved during the negotiating process, and said that EBSAs serve as threat assessments pulling together information for competent authorities.

In ensuing discussions, participants discussed: gaps in EBSA processes for the Southern Ocean; communication among sectoral organizations at regional levels; categorizing and describing EBSAs and MPAs for highly variable and dynamic areas; spillover of impacts from high seas into national areas; and, the issue of adjacency in ABNJ treaty negotiations.

MPA Acting on Climate Change: Toward a global MPA network and community to fight climate change impacts: Dan Laffoley, IUCN-WCPA, discussed ways of bringing biodiversity actions into the broader international climate community in considering the role of marine ecosystems as natural carbon sinks.

Gabrielle Johnson, US National Oceanic and Atmospheric Administration (NOAA), discussed MPA capacity building and adaptation programmes in the Western Indian Ocean region, noting the importance of social networking among MPA site staff in the region.

Anne Nelson, Collaborative Ocean Planning, discussed ways of connecting MPAs, climate resilience, marine tourism and coastal development through capacity building workshops in the Coral Triangle.

Maria del Mar Otero Villanueva, IUCN, noted the importance of: specific protocols for monitoring mass mortality events in coral communities; sharing local ecological knowledge; and, exchanging information between different MPAs on climate change adaptation.

Jean-Jacques Goussard, Environment and Development Network, presented on the Transatlantic Partnership Among MPAs initiative which seeks to promote capacity building and cooperation between MPA managers, and share best practices for building resilience to climate change.

In the ensuing discussion, participants identified how ecosystem functioning has become especially important under climate change, the role of vulnerability assessment workshops, and ways of strengthening partnerships.



Gabrielle Johnson, NOAA



Martin Thiel, UCN, Chile

MPAs in Chilean Oceanic Islands: Particularities and challenges for decision-making: Beatriz Yannicelli, Northern Catholic University (UCN), Chile, discussed population connectivity of benthic species and primary productivity associated with increasing nutrient inputs in vulnerable marine ecosystems (VMEs) surrounding Rapa Nui (Easter Island).

Javier Sellanes, UCN, Chile, highlighted the importance of underwater seamounts off the Chilean coastline as hotspots in terms of productivity, endemism, and abundance of benthic species.

Martin Thiel, UCN, Chile, drew attention to both local and distant sources of marine litter that is negatively impacting fish and seabird populations surrounding the Chilean oceanic islands. He lamented limited public pressure to “police” the economic sector in reversing this trend.

Carlos Gaymer, UCN, Chile, discussed the needs and challenges for MPA creation and implementation among Chilean oceanic islands, noting logistical challenges and diverse socio-ecological systems to consider as well as a lack of knowledge on bathymetry, connectivity of MPAs, and threat assessments.

In the ensuing discussion, participants identified ways to strengthen compliance on the economic sector for addressing marine litter and damage from trawl fisheries on underwater seamounts.

Towards a Transatlantic Partnership of MPAs: Puri Canals, MPAs Network, highlighted three twinning projects focused on: MPAs and coastal reliance; marine mammal protection as a way to enhance transatlantic cooperation; and, cooperation for a common strategy between networks of managers in the Atlantic region. Representatives from different MPAs, including MPAs in Gabon, Bermuda, Brazil, and the US, then discussed the value of each project.

On coastal resilience, highlights included: creating and sharing new planning tools in response to increasing frequency and intensity of storms; and, national park assistance in providing data and maps to address the impacts of urban sprawl.

On marine mammal protection, a project based on humpback whales’ use of MPAs in different countries led to workshops on good practices and management activities.

On cooperation and common strategies, network representatives highlighted: strengthening the voice and involvement of managers in decision-making; sharing both



Amy Hudson Weaver, Natural History Society Niparajá

bottom-up and top-down approaches; the need to address biodiversity knowledge gaps; increased management efficiency; and, the need to accelerate action given the deadline to meet Aichi Biodiversity Target 11 (MPAs).

Taking Fisheries Management and MPAs to Scale: Tools and case studies from around the world: Amy Hudson Weaver, Natural History Society Niparajá, noted the importance of fishing refuge zones to rehabilitate small-scale fisheries, outlining key strategies for best practice management.

Layla Osman, Environmental Defense Fund, presented on sustainable marine resource management areas along the southern Chilean coast, stressing these management areas aim to improve artisanal fisheries and recover lost productivity while diversifying livelihood strategies through ecotourism.

Nicanor Requena, Environmental Defense Fund, discussed the concept of “managed access” as an innovative way of fisheries management in Belize. He explained this approach leads to new and diverse markets, greater reported fish landings, improved enforcement and monitoring, and better opportunities for safeguarding traditional fishing practice.

Mónica Alzamora, Nature and Culture International, Peru, discussed the challenges and opportunities of designing an MPA off the northern Peruvian coast. She stressed that co-management with empowered local stakeholders possessing legally recognized access rights is critical to improve the conservation of artisanal fisheries and assure social equity in the development of MPAs.

In the ensuing discussion, participants debated how fishermen can be more directly involved in fisheries management and in the design of MPAs.

Coastal Reserves Network: A public-private tool to promote governance, protection and promotion of sites of high ecological and cultural interest: Claudio Castro, Ministry of Environment, Chile, stressed that coastal marine conservation in Chile is challenged by diverse and often incompatible land-uses, and sectoral and geographic fragmentation. He highlighted the role of public-private mechanisms to optimize sustainable governance of coastal zones.

Nelson Cárcamo, Castro Municipality, Chile, highlighted two regions within his municipality where the government is seeking to protect areas of high ecotourism potential.

María Elisa Puig, Ministry of National Assets, Chile, presented on how Chile's system of more than 6,500km of heritage trails, extending into marine coastal areas, are defined according to the criteria of natural heritage, cultural heritage and indigenous territory.

Christian Cárdenas, Quellón Municipality, Chile, discussed the enhancement of wetland conservation along the coastline of his municipality, including through plans for developing sustainable and responsible tourism.

Jorge Valenzuela, Center for the Study and Conservation of Natural Heritage, Chile, presented on a strategy for prioritizing coastal and marine conservation in the Chiloé archipelago in Chile.

Essential Ecosystems: Protection against climate change: Janique Etienne, French Facility for Global Environment, highlighted the importance of oceans for mitigating climate change.

On coral reef benefits, Francis Staub, International Coral Reef Initiative, emphasized high marine productivity in coral reef areas, livelihoods, and reef-related tourism. He reported on economic valuations of coral reef ecosystems in France and its territories, and for Australia's Great Barrier Reef.

Sylvain Faugeron, Pontifical Catholic University of Chile, described kelp forest response to changes in seawater temperature, noting that survival is less affected at high temperatures but that fertility is reduced in low latitude populations even in different regions.

Adèle de Toma Cadinouche, Indian Ocean Commission, reported on sustainable management practices of coastal zones through local and regional partnerships in member countries. She identified key partnership components, including: community involvement; participatory approaches; innovative funding mechanisms; and, national and regional networks.

Ismak Ado Beassou, Mayor of Sainte-Marie, Madagascar, described a community-based mangrove management project, which restored 80ha of degraded mangroves.

Mbolatiana Andramiarinosy, Madagascar, presented a video on community-supported temporary closures of octopus fisheries, which doubled harvests post-closure.

Sharing Experiences on Achieving Target 11 in Marine and Coastal Areas, including the Contribution of Other Area-Based Conservation Measures: Joseph Appiott, Convention on Biological Diversity (CBD), discussed the work programme of the CBD in the achievement of Aichi Biodiversity Target 11 (MPAs), noting challenges in ensuring that EBSAs are both effectively and equitably managed.

Brian MacSharry, UN Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC), highlighted the status of achievement for Aichi Biodiversity Target 11, noting that while progress in the coverage of MPAs has been "quantitatively successful," more data is required to assess how effective this coverage has been.



Brian MacSharry, UN-EP-WCMC

Daniel Dunn, Duke University, discussed the role of EBSAs in advancing progress on Aichi Biodiversity Target 11, highlighting contributions of EBSAs to MPAs and MSP both within and beyond natural jurisdictions.

Kevin Stringer, Department of Fisheries and Oceans Canada, said that MPA coverage in Canada has remained at 1% for 20 years, but that the government has committed to 5% by the end of 2017, and to 10% by 2020.

Skip Woolley, Commonwealth Scientific and Industrial Research Organisation, Australia, stressed the role of spatial management to reduce unnecessary impacts on marine resources.

José Pedro de Oliveira Costa, Ministry of Environment, Brazil, discussed MPAs as tools to achieving Sustainable Development Goal (SDG) 14 (Life Under Water). He described the "Brazil Blue Fund" dedicated to furthering MPA coverage in Brazil.

Michel Kaiser, IUCN, showed examples from the Welsh coast and along the Isle of Man in the UK illustrating how it is possible to measure the threshold of fishing disturbance at which change to "conservation features" begins to occur.



(L-R) **Mbolatiana Andramiarinosy**, Madagascar; **Ismak Ado Beassou**, Maire de Sainte-Marie, Madagascar; **Adele de Toma Cadinouche**, Indian Ocean Commission; **Janique Etienne**, French Facility for Global Environment; **Sylvain Faugeron**, UCA; and **Francis Staub**, International Coral Reef Initiative

Multiple Use MPAs as Opportunities to Ally Conservation, Sustainable Fisheries and Community Development in Low Governance Environments: Claudio Maretti, Chico Mendes Institute for Biodiversity Conservation



Claudio Maretti, ICMBio

(ICMBio), provided an overview of multiple-use MPAs in Brazil, noting that while local communities are engaged in management, more progress is needed, including on promoting participatory biodiversity conservation and strengthening support for sustainable production.

On efforts to achieve sustainable fisheries in MPAs, Guilherme Dutra, Conservation International Brazil, described projects with small-scale fisheries

that included a traceability system for fish products and online information available to consumers.

On fostering sustainability in MPAs through market links, community engagement, empowerment and stewardship, Anna Carolina Lobo, WWF-Brazil, reported on a partnership that linked fishermen and chefs, where chefs developed new recipes for under-utilized fish caught with low-impact fishing gear.

Carlos Alberto Pinto dos Santos, National Commission for the Strengthening of Extractive Reserves and Extraction by Traditional Coastal and Marine People, Brazil, described a community-based MPA management strategy, highlighting: investments in collective action; governance mechanisms and social participation; connectivity with public policies; sociocultural aspects of the environment; and, the role of traditional communities.

In the ensuing discussion, participants discussed, *inter alia*, guarantees regarding the quality of life in MPAs, and to lack of effective governance mechanisms.

IMPAC4 WORKSHOP: How to Protect? A method to choose MPA IUCN Categories based on ecosystem-services: Apoena Calixto Figueirôa and Marinez Eymael García Scherer, Federal University of Santa Catarina, led the workshop. Figueirôa said effective MPA management should include a categorization that ensures respect for local socio-environmental characteristics. Using the six IUCN categories for PAs, he described research examining 80 MPA processes in Brazil, of which none had a clear or repeatable methodology and many lacked a reason for categorization. He outlined a multi-criteria analysis, which considers the main ecosystem services to be preserved or promoted, weights the importance of each ecosystem service, and includes the relative contribution of each category to each ecosystem service.

Scherer then led an exercise for a fictional marine area. Using information about the area, participants assigned weights for 18 different ecosystem services. The combined results favored the most restrictive protection, although other categories also received high scores.

MPAs AND COASTAL COMMUNITIES

Opening the plenary session on Wednesday morning, John Armor, NOAA, said the day's theme moved discussions from the global to the local level. Speaking on the US experience of community involvement to plan and proclaim MPAs, he said methodologies must "build bridges" to improve understanding of why resources need to be conserved.

Poki Tane Haoa, Government of Rapa Nui, Chile, described the worldview of the people of Rapa Nui, noting "when we speak about our people, we think in blue." He described his Government's desire to prevent further expansion of industrial fisheries and sea mining, and promote the expansion of MPAs.

Kalani Quiocho, NOAA, illustrated the worldview of Hawaiian cultural heritage, describing the "canoe" as a model for sustainability and highlighted the development of marine reserves in the Northwest Hawaiian Islands as both a responsibility and right for local communities as stewards of the land.

Felipe Paredes, Juan Fernández Archipelago Government, Chile, described the history of immigration to the South Pacific islands and the increasing impact industrial fisheries are having on artisanal lobster fisheries. He explained MPAs are crucial to the recovery and sustainability of fisher livelihoods on the islands.

Gustavo Cabrera, Omoa Conservation Bodies Foundation, Honduras, highlighted challenges shared by Guatemala, Belize, and Honduras in terms of overfishing within the world's second largest barrier reef. He described the development of an alliance between governments and fishermen developed through a series of national and regional workshops to design and implement legally-recognized fish restoration zones.

In the ensuing discussion, participants noted: using ancestral knowledge combined with advancements in technology can progress and encourage advancements; communities should have the right to access and manage ancestral spaces; and, learning-by-doing while working with local communities can bridge the spheres of science, research methodologies and local knowledge to effectively establish and manage reserves.

IMPAC4 SYMPOSIA: Protecting VMEs in the High Seas from Bottom Fishing Impacts: Jessica Sanders, Food and Agriculture Organization of the UN (FAO), presented on the



Jessica Sanders, FAO

legal and policy framework for VMEs, including the history of UN General Assembly resolutions and FAO deep-sea fisheries guidelines.

Tony Thompson, FAO, reviewed VME criteria, and measures adopted by Regional Fisheries Management Organizations (RFMOs). He noted improvements in: data collection; enforcement; review of VME closures; footprint delineation; VME coverage; and, the contribution of VMEs to SDGs and the Aichi Biodiversity Targets.

Mauricio Gálvez, Institute of Fisheries Development, described a mapping project to locate potential VMEs. He reviewed “move-on” rules for VME encounters, noting uncertainty costs, and suggested workshops on MSP regimes.

Michel Kaiser, IUCN Fisheries Expert Group (IUCN-FEG), shared research results related to: species’ depletion values and fishery penetration depth; fish longevity in more stable habitats; and, analytical tools to predict the proportion of long-lived species expected to remain in an area.

Joseph Appiott, CBD, highlighted links between RFMOs and the work of the CBD, including similarities between EBSAs and VME criteria.

Towards a New International Instrument to Regulate the Conservation and Sustainable Use of Marine Biodiversity in Areas Beyond the Jurisdiction of States: Reviewing the Biodiversity in Areas Beyond National Jurisdiction (BBNJ) Preparatory Committee (PrepCom) process, Carlos Duarte, Brazilian Ambassador to Chile and BBNJ PrepCom Chair, explained that the mandate to achieve the widest possible support for a new legally binding instrument resulted in a text of recommendations with two sections: the first including elements that generated the most convergence and the second identifying issues that need more work.

Liz Karan, Pew Charitable Trusts, highlighted the role of civil society in generating momentum to convene formal treaty negotiations on BBNJ.

Cristóbal Hernández Castillo, Ministry of Foreign Affairs, Chile, highlighted progress on implementing SDG14 (Life Under Water); multilateral cooperation; and, the current momentum to achieve management rules for the high seas.

Kristina Gjerde, IUCN, noting that conservation often loses out under area-based management tools, highlighted the need to recognize a common purpose, and the importance of transparency, participatory management, and the precautionary principle.

MPAs and Food Security: Michel Kaiser, IUCN-FEG, noted that food security is not a new issue; highlighted the threat of overfishing; and, said the main mandate for MPAs is conservation, but protected areas also can contribute to food security.

Serge Garcia, IUCN-FEG said no-take MPAs tend to restrict access to areas that communities are dependent on for food, resulting in conflict. He highlighted measuring and addressing economic impacts and the importance of bottom-up approaches to ensure that MPAs support food security and livelihoods.

On artisanal fisheries, Miguel Ávalos, National Confederation of Artisanal Fishermen of Chile, emphasized: participatory governance for MPAs, including co-management after development of a plan; the value of place-of-origin seals; and, engaging school children.

Angélica Méndez, Network of Fishermen, Guatemala, described increasing awareness about the value of MPAs. She highlighted: fishers as guardians; proposals on national managed areas; co-management; and, the need for guidelines that keep fishers working.

On artisanal fishers in coastal zones and protected areas, Stefan Gelcich, Pontifical Catholic University of Chile, suggested a scalable programme with supplementary revenue to fishers in exchange for management actions that produce verified and enforced biodiversity benefits.

Civil Society Networking for Marine Conservation in the Southern Cone: Lessons from collaborative working: Alexandra Sapoznikow, Forum for the Conservation of the Patagonian Sea and Areas of Influence, described the unique



Angélica Méndez,
Network of Fishermen,
Guatemala



(L-R) **Cristóbal Hernández Castillo**, Ministry of Foreign Affairs, Chile; **Carlos Duarte**, Brazilian Ambassador to Chile and BBNJ PrepCom Chair; **Liz Karan**, Pew Charitable Trusts; **Kristina Gjerde**, Policy Advisor to the High Seas Alliance; and **Cristian Laborda Mora**, IUCN

ecosystems of the Patagonian Sea and explained the Forum as a partnership to promote synergistic collaboration for its management.

Alejandra Figueroa Fernández, Ministry of Environment, Chile, described the state of marine biodiversity protection in Chile, multiple land-use demands, and the importance of engaging with indigenous populations within Chile's Exclusive Economic Zone (EEZ).



Alejandra Figueroa Fernández, Ministry of Environment, Chile

Emiliano Ezcurra, National Parks, Argentina, presented on his country's legal framework for the creation of MPAs. Joaquin Labougle, National Parks, Argentina, illustrated Argentina's experience in implementing MPAs. He emphasized joint efforts by government and civil society in developing proposals to create new MPAs, noting

successes in achieving consent and acceptance by offshore fishing industries.

Pamela Castillo, Costa Rica Forever Association, presented on a regional collaboration of four countries in the Pacific and Caribbean region known as the "Environmental Funds Platform of the Tropical Eastern Central Pacific" (PACIFICO), which mobilizes funds through public-private partnerships for: enhancing transboundary connectivity of marine conservation efforts; climate change mitigation strategies; an alternative "blue economy"; and, capacity building workshops.

María José Gonzáles, Mesoamerican Reef (MAR) Fund, explained that the MAR Fund is designed to raise and distribute funds to "put the reef first," by strengthening networks through exchange of ideas, and promoting mutual learning between marine conservation organizations, fishermen organizations, and MPAs.

IMPAC4 WORKSHOPS: Citizen Science for MPAs:

Mark Rodrigue, Parks Victoria, highlighted citizen science as a collaboration between professional scientists and people with passion for a place. He reported on data collection projects in Australia and on a Blue Ventures training project for an artisanal fishery in Madagascar, which uses mobile phones to capture fish stocks data.

Steffan Howe, Parks Victoria, discussed: the challenges of a marine citizen science project, including data quality, matching volunteer capacity with expectations, and volunteers' desire for more feedback; and, strategies in response, including adapting activities to range from easy to hard, and developing a mobile application to provide online feedback.

Daniela Honorato, UCN, Chile, spoke about the Litter Scientists national programme involving 30 schools along Chile's coastline and two islands. She highlighted goals on scientific literacy, fostering environmental awareness, and encouraging students to search for solutions.

In the ensuing discussion, participants discussed: long-term project viability; connecting people with places; and, building a network of marine citizen science practitioners.

Sharing Our Methodologies, Experiences and Vision to Improve the Educational Managed Marine Area (EMMA)

Tool Box: François Morisseau, French Biodiversity Agency, described an initiative known as the EMMA, a small coastal

area managed in a participatory way by primary school students. He provided a detailed description of the process of implementing an EMMA through a "children's sea council," involving the development of a participatory management plan and the evaluation of the EMMA in terms of standard classroom curricula.

Roland Sanquer, Department of Education, French Polynesia, noted that EMMA serve as a pedagogical tool to reconnect children with Polynesian cultural heritage, language, and way of life in better "knowing, experiencing, and sharing the ocean."

Pascale Salaun, French Biodiversity Agency, said the challenge is to design and carry out the management of an EMMA within the classroom, with the guidance of local marine managers who in turn assist teachers to improve knowledge on traditional practices of protecting marine biodiversity.

Karine Pothin, Marine Reserve of Réunion Island, described her experience in guiding classrooms in defining proposed EMMA sites for species and land-uses, emphasizing the success of proposed management measures and that "the EMMA belonged to the class, not the adults."

Participants then discussed: how teachers can be assisted to bring marine biodiversity into the classroom; engendering participatory approaches and critical reflection for students as "eco-citizens"; and, facilitating the involvement of local communities in marine protection.

Enhancing South-South Cooperation Towards Global MPA Targets in South America and the Caribbean:

Joseph Appiott, CBD, spoke on the interlinkages between Aichi Biodiversity Target 11 (MPAs), the other Aichi Biodiversity Targets and the SDGs, stressing the need for greater collaboration among countries of the Global South to ensure effective MPA coverage, particularly in identifying and overcoming common challenges.

Ole Vestergaard, UN Environment, stressed that governance of MPAs, particularly access and benefit sharing, and sustainable financing, are key leverage points for improving management capacity for MPAs. He also discussed UN Environment's efforts to develop regional networks to take stock of key science gaps in the governance of MPAs and the role of South-South cooperation to facilitate this process.

Warwick Manfrinato, Ministry of Environment, Brazil, described a number of projects to enhance Brazil's coverage of MPAs with the assistance of the GEF, including projects to protect sensitive mangrove areas.

Lauren Weatherdon, UNEP-WCMC, described how UNEP-WCMC is collaborating with Brazil's Ministry of Environment



Lauren Weatherdon, UNEP-WCMC

to review various MPA models. She said the goal is to increase and enhance the country's network by reviewing and sharing expertise on relevant options across the Global South, ranging from zoning patterns to no-take zones, and fishing enclosures.

Participants then discussed: examples of effective no-take zones in the region; how existing MPAs can be adapted to include no-take zones; and, examples of MPAs where management measures change throughout the year.

On outcomes and recommendations, participants identified, *inter alia*, the need to: illustrate the benefits of MPAs; maintain high levels of trust in MPA managers; target no-take zones for industrial fisheries versus artisanal fishers; and, learn from local traditional knowledge on the temporal aspects of fisheries management.

Indigenous Communities and MPAs: Opportunities and challenges for marine conservation: Uri Avaka, Rapa Nui, urged reestablishing ancestral laws, increasing education on the needs of marine protection, and establishing PAs to secure resources for the Rapa Nui people.

Javier Ancapán, Lafkan Mapu Lahual, outlined the sustainable use of the territory through subsistence agriculture, native forest management, ecotourism and valorizing the ancestral culture of the Mapuche-Williche people.

Jaime Huanquil, Lafkan Mapu Lahual, stressed that equitable land-use rights and opportunities must be provided to indigenous communities to enable them to sustainably manage their territories through sustainable fisheries and tourism.

Pamela Zúñiga, Quinchao Archipelago Communities, stressed that the “false hope of roads and malls” is destroying beaches, deoxygenating marine habitats, and impacting the cultural makeup of indigenous communities whose lives have traditionally revolved around the ocean.

Daniel Caniullán, Pu Wapi Community, described how significant growth in industrial activity in the town of Melinka, Chile, has resulted in antibiotics and chemicals contaminating traditional marine waters.

Nelson Millatureo, Islas Huichas Community, stressed that marine protection is not just about protecting and managing more areas but crucially in halting the actions of industrial fisheries who “were invited without consulting local people.”

Carolina Huenucoy, Kawésqar Community, described how Bernardo O’Higgins National Park in Chile was designated without thinking of local people’s needs. She urged official acknowledgement of the Community’s ancestral link to the territory and insisted on full collaboration of the Community in managing the national park.

Lorena Arce, Indigenous Peoples’ and Community Conserved Areas and Territories (ICCA) Consortium, highlighted opportunities for considering indigenous voices in marine protection, including by overcoming knowledge asymmetries through coordinated traditional and scientific knowledge collaborations.



Lorena Arce, ICCA Consortium

Improving the Performance of Marine and Coastal Protected Areas through the IUCN Green List: James Hardcastle, IUCN, said the Green List is a global sustainability standard for PAs and an appropriate tool for MPAs. He said the voluntary standard uses 17 criteria under four themes: governance; sound design and planning; effective management; and, conservation outcomes. He highlighted social equity, independent evaluation, and making a difference to improve performance.



James Hardcastle, IUCN

Mark Hockings, IUCN-WCPA, said the Green List Specialist Group’s objectives are closely connected to the IUCN-WCPA, and invited IUCN-WCPA members to serve as mentors for PAs.

Brian MacSharry, UNEP-WCMC, said a new section on the Green List has been added to the Protected Planet initiative, the global database on PAs. He said more documentation will be added as the Green List grows.

Paula Bueno, WWF and IUCN-WCPA, reviewed activities associated with the Green List and outlined next steps, including: training; development of guidance materials; exchange of experiences; government-supported MPAs; and, sharing lessons with locally-managed PAs.

Sandra Valenzuela, WWF, presented a Green List case study about Gorgona Island, Colombia. She highlighted design and governance, including: a legally-defined buffer zone and rights-based sustainability practices for fishers; integrated management practices within a wider network; and, designation as a science island.

Thierry Lefebvre, IUCN France Committee, presented on Côte Bleue Marine Park in France, where scientists and fishermen are monitoring the benefits of two marine reserves. He said average fish weight and overall productivity increased after implementing an experimental-net fisheries programme.

Joanne Wilson, New South Wales National Parks and Wildlife Service, Australia, shared conservation outcomes about the Montague Islands, including: seabird populations are recovering; managed tourism is providing economic benefits; and, the designation helps recognize the hard work and dedication of PA managers.

During the ensuing discussion, participants addressed: application to ABNJ; goals for the programme; challenging aspects of the standards; the value of feedback; local stakeholder involvement; sharing good news stories; and, promoting sites that aren’t top performers.

EFFECTIVE/ SUCCESSFUL MANAGEMENT

During Thursday morning’s plenary, John Tanzer, WWF, opened the panel on the effective management of MPAs, outlining the need for: sustainable financing; compliance and enforcement; and, community engagement.

Aulani Wilhelm, Conservation International, highlighted the importance of large-scale MPAs, noting that the 30 currently-established sites provide protection for 6% of the oceans. Alain Barcelo, Port-Cros National Park, France, spoke on challenges associated with managing a PA with intense public use.

Luz Angarita, National Parks, Colombia, emphasized: bottom-up processes; working with native communities in PAs; and, the importance of mutual recognition. Jon Day, Australian Research Council (ARC) Centre of Excellence for Coral Reef Studies, highlighted state and federal partnerships, including complementary zoning for effective management of the Great Barrier Reef Marine Park.

Panelists then discussed: the value of ship-rider agreements and technological advances for enforcement within large MPAs; importance of adequate staff, technical expertise and management plans; community engagement as a long-term relationship; and, regular monitoring and evaluation.

IMPAC4 SYMPOSIA: Building Regional Public-Private Alliances for Sustainable Financing of Long-Term Conservation Actions in the Eastern Tropical Pacific and the Caribbean Sea:

Sonia Castañeda Rial, Biodiversity Foundation, Spain, presented on the Life InterMARES project, which aims to fund ocean-related conservation actions by integrating funds from multiple sources. Suggesting this model could be replicated elsewhere, she encouraged private sector involvement in similar funding models.

María José Gonzáles, Mesoamerican Reef (MAR) Fund, presented on the Caribbean-Pacific Alliance for Marine Conservation Finance, which is supported by three funds—the MAR fund, the Caribbean Biodiversity Fund, and PACIFICO—saying the Alliance is an opportunity to learn and exchange ideas and identify best practices.

Pamela Castillo, Costa Rica Forever Association, spoke on the Blue Challenge for the Caribbean and Tropical Profit. She said the initiative is timely, as traditional funding sources are becoming scarcer, noting it fosters joint efforts to increase conservation interventions in the region, with a focus on the blue economy.

In the ensuing discussion, participants addressed: how to work with national governments to disburse funds to address regional conservation needs; strategic planning in the region to set priorities; change in attitudes towards conservation; and, bringing national initiatives together to identify synergies within the region.

The Role of MPAs in Achieving Ocean Health and Sustainable Blue Economies: Jean Harris, Wildlands Conservation Trust, reflected on the role of MPAs in building ecological and social resiliency, stressing that an expanded MPA network provides resilience to stresses from “new and escalating marine industries.”

Miriam Fernández, Pontifical Catholic University of Chile, discussed the success of MPAs beyond the limits of protection, showing that MPAs result in more fish egg production per unit area than open-access areas.

Underscoring the importance of MPAs, Laurence McCook, James Cook University, Australia, noted MPAs do not address all threats, nor do they exist in isolation from other conservation efforts. He stressed the need to demonstrate economic benefits of marine conservation by completing the economic balance sheet.

Kristina Gjerde, IUCN, lamented the lack of enforcement of and responsibility for marine protection beyond 200 nautical miles of national jurisdictions, and urged creating a “Paris Agreement for the Oceans” to fill gaps in the international legal framework for the marine environment.

In the ensuing discussion, participants raised the need to find an “economics” that is compatible with ecological systems and not the other way around. They also discussed the need to integrate MPAs with degraded open-access areas.

Marine Wilderness or Peopled Seas? Insights from research on the human dimensions of large-scale MPAs:

Rebecca Gruby, Colorado State University, presented examples from two large-scale MPAs to show that social outcomes can be distinct and often linked to unique geographies and geopolitical concerns.

Jaime Aburto, UCN, Chile, discussed the risks of large-scale MPAs exacerbating “ocean grabbing” by expanding no-take zones to obtain financial support from big international non-governmental organizations, in line with broader political



Kristina Gjerde, IUCN



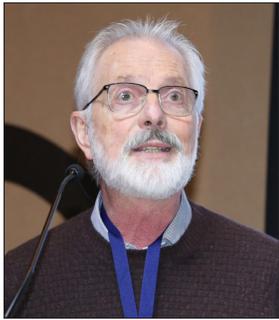
(L-R): María José González, MAR Fund; Sonia Castañeda Rial, Fundación Biodiversidad, Spain; and Pamela Castillo, Asociación Costa Rica por Siempre

interests. As an example of “ocean grabbing,” he cautioned how merely establishing a multi-stakeholder working group to ensure community validation for creating a new MPA near Rapa Nui resulted in its approval, despite strong opposition within the working group.

Jon Day, ARC Centre of Excellence for Coral Reef Studies, highlighted lessons learned in re-zoning the Great Barrier Reef, including the role of effective leadership, consistent socio-political support, and a high level of public participation.

Noella Gray, University of Guelph, described research exploring why stakeholders support or do not support large-scale MPAs and to assess what is generating or undermining support.

Marine Biodiversity of Chilean Patagonia: Discoveries, threats and conservation: Vreni Haussermann, Huinay Scientific Field Station, discussed the rich benthic biodiversity of fjords in Chilean Patagonia, including: the continued discovery of new species; marine animal forests; and, cold water corals.



Claudio Campagna, WCS

Claudio Campagna, Wildlife Conservation Society (WCS), described the Patagonian Sea as a center of attraction for marine mammals and birds due to its enormous productivity. He said MPAs help protect these animals during a portion of the year and suggested seasonal or mobile MPAs for

transboundary species that move with oceanic productivity.

On benthic fisheries, Carlos Molinet, Southern University of Chile, said the high availability of different fish species undercuts the message that fish resources are disappearing. He suggested viewing fisheries co-management as an approximation to governance where redistribution of power is a result and not the starting point.

On aquaculture, Günter Fösterra, Huinay Scientific Field Station, said resource requirements and impacts vary by species. His examples included using antibiotics in salmon farming, and increasing inorganic nutrient loads from wastes and uneaten feed associated with production of carnivorous fish. Noting the positive correlation between algae growth and nitrogen levels, he suggested that growing algae in close proximity to salmon farms could help reduce impacts.

A Global SMART Approach to Improving Effectiveness of MPAs: Drew Cronin, Spatial Monitoring and Reporting Tool (SMART) Partnership, said the SMART, a mobile application, was developed for terrestrial PAs. He highlighted: its utility for a range of users; mapping and spatial analysis features; ranger performance and accountability; and, monitoring and mapping of wildlife. He described its use in Bangladesh, and in Madagascar, where it has become a required monitoring tool.

Zafer Kizilkaya, Mediterranean Conservation Society, spoke about SMART application in Gköva Bay, Turkey. He said benefits include: ease of use; up-to-date information; secure, cloud-based data; and, real-time data sharing with partners.

Kate West, Flora and Fauna International, said use of the tool for marine patrols in Cambodia has: helped target survey areas; addressed community concerns about patrol coverage; and, increased feedback to patrol teams.

Julio Maaz, WCS Belize, highlighted use of the tool for: marine mammal sightings; patrol data and gaps; conch abundance surveys; and, catch landings. He also emphasized training and capacity building for rangers.

Using International Law and Media to Improve Management and Protection of MPAs and Ecosystems in the Americas: Florencia Ortúzar, Interamerican Association for Environmental Defense (AIDA), reviewed the history of international environmental law, emphasizing precautionary and information principles. She highlighted civil society’s role as a watchdog to ensure that countries meet their environmental commitments.

Camilo Thompson, AIDA, described a successful legal effort to block a Mexican marine phosphate mine that threatened sea turtles, whales and other marine life. He attributed the victory to: judicial reliance on international standards, including on the Law of the Sea (UNCLOS) and the Inter-American Convention for the Protection and Conservation of Sea Turtles; and, support from civil society.

On salmon farming in southern Chile, Yendery Cerda, National Committee for the Defense of Flora and Fauna, described environmental impacts, including: chemical pollution; escaped fish; fish waste; diseases and parasites; and, the development of anaerobic conditions. She highlighted efforts to create a network of parks to support conservation.

Participants then discussed: level of protection needed when designating fish production areas; civil society engagement; economic impacts of regulation; the need for good management practices; and, the value of legal precedent.

IMPAC4 WORKSHOPS: Solutions for MPA Financing – Success stories and their potential for broader application: Volker Koch, GIZ, presented “Blue Solutions,” a global knowledge sharing platform for sustainable marine conservation financing.

Marie Romani, MedPAN, described the sustainable financing strategy of Brijuni MPA in Croatia, stressing the importance of branding PAs and developing a business plan.

Patricia Ruiz, GIZ, explained the establishment of a private sector-financed mechanism for restoring mangroves in Costa Rica, stressing that access to the “Global Conservation Standard” offers a business alliance between forest owners and the private sector.



Laure Katz, Conservation International

Laure Katz, Conservation International, described the Blue Abadi Fund for the Bird’s Head Seascape of West Papua, Indonesia, which builds upon local institutions to lead long-term marine protection and involves comprehensive conservation costing to fill financing gaps.

In a discussion on ensuring sustainable financing for MPAs, panelists and participants noted, *inter alia*, the need to: promote private sector social responsibility; design custom-made tools for each MPA; and, find a balance between innovative incentive-based approaches, and government responsibility.



Steffan Howe, Parks Victoria

Monitoring, Evaluation and Reporting for MPA Management: Innovative ideas to progress current approaches: Steffan Howe, Parks Victoria, described an adaptive management framework for MPAs in Victoria, Australia. He highlighted: links to conservation action planning and implementation; incorporating environmental, social and economic dimensions in monitoring, evaluation and reporting programmes; and, sharing results internally and externally through forums, meetings, and publications.

Kate West, Fauna and Flora International, reported on a project in Cambodia with community fishers to detect and report on illegal activity using SMART. She said the project also surveyed villagers about the timing and locations of illegal fishing and used that information to adjust patrols.

Anne-Sophie Barnay, French Biodiversity Agency, emphasized the use of a “dashboard” in management planning for MPAs. She stressed the use of reliable indicators and highlighted the development of a national indicators catalogue for community MPA managers.

A discussion ensued on best practices and barriers and opportunities for more effective monitoring, evaluating and reporting of MPAs.

Harnessing Citizen Behavior Change to Support Marine Conservation: Hazel Thornton, UNEP-WCMC, defined citizen behavior as the direct and indirect impacts of human actions that affect the environment. She provided examples of citizen-behavior interventions, including the Green Fins certification, which is an international standard for environmentally-friendly diving, noting how the standard targets dive tourism’s motivations.

In break-out groups, participants discussed: opportunities where citizen behavior interventions could be used as a policy tool to promote the sustainable use of marine ecosystems; barriers and enablers to effective use of citizen behavior interventions; and, future options for incorporating citizen behavior interventions for national and intergovernmental policy. Participants also discussed, *inter alia*, the challenge of overcoming confusion between acts of citizenry and consumerism; internal values of target audiences; and, strategies to catalyze desired change. On key messages for IMPAC4, participants stressed the need to involve fishers in global marine conservation discussions and to make specific and measurable commitments for IMPAC5.

MPAs and Promoting Small-Scale Enterprises that Support Complementary Marine Conservation Strategies: Glenn Ricci, University of Rhode Island, described enterprises in MPAs as small businesses that create profits while benefiting the environment. He said such enterprises may add value to an existing strategy, diversify strategies by adding a new activity, or involve an alternative or replacement activity. Ricci noted there is limited evidence that conservation enterprises lead to improved biodiversity, presenting successful examples of conservation from Gambia (oysters), the Pacific Islands (sea sponges), and Madagascar (sea cucumbers). He highlighted elements for success, including: multiple supporting services, such as micro-financing; co-management of the resource; low technical needs and operating costs; high demand for the product; a steady market; no conflict with community values; and, consistency with the MPA conservation management programme.

During the break-out session, participants developed goals and strategies for potential micro-enterprises using worksheets from a training course by the University of Rhode Island.

OUR SHARED VISION

Mike Wong, IUCN-WCPA, opened Friday’s morning plenary session, providing a short history of the evolution of MPAs, noting significant focus on achieving global targets for MPA coverage and less on the equitable and effective achievement of such targets.

Sandra Bessudo, Malpelo Foundation, discussed obstacles to MPAs’ success, including the need for stronger coordination between regional marine conservation networks.

Tukabu Teroroko, Phoenix Islands PA, Kiribati, stated the importance of closing off the Phoenix Islands PA to rehabilitate tuna spawning areas from illegal fishing. He said obstacles to the MPAs’ effectiveness include limited funding, insufficient local capacity, and the impact of climate change.

Mariasole Bianco, IUCN-WCPA Young Professionals, emphasized passion, energy and experience for safeguarding “what we care about.” She identified lack of investment in intergenerational knowledge sharing and professional empowerment of future generations as the biggest obstacle to MPA success.

On obstacles, Dan Laffoley, IUCN-WCPA, pointed out, *inter alia*, failure to recognize the oceans’ importance for regulating earth’s temperature and lack of a conservation framework for the high seas. He highlighted progress on mentoring young professionals.

On primary priorities, panelists emphasized: partnerships; surveillance and enforcement; developing local capacities; greater access to funds; sharing scientific information; inspiring and mentoring youth in conservation; and, examining the calculation of risk.



Sandra Bessudo, Malpelo Foundation



Keobel Sakuma, Palau, receives the Kenton Miller Award Winner 2017 for his outstanding contribution to marine conservation

Julia Miranda, IUCN-WCPA, announced the winner of the IUCN-WCPA Kenton Miller Award, Keobel Sakuma, Palau, for his role in establishing the world's first marine sanctuary that protects 100% of a country's EEZ.

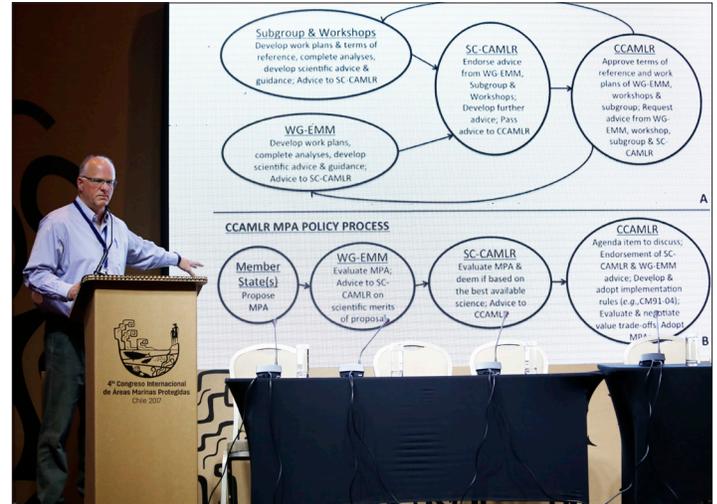
IMPAC4 SYMPOSIUM: Assessing Advances Towards Global 2020 and 2030 Targets: Warwick Manfrinato, Ministry of Environment, Brazil, highlighted: management tools for coastal and marine PAs; described proposals for new MPAs; and, reported on the GEF Protected Marine and Coastal Areas project, including a target to bring 5% of Brazil's marine territory under biodiversity protection.

Pedro Lies and Marcelo Lopes, ICMBio, discussed community environmental monitoring to engage resource users in protection activities, success in raising the price of fish, and community empowerment.

On mangrove protection, Claudio Maretti, ICMBio, highlighted: sustainable use and financing; new PAs; management plans; and, monitoring. Celia Fávacho, National Commission for Strengthening Coastal and Marine Reserves, Brazil, emphasized the connection between mangroves and local livelihoods, community empowerment, and the role of women in mangrove protection.

Indigenous, Provincial, and Federal Governments Integrating Marine Spatial Plans and MPAs in Canada: This session took place as an interactive dialogue with key actors involved in Canada's Marine Plan Partnership for the North Pacific Coast (MaPP). Meaghan Calcari Campbell, Gordon and Betty Moore Foundation, asked panelists about commitments to integrating MPAs in MSP including, *inter alia*: the extent of stakeholder involvement; traditional ecological knowledge and scientific data; short-term future expectations in MPA network development; and, advice on marine spatial plans for other MPA managers.

Allan Lidstone, Ministry of Forests, Lands and Natural Resource Operations, British Columbia, Canada, highlighted the benefits of developing a partnership between the province and First Nations in the spirit of reconciliation, and to complement ecosystem-based management in the marine environment. Danielle Shaw, Wuikinuxv Nation, emphasized: key socio-



Rodolfo Werner, Antarctic and Southern Ocean Coalition

ecological values within the sub-regions of each zone of the marine spatial plan; “groundtruthing” scientific knowledge with traditional values; and, the positive impact of engaging aboriginal youth as marine stewards. Gord McGee, Central Coast Indigenous Resource Alliance, Canada, described how marine spatial plans depend on a strong governance structure, robust data, identification of key issues, and continuous stakeholder engagement. Christie Chute, Department of Fisheries and Oceans, Canada, described how sub-regional planning was integrated into the wider MaPP vision by identifying common marine planning and conservation priorities.

Antarctic MPAs: Rodolfo Werner, Antarctic and Southern Ocean Coalition, reviewed the history of MPAs in Antarctica, including endorsement of priority areas, planning domains, and the creation of the Ross Sea MPA in 2016.

Nikki Bransome, Pew Charitable Trusts, described challenges and strategies associated with establishing the Ross Sea MPA, including: global geopolitics; agreement on a framework for a network of MPAs; sound science; a research and monitoring plan; and, high-level political outreach.

César Cárdenas, Chilean National Antarctic Institute, described the outcomes of several workshops, including priority areas for conservation, and preliminary proposals that contemplate krill fisheries.

Bob Zuur, Antarctic and Southern Ocean Coalition, New Zealand, shared efforts to develop a Weddell Sea MPA proposal. On outstanding issues, he highlighted: the need to better define toothfish habitat; cost layer development; refining boundaries; and, better integration of fishery research.

Tony Press, Cooperative Research Centre, Australia, reviewed developments for Southern Ocean MPAs, noting some areas will be no-take, while others will be multiple use.

Meeting the 2020 Targets in Canada: Challenges, successes, opportunities and lessons learnt in developing a national network of MPAs over the past 25 years: Kevin Stringer, Department of Fisheries and Oceans, Canada, explained the rapid transition from 1% MPA coverage to commitments for 10% coverage by 2020, noting that this expansion cannot happen without, among others, indigenous leadership.

Allan Lidstone gave an overview of the MaPP process and its management structure, noting that ecosystem-based management guides direction for oceans governance and current and future marine uses.

Danielle Shaw explained three spatial marine planning zones associated with the MaPP process, noting that zone boundaries are influenced by locations of ecological and cultural values, adjacent and upland uses, and existing MPAs.

Sigrid Kuchnemund, WWF-Canada, stressed that 87% of Canadians believe current levels of coastal and marine protection in Canada are too low, emphasizing the importance of minimum standards, community benefits, working together, and open and transparent processes for developing MPAs.

IMPAC4 WORKSHOPS: Twinning and Partnerships, Tools to Enhance Collaboration between MPAs: Puri Canals, Mediterranean MPAs Network, described the Transatlantic Partnership Among MPAs, as enhancing cooperation between MPA managers across and beyond the Atlantic Ocean.

Mike De Luca, Rutgers University, stressed that local networks, good access to scientific data, and engaging stakeholders early in the process are critical to enhancing the resilience of coastal communities.

Mathieu Ducrocq, National Parks Agency, Gabon, described the marine parks network outside Libreville, Gabon, stressing that MPA managers must anticipate external threats through scenario-based management. He encouraged developing further dialogues with traditional chieftains and mayors to establish land-use management plans surrounding PAs due to increasing urbanization.

Jean-Jacques Goussard, Environment and Development Network, discussed key findings of the MPA twinning partnerships, including: transitioning from classical engineering solutions to protecting coastal ecosystem services; producing guidelines to integrate resilience into MPA design; and, the potential for MPAs to serve as mediators between conflicting stakeholder groups.

In the ensuing discussion, participants shared various innovative mechanisms for enhancing resilience among MPA managers and strengthening regional partnerships.

Guidance for MPA Managers and Planners on Marine Mammal Protection and Marine Renewable Energy Suitability and Siting: Anne Nelson, Collaborative Ocean Planning, said the overall goal of marine renewable energy projects should be to maintain ecosystem health. She stressed getting data to decision makers early.

Tundi Agardy, Sound Seas, said marine mammal data presents an opportunity to bring conservation back into the picture for marine renewable planning.

Giuseppe Notarbartolo di Sciara, Tethys Research Institute, outlined the Important Marine Mammal Area concept for discrete areas that have the potential to be delineated and managed for conservation. He reviewed criteria for, and progress in, establishing such areas.

Francine Kershaw, Natural Resources Defense Council, reported on significant overlap between offshore wind energy leases in the Atlantic and the limited range of the North Atlantic right whale.

Mary Cody, US Bureau of Ocean Energy Management, shared an approach to data representation in the US National Audubon Society's "Ecological Atlas of the Chukchi and Beaufort Seas."

CLOSING PLENARY SESSION: On Friday afternoon, the closing plenary began with children from the Our Ocean Science Camp proclaiming "without education, there can be no marine conservation."

Carlos Gaymer, UCN, Chile, noted progress in increasing the coverage of especially large MPAs and establishing baselines to compare effectiveness across the world, but urged greater



Francine Kershaw,
Natural Resources Defense Council



Children from "Our Ocean Science Camp"

efforts to establish MPAs in less remote areas and recognize the importance of the human dimensions of MPA development. On lessons learned from IMPAC4, he stressed science relevant for decision-makers; responsibility to social scientists, and combining traditional ecological knowledge with standard science for MPAs.

Alejandra Figueroa Fernández, Ministry of Environment, Chile, stressed that MPA management is about cultural diversity as much as it is about biodiversity and that “we need to consider other conservation tools to integrate and expand the impact of MPAs.” On lessons learned from IMPAC4, she affirmed Chile’s commitment to strengthening MPA legislation and ensuring that public participation and science education are incorporated into MPA management.

Reflecting on the theme of bringing people together, Christoph Lefebvre, French Biodiversity Agency, noted the importance of: connections made at IMPAC4; stories that offer hope; and, investing in the next generation of conservation leaders.

On lessons from IMPAC4, Daniel González, Juan Fernandez Fishermen’s Union, stressed the need for political will for large MPAs and creating relationships to replicate “good things” done elsewhere. On areas for improvement, he identified eliminating nets, and ensuring small fish grow.

François Simard, IUCN, applauded progress on the Aichi Biodiversity Target and support for MPAs within other frameworks and multilateral organizations. On future IMPAC work, he emphasized promoting and supporting different networks, including regionally based ones, for MPA managers and young professionals.

Carl Gustaf Lundin, IUCN, ended the panel, thanking IMPAC4 organizers and delegates.

Dan Lofolley, IUCN, announced that Canada would host IMPAC5 in 2021. Kevin Stringer, Department of Fisheries and Oceans, Canada, thanked Chile, saying IMPAC4 would force Canada to set ambitious goals. Participants then viewed short videos on Canada and the outcomes of IMPAC4.

Claudio Ibáñez González, Mayor of Coquimbo, Chile, underscored the commitment of the Government of Chile in the conservation of marine and cultural heritage. He emphasized the efforts of the Coquimbo region in protecting the oceans, stating “without blue, there is not green and without green, we do not exist.”

The meeting closed at 5:19 pm.

HIGH-LEVEL MEETING

On Saturday morning, Amaro Gómez Pablos, Chile, opened the high-level meeting in Valparaíso, Chile. He welcomed Michelle Bachelet, President of Chile, HSH Prince Albert II of Monaco, foreign ministers, senators, and ambassadors, and played the official video of IMPAC4, presented by the National Geographic Society.

Heraldo Muñoz, Minister of Foreign Affairs, Chile, underscored Chile’s role as a global leader for marine conservation, describing a collaborative approach for developing several MPAs, including the expansion of a marine protection around Rapa Nui, with the support of the Rapa Nui people. He stressed the necessity of effective management of PAs, including through using new innovative technologies to improve oversight and enforcement from illegal fishing. He said Chile

must continue seeking partnerships for marine conservation, including with those engaged in the fishing industry, to ensure a collaborative effort to safeguard local economies and the cultural legacy of Chilean coastlines.

Marcelo Mena, Minister of the Environment of Chile and IMPAC4 Chair, said IMPAC4 has been a celebration of science and a gathering of those who are passionate about preserving the oceans for future generations. He hailed IMPAC4 as a guiding light for ocean conservation, and underscored Chile’s role. He said political will and leadership with vision and a willingness to change the development trajectory are necessary to ensure sustainable societies.

HSH Albert II, Prince of Monaco, described the “vicious cycle” that occurs between climate change impacts on land and their subsequent effect on the seas and, ultimately, on the wellbeing of the global population. He said greater management effectiveness is required to improve enforcement, stressing marine protection must take an ecosystem-based approach to avoid being limited to national jurisdictions. He said effective MPA management depends on specific criteria for protection, stressing that an MPA has different realities for different people. He underscored that “we cannot mistakenly believe



HSH Albert II, Prince of Monaco

that oceans are better protected than they really are.” He urged greater collaboration and networking efforts between MPAs and the need to involve the economic sphere to create the operational conditions for MPA success.

Michelle Bachelet, President of the Republic of Chile, said joint and coordinated action is required to address the needs of our planet, and that the message is clear, worth it and possible. She stressed individual responsibilities, noting progress in Chile, including: tripling renewable energy output from 7 to 20%; MPAs covering 1.3 km². She shared Chile’s goal of 1.6 million km² PA coverage by 2018, which would equal 46% of its EEZ; and, a ban on the use of plastic bags. On areas for improvement, she identified: MPA management; surveillance and oversight; increased public-private dialogue; and, economic



Michelle Bachelet, President of the Republic of Chile

development, especially for those most vulnerable to climate change. She said actions at IMPAC4 represent a relevant moment for recovery of oceans and climate security.

Ségolène Royal, President, UN Framework Convention on Climate Change (UNFCCC) COP21 and French Ambassador to the Arctic and Antarctic Poles, underscored the importance of incorporating the oceans into the Paris Agreement, noting that ocean protection is a pivotal component for countries to achieve their national efforts towards the global goal of no more than 1.5°C of warming. She identified several international initiatives

on ocean protection, including a collaboration between Monaco and France on combatting ocean plastics. She also highlighted the EMMA initiative in integrating marine conservation education in the management of MPAs across eight pilot locations.

Guido Girardi, Senator, and Chairman, Future's Challenges Commission, Chile, noted that the Commission works with a number of stakeholders from across society to address challenges currently being faced. Stating "we are in a great time of change, facing the apex of our development," he asked why people are not cognizant of the gravity of the situation. He lamented that that consumerism and consumption is become "what we use to feel better; it is our go-to method to feel good." He cautioned that comparatively little is known about the ocean and more research is needed. He said the issues being addressed by ocean conservationists go beyond national boundaries, so more must be done to ensure that work goes beyond national borders.

REPORT ON THE MAIN RESULTS AND RECOMMENDATIONS FROM IMPAC4: Dan Laffoley, IUCN-WCPA, presented a short video developed by young professionals of the WCPA offering a summary of outcomes resulting from IMPAC4. He then moderated a panel reporting on the outcomes of IMPAC4. Maximiliano Bello, Pew Charitable Trusts, emphasized the need for more MPAs and urged for greater use of collaborative approaches.

Sally Barnes, Director, Parks Australia, underscored "human dimensions," stating MPAs "will not be lines on the map, but will become divisions" without the involvement of local communities, including fisheries and tourism operators, in management.

Liesbeth Van der Meer, Vice President, OCEANA, Chile, stressed education for sharing experiences in successful MPA management, citing the success of sustainable lobster fisheries on the Juan Fernández Archipelago.

Nelson Zambrano, Undersecretary of Marine and Coastal Management, Ministry of Environment, Ecuador, underlined building collaborative local and national coastal and marine area networks.

On future generations, panelists highlighted technology for invigorating emotion, joy and positivity in children. On new developments, panelists noted technological advances and potential collaboration with local communities on monitoring and surveillance. On financing, highlights, included: the need for more economic valuation of MPAs to convince skeptics; and, the success of forestry and mangrove partnerships involving offsets, tax credits, and exclusive rights.

MPAs AND OCEAN CONSERVATION AS CLIMATE ACTION: Serge Segura, French Ambassador for the Oceans, said France will soon have 32% of its EEZ protected. He emphasized diversity in the types of MPAs, and underscored the importance of conservation and sustainable use of the high seas.

Margaret Leinen, Director, Scripps Institution for Oceanography, shared increased optimism on protecting the ocean, citing: greater political awareness; ocean themes in other international processes; technology improvements; and, pressure from the next generation to do more.

Heremoana Maamaatuaiahutapu, Minister of Environment, French Polynesia, described traditional resource management that restricts access to marine areas to preserve fish stocks, noting the value of twinning traditional with modern techniques.

Enric Sala, National Geographic Society Explorer-in-Residence, stressed that while MPAs are not the "silver bullet solution," science tells us that marine habitats are more resilient to climate warming when they are more protected.

INTEGRATING LOCAL COMMUNITIES AND OTHER KEY STAKEHOLDERS IN THE CREATION AND EFFECTIVE MANAGEMENT OF MPAs: Eve Crowley, FAO, Deputy Regional Representative for Latin America and the



(L-R) Dan Laffoley, IUCN-WCPA; Maximiliano Bello, Pew Charitable Trusts; Nelson Zambrano, Undersecretary Coastal and Marine Management, Ecuador; Sally Barnes, Parks Australia; and Liesbeth Van der Meer, OCEANA-Chile



(L-R) **Carolina Hotu Hey**, Provincial Governor, Easter Island, Chile; **Elsa Galarza**, Minister of Environment, Peru; **François Gauthiez**, French Agency for Biodiversity; and **Eve Crowley**, FAO

Caribbean, noted that managing multiple-use MPAs is complex and requires: incentives and disincentives for regulation; recognizing different levels of power; and, clarifying roles and capabilities.

Carolina Hotu Hey, Provincial Governor of Rapa Nui, Chile, described the process of consultation with Rapa Nui communities on MPA declarations, emphasizing the opportunities and challenges in understanding the needs of different groups.

François Gauthiez, French Biodiversity Agency, discussed a recent shift in approach taken by French MPA management towards stricter no-take zones and greater engagement with local communities and other economic actors.

On creating PAs, Elsa Galarza, Minister of Environment, Peru, highlighted: previous consultation with local communities; a consensus-based approach to PA categorization; and, better and longer-lasting results from shared PA management.

CALL FOR ACTION: Marcelo Mena, Minister of the Environment, Chile, announced a “Call for Action” on MPAs at the conclusion of IMPAC4. He said the Call asks countries to:



Marcelo Mena, Minister of the Environment, Chile

create well-managed MPAs that go beyond national jurisdictions; ensure appropriate financial mechanisms to strengthen MPA governance through partnerships and networks; and, to engage in research on integrating climate change with MPA policies. To promote marine conservation outreach for future generations, he called on countries to engaging with women, children, local communities and the general public in supporting the management and creation of MPAs. A number of countries then made announcements on their actions to increase the coverage and strengthen management of MPAs.

Quoting former US Secretary of State John Kerry, Gómez-Pablos said that in relation to the environment “there are no final victories, only terminal failures.” He closed the meeting at 6:41 pm.

UPCOMING MEETINGS

Fourth Our Ocean Conference: Organized around the theme ‘An Ocean for Life,’ this Conference will be hosted by the European Commission. It will address various ocean issues, including MPAs, climate change, sustainable fisheries and marine pollution. **dates:** 5-6 October 2017 **location:** Malta **www:** <http://ourocean2017.org/>

36th Meeting of the Commission of the Convention for the Conservation of Antarctic Living Marine Resources (CCAMLR): The 25 State Parties to CCAMLR will gather to discuss and consider conservation measures for the Southern Ocean, including the creation of large-scale MPAs. **dates:** 16–27 October 2017 **location:** Hobart, Australia **www:** <https://www.ccamlr.org/en/ccamlr-xxxvi>

Fourth Intergovernmental Review Meeting on the Implementation of the GPA of the Marine Environment from Land-based Activities: This meeting will take place in Bali, Indonesia, and is a forum where governments and other stakeholders review the status of the implementation of the GPA and decide on action to be taken to strengthen its implementation. **dates:** 23-27 October 2017 **location:** Bali, Indonesia **contact:** UNEP GPA Coordination Office **email:** gpa@unep.org **www:** <http://www.unep.org/nairobiconvention/unep-global-programme-action-unepgpa>

CMS COP 12: The slogan for the twelfth session of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals Conference is ‘Their Future is Our Future – Sustainable Development for Wildlife & People.’ It links to the SDGs to end poverty and hunger, improve health and education, combat climate change and protect oceans and forests. **dates:** 23-28 October 2017 **location:** Manila, the Philippines **contact:** UNEP/CMS Secretariat **phone:** +49- 228-815-2401 **fax:**+49-228-815-2449 **email:** cms.secretariat@cms.int **www:** <http://www.cms.int/en/cop12>

19th REDLac Assembly: The 19th Assembly of the Network of Environmental Funds of Latin America and the Caribbean (RedLAC), organized by Caribbean Biodiversity Fund (CBF), Fundación Sur Futuro, Fondo MARENA, and Fundación Natura, will focus on issues surrounding the blue economy. **dates:** 30 October - 2 November 2017 **location:** Punta Cana, Dominican Republic **contact:** REDLac Secretariat **phone:** +507-232-7615 **email:** info@redlac.org **www:** <https://redlac.org/>

World Ocean Council’s Sustainable Ocean Summit (SOS): The Summit will focus on: ocean business community leadership in achieving SDG14; and, business growth and investment opportunities for ocean sustainable development. **dates:** 29 November – 1 December 2017 **location:** Halifax, Nova Scotia, Canada **contact:** World Ocean Council **email:** <https://sustainableoceansummit.org/contact/> **www:** <https://sustainableoceansummit.org/>

Sixth International Marine Debris Conference: NOAA and UN Environment are organizing the Sixth International Marine Debris Conference (6IMDC). The conference will promote international coordination efforts within the marine debris community, and will build on the partnerships and successes of the Honolulu Strategy, which was developed at the last conference in 2011. **dates:** 12-16 March 2018 **location:** San Diego, California, US **email:** info@6IMDC.org **www:** <http://internationalmarinedebrisconference.org/>

Fourth World Conference on Marine Biodiversity: This meeting will bring together scientists, practitioners, and policy makers to discuss and advance understanding of: climate change impacts on marine biodiversity; cumulative impacts of human activities on marine biodiversity; marine ecosystem safety; role of systematics in understanding ocean change; bioinformatics and data delivery; analytical approaches in marine biodiversity science; integrative frameworks for linking environmental and biological drivers of biodiversity; linking biodiversity to ecosystem function and services; blue biotechnology and marine genetic resources; marine policy and law; marine biodiversity and human health; marine biodiversity education and outreach; and, strategies for conservation of marine biodiversity. **dates:** 13-16 May 2018 **location:** Montreal, Quebec, Canada **contact:** Fourth WCMB Congress Secretariat **phone:** +1-514-287-9898 ext. 334 **fax:** +1-514-287-1248 **email:** wcbm2018secretariat@jpd.com **www:** <http://www.wcbm2018.org/>

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:** Sarawak, Malaysia **contact:** IMCC5 Organizers **email:** <http://conbio.org/mini-sites/imcc5/about/contact-us/> **www:** <http://conbio.org/mini-sites/imcc5/>

IMPAC5: The fifth IMPAC will take place in Vancouver, Canada in 2021. **dates:** tbc, 2021 **location:** Vancouver, Canada **www:** <http://www.dfo-mpo.gc.ca/index-eng.htm>

GLOSSARY

ABNJ	Area Beyond National Jurisdiction
AIDA	Interamerican Association for Environmental Defense
ARC	Australian Research Council
BBNJ	Biodiversity in Areas Beyond National Jurisdiction
CBD	Convention on Biological Diversity
EBSA	Ecologically or Biologically Significant Marine Areas
EEZ	Exclusive Economic Zone
EMMA	Educational Managed Marine Area
FAO	Food and Agriculture Organization of the UN
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ICMBio	Chico Mendes Institute for Biodiversity Conservation
IMPAC	International Marine Protected Areas Congress
IUCN	International Union for Conservation of Nature
IUCN-FEG	International Union for Conservation of Nature- Fisheries Expert Group
MAR	Mesoamerican Reef
MaPP	Marine Plan Partnership for the North Pacific Coast
MPA	Marine Protected Area
MSP	Marine Spatial Planning
NOAA	US National Oceanic and Atmospheric Administration
PA	Protected Area
PACIFICO	Environmental Funds Platform of the Tropical Eastern Central Pacific
PrepCom	Preparatory Committee
SDG	Sustainable Development Goal
SMART	Spatial Monitoring and Reporting Tool
UCN	Northern Catholic University
UNCLOS	UN Convention on the Law of the Seas
UNEP	UN Environment Programme
UNEP-WCMC	UNEP – World Conservation Monitoring Centre
VME	Vulnerable Marine Ecosystem
WCPA	World Commission on Protected Areas