



PECC International Hybrid Seminar

“Managing the Blue Economy”

30-31 May 2022, Tahiti, French Polynesia

Executive Summary

*This International PECC seminar, organized on 30-31 May 2022 in Tahiti by the France Pacific Territories Committee (FPTPEC), chaired by **Pascal Lamy**, in partnership with the University of French Polynesia, represented by **Vincent Dropsy**, gathered 40 international policy makers and experts to contribute to **discussions on international ocean governance**, by identifying **challenges to sustainable use of its resources as well as opportunities for recovery and resilience of coastal and island economies**, in the process of rebuilding the blue economy post Covid.*

*The seminar was opened by **Edouard Fritch**, President of the Government of French Polynesia, and visions from the PECC were shared by the two Co-Chairs, **Richard Cantor**, USPECC chair, and **Zhan Yongxin**, CNCPEC chair.*

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Main findings and recommendations

Governance and protection

Cooperation at the global, regional, and local levels is essential for progress towards a more sustainable future. However, in terms of action, the **local dimension is decisive**. This is where true compromises can be found between exploration, exploitation of natural resources for socio-economic gains, and environmental standards for the benefits of the population.

Recognition of the cultural specificities, values, and heritage of local populations is crucial to build a more sustainable future. For example, a **deep relation** has always existed **between Pacific Islanders and nature**. The ocean is their greatest sacred space that organizes their living communities. Respect for marine resources is part of their societal rules; they are aware that the health of the environment is vital to humankind. Traditional activities must be maintained while adapting infrastructures, in order to protect not only the fauna and flora, but also the ancestors' way of life.

The Pacific Islands approach to ocean protection is thus slightly different from that advocated by many international bodies. Rather than pushing for **Marine Protected Areas**, many Pacific Island states advocate for the creation of **Marine Managed Areas**, which allows traditional fishing activities to be maintained to allow communities to interact with and protect biodiversity. After becoming the **largest marine sanctuary** in 2002, French Polynesia created [Te Tai Nui Atea](#) in 2018, a **marine managed area** which covers the whole exclusive economic area of 5 million km² and is supported by **sustainable ecosystem management**.

The role of local islanders is key to fostering ocean protection. Studies show that traditional resource management techniques are effective when managed by islanders. For example, **Rahui** is a Polynesian term for a temporary protected marine area agreed upon by local communities, to create a temporary ban on targeted resources (e.g., fish) in a given area, in order to maintain sustainable ecosystems on which the population depends. In that perspective, **traditional knowledge** and practices can be essential to **optimize capacity building**, restore habitat, and conserve biodiversity.

PECC can play a decisive role in **mobilizing** member economies, most of which having **extensive coastal territories**, in favor of **ocean protection and governance** and the **protection of native culture**.

Science and education

We currently lack **two thirds** of the knowledge needed about the ocean to properly protect it for future generations. Our current relationship with the oceans is inherently **unsustainable**.

Increased **awareness** and **research are necessary** to make progress towards a sustainable future. Research and Development (**R&D**) as well as **monitoring** must be strongly **enhanced**, along with regional and local collaboration. The **digital revolution** is an opportunity to **build an integrated ocean model**. The EU is committed to developing a [Digital Twin of the Ocean](#) (DTO), which would provide an accurate understanding of the oceans, inform political decisions, enable sea-based economies to grow, and inform dialogue with stakeholders and the public.

Increased standardization and cooperation across national jurisdictions is recommended. In this regard, PECC should assist member economies and international regulatory bodies in adopting **legislation** to ensure more **effective** and **harmonized** ocean management. However, the **collection and integration** of information on environmental change should be combined with ground level observations and **indigenous knowledge systems**. **Scientific training and technical skills development**

need to be promoted in training centers and companies for greater **maritime awareness**. **Youth** should be **educated and trained in ocean protection and management**, using an **interdisciplinary and transversal approach**.

Innovations and circular economy

APEC's current presidency, Thailand, has made the [Bio-Circular Green \(BCG\) Economic Model](#) the key pillar of its agenda this year, as its strategy for post-Covid recovery and long-term growth. It incorporates 3 approaches to sustainability: bioeconomy, circular economy, and green economy. The Seminar allowed to explore several innovations and technologies contributing to this regional agenda:

Fisheries

- With rising living standards and incomes in Asia, for example, the growing consumer demand for fish will outstrip wild fishery stocks.
- Increased **international cooperation** is recommended to develop sustainable fisheries but also to fight illegal, unreported and unregulated fishing (IUU). **Surveillance** of maritime spaces and environments need to be optimized.
- Deepwater **aquaculture/fish farming**, which produces significantly less harmful greenhouse gases than terrestrial agriculture, can be a solution. Investments in this new sector could promote **food autonomy** in the Pacific Islands (fishing, aquaculture, seaweed farming, etc.).
- PECC should promote effective control of illicit fishing, protection of exclusive fishing zones, and promotion of fish farming that is safe for wildlife and biodiversity.
- The technology of **Coastal Benthos Promoters (CBPs)** was presented as a solution to overcome current and future protein limitations by harnessing the untapped potential of marine ecosystems in sublittoral zones (5-30 meters depth) to produce food resources.

Waste management

- Today, more than **95%** of plastic waste lies on the **seabed**. The **end of the plastic cycle** must be **better understood and managed**. The use of new, **degradable materials**, as well as **adapted legislation**, behavioral change, and taxes/bans must be implemented. A **paradigm shift** is needed from the current linear **'take, make, dispose'** plastics economy, to a **circular economy** that aims at 100% reuse or recycling of plastics, along with the **abandonment of all single-use plastics**.
- **Sanitation and waste treatment infrastructure** needs massive investment. In particular, tourism industries in **developing countries** must be supported to acquire and operate high-end **waste management systems**. **Locally**, Bora Bora made water management its cornerstone of sustainability, as drinking water supplies became scarce after the droughts of 2000.

Energy and transport

- Energy is a major issue in Pacific Island countries, which rely heavily on imported fossil fuel. Sea Water Air Conditioning (SWAC), a technology perfectly adapted to Pacific islands' characteristics, ensures power supply **without wasted heat production**: it consumes **10 times less energy than conventional air-conditioning** and offers a practical **decarbonization solution, as do solar panels**, thanks to the tropical weather.
- **The promotion of new hybrid and decarbonized propulsion modes** through transport fleets can position the Pacific Islands as **leaders in marine renewable energy** (natural hydrogen, new ship engines, storage, etc.). **Targeted support** adapted to the specificities of the territory is needed for **start-ups** specialized in the blue economy.

- To meet these expectations, FPTPEC, as endorsed by the PECC Standing Committee, is committed to devoting more research to **marine pollution control**, i.e., **banning** heavy diesel fuel and **developing** gas, solar and wind power, as well as developing **new ship fleets** to limit Co² emissions at sea and during port operations, to limit the environmental pressure on small islands port facilities, pending the promulgation of **adequate multilateral** rules under the PECC.
- Develop **marine renewable energy**: hydropower and marine wind power, along with identifying ways to overcome technical and environmental constraints in the Pacific Islands.

Tourism

- **Virtual tourism** and **digital creative industries** can introduce new, non-exploitative tourism products. Innovations in the creative and cultural sectors — the **orange economy** — offer even greater opportunity for Small Island Developing States (SIDS) to transform and diversify tourism, with the **promotion of responsible tourism** on the consumer side.

Summary of discussions

Introduction and keynotes

Patrick Capolsini, President of the University of French Polynesia, opened the seminar by indicating that the **COVID-19 pandemic affected all areas** of the blue economy (tourism, fishing, aquaculture, transport, logistics, etc.). To boost recovery and make the economy more resilient to future crises, it is necessary to **strengthen maritime awareness using a multidisciplinary approach**, in order to ensure coherence between the economic, environmental, societal, cultural and ethical dimensions.

Pascal Lamy, chair of FPTPEC, stated that **cooperation at the global, European, and local levels is essential** to move towards a more sustainable future. History has shown that when the future seems to darken, we must work even harder together to provide a brighter prospect for the following generations. The importance of the environmental crisis require that we go back to understanding the sources of our civilization and of life itself to preserve its richness. To reach that goal, we need to rely on all actors, local to global, and bring together science with tradition.

Edouard Fritch, President of French Polynesia, explained how French Polynesia is ideally placed — with 118 islands of which 64% are inhabited — to address Ocean Governance. With 20% of the world's coral ecosystem and 4.8 million km² of exclusive economic zone, **French Polynesia can lead by example. Culture, tradition, and history** are shared throughout the territory and are essential pillars for the future; **traditional activities** must be maintained **while adapting** infrastructures. [Te Tai Nui Atea](#), French Polynesia's marine managed area, embodies this philosophy, which offers an original and reasonable approach to ocean protection. The government of French Polynesia seeks to **renew the age-old links with the ocean, to value ancestral know-how, and to put Polynesians at the center of ocean protection.**

Session 1: International Ocean Governance

*The first session of the seminar brought together five actors and experts of ocean governance, starting with **Vladimir Ryabinin**, Executive Secretary at the Intergovernmental Oceanographic Commission of UNESCO, who described the efforts led by the United Nations Organization. **Olivier Poivre d'Arvor**, French Ambassador for the Poles and Maritime Issues, then presented the outcomes of the One Ocean Summit organized by France in Brest in February 2022. **Charles Morrison**, Adjunct Fellow and former President of the East-West Center, then highlighted the current evolution of the polar regions and its geopolitical implications. **Peter Cozens**, former Director of the Centre for Strategic Studies at Victoria University of Wellington, presented the Pacific Islands Forum (PIF) and its Ocean Governance strategic plan. **Richard Bailey**, President and CEO of Pacific Beachcomber, underlined the outcomes of the Blue Climate Summit organized in French Polynesia in May 2022.*

Presenting the [UN Decade for Ocean Sciences](#) (2021-2030), [Vladimir Ryabinin](#), Executive Secretary at the Intergovernmental Oceanographic Commission of UNESCO, stated that the [High Level Panel for a Sustainable Ocean Economy](#) was committed to sustainably manage **100% of the ocean area under national jurisdiction by 2025**. He identified **5** key sectors of transformation: sustainable ocean **food production**, clean ocean **energy**, low **carbon** transportation and ports, ocean **restoration** and **protection**, and **tourism**. To achieve this transformation, 5 catalysts are identified: **data** reform, ocean **planning**, innovative **finance and de-risking**, stopping **land-based pollution**, and improving ocean **accounting**. He emphasized that a **serious analysis of our current situation** is essential to move forward in resolving ocean issues. He invited all participants to share relevant **actions** and **activities** on the [Global Stakeholder Forum](#) of the Ocean Decade.

Following the [One Ocean Summit](#) held in Brest on February 9-11 2022, [Olivier Poivre d'Arvor](#), French Ambassador for the Poles and Maritime Issues, declared that 41 states committed to 4 directions of action: the **preservation of biodiversity**, the **end of overexploitation of marine resources**, the **fight against pollution**, and the **mitigation of climate change**. As the world's 2nd largest maritime power, France wishes to assume a blue leadership within Europe. He added that **knowledge** is essential for decision-making. In this regard, the **digital revolution is an opportunity to build an integrated ocean model**, to inform political decisions, to allow sea-based economies to develop, and to feed the dialogue with stakeholders and the public. The European Union committed, in Brest, to develop a [Digital Twin of the Ocean](#) (DTO).

In addition, the **creation of marine protected areas** is an essential pillar of biodiversity preservation. In terms of **plastic pollution**, 10 million tons of plastic are dumped into the ocean every year, 80% of which come from coasts and rivers. Massive investments are needed to **modernize sanitation and waste treatment infrastructures**. Overall, we **must accelerate the transition to a circular economy** that aims at 100% reuse or recycling of plastics along with the **abandonment of all single-use plastics**. To rethink Ocean Governance, we **must rely on science and all stakeholders** and integrate it into the framework of the United Nations.

[Charles E. Morrison](#), Adjunct Fellow and former President of the [East-West Center](#), noted with **heightened awareness** that the current evolution of the Polar regions has enormous, perhaps even **existential**, implications for the geophysics of our planet.

Two changing factors in the Arctic region allow **greater access** to resources: the **warming** of the region and **new technologies**. Overall, four main topics are concerned: new **sea routes** through the North

Sea, **undersea fiberoptic cables** and underwater **data centers, deep-sea mining, and technologies**. He added that the collection and integration of information on environmental changes should be **combined with ground level observations and indigenous knowledge systems**. In addition, he advocated for **greater standardization and cooperation across national jurisdictions**, alongside a **facilitated interface** between technology developers and consumers.

Peter Cozens, former Director of the Centre for Strategic Studies at Victoria University, stated that the Pacific Islands Forum (PIF) is the **largest agglomeration of maritime states** in the world, bringing **18** countries together and covering a quarter of the southern hemisphere. The PIF issued the [Regional Ocean Policy and Framework for Integrated Strategic Action](#) to improve Ocean Governance and ensure sustainable use of the ocean and its resources. He then identified **4 main areas of interest**: deep-sea mining, wild fisheries of the Pacific, plastic pollution, and R&D. The [2017 Global Ocean Science Report](#) found that **ocean science accounts for only 0.4% to 4% of total government R&D spending worldwide**. R&D should therefore be **significantly** increased.

Richard Bailey, President and CEO of [Pacific Beachcomber](#) and cofounder of the Blue Climate Initiative, summarized the objectives and outcomes of the [Blue Climate Summit](#) (14-20 May 2022). Its overall mission was to **harness innovation and traditional knowledge** while **protecting oceans** and combating **climate change**. The general theme was to “give Polynesians a voice; give the ocean a voice; give youth a voice”. 6 pillars were highlighted during the summit: ocean **carbon dioxide** removal, blue climate change **mitigation** through the **avoidance of carbon emissions**, scaling up **conservation efforts**, supporting **networks of communities**, deepening sustainable **blue tourism**, and advancing **ocean understanding**. He concluded with 3 questions:

- How can **the unfair over-exploitation of the ocean’s natural capital be better monitored and regulated?**
- How can flows of capital into ocean-related mitigation and sequestration be accelerated?
- How do islands pioneer the transition to net zero?

The European Perspective

*A specific session was devoted to European action in managing the Blue Economy, with a keynote from European Commissioner for International Partnerships **Jutta Urpilainen**, followed by a presentation of the Starfish mission by **Pascal Lamy**, Chairman of the mission Committee, and **Geneviève Pons**, representing the Committee's Assembly.*

In her keynote address, European Commissioner [Jutta Urpilainen](#) emphasized the fact that the stakes are particularly high for coastal and island economies, which are facing a **twofold challenge: recovery from the pandemic and climate change**. The EU is committed to sustainable growth in Europe and around the world. With the [Green Deal](#), the EU aims to become the **first climate neutral continent by 2050** and wants to extend this initiative to partner countries around the world. The new [Global Gateway Strategy](#) aims to mobilize 300 billion euros by 2027 in digital, climate and energy, transport, health, and education and research. Europe fully supports the Pacific region and will direct significant [Global Gateway](#) funds to promote resilience in the area. Fisheries play an essential role for island states. As a key market for sea food from the pacific, the EU advocates the **promotion of sustainable fisheries that ultimately enhance ocean health and economic resilience**. The EU supports regional organizations such as the [Western Central Pacific Fisheries Commission](#).

Introducing [Mission Starfish 2030](#), [Geneviève Pons](#) and [Pascal Lamy](#) stated that our society's current relationship with the ocean and water is inherently **unsustainable**. Mission Starfish is the translation of the [Green Deal](#) into a Blue Deal and an integral part of [Horizon Europe](#), EU's key funding program for research and innovation until 2027.

Mission Starfish is built around 5 goals: **filling the knowledge and emotional gap** via pan-European education programs, **revamping governance**, **zero pollution** (material and underwater noise), **regenerating marine and freshwater ecosystems**, and **decarbonizing the ocean, seas and waters**.

In addition, **climate neutrality** in maritime transport is targeted **for 2030**, through the adoption of an [EU Green Shipping Strategy](#) and a new Green Port Strategy supporting the transition to carbon neutrality, along with a planned and sustainable development of all EU ports. Regarding clean energy, at least 35% of the EU's energy mix should be covered by wind, wave, tidal, thermal and salinity gradient energy by 2030.

They concluded that **we are still largely ignorant of our ocean**. We do not understand 2/3 of what should be understood. In that vein, it is critical to **promote research and innovation**. The [BlueInvest Initiative](#) aims to combine grants with equity and provide SMEs with **access to finance their innovation projects**. Lastly, the EU defends the development of a **carbon-free and low-impact aquaculture**.

Session 2: Vision from Asia Pacific on Blue Economy

*This session brought together regional views on the challenge of managing the blue economy. After an introduction by **Eduardo Pedrosa**, Secretary General of the Pacific Economic Cooperation Council, the two PECC Co-Chairs, **Richard Cantor**, USPECC Chair, and **Yongxin Zhan**, CNCPEC Chair, presented the American and Chinese approaches to the topic. A prominent contribution was then made by **Prinat Apirat**, Deputy Director-General of International Economic Affairs Department from Thailand's Ministry of Foreign Affairs, on Thailand's Bio Circular Green Economy (BCG) Model. Thailand is the current chair of APEC presidency.*

In his introduction to the session, Eduardo Pedrosa, PECC Secretary General, said that the first 30 years of APEC existence saw a dramatic increase in prosperity in the Asian Pacific region, including expansion in trade. We are today at a critical juncture in terms of environmental sustainability, climate change, and rapid technological change. The current economic crisis is worse than the previous ones (Asian crisis and global crisis), as we are facing a **breakdown of trust. The pandemic impacted the general mindset about climate change, which is now perceived as a risk to growth.**

Richard Cantor, PECC Co-Chair, declared that for APEC members, the **Pacific Ocean is their common resource**; its preservation is essential. In 2018, the blue economy contributed \$373 billion to U.S. GDP; the blue economy also grew at a faster rate than the U.S. overall economy. USPECC is working toward a framework to **decarbonize supply chains**. APEC's current host, Thailand, has made the [Bio-Circular Green Economic Model](#) the key pillar of its agenda this year. Richard Cantor expects USPECC to maintain sustainability as a pillar of their work.

Ambassador Yongxin Zhan, PECC Co-Chair, declared that **close cooperation from the international community** is required to achieve the [UN 2030 Sustainable Development Goals](#). In the post-pandemic area, the blue economy has become a key driver of sustainable innovation for recovery. China took actions to stimulate growth of the blue economy. For example, it signed in 2014 an agreement to deepen the Asia Pacific Blue Economy Cooperation. In 2018, [ASEAN-China Summit](#) approved the [ASEAN-China Strategic Partnership Vision 2030](#). China launched cooperation platforms, including the [Blue Economy Forum](#), a seminar on marine environmental protection.

Prinat Apirat, Deputy Director-General of International Economic Affairs Department from Thailand's Ministry of Foreign Affairs, echoed the [Stockholm International Peace Institute](#) in saying that ocean acidification, overfishing, temperature rise, and ocean deoxygenation posed a **major threat to global security**.

Knowledge on the interrelationship between oceans and climate change, along with **coordinated policy actions** in the blue economy must be substantially increased, with 3 priorities: **maritime connectivity** (established infrastructure and development of both port connectivity and smart technology), **offshore energy exploration and production**, and better **understanding** of emerging climate-related elements (blue carbon, blue finance and blue tax). By 2024, more than \$20 billion (10% of Thailand GDP) could be generated annually from ocean-related activities. **Particular effort must be made to combat IUU fishing in the APEC region, along with marine debris.** Thailand's priority is to manage the blue economy more sustainably, while conserving and protecting the coastal environment and its biodiversity.

Thailand's [Bio Circular Green Economic Model](#) (BCG) is its strategy for post-covid recovery and long-term growth. This model incorporates 3 main approaches to sustainability:

- **Bioeconomy:** the production of renewable biological resources and bio-based materials.
- **Circular economy:** a regenerative production-consumption system with a sustainable use of resources
- **Green economy:** a mindset that revitalizes economic systems, where waste from one industry becomes material for another.

Thailand calls for **multilateral cooperation**, the formulation of a common **definition of the blue economy** and other global norms related to climate change, maritime resource preservation and ocean-based activities. The private sector needs **assistance** in adopting relevant **international standards**, forging partnerships, and encouraging it to play a greater role in financing the blue economy.

Session 3: Ocean Resources and Sustainable Use

*This session, introduced by the Minister of Environment of French Polynesia **Heremoana Maamaatuaiahutapu**, combined local and international perspectives on the preservation and sustainable use of ocean resources. **Rena Lee**, Chair of the UN conference on BBNJ, reported on the ongoing challenges of the BBNJ international negotiation, while **Sefanaia Nawadra**, DG of SPREP, described the key priorities for the Pacific Islands in terms of environmental protection. These priorities were echoed by **Cameron Diver**, DG of CPS, who also stressed the importance of blending science with respect for traditional practices. **Kannika Thampanichvong**, Senior Research Fellow at the TDRI, speaking in the context of Thailand APEC presidency, shared solutions developed in Thailand.*

Heremoana Maamaatuaiahutapu, Minister of Culture, Environment and Marine Resources of French Polynesia, said that for Polynesians, **rootedness in nature is strong. The ocean is their greatest sacred space that organizes living communities.** In Tahitian, there is no proper word for “nature”. Instead, the word used encompasses forests, seas and the sky. There is an **inherent awareness** of the need to **manage territories** so that **resources can regenerate.** Overall, respect for nature is inherent to societal rules. In 2002, French Polynesia became the **largest marine sanctuary in the world**, protecting not only the fauna and flora, but also the ancestors’ way of life. Tahiti can be an example of a solution for neighboring territories and needs to be more **innovation-oriented** (water, waste, aquaculture) to develop the Indo-Pacific axis.

Rena Lee, Chair of the UN Conference on BBNJ, mentioned the [BBNJ IGC Process](#): the Intergovernmental Conference for the Development of International Legally Binding Instruments on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction. She highlighted outstanding issues that must be resolved: **negotiations on marine genetic resources** — the **fair and equitable sharing of monetary benefits; capacity building and transfer of marine technology** — on which basis it will be delivered. She also acknowledged the importance of **broad acceptance of the roles that traditional knowledge held by indigenous people and local communities play.**

Sefanaia Nawadra, Director-General of the Secretariat of the Pacific Regional Environment Programme (SPREP), summarized the **guidelines for the [Secretariat of the Pacific Regional Environment Program \(SREP\)](#)** as follows: **climate change resilience, island and ocean ecosystems, waste management and pollution control, environmental monitoring and governance.** A shift in awareness is occurring, as for the first time in its history, the Secretariat received donations to address waste management. He described the [Pacific Coral Reef Action Plan](#) to **optimize capacity building, foster traditional knowledge** and practices, coordinate **education and awareness**, streamline **regional and local collaboration**, conserve habitat and biodiversity, prioritize habitat restoration, improve coastal fisheries management, and utilize research and monitoring.

Kannika Thampanichvong, Senior Research Fellow at the Development Research Institute (TDRI), stated that Thailand relied heavily on its biodiverse coastal ecosystems for food, habitat, tourism income, etc. Coastal ecosystems face many **threats** such as **pollution, habitat destruction**, and the **overextraction of resources.** The impacts of deteriorating coastal ecosystems have direct consequences for coastal communities and beyond (fishing, tourism, water resources, etc.). In addition to the “protect, accommodate, retreat” model, Kannika Thampanichvong identified the following **paths forward: comprehensive coastal erosion planning** from large areas rather than smaller local

governments working separately, **increased governmental assistance to individual households** rather than having them use their own capital and take out loans, long-term education, and incentives to pursue higher education to increase income opportunities.

Cameron Diver, Deputy Director-General at the Pacific Community, said that the Pacific Islanders were the cultural and spiritual **custodians** of our planet's largest ocean space, ecosystem and resources. The Pacific has placed the ocean and the identity of Pacific Islanders with the ocean at the heart of its broadest policy framework to date. To translate that vision into policy and then action, science is needed: climate science and ocean science. Importantly, during the [2018 Pacific Island Forum Leaders' meeting](#), they advocated for an **expanded definition** of human security in the context of the **legal and human rights implications of climate and environmental degradation**-induced displacement. In 2021, Pacific leaders adopted a groundbreaking normative declaration on preserving maritime areas in the face of climate change-related sea level rise.

Session 4: Ocean resources, sustainable protection and production

*This session brought together academic and political perspectives on the sustainable protection and production of ocean resources. Senator **Teva Rohfritsch**, Rapporteur of the French Senate mission "Exploration, protection and exploration of the seabed", highlighted the mission's guidelines integrated into the [France 2030](#) framework. **Jean-Marc Daniel**, Head of the MERS Carnot Institute, emphasized the importance of deep-sea exploration, while **Dominique Bourgnon de Layre**, Head of the "Action of the State at Sea" office, presented the organization of the French Pacific Coast Guard in French Polynesia and throughout the Pacific. **Cédric Ponsonnet**, Director of the Marine Resources Department of French Polynesia (DRM), concluded the session by presenting the regional management of migratory fish stocks.*

Senator [Teva Rohfritsch](#), mentioned that the year 2022 has been designated by the United Nations as the "International Year of Small-scale Fisheries and Aquaculture" and as the 2nd year of [the Decade of Ocean Sciences for Sustainable Development](#). The third [Assessment Report of the IPCC](#) highlighted the accelerating effects of climate change, with implications for the **income security of millions of people**, especially **coastal** communities. Teva Rohfritsch spoke of the importance of **oceanizing consciousness**, developing a collective maritime consciousness.

The French Senate's mission "Exploration, protection and exploration of the seabed" will be financed by up to 2 billion euros integrated into the [France 2030](#) framework. Today, more **exploration is necessary**: there is virtually **no knowledge of deep-sea mineral resources** and a lack of data. Moreover, cultural issues should be integrated **into national strategies**, by **strengthening cooperation between territories** and by **regionalizing decisions on research projects** so that they are defined **locally**. Françoise Suve declared that "the **recognition of cultural specificities**, values and heritage is crucial because there will be an upheaval for the local populations. It will be a matter of **trust**."

[Jean-Marc Daniel](#), Head of the MERS Carnot Institute, spoke about the value of **deep-sea exploration**. Exploration maps are lacking most information on the nature of soils. We only know the oceans by their topography, not by the distribution of their habitats. The **deep sea** (more than 200 meters deep) represents **98%** of the French Exclusive Economic Zone. Worldwide, 75% of the ocean is located at a depth of more than 3000 meters (9842 feet). 80% of the seabed has **not been mapped in detail**, as knowledge has been gathered through satellites only. To fill this **knowledge gap**, the **development of new means of access and exploration** is essential. In addition, knowledge transfer for sustainable exploitation through private/public partnership is important. Lastly, dissemination to the general public must be done effectively.

[Dominique Bourgnon de Layre](#), Head of the "Action of the State at Sea" office, summarized how the French Pacific Coast Guard organizes maritime surveillance in French Polynesia and throughout the Pacific. It operates surveillance of the French national Exclusive Economic Zone, ensuring safety at sea, protecting resources, disrupting trafficking, and enabling coordination. The "[Centre Maritime Commun](#)", the interministerial center for State Action Missions ([Action de l'Etat](#)) provides a permanent watch of maritime situations, the fusion of maritime information, the ability to conduct operations, the analysis of electronic data (VMS, AIS), and air/naval maritime surveillance missions.

[Cédric Ponsonnet](#), Director of the Marine Resources Department of French Polynesia (DRM), presented the regional management of migratory fish stocks, within the regulatory framework of the 1982 [United Nations Convention on the Law of the Sea](#) (UNCLOS), and regional fisheries organizations

(RFMOs) such as the [1949 Inter-American Tropical Tuna Commission \(IATTC\)](#) and the [2004 Western and Central Pacific Fisheries Commission \(WCPFC\)](#). Article 30 of UNCLOS stipulates the **recognition of the rights of developing countries**. Overall, he highlighted 3 principles of compatibility: coastal states are sovereign over their fish stocks, conservation and management measures established for the high seas and those adopted for areas under national jurisdiction shall be compatible, and that each party shall take the necessary measures to ensure the implementation of and compliance with UNCLOS.

Session 5: Restoration and protection of marine ecosystems

*This session addressed the issue of restoration and protection of marine ecosystems. **Serge Planes**, Director of CNRS-EPHE-UPVD, CRIOBE (“CORAIL” lab) and of the Institute of the Coral Reefs of the Pacific (IRCP), presented the interdependent relationship between coral reefs and climate change. **Carola Espinoza** and **Victor A. Gallardo**, oceanographers and marine biologists at the University of Concepción, then presented the technology of Coastal Benthos Promoters (CBPs). This session was concluded by **François Galgani**, oceanographer and biologist at France’s Research Institute for the Exploration of the Sea, IFREMER Pacific Center in Tahiti, who highlighted the impact of plastic pollution, and the solutions for a more global management of this material.*

Serge Planes, Director of CNRS-EPHE-UPVD, CRIOBE (“CORAIL” lab) and of the Institute of the Coral Reefs of the Pacific (IRCP), introduced 4 key figures **about coral reefs**. They represent **250,000km²**, or 0.2% of the ocean. They contain **25% of ocean biodiversity**. 1 billion people depend on them. There are 1,400 species of corals. The Pacific region contains 27% of the world’s coral reefs.

Today, coral reefs are bleaching because of global warming. The [IPCC 2018 report](#) forecasted that **70-90% of corals could disappear with a global temperature rise of 1.5-2° Celsius**. Since 1998, a general decline in hard coral cover brought its total to 31.3% of overall corals in 2019; a **loss of 10,000km² in 10 years**. Since 2010, bleaching accelerated. However, there is hope: **coral reefs are resilient by nature** (with a regeneration period of 6-8 years). In addition, scientists have noticed a phenomenon of “**coral reef oases**” occurring: **some areas never get affected by bleaching**. Research must be allocated to better understand this phenomenon. To restore the coral ecosystem to its original state and reduce the impact of bleaching, multidimensional solutions can be implemented — engineered (cooling and shading of reefs), biological (assisted coral evolution and reproduction), and ecosystem-based (management of marine resources).

Presenting the technology of Coastal Benthos Promoters (CBPs) developed in collaboration with Carola Espinoza, Victor A. Gallardo, oceanographer and marine biologist at the University of Concepción, declared that **80% of the additional food required to meet the global demand in 2050 will have to come from land that is already under cultivation**. CBPs help overcome current and future protein limitations by harnessing the untapped potential of marine ecosystems in sublittoral zones (5-30 meters depth) to produce food resources. By **increasing the local substrate** available for local marine living resources, it contributes to an increase in **CO₂**, while **preserving** both local fauna and flora, **without antiparasitic** drugs. Results from more than a decade of oceanographic research off the coasts of Peru and Chile indicate that the Humboldt Current Marine Ecosystem (HCME) holds an untapped opportunity to **boost its socio-economical return** beyond that offered by traditional artisanal and industrial fishing practices.

Regarding the environmental management of **marine plastic pollution**, François Galgani, oceanographer and biologist at France’s Research Institute for the Exploration of the Sea, IFREMER Pacific Center in Tahiti, said that annual global plastic production amounts to 400 million tons, the main producer being Southeast Asia. **Microplastics** have a significant impact, representing **10% of the total weight** of floating plastics. Marine litter has a negative economic impact of \$8 to \$12 billion dollars per year. The **circular economy** (reduction, reuse, recycling of plastic) and specific regional measures should be promoted.

Session 6: Innovations for the Blue Economy

*In this session, academic, business, and policy perspectives merged to further innovate in the blue economy. **Lionel Loubersac**, founding member and Vice-Chair of the New Caledonia Maritime Cluster, highlighted key strategies for better sustainable maritime development in Oceania. **Tuana Degage**, President of the Maritime Cluster in French Polynesia, presented the guidelines of the Maritime Cluster. **Jean Hourcourigaray**, cofounder of Airaro, then introduced the technology of Sea Water Air Conditioning (SWAC) and of Ocean Thermal Energy (ETM). The session was concluded by keynote speaker **Gaston Tong Sang**, President of the Assembly of French Polynesia and Mayor of Bora Bora, who emphasized the intrinsic relationship between Polynesians and nature, and the pioneering role of Bora Bora in sustainability.*

Lionel Loubersac, founding member and Vice-Chair of the New Caledonia Maritime Cluster, highlighted key strategies for better sustainable maritime development in Oceania, which he called a “gifted archipelago” with a key geostrategic position home to exceptional marine biodiversity in both shallow and deep waters. With New Caledonia serving as a case study, 6 strategic priorities for blue growth stood out: provide New Caledonia with a maritime governance body or "strategic maritime committee"; simplify administration and implement modern tools along with the **structuring of accessible knowledge bases** (data hubs); become a **strategic center for blue innovation** via advanced technological platforms, such as the [New Caledonian Sea cluster](#); become a **pioneer in new maritime sectors**, through experimentation and the use of **new energy technologies** (natural hydrogen, new ship engines, storage); **raise awareness, educate and train** for a stronger maritime culture; establish the region as a **pilot for innovation integrated** into an **Indo-Pacific axis**.

To this end, five requirements must be considered to develop a maritime dimension: **control of trade and transport**, maritime diplomacy, maritime culture, strong and long-term economy, and political commitment.

Tuana Degage, President of the Maritime Cluster in French Polynesia, said that the role of the [French Polynesian Maritime Cluster](#) was to gather, federate, and converge the dynamics and visions of **cross-sectoral fields**. It also acts in favor of **training, infrastructure, and regulation** in the service of a **shared vision**. Because respect for the ocean is rooted in Polynesian culture, **innovation must occur without betraying Polynesian culture**. Several examples of innovations that can solve structural problems are: **the promotion of new modes of hybrid and decarbonated propulsion** through the archipelago’s transportation fleets; Polynesia can position itself as a **leader in marine renewable energy** through equitable industrial partnerships (e.g. Sea Water Air Conditioning and Taaone Hospital); **targeted support** adapted to the specificities of the territory for start-ups in the blue economy; **food autonomy** (fishing, aquaculture, seaweed farming) through the **digitization of vessels**, R&D and the optimization of the surveillance of maritime spaces and environments; regulation of flows and conciliation of uses in shared nautical and maritime spaces.

Jean Hourcourigaray, cofounder of Airaro, stated that in 2019, **83%** of the world's energy came from **fossil fuels**. Insular territories are the most vulnerable to the impacts of global warming. Sea Water Air Conditioning (SWAC) **guarantees a power supply without wasted heat production**: it consumes **10 times less energy than conventional air-conditioning** and offers a **decarbonization solution**.

In comparison, over a 30-year period and in CO²eq, the greenhouse gas emissions of a standard chiller versus the SWAC system are 260,000 vs 19,742, respectively. In addition, **Ocean thermal energy**

conversion (OTEC) can also generate **co-products**, such as drinking water, aquaculture, etc. The spatial footprint of OTEC is much smaller than that of solar or wind.

Gaston Tong Sang, President of the Assembly of French Polynesia and Mayor of Bora Bora, said that Bora Bora has embraced the blue economy for years, through the **valorization of traditional culture** and the **inclusion of the population**. In Bora Bora, **water management was the founding element in the blue movement**, as drinking water supplies were no longer sufficient after the droughts of 2000. Today, some residents are pushing for the implementation of a Rahui, an ancestral practice that prohibits the exploitation of a designated area to preserve its resources. In its traditional form, the Rahui is **self-managed by the fishermen themselves**, without whom the whole process is not sustainable. Existing Rahui should be strengthened for sustainable fisheries management. The **culture-science dialogue** must be developed by engaging communities and scientists in sustainable projects.

Session 7: Sustainable development and tourism

*This session highlighted international insights on how to merge tourism and sustainable development. **Léopold Biardeau**, researcher at the University of French Polynesia, presented the benefits of economics in quantifying the costs associated with climate disruption. **Riad Meddeb**, Senior Principal Advisor for Small Island Developing States, UNDP, and Director at UNDP Global Centre on technology, innovation and Sustainable Development, summarized UNDP's guidelines on sustainable tourism. **Simon Milne**, Professor of Tourism at Auckland University of Technology, and Director of the New Zealand Tourism Research Institute presented the Pacific Tourism Data Initiative. In conclusion of this session, **Nathan J. Bennett**, Research Associate with the OceanCanada Partnership at the University of British Columbia (Canada) and the Université Côte d'Azur (France), highlighted how to merge ocean sustainability with fairness.*

Léopold Biardeau, researcher at the University of French Polynesia, said that economics were able to **quantify the implicit and explicit** economic costs generated by the manifestations of climate disruption. For instance, **game theory** makes it possible to highlight the dynamics responsible for the deterioration of the commons and underlines the human dimension of the problem (the individual, selfish rationality vs. the collective rationality, concerned with ensuring the sustainability of a resource). It is important to **include economics in a multidisciplinary approach**. Economics must be integrated into other knowledge-generating channels, such as tradition, collective/individual experiences, etc. In this way, policy makers would possess a broad and comprehensive perspective.

Riad Meddeb, Senior Principal Advisor for Small Island Developing States, UNDP, and Director at UNDP [Global Centre on technology, innovation and Sustainable Development](#), stated that **tourism was a key driver of development** in [Small Island Developing States \(SIDS\)](#), accounting for **more than 30% of total exports in SIDS**. Given their **significant vulnerability to climate change, high debt burden, lack of financial resources** and **over-reliance on few ocean sectors**, the [United Nations Development Program](#) supports SIDS with a \$1.5bn budget for climate, ocean and numeric transformation.

Diversifying tourism can contribute to economic growth, job creation and enhanced resilience to shocks. It can be powered by **digital tools**: digital upskilling and reskilling of workers, ensuring MSMEs access to technology, and integrated advanced technologies such as Big Data, AI and Internet of Things. **Virtual tourism** and **digital creative industries** can introduce new **non-exploitive tourism products**. In addition, **new innovations in the creative and cultural sectors - the orange economy - offer SIDS even greater opportunity for transforming and diversifying tourism**. For example, the introduction of “**screen tourism**” can allow fans of popular films and TV shows to visit their filming locations. Innovation requires investments; they can be secured through **blue finance** mechanisms, such as **blue bonds** and **blended finance**.

It is important to involve **civil society in decision-making** and to support **community-centered tourism**. Lastly, it is essential to **anchor the value chain in local economies** and **promote responsible tourism on the consumer side**.

Simon Milne, Professor of Tourism at Auckland University of Technology, and Director of the New Zealand Tourism Research Institute, said that the [Pacific Tourism Data Initiative](#) involved 10 Pacific Islands Countries and aimed to increase **evidence-based tourism decision-making** in the Pacific that will strengthen sustainable economic development. **Evidence-based strategy and ongoing performance monitoring** are essential. The more marine tourism activities a tourist undertakes, the

greater its local economic impact. For instance, the New Zealand diving tourist exhibits a considerable higher economic expenditure than the non-diving one. Surveys such as the [Niue International Visitor Survey](#) **provide more in-depth information and guides broader development**; they provide insights that can help **improve cooperation between tourism sectors and local communities**. Simon Milne noted that businesses will not always be as inclined to be climate friendly, particularly if the economic situation is dire.

Nathan J. Bennett, Research Associate with the OceanCanada Partnership at the University of British Columbia (Canada) and the Université Côte d'Azur (France), said that while the blue economy was projected to double by 2030, if left unchecked, it would increase the risks of producing substantial damage to both the marine environment and human well-being via environmental and social injustices, such as the dispossession of spatial and resource access rights, food insecurity human and indigenous rights abuses, and more exclusionary governance. There are three practical steps to promote blue justice for small-scale fisheries and coastal communities:

- Distributional justice that designs fair compensation and mitigation mechanisms.
- Recognition justice that identifies and differentiates rights holders and stakeholders
- Procedural justice that facilitates inclusive, participatory, transparent, and accountable planning. Recognition of past social and environmental injustices is essential to achieve the SDGs over time.

Session 8: Blue economy revolution

*This session gathered local and international perspectives on the current evolution of the blue economy and the inherent challenges to be addressed. **Tamatoa Bambridge**, Research Director at the National Center for Scientific Research (CNRS), highlighted the Polynesians' traditional rootedness with nature, and their ancestral resource management practice, Rahui. **Sylvain Petit**, Associate Professor of Economics at the Polytechnic University Hauts de France (UPHF) and **Marie Delaplace**, Professor at Gustave Eiffel University and co-founder of the Observatory for Research on Mega-events (ORME), presented the surfing events of the Paris 2024 Olympic Games in Tahiti. **Lionel Loubersac**, Founding Member and Vice-Chair of the New Caledonia Maritime Cluster, **Myriam Aubry Maloungila**, Academic Delegate for Scientific and Technical Culture at the Vice-Rectorate of New Caledonia, and **Véronique Mollot**, President of the Cluster Committee 3E (Education for Equality at School) of New Caledonia, presented their strategy for blue growth in New Caledonia. **Joshua Cooper**, Executive Director of Oceania Human Rights and Lecturer at the University of Hawai'i, stressed the importance of culture and the shifting mentality of tourists. **Robert Oliver**, World-renowned Chef and leader of the Pacific Island Food Revolution, highlighted the current nutrition crisis in the Pacific and solutions to address it.*

Tamatoa Bambridge, Research Director at the National Center for Scientific Research (CNRS), in the Centre for Island Research and Environmental Observatory (CRIOBE, Laboratoire d'Excellence « CORAIL»), introduced the [Rahui Forum and Resource Center](#), where scientists and local communities work together to conserve local resources and marine biodiversity. Historically, a Rahui is an **ancestral resource management practice** where a temporary prohibition is placed on targeted resources within a given area. In effect, it is a **sacralization of the prohibited area**. This custom is well understood and respected by local communities. **Its effectiveness depends on local self-management**. The inherent challenges of this practice are that the diversity of stakeholders and resource users must be taken into account (tourism, fishing, environmental conservation, etc.). In addition, **innovative management strategies** must be found, such as **financial compensation and payments for ecosystem services**. A common problem of the Rahui is that once the prohibited area reopens, the resource is **over-consumed to the point of slaughter**. In this context, to ensure food security in a 5-year period, Rahui **infrastructures must be** expanded to meet the needs and expectations of local projects, while also training the next generations for Rahui development. Rahui must be strengthened for sustainable fisheries management. Lastly, **the culture-science dialogue** must be developed by **engaging communities and scientists** while supporting sustainable projects in communities.

Sylvain Petit, Associate Professor of Economics at the Polytechnic University Hauts de France (UPHF) and Marie Delaplace, Professor at Gustave Eiffel University and co-founder of the Observatory for Research on Mega-events (ORME), presented the surfing events of the Paris 2024 Olympic Games in Tahiti, with a reading in terms of common goods and conflicts associated with the blue economy. Their main question was “what happens if we temporarily privatize a common good?”. They concluded that the organization of surfing events in Teahupo'o had to **integrate** the **political and cultural concerns** associated with the sea, diversify the stakeholders beyond the usual sphere of the Olympic Games, and have greater transparency of decisions related to the Olympics. Their general observation was that the proposed governance is difficult to implement as the **Polynesian cultural identity must be protected** while actors and decision-makers throughout the process are necessarily external in the framework of the Paris 2024 Olympic Games.

Lionel Loubersac, Founding Member and Vice-Chair of the New Caledonia Maritime Cluster, Myriam Aubry Maloungila, Academic Delegate for Scientific and Technical Culture at the Vice-Rectorate of New Caledonia, and Véronique Mollot, President of the Cluster Committee 3E (Education for Equality at School) of New Caledonia, presented their educational program on the sea and the ocean as well as the implementation of a blue growth strategy in New Caledonia. Their first observation is that while some Pacific countries have a culture of the sea, **integrated knowledge is ignored**. It is necessary to **reinforce the maritime element in a multidisciplinary approach** to achieve coherence between the economic, environmental, societal, cultural and ethical components. **Youth should be educated and trained about the oceans**, and use an **interdisciplinary, transversal and gender-inclusive approach**.

Joshua Cooper, Executive Director of Oceania Human Rights and Lecturer at the University of Hawai'i, said that **culture is the core aspect of development, not commerce**. Community centers were the essence of all economic activities. He wants to ensure that the **people guide the process** forward. Through his courses, Cooper aims to **reconnect people to ancestral values**, while teaching people about the UN [Sustainable Development Goals](#) and the [Paris Agreement](#). **Business must include culture, conservation and land management**. A shift in perception is occurring among tourists. **A reciprocal relationship is being reinforced instead of an extractive one**, where they understand their responsibility to care for the land.

When Robert Oliver, World-renowned chef and Leader of the Pacific Island Food Revolution, introduced the [Pacific Island Food Revolution](#), he said that a **noncommunicable disease (NCDs) crisis was unfolding in the Pacific**. Over the course of a generation, there has been a **shift in the way people eat**, switching from wholesome local foods to processed convenience foods. The Pacific Island Food Revolution aims to **revitalize indigenous foodways into popular habits**. Overall, 42% of people who engaged with the show improved their eating habits. If only 10% of people surveyed sustain this behavior for 5 years, 165,839 people will move toward better health.

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Annex – full list of participants (alphabetical order)

- **Prinat Apirat**, Ph.D., Deputy Director-General of International Economic Affairs Department, Ministry of Foreign Affairs of Thailand
- **Richard Bailey**, President and CEO of Pacific Beachcomber, S.C., Cofounder of the Blue Climate Initiative
- **Tamatoa Bambridge**, Ph.D., research director at the National Center for Scientific Research (CNRS), in the Centre for Island Research and Environmental Observatory (CRIOBE, Laboratoire d'Excellence « CORAIL»),
- **Nathan J. Bennett**, Ph.D., Research Associate with the OceanCanada Partnership at the University of British Columbia (Canada) and the Université Côte d'Azur (France)
- **Léopold Biardeau**, Ph.D. in environmental economics, researcher at UPF
- **Dominique Bourgnon de Layre**, Head of the "Action of the State at Sea" office
- **Richard Cantor**, Ph.D., PECC Co-Chair, USPECC Chair
- **Patrick Capolsini**, Ph.D., President, University of French Polynesia (UPF)
- **Joshua Cooper**, Executive Director, Oceania Human Rights and Lecturer, University of Hawai'i,
- **Peter Cozens**, former Director of the Centre for Strategic Studies at Victoria University of Wellington
- **Jean-Marc Daniel**, Ph.D., Head of the MERS Carnot Institute --- Head of Physical Resources and Deep-Sea Ecosystems Department at IFREMER
- **Tuanua Degage**, President of the Maritime Cluster in French Polynesia
- **Marie Delaplace**, Ph.D., Professor, Gustave Eiffel University, co-founder of the Observatory for Research on Mega-events (ORME)
- **Cameron Diver**, Deputy Director-General at the Pacific Community
- **Antoine Ferri**, Director of the JRCC (Joint Rescue Coordination Centre)
- **Edouard Fritch**, President of the Government of French Polynesia
- **Francois Galgani**, Ph.D., Oceanographer and biologist at France's Research Institute for the Exploration of the Sea, IFREMER Pacific Center in Tahiti
- **Víctor A. Gallardo**, Ph.D., Oceanographer and marine biologist at the University of Concepción (Chile)
- **Jean Hourcourigaray**, cofounder of AIRARO
- **Pascal Lamy**, Chair, France Pacific Territories National Committee for Pacific Economic Cooperation (FPTPEC)
- **Rena Lee**, Ambassador for Oceans and Law of the Sea Issues and Special Envoy of the Minister for Foreign Affairs of Singapore, President of the Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction
- **Lionel Loubersac**, Founding Member and Vice-Chair of the New Caledonia Maritime Cluster, Managing Partner for the Pacific of ABYSSA
- **Heremoana Maamaatuaiahutapu**, Minister of Culture, Environment and Marine Resources for French Polynesia
- **Riad Meddeb**, Senior Principal Advisor for Small Island Developing States, UNDP, Director at UNDP Global Centre on technology, innovation and Sustainable Development
- **Simon Milne**, Ph.D., Professor of Tourism at Auckland University of Technology, and Director of the New Zealand Tourism Research Institute

- **Charles E. Morrison**, Ph.D., Adjunct Fellow and former President of the East-West Center, former PECC Co-Chair
- **Sefanaia Nawadra**, Director-General of the Secretariat of the Pacific Regional Environment Programme
- **Robert Oliver**, World-renowned chef, Leader of the Pacific Island Food Revolution
- **Eduardo Pedrosa**, PECC Secretary General
- **Sylvain Petit**, Ph.D., Associate Professor of Economics, Polytechnic University Hauts de France (UPHF)
- **Serges Planes**, Ph.D., Director, CNRS-EPHE-UPVD, CRIOBE (“CORAIL” lab), IRCP (Institute of the Coral Reefs of the Pacific)
- **Olivier Poivre d’Arvor**, French Ambassador for the Poles and Maritime Issues
- **Geneviève Pons**, Director General and Vice President of Europe - Jacques Delors
- **Cédric Ponsonnet**, Director, Marine Resources Department of French Polynesia (DRM)
- **Teva Rohfritsch**, French Senator, Rapporteur of a French Senate mission on exploration and protection, and exploitation of the seabed
- **Vladimir Ryabinin**, Ph.D., Executive Secretary at Intergovernmental Oceanographic Commission of UNESCO
- **Kannika Thampanichvong**, Ph.D., Senior Research Fellow, Development Research Institute (TDRI), Thailand
- **Gaston Tong Sang**, President of the Assembly of French Polynesia, Mayor of Bora Bora
- **Jutta Urpilainen**, EU Commissioner for International Partnerships
- **Zhan Yongxin**, PECC Co-Chair, CNCPEC Chair