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COMMITTEE ON FISHERIES

Thirty-fourth Session

Rome, 1-5 February 2021

SUMMARY REPORT OF THE INTERNATIONAL SYMPOSIUM ON FISHERIES SUSTAINABILITY

Executive Summary

The International Symposium on Fisheries Sustainability: strengthening the science-policy nexus took place at FAO Headquarters, Rome, Italy, from 18-21 of November 2019. It gathered around 1,000 participants from different sectors, from around 100 countries.

The Symposium was held to address the need for a new vision for capture fisheries, outlining how the sector needs to transform in response to the complex and rapidly changing challenges facing society. It was structured in eight thematic sessions, in which a number of strategic questions were addressed. A total of 107 exceptionally diverse and gender balanced speakers and panelists from a wide range of regions and sectors, contributed to building this new vision through the discussions held in the different sessions.

The Symposium included an Innovation Forum, as well as a number of different side events, promoting sustainable fisheries and marine-derived products from different perspectives. It was an occasion to showcase best-practices and innovative blue growth approaches.

To improve the design of future events, increase participant engagement during the Symposium, and maximize outcomes, the attendees' priorities for fisheries sustainability, as well as their experiences during the symposium were assessed through a mixed-methods study. The quantitative and qualitative data of this study contributed to identifying lessons learned and helped identify widely supported messages shaping a shared vision for sustainable fisheries.

The outputs of the Symposium include a comprehensive booklet with background information, session description, contents and main challenges addressed by each session, prepared ahead of the meeting in coordination of the Advisory board members and the session leads; an article about the gender-mainstreaming work and discussions around women in fisheries from the Symposium in SPC Women in Fisheries bulletin; a dedicated section in the 2020 FAO State of World Fisheries and Aquaculture Report, with the main key messages of the sessions; a technical document, which acts as the proceedings for the meeting; a digital report; a working document highlighting main conclusions and messages of the Symposium for the consideration of the 34th FAO Committee on Fisheries (COFI), and this summary report as a COFI information paper.

*This document can be accessed using the Quick Response Code on this page;
an FAO initiative to minimize its environmental impact and promote greener communications.
Other documents can be consulted at www.fao.org*

I. Introduction

A. Symposium overview

1. Marine and Inland fisheries are crucial to meet the goal of a world without hunger and malnutrition. In 2018, the sector produced 179 million tonnes of fish for direct human consumption, a 7-fold increase from 1950, of which 97 million tonnes came from capture fisheries. As a result, a global record-high per capita consumption of 20.5 kg was reached in 2018. Moreover, fish is especially important for the nutrition of many Low Income Food Deficit Countries (LIFDCs) in Oceania, Asia and Africa. We have never relied on the sector as much as we do today.
2. However, capture fisheries is the only major food production industry that relies on the natural cycles of wild populations, and the impacts of a rapidly changing world on the sector are becoming more and more relevant. Among the many factors involved we note population growth, a degrading environment and a number of anthropogenic impacts, including climate change. As a result of these challenges, the fraction of marine fish stocks fished within biologically sustainable levels continues to decline, especially in least developed regions, and the percentage of stocks fished at biologically unsustainable levels increased from 10 percent in 1974 to 33.1 percent in 2015. In addition, knowledge of the sustainability status of inland fisheries, which are increasingly affected by the demand for fresh water, is limited.
3. The fisheries sector is at an important crossroad and needs transformation on the basis of a new vision for the 21st century – a vision that better reflects the way society perceives and uses capture fisheries in the context of the 2030 Agenda for Sustainable Development and the United Nations Decade of Ocean Science for Sustainable Development (2021-2030).

B. Objectives

4. The Symposium aimed to identify pathways to strengthen the science and policy interplay in fisheries production, management and trade, based on solid sustainability principles, for improved outcomes in practice. The debates, key messages and recommended actions that emerged from the Symposium were steppingstones for the development of a new vision for the sustainability of capture fisheries – both marine and inland - in the 21st century.
5. In addition, these key messages and recommended actions are expected to contribute to:
 - a) help develop and articulate a new vision for fisheries sustainability in the 21st century;
 - b) Promote strategies for synergistic and supportive actions and policies at multiple scales to support sustainable fisheries while meeting international commitments.
 - c) Reinforce commitments to the FAO Code of Conduct for Responsible Fisheries and its associated instruments, and lead to new FAO partnerships.
 - d) Assist countries as they debate and consider a new Sub-Committee on Fisheries at the 34th FAO Committee of Fisheries meeting.
 - e) Support the planning process of the UN Decade of Ocean Science for Sustainable Development (2021-2030) to join efforts, in moving towards an Ocean We Need for the Future We Want.
6. Moreover, the outcomes of the Symposium contributed to the development of the high-level policy Declaration on the role, value and sustainability status of global and regional fisheries in the 21st century. The Declaration has been drafted by the COFI Bureau and the FAO Secretariat and shared for input and feedback with FAO members after the symposium. It is expected to be open for endorsement during the 25th anniversary celebrations of the Code of Conduct for Responsible Fisheries, to take place during the 34th COFI meeting.

C. Partners

7. The Symposium was organized with the technical and economic support of FAO and the following partners:



D. Structure and contents

8. The International Symposium on Fisheries Sustainability was designed with the support of an International Advisory Board composed by 24 renowned experts and the expertise of nine dedicated FAO experts as session leads (Annex A). The event was structured around a series of plenary discussions on eight different themes. Each session had two keynote lectures, and two panels of five panelists each. In total there were 107 very diverse and gender balanced speakers and panelists from a wide range of regions and sectors (Annexes B and C). Keynote lecturers synthesized the state of knowledge and highlighted prominent topics in each panel. Panelists provided statements based on a set of leading questions. Attendees of the Symposium had the opportunity to answer similar questions in real time through an online polling system and to formulate other questions during the Q/A period. Session 9 summarized the main conclusions and key messages from the different sessions.

9. The sessions' themes were as follows:

- Session 1 The status of global and regional fisheries sustainability and its implications for policy and management
- Session 2 Sustainable fisheries: linking biodiversity conservation and food security
- Session 3 Fish in food security and nutrition: from tide to table
- Session 4 Securing sustainable fisheries livelihoods
- Session 5 The economics of fisheries
- Session 6 Fisheries management in the face of a changing climate
- Session 7 Fisheries information systems and new technologies
- Session 8 Policy opportunities for fisheries in the 21st century
- Session 9 Summary of the Sessions

10. In order to adaptively design Symposium events, learn from outcomes and outputs, and increase participant engagement, attendee experiences and priorities were assessed. Mixed methods research was implemented combining quantitative and qualitative techniques including online focus groups, pre- and post-Symposium surveys, and participant observation and semi-structured interviews conducted during the event. Methods were designed to understand who attended the Symposium, what their goals were for the event, how they assessed their experience, and what their priorities are for fisheries sustainability. Participatory methods were chosen in order to increase attendee engagement at the Symposium and to inform design of the week's events. Analysis methods to derive patterns included emergent and a priori coding, as well as statistical analysis of survey and demographic data.

II. Summary of the sessions

11. The symposium reiterated the call for broadening the scope of fisheries management that was already embedded in instruments such as the Code of Conduct for Responsible Fisheries and the ecosystem approach to fisheries. Efforts and financial resources need to be invested in supporting countries to improve their fisheries and aquaculture policies and management practices. Moreover, a set of recommendations emerged from the sessions' discussions, that will help improve the sustainability of capture fisheries and progress towards the different targets and objectives of the Sustainable Development Goals.

A. Session 1: The status of global and regional fisheries sustainability and their implications for policy and management

12. This session focused on the need to develop cost-efficient data gathering, user friendly assessment methodologies as well as tools for the integration of local knowledge and experts' judgement into stock assessments. The session highlighted the need to provide local people with appropriate training and support to perform data collection tasks and apply assessment methods, as the technical capacity is currently missing in large parts of the world, particularly in those where fisheries are not performing at optimal levels. It also noted the urgent need of strategies for scaling up capacity development in data-limited assessment and management approaches for technically-limited countries and regions. Moreover, long-term commitments from governments and funding agencies to sustain enduring engagement processes to build local capacity and foster communities of practice were deemed critical.



19 November 2019, Rome, Italy - Session 1 – The status of global and regional fisheries sustainability and their implications for policy and management. Panel 1.1. The state of the stocks at global and regional levels –where are we and where should we be heading? International Symposium on Fisheries Sustainability. FAO headquarters (Plenary Hall). ©FAO/Alessia Pierdomenico.

B. Session 2: Sustainable fisheries: linking biodiversity conservation and food security

13. Session 2 highlighted the need to integrate biodiversity objectives with fisheries management plans through well-established tools for monitoring and managing fisheries with holistic approaches to food security and conservation. Indicator-based approaches or simpler multispecies or network-based models were suggested for places with data poor fisheries. It was remarked that all of these approaches, as well as more quantitative ecosystem models, can also be enhanced by local, traditional and women knowledge. In addition, it was highlighted that the implementation of targeted joint food security and conservation objectives is possible, but the right policies and institutional frameworks need to be in place, together with strong diverse partnerships to support the achievement of these commitments.

C. Session 3: Fish in food security and nutrition: from tide to table

14. This session focused on the important role of fish and aquatic foods, and therefore fisheries management, in addressing the burden of hunger and malnutrition. The session highlighted that to ensure that fish reaches and continues to reach those who are most nutritionally vulnerable, more information is needed on trade-offs between dietary choices, consumer and cultural preferences, and there is a need for a multi-disciplinary approach across the fish value chain, towards ensuring that food losses are assessed and reduced. Furthermore, innovations in fish products are needed to meet the growing demand for food, while ensuring high nutritional quality and food safety.

D. Session 4: Securing sustainable fisheries livelihoods

15. Session 4 examined possible pathways to secure sustainable fisheries livelihoods, including with respect to their social, cultural and equity dimensions. The discussions emphasised approaches leading to equitable and sustainable fisheries livelihoods, particularly regarding inclusive fisheries governance and engagement with fishers and fish workers, both women and men. Small-scale fisheries have a key role in food security, nutrition and poverty eradication. In addition, the Session highlighted the role of innovation in improving livelihoods and in strengthening the environmental, economic and social aspects of fisheries sustainability, as well as the need to allocate resources for facilitating the participation of fishers and fish workers to take part in decision making.

E. Session 5: The economics of fisheries

16. This session examined the sector's economic and social contribution to the national economy. It was noted that economic evaluation of fisheries cannot ignore the importance of good governance to ensure that current returns do not compromise future gains, and that overcapacity and overfishing put stocks under pressure. Equally, a stable and transparent trading environment was deemed necessary to allow trade flows and provide positive externalities. Greater awareness of the role of fisheries in national economies was noted as contributing to assist policymakers in enacting effective and appropriate policies, enabling the sector to reach its long-term potential as a generator of sustainable economic and social benefits in addition to its direct contribution to food security in terms of sustainable harvests.

F. Session 6: Fisheries management in the face of a changing climate

17. Session 6 recalled that one of the adequate responses to climate change is the improvement of fisheries management through the implementation of cross-sectoral, holistic and precautionary approaches that attain robustness to variability, rather than stability. Other types of adaptation to varying productivity include diversification of fisheries practices and fish use. Transboundary management, adjustments in markets and consumption patterns are also relevant adaptation measures to shifts in fish distribution resulting from changing environmental conditions. The session highlighted that while local communities often show a strong capacity to adapt their fishing practices and livelihoods to changing conditions, more rapid changes in institutional arrangements are needed, as well as the development of sector-specific policies when these are missing.

G. Session 7: Fisheries information systems and new technologies

18. This session outlined the effectiveness of current data collection and fisheries information systems and the new and proven technologies that may be applied to improve marine and inland fisheries. A number of emergent and successful Information and Communication Technology (ITC) initiatives in the sector were discussed, including community-catch monitoring programmes, self-reporting and e-logbooks, and tracking for improved safety-at-sea. Many of these solutions aim at improving achieving traceability within supply chains to drive local or regional market access or facilitate digital payments or tracking progress within Fishery Improvement Projects (FIPs). In addition, the session noted the clear trend towards increasing the use of artificial intelligence everywhere, facilitating accessibility and use, but also supporting data sharing, collaboration and inclusiveness.

H. Session 8: Policy opportunities for fisheries in the twenty-first century

19. Session 8 focused on the policy opportunities for improving fisheries management in the 21st century. The new vision for fisheries management must take into account lessons learned from local and regional initiatives that involve multiple sectors and that properly incorporate the needs and values of small-scale fishers, stressing the continued importance of small-scale fisheries in developing countries, the role of climate change, and issues of transgenerational justice. Public support needs to be re-aligned with the objective of enabling the development of sustainable, inclusive, just and resilient fisheries as an important part of a strong and sustainable blue economy. It is particularly important, where relevant, to end cycles of unsustainable investment patterns and give the welfare of future generations more weight in our economic and moral decisions of today.



21 November 2019, Rome, Italy. Session 8 - Policy opportunities for Fisheries in the Twenty-first century. Panel 8.1. Beyond the Code of Conduct: policy opportunities for fisheries management in the twenty-first century. International Symposium on Fisheries Sustainability. FAO Headquarters (Plenary Room). ©FAO/Riccardo De Luca.

I. Session 9: Overall Symposium conclusions and overarching actions

20. While each session developed specific key messages, a number of emerging cross-cutting messages and recommendations on how to drive sustainability forward, to inform and to be taken into consideration by all stakeholders when relevant, were collectively made during the Symposium, and summarized in session 9:

- There is a strong need to integrate fisheries into broader planning and governance frameworks that bring multiple sectors together and facilitate the implementation of evidence-based assessment and management.
- The development of joint integrated biodiversity and food security objectives is required to ensure that aquatic foods can reach those that need it most now, and in the future, reducing undesirable impacts and food waste and addressing malnutrition and hunger.
- Capacity building, in particular aimed at data collection and analysis and improving countries' ability to better assess and monitor their fisheries, continue to be needed.
- Communication on fisheries issues needs to be largely improved. In particular, there is a need to change the narrative on fisheries, putting the emphasis on its uniqueness and importance as food production system, and leveraging it as vehicle to empower fisherfolk.
- Livelihoods, well-being and decent work must be considered more explicitly in fisheries management, including by increased stakeholder involvement and secured rights and access.
- Gender equality and equity with support to the younger generations must be improved. Proactive mechanisms for this include elevating the role of women in decision making; engagement of youth; focused capacity building actions; gender statistics; sex- and age- disaggregated data.
- Reducing and eliminating harmful practices that may lead to overcapacity, overfishing, and/or IUU fishing are important means for sustainability.
- Political will should be sought and capacity to improve implementation of existing policy frameworks should be strengthened. Policy innovations in the sector are required to address emerging challenges such as climate change, and the increasing demand of fish and fish products.

III. Fisheries Innovation Forum and side events

21. As part of FAO's International Symposium on Fisheries Sustainability, an [Innovation Forum related to fisheries](#) sustainability and marine-derived products was hosted. The display included ocean-sourced Blue fashion, the use of fish skin for medical uses, algae packaging, the creation of biodegradable plastics from fish waste, blockchain technology and drones utilizing artificial intelligence, among others, from around 20 different entities.

22. The Forum aimed to increase the understanding of how innovation is unlocking fisheries' contribution to achieving Agenda 2030, beyond solely SDG 14. For that purpose, [success stories](#) presented at the Forum illuminated key drivers that lead to successful cross-sectoral and cross-policy-and-science interface. Each partner's station and "story" demonstrated the impact that their innovations have made in people's lives, and how this has impacted the broader fisheries sector.

23. In addition, there were artwork displays from different artists that aim to promote ocean conservation through art. Fashion designer, Neishaa Gharat displayed a 'Whishing net' for visitors to express their wishes for the ocean on the display. Roman artist Publia Cruciani created an installation from beach debris called 'Ride the storm'. The award-winning photographer Carlo Gianferro exposed a [photographic exhibition portraying the life and work of small-scale fishers in the Mediterranean](#) (organized by WWF and FAO-GFCM).

24. The Innovation Forum offered an opportunity to all visitors to exchange knowledge and to network with partners and fellow participants directly involved in fisheries sustainability.

25. Moreover, there were a number of side events organized in collaboration of different entities.

- [Blue innovation – emerging technologies and trends in fisheries sustainability](#) (organized by FAO Fisheries and Aquaculture Department)

- [Innovative regional initiatives as an important vehicle to achieve sustainable marine living resources and the conservation of marine ecosystems](#) (organized by the FAO General Fisheries Commission for the Mediterranean – FAO - GFCM)
- Minderoo Foundation reception of (organized by Minderoo Foundation). Minderoo Foundation organized a lunch reception to welcome recipients of the inaugural Minderoo Foundation Bursary to the UN FAO's International Symposium on Fisheries Sustainability
- [Launch of the Blue paper 1 - The future of food production from the ocean](#) (organized by the High Level Panel for a Sustainable Ocean Economy)
- [Global Atlas of AIS-based Fishing Activity](#) (organized by FAO, Fundación AZTI - Tecnalia, Seychelles Fishing Authority and Global Fishing Watch)
- [Educating children on sustainable management of our marine resources and overall welfare of the sea](#) (organized by FAO, Ms Publia Cruciani and Saint George's British International School Rome)



18 November 2019, Rome, Italy - FAO FIAS Presentation of Smart Forms and Global Record of Stocks and Fisheries (GRSF). International Symposium on Fisheries Sustainability. FAO Headquarters. (Atrium). ©FAO/Riccardo De Luca.

IV. Symposium impact

26. The symposium attracted nearly 1,000 individuals from academia, the private sector, government, international organizations, civil society and non-governmental organizations. It also counted on the expertise of 107 exceptionally diverse and gender balanced [speakers and panelists](#) from a wide range of regions and sectors, that contributed to building this new vision through the discussions held in the different sessions. Together they provided a strong representation of all fishery stakeholders from around 100 countries, providing an invaluable source of knowledge and expertise upon which the outcomes of the Symposium rely on. The list of speaker and panelists as well as a regional and sectorial analysis of participants is available in Annexes B and C.

27. The [key messages and recommended actions](#) that emerged from the discussions are expected to improve the sustainability of the sector. Also, these messages have a direct impact in terms of

contribution to the contents of the high-level COFI Declaration for Sustainable Fisheries and Aquaculture.

28. The outcomes and outputs from the symposium are also expected to support targets and objectives set in different conventions and international agreements. In particular, the symposium addressed critical issues related to the following Sustainable Development Goals within the Agenda 2030 for Sustainable Development: SDG1 – No poverty, SDG2 – Zero hunger, SDG3 – Good health and well-being, SDG4 – Quality education, SDG5 – Gender equality, SDG8 – Decent work and economic growth, SDG9 – Industry, innovation and infrastructure, SDG10 – Reduced inequalities, SDG11 – Sustainable cities and communities, SDG12 – Responsible production and consumption, SDG13 – Climate action, SDG14 – Life below water, SDG15 – Life on land and SDG16 – Peace and justice.



29. Additional outputs of the Symposium include a comprehensive [website](#) with background information, session description and contents and main challenges addressed by each session, videos and the recordings of the sessions, and a number of documents: a [booklet](#), prepared ahead of the meeting in coordination of the Advisory board members and the session leads; an [article](#) about the gender-mainstreaming work and discussions around women in fisheries from the Symposium in SPC Women in Fisheries bulletin; a dedicated section in the [2020 FAO State of World Fisheries and Aquaculture Report](#) with the main key messages of the sessions; a technical document synthesizing the main recommendations of the Symposium discussions, which acts as the [proceedings](#) for the meeting; a digital report summarizing the outcomes of the event; and a working document and an information paper for the 34th FAO Committee of Fisheries summarizing the main results of the Symposium. A list of publications and documents produced is included in Annex D.

30. A selection of photographs from the Symposium and some of the events that took place in parallel is available in [flickr](#).

V. Lessons learned and elements of success

31. Through the Symposium learning initiative a number of lessons about the event itself useful for future activities were identified. In addition, the learning initiative also revealed the main messages that those surveyed believed came out of the Symposium. Below a summary of lessons learned and main messages:

- There was broad agreement of cross-cutting themes to guide fisheries sustainability. These included adaptive management; social support and livelihoods sustainability; gender and women's inclusion; science and policy communication; food and nutrition security; capacity development; participation of fishers and fish workers; participation of the value chain industry; and data-based decision making and information systems, among others.

- Survey results signal that data-based management and support for fisheries livelihoods were themes with particularly strong appeal to a broad group of attendees. Respondents highlighted these two issues above others in a series of survey questions relating to priorities in fisheries sustainability. Respondents envision adaptive management that responds to data variability, uses technology and capacity building to improve data uncertainty, and integrates local, traditional, and indigenous knowledge- including women's knowledge. They endorsed supporting fisheries livelihoods through co-management, fisher participation, gender equality efforts, and social support mechanisms.
- Attendees seek improvements in fisheries policy and implementation. They suggest that low political will can be improved through better communication of science and policy to the general public, fish-dependent people, and decision makers.
- Event design helped engage participants by focusing on the goals that drove attendance: Learning, networking, sharing experiences, and contributing to event outputs.
- Gender inequalities may have influenced the dynamics of the event; in light of this, facilitating opportunities for networking may reduce barriers to gender equality in fisheries science and policy, while simultaneously enhancing the experience of all attendees is suggested for future events.
- Attendees rated their experience highly, but felt interaction could be enhanced. To improve this, they suggested smaller panel groups and more time for Q/A and discussion, even though this would have reduced the sectorial and regional diversity and representativity of the panels.
- Some evidence suggested that participants found in-session Livepolling to be a helpful and engaging addition, but noted that this strategy will be more effective with improved design and accessibility. Moreover, the use of WhatsApp groups and online focus groups helped enhance engagement efforts, and should be considered in the design of future events.



21 November 2019, Rome, Italy - Maria Helena Semedo, Deputy Director-General, FAO Climate & Natural Resources. Closing ceremony session. International Symposium on Fisheries Sustainability. FAO headquarters (Plenary Hall). ©FAO/Alessia Pierdomenico.

Annex A. International Advisory Committee and Session leads

The following experts, in alphabetic order, are members of the International Advisory Committee and provided input to the technical and scientific contents of the different sessions of the Symposium in collaboration with the Session leads.

Name	Position and affiliation
Dr Vera Agostini	<i>Lead of Session 2. Chair Local Organizing Committee. Deputy Director, FAO Fisheries and Aquaculture Department. Italy</i>
Ms Molly Ahern	<i>Lead of Session 3. FAO Fisheries and Aquaculture Department, Italy</i>
Prof Manuel Barange	<i>Lead of Session 6. FAO Symposium Convenor. Director FAO Fisheries and Aquaculture Department, Italy</i>
Dr Claudia S. Beltran Turriago	<i>Fisheries value chain consultant, El Salvador</i>
Prof Anthony Charles	<i>School of the Environment & School of Business, Saint Mary's University, Canada</i>
Dr Sloans Kalumba Chimatiro	<i>Fisheries and aquaculture consultant, Malawi</i>
Prof Kevern Cochrane	<i>Department of Ichthyology and Fisheries Science, Rhodes University, South Africa</i>
Dr Guillermo Compean	<i>Inter-American Tropical Tuna Commission, United States of America</i>
Prof Christopher Costello	<i>Donald Bren School of Environmental Science and Management, University of California, Santa Barbara, United States of America</i>
Dr Lifeng Cui	<i>China National Fisheries Technology Extension Center, China Society of Fisheries, China</i>
Prof Charlotte de Fontaubert	<i>The World Bank, United States of America</i>
Ms Nicole Franz	<i>Lead of Session 4. FAO Fisheries and Aquaculture Department, Italy</i>
Prof Elizabeth Fulton	<i>Commonwealth Scientific and Industrial Research Organization, Australia</i>
Dr Nicolas Gutierrez	<i>Lead of Session 1. FAO Fisheries and Aquaculture Department, Italy</i>
Prof Ray Hilborn	<i>School of Aquatic and Fishery Sciences, University of Washington, United States of America</i>
Dr Amber Himes-Cornell	<i>Lead of Session 8. FAO Fisheries and Aquaculture Department, Italy</i>
Prof Simon Jennings	<i>International Council for the Exploration of the Sea, Denmark</i>
Dr Audun Lem	<i>Lead of Session 5. FAO Fisheries and Aquaculture Department, Italy</i>
Mr Tony Long	<i>Global Fishing Watch, United States of America</i>
Ms Editrudith Lukanga	<i>World Forum of Fish Harvesters & Fish Workers, Tanzania</i>
Dr Abigail Lynch	<i>U.S. Geological Survey's National Climate Adaptation Science Center, United States of America</i>

Name	Position and affiliation
Prof Bertrum H. MacDonald	<i>School of Information Management, Dalhousie University, Halifax, Canada</i>
Mr Alastair Macfarlane	<i>Ministry for Primary Industry, New Zealand</i>
Dr Sangeeta Mangubhai	<i>Wildlife Conservation Society, Fiji</i>
Dr Ana Parma	<i>Centro Nacional Patagónico (CONICET), Argentina</i>
Dr Ernesto Penas Lado	<i>International fisheries policy consultant, Spain</i>
Mr Marc Taconet	<i>Lead of Session 7. FAO Fisheries and Aquaculture Department, Italy</i>
Dr Shakuntala Thilsted	<i>WorldFish, Malaysia</i>
Dr Vivienne Solis	<i>CoopeSoliDAR R.L., Costa Rica</i>
Prof Rashid Sumaila	<i>Institute for the Oceans and Fisheries, University of British Columbia, Canada</i>
Prof Atsushi Sunami	<i>Ocean Policy Research Institute, The Sasakawa Peace Foundation, Japan</i>
Dr Meryl J. Williams	<i>Gender in Aquaculture and Fisheries Section, Asian Fisheries Society, Malaysia</i>
Dr Yimin Ye	<i>Lead of Session 1. FAO Fisheries and Aquaculture Department, Italy</i>

Annex B. Keynote speakers and panelists**Official Opening**

- Keynotes *Mr Dongyu Qu*, FAO Director-General, Italy
His Excellency Peter Thomson, UN Secretary-General's Special Envoy for the Oceans
The Right Honourable Michael Pintard, Minister for Agriculture and Marine Resources, Bahamas
His Excellency Harald Tom Nesvik, Minister of Fisheries and Seafood, Norway
His Excellency Ricardo Serrão Santos, Minister for the Sea of Portugal, Portugal
Her Excellency Mona Mehrez, Deputy Minister of Agriculture, Egypt
Ms Rebecca Jayne Argo, Fisherwoman, Alaska
- Video message *His Excellency Tijjani Muhammad Bande*, President of the UN General Assembly
- Opening keynote *Prof Manuel Barange*, Director, FAO Fisheries and Aquaculture Department, Italy
- Chair *Ms Yasmina Bouziane*, Director, FAO Office for Corporate Communication, Italy

Session 1 The status of global and regional fisheries sustainability and its implications for policy and management

- Keynotes *Mr Ray Hilborn*, University of Washington (UW), United States of America
Ms Ana M. Parma, National Patagonian Center (CENPAT - CONICET), Argentina
- Chair *Mr Ichiro Nomura*, Japan International Cooperation Agency (JICA), Indonesia
- Panelists *Mr David Agnew*, Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), Australia
Ms Graça Bauleth D'Almeida, Ministry of Fisheries and Marine Resources, Namibia
Mr Paul de Bruyn, Indian Ocean Tuna Commission (IOTC), Seychelles
Ms Patricia Macarena Cepeda, Industrial Fishing Association (ASIPES), Chile
Mr Steven J. Cooke, Carleton University (CU), Canada
Ms Maria del Carmen Fernández Llana, Spanish Institute of Oceanography (IEO), Spain
Ms Elizabeth Logerwell, National Oceanic and Atmospheric Administration (NOAA), United States of America
Mr Elayaperumal Vivekanandan, Bay of Bengal Programme International Organization (BOBP), India
Mr Duto Nugroho Suhardjo, Agency for Marine and Fisheries Research and Development, Indonesia
Ms Oluyemisi Oloruntuyi, Marine Stewardship Council (MSC), United Kingdom of Great Britain and Northern Ireland

Session 2 Sustainable fisheries: linking biodiversity conservation and food security

- Keynotes *Mr Christopher Costello*, University of California Santa Barbara (UCSB), United States of America
Ms Elizabeth Fulton, Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia
- Chair *Ms Renée Sauvé*, Directorate of Fisheries and Oceans (DFO), Canada
- Panelists *Mr Leandro Castello*, Virginia Tech University (VT), United States of America
Mr Rod M. Fujita, Environmental Defense Fund (EDF), United States of America
Mr Stefan Gelcich, Pontificia Universidad Católica, Chile
Mr Simon Jennings, International Council for the Exploration of the Sea (ICES), Denmark
Mr Michel Kaiser, Heriot-Watt University (HW), United Kingdom of Great Britain and Northern Ireland
Ms Sangeeta Mangubhai, Wildlife Conservation Society (WCS), Fiji
Ms Nyawira Muthiga, Wildlife Conservation Society (WCS), Kenya

Ms Yunne-Jai Shin, Institut de Recherche pour le Développement (IRD), France
Mr Nam So, Mekong River Commission (MRC), Cambodia
Ms Beverly Wade, Fisheries Department, Belize

Session 3 Fish in food security and nutrition: from tide to table

Keynotes *Mr Christopher Deweir Golden*, Harvard T.H. Chan School of Public Health (HSPH), United States of America

Ms Shakuntala Haraksingh Thilsted, WorldFish, Malaysia

Chair *Ms Fiorenza Micheli*, Stanford University, United States of America

Panelists *Mr Carlos Raúl Castillo Rojas*, Ministry of Production, Peru
Ms Boitshepo D. Giyose, African Union Development Agency (AUDA-NEPAD), South Africa

Mr Xianshi Jin, Yellow Sea Fisheries Research Institute (YSFRI), China

Mr Ahmed Khan, African Development Bank (AFDB), Ivory coast

Ms Joyce Kinabo, Sokoine University of Agriculture (SUA), Tanzania

Ms Mimako Kobayashi, World Bank (WB), United States of America

Ms Anna Lartey, Food and Agriculture Organization of the United Nations (FAO), Italy

Mr David Little, University of Stirling, United Kingdom of Great Britain and Northern Ireland

Mr Sveinn Margeirsson, International consultant, Iceland

Ms Friederike Ziegler, Research Institute of Sweden (RISE), Sweden

Session 4 Securing sustainable fisheries livelihoods

Keynotes *Ms Philippa Cohen*, WorldFish, Malaysia

Mr Mitchell Lay, Caribbean Network of Fisherfolk Organisations (CNFO) and Gulf and Caribbean Fisheries Institute (GCFI), Belize

Chair *Ms Ratana Chuenpagdee*, Memorial University (MUN), Canada

Panelists *Mr Edward Allison*, University of Washington (UW), United States of America

Mr Xavier Basurto, Duke University, United States of America

Mr Anthony Charles, Saint Mary's University (SMU), Canada

Ms Courtney Cox, Rare, United States of America

Mr Naseegh Jaffer, World Forum of Fisher Peoples (WFFP) and IPC Fisheries Working Group, South Africa

Ms Unni Kløvstad, Ministry of Foreign Affairs, Norway

Ms Editrudith Lukanga, World Forum of Fish Harvesters and Fish Workers (WFF) and IPC Fisheries Working Group, Tanzania

Mr Sebastian Mathew, International Collective in Support of Fishworkers (ICSF), India

Ms Kumi Soejima, National Fisheries University, Japan

Ms Vivienne Solis Rivera, CoopeSoliDar R.L, Costa Rica

Session 5 The economics of fisheries

Keynotes *Ms Claudia Beltrán*, International consultant, El Salvador

Mr Carl Christian Schmidt, Nordic Marine Think Tank, Denmark

Chairs *Mr Rashid Sumaila*, University of British Columbia (UBC), Canada

Mr Zhengyong Yang, Shanghai Ocean University, China

Panelists *Mr Mario Aguilar*, Grocio Enfoques Oceanicos, Mexico

Mr Frank Asche, University of Florida (UFL), United States of America

Ms Elisa Calvo, International consultant, Argentina

Mr Griffin Carpenter, New Economics Foundation (NEF), United Kingdom of Great Britain and Northern Ireland

Ms Jingjie Chu, World Bank (WB), United States of America

Mr Francisco Javier Garat Perez, International Coalition of Fisheries Associations (ICFA) and Spanish Fishing Confederation (CEPESCA), Spain

Ms Marie Christine Monfort, International Organization for Women in the Seafood Industry (WSI), France

Ms Katrina Nakamura, The Sustainability Incubator, United States of America

Ms Ruangrai Tokrisna, Kasetsart University (KU), Thailand

Mr Nobuyuki Yagi, University of Tokyo, Japan

Session 6 Fisheries management in the face of a changing climate

Keynotes *Mr Steven Gaines*, Bren School of Environmental Science & Management, University of California, Santa Barbara, California, United States of America

Ms Éva Plagányi, CSIRO Oceans & Atmosphere, Australia

Chair *Ms Hazel Oxenford*, University of West Indies (UWI), Barbados

Panelists *Mr Miguel Bernal*, General Fisheries Commission for the Mediterranean (GFCM-FAO), Italy

Mr Merrick Burden, Environmental Defense Fund (EDF), United States of America

Ms Kirstin Holsman, National Oceanic and Atmospheric Administration (NOAA), United States of America

Ms Abigail Lynch, United States Geological Survey (USGS), United States of America

Ms Flower Msuya, Zanzibar Seaweed Cluster Initiative (ZaSCI), Tanzania

Mr Ernesto Penas Lado, International fisheries policy consultant, Spain

Mr John Pinnegar, Centre for Environment, Fisheries & Aquaculture Science (CEFAS), United Kingdom of Great Britain and Northern Ireland

Mr Shyam S. Salim, Central Marine Fisheries Research Institute (ICAR), India

Mr Andrew Smith, Secretariat of the Pacific Community (SPC), New Caledonia

Mr Carl van der Lingen, Department of Agriculture, Forestry and Fisheries, South Africa

Session 7 Fisheries information systems and new technologies

Keynotes *Ms Donatella Castelli*, CRN-ISTI, Italy

Mr Serge Raemaekers, Abalobi, South Africa.

Chair *Mr Francisco Werner*, National Oceanic and Atmospheric Administration (NOAA), United States of America

Panelists *Mr Douglas Beard*, United States Geological Survey (USGS), United States of America

Mr Emmanuel Chassot, Seychelles Fishing Authority, Seychelles

Mr Alfred Lee Cook, World Wide Fund for Nature (WWF), New Zealand

Mr Lifeng Cui, China National Fisheries Technology Extension Center and China Society of Fisheries, China

Ms Sara Iverson, Ocean Tracking Network (OTN), Canada

Mr Anthony Long, Global Fishing Watch, United Kingdom of Great Britain and Northern Ireland

Ms Jeannette Mateo Perez, Fisheries Resources at the Dominican Council for Fisheries and Aquaculture (CODOPESCA), Dominican Republic

Mr Nyoman Radiarta, Institute for Marine Research and Observation (IMRO), Indonesia

Ms Suzuette Soomai, Department of Fisheries and Oceans Canada (DFO), Canada

Ms Lida Teneva, California Ocean Science Trust, United States of America

Session 8 Policy opportunities for Fisheries in the Twenty-first century

Keynotes *Mr John Kurien*, Azim Premji University, India

Ms Lori Ridgeway, International consultant, Canada

Chair	<i>Mr Atsushi Sunami</i> , Ocean Policy Research Institute, Sasakawa Peace Foundation (OPRI – SPF), Japan
Panelists	<i>Ms Samantha Burgess</i> , World Wide Fund for Nature (WWF), Belgium <i>Mr Michael Copeland</i> , Lucky Star Operations, Oceana Group Ltd, South Africa <i>Ms Claire Delpeuch</i> , Organization for Economic Co-operation and Development (OECD), France <i>Mr Hamady Diop</i> , African Union Development Agency (AUDA-NEPAD), South Africa <i>Mr Sergey Leontiev</i> , Russian Federal Research Institute of Fisheries and Oceanography (VNIRO), Russia <i>Ms Pamela Mace</i> , Ministry for Primary Industries, New Zealand <i>Mr Patrick McConney</i> , University of West Indies (UWI), Barbados <i>Mr Yi Tang</i> , Shanghai Ocean University (SHOU), China <i>Ms Veronika Veits</i> , Directorate-General for Maritime Affairs and Fisheries of the European Commission, Belgium <i>Ms Sally Yozell</i> , Stimson Center, United States of America
Session 9	Summary of the sessions
Keynotes	<i>Ms Vera N. Agostini</i> , Deputy Director, FAO Fisheries and Aquaculture Department, Italy <i>Ms Maria Helena Semedo</i> , Deputy Director-General, FAO Climate & Natural Resources, Italy <i>Mr Sidy Mouctar Dicko</i> , Chair of the Committee on Fisheries (COFI), Guinea <i>His Excellency Thanawat Tiensin</i> , Permanent Representative of the Kingdom of Thailand to FAO, IFAD & WFP and Chair of the Committee on World Food Security (CSF), Thailand <i>Mr Árni Matthias Mathiesen</i> , Assistant Director General, FAO Fisheries and Aquaculture Department, Italy
Chair	<i>Prof Manuel Barange</i> , Director, FAO Fisheries and Aquaculture Department, Italy

Annex C. Regional and sectorial analysis of symposium participants

From the 1000 attendees of the Symposium, 688 of them registered online and 107 were speakers during the event. As Figure 1 and Table 1 indicate, the event achieved an unusual degree of gender parity, particularly amongst speakers, as well as a wide distribution of sectoral participation. Though European attendees were a disproportionately large demographic- likely due to proximity and ease of travel- this disparity was well compensated for in the regional distribution of invited speakers (Table 2).

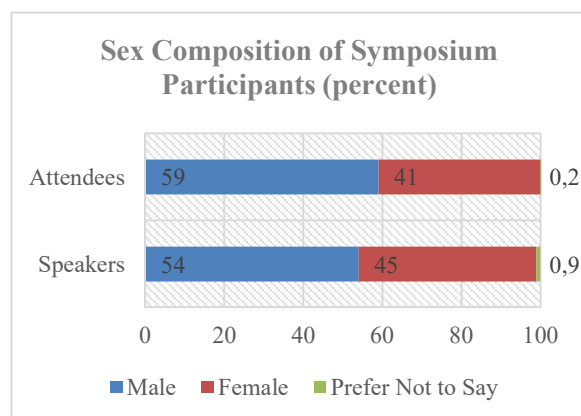


Figure 1. Sex disaggregation of Symposium speakers and attendees

Sector	Attendees (percent)	Speakers (percent)
Academia	26	28
CSO/NGO Representatives	26	20
Research Institution (non-Academic)	14	17
Fisheries Sector	14	9
National Government and Intergovernmental Employees	6	9
Development Agencies	2	6
Private Sector	6	5
UN Agencies and Bodies	3	4
Regional Economic Bodies	1	1
Other	1	0

Table 1. Sectoral representation of speakers and attendees

FAO Region	Attendees (percent)	Speakers (percent)
Europe & Central Asia	50	22
North America	12	28
Asia & the Pacific	15	25
Africa	12	13
Latin America & The Caribbean	8	12
Near East & North Africa	3	0

Table 2. Regional representation of Symposium attendees and speakers, respectively.

Demographic analysis, paired with data gathered in surveys, revealed important ways in which gender inequalities may have influenced the dynamics of the event. Women, though better represented amongst speakers than in previous fisheries conferences, were still underrepresented both on stage and in the audience. Female attendees were also notably younger than their male counterparts, with 55 percent of female participants under the age of 40 while only 30 percent of male attendees fell in this age group. The relative youth of female participants is particularly relevant when taking into account the importance of professional networks: 60 percent of women reported knowing only 0-5 fellow attendees. In fact, chi-square tests of independence showed that both women and under-40 attendees were statistically more likely to have small networks at the event. This makes sense for younger professionals who have had less time to build professional networks in their career, but it represents troubling implications for women in fisheries science and policy. This evidence suggests that small professional networks and lower social capital may be one mechanism of continued gender inequality in fisheries science and policy, particularly for women in the first decades of their career.

Annex D. Publications and documents produced

- Website of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus: <http://www.fao.org/about/meetings/sustainable-fisheries-symposium/en/>
- FAO. 2019. [Booklet of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus, 18-21 November 2019](#). Rome, Italy.
- FAO. 2020a. [Proceedings of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus, 18-21 November 2019](#). Rome, Italy (also available at <https://doi.org/10.4060/ca9165en>)
- FAO. 2020b. Towards a new vision for capture fisheries in the twenty-first century, In: [The State of World Fisheries and Aquaculture 2020: Sustainability in action](#). Rome, Italy (also available at <https://doi.org/10.4060/ca9229en>)
- FAO.2020c. Digital report of the Symposium. Sustaining our oceans: strengthening the science policy nexus (forthcoming).
- An information paper for the 34th FAO Committee of Fisheries summarizing the main results of the Symposium and a technical document synthesizing the main recommendations of the Symposium discussions, which acts as the proceedings for the meeting. COFI 34. Rome, Italy
- Misk, R., Gee, J., Agostini, V. and Fernandez Reguera, D. 2020. [Recognising the role of women in fisheries: A priority for fisheries sustainability in the 21st century](#). SPC Women in Fisheries Information Bulletin 31. March 2020.