

FAO International Symposium on *Fisheries Sustainability: Strengthening the Science-Policy Nexus*

19-21 November 2019

(21 November is World Fisheries Day)

BACKGROUND:

Marine and inland fisheries today are at an important cross-road. On the one hand they make a crucial and growing contribution to food, nutrition and livelihood security, as reflected, for example, in the statistic that 22 out of the 30 top fish consuming nations are Low Income Food Deficit (LIFD) countries. On the other hand, despite significant successes the proportion of marine fish stocks fished within biologically sustainable levels continues to decline, especially in least developed regions, while inland fisheries are profoundly affected by the growing demand for fresh water. In addition, the impacts of a rapidly changing world on the fisheries sector are becoming more and more relevant as we move towards the middle of the century. Among the many factors involved are the following:

- The world population will reach 9.5b by 2050, with the African continent growing by more than a billion people compared to today;
- Accompanying this, there is a significant shift of population to coastal areas, with consequent land-based environmental impacts on coastal fisheries, e.g. from increasing agricultural run-off, urbanization, etc..;
- Economic development will continue to drive increase in consumption of animal proteins, with annual fish consumption predicted to exceed 25kg per capita by 2025, over 20% higher than today;
- Climate change may force coastal communities and businesses to shift their geographical centres, following resource displacements, potentially leading to conflict between users;
- Biodiversity conservation paradigms are challenging conceptions of what we expect from natural systems, with consequences for capture fisheries, the only major food production industry that relies on sustainably exploiting wild populations;
- Finally, innovative technologies are making traceability of goods, from source to plate, more available across the value chain. This will have consequences for how business, regulators, stakeholders and the public make daily decisions.

The fisheries sector needs to develop a new vision for capture fisheries in the 21st century, in the context of the 2030 Agenda for Sustainable Development – a vision that better reflects the way society perceives and uses capture fisheries. What do we expect from the fisheries sector in this changing environment? How do we reconcile inclusive socio-economic development, consumer and value-chain demands with the need to sustain resources and conserve ecosystems and biodiversity? How do we support evidence-based decision making in both developed and developing countries, when the volume of information may exceed our capacity to validate it?

OBJECTIVES AND EXPECTED OUTCOMES

Objective: The objective of the symposium will be 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. Ultimately, the debates and conclusions of the symposium will prepare the way for the development of a new vision for capture fisheries, outlining how the sector can respond to the complex and rapidly changing challenges facing society.

The Symposium will be structured to discussing a number of strategic and sequential questions:

- a) How do we **measure and monitor fisheries sustainability**, and what is the status of global and regional fishery resources?
- b) What are the **challenges to the ecological, economic and social sustainability** of fisheries?
- c) How do we **align biodiversity conservation and fisheries objectives** and trade-offs, to support sustainable development? What kind of new partnerships will this require?
- d) What **successes, failures, and novel governance mechanisms** have emerged that could help countries, regional bodies and local communities overcome the challenges. What are the opportunities and challenges that innovation and blue growth bring to sustainable fisheries?
- e) **What constitutes evidence**, in a world where information is plentiful but is often not validated, and how do we ensure an evidence basis for decision-making, drawing on evidence from a diversity of sources?
- f) How do we effectively **communicate fisheries challenges and opportunities** in a rapidly changing world and broaden traditional partnerships to support sustainable fisheries?
- g) And finally, **what does society expect from marine and inland capture fisheries** in the 21st century, what compromises and trade-offs are we prepared to accept, and how do we find the appropriate balance?

Expected Outputs and Outcomes:

The main output of the symposium will be a technical document addressing the questions described above. This document, the result of synthesizing the information and debate in each of the symposium sessions, will be prepared by the FAO Secretariat and tabled at COFI 34. It will include statistical information on sustainability status, examples of best management and partnership practices, and recommendations on how to better connect evidence and policy to secure fisheries sustainability in the 21st century.

It is expected that the Symposium's technical conclusions will inform and contribute to a high-level policy statement on the role, value and sustainability status of global and regional fisheries in the 21st century. This statement will be drafted by the FAO Secretariat and shared for input and feedback with FAO members after the symposium (through the COFI Bureau). It may 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 in July 2020.

These documents will:

- 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 COFI Sub-Committee on Fisheries at COFI 34.

WHO SHOULD ATTEND? This Symposium will be technical in nature and relevant to:

- Leaders and practitioners of technical organizations, both state and non-state;
- Members of the Research and Academic communities, both from the natural and the social sciences;
- Fisheries, conservation and sustainability experts from the fisheries and other connected sectors;
- Business and Private sector representatives;
- Representatives from Government, Non-governmental and Inter-governmental organizations;
- Global, regional national and local organizations, including indigenous groups,
- Other interested parties.

The symposium is free and open to all, but subject to an application process to ensure we do not exceed the size of the venue (500 delegates), while safeguarding diversity and complementarity from all the constituencies listed above.

TENTATIVE PROGRAMME AND STRUCTURE: The Symposium, tentatively scheduled over three days at FAO HQ, will be structured around a series of plenary discussions of approximately 3 h each.

Sessions 1-8 will consist of two keynote lectures (30' with 15' Q&A), plus two panels of 5 panelists (5' statements plus 20' moderated Q&A). Session 9 will consist on reporting from the Session's rapporteurs on conclusions and messages.

PROPOSED SESSIONS (Full descriptions are available on the symposium webpage)

Day 1

Session 1 – The status of global and regional fisheries sustainability

Fisheries sustainability is critical for marine ecosystems and to communities dependent on fish and fisheries. Although no universal definition exists, there is a general concordance that sustainability is about meeting the needs of the present without compromising the ability of future generations to meet their own. In the context of fisheries, these needs include a complex array of objectives, such as food provision, employment opportunities,



income and nutrition requirements, as well as a wide range of social aspects. Given this complexity, fisheries sustainability needs to be translated into practical measures to facilitate implementation of effective policies. In turn, this multiplicity of indicators requires substantial influx of data and information, not always available, particularly in developing countries. From a biological point of view, monitoring the abundance of fish stocks and the intensity of the fishing pressure are commonly used approaches for assessing resource sustainability. Within the Agenda 2030, the Sustainable Development Goal 14 and its indicator 14.4.1 “proportion of fish stocks within biological sustainable level” seeks to monitor progress of individual countries in managing their fisheries sustainably. This indicator is in line with the concept of MSY, therefore relatively easy to interpret, allowing consistency and comparability within and across countries, and providing an analytically sound measure of fishery overexploitation. Despite these relative advantages, assessing the state of the stocks with respect to sustainable levels requires substantial information and technical expertise to derive the reference values. The challenges thus rest in the capacity of countries to collect, curate, and analyse fisheries data, as well as the development and implementation of data-limited approaches to inform stock status, as a measure of biological sustainability.

This session will use existing sustainability definitions to evaluate the status of global and regional fisheries from an ecological biological sustainability perspective. It will include discussions on issues that affect sustainability, including illegal fishing, and how to link current sustainability metrics with SDG14 national reporting processes.

Advisory Board oversight: Prof Ray Hilborn, USA, Dr Ana Parma, Argentina; Prof Kevern Cochrane, South Africa

FAO Executive oversight: Dr Yimin Ye and Dr Nicolas Gutierrez

Session 2 – Reconciling Fisheries and Conservation Management Objectives

Diversity and the complex interconnections between species and populations, their functions and the environment, underpin the ecosystem services upon which our growing population depends upon. A number of recent international policy fora (e.g. Convention on Biological Diversity Aichi targets, the Sustainable Development goals, the UN Oceans meetings, etc.) call for biodiversity (intended as being inclusive of diversity of species, ecosystem structure and function) being a key element of sustainable use. Despite the number of tools at our disposal (e.g. the Ecosystem Approach to fisheries) there is often still a perception that conflicting objectives exist and cannot be reconciled. How do we ensure we are able to meet the nutritional needs of a growing population while at the same time ensuring our marine ecosystems are able to support food production into the future?

This session will outline how the maintenance of biodiversity relates to fisheries sustainability and explore the changing nature of fisheries management within this context. We will provide examples of combining multiple objectives, developing frameworks to analyze trade-offs and risks, establishing diverse and effective partnerships. Finally, we will discuss challenges, opportunities and trade-offs for effective reconciliation of fisheries and conservation management objectives.

Advisory Board oversight: Prof. Chris Costello, USA; Prof Beth Fulton, Australia; Dr Sangeeta Mangubhai, Fiji; Dr Lifeng Cui, China

FAO Executive oversight: Dr Vera Agostini

Session 3 – Fisheries and Food Security¹

¹ Although the symposium is explicitly focused on capture fisheries, aquaculture is implicitly included when discussing fish and food security, livelihoods, trade, etc.

Fisheries has an increasingly important role to play in the fight against hunger. People have never consumed as much fish as they do today, with per capita global fish consumption having doubled since the 1960s. Fish provides more than 20% of the average per capita animal protein intake for 3 billion people, and is especially critical for rural populations, which often have less diverse diets and lower (and more volatile) food security. Yet, fish is strikingly missing from strategies for reducing micronutrient deficiency, precisely where it could potentially have the largest impact (Allison et al., 2013). While the sector's untapped potential is now being recognized and is attracting global interest, it is still a challenge to incorporate fish into the food security and nutrition agenda (and vice versa). In a world where an estimated 821 million people – approximately one out of every nine people in the world – are undernourished, and in desperate need of high-quality animal-source foods, it remains unclear how fish fit into recommended dietary changes, as we contend with worsening environmental effects caused by and affecting the global food system.

This session will unfold the possible roles of fish in regional food systems, and how to contend with a highly nutritious (yet underutilized) food for vulnerable people with ever-narrowing diet and resource access. It will highlight examples of effective partnerships at country and community level, and the pathway to mainstreaming fish in food and nutrition policy for countries and international food systems platforms.

Advisory Board oversight: Dr Shakuntala Thingsted, Cambodia; Dr Sloans Chimatiro, Zambia;

FAO Executive oversight: Ms Elizabeth Graham

Day 2

Session 4 – Fisheries and Livelihoods

It is estimated that in 2016 40.3 million people were engaged, full-time, part-time or occasionally, in primary capture fisheries production. Previous estimates assessed that if secondary employment is also considered, 120 million full-time and part-time workers are directly dependent on commercial capture fisheries value chains for their livelihoods, with 97% of these people living in developing countries. Among them, more than 90% work in the small-scale fisheries subsector, with 47% of the total workforce being women. Despite this impressive livelihood function, small-scale fisheries are too frequently marginalized in political processes and not given due attention in policy. Addressing this becomes imperative to enable the full contribution of the sector to sustainable development. The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) provide the globally agreed reference framework for this.

In this session we will share methods and more detailed estimates of dependency on inland and marine fisheries to support the implementation of the SSF Guidelines and related instruments, and address fundamental issues such as tenure and access rights, value chain development, inclusiveness (gender, youth, indigenous people), social development and governance.

Advisory Board oversight: Prof Tony Charles, Canada; Dr Vivienne Solis, Costa Rica; Dr Meryl, J. Williams, Australia; Dr Editrudith Lukanga, Tanzania

FAO Executive oversight: Ms Nicole Franz

Session 5 – The economics of fisheries

Although fish is one of the most internationally traded commodities, it is only rarely given the attention its direct and indirect economic impact would imply, especially in market states where its role in food imports, provision of



foreign exchange to the economy, processing and distribution can be substantial. Likewise, in discussions on fisheries management, the focus is most frequently on the state of stocks and not on the large unrealized economic potential that could accrue to coastal states through more effective fisheries management policies, lower effort and capacity, reduced subsidies and more effective measures against IUU fishing. Likewise, although already 1/3 of production enters international trade, the projected increase in world demand for fish and fishery products from world consumers, will present enormous opportunities for producers and exporters as well as importers, transformers and distributors in the market states. This foresees, however, a stable future trade regime with access of producing countries to regional and international markets and the ability to adhere to regulatory requirements in terms of food safety, accurate labelling as well as market requirements on environmental and social issues.

This session will focus on the potential of increased economic contributions from the world's fisheries resources, both through improved fisheries management policies, through better market access for producers and exporters and more effective value- and supply-chain management in general.

Advisory Board oversight: Prof Rashid Sumaila, Canada; Dr Claudia Beltran, El Salvador; Dr Alistair McFarlane, New Zealand

FAO Executive oversight: Dr Audun Lem

Session 6 – Fisheries Management in the face of uncertainty and changing climate

Fisheries is the only major food production industry that relies on sustainably exploiting wild populations. In seas, rivers and lakes, species targeted by fishing are part of complex physical, biological and ecological interactions, often not observed or not well understood, leading to significant uncertainties. Fisheries management aims to achieve acceptable trade-offs between conservation and sustainable utilization, acknowledging and taking account of these uncertainties. The increasingly dominant signal of climate change in all natural ecosystems adds an additional challenge to the development of robust management strategies. This is because fisheries management has been constructed under the premise that population biomass fluctuates in some way around a mean, where the biggest challenge is to synchronize these natural fluctuations with management action, separating the effects of natural fluctuations from the effects of fishing. In the era of climate change some signals (temperature, acidification, oxygenation) and processes (coastal upwelling, stratification) may become strongly unidirectional. If species productivity, distribution or seasonality change in a known direction (albeit not in a known quantity), fisheries management may need to pro-actively take into account these trends. Examples may range from adjusting management reference points to the development of new co-management arrangements to deal with new transboundary stocks, or consideration of shifts from species-based to assemblage-based output controls.

The objective of this session is to review the evidence for impacts of climate change in particular, and the development of adaptive responses to address expected but uncertain outcomes. Specific examples of good practice, and of how to adjust strategies to meet multiple objectives, will be sought.

Advisory Board oversight: Prof Kevern Cochrane, South Africa; Prof. Simon Jennings, Denmark; Dr Abigail Lynch, USA;

FAO Executive oversight: Dr Manuel Barange

Day 3

Session 7 – Fisheries information systems and new technologies

Fisheries Information Systems are integrated applications and processes that support fisheries authorities in achieving their sustainability objectives. These systems are varied and include information of fishing fleets and



effort, national statistical systems along the value chain including those from outside fisheries authorities, e.g., labour, fisheries-independent data, and many others. As our global environment evolves the demand for data also evolves. Increased attention is being placed on the opportunities that close-to-real-time monitoring systems can provide, but also the role of emerging disruptive technologies along the value chain. For example, Vessel Monitoring Systems are used in commercial fishing to give agencies the ability to track and monitor activities as part of MCS systems. Blockchain technology is being trialled to improve transparency and traceability, holding potential for improving market access. However, making use of these new technologies in support to fisheries management and policy making faces many bottlenecks: how well they reflect each sub-sectors and in particular small-scale, subsistence and recreational fisheries; how can new and existing technologies be used to capture data in data-poor areas, e.g., sex-disaggregated data; what support national institutions need to maintain and develop existing systems, and to handle the multiplication of reporting requirements; how do countries deal with confidentiality rules and the resistance to transparency in some quarters, etc. The advent of new Information Technologies capable of capturing data directly from beaches as well as from space and from gear sensors, demands integrated and complex data flows, and opens opportunities for research and policy alike.

This session will explore how these new technologies, in addition to more traditional ones, have the capacity to change the way we generate, interpret and communicate fisheries sustainability issues. It will also review to which extent these can be scaled up to alleviate bottlenecks and be used more effectively to inform management and policy making. It will strive to draw directions as to what major actions are necessary, who are the concerned actors, and at what levels these should take place.

Advisory Board oversight: Dr Gillermo Compean, IATTC, USA; Mr Tony Long, GFW, UK; Betrum MacDonald, Canada
FAO Executive oversight: Mr Marc Taconet

Session 8 – Policy opportunities for Fisheries in the 21st century

Emerging from the UN Convention of the Law of the Sea (1982), the FAO Compliance Agreement (1993), the UN Fish Stocks Agreement (1995), the FAO Code of Conduct for Responsible Fisheries (1995), and their associated instruments, countries have been developing or reforming their fisheries management systems in recent decades. Most national fisheries management policies focus on balancing conservation and sustainable utilization, including rebuilding policies, with a particular emphasis on ecological rather than social or economic sustainability. However, the outcomes of these policies have been varied, due to a number of reasons, from questionable applicability to the full range of fisheries; incomplete implementation to insufficient political support. What can we learn from successes and how can we best correct failures? Where are the policy gaps in the main agreements, e.g., gender, human capacity development, even taking into account that some other UN agencies, such as ILO, have also promulgated significant fisheries conventions and policies? Most fisheries policies are built on the assumption that the resource base is relatively stable, fluctuating in response to environmental variability and particularly fishing mortality. As we progress towards the era of climate change this expectation of relative stability may no longer apply, requiring a new look at the balance of conservation and sustainability objectives while dealing with unidirectional trends. How do we best manage resources under this additional uncertainty? Finally, the growing attention to Ocean issues in national and international fora is raising additional questions in the context of policy needs for the 21st century: How does future fisheries management balance livelihoods, food security and conservation needs? How do we balance fisheries management with the needs of other competing blue economy sectors? What are the trade-offs that society is prepared to take to balance these objectives?

This session will explore how the future of fisheries management may look, and in particular explore both novel approaches and new opportunities that may not have yet been realized.



Advisory Board oversight: Dr Charlotte de Fontaubert, World Bank; Prof Beth Fulton, Australia; Dr Simon Jennings, Denmark; Dr Ernesto Penas-Lado, Spain; Prof Tony Charles, Canada;
FAO Executive oversight: Dr Rebecca Metzner

Session 9 – **Summary of sessions**

Provided by Rapporteurs of the sessions

More information and updates are available in the symposium webpage, <http://www.fao.org/about/meetings/sustainable-fisheries-symposium/en/>, which will be updated regularly.

For further information and inputs, please contact:

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