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# COMMITTEE ON FISHERIES

## Thirty-fifth Session

5–9 September 2022

### STATE OF THE WORLD FISHERIES AND AQUACULTURE: INFLUENCING ACTION FOR SUSTAINABLE FISHERIES AND AQUACULTURE

#### Executive Summary

This document provides a summary of the 2022 edition of the biennial flagship publication The State of World Fisheries and Aquaculture (SOFIA).. It reviews the role of SOFIA within the global framework as defined by the adoption of the 2030 Agenda for Sustainable Development; in supporting the work of decision-makers in general and that of FAO in particular, and draws attention to some specific messages in SOFIA 2022 concerning the current status, recent trends and prospects in the fisheries and aquaculture sector.

#### Suggested action by the Committee

##### The Committee is invited to:

- underline the importance of FAO's role in reporting on the state of world fisheries and aquaculture, and advise on how COFI can best contribute to this and benefit from it;
- underline the relevance of SOFIA and advise on its role in the framework of the 2030 Agenda for Sustainable Development and how the publication can be improved.

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## I. INTRODUCTION

1. The State of World Fisheries and Aquaculture (SOFIA) publication is usually produced and launched at COFI shortly before the Session. Recognizing the relevance of the subject of the state of world fisheries and aquaculture to the work of COFI, it was decided for the Thirtieth Session of COFI in 2012 to include a dedicated item in the Agenda. SOFIA is intended to facilitate a comprehensive, objective and global view of the fisheries and aquaculture sectors, particularly of emerging issues. SOFIA 2022 is the fifteenth edition in the biennial series, which started in 1994. SOFIA 2022 was launched on 29 June 2022 at a high-level event, opened by the FAO Director-General, during the UN Ocean Conference in Lisbon, the first time ever an edition of SOFIA was unveiled at a public event.
2. With the adoption of the 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (SDGs) in 2015, the 2022 edition of SOFIA presents how the international agenda, further bolstered by the UN Decade of Action to deliver the Global Goals is being integrated and supported through Blue Transformation, a priority area of FAO's new Strategic Framework 2022-2031 and focus of SOFIA 2022, to accelerate achievement of the 2030 Agenda for Sustainable Development in food and agriculture.
3. The purpose of the present document is to: (i) consider the role of SOFIA in supporting the work of decision-makers in general and that of FAO in particular within the global framework set by the 2030 Agenda; and (ii) present key information in SOFIA 2022 concerning the current status, recent trends and prospects in the fisheries and aquaculture sector.

## II. ROLE AND INFLUENCE OF SOFIA PUBLICATION

4. Since the Thirtieth Session of COFI the relevance, quality and influence effectiveness of SOFIA publications at the science-policy interface were reported and confirmed both by the Committee and through specific studies<sup>1</sup>, user survey<sup>2</sup> and evaluations conducted by FAO<sup>3</sup>, and described in a publication<sup>4</sup>. Indicators have pointed to a clear and growing interest in SOFIA as measured by media and citation analysis as well as web traffic.
5. These all confirm that the World Review (Part 1) is still attracting the most attention, mainly regarding the global trends produced from FAO's data and statistics, the status of fishery resources and questions related to trade. Strong interest is also mentioned on certain topics analysed in Part 2 such as the fight against illegal, unreported and unregulated (IUU) fishing. The overall view is that SOFIA is technically sound, accurate and credible and that it is very useful in complementing other resources.
6. SOFIA is increasingly quoted in workshops, meetings, and scientific papers, as well as by international partner organizations. According to the Web of Science Core Collection, with 1 911 citations in scientific publications (other than FAO papers) during first 22 months after launch, SOFIA 2020 was cited nearly 3 times more than SOFIA 2016 (660) and twice more than SOFIA 2018 (1 045).

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<sup>1</sup> in-depth analysis on the impact of SOFIA, in partnership with Dalhousie University of Halifax Nova Scotia, as part of a project under the 'Environmental Information: Use and Influence' initiative.

<sup>2</sup> User survey on SOFIA 2018 conducted through an on-line questionnaire in the weeks following the publication's launched at COFI.

<sup>3</sup> specific assessment conducted in 2014-15 by FAO's Office of Evaluation, within a broader overall evaluation of FAO flagship information products, assessed the extent to which SOFIA is achieving its intended outcomes.

<sup>4</sup> Ababouch, L., Taconet, M., Plummer, J., Garibaldi L. & Vannuccini, S. 2016. Bridging the science-policy divide to promote fisheries knowledge for all: the case of the Food and Agriculture Organization of the United Nations. In B.H. MacDonald, S.S. Soomai, E.M. De Santo & P.G. Wells, eds. *Science, information and policy interface for effective coastal and ocean management*, pp. 389-417. Boca Raton, Florida, USA, CRC Press.

7. Web traffic has continuously increased with every new issue. According to cumulated unique page view statistics of SOFIA publication cards provided by Google Analytics over the 22 month period following the last launch event, SOFIA 2020 shows 155 203 views (all languages), a strong increase compared<sup>5</sup> to SOFIA 2018 (38 329 views) and SOFIA 2016 (5 957 views). This growth has been supported by a diversification of the SOFIA products: SOFIA 2016 had an In Brief version targeting policy makers; SOFIA 2018 had in addition an Interactive Story designed for a general public and media audience; and SOFIA 2020 also saw the Full Interactive Report, the navigable digital version replacing the paper print. These numbers confirm, as per previous editions, the pole position of SOFIA among other FAO flagship publications.

8. Generally speaking, media coverage and attention has grown with last issues. SOFIA 2020 was sent under embargo to select journalists and, for the first time ever, was launched during an online event gathering more than 1 500 connected participants. The launch was accompanied with a press release, radio interviews on UN radio, distributed to radio networks worldwide and pitched widely to news outlets. SOFIA's launch resulted in various requests for interviews from major news outlets, including The Guardian, BBC, El País, and Reuters, among others. Social media was utilized to actively promote the launch, and infographics were created to amplify messages of SOFIA through wider audiences. The newly introduced use of Digital Object Identifiers (DOIs) for FAO publications and related Altmetrics statistics<sup>6</sup> enables to monitor the effectiveness of SOFIA's promotion through news outlets, blogs, and social media. The exceptional launch of SOFIA 2022 during the UN Ocean Conference, preceded by an international press conference, was particularly successful and attracted very wide multilingual media coverage, press attention and public recognition of the publication's unique role as a global reference and source of quality information.

9. The 2020 three-tiered structure of the publication was expanded to four major Parts, with a view of the theme 'Towards Blue Transformation'. Part 1, the World Review, retains the format and process of previous years that presents the most up-to-date global sectoral trends based on the Divisional statistics database. Parts 2 and 3 are devoted to Blue Transformation, examining the challenges of its three underpinning pillars (expansion and intensification of aquaculture, improvement of fisheries management, upgrading of value chains), and exploring pathways for concrete actions during the coming decade to support effective achievement of the SDGs. Part 4 covers current and high impact emerging issues and finally draws projections on future trends. For the first time, this edition includes Key messages, an Executive Summary, and a Glossary.

10. SOFIA 2022 is the product of a 15-month long process that began in April 2021 with the formation of an editorial board, supervised by a core executive team chaired by the Director of the FAO Fisheries and Aquaculture Division (NFI) and comprising staff from NFI and from the FAO Office of Corporate Communication (OCC). The editorial board met at regular intervals to plan the structure and content of SOFIA 2022, review progress and address issues. SOFIA 2022 was also peer-reviewed by three independent experts.

### III. HIGHLIGHTS OF GLOBAL TRENDS IN SOFIA 2022

11. **Total fisheries and aquaculture production**<sup>7</sup> reached a record 214 million tonnes in 2020, comprising 178 million tonnes of aquatic animals and 36 million tonnes of algae, largely due to the growth of aquaculture, particularly in Asia. In 2020, world production of aquatic animals supplied 20.2 kg of aquatic food per capita.

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<sup>5</sup> with the following caveats: i) google analytics underestimates usage statistics for SOFIA 2016 and SOFIA 2018 due to some discontinuity of cards availability on the web during the analysed periods; ii) important usage statistics are reported for SOFIA 2018 Interactive story (103815 unique views).

<sup>6</sup> Altmetrics statistics are accounting the number of times a publication's Digital Object Identifier (DOI) is used in a digital product.

<sup>7</sup> Includes all aquatic animals (fish, crustaceans, molluscs and other aquatic animals), algae (macroalgae, microalgae, and Cyanobacteria); aquatic mammals and reptiles are excluded from reported figures and statistical analysis.

12. In 2020, **global capture fisheries production** (excluding algae) was 90.3 million tonnes, with an estimated value of USD 141 billion, including 78.8 million tonnes from marine waters and 11.5 million tonnes from inland waters – a 4.4 percent decline with the average of the previous three years due to reduced catches of pelagic species, particularly anchoveta, a reduction in China’s catches and the impacts of the COVID-19 pandemic in 2020. Finfish represent about 85 percent of total marine capture production, with anchoveta once again the top species harvested. In 2020, catches of the four most high-value groups (tunas, cephalopods, shrimps and lobsters) remained at their highest levels or declined marginally from peak catches recorded previously.
13. Despite a decrease of 5.1 percent from 2019, **global catches in inland waters**, estimated at 11.5 million tonnes, remained at a historically high level and benefited from improved reporting by the producing countries. Asia produced almost two-thirds of total inland fisheries, followed by Africa – inland catches are important for food security in both these regions.
14. In 2020, **global aquaculture production** reached a record 122.6 million tonnes, with a total value of USD 281.5 billion. Aquatic animals accounted for 87.5 million tonnes and algae comprised 35.1 million tonnes. In 2020, driven by expansion in Chile, China and Norway, global aquaculture production grew in all regions except Africa, due to a decrease in the two major producing countries, Egypt and Nigeria.
15. The **contribution of aquaculture** to the global production of aquatic animals reached a record 49.2 percent in 2020. Aquaculture of fed aquatic animals continues to outpace that of non-fed animal species. Despite the great diversity in farmed aquatic species, only a small number of “staple” species dominate aquaculture production, particularly grass carp for global inland aquaculture and Atlantic salmon for marine aquaculture. Around 54.4 million tonnes were farmed in inland waters and 68.1 million tonnes came from marine and coastal aquaculture. Global consumption of aquatic foods (excluding algae) increased at an average annual rate of 3.0 percent from 1961 to 2019, a rate almost twice that of annual world population growth (1.6 percent) for the same period, with annual per capita consumption reaching a record high of 20.5 kg in 2019. Preliminary estimates point to a lower consumption in 2020 due to a COVID-19-driven contraction of demand, followed by a slight increase in 2021. Globally in 2019, aquatic foods provided about 17 percent of animal proteins and 7 percent of all proteins.
16. An estimated 58.5 million **persons were engaged** in the primary production sector as full-time or part-time workers. Some 35 percent were employed in aquaculture, a figure which has flattened in recent years, while the global number of fishers has contracted. In 2020, 84 percent of all fishers and fish farmers were in Asia. Overall, women accounted for 21 percent of those engaged in the primary sector (28 percent in aquaculture and 18 percent in fisheries).
17. The total number of **fishing vessels** in 2020 was estimated at 4.1 million, a reduction of 10 percent since 2015, reflecting efforts by many countries, in particular China and European countries, to reduce the global fleet size. Asia still has the largest fishing fleet, at about two-thirds of the global total.
18. FAO’s long-term **monitoring of assessed marine fish stocks** confirms that marine fishery resources have continued to decline. The fraction of fishery stocks within biologically sustainable levels decreased from 90 percent in 1974 to 64.6 percent in 2019, with stocks maximally sustainably fished at 57.3 percent and underfished stocks at 7.2 percent. Nevertheless, despite worsening trends by number, in 2019, biologically sustainable stocks accounted for 82.5 percent of the landings of aquatic products, a 3.8 percent increase from 2017. This demonstrates that larger stocks are managed more effectively.
19. In 2016, FAO began developing a **global threat map for inland fisheries** to provide a baseline metric to track changes in major basins and improve inland fisheries. Preliminary results indicate that across all major basins 55 percent of inland fisheries are under moderate pressure and 17 percent under high pressure.
20. **Utilization and processing of fisheries and aquaculture production** have changed considerably in past decades. In 2020, 89 percent (157 million tonnes) of world production (excluding algae) was used for direct human consumption, compared with 67 percent in the 1960s. The remainder

(over 20 million tonnes) was used for non-food purposes – the vast majority for fishmeal and fish oil. A growing share of by-products is used for food and non-food purposes.

21. **International trade of aquatic products** has grown significantly in recent decades, expanding over continents and regions. In 2020, world exports of aquatic products, excluding algae, were worth USD 151 billion – a 7 percent decline from the 2018 record high of USD 165 billion. From 1976 to 2020, the value of trade in aquatic products increased at an average annual rate of 6.9 percent in nominal terms and 3.9 percent in real terms (adjusted for inflation).

## TOWARDS BLUE TRANSFORMATION

22. The current Decade of Action to deliver the Global Goals must accelerate actions to address food security while preserving our natural resources. Aquatic foods can provide a larger proportion of humanity's nutritious food requirements. **Blue Transformation** is a vision for sustainably transforming aquatic-based food systems, a recognized solution for food and nutrition security and environmental and social well-being by preserving aquatic ecosystem health, reducing pollution, protecting biodiversity and promoting social equality. Blue Transformation focuses on the three following pillars:

a) **Intensifying and expanding sustainable aquaculture production** is forecast to increase aquatic food production by a further 13 percent by 2030. Such growth must preserve aquatic ecosystem health, prevent pollution, and protect biodiversity and social equality.

b) **Effective management of all fisheries** is essential to rebuild overfished stocks, and to restore ecosystems to a healthy and productive state, and could increase marine capture fisheries production by 16.5 million tonnes and thus contribute to the food security, nutrition, economies and well-being of coastal communities.

c) **Innovating fisheries and aquaculture value chains** is a key enabler to aquaculture expansion and effective fisheries management. Such innovation needs public and private partnerships to support new technologies, increase consumer awareness on benefits and availability of aquatic foods, reduce food loss and waste (FLW), and improve access to lucrative markets.

23. **IYAF 2022** was declared by the United Nations General Assembly to enhance global awareness and understanding of small-scale artisanal fisheries and aquaculture; foster action to support its contribution to sustainable development; and promote dialogue and collaboration between and among actors and partners, engaging key public and private stakeholders to address challenges and opportunities for small-scale fisheries and aquaculture to contribute to achieving the Sustainable Development Goals (SDGs).

## BLUE TRANSFORMATION TO ACHIEVE THE 2030 AGENDA

24. With less than eight years to 2030, and the COVID-19 pandemic, which reversed previously favourable trends, the world is not on track to end hunger and malnutrition. **The Decade of Action to deliver the Global Goals** intends to strengthen the strategies of countries, IGOs, NGOs and civil society organizations to promote a fair, prosperous and sustainable world. Fisheries and aquaculture contribute to most SDGs, in particular, SDG 14 (Life below water) which is dedicated to the ocean and its marine resources. FAO, as custodian of four SDG indicators that concern the sustainable use of marine living resources, is leveraging and adapting existing global monitoring and reporting mechanisms to integrate national data. Reporting the true contribution of fisheries and aquaculture to the 2030 Agenda is still hampered by the lack of clear identification and communication of the contribution of aquaculture, as well as the absence of the contribution of inland fisheries and aquaculture to food and nutrition in current SDG related text.

25. **The United Nations Decade of Ocean Science for Sustainable Development (UNDOSSD)** recognizes that a strong science-policy interface is crucial in the design of sustainable solutions and ultimately to enshrine decisions, agreements and actions in the best available evidence. To address the challenges relevant to fisheries and aquaculture, The UNDOSSD seeks to generate knowledge, support

innovation, address inequalities in ocean science capacity and develop solutions to optimize the role of the ocean in food security under changing environmental, social and climate conditions.

26. **The United Nations Decade on Ecosystem Restoration** calls for the global revival of ecosystems and their services by restoring habitats and species to health, ensuring productive and resilient social-environmental systems in the face of ongoing and foreseen stresses. Restoring inland, coastal and marine ecosystems requires adequate governance and support to incorporate conservation and sustainable production actions by multiple actors, sectors and jurisdictions. Restoring fisheries productivity requires the rehabilitation of mangrove forests, seagrass meadows and reefs, watersheds and wetlands, and effective management to rebuild fishery stocks and reduce adverse impacts of fishing on ecosystems. Actions in aquaculture aim to restore ecosystem structure and function to support food provisioning while minimizing pollution, invasive alien species, waste and the emergence of diseases.

## EMERGING ISSUES AND OUTLOOK

27. Since March 2020, the **COVID-19 pandemic** has swept through continents and countries causing unprecedented health, social and economic damage, including to fisheries and aquaculture. Worldwide, COVID-19 entailed lockdowns and closures of markets, ports and borders, causing disruption in aquatic food production and distribution and loss of employment and livelihoods. Fishing was disrupted and aquaculture struggled to maintain its planned production cycles. Supply chains dominated by small and medium enterprises were particularly vulnerable to COVID-19 restrictions. Vulnerable and marginalized people were disproportionately affected, with women enduring greater employment declines and loss of household livelihoods. The pandemic exposed the interconnectivity of markets and supply chains and the need for inclusive and shock-responsive national social protection systems. On the positive side, the crisis accelerated digitalization, and encouraged e-monitoring and enforcement, the use of green energy and clean technologies and the development of local production and markets.

28. Increased warming has caused irreversible changes requiring urgent ocean-based action to strengthen and accelerate **climate mitigation and adaptation** measures. This calls for the explicit consideration of climate stressors in fisheries and aquaculture management by connecting adaptation plans and management or development actions. These plans would benefit from adopting climate-informed spatial management approaches, integrating equity and human rights considerations and investing in innovation-

29. **Advancing towards gender equality** in fisheries and aquaculture is fundamental for sustainability and inclusiveness. Of the 58.5 million people employed in the primary fisheries and aquaculture sector in 2020, 21 percent were women, rising to about 50 percent for those employed in the aquatic value chains (including pre- and post-harvest). Although they occupy critical roles in fisheries and aquaculture, women constitute a disproportionately large percentage of the people engaged in the informal, lowest paid, least stable and less skilled segments of the workforce, and often face gender-based constraints that prevent them from fully exploring and benefiting from their roles in the sector. Building their resilience will be key to sustainability and equitable development.

30. **FAO's outlook for fisheries and aquaculture to 2030** projects an increase in production, consumption and trade, albeit at slower growth rates. Total production of aquatic animals is expected to reach 202 million tonnes in 2030, thanks mainly to a sustained growth of aquaculture, projected to reach 100 million tonnes for the first time in 2027 and 106 million tonnes in 2030. World capture fisheries is projected to recover, increasing by 6 percent from 2020 to reach 96 million tonnes in 2030, as a result of improved resource management, underfished resources, and reduced discards, waste and losses.