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# COMMITTEE ON FISHERIES

## Thirty-second Session

Rome, 11-15 July 2016

## OUTCOME OF AND FOLLOW-UP TO THE GLOBAL CONFERENCE ON INLAND FISHERIES, FRESHWATER, FISH AND THE FUTURE

### Executive Summary

In recognition of the important, yet undervalued role inland capture fisheries play in food security and poverty alleviation, FAO convened the Global Conference “*Freshwater, Fish and the Future*” at FAO HQ in January 2015. The Conference developed ten steps to responsible inland fisheries and recommendations to implement the ten steps. The conference recognized that whilst good information on some inland capture fisheries exist, there is inadequate knowledge on the sub-sector and its role in food security and poverty alleviation. Therefore, in addition to the ten steps, additional information and options are presented in order to improve knowledge on the state of inland capture fisheries to enable better integration into decision making on food security and poverty alleviation.

More information is provided in COFI/2016/Inf.14, The Rome Declaration: ten steps to responsible inland fisheries.

### Suggested action by the Committee

The Committee is invited to:

- Consider the content of the working document and in conjunction with the information papers, noting "Ten steps to responsible inland fisheries - outcomes from a global conference in Part 3, Highlights of Special Studies, of SOFIA 2016;
- Endorse the ten steps to responsible inland fisheries for future activities related to food security and poverty alleviation;
- Consider the need for an improved global assessment of inland fisheries;

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- Consider and advise on means to secure funding through extra budgetary or regular programme funds to improve the information on the state of inland fisheries

## I. BACKGROUND

1. In recognition of the important, yet undervalued role inland capture fisheries play in food security and poverty alleviation<sup>1</sup>, the 31<sup>st</sup> Session of COFI endorsed the convening of a Global Conference, “*Freshwater, Fish and the Future*” (the Conference). With the support of Michigan State University (MSU) and other partners, FAO convened the Conference at FAO HQ in January 2015.<sup>2</sup>
2. The outcome of the Conference was the *Rome Declaration: ten steps to responsible inland fisheries*<sup>3</sup>, which provide recommendations and a road map to enhance the role of inland capture fisheries in the development of food security and poverty alleviation programmes.
3. The Conference, together with previous editions of the FAO State of World Fisheries and Aquaculture (SOFIA) and other commentators, have repeatedly stated that there is a critical lack of qualitative and quantitative information on the state of most of the world’s inland capture fisheries. This information critical for establishing appropriate values of inland fisheries and to determine their role in food security and livelihoods. Additional effort is needed to determine the global state of inland capture fisheries in order to understand and address threats or opportunities.
4. This document summarizes the outputs of the Conference and presents additional options for improving knowledge on the state of inland capture fisheries so that they continue to provide livelihoods, nutrition and cultural benefits to an ever increasing human population.

## II. TEN STEPS TO RESPONSIBLE INLAND FISHERIES

5. The conference developed ten steps<sup>4</sup>, and recommendations for implementation in a progression for action (see COFI/2016/Inf.14 for more detail): Take stock of global inland capture fisheries and assess as closely as possible, their true value; Communicate this information to build awareness and buy-in; Develop optimal management strategies; Establish an effective framework for management of the intra-sectoral aspects of inland fisheries to enable them to be practically integrated into cross-sectoral governance (especially with aquaculture and within water and land management frameworks).

Step 1: Improve the assessment of biological production to enable science-based management

Step 2: Correctly value inland aquatic ecosystems

Step 3: Promote the nutritional value of inland fisheries

Step 4: Develop and improve science-based approaches to fishery management

<sup>1</sup> FAO. 2010. Outlook: What future for inland fisheries. State of World Fisheries and Aquaculture 2010. FAO, Rome.

<sup>2</sup> [www.inlandfisheries.org](http://www.inlandfisheries.org)

<sup>3</sup> FAO. 2016. COFI/2016/Inf.14

<sup>4</sup> FAO/MSU. 2016. The Rome Declaration: Ten steps to responsible inland fisheries. Food and Agriculture Organization of the United Nations and Michigan State University, Rome, Italy. 6pp.

Step 5: Improve communication among freshwater users

Step 6: Improve governance, especially for shared waterbodies

Step 7: Develop collaborative approaches to cross-sectoral integration in development agendas

Step 8: Respect equity and rights of stakeholders

Step 9: Make aquaculture an important ally

Step 10: Develop an action plan for global inland fisheries

6. These ten steps form a path towards a future where human well-being and environmental integrity allowing the sustainable use of freshwater ecosystems, their fishery resources and other services.

### III. ACCURATE INFORMATION – A FIRST VITAL STEP

7. The Conference recognized the important role of accurate information on inland fisheries to allow fisheries to be more effectively integrated into development and conservation planning. However, traditional means of data collection for the sub-sector tend to underestimate inland fishery production<sup>5</sup> and therefore similarly underestimate the contribution and value of inland fisheries to human societies.

8. SOFIA 2016 notes that less than half of the 218 countries and territories reporting data to FAO do so for inland capture fisheries. New or alternative approaches for obtaining the necessary information are required.

9. One alternative approach is the use of **household surveys**. Household surveys have been used to estimate fish consumption in several rural areas of the world, e.g. in the Mekong area<sup>6</sup> and these have frequently demonstrated that fish consumption in many areas with freshwater ecosystems and inland fisheries is significantly higher than that officially reported or estimates derived from routine production statistics.

10. Household survey information may only be a proxy for inland fishery production and additional data manipulation such as subtraction of aquaculture production is typically required.

11. Another very promising approach is the correlation of the assessed area of different types of **aquatic habitat** with inland capture fishery production. The use of geographic information systems (GIS), water cover together with other geo-referenced data has been used in the past with varying success as to their ability to estimate fish production<sup>7</sup> are showing promise for modeling potential inland capture fishery production (Lymer et al.<sup>8</sup>). Initial results confirm that potential production from inland capture fisheries may be significantly higher than the current estimates.

<sup>5</sup> Bartley, D.M., G.J. de Graaf, J. Valbo-Jorgensen and G. Marmulla. 2015. Inland capture fisheries: status and data issues. *Fisheries Management and Ecology* 22:71–77.

<sup>6</sup> Hortle (2007); Needham and Funge-Smith (2015) Hortle, K.G. (2007) *Consumption and the yield of fish and other aquatic animals from the Lower Mekong Basin*. MRC Technical Paper No. 16, Mekong River Commission, Vientiane. 87 pp. Available: <http://www.mrcmekong.org/assets/Publications/technical/tech-No16-consumption-n-yield-of-fish.pdf>; Needham, S. & Funge-Smith, S. J. (2015) “The consumption of fish and fish products in the Asia-Pacific region based on household surveys”. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand. RAP Publication 2015/12. 91pp/

<sup>7</sup> Welcomme R.L. (2011) An overview of global inland fish catch statistics. *ICES Journal of Marine Science* 68, 1751–1756.

<sup>8</sup> Lymer, D., F. Marttin, G. Marmulla, and D. M. Bartley. In press. A global estimate of theoretical annual inland capture fisheries harvest. In W. W. Taylor, D. M. Bartley, C. I. Goddard, N. J. Leonard, and R. Welcomme,

12. Future refinement of these GIS models, and their linkage to information in household surveys and population densities in proximity of freshwater bodies will further improve information on inland fishery yields. These methods can provide relatively robust estimates, which can be further strengthened with targeted ground-truthing to derive actual trends in fisheries.

#### IV. ROUTINE MONITORING OF SPECIFIC FISHERIES

13. FAO determination of the status of important marine capture fishery stocks uses an expert knowledge approach, linked to stock assessment or other data where available. Approximately 470 marine fish stocks are assessed.

14. FAO has no regular programme or activity which provides for the same analysis of inland capture fisheries. FAO has no current regular programme funds dedicated to support such an assessment, however, that such an assessment is long overdue. Although this may not be possible at the species level, it would be possible to assess identified fisheries and whilst challenging, it is becoming increasingly apparent that the development of a systematic approach for assessing inland capture fisheries is needed.

15. Earlier attempts at providing a framework to assess inland fisheries performance<sup>9</sup> have not been overly successful. Previous issues of SOFIA have highlighted work on specific inland fisheries that are highly productive and for which good information does exist (e.g. the Mekong River, parts of the Amazon River, Lake Victoria (Africa), the Danube and the Volga).

16. One of the major constraints, is that inland capture fisheries are strongly influenced by environmental and anthropogenic factors unrelated to fishing. Anthropogenic effects include impacts of water use by other sectors and longer-term trends related to land use, urbanization and industrialization (e.g. land cover, habitat change). Environmental factors can give rise to very large annual variations in fishery production (e.g. climatic factors such as rainfall and temperature).

17. Due to these external effects on fishery production, and their inter-annual variability, tracking annual changes in production may be less meaningful than tracking longer term trends. Such trends would be the value of the fishery, its contribution to society and the ecosystem and environmental quality which sustains the fishing activity<sup>10</sup>.

18. The Sustainable Development Goals related to terrestrial ecosystems (including aquatic environments) and the Aichi Targets on freshwater ecosystems are a clear indication that these systems must be monitored.

19. As a first step, an assessment framework would be developed. Secondly, a pilot approach choosing specific, important inland fisheries could be selected for qualitative and quantitative assessment using national and regional experts. The Global Conference convened numerous fishery scientists who are knowledgeable about the state of many of the world's important capture fisheries further indicating that there is considerable expert knowledge available.

20. The combined work would provide an approach to develop a globally balanced picture on the status of some of the world's more important inland fisheries both in terms of food production as well as other economic or societal values. The criteria for selection of the inland fisheries to be monitored would be representative of the world's major food fisheries as well as a selection of important recreational fisheries.

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editors. Freshwater, fish, and the future: proceedings of the global cross-sectoral conference. American Fisheries Society, Bethesda, Maryland.

<sup>9</sup> SOFIA 2012

<sup>10</sup> SOFIA 2014

21. The indicators used would encompass not only the state of the stocks but their value for food or other economic or cultural purposes. It would also be possible to include known threats or pressures which were likely to positively or negatively affect this status in the future. In aggregate, these assessments could provide a global picture of the state of inland fisheries and, over time, emerging trends would indicate improvement or deterioration across the indicators being assessed.