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COMMITTEE ON FISHERIES

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BYCATCH AND DISCARDS: GLOBAL AND REGIONAL UPDATES

Executive Summary

This document provides information on FAO's current work in addressing issues of bycatch and discards, as they relate to fisheries management, fishing operations and practices, and sustainable livelihoods, in support of the International Guidelines on Managing Bycatch and Reduction of Discards. The following activities are currently being carried out by FAO:

- Global assessments of discards to provide the up-to-date global scale of amount and rate of discards in various fisheries and trends in discarding, to highlight fisheries management issues and practices associated with discards
- Trawling best practices to mitigate bycatch, discards, seabed and other collateral impact towards more sustainable trawl fisheries
- Means and methods to mitigation bycatch and associated mortality of marine mammals in fisheries and aquaculture to protect venerable marine species and biodiversity
- Guidelines on the marking of fishing gear and measures to reduce abandoned, lost and otherwise discarded fishing gear (ALDFG) and ghost fishing mortality associated with ALDFG, as well as to curb illegal, unreported and unregulated (IUU) fishing
- Strategies for trawl fisheries bycatch management in the Coral Triangle and Southeast Asian waters (REBYC-II CTI) to strengthen institutional frameworks, to enhance capacity to manage fisheries, and to provide better communication, awareness and knowledge-sharing
- Sustainable management of bycatch in Latin America and Caribbean trawl fisheries (REBYC-II LAC) to improve institutional and regulatory frameworks for trawl fisheries, to strengthen bycatch management and responsible trawling practices, to promote sustainable and equitable livelihoods, and to disseminate information for long-term benefits to the region

Notwithstanding the progress made to date, it is recommended that more work be carried out to more effectively implement the International Guidelines on Managing Bycatch and Reduction of Discards through, *inter alia*:

- Greater technical assistance to support the development of data collection protocols and to collect data on bycatch and discards, especially in Developing States and Small Scale Fisheries
- Greater effort to investigate causes, incentives and disincentives related to uptake of bycatch and discard mitigation technologies and strategies for implementing proven technologies
- Research on the impact of bycatch on food security and livelihoods, and means and mechanisms on alternative income generation opportunities including utilization of sustainable bycatch and otherwise discarded catch
- Greater capacity-building efforts to support field testing and demonstration of bycatch and discard mitigation technologies, effective bycatch management planning, and livelihoods diversification to ensure decent job opportunities and incomes
- Effort to develop best practice guidelines and fishing gear management strategies for various fishing gears, especially those gear types and fisheries with high discard rates and seafood wastes

FAO's work on fisheries bycatch and discards, both globally and regionally, contributes towards SDG1 (end poverty), SDG2 (zero hunger), and SDG 14 (sustainably use and conserve the oceans), and target SDG14.1 (significantly reduce marine pollution of all kinds, including marine debris), SDG 14.2 (sustainably manage and protect marine and coastal ecosystems, avoiding significant adverse impacts), and SDG14.4 (end IUU fishing and destructive fishing practices).

I. BACKGROUND

1. At the 30th Session of COFI (2012) the Committee stressed that attention was required to ensure that bycatch and discards were addressed comprehensively in conservation and management of fisheries resources, within an ecosystem approach. To address these issues, FAO has been actively pursuing initiatives in collaborations with States and other organizations on assessing the level of discards and in testing and implementing measures to manage bycatch and reduce discards at both global and regional levels.

2. FAO's work to address bycatch and discards contributes towards the following Sustainable Development Goals and their targets, in particular:

- SDG1 to end poverty
- SDG2 to achieve zero hunger
- SDG 14 to sustainably use and conserve the oceans, in particular SDG14.1 to significantly reduce marine pollution of all kinds, including marine debris, SDG 14.2 to sustainably manage and protect marine and coastal ecosystems, avoiding significant adverse impacts, SD14.4 to end Illegal, Unreported and Unregulated (IUU) fishing and destructive fishing practices, restoring fish stocks in the shortest time possible

II. GLOBAL ACTIONS

Assessment of global discards

3. Bycatch and discards constitute a sustainability threat in the fisheries sector by inflicting undue mortalities that jeopardize long-term food security and livelihoods of coastal communities. Thus, at the Thirtieth Session of COFI (2012), the Committee suggested continued attention to bycatch and discards to ensure that they were addressed comprehensively in conservation and management of fisheries through an ecosystem approach to fisheries management. In this context, FAO considered it important to have updated information on how the world fisheries is performing in reducing discards

and seafood loss. Thus, in 2015 FAO initiated a project to conduct FAO's third global fisheries discard estimate.

4. The third FAO global discard estimate takes the 'fishery-by-fishery' approach adopted by Kelleher (2005) in the second update. The current study includes publicly available discard rates data produced in the last 20 years to establish the baseline of a time series of global marine fisheries discards for monitoring the status and trends of discard management (step 1 of the EAF management cycle). In addition, this new study developed a new fisheries database incorporating landings data from the FAO Global Capture Production database (FishStat J) over 2010 to 2014 which allocates the landings to over 2 000 fisheries worldwide, and the discard database. The project also provides the detailed method employed for estimating global discarding rates, make this global estimate transparent and replicable.

5. Moreover, this project also compiled a list of measures for managing bycatch and reducing discards, as well as description of related issues (i.e. pre-catch and post-release mortality), which are key for an effective management of this critical issue. The report also includes a chapter on bycatch and discards of Endangered, Threatened and Protected species, providing an updated overview of this specific dimension of the bycatch and discard issue.

6. The new report on the global assessment of marine fisheries discards will be published as a Fisheries Technical Paper in the second half of 2018, but a leaflet on the publication will be available during COFI. The estimate of global discards contained in this report is an output of an ongoing FAO initiative focussing on the scale of discards, trends in discarding and fisheries management issues and practices associated with discards. However, when reading and interpreting this new report, it should borne in mind that, in general, assessments of discards are just rough estimates, as such assessments are very simplified means to explain a highly complex subject..

Trawling best practice

7. FAO, in collaboration with the University of Washington (USA), organized three expert workshops between 2014 and 2017 on the "Use of Best Available Science in Developing and Promoting Best Practices for Trawl Fishing Operations" to assess the impact of bottom trawls on a global scale and to develop trawling best practices. The workshops covered three main areas: South and Southeast Asia (2014), Latin America and Caribbean (2016) and Africa (2017). While the workshops paid primary attention to seabed impact of trawling, bycatch and discards of trawling were also widely discussed. The workshops identified several best practice measures that may limit or reduce impact of trawling, including gear design and operation, spatial control, impact quotas, and effort control. The workshops established a set of performance metrics of management measures and industry practices that would compare the efficacy of different approaches.

8. It was recognized that the definition of best trawling practices may differ by location, region, or country, and altered by prevailing circumstances; therefore, useful guidelines and performance metrics must be flexible and account for a broad range of biological, technical, socioeconomic factors. It was recommended that the work should be continued towards Best Practice Guidelines for Trawling to support FAO's Code of Conduct for Responsible Fisheries. More detailed information is available in COFI/2018/inf.27.

Bycatch of marine mammals in fisheries and aquaculture

9. FAO members have expressed concern about the bycatch of marine mammals at recent sessions of COFI. FAO thus convened an Expert Workshop on Means and Methods for Reducing Marine Mammal Mortality in Fishing and Aquaculture Operations, from March 20 to 23, 2018 in Rome to review findings of recent international marine mammal workshops. The Workshop evaluated relative merit of different strategies and measures for mitigating bycatch and subsequent mortality of marine mammals. The Workshop produced some key technical outputs, including a table summarizing marine mammal bycatch mitigation techniques across different gear types and species, and a draft

decision-making tool (decision tree) which could be used to support management decision-making processes.

10. The Workshop recommended that: i) FAO develop Technical Guidelines on means and methods for prevention and reduction of marine mammal bycatch and mortality in fishing and aquaculture operations to support FAO's Code of Conduct for Responsible Fisheries and to supplement International Guidelines on Bycatch Management and Reduction of Discards; ii) that FAO consider establishing a mechanism to facilitate the collection of information on the global implementation of the proposed Technical Guidelines, within the broader framework of the International Guidelines on Bycatch management and Reduction of Discards, and including marine mammal bycatch prevention an reduction efforts in the bi-annual SOFIA publication; and iii) FAO consider establishing a global capacity development programme to support developing States in the application of the proposed guidelines. The full report of this workshop, including the full list of recommendations, is available as COFI Session Background Document COFI/2018/SBD.19.

Abandoned, lost and otherwise discarded fishing gear and the guidelines on the marking of fishing gear

11. FAO convened a Technical Consultation on the Marking of Fishing Gear from 5 to 9 February 2018, at FAO Headquarters in Rome. The Technical Consultation adopted the Voluntary Guidelines on the Marking of Fishing Gear and recommended that COFI consider the endorsement of these guidelines. The Voluntary Guidelines are considered an important tool in minimizing the impact of ALFDG including ghost fishing by ALDFG, and in IUU fishing. The report of the Technical Consultation, including the Voluntary Guidelines, is provided in COFI/2018/inf.25.

12. The Technical Consultation also recommended that COFI consider the development of a global strategy to address ALDFG and its harmful impacts, including food loss through ghost fishing, and that States should consider the development and implementation of national action plans to address ALDFG. In this regard, FAO has prepared an information document proposing a concept for the development of a global "umbrella" programme to prevent and reduce ALDFG and its harmful impacts (COFI/2018/Inf.24). It is expected that projects within the framework of this global programme will support the implementation of the Voluntary Guidelines on the Marking of Fishing Gear, as well as promoting the implementation of other measures and instruments to prevent ALDFG and reduce wasteful mortality of fisheries resources from ghost fishing. More detailed information is available in COFI/2018/inf.24.

III. REGIONAL ACTIONS

Strategies for trawl fisheries bycatch management (REBYC-II CTI)

13. The project, "Strategies for trawl fisheries bycatch management" contributed to the sustainable use of fisheries resources and healthier marine ecosystems in the Coral Triangle and Southeast Asian waters by reducing bycatch and fishing impact by trawl fisheries. It was implemented in Indonesia, Papua New Guinea, Philippines, Thailand, and Viet Nam between 1 November 2011 and 31 May 2017. The implementing partners include the Southeast Asian Fisheries Development Center (Thailand), Department of Fisheries (Indonesia), Bureau of Fisheries and Aquatic Resources (Philippines), National Fisheries Administration (Papua New Guinea), Department of Fisheries (Thailand), Department of Fisheries (Viet Nam) and Samar State University (Philippines). The project was funded jointly by the Global Environment Facility (GEF) and the implementing and executing partners.

14. The Project had four components: (1) Policy, legal and institutional frameworks; (2) Resource management and fishing operations; (3) Information management and communication; and (4) Awareness and knowledge. The final project evaluation in July 2016 found a strong sense of

ownership of the project by the national institutions involved, and this ensured that the Project stayed relevant to country priority needs. The same evaluation concluded that there were good prospects for sustainability of project outcomes, as a result of increased human and institutional capacity, the development of fisheries management plans, increased awareness and ownership, better acceptance by fishers of management regulations, the adoption of the Ecosystem Approach to Fisheries Management (EAFM) in management planning, the strengthening of public/private partnerships, the generation of lessons learned and best practices for replication and upscaling, the demonstration of concrete benefits derived from bycatch management, the introduction of alternative gear and livelihoods, and higher political will and buy-in from decision-makers (variable among countries).

15. Among the activities of the Project were:

- International guidelines on bycatch management and reduction of discards recognized in all five project countries, and contributions made to Asia-Pacific Fishery Commission regional guidelines.
- Samar Sea Fisheries Management Plan (the Philippines) agreed by stakeholders and adopted by relevant authorities. Bycatch management plans also prepared in Trat (Thailand) and Kien Giang (Viet Nam).
- Legal and regulatory frameworks relevant for trawl fisheries bycatch management developed for all five countries.
- Socio-economic studies implemented in the Philippines, Papua New Guinea, Thailand and Viet Nam; and assessment of impact of modified trawl gear on incomes completed in Thailand.
- Website set up and developed into a regional information-sharing mechanism for information on trawl fisheries bycatch management (http://rebyc-cti.org/).
- EAFM materials prepared for Leaders, Executives and Decision-makers; and Essential EAFM materials translated in Thai and Vietnamese.
- Country-level policy briefs, based on project results and lessons learned.
- Training events conducted on bycatch reduction devices and other management measures, attended by private sector, non-government organizations, and governments (variable among countries).
- Overview publication of the socio-economics of trawl fisheries in project countries: **Siar, S.V., Suuronen, P. & Gregory, R.** (*Eds.*) **2017**. Socio-economics of trawl fisheries in Southeast Asia and Papua New Guinea. *FAO Fisheries and Aquaculture Proceedings No. 50. Rome, Italy. 237 pp*. www.fao.org/3/a-i7812e.pdf

Sustainable management of bycatch in Latin America and Caribbean trawl fisheries (REBYC-II LAC)

16. This FAO-GEF regional project was launched in July 2015 and will finish in June 2020. It involves stakeholders from six countries in Latin America and the Caribbean (Brazil, Colombia, Costa Rica, Mexico, Suriname, and Trinidad and Tobago). The project is part of FAO's commitment to implement the International Guidelines on Bycatch Management and Reduction of Discards and is executed through partnerships with government institutions as well as fishers, fish workers, vessel owners, local universities and research institutions, RFBs and NGOs. REBYC-II LAC has four components; some of the achievement of each components are provided below:

Component 1: Improving institutional and regulatory arrangements for shrimp/bottom trawl fisheries and bycatch co-management (within EAF management framework).

17. Three of the project countries (Colombia, Costa Rica and Brazil) have reviewed their legal and institutional frameworks on bycatch management under the umbrella of an Ecosystem Approach to Fisheries and co-management. Costa Rica and Colombia have drafted and approved regulations to improve the sustainability of their bottom trawl fisheries. Suriname incorporated bycatch management measures into a draft new national fisheries and aquaculture act developed with FAO's collaboration.

Trinidad and Tobago drafted regulation measures to establish, for the first time, a closed season for industrial and artisanal trawlers. These are currently under review at Ministerial level.

18. Using collaborative and participatory approaches, Costa Rica and Colombia have both published – as regulation – marine spatial planning measures that distribute fishing effort by fleet and area in project pilot sites. Because of these measures, industrial trawlers may no longer work in shallow waters. These waters, which contain the highest percentage of bycatch are now zoned for to small-scale fishing. Other areas were set aside for protection or, in Costa Rica's case, set aside exclusively for research. In terms of institutional structures for co-management, Mexico and Costa Rica legally instituted co-management bodies for shrimp fisheries. Colombia, Suriname and Trinidad and Tobago have active multi-stakeholder national project working groups that are in the process of becoming legally established. In 2018 Brazil will officially establish its national and regional shrimp fishery management committees. All these successes are crucial steps to implement a true ecosystem approach to bottom trawl fisheries and have been critically supported by REBYC-II LAC.

Component 2: Strengthening bycatch management and responsible trawling practices within an EAF framework

19. In close collaboration with fishers, researchers, government and partner international organizations, the multi-stakeholder institutional structures described above are identifying management measures and technologies and promoting the creation of incentives that promote responsible fishing practices. REBYC-II LAC-supported regional capacity building workshops on the ecosystem approach to fisheries, fishing technology and best practices, bycatch utilization, and data collection and monitoring have improved knowledge and information transfer in the region and have improved the capacity of national co-executing partners to successfully manage their bottom trawl fisheries. At the national level, several countries organized conflict resolutions workshops and roundtables to improve collaborative management in project pilot sites. This has greatly improved the relationship among governments, the private sector and research institutions.

20. Bottom trawl fisheries in the region tend to be data poor. Under REBYC-II LAC all six countries have completed shrimp and bycatch composition surveys using a combination of on-board observers and landing reports. This new data, which in some cases had never been collected, provides critical information to establish appropriate spatial and temporal management measures, identify best options for bycatch reduction devices and evaluate the feasibility for improving bycatch utilization.

21. On fishing technology, all six countries completed a first round of fishing gear field trials to identify best options to reduce bycatch. Gear trial protocols were based on international best practices and developed at the country level in direct collaboration with the fishing sector. Capacity Building Workshops on Bycatch Reduction Technology and Fish Behaviour were held at NOAA's Fishery Harvesting Systems Unit Lab in Pascagoula Mississippi and at the National Institute of Marine and Costal Research (INVEMAR) of Colombia. These workshops directly benefitted 40 experts and fishers from the project countries. The knowledge provided is the basis for the gear tests carried out in all project sites. In Suriname, Brazil and Trinidad and Tobago, initial gear tests reduced bycatch by almost 30%, with acceptable shrimp losses. Some fishers in Brazil and Trinidad and Tobago that actively participated in gear trials already incorporated the bycatch reduction devices into their nets due to the positive bycatch reduction results as well as secondary benefits such as short sorting times and improved community relations.

Component 3: Promoting sustainable and equitable livelihoods through enhancement and diversification

22. REBYC-II LAC and its partners continue to pursue enhanced livelihood options based on an understanding of the socio-economic impacts of shrimp and shrimp bycatch in trawl fishing communities. Costa Rica has achieved extensive advances in this regard, as it has strengthened the network of Marine Responsible Fishing Areas, which now represents hundreds of small-scale fishers in key policy processes therefore strengthening the ability of small-scale fishers to participate in trawl

fishing decision making processes. At least four project countries are carrying out gender focused value chain assessments. These activities seek to understand the role of women and vulnerable groups in the shrimp and shrimp bycatch value chain, to ensure that a) project recommendations and actions are fully gender sensitive, b) no stakeholders are disproportionally negatively impacted by project actions and c) management decisions are taken with best available information. The preliminary work on value chains show that significant numbers of women work in bottom trawling post-harvest activities such as processing of shrimp and bycatch and in the distribution and sale of fresh or processed fish derived from bycatch.

23. REBYC-II LAC has supported enhanced livelihoods activities both in industrial and small-scale enterprises. Alongside parallel projects, REBYC-II LAC supported one woman's cooperative whose members collected shellfish without a license. Through partners, the women developed a management plan for their fishery and obtained a fishing license for all their members thus regularizing their activity and leading to secure access and incomes. One project country (Colombia) has partnered with seafood companies to start a small fish processing plant that produces fish pulp/paste using sustainable bycatch that is usually discarded and provides both employment and a nutritious product for low-income neighbourhoods. Most of the employees and beneficiaries are women and their families.

24. Future work in this component will focus on the strengthening of fisher organizations to improve co-management and the ecosystem approach to fisheries as well as direct support to ventures that provide enhanced livelihood options for fish workers in the trawl fishing value chain.

Component 4: Project progress monitoring, evaluation and information dissemination and communication

25. Project advances, lessons learned and critical information are available at the project website (www.fao.org/in-action/rebyc-2). The website includes an open online forum to host discussions on critical topics and provides an avenue for quick and live interaction for stakeholders across the world. The website also facilitates communication between stakeholders seeking solutions to reduce food loss and ensure sustainable fishing livelihoods. The project also facilitated several peer-to-peer exchanges across the region to take advantage of the ample experience of bottom trawl fishing across the region. REBYC-II LAC has strongly enhanced collaboration in Latin America and the Caribbean, strengthening ties among stakeholders, research institutions, leading experts and governments.

26. The REBYC-II LAC remains committed to its objectives and is currently projected to meet all project targets by June 2020. Three regional fisheries bodies, WECAFC, OSPESCA and CRFM are core project partners and remain committed to disseminating and supporting project results. The project and its partners are strongly open to collaborate with any other COFI Member or institution that is committed to the management of bycatch and reduction of discards in bottom trawl fisheries.