

Report of the

**EXPERT CONSULTATION ON BEST PRACTICES FOR SAFETY AT
SEA IN THE FISHERIES SECTOR**

Rome, 10–13 November 2008



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PREPARATION OF THIS DOCUMENT

Fishing is considered to be the world's most dangerous occupation – estimated in 1999 to cause more than 24 000 deaths per year.¹ The issue of safety in the fisheries sector was raised at the twenty-seventh session of the Committee on Fisheries (COFI 27)² where a large number of Members expressed concern about the safety at sea for fishing vessels, especially small-scale fishing vessels. It was suggested that FAO should develop guidelines on best practices for safety at sea and that COFI should consider developing an International Plan of Action (IPOA) on the subject. FAO was also urged to continue collaboration with the International Maritime Organization (IMO). As a result, an Expert Consultation was held in Rome, Italy, from 10 to 13 November 2008 to develop a draft outline of guidelines for best practices to improve safety at sea in the fisheries sector. The Consultation also provided recommendations regarding the scope of the guidelines, the special needs of developing countries, and other specific considerations and goals. Furthermore, appropriate next steps that might be taken following the completion of the Consultation were identified. This document contains the report of the Consultation together with a draft executive summary of the FAO/the United States National Institute for Occupational Safety and Health (NIOSH) *International Study on Fishing Management Regimes and their impacts on Fishing Safety: Synthesis of Case Reports*, which was presented at the Consultation.

¹ ILO. 1999. Tripartite Meeting on Safety and Health in the Fishing Industry, Geneva, 13–17 December 1999.

² Paragraph 82 of the *Report of the twenty-seventh session of the Committee on Fisheries (COFI 27)*, held at FAO headquarters from 5 to 9 March 2007.

FAO.

Report of the Expert Consultation on Best Practices for Safety at Sea in the Fisheries Sector. Rome, 10–13 November 2008.

FAO Fisheries and Aquaculture Report. No. 888. Rome, FAO. 2009. 40p.

ABSTRACT

This document contains the Report of the Expert Consultation on Best Practices for Safety at Sea in the Fisheries Sector, which was held in Rome, Italy, from 10 to 13 November 2008. The Consultation was convened by the Director-General of FAO to provide guidance to FAO regarding the development of guidelines for best practices to improve safety at sea in the fisheries sector. In its consideration of the draft outline of the guidelines, the Consultation was of the opinion that the principal objective should be the improved safety and health of those working in the fisheries sector through the development of national strategies, and that this objective could be achieved through the use of a set of readily understood guidelines. It was emphasized that the guidelines should ensure a holistic approach so that all factors influencing safety are comprehensively covered, and that awareness raising of safety issues should be accorded high priority.

In its consideration of the strategy and its structure, the Consultation agreed on an outline for the development of these guidelines, based on a series of four interlinked “pillars”. Under each of these pillars, three layers of guidance are provided: a first layer directed at the policy level, supported by a second layer setting out more detailed procedures and checklists, and a third layer providing detailed working instructions, case studies and reference material.

The Consultation also made recommendations regarding the scope of the guidelines, the special needs of developing countries, and other specific considerations and goals, as well as on the appropriate next steps that might be taken following the completion of the Consultation.

The draft executive summary of the FAO/NIOSH *International Study on Fishing Management Regimes and their impacts on Fishing Safety: Synthesis of Case Reports* was considered by the Consultation. The purpose of this study was to document (globally) the relationship between safety at sea and fisheries management practices and to provide practical guidelines for fisheries managers as to how they can help to make commercial fishing safer. The experts agreed with the report’s main finding that fisheries management has indirect and direct effects on fishing safety.

The Consultation was funded by the United States National Institute for Occupational Safety and Health (NIOSH) through the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO), India, and the Government of Norway through the FAO FishCode Programme.

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ACRONYMS

COFI	Committee on Fisheries
FAO	Food and Agriculture Organization of the United Nations
ILO	International Labour Organization
IMO	International Maritime Organization
IPOA	International Plan of Action
NIOSH	National Institute for Occupational Safety and Health (United States of America)
OSH	Occupational safety and health
SAR	Search and rescue

OPENING OF THE SESSION

1. Mr Jacques Diouf, Director-General of the Food and Agriculture Organization of the United Nations (FAO), convened an Expert Consultation on Best Practices for Safety at Sea in the Fisheries Sector. The Consultation was held at FAO Headquarters, Rome, from 10 to 13 November 2008.

2. All of the nine invited experts participated in the Expert Consultation in their personal capacities, together with five resource persons. A list of the participants (experts, resource persons and FAO Secretariat) is attached as Appendix B. The documents placed before the Consultation are listed in Appendix C.

3. The Technical Secretary, Mr Ari Gudmundsson, called the Expert Consultation to order and reviewed the logistical arrangements for the session. He then introduced Mr Grimur Valdimarsson, Director of the Fish Products and Industry Division, who made an opening statement on behalf of Mr Ichiro Nomura, Assistant Director-General of the Fisheries and Aquaculture Department. Mr Valdimarsson welcomed the participants to FAO and Rome, and outlined the purpose of the Consultation. He noted that fishing is considered to be the world's most dangerous occupation, estimated in 1999 to cause more than 24 000 deaths per year. Mr Valdimarsson also noted that social and economic pressures, as well as overcapacity and overfishing of coastal resources, are probably the major factors that have negated the results of efforts to improve safety at sea. He outlined the issues to be addressed by the Consultation and wished the experts well in their deliberations. The opening statement is attached as Appendix D.

4. The resource person of the International Maritime Organization (IMO) Secretariat informed the Expert Consultation of the long-standing cooperation between FAO, the International Labour Organization (ILO) and IMO on fishing vessel safety, which has resulted in the development and revision of a range of instruments related to safety for fishers and fishing vessels. Current collaboration is focused on the development of new Safety recommendations for decked fishing vessels of less than 12 m in length and undecked fishing vessels, as well as on the development of new guidelines to assist administrations in implementing the FAO/ILO/IMO Code of Safety, Voluntary Guidelines and Safety recommendations. The Safety recommendations and the new guidelines are for finalization by 2010. In addition, to facilitate entry into force of the 1993 Torremolinos Protocol, IMO – in strengthening its previous effort to promote the earliest acceptance of the Protocol – has decided to prepare the draft Agreement relating to the implementation of the Torremolinos Protocol and FAO is collaborating to the fullest extent possible.

5. The resource person from the International Labour Office noted that ILO had adopted many instruments concerning occupational safety and health (OSH), most recently the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187), and guidance, including guidelines on OSH management systems (ILO-OSH 2001), which are relevant to a systematic approach to OSH. In 2007, ILO adopted the Work in Fishing Convention (No. 188) and its accompanying Recommendation No. 199. These were comprehensive instruments addressing many aspects of work on board fishing vessels, including issues such as medical certification, manning, hours of rest, OSH, medical care at sea, social security and liability for injury and death. They also emphasized the importance of consulting with fishing vessel owners and representatives of fishers when developing laws, regulations and other measures concerning safety and health in the fisheries sector. He

reported on ILO work to promote these instruments, including providing assistance to flag States and developing guidelines on port State control inspections with respect to the requirements of the Convention. FAO and IMO would be invited to contribute their expertise to this work. He also welcomed the work of FAO and the United States National Institute for Occupational Safety and Health (NIOSH), which provides clear evidence of the link between fisheries management and fishing safety.

6. The Expert Consultation expressed its gratitude to the Government of Norway and NIOSH for providing funds for the Consultation, as well as the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO), India, which handled travel arrangements for participants at the Consultation.

ELECTION OF THE CHAIR

7. Capt. Nigel Campbell, Regional Manager of the Southern Region of the South African Maritime Safety Authority (SAMSA), was elected Chairperson. He expressed his gratitude to the experts for their confidence in electing him to the Chair.

BACKGROUND AND SCOPE OF THE EXPERT CONSULTATION

8. Mr Gudmundsson introduced the session by describing the basic characteristics and background of the Expert Consultation. He summarized the expected outcome of the Consultation: (i) a report containing a draft outline of guidelines for best practices to improve safety at sea in the fisheries sector, together with recommendations regarding their scope, the special needs of developing countries and other specific considerations and goals; and (ii) this report would also identify appropriate next steps that might be taken following completion of the Consultation.

9. He recalled that a large number of Members of the FAO Committee on Fisheries (COFI), which held its twenty-seventh session in Rome from 5 to 9 March 2007, had expressed concern about safety at sea for fishing vessels, especially small-scale fishing vessels. FAO was urged to continue collaboration with IMO and it was suggested that FAO should develop guidelines on best practices for safety at sea and that COFI should consider developing an International Plan of Action (IPOA) on the subject.³

ADOPTION OF THE AGENDA

10. The Consultation adopted the Agenda attached as Appendix A. The Chairperson outlined the timetable for the Consultation and the Secretary described the arrangements to be followed.

SAFETY IN THE FISHERIES SECTOR FROM AN FAO PERSPECTIVE

11. Mr Jeremy Turner, Chief of FAO's Fishing Technology Service, gave a presentation on safety in the fisheries sector from an FAO perspective. In his presentation, Mr Turner drew attention to the high level of fatalities in fisheries, and emphasized that the causes of losses of life could be attributed to poor-quality vessels and equipment on the one hand, and to human behaviour at sea on the other. While vessel quality and safety can be largely addressed and

³ See paragraph 82 of the *Report of the twenty-seventh session of the Committee on Fisheries (COFI 27)*.

ensured through regulation, a much broader range of interventions and mechanisms is required to eliminate fishing practices that are inherently dangerous. Mr Turner noted that fishers' behaviour at sea is heavily influenced by a broad range of social and economic factors; pressures on owners and skippers to ensure economic survival can result in cost cutting in vessel maintenance, safety equipment, labour and living and working conditions, leading to undermanning and fatigue that greatly contribute to human error and accidents. At the same time, within this competitive environment, increased investment in speed and catching efficiency further aggravates the problems because investment repayment drives the urgency to catch more fish. Unless fishing effort is commensurate with fish resources, this state of competition will continue, with negative consequences on safety. He noted that fisheries management measures can remove some of the pressures that force fishers to take risks and he provided examples from the Alaskan longline fisheries.⁴ In conclusion, Mr Turner noted that safety at sea is a complex problem requiring holistic solutions that address the social, economic and technical dimensions, and this should be taken into account in the development of the guidelines for best practices to improve safety at sea in the fisheries sector.

FAO/NIOSH STUDY ON THE RELATIONSHIP BETWEEN FISHERIES MANAGEMENT AND SAFETY AT SEA

12. Dr Jennifer Lincoln, expert, presented a draft executive summary of the paper entitled *International Study on Fishing Management Regimes and their impacts on Fishing Safety: Synthesis of Case Reports*, which she, together with Dr Gunnar Knapp,⁵ had prepared for the Expert Consultation. The draft executive summary of the report is attached as Appendix E. The paper describes a study, which was recently carried out by FAO and NIOSH, on the relationship between fisheries management and safety at sea. The purpose of this study is to document (globally) the relationship between safety at sea and fisheries management practices and to provide practical guidelines for fisheries managers on how they can help to make commercial fishing safer. In the spring of 2008, FAO sponsored 16 case studies from around the world to review this issue for the fisheries or for a specific fishery in each country. NIOSH reviewed the case studies against four hypotheses as to how fisheries management affects safety. NIOSH identified empirical, hypothesized, implicit and anecdotal evidence from all of these case studies supporting the hypotheses. Based on this review, the report concluded that fisheries managers should acknowledge that their decisions have indirect and direct effects on safety and therefore they should consider safety as part of their goals. This is the first document of its kind to provide an empirical review, at the global level, of the effects of fisheries resource management measures on the safety of fishing operations.

13. The Expert Consultation reviewed the recommendations made in the Synthesis document and noted that it contained some very valuable observations. The experts agreed with the report's main finding that fisheries management has indirect and direct effects on fishing safety. Based on the discussion, the recommendations in the document will be modified to address the following issues:

- every fishery manager's decision has an impact on safety;

⁴ Hughes, S & Woodley C. 2007. Transition from open access to quota-based fishery management regimes in Alaska increased the safety of operations. *Internat. Marit. Health*, 2007, 58, 1-4.

⁵ Professor of Economics, Institute of Social and Economic Research, University of Alaska Anchorage, Alaska, United States of America.

- the title of the chapter on recommendations will be changed to “Recommendations to move forward” since the chapter will now contain advice not only for fisheries managers, but also for safety professionals and others;
- reference will be made to the relevance of fishers’ safety within the Ecosystem Approach to Fisheries; and
- the report will recommend that fisheries managers and safety professionals work together and engage on issues; it will also acknowledge a need for shared understanding between fisheries managers and safety professionals on issues of mutual concern.

DEVELOPMENT OF A DRAFT OUTLINE OF GUIDELINES FOR BEST PRACTICES TO IMPROVE SAFETY AT SEA IN THE FISHERIES SECTOR

14. Mr Gudmundsson introduced document EC:BPSAS/2008/3, which provides a draft outline of guidelines for best practices. He pointed out that it was not intended to limit the scope of the guidelines and informed the Expert Consultation that they would be published under the FAO Technical Guidelines for Responsible Fisheries series.

Objectives of the guidelines

15. In its consideration of the draft outline of the guidelines for best practices, the Expert Consultation was of the opinion that the principal objective should be the improved safety and health of those working in the fisheries sector through the development of national strategies, and that this objective could be achieved through the use of a set of readily understood guidelines. It was emphasized that the guidelines should ensure a holistic approach so that all factors influencing safety are comprehensively covered, and that awareness raising of safety issues should be accorded high priority.

16. The Expert Consultation agreed that success in achieving the objectives of national strategies aimed at improved safety and health could also result ultimately in a higher level of professionalism within the fisheries sector, noting that women and men should have decent and productive working conditions of freedom, equity, security and human dignity. In this regard, it was acknowledged that safe and healthy working practices contribute positively to productivity and economic growth.

Safety strategy

17. In its consideration of the strategy and its structure, the Expert Consultation agreed on an outline for the development of the guidelines for best practices, based on a series of four interlinked “pillars”. Under each of these pillars, three layers of guidance are provided: a first layer directed at the policy level, supported by a second layer setting out more detailed procedures and checklists, and a third layer providing detailed working instructions, case studies and reference material. The annotated outline of the guidelines for best practices to improve safety at sea in the fisheries sector as developed by the Expert Consultation is attached as Appendix F.

18. Under the first pillar, it is proposed that a baseline assessment of safety issues be carried out through data collection and analysis of accidents within the fisheries sector in order to identify and provide the necessary information to permit an understanding of where problems exist. In addition, the results of the analysis would provide benchmarks in support of monitoring and evaluation units.

19. The second pillar is devoted to the creation of an inventory or baseline survey, providing a comprehensive overview of all aspects of a national fisheries sector and, in particular, the human resources engaged in the sector, as well as available aquatic resources, technology and supporting services. Such an inventory would be useful in drawing attention to the diversity of fisheries, which range from subsistence fisheries to industrial fleets.

20. Within the third pillar, the information provided under pillars 1 and 2 will be analysed in detail in order to identify safety problems and their causes. This analysis would then be used to develop corresponding solutions and measures for their mitigation, together with a prevention strategy.

21. The fourth pillar then concentrates on the implementation and promotion of the strategy. It includes recommendations on how to advocate, manage and influence change and evaluate progress.

Guiding principles

22. It was stressed by the Expert Consultation that, as guiding principles, the guidelines should recognize the need to adopt a participatory approach through consultation with stakeholders and the creation of a broad-based empowerment structure to ensure ownership of the process by the ultimate beneficiaries: fishers and their families. It was further stressed that the guidelines should recognize the need for regional and subregional cooperation in promoting safety at sea, especially of small-scale fisheries. It was also stressed that whereas the guidelines should have a global perspective, the intent is for action at national and local levels. A contributing factor, identified by the Consultation, was to ensure that all stakeholders hold a clear and shared vision of the objectives.

Scope

23. The Expert Consultation agreed that the guidelines should be formulated with a view to being instrumental in the development and implementation of holistic and comprehensive national strategies for safety in the fisheries sector; it considered that the suggested title given in the report of COFI (Guidelines on Best Practices for Safety at Sea) was overly restricted by the use of the wording “at sea”, since safety in the fisheries sector as a whole extends to bays, sounds, estuaries, rivers and lakes. Thus it would be appropriate to address the needs and interests of fishers, harvesters, fish farmers and those who rear aquatic resources. In addition, activities falling under the responsibility of a fisheries administration may also extend to aquaculture. Consequently, it was decided to approach the development of the draft outline of guidelines for best practices to improve safety at sea in the fisheries sector on the basis of fish harvesting in general, rather than restrict discussions to seagoing activities. In this regard, the Expert Consultation agreed that the word “sea” should include oceans, seas, bays, sounds, estuaries, rivers and lakes and the aquaculture environment.

Target audiences

24. Bearing in mind the general principle of a participatory approach, the Expert Consultation agreed that the guidelines should be user friendly, taking into consideration the relatively wide target audience and application of the guidelines at the national and local levels. In this regard, it was agreed that in the development of the guidelines no distinction should be made between the needs of developing or developed countries.

25. It was noted that the guidelines would be of particular value to those individuals or groups championing the cause of improving safety in fisheries. It was also considered that they could be used by interested parties to audit the current status of safety in their fisheries.

Legal aspects

26. Relevant legal issues were addressed by in-house legal staff. It was recommended that reviews of national legal frameworks related to fishing vessel safety should be participatory (with a view to including all stakeholders, both governmental and non-governmental, who have an interest in or may be affected by decisions on the subject) and interdisciplinary (lawyers and technical experts should participate in the exercise, drawing upon their diverse expertise).

27. Such reviews should include not only shipping/maritime/labour and fisheries laws and regulations, but also other legal instruments (directly or indirectly) related to fishing vessel safety, because the relevant legal framework may be quite different from one country to another. For the same reason, recommendations on improving legislation on fishing vessel safety need to be flexible and, to a certain degree, general, so as to be useful for different countries with diverse legal frameworks and legal traditions. Special attention should be given to the development and implementation of appropriate and enforceable legislation for small vessels, including the carriage of safety equipment, together with training requirements. A model law may, therefore, not be the ideal instrument; rather, *elements* of solid legislation on fishing vessel safety may be identified and certain *options* for their inclusion in a specific legal framework may be formulated to provide guidance for different countries. The review of the legal framework should identify links (or the absence of links) between fisheries management and shipping/maritime/labour legislation, as well as the basis for coordination (or the lack thereof) among relevant institutions.

28. Legislation may serve to create rights and duties, as well as procedures, related to the following issues linked to fishing vessel safety: definitions, construction, registration, inspection, integration of safety requirements in fishing licensing systems, offences and sanctions, as well as exemptions as appropriate. Besides playing a “command and control” role, legislation may be a significant tool in providing incentives, addressing training and education issues, and creating the basis for permanent institutional cooperation.

Special requirements of developing countries

29. The Expert Consultation considered the possible needs of developing countries in order to implement guidelines for best practices to improve safety at sea in the fisheries sector. It recognized that many developing countries have special needs that extend beyond simply translating best practices into national languages, and that this would certainly be the case within the artisanal and small-scale fisheries sectors. It was anticipated by the

Consultation that assistance may be required to remove constraints to the development and implementation of a safety policy, and also to promote participation in regional and subregional activities related to safety at sea.

30. In addition, possible issues were identified that include, *inter alia*, the need for technical and legal assistance, data collection and analysis, capacity building, scientific cooperation and the training of trainers and extension workers.

31. Furthermore, it was noted that there would be a need to clarify how such assistance could be made available through, for example, technical cooperation programmes and regional cooperation.

32. The Expert Consultation considered that special attention should be given to the availability and affordability of safety equipment and servicing facilities, noting that such availability and affordability could influence the promulgation of regulations.

IDENTIFICATION OF APPROPRIATE NEXT STEPS AND RECOMMENDATIONS

33. The Expert Consultation, noting the recommendation contained in the *Report of the twenty-seventh session of COFI* that "... FAO should develop guidelines on best practices for safety at sea", recommended that the FAO Secretariat should now proceed with the development of the guidelines on the basis of the outline and general guidance developed by the Consultation. The experts expressed their willingness to be involved in the work, either in the development or review of draft texts. The Consultation noted the advantages of drawing on the expertise available within the ILO and IMO Secretariats and recommended that FAO strive to ensure coherence with ILO and IMO instruments, codes and guidance (including joint FAO/ILO/IMO publications) and integration with ongoing and related work by ILO and IMO.

34. The Expert Consultation noted with interest the quality of the findings of recent FAO regional workshops on safety at sea and suggested that their outcome be reflected in the guidelines.⁶

35. Following extensive discussion on the draft executive summary of the *International Study on Fishing Management Regimes and their impacts on Fishing Safety: Synthesis of Case Reports* (document EC:BPSAS/2008/Inf.3), the Expert Consultation recommended that FAO freely distribute the templates used in the development of the case studies to countries wishing to carry out a case study on their own fisheries. Agreeing with the report's main finding that fisheries management has indirect and direct effects on fishing safety, the Consultation also recommended that FAO undertake further research into the impacts of fisheries management on safety, for the purpose of developing training materials that could lead to an improved and shared understanding between fisheries managers and safety professionals on issues of mutual concern.

⁶ BOBP/FAO Regional Workshop on Sea Safety for Artisanal and Small-scale Fishermen in Chennai, India, October 2001; Regional workshops under the FAO Project TCP/RLA/0069 in the Caribbean Region on the Development of Standards for the Construction and Inspection of Small Fishing Vessels, 2000–2001; FAO/SPC Regional Expert Consultation on Sea Safety in Small Fishing Vessels in Suva, Fiji, February 2004; FAO/SWIOFC Regional Workshop on Safety at Sea for Small-Scale Fisheries in the South West Indian Ocean, Moroni, Union of the Comoros, December 2006; FAO Regional Workshop on Safety at Sea in Artisanal and Small-scale Fisheries in Latin America and the Caribbean in Paita, Peru, July 2007.

36. Considering the socio-economic and environmental elements of safety at sea, the Consultation recommended that FAO and regional fisheries management organizations undertake to promote safety at sea as part of the Ecosystem Approach to Fisheries.

37. The experts, aware that the guidelines constituted only voluntary guidance, considered and sought ways and means to ensure that they would lead to the development of national fisheries safety strategies. As a means of according additional authority to the guidelines, the Consultation strongly recommended the development of an IPOA on safety in the fisheries sector, of which the guidelines would be an integral component.

ANY OTHER MATTERS

38. No other matters were raised.

ADOPTION OF THE REPORT

39. The report of the Expert Consultation was adopted on Thursday 13 November 2008.

APPENDIX A

Agenda

1. Opening of the session
2. Election of the Chair
3. Adoption of the Agenda
4. Development of a draft outline of guidelines on best practices for safety at sea in the fisheries sector
5. Any other matters
6. Adoption of the report

APPENDIX B**List of participants****EXPERTS**

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APPENDIX C

List of documents

EC:BPSAS/2008/1	Provisional Agenda
EC:BPSAS/2008/2	Prospectus
EC:BPSAS/2008/3	Working Document – Draft outline of Guidelines on Best Practices for Safety at Sea in the Fisheries Sector ⁷
EC:BPSAS/2008/4	International Commercial Fishing Management Regime Safety Study: Synthesis of Case Reports – Draft Executive Summary ⁸
EC:BPSAS/2008/Inf.1	Provisional List of Documents
EC:BPSAS/2008/Inf.2	Provisional List of Participants
EC:BPSAS/2008/Inf.3	International Commercial Fishing Management Regime Safety Study: Draft Synthesis of Case Reports ⁸

⁷ At the Expert Consultation the title of the Draft outline was changed to “Draft outline of Guidelines for Best Practices to Improve Safety at Sea in the Fisheries Sector”.

⁸ At the Expert Consultation, the title of the International Study was changed to International Study on Fishing Management Regimes and their impacts on fishing Safety: Synthesis of Case Reports”.

APPENDIX D

Opening statement by Mr Grimur Valdimarsson, Director, Fish Products and Industry Division, FAO Fisheries and Aquaculture Department

Distinguished delegates, friends and colleagues,

On behalf of the Assistant Director-General of the FAO Fisheries and Aquaculture Department, Mr Ichiro Nomura, it gives me great pleasure to welcome you to FAO and to Rome for this Expert Consultation on Best Practices for Safety at Sea in the Fisheries Sector. You are taking part in an important process and have been specially selected to participate in this consultation. I would like to remind you that, in FAO, Expert Consultation experts act in their private capacity and thus do not represent the organizations for which they work.

Fishing is considered to be the world's most dangerous occupation, with an estimated 24 000 deaths per year. The safety of fishing vessels and fishermen involves several interrelated components such as design, construction and equipment of the vessels. However, social and economic pressures, as well as overcapacity and overfishing of coastal resources, are probably the major factors which have negated the results of efforts to improve safety at sea. Furthermore, safety issues on fishing vessels are of a different nature from those on merchant vessels where, for example, the majority of hazardous operations are carried out in the safety of the port, unlike those of fishing vessels, particularly small fishing vessels, where crews have to work at sea, on deck, in all types of weather, frequently with their hatches open, locating, gathering and processing their cargo at sea. The main underlying cause of accidents on fishing vessels is human behaviour or human error, estimated by some to be responsible for about 80 percent of accidents in the sector, rather than the design, construction and equipment of unsafe boats.

Studies have shown that certain fishery management systems can have an effect on the number of casualties on board fishing vessels. It goes without saying, for example, that competitive or "Olympic" fisheries management regimes are more hazardous than those where secure fishing rights take out that competition for the catch. However, we need a more comprehensive understanding of the effects, interrelationships and the existing socio-economic environment of different fisheries management regimes and their effects on the number of casualties in fishing operations. FAO is currently partnering with the National Institute for Occupational Safety and Health (NIOSH) in the United States on an international study into the relationship between fisheries management and fishing safety. A draft of this study has been made available to you and, over the next days, you will consider that relationship, i.e. fisheries management and fishing safety as well as impacts of the former on the latter.

The long-standing cooperation between FAO, ILO and IMO has resulted in several publications, such as the *Code of Safety for Fishermen and Fishing Vessels*, Parts A and B, and the *Voluntary Guidelines*, all of which have been recently revised. Currently, FAO is working together with ILO and IMO in developing new safety standards for small fishing vessels that are not covered by the revised Code and Guidelines. The provisional title of these new standards is "Safety recommendations for decked fishing vessels of less than 12 m in length and undecked fishing vessels". The target completion date for this work is 2010. In this regard, I would also like to

mention the ILO Work in Fishing Convention that was adopted last year. FAO took active part in the development of this Convention, which undoubtedly will improve the working and living conditions of fishermen worldwide.

Many Members of the Committee on Fisheries (COFI), which held its Twenty-seventh session in Rome from 5 to 9 March last year, expressed concern about the safety at sea for fishing vessels, especially small-scale fishing vessels. FAO was urged to continue collaboration with IMO and it was suggested that FAO should develop guidelines on best practices for safety at sea and that COFI should consider developing an IPOA on the subject.

Your objective in this Expert Consultation is to provide FAO with an updated draft outline for guidelines on best practices for safety at sea. You should also advise appropriate next steps that might be taken following the completion of the Consultation and of the finalization of the guidelines on best practices. The outcome of this Consultation will be a report, which you will be requested to approve before the Consultation concludes on Thursday.

Given the time available and the full agenda, you have a challenging task ahead. However, you have been asked to participate in this meeting because of your expertise and proficiency in these issues and because you are familiar with short deadlines. I am confident that you can achieve the objectives set for this meeting.

Let me conclude by wishing you a productive and enjoyable meeting. If I or my colleagues can be of assistance to you, please do not hesitate to call on us.

Thank you very much.

APPENDIX E

**International Study on Fishing Management Regimes and their impacts on Fishing Safety:
Synthesis of Case Reports**

Draft Executive Summary

by

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Purpose of this Report

Studies from many countries have suggested that fisheries management may affect fishing safety. However, there has been relatively little systematic analysis of *how* fisheries management affects safety or the extent to which changes in management can make fishing safer or less safe.

To better understand the relationship between fisheries management and fishing safety, the Food and Agriculture Organization of the United Nations (FAO) and the United States National Institute for Occupational Safety and Health (NIOSH) are cooperating in an international effort to document the relationship between fisheries management and fishing safety and to provide practical guidelines for fisheries managers and safety professionals on how they can help to make commercial fishing safer.

As part of this effort, in the spring of 2008, FAO contracted with researchers to prepare case studies of fisheries management and safety in sixteen countries/regions (Table 1). The purpose of this Synthesis Report is (1) to suggest a conceptual framework, terminology and hypotheses about the relationship between fisheries management and fishing safety; (2) to review the evidence provided by the international case studies with respect to these hypotheses; (3) to review other evidence in the published literature supporting these hypotheses; (4) to develop preliminary recommendations for fisheries managers and safety professionals about how they can help make commercial fishing safer; and (5) to suggest important areas for future research. Table 1 of this Executive Summary contains a list of the International Case Studies by Country/Region and Table 2 contains a list of other references consulted in this review.

Fishing safety is a complex problem. The diversity of the world's fisheries suggests that the safety problems, the factors contributing to them, and the potential ways of addressing them are similarly diverse. We argue that fisheries management can affect fishing safety in a variety of ways, both directly and indirectly. It is important to understand what these effects may be, and to consider how fisheries managers, while continuing to meet their fishery management goals, may also be able to make fishing safer and should be engaged with safety professionals.

Table 1: International Case Studies of Fisheries Management and Fishing Safety

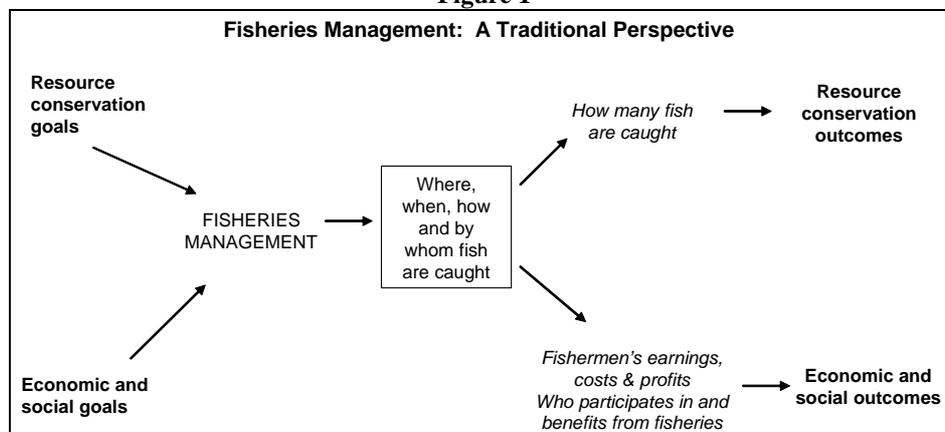
Country/Region	Fisheries Studied	Report Authors and Title
Argentina	Hake	Godelman, E. <i>Argentine safety at sea and fisheries management</i> . August 2008.
Chile	Pilchard and anchovy	Carrasco, J.I. <i>The Artisanal Regime of Extraction and its impact on the safety at sea. The case of a Chilean coastal pelagic fishery as an artisanal fishery under transition</i> . 2008.
EU	All	Renault, C, Douliazel, F, Pinon, H. <i>Incidence of gross tonnage limitations under the European Common Fisheries Policy</i> . June 2008.
France	Scallops	Le Berre, N, Le Roy, Y, Pinon, H. <i>Safety incidence of the management of scallop fisheries in Brittany and Normandy (France)</i> . June 2008.
Ghana	All	Bortey, A, Hutchful, G, Nunoo, F.K.E., Bannerman, P.O. <i>Safety and management practices in marine fisheries industry of Ghana</i> . June 2008.
Iceland	All	Petursdottir, G, Hjorvar, T, <i>Fisheries Management and Safety at Sea</i> . Sept 2008.
Japan	Several coastal fisheries	Matsuda, A, Takahashi, H. <i>Present status of the study of safety and management of fishery in Japan</i> . November 2008.
Malawi	Southern Lake Malawi fisheries	Njaya, F, Banda, M. <i>Fishing safety and health and fisheries management practices: Case of Southern Lake Malawi fisheries</i> . June 2008.
New Zealand	Albacore	Wells, R, Mace, J. <i>Case Study on the relationship between fisheries management and safety at sea. The New Zealand Albacore Fishery</i> . September 2008.
Pacific Islands	Tuna	Gillett, R. <i>Sea safety in the Pacific Islands: The relationship between tuna fishery management and sea safety</i> . June 2008.
Peru	All	Cardenas, C.A. <i>Project Artisanal fisheries and survival at sea in Peru</i> . July 2008.
Philippines	Tuna	CBNRM Learning Center. <i>Sea safety and fisheries management: Tuna fishing industry in General Santos City, Philippines</i> . August 2008.
Spain	All	Seco, B.R. <i>Study of the relationship between safety at sea and fisheries management in the competence of autonomous regions and their influence on the safety of fishermen and fishing vessels and fisheries management in Spain</i> . July 2008.
Sri Lanka	Multi-day fisheries	Hettiarachchi, A. <i>The multi-day fisheries of Sri Lanka: Management and safety at sea</i> . June 2008.
Sweden	Lobster	Roupe, U. <i>Fisheries management and lobster fishery: A case study on risk and safety from Sweden</i> . May 2008.
Thailand	Trawl & purse seine fisheries	Chokesanguan, B, Rajruchithong, S, Taladon, P, Loogon, A. <i>Safety at sea of trawler and purse seiner in Thailand</i> . August 2008.

Table 2: Additional Studies Reviewed for this Report

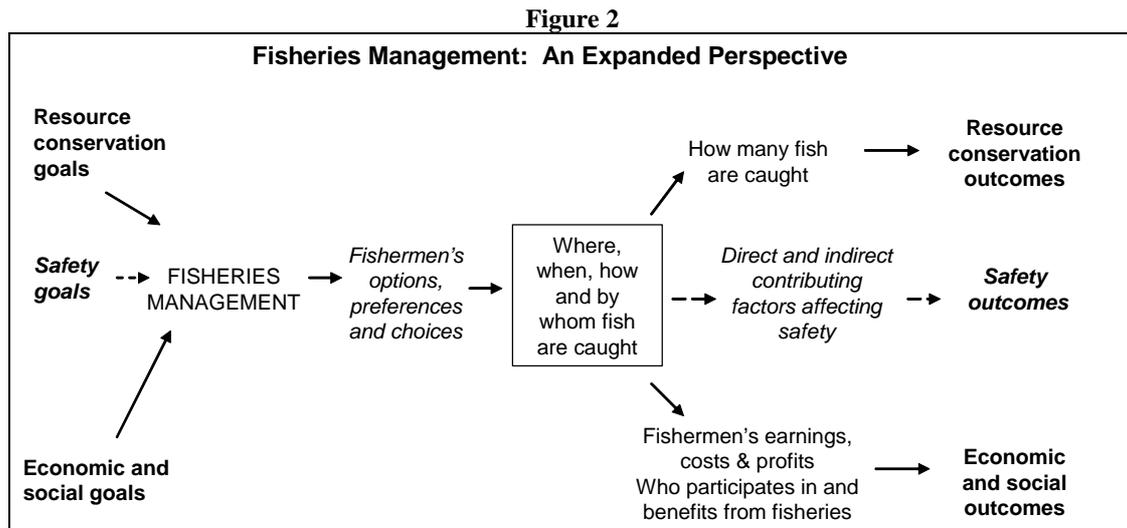
Country	Study
Canada	Wiseman, M. & Burge, H. 2000. <i>Fishing vessel safety review (less than 65 feet)</i> . Fisheries and Oceans Canada, Coast Guard, Maritime Search and Rescue, Newfoundland Region.
Denmark	Jensen, O. "Health hazards while fishing in heavy weather," Letter from Olaf C. Jensen, Institute of Maritime Medicine, South Jutland University Centre, Denmark. <i>Occupational and Environmental Medicine</i> 1997; 54:141.
United States (Alaska)	Hughes, Steven & Woodley C. 2007. <i>Transition from open access to quota-based fishery management regimes in Alaska increased the safety of operations</i> . <i>Internat. Marit. Health</i> , 2007, 58, 1-4.
United States (Alaska)	Lincoln, Jennifer; Nicole Mode, and Christopher Woodley. 2007. <i>An Evaluation of Quota-Based Management Systems in Alaska</i> . North Pacific Research Board Project 533 Final Report.
Multiple countries	[CARR] Windle, M. J. S., B. Neis, S. Bornstein, and P. Navarro. 2007? (no date provided). <i>Fishing Occupational Health and Safety: A Comparative Analysis of Regulatory Regimes</i> ," Available online at www.safetynet.mun.ca/pdfs/CARR.pdf .
Multiple countries	Knapp, Gunnar. 2008. <i>Commercial Fisheries Management and Fishing Safety: A Review of Selected Literature</i> . Prepared for National Institute of Occupational Safety and Health, Alaska Field Station.
Multiple countries	[NRC] National Research Council Committee to Review Individual Quotas. 1999. <i>Sharing the Fish: Toward a National Policy on Individual Fishing Quotas</i> . Washington, D.C. National Academy of Sciences. Text available online at www.nap.edu/books/0309063302/html/ .
Multiple countries	Petursdottir, Gudrun; Hannibalsson, Olafur & Turner, Jeremy. 2001. <i>Safety at Sea as an Integral Part of Fisheries Management</i> . FAO Fisheries Circular No. 966.

Conceptual Framework

A traditional perspective of fisheries management, illustrated in Figure 1, shows that the goals of fisheries management are primarily resource conservation and economic and social goals (such as jobs and income for fishermen and the welfare of fishing communities). To achieve these goals, managers adopt policies and regulations which affect where, when, how and by whom fish are caught. These policies in turn affect how many fish are caught and the resource conservation outcomes of management. The policies and regulations also affect fishermen's earnings, costs and profits, and who participates in and benefits from fisheries, and thus the economic and social outcomes of management.

Figure 1

An expanded perspective of fisheries management illustrated in Figure 2 shows that fisheries management policies affect fishermen's options, preferences and choices, and may also affect the human, equipment, and environmental contributing factors affecting safety outcomes. Even though the primary goals of fisheries managers may be resource conservation and economic and social goals, fisheries managers should be aware of the indirect effects of management on safety outcomes and should consider safety among other goals.



Hypotheses about Effects of Fisheries Management on Fishing Safety

Based on our expanded perspective of fisheries management, we propose four broad hypotheses about how fisheries management may affect fishing safety:

1. Fisheries management policies may have wide-ranging indirect effects on fishing safety. Although fisheries management policies are enacted primarily to achieve fishery management goals, they may affect fishing safety indirectly by affecting fishermen's options for how, when and where they may fish – which affect the tradeoffs fishermen face between safety and other objectives. Fisheries management policies may also affect the number of fishermen and vessels participating in a fishery, and thus the number of fishermen and vessels at risk.

2. Quota-based fishery management systems may be safer than competitive fishery management systems. In competitive fishery management systems, fishermen compete with each other for the available fish. In quota-based fishery management systems, managers limit how much individual fishermen may catch. Under quota-based management systems, fishermen face less of a tradeoff between safety and other objectives, giving them less incentive to take risks such as fishing without adequate rest

or fishing in bad weather. Quota based fishery management may also result in the use of newer and safer vessels and gear and more professional and better-trained crew.

3. Ineffective fisheries management policies may affect safety. If fishery resources are depleted or competition for limited resources becomes more intense, fishermen may take greater risks, such as fishing farther offshore, to seek a living.

4. Fisheries management can affect fishing safety directly by integrating policies that are traditionally safety policies with fishery management policies. For example, fisheries management agencies can require safety gear, safety training, and/or safety inspections as a condition for participating in fisheries.

Methods and Limitations

We reviewed each of the international case studies for evidence with respect to each of the four hypotheses listed above. We expected that the individual case reports would provide evidence supporting at least one of the hypotheses.

Our analysis was limited by the wide diversity of the fisheries covered by the case studies; the wide difference in approaches taken by the case study authors; very significant gaps in the available data about both safety problems (fatalities, injuries, and vessel casualties) and the populations at risk (numbers of fishermen and vessels, and fishing days and vessel days worked). We also found much complexity and diversity of the non-management related factors which also affect fishing safety.

Overview of Study Results

Despite these limitations, the international case studies found evidence from numerous countries for each of the hypothesized relationships between fisheries management and safety (Table 3). The fact that the study did not find evidence for some hypotheses does not necessarily mean that none exists. It is possible that researchers did not consider the hypothesized effects or that data were insufficient to examine the effect.

Table 3: Hypothesized Potential Effects of Fishery Management on Fishing Safety: Summary of Evidence from International Case Studies

Country/Region	Fisheries Studied	Indirect effects of fishery management on safety	Effects of quota-based management on safety	Effects of ineffective management on safety	Integration of safety policies with management
Argentina	Hake		Empirical and anecdotal		
Chile	Pilchard and anchovy	Empirical	Empirical	Hypothesized	
EU	All	Hypothesized			
France	Scallops		Empirical		
Ghana	All			Anecdotal	Implicit
Iceland	All	Empirical	Empirical		Empirical
Japan	Several coastal	Implicit			Implicit
Malawi	Southern Lake Malawi	Hypothesized		Hypothesized	Hypothesized
New Zealand	Albacore	Empirical & anecdotal			
Pacific Islands	Tuna			Anecdotal	Hypothesized
Peru	All				Hypothesized
Philippines	Tuna	Hypothesized			
Spain	All	Hypothesized			Hypothesized
Sri Lanka	Multi-day	Empirical and Hypothesized			Hypothesized
Sweden	Lobster				
Thailand	Trawl & purse seine	Implicit		Implicit	

Empirical evidence is based on analysis of data; *anecdotal* evidence is based on observations of fishermen or managers; *hypothesized* evidence is based on reasoning of the study authors; *implicit evidence* is information presented in the study which suggests potential effects not specifically addressed by the study authors.

Shaded cells indicate that the hypothesized potential effect is not relevant for the fishery. Blank cells indicate that insufficient information was provided in the study to draw any inferences about potential effects.

Recommendations

Fishery management is a complex challenge. Managers must attempt to balance multiple objectives, under significant uncertainty, with limited resources. We recommend that managers take practical steps and acknowledge the relationships we have outlined in this document and then take steps which may help to save lives and reduce injuries to fishermen.

The following list of recommendations is provided based on our review of the case studies and published literature.

1. Fisheries managers should be aware that the way fisheries are managed affects safety. Decisions taken by managers can directly or indirectly affect how many fishermen are injured or killed. Safety might be affected by (1) the scheduling of fishing opportunities; (2) restrictions on boats and gear; (3) potential incentives the regulations might create to fish in unsafe ways, such as in bad weather or without adequate rest.

2. Fisheries managers should consider safety an explicit goal of fisheries management. Fisheries managers could even consider regulations focused specifically on improving safety by including requirements for training and vessel inspections prior to being allowed to participate in the fishery. This is particularly important for fisheries with significant safety problems.

3. Fisheries managers should build up mechanisms for close collaboration and cooperation between the administrations responsible for safety and themselves. This also applies to maritime administrations. Having a clear understanding of each others responsibilities and limitations and cooperative efforts to obtaining mutual objectives should be discussed and implemented.

4. Fisheries managers should engage safety professionals to become aware of the safety record for the fisheries they manage. Safety professionals should be asked to regularly provide data on fatalities, injuries and vessel losses. The collection and analysis of resource quality data is a prime function of fisheries management. This collection and analysis should include not just catches, effort, but also safety data. This collection of data would respond to explicit management objective of increased safety and can then be used to define the interventions. Effective regulations can only be formulated when the problem is understood. Safety information should be regularly included in management reports and published on websites, including positive information such as “days fished safely.” Safety audits of current management regulations should also be done. Safety professionals should systematically review management regulations and consider if and how they might affect safety. Managers should include fishermen in the safety audit, and should ask fishermen how management affects safety, and what could be done to make fishing safer.

APPENDIX F

Annotated Outline of Proposed Guidelines for Best Practices to Improve Safety at Sea in the Fisheries Sector

Contents

Introduction

Scope

Objectives

Main pillars

Pillar 1 – Data collection and analysis to improve safety

Pillar 2 – National fisheries sector inventory

Pillar 3 – Problems, solutions and safety strategy development

Pillar 4 – Managing change

Annex 1 – Extracts from the *Code of Conduct for Responsible Fisheries* (FAO, 1995)

Annex 2 – Examples of relevant international agreements, both binding and voluntary

INTRODUCTION

Fatality rates among fishers at sea are higher than in any other normal occupation. In 1999, International Labour Organization (ILO) estimated that 24 000¹ fatalities occur worldwide per year in capture fisheries and it seems plausible that the fatality rates in countries for which data are not available may be higher than in those countries that do keep records; thus the total number of fatalities may be even higher than those indicated above. The consequences of loss of life have a profound impact on family dependents. In many developing countries, these consequences can be devastating: widows often have a low social standing, there is no welfare state to support the family and with a lack of alternative sources of income, the widow and children may face destitution.

In order to formulate effective interventions to improve safety, a comprehensive understanding of both the nature of safety and the lack of it is a prerequisite. The need for reliable data and information related to both the causes and effects of accidents at sea cannot be overestimated. Such analysis must go beyond the direct cause of an accident (e.g. fire, collisions, capsizing), and must seek to explain why and how the problem arose. The process should include the views of all partners, taking their perceptions and perspectives into account. Definition of the problem will suggest potential solutions, as well as eliminating those that are unsuitable or unworkable.

The safety of fishers and fishing vessels concerns not only the technical elements of vessel design, construction and equipment, but also a number of social and economic factors. The main reason for accidents in the fishing industry is human error (estimated in the United States of America to be responsible for 80 percent of accidents in the industry),² rather than the design and construction of unsafe boats. Poor fishing practices and seamanship can result, for example, in well-designed and well-constructed fishing vessels capsizing because of operational behaviour that reduces the stability of the vessel.

Overcapacity and overfishing of coastal resources are probably the major factors that have limited or even, in some instances, nullified positive efforts to improve safety at sea. In a situation of overcapacity and overfishing, there is high competition to catch limited resources. Pressures on owners and skippers to ensure economic survival can result in cost cutting in vessel maintenance, safety equipment, labour and living and working conditions, leading to undermanning and fatigue that greatly contribute to human error and accidents. At the same time, within this competitive environment, increased investment in speed and catching efficiency further aggravates the problems because investment repayment drives the urgency to catch more fish. Unless fishing effort is commensurate with fish resources, this state of competition will continue, with negative consequences on safety.

The situation is worsened when viewed within the context of the many fisheries that are characterized by open access, overcapacity, overstressed resources and an excess of labour. Where fisheries represent an opportunity for employment of the last resort, there is no

¹ ILO. 1999. Tripartite Meeting on Safety and Health in the Fishing Industry, Geneva, 13–17 December 1999.

² Umberti, W.J. 2001. Excerpts from Operation safe return: a nontraditional approach to improving commercial fishing vessel safety. *Proceedings of the Marine Safety Council*, April–June 2001.

shortage of workers who are willing to accept poor conditions of employment while further contributing to the problem of overcapacity. Furthermore, many fishers are generally part of the informal labour sector: unrepresented and non-unionized. They are often self-employed or engaged as casual labour, and not regarded as skilled labour. As a result, they are frequently not protected sufficiently by social or labour legislation, nor are they regarded as a significant grouping by political forces. Indeed, one of the definitions of small-scale fishers (who account for perhaps 75 percent of the 20 million full-time fishers in the marine capture sector) describes them as being “very much subject to the control of those persons and groups holding power in the community, such as religious and political leaders, money-lenders and others in economically strong positions”. In this situation, their needs for adequate protection and improved safety may go unanswered and thus highlight the necessity for fisher representation and community empowerment. Success in achieving the objectives of improved safety and health should also result ultimately in a higher level of professionalism within the fisheries sector, noting that women and men should have decent and productive work in conditions of freedom, equity, security and human dignity. Safe and healthy working practices contribute positively to productivity and economic growth.

The decisions of fisheries managers can affect fishing safety in a variety of ways, both directly and indirectly. Safety in fishing operations cannot, therefore, be divorced from fisheries management and this is recognized in the provisions of the FAO *Code of Conduct for Responsible Fisheries*, which addresses safety and health in the fisheries sector. Improving safety should become an explicit objective of fisheries management. Considering the socio-economic and environmental elements, FAO member countries and regional organizations should undertake to promote safety at sea as part of the Ecosystem Approach to Fisheries.

Legislation plays an essential role in ensuring the proper design, construction and equipment of fishing vessels, and in ensuring the proper training and working conditions of their crews. But safety legal requirements accepted by the merchant fleet as a result of effective enforcement and strong seafarer representation are often met with reluctance in the fisheries sector, where enforcement is less effective and operators avoid compliance with legal requirements that might affect their income. Unlike many industries, the working environment, working conditions and practices in the fisheries sector are inadequately controlled because they take place at sea, out of sight of the law enforcer. In some cases, compliance with legislation may not result in the desired impact because operators, being aware of the increased seaworthiness of their vessels (as a result of compliance), may simply extend the limits of acceptable risk.

Regulators generally prefer a “command-and-control” form of legislation for a number of reasons: ease of enforcement, clarity for regulated groups and certainty of intent. The drawbacks may include rigidity, a tendency to be overdetailed, inflexibility, high costs, its adversarial nature and, in some cases, ineffectiveness and unenforceability. But even after the most rigorous decision-making process inside the administration, legislation has yet to pass the most demanding test of all: the sector must agree to comply with it because it supports the intent. Yet implementation may be better assisted by strategies

such as education, assistance, persuasion, mentoring, promotion, economic incentives and monitoring rather than by a purely command-and-control approach, which is very often ineffective in countries that tend to rely too much on ineffective punitive threats and too little on other kinds of incentives.

Safety issues are multisectoral, but they are often addressed on an impromptu basis. Furthermore, safety issues on fishing vessels are of a different nature from those on merchant vessels where, for example, the majority of hazardous operations are carried out in the safety of the port, unlike those of fishing vessels, particularly small fishing vessels, where crews have to work at sea, on deck, in all weathers, frequently with their hatches open, locating and gathering their cargo from the sea. It is sometimes not obvious which administration has a clear mandate and responsibility for dealing with the safety of smaller fishing vessels (under 24 m in length). Maritime administrations typically deal with the bigger ships, preferring limited involvement with small fishing vessels that are largely outside their area of experience, while fisheries administrations remain involved in fisheries management, being more concerned with the health of fish stocks than in the safety of those who harvest them. There is a tendency for neither administration to address the safety of small fishing vessels adequately.

The safety of fishers and fishing vessels has been an integral part of the programme of work of FAO since the recruitment of its first Naval Architect in 1946 and, in particular, through the design and construction of fishing vessels, as well as safety training in developing countries. On matters of conditions of work and service in the fishing industry, FAO has been working closely with ILO. At a later date, cooperative arrangements were established with IMO, following the entry into force of the Convention to establish the current IMO.³ The cooperation between the three organizations continues to the present day.

This long-standing cooperation between FAO, ILO and IMO has resulted in the development or revision of a number of binding and non-binding instruments which address the safety of fishers and fishing vessels and many of these are referred to and expanded on in greater detail within the following sections. Recent developments have witnessed even greater levels of collaboration between these United Nations organizations in recognition of the need to address the safety problem in a more holistic sense; this collaboration should be reflected at the national level among the concerned administrations, thus permitting a pooling of ideas and expertise to ensure the development of comprehensive and effective measures. A broad range of economic, social and technical interventions are required to improve fishers' safety at sea, and cooperation between administrations and other concerned groups is required at regional and national levels if these interventions are to be effective.

The guidelines for best practices to improve safety at sea in the fisheries sector should primarily be intended for the use of maritime, labour and fisheries administrations; industry; fisher associations and representatives. They will seek to raise awareness of the

³ Initially known as the Intergovernmental Maritime Consultative Organization (IMCO), the name was changed to the International Maritime Organization (IMO) in 1982.

breadth of the problem, and to offer guidance on the broad range of issues that must be addressed if the safety problem is to be tackled in an effective and holistic manner. They cannot be considered as providing a single detailed prescription for all that needs to be done to improve safety. However, it is hoped that these guidelines will underline the need for the establishment of fisheries administrations that provide an environment within which fishing communities, owners, operators and skippers are provided with, and can make use of, the options and tools necessary to improve their safety at sea. The guidelines would take into account the outcomes of the FAO regional meetings on fishermen's safety at sea, which have emphasized that improved fishing vessel safety will best be achieved through the development and implementation of coordinated national strategies. Ultimately, sea safety is a national responsibility and many efforts to improve safety need to be continuous.

This annotated outline of guidelines for best practices is based on a series of four interlinked "pillars". Under each of these pillars, three layers of guidance are provided: a first layer directed at the policy level, supported by a second layer setting out more detailed procedures and checklists, and a third layer providing detailed working instructions, case studies and reference material.

Under the first pillar, it is proposed that a baseline assessment of safety issues be carried out through data collection and analysis of accidents within the fisheries sector in order to identify and provide the necessary information to permit an understanding of where problems exist. In addition, the results of the analysis would provide benchmarks in support of monitoring and evaluation units.

The second pillar is devoted to the creation of an inventory or baseline survey, providing a comprehensive overview of all aspects of a national fisheries sector and, in particular, the human resources engaged in the sector, as well as available aquatic resources, technology and supporting services. Such an inventory would be useful in drawing attention to the diversity of fisheries, which range from subsistence fisheries to industrial fleets.

Within the third pillar, the information provided under pillars 1 and 2 will be analysed in detail in order to identify safety problems and their causes. This analysis would then be used to develop corresponding solutions and measures for their mitigation, together with a prevention strategy.

The fourth pillar then concentrates on the implementation and promotion of the strategy. It includes recommendations on how to advocate, manage and influence change and evaluate progress.

PILLAR 1 – DATA COLLECTION AND ANALYSIS TO IMPROVE SAFETY

The first stage in defining the problem must include not only evidence of its nature and magnitude, but also explain why and how the problem has arisen. This process must include information obtained from all relevant stakeholders as well as their perceptions and perspectives.

Guidance will be provided on:

- the need for accident/incident data collection, interpretation and analysis;
- design of data collection systems acknowledging that it is important to identify appropriate data sources since these may vary from country to country. Data sources may include records held by the coastguard, navy, insurance companies, traditional power structures, police, death registers and coroners' inquests as well as anecdotal evidence from crew members, communities and families;
- identification and definition of data types and the development of a data dictionary that defines and describes/classifies accident types;
- preparation of a standard form for accident data collection as well as how, where and when to collect data;
- systems for centralized collection/collation of data from decentralized sources, including anonymous information (for example, reports of near misses, unsafe practices, skipper/crew misbehaviour);
- collection of accident data in remote areas where particular challenges may be encountered;
- collection of accident and injury data from sources where data may be classified as confidential (examples are social security, insurance and health records of injured persons) and the provision of mechanisms that allow the sharing of pertinent data while maintaining an acceptable level of confidentiality;
- implementation of sustainable and cost-effective data collection/analysis systems such as through capacity building in data collection and analysis by a government institution, or having data collection and analysis carried out by an independent agency/investigation unit;
- comparing costs of accident prevention versus search and rescue (SAR) operations and also national economic costs of death and accidents, as well as understanding the true cost of accidents; and
- where applicable, the application of data collection technology for improved efficiency (hotlines, cellular phones and the Internet).

PILLAR 2 – NATIONAL FISHERIES SECTOR INVENTORY

This pillar is devoted to the creation of an inventory or baseline survey, providing a comprehensive overview of all aspects of a national fisheries sector and, in particular, the human resources engaged in the sector, as well as available aquatic resources, technology and supporting services. The information generated would feed into the other pillars. Thus the main elements of an inventory of the current national situation would include:

- comprehensive reports reviewing all national fisheries and the state of their resources;
- numbers and demography of people involved in the fisheries sector by activities (fishing operations/aquaculture);
- numbers and types of fishing vessels as well as non-fishing vessels that are dedicated to supporting activities in the fisheries sector by defined size or tonnage categories and hull materials;
- results of socio-economic analyses of fisher communities and fleet segments;
- records of vessels, authorizations to fish and vessel ownership;
- a summary of national fisheries management objectives and regulations so as to allow analysis of their direct or indirect relationship to safety issues;
- identification of the competent authority or authorities responsible for the management and administration of the fisheries sector, occupational safety and health (OSH) and SAR;
- definition of the links between all concerned administrations (for example, port authorities, shipping, fisheries, labour, OSH and meteorological services);
- identification of vessel owner organizations and fish processing and marketing organizations, as well as fisher representative organizations and entities representing others employed in the fisheries sector and their interests and mandates;
- training facilities covering subject matters within the fisheries sector;
- numbers of qualified trainers and their specializations, as well as numbers of extension specialists;
- availability of qualified examiners in areas of certification of fishing vessel personnel;
- legal requirements or other types of arrangements for consultation/cooperation between ministries/administrations. Legal requirements for institutional cooperation may be included in primary legislation and, for example, provide for a permanent coordination body and set requirements for exchange of information or joint action, etc.);
- status of existing national legislation directly or indirectly related to fishing vessel safety (fisheries management, shipping, OSH and others);
- identification of procedures and conditions for licensing and registration;
- identification of construction standards for fishing vessels and certification requirements set out in national regulations ;
- shipbuilding/boatbuilding companies (within the country) and an outline of their capabilities;
- identification of manufacturers and suppliers within the country providing safety equipment, machinery and services;
- lists of insurance brokers, marine mutual associations and P&I⁴ Clubs providing insurance coverage for fishing vessels and crew as well as credit institutions providing finance in fisheries and the marine sector;
- a description of historic safety strategies (and their effectiveness) including self-assessment and safety management systems; and
- historic data on fatalities and injuries.

⁴ Protection and indemnity insurance in respect of third party liabilities and expenses arising from owning ships or operating ships as principals.

PILLAR 3 – PROBLEMS, SOLUTIONS AND SAFETY STRATEGY DEVELOPMENT

Within this third pillar, the information provided under pillars 1 and 2 will be analysed in detail in order to identify safety problems and their causes. The analysis will then be used to develop corresponding solutions and measures for their mitigation, together with a prevention strategy.

Analytical tools

The strategy for improved safety and guidance, including the use of analytical tools, should determine direct contributing factors to fatalities, injuries and vessel casualties before, during and after the event, such as:

- human factors (for example, fatigue, stress, lack of training, risk-taking behaviour, drug abuse, safety culture, demographic issues);
- fisheries management regimes (overcapacity, excessive competition);
- regulatory measures (unclear, inappropriate or out-of-date regulations, or gaps or contradictions among applicable regulations, in particular regarding registration and fishing authorization procedures; and lack of enforcement resulting from a lack of trained human resources, lack of financial resources and/or inadequate sanctions);
- vessel and equipment (poor design and construction, inadequate crew facilities and medical supplies, poor maintenance, lack of quality boatbuilders);
- physical environment (weather, wind, waves, poor visibility, etc.); and
- operational factors, including vessel management, aids to navigation, navigational error).

Strategy development

With regard to the mitigation/solution of the identified problems, guidance should be provided on the development of strategies, participatory mechanisms and implementation programmes, including elements such as:

- a mechanism to ensure broad stakeholder consultation and participation, which may include fish processing and marketing companies, safety equipment and engine suppliers, boatyards, scientific research, training institutes;
- analysis of the value/pertinence of existing legislation; preparation of amendments to existing legislation or new legislation based on suggested elements and options where and when appropriate;
- the integration of the principles of the Ecosystem Approach to Fisheries and pertinent Articles of the *FAO Code of Conduct for Responsible Fisheries* relating to safety and accident prevention into the safety strategy;
- implementation of training needs assessment and voluntary and mandatory training for fishers and inspectors as well as fisheries and maritime administration personnel;

- analysis of the direct and indirect relationship between fisheries management measures and safety at sea, including vessel position monitoring systems and monitoring, control and surveillance;
- evaluation of factors arising from increased investment, effort and risk;
- the significance of fiscal policies and their effect on safety;
- development of an effective framework for cooperation between fisheries and maritime and other concerned administrations at the national level;
- importance and the power of safety awareness-raising campaigns among fisher families and communities and empowerment of fishers in the decision-making process through the participatory approach; and
- mitigation of the adverse effects on the safety of fishing caused by the increasing frequency of extreme weather phenomena arising from climate change, through early warning systems, disaster preparedness, risk reduction planning and implementation and other mitigation arrangements within the strategy.

PILLAR 4 – MANAGING CHANGE

Drawing upon the data collection and analysis, inventories and problems and solutions identified, Pillar 4 will concentrate on the promotion of the overall strategy on how to manage or influence change. Plans of action with measurable goals and objectives to monitor progress and evaluate impact will be developed. Additionally, key partners in the strategy, instrumental in implementing change(s), would be identified.

Guidance will be provided on the need:

- to raise political will and commitment for improving safety;
- to identify a “champion” or champions and pressure groups to bring about change;
- for all stakeholders to hold a clear and shared vision of the objectives;
- to empower all stakeholders to take identified action as agreed in consultation and, where applicable, the formation of a safety committee(s), e.g. maritime and fisheries administrations, training and OSH institutions, fishing boat owners and operators, fisher unions, cooperatives, families and insurance entities;
- to consider other non-traditional “agents of change” such as families, primary schools, religious groups, Non-governmental Organizations (NGOs) and the navy;
- to consider the value of statutory, formal classroom and informal training, as well as training of and by extension specialists at the dockside or on the beach;
- for consultation among all stakeholders with the objective of transferring ownership of the principal objective of these guidelines on best practices (the improved safety and health of those working in the fisheries sector) to the beneficiaries;
- to provide the resources to bring about change, including skills, expertise, time and financing to ensure change through action, performance and accountability;
- for quality project design and formulation, including progress indicators, and addressing implementation, review, ongoing monitoring and evaluation, and correction and adjustment, taking into consideration the effectiveness of a project and cost benefits to the country;

- for the development of a communication strategy to keep channels of communication open for the distribution of all pertinent information and awareness raising;
- to use mentors to enhance communications with fishers, including fisher to fisher; and
- to learn from the experiences of other sectors in the country with regard to safety and OSH programmes.

Annex 1

EXTRACTS FROM THE *CODE OF CONDUCT FOR RESPONSIBLE FISHERIES* (FAO, 1995)

ARTICLE 6 GENERAL PRINCIPLES

6.17 States should ensure that fishing facilities and equipment as well as all fisheries activities allow for safe, healthy and fair working and living conditions and meet internationally agreed standards adopted by relevant international organizations

ARTICLE 7 FISHERIES MANAGEMENT

7.1 General

7.1.7 States should establish, within their respective competences and capacities, effective mechanisms for fisheries monitoring, surveillance, control and enforcement to ensure compliance with their conservation and management measures, as well as those adopted by subregional or regional organizations or arrangements.

7.1.8 States should take measures to prevent or eliminate excess fishing capacity and should ensure that levels of fishing effort are commensurate with the sustainable use of fishery resources as a means of ensuring the effectiveness of conservation and management measures.

7.6 Management measures

7.6.5 States and fisheries management organizations and arrangements should regulate fishing in such a way as to avoid the risk of conflict among fishers using different vessels, gear and fishing methods

ARTICLE 8 FISHING OPERATIONS

8.1 Duties of all States

8.1.5 States should ensure that health and safety standards are adopted for everyone employed in fishing operations. Such standards should be not less than the minimum requirements of relevant international agreements on conditions of work and service.

8.1.6 States should make arrangements individually, together with other States or with the appropriate international organization to integrate fishing operations into maritime search and rescue systems.

8.1.7 States should enhance through education and training programmes the education and skills of fishers and, where appropriate, their professional qualifications. Such programmes should take into account agreed international standards and guidelines.

8.1.8 States should, as appropriate, maintain records of fishers which should, whenever possible, contain information on their service and qualifications, including certificates of competency, in accordance with their national laws.

8.2 Flag State duties

8.2.5 Flag States should ensure compliance with appropriate safety requirements for fishing vessels and fishers in accordance with international conventions, internationally agreed codes of practice and voluntary guidelines.⁵ States should adopt appropriate safety requirements for all small vessels not covered by such international conventions, codes of practice or voluntary guidelines.

8.2.8 Flag States should promote access to insurance coverage by owners and charterers of fishing vessels. Owners or charterers of fishing vessels should carry sufficient insurance cover to protect the crew of such vessels and their interests, to indemnify third parties against loss or damage and to protect their own interests.

8.2.9 Flag States should ensure that crew members are entitled to repatriation, taking account of the principles laid down in the "Repatriation of Seafarers Convention (Revised), 1987 (No.166)".

8.2.10 In the event of an accident to a fishing vessel or persons on board a fishing vessel, the flag State of the fishing vessel concerned should provide details of the accident to the State of any foreign national on board the vessel involved in the accident. Such information should also, where practicable, be communicated to the International Maritime Organization.

8.3 Port State duties

8.3.2 Port States should provide such assistance to flag States as is appropriate, in accordance with the national laws of the port State and international law, when a fishing vessel is voluntarily in a port or at an offshore terminal of the port State and the flag State of the vessel requests the port State for assistance in respect of non-compliance with subregional, regional or global conservation and management measures or with internationally agreed minimum standards for the prevention of pollution and for safety, health and conditions of work on board fishing vessels.

8.4 Fishing operations

8.4.1 States should ensure that fishing is conducted with due regard to the safety of human life and the International Maritime Organization International Regulations for Preventing Collisions at Sea, as well as International Maritime Organization requirements

⁵ Refers to FAO/ILO/IMO *Code of Safety for Fishermen and Fishing Vessels* (Parts A and B) and the *Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels*.

relating to the organization of marine traffic, protection of the marine environment and the prevention of damage to or loss of fishing gear.⁶

8.11 Artificial reefs and fish aggregation devices

8.11.1 States, where appropriate, should develop policies for increasing stock populations and enhancing fishing opportunities through the use of artificial structures, placed with *due regard to the safety of navigation*, on or above the seabed or at the surface. Research into the use of such structures, including the impacts on living marine resources and the environment, should be promoted.

8.11.4 States should ensure that the authorities responsible for maintaining cartographic records and charts for the purpose of *navigation*, as well as relevant environmental authorities, are informed prior to the placement or removal of artificial reefs or fish aggregation devices.

ARTICLE 10 INTEGRATION OF FISHERIES INTO COASTAL AREA MANAGEMENT

10.1 Institutional framework

10.1.5 States should promote the establishment of procedures and mechanisms at the appropriate administrative level to settle conflicts which arise within the fisheries sector and between fisheries resources users and between them and other users of the coastal area.

⁶ Included since lost and or abandoned fishing gear can be a navigational hazard.

Annex 2

EXAMPLES OF RELEVANT INTERNATIONAL AGREEMENTS, BOTH BINDING AND VOLUNTARY

The following examples of international conventions and other legal instruments, agreements or arrangements having a bearing on those engaged in fishing and the design and construction of vessels as well as their operations, are also supported by many resolutions and recommendations.

Standard specifications for the marking and identification of fishing vessels (FAO, 1989) (voluntary)

The purpose is to provide an aid to fisheries management and safety at sea through the marking of fishing vessels for their identification on the basis of the International Radio Call Signs (IRCS) system. The said marks should be visible on both sides of a vessel (hull or sail as the case may be) and on a horizontal surface. The word “vessel” in the specifications refers to any vessel intending to fish or engaged in fishing or ancillary activities operating, or likely to operate, in waters of states other than those of the flag state.

Code of Conduct for Responsible Fisheries (FAO, 1995) (voluntary)

One of the objectives of the Code is to ensure the long-term sustainability of living marine resources so that these can be harvested by generations to come, thus making a substantial contribution to world food security and employment opportunities. Article 8 of the Code of Conduct (see Annex 1) further develops the provision regarding fishing operations.

Convention on the International Regulations for Preventing Collisions at Sea (COLREGs), 1972

The Convention establishes principles and rules concerning lights and shapes to be displayed by ships as well as establishing traffic rules at sea.

International Convention for the Safety of Life at Sea (SOLAS), 1974, its Amendments and Protocols

The Convention promotes safety at sea by establishing a common agreement, uniform principles and rules. Whereas the regulations do not apply to fishing vessels, unless expressly provided otherwise, Chapter V – Safety of Navigation has to be addressed in the case of fishing vessels (except for those navigating the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of the St Lambert Lock at Montreal in the Province of Quebec, Canada).

International Convention on Maritime Search and Rescue, 1979

The Convention establishes an international maritime search and rescue (SAR) plan covering the needs for ship reporting systems, SAR services and the rescue of persons in distress at sea.

Torremolinos International Convention on the Safety of Fishing Vessels, 1977 and the Torremolinos Protocol of 1993 relating thereto (not in force)

These provide uniform principles and rules concerning construction, equipment, stability, radiocommunications and other safety aspects of fishing vessels.

Code of Safety for Fishermen and Fishing Vessels, Part A (as revised) (voluntary)

The purpose of Part A of the Code is to provide information with a view to promoting the safety and health of crew members on board fishing vessels. It may also serve as a guide for those concerned with framing measures for the improvement of safety and health on board fishing vessels but it is not a substitute for national laws and regulations. It addresses decked and undecked fishing vessels of *all sizes* and recognizes the important role of fisheries management in relation to fishing vessel and crew safety. Part A of the Code is amply supported by 20 relevant appendixes with regard to operational safety and health.

Code of Safety for Fishermen and Fishing Vessels, Part B (as revised) (voluntary)

Part B of the Code provides information on the design, construction and equipment of fishing vessels with a view to promoting the safety of fishing vessels and the safety and health of the crew. The Code is not a substitute for national laws and regulations, nor is it a substitute for the provisions of international instruments in relation to the safety of fishing vessels and crew although it may serve as a guide for those concerned with framing such national laws and regulations. The Code is *voluntary*. It is wider in scope than the Torremolinos Protocol and only the minimum provisions to ensure the safety of fishing vessels and the safety and health of the crew are given in this part of the Code for fishing vessels of 24 m in length and above.

Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels (as revised) (voluntary)

These guidelines provide information on the design, construction and equipment of fishing vessels with a view to promoting the safety of fishing vessels and the safety and health of the crew. They are not intended as a substitute for national laws and regulations but may serve as a guide for those concerned with framing such national laws and regulations. It is emphasized that each competent authority responsible for the safety of fishing vessels should ensure that the provisions of the guidelines are adapted to its specific requirements, with due regard to size and type of vessels, their intended service and area of operation. Unless otherwise stated, the provisions of the guidelines are

intended to apply to new decked fishing vessels of 12 m in length and above, but less than 24 m. Nevertheless, even where not otherwise stated, the competent authority should, as far as is reasonable and practical, give consideration to the application of these provisions to existing decked fishing vessels.

Safety recommendations for decked fishing vessels of less than 12 m in length and undecked fishing vessels (voluntary)

This instrument is under development with a target completion date of 2010. It will provide information on the design, construction, equipment, training and protection of the crew of small fishing vessels with a view to promoting the safety of the vessel and the safety and health of the crew. The safety recommendations are not intended as a substitute for national laws and regulations but may serve as a guide for those concerned with framing such national laws and regulations. Each competent authority responsible for the safety of fishing vessels should ensure that the provisions of these safety recommendations are adapted to its specific requirements, with due regard to size and type of vessels, their intended service and area of operation. Unless otherwise stated, the provisions of the recommendations are intended to apply to new decked vessels of less than 12 m in length and new undecked vessels of any length intended to operate at sea. Nevertheless, even where not otherwise stated, the competent authority should, as far as is reasonable and practical, give consideration to the application of these provisions to existing vessels.

Guidelines to assist competent authorities in the implementation of Part B of the Code of Safety for Fishermen and Fishing Vessels, the Voluntary Guidelines and the Safety recommendations (voluntary)

This instrument is under development with a target completion date of 2010. The guidelines may address, but need not be limited to: legal implications; administrative requirements; capacity building; enforcement; operational safety; understanding of the technical provisions; and the human element.

International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F), 1995 (not in force)

In establishing, by common agreement, international standards of training, certification and watchkeeping for personnel on board fishing vessels, the Convention desires to help promote the safety of life at sea and the protection of the marine environment. It makes provisions for personnel serving on fishing vessels of 24 m in length and above for skippers and officers in charge of a navigational watch and for chief and second engineer officers where the main propulsion machinery of a fishing vessel is 750 kW or more.

Document for Guidance on Training and Certification of Fishing Vessel Personnel (voluntary)

This makes provisions for training for personnel serving on fishing vessels of all sizes.

International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)

Detailed regulations covering the various sources of pollution are contained in five annexes to the Convention. Annex V – Prevention of pollution by garbage from ships has a bearing on safety at sea whether or not the garbage comes from a ship or a fishing vessel. In the case of fishing vessels, accidentally lost, discarded and otherwise abandoned fishing gear may be a hazard to the safety of navigation.

ILO Work in Fishing Convention (not in force)

The new ILO Work in Fishing Convention (No. 188), with the Recommendation (No. 199) that accompanies it, provides a global labour standard that is relevant to all fishers (both male and female), whether on large vessels on international voyages or in small boats operating in domestic waters close to shore. The Convention addresses, in particular, working situations and conditions faced in the fishing industry. The Convention is flexible, so that it is relevant to all types of commercial fishing and can be implemented by governments around the world, whatever their particular circumstances.

This document contains the Report of the Expert Consultation on Best Practices for Safety at Sea in the Fisheries Sector, which was held in Rome, Italy, from 10 to 13 November 2008. The purpose of the Consultation was to provide guidance to FAO regarding the development of guidelines for best practices to improve safety at sea in the fisheries sector. In its consideration of the draft outline of the guidelines, the Consultation was of the opinion that the principal objective should be the improved safety and health of those working in the fisheries sector through the development of national strategies, and that this objective could be achieved through the use of a set of readily understood guidelines. It was emphasized that the guidelines should ensure a holistic approach so that all factors influencing safety are comprehensively covered, and that awareness raising of safety issues should be accorded high priority. The Consultation also made recommendations regarding the scope of the guidelines, the special needs of developing countries, and other specific considerations and goals, as well as on the appropriate next steps that might be taken following the completion of the Consultation.

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