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VOLUNTARY GUIDELINES FOR THE MARKING OF FISHING GEAR

Introduction

FAO convened a Technical Consultation on the Marking of Fishing Gear from 5-9 February 2018 which adopted Voluntary Guidelines on the Marking of Fishing Gear. Pursuant to paragraph 20 of the Report of the Technical Consultation on the Marking of Fishing Gear (COFI/2018/Inf.25) the Secretariat has reviewed the text to ensure internal language and legal consistency, and to undertake editorial work as required, prior to submitting the Guidelines to COFI for its consideration at its Thirty-third Session. The review of the text, which included edits for language and legal consistency and numbering and paragraph formatting as required resulted in no substantive changes to the text which was agreed by the Technical Consultation.

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I. STATEMENT OF PURPOSE

1. The Voluntary Guidelines for the Marking of Fishing Gear are a tool to contribute to sustainable fisheries and to improve the state of the marine environment by combatting, minimising and eliminating abandoned, lost or otherwise discarded fishing gear (ALDFG) and facilitating the identification and recovery of such gear. These Guidelines may assist States in meeting their obligations under international law, including relevant international agreements and related governance frameworks, as well as contribute to improved safety at sea by reducing the hazard to navigation caused by ALDFG and helping to identify illegal, unreported and unregulated (IUU) fishing activities. States are also encouraged to take these Guidelines into consideration, as appropriate, when developing gear marking systems for inland waters.
2. The purpose of these Guidelines is to assist States and regional fisheries bodies (RFBs), including regional fisheries management organizations and arrangements (RFMO/As). In developing and applying a system for the marking of fishing gear and related measures to address ALDFG, that provide:
 - a) practical means of locating and identifying the ownership of fishing gear;
 - b) guiding text on the development of appropriate marking systems;
 - c) a framework for undertaking risk assessment to identify the appropriateness or otherwise of implementing a system for marking fishing gear; and
 - d) a basis for the preparation of recommendations and regulations designed to minimize the abandonment, loss and discarding of fishing gears and encourage recovery of ALDFG.
3. These Guidelines take into account, *inter alia*, the following documents:
 - a) The Code of Conduct for Responsible Fisheries;
 - b) 2001 International Plan of Action to Prevent, Deter and Eliminate IUU fishing;
 - c) The Report of the 1991 Expert Consultation on the Marking of Fishing Gear (FAO Fisheries Report No. 485, 1993);
 - d) The 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessel (the "Compliance Agreement");
 - e) The contents of Annex III (Proposed System for the Marking of Fishing Gear) and Annex IV (Proposal for the Application of a Standard System of Lights and Shapes for the Identification and Location of Fishing Gear) of the FAO Technical Guidelines for Responsible Fisheries. No.1. FAO (1996);
 - f) The International Convention for the Prevention of Pollution by Ships (MARPOL) Annex V¹;
 - g) The 2003 FAO Technical Guidelines for Responsible Fisheries. Fisheries Management - 2. The Ecosystem Approach to Fisheries;

¹ MARPOL Annex V generally prohibits the discharge of all garbage into the sea, except as provided otherwise in regulations 4, 5, 6 and 7 of the Annex, which are related to food wastes, cargo residues, cleaning agents and additives and animal carcasses, as well as exceptions set out in regulation 7. Unless explicitly provided otherwise, MARPOL Annex V applies to all ships, which means all vessels of any type whatsoever, including fishing vessels, operating in the marine environment.

- h) UNGA resolution 60/31, paragraphs 77-81, and UNGA resolution 70/75, paragraphs 174 and 175;
 - i) The 2009 FAO International Guidelines for the management of Deep-sea Fisheries in the High Seas;
 - j) The 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing;
 - k) The 2011 FAO International Guidelines on Bycatch Management and Reduction of Discards;
 - l) The 2012 Guidelines for the implementation of MARPOL Annex V, adopted by IMO through resolution MEPC 219(63);
 - m) The IMO resolution A.1117(30)²;
 - n) The Revised International Standard Classification of Fishing Gears (ISSCFG, Rev.1, 21 October 2010) adopted at the 25th Session of the Coordinating Working Party, Rome 2016; and
 - o) Recommendations made by the Expert Consultation on the Marking of Fishing Gear in paragraphs 25 and 26 of the FAO Fisheries and Aquaculture Report No. R1157, Report of the Expert Consultation on the Marking of Fishing Gear, Rome, 4-7 April 2016.
4. These Guidelines outline the considerations for developing a system for the marking of fishing gear. The Annex provides some basic elements to be considered when preparing a risk assessment for gear marking.

5. These Guidelines are to be interpreted and applied in conformity with the relevant rules of international law, as reflected in the United Nations Convention of the Law of the Sea of 10 December 1982 (1982 UN Convention). Nothing in these Guidelines prejudices the rights, jurisdiction or duties of States under international law as reflected in the 1982 UN Convention. In particular, nothing in these Guidelines is to be construed to affect the right of States to adopt, maintain or expand more stringent requirements for the marking of fishing gear than those provided for in these Guidelines, including any measures adopted pursuant to a decision of a RFB including a RFMO/A.

II. SCOPE AND PRINCIPLES

6. These Guidelines are voluntary and are global in scope. They apply to all fishing gear types used in all type of fishing activities in all oceans and seas.
7. A system of marking fishing gear should be put in place for all gear types unless the relevant authority, as a result of risk assessment or other appropriate means, deems otherwise. The level of complexity of the gear marking should be based upon the necessity and practicality of such a system.
8. A risk assessment can also facilitate prioritization of actions and guide additional phased mitigation approaches. These would be based on the level of severity and likelihood of potential impacts of different fisheries, using the best available information at the time of the assessment.
9. A system for the marking of fishing gear should be designed to take into account the practical requirements of the fishery to which it applies and the responsibilities of the States as flag, coastal and port States and, where appropriate, as members of RFBs including RFMO/As.

² IMO resolution A. 1117(30) invites governments concerned to implement the IMO Ship Identification Number Scheme.

10. There should be an active, inclusive and informed participation of interested parties, including fishing communities, in the whole decision-making process for the development, implementation and regulation of a fishing gear marking system in a transparent and open manner.
11. The system for the marking of fishing gear should:
- a) build on an assessment of risks associated with ALDFG so that gear marking actions are prioritized and proportionate with the identified risks, and designed to reduce, mitigate and eliminate these risks effectively;
 - b) provide a simple, pragmatic, affordable and verifiable means of identifying the ownership and position of fishing gear, and its link with the vessel(s) and/or operator(s) undertaking the fishing operations;
 - c) to the extent possible, be compatible with related traceability and certification systems;
 - d) be supported by a monitoring process that ensures that the system is responsive to the changing conditions of all stakeholders;
 - e) aid resource management systems;
 - f) meet obligations of relevant international conventions and agreements;
 - g) link, through any fishing authorization or license, to any vessel(s) or operator(s) engaged in fishing and related operations;
 - h) be consistent with MARPOL Annex V and associated guidelines, and contribute to implementing regulation 10.6 relating to reporting requirements; and
 - i) promote employment of methods that do not pose an environmental risk, e.g. plastic pollution.
12. A system for the marking of fishing gear may also include a method for indicating the presence of fishing gear in the water column.
13. The system of marking of fishing gear should be set out in, or supported by, national and sub-national legislation, and regional legal frameworks as appropriate, without prejudice to existing measures that achieve the same effect.
14. Where guidelines recommend that a particular mark be fitted on a fishing gear, or that another marking specification be complied with, the relevant national authority or, RFB including a RFMO/A, as appropriate, may allow other mark or marking specification, provided it satisfies the minimum requirements set in these Guidelines and further aids in the marking of gear.
15. The risk assessments referred to in this section should address the potential risks to navigation, safety and the environment, and the benefits of having an effective gear marking and reporting system established in a fishery. Guidance on criteria that can be used when preparing a risk assessment are set out in the Annex.

III. DEFINITIONS

16. For the purpose of these Guidelines:
- a) “fishing gear” refers to any physical device or part thereof or combination of items that may be placed on or in the water or on the seabed with the intended purpose of capturing or controlling for subsequent capture or harvesting marine organisms, in accordance with MARPOL Annex V.

- b) “mark” means:
- i) an identifier, that allows the relevant authority to discern the person or entity ultimately responsible for the use of the fishing gear; and/or
 - ii) a means of providing an understanding of the presence, scale and nature of fishing gear in the water.
- c) “fish aggregating device” (FAD) in these guidelines, without prejudice to the use of different definitions in other instruments, refers to a permanent, semi-permanent or temporary object, structure or device of any material, man-made or natural, which is deployed, and/or tracked, and used to aggregate fish for subsequent capture. A FAD can be either an anchored FAD (aFAD) or a drifting FAD (dFAD).
- d) “abandoned fishing gear” means fishing gear over which that operator/owner has control and that could be retrieved by owner/operator, but that is deliberately left at sea due to force majeure or other unforeseen reasons.
- e) “lost fishing gear” means fishing gear over which the owner/operator has accidentally lost control and that cannot be located and/or retrieved by the owner/operator.
- f) “discarded fishing gear” means fishing gear that is released at sea without any attempt for further control or recovery by the owner/operator.

IV. IMPLEMENTATION OF A GEAR MARKING SYSTEM

17. Gear marking should be considered in the context of broader fisheries management measures which support sustainable fisheries and healthy oceans, including the reduction, minimisation and elimination of ALDFG.
18. The relevant policy-making authorities, with the participation of all parties concerned, should:
- a) determine the use of a system, if applicable, for the marking of fishing gear;
 - b) identify the fisheries, fishing gears, vessels or areas to which the system applies, and specify conditions for implementation of, or the grant of exemptions from, the agreed system; and
 - c) define procedures for reporting, data storage, retrieval and information exchange.
19. States should cooperate, either bilaterally or through subregional or regional fishery bodies, such as RFBs including RFMO/As, as appropriate, on the establishment, implementation and harmonization of fishing gear marking systems as deemed necessary and appropriate.
20. The system of marking of fishing gear should be designed to provide sufficient information to achieve its intended benefits as laid out in Paragraph 11 of these Guidelines. To this end, the system should provide for the components, aspects, requirements and specifications set out in these Guidelines, including:
- a) reporting of ALDFG;
 - b) reporting of fishing gear found;
 - c) recovery of ALDFG; and
 - d) where possible, the safe and environmentally sound disposal of unwanted gear.

21. The systems for the marking of fishing gear should be designed to make their implementation as feasible as possible to ensure their adoption.
22. Where the marking of fishing gear is implemented by relevant national, sub-national, or regional requirements, gear marking, should, as appropriate, be a condition of any new fishing authorization or license. Where there is no fishing authorization or license to fish required, a system of marking of fishing gear may be implemented as part of the fisheries management system when deemed both necessary and practical.
23. An owner of fishing gear subject to a fishing gear marking system should be allocated a unique mark to be applied to all such gear owned by him/her.
24. When the fishing gear is associated with a registered fishing vessel, if applicable, the mark allocated for the fishing gear should match the vessel registration details (e.g. the port letters and numbers or IMO number³, if available).
25. The relevant authority may authorize the use of a common mark to a company, organization of fishers or similar entity, if it can be demonstrated that the fishing gear to be marked can be used by more than one group of users or vessels on a rotational or common pool basis. When feasible, such identification marks should be followed by an individual gear identifier, and the owner(s) should keep a log of the physical location of the gear.
26. Marks should be of a type and design approved by the competent authority and fitted in accordance with technical specifications, taking into account, if applicable, the best available international standards.
27. Such marks could be documented in the form of a fishing gear record or through a fishing licensing or authorization system. Information associated with the mark should be recorded and incorporated into the existing fishery licensing or authorization system, if applicable.

V. MONITORING, CONTROL AND SURVEILLANCE

28. States regional and subregional fishery bodies, such as RFBs, including RFMO/As, and fishing communities should ensure that enforcement of a system for the marking of fishing gear is an integral part of fisheries monitoring, control and surveillance (MCS) arrangements.
29. MCS arrangements should provide for the application of appropriate penalties or sanctions for non-compliance with the various requirements of the fishing gear marking system.
30. Inspections should be carried out by the relevant authority to verify that owners and operators mark their fishing gear as required. Unmarked or insufficiently marked fishing gear that cannot be linked to its ownership or permission to fish in a specific area, may indicate IUU fishing operations and should be referred to the relevant authorities for appropriate action. Gear marking should be considered an important mechanism for assisting in the prevention of IUU fishing.
31. Port State inspection of fishing gear should be conducted in accordance with the procedures set out in Annex B, paragraph e) of the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, including conditions in relation to marking of the fishing gear.
32. Relevant authorities, in developing mechanisms for the traceability of gear marks, should make appropriate provisions for loss, damage and replacement of individual marks. In the event of a mark being lost, damaged or illegible, the owner should provide as soon as practicable to the relevant

³ According to the provisions of the resolution A.1117 (30) – IMO Ship Identification Number Scheme, adopted on 6 December 2017.

authority a declaration detailing the circumstances of the loss and requesting provision of new mark(s).

33. States should encourage anyone who finds deployed gear without appropriate marks to report it to the relevant authorities.

VI. REPORTING OF ALDFG

34. The requirement for fishing operators to report ALDFG to the relevant authority could be a condition of the fishing authorization/license.

35. Relevant authorities should establish appropriate reporting regimes, using the best available international standards. Reports should be made in a timely manner, to the flag State, to the relevant authority that issued any relevant gear mark, and, if relevant, to the coastal State in whose jurisdiction the loss of the fishing gear occurred.

36. A record/register of fishing gear reported as being found, abandoned, lost or otherwise discarded should be maintained by the relevant authority, in accordance with national legislation. This record/register should include details, where available, of:

- a) gear ownership;
- b) type and characteristics of the fishing gear;
- c) any fishing gear mark(s) and other identifiers;
- d) date, time, position of loss or retrieval, depth of water, etc.;
- e) reason for loss;
- f) weather conditions;
- g) any other relevant information including entrapment of endangered, threatened or protected species; and
- h) status of ALDFG (i.e., retrieved/not retrieved, sold or destroyed)

37. States should provide information about ALDFG available to relevant RFBs including RFMO/As, other relevant organizations and entities and other interested stakeholders, as appropriate. Reciprocal arrangements should apply, as appropriate.

38. Recognizing that ALDFG may be a danger to navigation, States should encourage the owner/operator of the ALDFG to immediately warn other vessels in the vicinity, giving details of the gear and its last known position. The relevant authority should use the most effective means to give a general warning to other vessels.

VII. RECOVERY OF ALDFG

39. States should encourage owners/operators of fishing gear to make every reasonable effort to retrieve ALDFG. In the event of failure of recovery, it should be reported, consistent with paragraph 35 to the relevant authority, which should consider, where practicable and feasible, cost effective arrangements for recovery of ALDFG.

40. The recovery of ALDFG should be undertaken with due regard to human safety and the subsequent damage such retrieval may have on the marine environment and habitat.

41. Priority should be given to the retrieval of ALDFG that:

- a) presents a hazard to the navigation of surface and sub-surface vessels, or to fishing operations;
- b) poses a significant adverse impact to critical, vulnerable or otherwise sensitive habitats;
- c) poses an entanglement, entrapment or ingestion threat to marine wildlife or has a potential of ghost fishing.

42. States should make efforts to identify ALDFG ‘hotspots’ that pose elevated risks including those identified in Paragraph 41, and devise specific strategies for recovery of ALDFG in those areas.

43. The relevant authority should encourage owners of the fishing gear to have adequate equipment and training available to facilitate the recovery of ALDFG. Where possible, the owner/operator and the relevant authority should collaborate to enhance recovery efforts. Owners (national or foreign) should be informed of gear recovered (where appropriately marked) so that they can facilitate the collection of the recovered gear for recycling, re-use or safe disposal.

44. Recovered ALDFG and fishing gear no longer in use should be recycled, or disposed of responsibly on land. States should ensure the provision of adequate port reception facilities for the disposal of such fishing gear in accordance with MARPOL Annex V.

45. States and other interested parties are encouraged to support the development of infrastructure to enable the recycling of recovered ALDFG and fishing gear no longer in use.

VIII. COMMERCIAL TRACEABILITY OF FISHING GEAR MARKING

46. States should encourage fishing gear manufacturers and suppliers to facilitate traceability across the supply chain, from production to use and subsequent disposal. Such traceability could include marking with manufacturer name, year of manufacture, type of product and serial number or production batch, and other information that is useful for commercial traceability. These marking systems should be linked to standard record-keeping practices of commercial transactions. States should also encourage retailers of fishing gear, if different from the manufacturer, to include these serial or batch numbers in their record keeping.

47. States should encourage fishing companies and other relevant enterprises, including associations promoting the interests of the fishing industry to consider developing procurement strategies and policies which require their suppliers to operate in conformance with these Guidelines or applicable national and/or local legislation to the same effect.

48. Due consideration should be given to making compliance with these Guidelines an integral part of assessments linked with sustainable seafood certification programmes and other sustainability initiatives.

49. States should take into account the particularities of fishers who produce their own fishing gear and the specificities of small-scale manufacturers that produce fishing gear for small-scale or artisanal fisheries in applying the provisions of this section of these Guidelines.

IX. FISH AGGREGATING DEVICES

50. States, RFBs including RFMO/As and other relevant authorities are encouraged to develop marking systems and other measures, as appropriate, for FADs, in line with the elements outlined in this section.

51. A fishing authorization or license to use any form of FAD should include a condition that they are marked.

52. The structure of a FAD, or the electronic buoy attached to it, should contain a physical unique identification mark. For dFADs, an electronic buoy should be attached to enable real-time tracking of spatial position by the operator. For large-scale offshore operations, relevant authorities may require the use of satellite buoys on dFADs as a condition of fishing to facilitate global monitoring and fisheries management measures, taking into due consideration the need to protect confidentiality of commercially-sensitive information.

53. Relevant authorities should clearly define (i) when a FAD is considered lost, or abandoned and (ii) the FAD operator, taking into account potential issues such as the frequent exchange of satellite buoys (ownership) attached to a FAD and abandoning of dFADs when they drift into areas where fishing or transmitting is prohibited.

54. When FADs are lost or abandoned the relevant authorities should be notified of the last known position of such FAD/s by the FAD operator.

55. When feasible, recovery of FADs abandoned or no longer in use should be encouraged. The relevant authorities should establish a framework to determine the responsibility for the recovery of lost or abandoned FADs. Priorities should be given to the retrieval of FADs that:

- a) present a hazard to the navigation of surface and sub-surface vessels, or to fishing operations;
- b) pose a significant adverse impact to critical, vulnerable or otherwise sensitive habitats; and
- c) pose an entanglement, entrapment or ingestion threat to marine wildlife or has a potential of ghost fishing.

56. To reduce the potential impact or damage to marine wildlife, environment, or habitat, States and RFBs including RFMO/As should encourage the use of non-entangling designs and materials, as well as natural and biodegradable materials in the construction of FADs.

X. RESEARCH AND DEVELOPMENT

57. States, RFBs including RFMO/As, and other interested parties, should, alone or in cooperation, conduct research that would facilitate the development and adoption of new technologies and procedures related to the marking of fishing gear and FADs, including, *inter alia*, the monitoring and retrieving of ALDFG and FADs, and more effective and ecological methods and technology.

58. States, RFBs including RFMO/As, and other relevant authorities should conduct research into strategies which ensure responsible management of fishing gear to reduce, mitigate or eliminate the loss, abandonment and discarding of fishing gear throughout its complete lifecycle, which could incorporate gear marking and other relevant tools and management measures.

59. States, RFBs including RFMO/As, and other interested parties should conduct research into measures which would reduce the negative impact of fishing gear and FADs if lost, abandoned or discarded, for example, non-entangling and biodegradable materials and escape mechanisms for trapped animals.

XI. AWARENESS RAISING, COMMUNICATION AND CAPACITY DEVELOPMENT

60. States, RFBs including RFMO/As, and other interested parties, should cooperate to identify and share best practices, collate and share information, as well as coordinate effective communication and training.

61. All parties should raise awareness of the problems caused by ALDFG and provide States, other stakeholders and the general public a clear purpose and rationale why it is necessary and

beneficial to properly mark fishing gear and apply other measures which reduce the risk of ALDFG. This should include raising awareness of MARPOL Annex V regulations on waste management at sea and other relevant instruments.

62. RFBs including RFMO/As should periodically consult their members to collate information and build understanding of ALDFG trends and impacts over time, fishing industry attitudes and behaviour towards fishing gear management measures, as well as to monitor the effectiveness of any measures employed.

63. States, RFBs including RFMO/As and other relevant parties should encourage, and where possible facilitate, communication between different fishing fleets operating over the same ground to make others aware of passive/set gear and other factors which may increase risk of gear conflict. States, RFBs including RFMO/As and other parties should also consider segregation of areas by stationary and mobile gear, where appropriate, to reduce gear conflict and gear loss.

64. States, regional/subregional bodies, such as RFBs including RFMO/As, are encouraged to develop communication frameworks to enable the recording and sharing of information on ALDFG where necessary, in order to reduce its occurrence and facilitate its recovery. States are further encouraged to develop frameworks to assist fishing vessels in reporting the loss of gear to the flag State and, where appropriate, to the coastal State in whose jurisdiction the loss of the fishing gear occurred. Such frameworks should take into consideration implementation challenges in small-scale and artisanal fisheries and recreational operations, as well as the use of the best available international standards.

65. States and RFBs including RFMO/As should address potential constraints to the effective implementation of a system for gear marking. They should provide adequate education, training, technology exchange, on voluntary and mutually-agreed terms, and other forms of capacity development to fishers, relevant authorities, and other interested parties to facilitate the implementation of the gear marking system.

66. States, RFBs including RFMO/As and fishing sectors that require additional resources to develop or conduct capacity-development in gear marking should collaborate with appropriate organizations, NGOs, commercial and other entities or other national authorities in order to fully realize the benefits of the gear marking system, including, *inter alia*, the monitoring and retrieving of ALDFG, combating IUU fishing and improving safety at sea.

XII. SPECIAL REQUIREMENTS OF DEVELOPING STATES AND SMALL-SCALE FISHERIES

67. Due attention should be given to enhancing the capacity of developing States to develop and adopt appropriate technology and knowledge in gear marking and systems for the marking of fishing gear, through financial and technical assistance and cooperation, technology transfer and training, on voluntary and mutually agreed terms, in conformity with relevant international law and the FAO Code of Conduct for Responsible Fisheries and related instruments.

68. States should give full recognition to the special requirements of developing States, in particular, least developed and Small Island Developing States, and small-scale fisheries in relation to their capacity to implement a system of gear marking consistent with these Guidelines, including the assessment of risk and feasibility. States may, either directly or through international organizations, such as RFBs, including RFMO/As and other relevant partners, provide assistance to developing States, in order to, *inter alia*:

- a) enhance, and where necessary develop, legal and regulatory frameworks for a system of gear marking;
- b) strengthen the institutional arrangements and infrastructure needed to ensure effective implementation of a system of gear marking;
- c) strengthen research and development on a system of gear marking;
- d) develop, implement and improve practical and effective control and monitoring systems; and
- e) build institutional and human resource capacity.

69. States may, either directly or through FAO, assess the special requirements of developing States to implement these Guidelines.

70. States may cooperate to establish appropriate funding mechanisms to assist developing States to implement these Guidelines. These mechanisms may be directed specifically towards developing and enhancing the capacity of the States to implement these Guidelines, and may include technical and financial assistance.

XIII. ADDITIONAL CONSIDERATIONS

71. FAO will, as and to the extent directed by its mandate, promote the use of and collect relevant information on global implementation of these Guidelines and report this information, as requested, to the FAO Committee on Fisheries.

72. FAO will, as and to the extent directed by its mandate, facilitate the implementation of these Voluntary Guidelines by, *inter alia*, producing technical documents regarding types of gear marks for identification of the owner; suggestions for the location of the mark in relation to gear type; guidance for the marking of fishing gear to indicate position and to mark the presence of the gear in the water column, and any other subject relevant for the implementation of gear marking systems.

ANNEX

RISK-BASED APPROACH TO ASSIST RELEVANT AUTHORITIES IN DETERMINING THE NEED FOR AND REQUIREMENTS OF A SYSTEM FOR MARKING FISHING GEAR

A risk-based approach to implementing gear marking systems to mitigate against ALDFG can reduce the likelihood of loss and the impact of the loss if it occurs.

Many factors contribute towards ALDFG, including but not limited to: the type of fishing gear, weather, sea and bottom conditions, equipment failure, the level of fishing effort in a particular area, human error and safety considerations.

Before a full risk assessment is undertaken, a simple yes/no assessment may be conducted based on the type of fishing gear, marking methods and techniques and the area of operation. This will allow simple small-scale methods, usually hand-held fishing gears, to be assessed without the need for a full risk assessment.

The assessment should be devised based upon the best available information to determine the risk associated with the current level of gear marking in the fishery in question concerning:

- a) ecological harm;
- b) economic harm due to ghost fishing or illegal, unreported, and unregulated fishing;
- c) safety at sea; and
- d) the impact on fishing operations.

The determination of risk levels involves four primary steps:

- a) Estimation of the consequences (impact) of the lack of a gear marking system in the fishery under consideration;
- b) Estimation of the likelihood of occurrence (probability) of the identified impacts occurring as a result of the lack of a gear marking system in the fishery under consideration;
- c) Scoring of the risk; and
- d) Categorization of the risk.

The specific criteria addressed in the risk assessment should be based on the specific fishery conditions under consideration. As general guidance, the scope of a risk assessment should include parameters influencing consequences and impacts including, *inter alia*:

- a) Ecological risks: Status of species impacted, habitats fished, vulnerability and fragility of the species and habitats where the fishery takes place and taking into account that ALDFG may drift large distances and settle in areas outside the fishery of concern, in areas beyond national jurisdiction or in another national jurisdiction;
- b) Economic risks: Level of effort, the value of the fishery, economic nature of the fishery (subsistence, industrial) and the potential for ghost or IUU fishing;
- c) Technological risks: Gear type, numbers of gears, numbers of vessels, method of operation;
- d) Safety and Navigational risks;

- e) Social and cultural risks: Different users, language competencies, level of organization;
- f) Availability of information and the quality of information; and
- g) The synergies to be derived from harmonizing gear marking systems.

Determining a risk level needs defensible estimates of the consequences and likelihood. A clear rationale should be provided on how estimated levels were chosen, so that the process can be traced and verified. A clear rationale also provides a basis from which future assessments can be measured. The information, data and expert opinion collected and consolidated through the initial scoping exercise form the basis for that rationale, with additional information being provided where appropriate and necessary.

FURTHER INFORMATION TO CONSIDER IN THE RISK ASSESSMENT PROCESS

Feasibility and affordability

In addition to the risk assessment, decisions should also be informed by an assessment of the feasibility of implementing a system for the marking of gear and of the related cost/benefit issues. Accordingly, the assessment could address the following basic questions:

- a) Is the technology associated with the system feasible, cost-effective and fit for the required purpose?
- b) Will the technology mature over time?
- c) Are there any technical barriers to integrating the capability within the current fishery system?
- d) How would the gear marking system affect the efficiency of the fishery (i.e., reduced CPUE, added down time, associated costs, etc.)?
- e) What measures would be necessary to assist the fleet into implementation of gear marking?
- f) What resources would be available to ensure successful implementation?
- g) Does the gear marking system add potential hazards or interference to regular fishing activities?
- h) Do the States in question have the administrative and economic capacity to implement and monitor the system?
- i) What capacity building and/or funding needs should be considered (both in terms of administrations and fishery operators)?
- j) Do language competencies, level of organization and different users have an impact on the implementation of gear marking systems?

Participation

Arrangements for conducting risk assessments and associated decisions should be carried out with balanced participation by independent technical experts and by representatives of interested parties in system development, revision and approval processes.

Transparency

Risk assessments and associated decision-making should be carried out in a transparent manner and follow written rules of procedure. Once a risk assessment has been completed, it should be published promptly and where possible be accessible electronically to the public.