

Marine debris, plastics and microplastics

i) **Challenges posed by marine debris: the issue of Abandoned, lost or otherwise discarded fishing gear (ALDFG)**

Abandoned, lost or otherwise discarded fishing gear (ALDFG) is a significant component of marine litter and causes substantial and wide range of ecosystem and economic problems because of their inherent catching/entangling characteristics

The portal could also provide information about which gear types are most frequently lost or discarded, and what impacts they are having on biodiversity. A global platform addressing the aforementioned issues is under consideration and where FAO is a partner. Responsible management of fishing gear is a critical part of a sustainable and responsible fishing.

ii) FAO actions to prevent and significantly reduce ALDFG and its impacts

Aquaculture Department, deals with the issue of marine debris, plastics and microplastics from a fishing operations perspective. This issue is closely related to the issue of ALDFG, for which FAO and its Members have expressed concern. In this regard, it has been noted that the elaboration of a standard for the marking of fishing gear would be of benefit to coastal States in addressing problems associated with ALDFG.

There is a growing number of legally binding international instruments that provide explicit requirements for the marking of fishing gear. The United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks¹, adopted in August 1995, includes, as part of the duties of Flag States, the requirement for the marking of fishing vessels and fishing gear for identification in accordance with uniform and internationally recognizable vessel and gear marking systems.

In addition, the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) provides requirements for the marking of fishing gear. Annex V of MARPOL 73/78 prohibits the disposal at sea of fishing gear made of synthetic material, except the accidental loss of synthetic fishing nets provided all reasonable precautions have been taken to prevent loss. The guidelines for the application of Annex V calls for fisheries managers to utilize fishing gear identification systems which provide information such as vessel name, registration number and nationality, and encourages governments to consider the development of technology for more effective fishing gear identification. Both Annex V and the guidelines were recently revised.

The Thirty-first session of the FAO Committee on Fisheries (COFI 31) held in 2014, expressed concerns over the issue of ghost fishing caused by ALDFG and noted that greater attention should be paid by Members and regional fisheries bodies to mitigate ALDFG impacts, noting that cost effective technologies and practices were available. Many Members highlighted the need for further work on this issue.

Workshop²
inter alia

¹ Agreement for the Implementation of the United Nations Convention on the Law of the Sea of December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, opened for signature 4 December 1995 (entered into force 11 December 2001), article 18.3(d).

² Report of the Expert Workshop to prepare practical guidance on preventing and mitigating the significant adverse impacts of marine debris on marine and coastal biodiversity and habitats. Baltimore, United States of America, 2-4 December 2014. UNEP/CBD/MCB/EM/2014/3/2.

substances such as additives and persistent pollutants found in plastic. Microbial contamination of plastics is also suggested as a potential risk to human health in this context. Microplastics are ingested or filtered by commercial fish and shellfish species, and could therefore harm seafood consumers. At present there is no comprehensive risk assessment available which could confirm this concern and lead to risk management and risk communication if needed, due to the limited knowledge available on the impact of microplastics to human health. Although humans are clearly exposed to microplastics through the consumption of seafood, this might in many cases not be the main source of microplastics in our diets.

To some extent, even though less important than other sectors, the fisheries and aquaculture sector is also one source of microplastics through the use of plastic for various equipment and gears used by the industry. The fragmentation of this plastic in microscopic or nanoscopic fragments can contribute to the contamination of fish products. As a result, the microplastic exposure may be higher in aquaculture systems that use plastics.

iv) Actions and activities undertaken by FAO with regard to the provision of UNGA resolutions that relate to this subject

FAO is collaborating in the ongoing preparation of the second GESAMP report providing a global assessment on sources, fate and impacts of microplastics on the marine environment and resources, with specific contributions dealing with the fisheries and aquaculture sector; currently, the main focus of concern is to assess the potential impact of microplastics on human perception. However, there might also be consequences on fish productivity as physiological processes are likely to be affected by microplastics (because of their occurrence and of the presence of additives and contaminants contained in or on the microplastic particles). The report under preparation will take stock of the scientific knowledge available, provide information on the most likely pathways in terms of sources, transport and distribution in both marine food chains and seafood value chains as well as provide a framework to assess the risks that may (or not) affect commercial fish stocks and consumers. Supported by the Norwegian Government and UNEP, FAO has initiated a study to focus specifically on key issues of marine microplastics pollution and fisheries and aquaculture, which will cover risk assessment methodologies of microplastics contamination of seafood and related risk management and communication approaches.

v) Suggestions for further action to prevent and significantly reduce marine microplastics

A number of recommendations were suggested by independent experts on the way to prevent and reduce marine plastics pollution as resulting from a wide range of sectors and sources. The identification of the intervention points at stopping debris at the source and it includes the improvement of recycling practices, redesigning materials to be more sustainable and environmental friendly, improving waste management technology and access to potable water, cutting down on bottled water, and reducing single use items.

As far as food production systems are concerned, appropriate actions would entail the development of guidelines or codes of practice for the use of plastic in food production sectors and the inclusion of considerations on microplastics in guidelines and international standards dealing with food safety together with setting microplastics limits in food.

Education and awareness raising are considered essential to trigger behavioral change as far as plastic use and marine litter are concerned, targeting different stakeholders (e.g. national governments, municipalities, private sector, local communities, individuals, and academia). The fisheries and aquaculture sector would be one among other sectors to be targeted by these campaigns. Importantly, guidance for communication of potential hazards of microplastics contamination to seafood consumers and the general public will need to be developed.

Overall, there are still a number of knowledge gaps that need to be filled in order to tackle the microplastics marine pollution appropriately. Several research questions remain open; one important action would be to facilitate research, increase knowledge on the sources, quantification, fate and impacts of microplastics, fibers and nanoplastics, as well as the related consequences for ecosystems and marine living resources including contamination levels of fish food and risks for food safety and food security. In addition to collecting scientific evidence, the social and economic impacts need to be assessed and appropriate policies developed based on risk analysis.