INTERNATIONAL STANDARD

ISO 5020

First edition
2022-07

Waste reduction and treatment on fishing vessels

Reference number
ISO 5020:2022(E)

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Published in Switzerland

Contents

Page

Foreword

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This document was prepared by Technical Committee ISO/TC 234, *Fisheries and aquaculture*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

A productive, healthy and clean aquatic environment is vital for fisheries and other sectors. In order to accommodate sustainable growth in marine sectors, it is essential to avoid littering and other types of pollution. Despite this, marine and inland waters are recipients of intentional and unintentional litter and other pollutants.

Waste occurring in freshwater and marine water and litter are to a large extent transported over large distances, often following the ocean currents. Problems due to marine pollution must therefore be solved at an international as well as at a national level.

Reduced release of waste into the ocean and inland water bodies will also make a significant contribution to improved resource management, increased sustainable food production and improved circular economy.

This document can contribute to:

— reduced global amount of litter and other pollutants from the fishing fleet;

— reduced macroplastic and microplastic levels in marine and inland waters, and on the seabed;

— reduced amount of litter in the littoral zone and nearby terrestrial areas, as well as in recreation areas;

— reduced ghost fishing and environmental impact from the seafood industry, e.g. on fish species, invertebrates, reptiles, birds and mammals;

— healthy aquatic ecosystems and sustainable fish stocks.

Biological waste in the form of, for example, offal, bycatch and discard does not lead to littering and should be treated as important and valuable resources for the fishing industry. This issue is therefore not treated in this document.

Waste reduction and treatment on fishing vessels

1 Scope

This document specifies a system for waste reduction and treatment on fishing vessels. It includes principles, management plans, methods and requirements.

This document is applicable to both marine and inland fisheries.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 Materials and waste

3.1.1
waste
substance or object which is disposed of, is intended to be disposed of or is required to be disposed of by the provisions of national law

3.1.2
litter
solid material, object or fragment which has been deliberately discarded or unintentionally lost

Note 1 to entry: According to the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78[3] (Appendix V "Rules for the Prevention of Pollution by Garbage from Ships"), litter means all types of food, household and operational *waste* (3.1.1), all types of *plastics* (3.1.3), cargo residues, ash from incinerators, cooking oil, fishing gear and carcasses of animals that are formed during the normal operation of the vessel and are subject to constant or periodic removal.

3.1.3
plastic
polymer to which additives or other substances can be added, and which can function as a main structural component of final products

Note 1 to entry: In the context of this document, the polymers are mainly petroleum based.

Note 2 to entry: Onboard a *fishing vessel* (3.2.1), all types of plastics, including bioplastics and biodegradable plastics, should be treated as plastics.

3.1.4
microplastic
solid plastic particles or fragments smaller than 5 mm in the largest dimension, insoluble in water and not degradable

3.1.5
effluent
outflowing of a liquid to a natural body of water

Note 1 to entry: Such liquids can be, for example, wastewater, sewage and bilge water generated on *fishing vessels* (3.2.1).

3.2 Fishing vessels and onboard planning

3.2.1
fishing vessel
vessel used to catch or collect fish or other biological resources in the sea or in inland water bodies

3.2.2
geolocate
identify a geographic location

3.2.3
ghost fishing
continuation of fishing by abandoned, lost and discarded fishing gear (ALDFG)

3.2.4
bycatch
fish or other aquatic species that is caught unintentionally while catching certain target species and target sizes of an aquatic species

Note 1 to entry: The bycatch is either of a different species, the wrong sex, or is undersized or juvenile individuals of the target species.

3.2.5
discard
portion of the total organic material of animal origin in the catch, which is thrown away, or dumped at sea

Note 1 to entry: It does not include plant materials and post-harvest *waste* (3.1.1) such as *offal* (3.2.6). The discards may be dead, or alive.

3.2.6
offal
scraps
entrails and other organs of an animal

3.3 Principles and planning

3.3.1
circular economy
economic system that systemically maintains a circular flow of resources, by regenerating, retaining or adding to their value while contributing to sustainable development

3.3.2
recycling
<waste> recovery operation by which waste materials are reprocessed into products, materials or substances, whether for the original or other purposes

3.3.3
reuse
operation by which products or components are used again for the same purpose for which they were conceived

3.3.4
awareness programme
campaign designed to increase knowledge among fishers and other interested parties concerning the impact of their activities on fish populations, the environment and human health, and to enhance their motivation to avoid negative impacts

3.3.5
waste plan
waste management plan
plan describing how to minimize, handle, treat and offload *waste* (3.1.1)

3.3.6
waste management system
waste handling system
systematic actions and activities required in order to manage *waste* (3.1.1) from its inception to its final disposal

3.3.7
waste hierarchy
waste pyramid
tool used in the evaluation of processes which prioritizes the most favourable to the least favourable actions in order to achieve sustainability

3.3.8
risk assessment
process of identifying and analysing potential events related to *waste* (3.1.1), that can impact the environment and *circular economy* (3.3.1), making judgements on the tolerability of the risk on the basis of a risk analysis while considering influencing factors

3.3.9
interested party
stakeholder
person or organization that can affect, be affected by or perceive itself to be affected by a decision or activity

[SOURCE: ISO 14001:2015, 3.1.6, modified — "stakeholder" added as the admitted term. Example and Note 1 to entry deleted.]

4 Principles

4.1 General

The principles described in this clause are fundamental to the process of avoiding ghost fishing, littering and other types of pollution from fishing vessels. They are the basis for the requirements described in Clauses 4 to 10. This document does not provide specific requirements for all situations; however, these principles provide guidance for decisions that need to be made in day-to-day situations as well as in unanticipated situations.

These principles of waste handling are for organizations to apply, taking into account the identification of interested parties and their needs and expectations.

4.2 Avoid ghost fishing, littering and pollution

4.2.1 General

In order to avoid littering, pollution and ghost fishing:

— Planning should be made to optimize waste minimization, including sorting and disposing of packaging quayside.

— Establish waste management routines and provide for physical measures such as waste bins.

— Make sure that appropriate routines to avoid littering and pollution are followed.

— Discarded fishing gear should never end up in the sea intentionally or accidentally.

— Toxic or non-degradable waste should never end up in the sea intentionally or accidentally.

4.2.2 Equipment and products

Strive to use fishing gear that:

— is less likely to be lost in fishing areas;

— can be geolocated if lost at sea or in inland waters;

— is able to meet expected exposure where it is used.

Strive to use fishing gear and products that are:

— likely to deteriorate to non-hazardous products if lost at sea or in inland waters;

— not likely to fragment during fishing operations;

— possible to recycle.

4.2.3 Best practice

When purchasing equipment that can generate or end up as waste, an emphasis should put on characteristics such as quality, including recyclability, dismantlability, lifespan, ability to repair and environmentally friendly product design (eco-design), and on using subcontractors capable of providing sustainable products and/or services.

Lost fishing gear should be:

— recaptured immediately after the incident that lead to the loss, if possible;

— reported to the relevant authorities.

Abandoned, lost and discarded fishing gear (ALDFG) captured should be taken care of and landed if not in conflict with issues such as life and safety.

Captured litter should be taken care of and landed.

4.3 Waste to be treated as a resource

4.3.1 Optimize circular economy

In order to facilitate a circular economy, strive to:

— use products that can be separated in identifiable components for recycling and further use;

— use products that include circulated materials or reused parts;

— sort out reusable items and recyclable materials;

— keep waste fractions separated.

4.3.2 Avoid reducing waste quality

To maintain quality of waste materials:

— Waste should be handled and stored in a way that does not undermine the likelihood of reuse and/or recycling.

— If applicable, waste should be cleaned and/or dried in order to provide for better waste quality.

— Avoid exposure to external conditions that diminish the quality of parts and materials.

4.3.3 Adapt seamlessly to ashore waste handling

A fishing vessel should have a waste plan for where to deliver waste, and as far as possible provide waste that the onshore waste handling facilities can make use of.

Better networking with harbour officials, municipalities, etc. shall be encouraged to facilitate optimum recycling and waste utilization.

4.3.4 Consider interested parties and their needs and expectations

Identify relevant interested parties, e.g. waste handling organizations, and their needs and expectations and take this into account when planning your waste management system. Adaption to relevant waste plans made by relevant waste handling organizations should be carried out.

4.3.5 Use the waste hierarchy for planning and prioritization

When planning an overall waste management system, the waste hierarchy should be used as an important input, see Figure 1.

Use the waste hierarchy as a guideline to identify the best ways of dealing with different types of waste. Aim for options towards the top of the hierarchy to achieve the most beneficial environmental impacts.

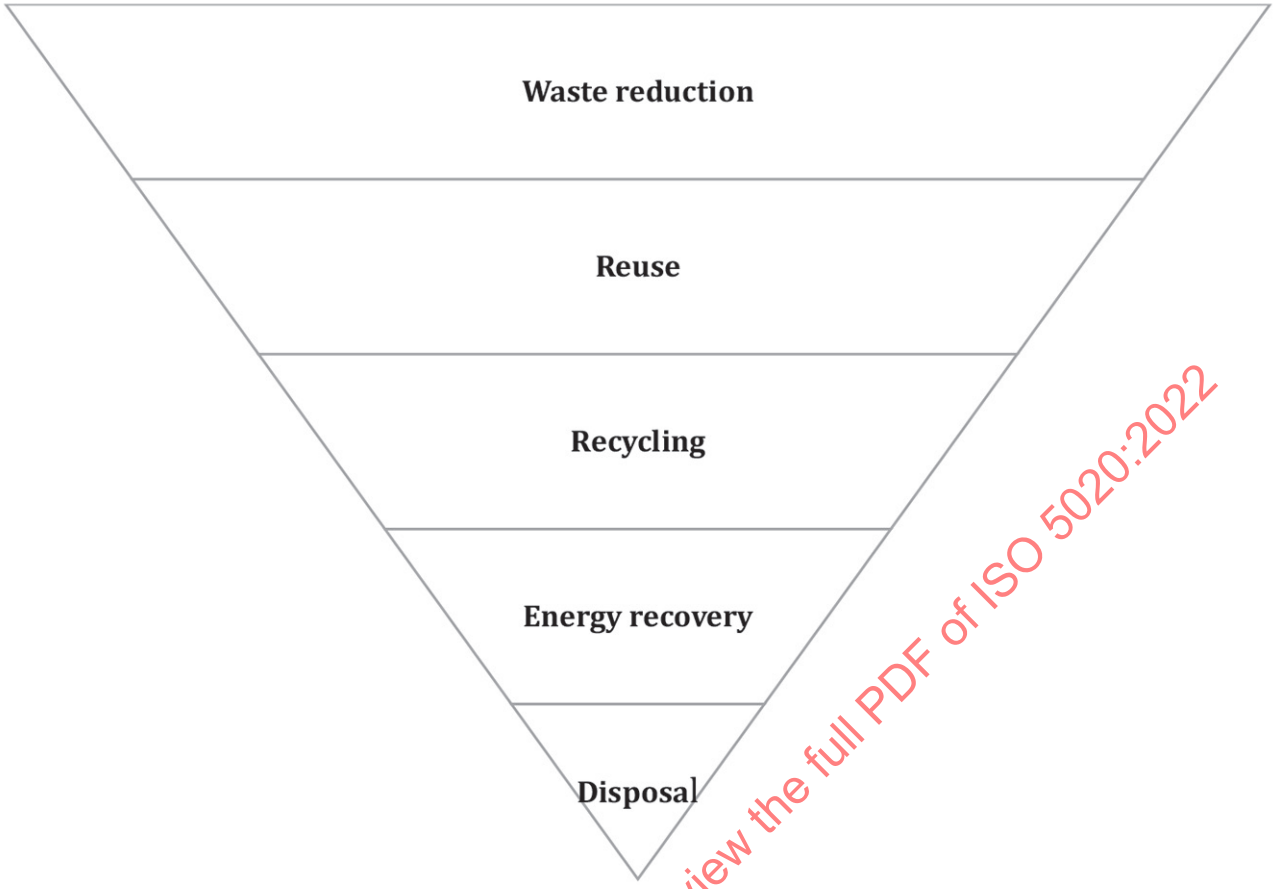

Figure 1 — Waste hierarchy

4.3.6 Make awareness raising a priority

Ensure all crew, fisheries, processors and other relevant interested parties are aware of the detrimental impacts of aquatic litter on fish populations, the environment and human health, e.g. through awareness programmes.

5 Classification of pollution and waste

5.1 Solid waste

Waste should be sorted according to the following categories: plastic waste, old and damaged fishing gear, ALDFG, fish boxes, packaging materials, ropes, sinkers, floats, bottles, household waste, etc.

5.2 Liquid waste

Liquid waste can be sludge drained from tanks.

5.3 Hazardous waste

Toxic liquids and materials include waste oil and hydraulic oil, batteries, paints, oil spill, chemicals, medical waste, etc.

6 Waste plan

6.1 General

All fishing vessels should have a waste plan, based on a specific risk assessment. A waste plan includes appropriate management of all kinds of operational waste generated onboard, waste collected when fishing and discarded fishing gear. It should be made clear to all the crew members so that they understand their role for successful implementation of the waste plan. If applicable, internal control or auditing should be used, in line with procedures for all waste handling and storage activities onboard.

6.2 Planning to avoid waste

Only essential chemicals and plastics (e.g. in the form of packaging) should be taken onboard, and they should be stored and used safely. A waste plan should list the type of waste generated and means to be made to reduce the amount of waste generated. All oil using machinery should be in good order to avoid spillage. Discharge of sewage in harbour waters and near critical habitats should be avoided.

6.3 Planning to store/handle waste

A waste plan should be in place stating how to collect, store, treat or dispose each category of wastes, especially based on their toxicity, degradation level and opportunities for recycling. Specific methods may be prescribed to process the waste, such as plastics through compaction or grinding or to reduce the storage space. The incineration of plastics and other waste onboard should be avoided. Toxic chemicals and sewage should be maintained in tightly sealed containers that are non-reactive and disposed in the manner prescribed by relevant authorities.

6.4 Planning delivery of waste to waste receivers

Planning of delivery of waste should be based on the guidelines of the relevant authorities.

6.5 Evaluation and updating

Records should be maintained in accordance with ISO 16304.

7 Waste handling

7.1 General

Packaging, chemicals, etc. should be minimized and, if used, should be carefully chosen. Plastics should be avoided as far as possible, to minimize the environmental impact. All plastic materials should be removed from organic waste before grinding, flushing or further delivery. Before handling, storing and further delivery, all organic materials should be removed from the waste; this is especially important for waste items and materials made of plastics and other polymers.

Toxic liquids and materials should be handled according to product data sheets, guidelines for each material and the relevant authorities.

Sludge drained from tanks should be handled according to guidelines from the relevant local authorities.

7.2 Waste from fishing operations

7.2.1 General

Waste from fishing operations includes parts of fishing gear, ropes, sinkers, floaters, etc. and collected waste originating from other activities and industries.

Waste from fishing operations should not end up in the sea but should be stored safely onboard until it is delivered to waste handling companies on land.

7.2.2 Waste from flushing and cleaning

The fish hold and deck should continuously be cleared for any solid waste, which should be placed in relevant waste storage facilities. The use of chemicals during cleaning and flushing operations should be minimized.

7.2.3 Packaging waste

As far as possible, plastic packaging or other non-degradable packaging materials should be avoided onboard the fishing vessel, e.g. the unpacking of equipment, tools, gear and other utilities should be done before leaving a harbour. The onboard generation of packaging waste should be minimal. Special emphasis should be put on collecting and handling expanded polystyrene/styrofoam and wrapping strips.

7.2.4 Lost or scrapped fishing gear

If fishing gear is lost, immediate attempts to recapture the gear should be carried out. If unsuccessful, the loss should as soon as possible be reported to the relevant authorities, along with its location. Reasons for the loss should also be reported. Retrieval plans should be put in place to avoid ghost fishing and pollution from lost gears. Scrapped fishing gear should be brought ashore.

7.2.5 Waste from vessel and fishing gear maintenance

Rope fragments, net cuttings and damaged fishing gear should be placed in the relevant waste storage facilities.

7.3 Waste collected during fishing operations

Plastics and other waste collected during fishing operations should be brought to shore, providing this does not affect:

— vessel safety;

— stability;

— health, safety and the environment (HSE).

8 Onboard storage

8.1 General

Waste should be stored onboard in a safe way which does not adversely affect vessel safety, stability and HSE.

Discharge into the sea should be avoided, if the discharge can lead to any environmental problems. Plastic waste generated on the vessel can be compacted to reduce its volume, thus simplifying storage.

8.2 Containers and other types of waste storage facilities

Waste shall be kept in closed, well-secured containers or other types of storage facilities.