



GLOBAL
GHOST GEAR
INITIATIVE®

THE IMPACT OF FISHING GEAR AS A SOURCE OF MARINE PLASTIC POLLUTION:

A GLOBAL GHOST GEAR INITIATIVE (GGGI)
INFORMATION PAPER TO SUPPORT
NEGOTIATIONS IN PREPARATION FOR UNEA 5.2

FISHING GEAR AS A SOURCE OF MARINE PLASTIC POLLUTION

Abandoned, lost, or otherwise discarded fishing gear (ALDFG) has been described as the most harmful form of marine plastic debris. Historic estimates have suggested that ALDFG makes up 10% of marine litter in the world's ocean¹, but recent surveys put this figure much higher, with fishing gear representing 20% of litter found on beaches in the North-East Atlantic². Globally, an estimated 5.7% of fishing nets, 8.6% of traps and pots, and 29% of fishing lines end up lost or abandoned in the marine environment annually³. Fish is a crucial form of animal protein in people's diets all over the world and global fish consumption has risen by 122% in the past 30 years⁴. Fishing is a major source of both nutrition and employment for people on almost every continent and is crucial to sustaining the livelihoods of local communities. For the most part, fishing gear is an investment and most fishers do not want to lose it. However, gear can enter the marine environment due to bad weather conditions, mechanical problems, human error, or gear snagging. Fishing gear is also deliberately discarded, either to conceal illegal, unreported, or unregulated (IUU) fishing or as a disposal method when it stops functioning (end-of-life (EOL) gear), or during onboard repairs (net cuttings).

Fishing is a major source of both nutrition and employment for people on almost every continent and is crucial to sustaining the livelihoods of local communities.

WHY IS ALDFG A PROBLEM?

ALDFG impacts the marine environment primarily through 'ghost fishing' whereby abandoned fishing gear continues to catch fish and other marine animals unselectively. Marine species are injured, and trapped by the gear, then become prey for other species which can themselves become trapped. In Australia alone an estimated 1,500 sea lions die annually after becoming entangled in gillnets. Also known as ghost gear, ALDFG can damage corals and other sensitive seabed habitats. Marine mammals, birds, and reptiles caught in abandoned gear are all at risk of impact, and 45% of all marine mammals on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species have been impacted by marine plastic litter and ALDFG through ingestion and/or entanglement⁵. A single abandoned net is estimated to kill on average 500,000 marine invertebrates, 1,700 fish, and 4 seabirds⁶. In some places, studies have identified that over 90% of the species caught in ghost gear are estimated to be commercially valuable, meaning that the impact of ALDFG is economic as well as environmental, impacting the sustainability of fisheries as well as their profits, as ghost fishing can greatly reduce their harvest⁷.

¹ Macfadyen, G., Huntington, T. & Cappell, R. (2009). Abandoned, lost or otherwise discarded fishing gear. FAO Fisheries and Aquaculture Technical Paper 523

² OSPAR Beach Litter Assessment, 2021 (in draft)

³ Richardson, K., Wilcox, C., Vince, J. & Hardesty, B.D. 2021. Challenges and misperceptions around global fishing gear loss estimates. *Marine Policy*, 129. <https://doi.org/10.1016/j.marpol.2021.104522>

⁴ Food and Agriculture Organisation of the United Nations 2020 <https://www.fao.org/state-of-fisheries-aquaculture>

⁵ Werner, S., Budziak, A., van Franeker, J., Galgani, F., Hanke, G., Maes, T., Matiddi, M., Nilsson, P., Oosterbaan, L., Priestland, E., Thompson, R., Veiga, J. and Vlachogianni, T.; 2016; Harm caused by Marine Litter. MSFD GES TG Marine Litter—Thematic Report; JRC Technical report; EUR 28317 EN; doi:10.2788/690366

⁶ Hardesty, B. D., Good, T. P., & Wilcox, C. (2015). Novel methods, new results and science-based solutions to tackle marine debris impacts on wildlife. *Ocean & Coastal Management*, 115, 4–9

⁷ Al-Masroori, H., Al-Oufi, H., McIlwain, J.L. & McLean, E. 2004. Catches of lost fish traps (ghost fishing) from fishing grounds near Muscat, Sultanate of Oman. *Fisheries Research*, 69(3): 407–414. <https://doi.org/10.1016/j.fishres.2004.05.014>



As ALDFG breaks down in the marine environment it can cause further damage. Plastic degrades over decades, shedding microplastic fibres that are ingested by fish and other filter feeding organisms. Abandoned fishing gear has been found intact and still shedding microplastic fibres after 30 years.

ALDFG significantly hinders progress towards the United Nation's Sustainable Development Goal (SDG) 14, to conserve and sustainably use the oceans, seas, and marine resources for sustainable development, specifically adding to two of the five severe threats to our oceans identified, plastic pollution and fisheries collapse. In addition to supporting SDG 14, the successful management of marine litter, specifically ALDFG, also contributes to other SDGs. Addressing the adverse impacts of ghost fishing on potential catch, contributes to people's livelihoods (SDG 1: No poverty) and food security (SDG 2: Zero hunger). From a supply chain perspective, implementing good practices, circular economy principles and innovative gear design to mitigate the impact of fishing gear when it gets abandoned, lost or discarded will continue to support both SDG 12: Responsible Consumption and Production; and SDG 9: Innovation and Infrastructure.

WHERE DOES ALDFG OCCUR?

ALDFG is a significant global issue. Wherever humans practice fishing, gear can become abandoned, lost, or discarded. In the seas around the European Economic

Area alone an estimated 550,000 tonnes of debris from the fishing industry have accumulated since the 1950s with up to 12,000 tonnes being added to this every year⁸. In the coastal waters of South Korea 38,535 tonnes of gillnets are estimated to be lost every year⁹. On the uninhabited Henderson Island in the South Pacific, an expedition found 18 tonnes of plastic waste on just 2.5km of coast¹⁰. Of this, an estimated 60% was found to be ALDFG, some originating from New Zealand, roughly 5,000 kilometres away¹¹. In the North Pacific Gyre, 46% of the plastic comes from fishing and shipping. It is estimated that there are between 20,000 and 50,000 tonnes of plastic nets, lines, and ropes in the area¹².

Existing international regulatory frameworks are fragmented and often voluntary, with varying approaches in individual regions and nations.

WHAT HAS BEEN DONE ABOUT IT?

Despite the global impact of ALDFG there is currently no dedicated international instrument in place. Existing international regulatory frameworks are fragmented and often voluntary, with varying approaches in individual regions and nations. The UN Food and Agriculture Organization's (FAO) Code of Conduct for Responsible Fisheries provides legal principles for responsible fishing on an international level, but it is a voluntary instrument and not globally enforced, this is also the case for the FAO's Guidelines for the Marking of Fishing Gear. UN SDG 14 aims to conserve marine resources and promote sustainable development, but its goals and targets are not legally binding. The UN Fish Stocks Agreement requires states

⁸ OSPAR 2017 https://www.noordzeeloket.nl/publish/pages/122125/a_review_of_marine_litter_management_practices_for_the_fishing_industry_in_the_north-east_atlantic_.pdf

⁹ Kim, S. G., Lee, W. I., & Moon, Y. (2014). The estimation of derelict fishing gear in the coastal waters of South Korea: Trap and gill-net fisheries. *Marine Policy*, 119–122.

¹⁰ Lavers J, Bond A (2017). Significant anthropogenic debris on remote island. *Proceedings of the National Academy of Sciences*; 114: 6052–5. doi: 10.1073/pnas.1619818114

¹¹ Vance A, McGregor I (2019). Desert island dump: The shameful state of Henderson Island. *Stuff*, July 2019. <https://interactives.stuff.co.nz/2019/07/desert-island-dump/desert-island-dump-pointer.html>

¹² Lebreton, L., Slat, B., Ferrari, F., Sainte-Rose, B., Aitken, J., Marthouse, R., Hajbane, S., Cunsolo, S., Schwarz, A., Levivier, A., Noble, K., Debeljak, P., Maral, H., Schoeneich-Argent, R., Brambini, R., Reisser, J. (2018). Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastic. *Sci. Rep.* 8, 1–15. <https://doi.org/10.1038/s41598-018-22939-w>



to implement gear marking schemes and to minimise damage caused by abandoned fishing gear, but implementation is fragmented as the responsibility falls on regional fisheries management bodies, additionally not all fish stocks are included in the agreement. Article 194 of the UNCLOS¹³ requires state regulation of fishing gear, but this regulation is under national jurisdiction and not coordinated at a global or even regional level. The International Maritime Organization's Action Plan to address marine plastic litter from ships provides support for addressing the issue, including sanctions against littering (including the discard of unwanted fishing gear). However, enforcing these sanctions requires the littering to be observed, which is rare. MARPOL¹⁴ Annex V requires a written garbage management plan in ships larger than 100 gross tonnes, but many fishing vessels are far smaller than this.

Additionally, there are regional regulations such as the extended producer responsibility scheme for fishing gear being developed by the EU, requiring producers of fishing gear containing plastic to cover the cost of collection, transport, and treatment of EOL gear for recycling as well as awareness raising costs. However,

the practical implementations of this scheme are still being developed.

Individual nations have their own regulations, such as the US Marine Debris Act which monitors, removes, and prevents marine debris through guidance and enforcement. There are also gear marking schemes in countries such as Portugal and Spain, Costa Rica, Namibia, and Sri Lanka. In Iceland, a national fishing gear return scheme is in operation, where EOL gear is reused, refurbished or recycled, with an 80% success rate¹⁵. In the US, the California Fish & Game Code requires nets and lines to be marked and losses to be reported, in addition to sanctions for failing to comply.

HOW CAN THE GLOBAL TREATY ON MARINE PLASTIC POLLUTION ADDRESS THE ISSUES OF ALDFG?

Regional and national approaches of some best practices of the management of fishing gear have had some success but as a global issue the problem of ALDFG must be tackled at a global level in a holistic way. Tackling the problem of marine litter from the fishing industry requires legislation that sets clear, ambitious

¹³ United Nations Convention on the Law of the Sea (UNCLOS)

¹⁴ The International Convention for the Prevention of Pollution from Ships (MARPOL)

¹⁵ OSPAR 2020. OSPAR scoping study on best practices for the design and recycling of fishing gear as a means to reduce quantities of fishing gear found as marine litter in the North-East Atlantic. Available: <https://www.ospar.org/documents?v=42718>



GEAR DETAILS

5

Net size

Which of these options best describes the mesh of the net/mets?

If the net size in a pile, what would be the mesh equivalent size of that pile?

BACK

NEXT

global targets, as well as standards for monitoring and reporting, and clearly defined and enforceable obligations and responsibilities. These measures should be globally applicable, providing support mechanisms that consider the needs of developing countries.

Broadly, three types of action can be taken against ALDFG: prevention, mitigation, and remedial action. A combination of all three should be included in any global approach to tackle the issue, filtering down to regionally, nationally and locally appropriate action. There needs to be global recognition of the problem and collective action. Education and awareness raising on best practices for gear management and disposal is key. Projects in Nigeria and Myanmar facilitated by the GGGI have found education on a local level is an effective tool in reducing the quantity of ALDFG being created in those areas. Practical preventative measures also include the implementation of gear management systems combined with fishing gear marking to reduce deliberate disposal at sea, extending producer responsibility for plastic fishing gear, providing adequate port reception facilities, zoning schemes, mandatory gear return, certification and eco-labels, and other fiscal incentives. Circular design of fishing gear is also a key action that can impact the quantity of ALDFG—developing global design standards for fishing gear to allow them to be recycled or reused at end-of-life, creating a global marketplace for collection and recycling of gear, and boosting coastal economies in developing nations by providing additional income streams.

Mitigating actions include using biodegradable¹⁶ components to make fishing gear, a clear framework for lost gear reporting, and ‘no fault’ reporting which has been shown to increase the reporting of lost gear. The only real remedial action is removal. This can be expensive particularly in deep marine habitats. A

combination of passively fished waste schemes on a global scale combined with hotspot clean-ups is recommended. Fishing-for-litter initiatives have the additional benefit of educating fishing communities on the harm that plastic pollution causes.

WHAT CAN YOU DO?

This paper has been prepared to demonstrate the significant contribution ALDFG plays in the broader issue of marine plastic pollution. In order to successfully combat marine plastic pollution, it is essential to include ALDFG in a global treaty for marine plastic pollution. It is clear that wherever fishing activity takes place, there is ALDFG. The impacts of ghost fishing, both ecological and economic, are accumulative and are felt globally. The problem of marine litter from the fishing industry is therefore a global issue that must be tackled with a coordinated global effort.

In addition to supporting the inclusion of ALDFG in a global treaty for marine plastic pollution, governments can also sign up to the Global Ghost Gear Initiative (GGGI), joining a community focused on delivering evidence-based solutions to the problems of ALDFG, where best practices for the implementation of global regulations are shared.

As countries are finalising their national positions in readiness for UNEA 5.2 (in February / March 2021), and in anticipation of the establishment of an intergovernmental negotiating committee (INC), we ask that they consider this information paper and the vital importance of including action to prevent, mitigate, and clean up ALDFG in the development of a global agreement to tackle marine plastic pollution.

For more information visit
<https://www.ghostgear.org/>
or contact info@ghostgear.org.

¹⁶ Biodegradable materials are only suitable for specific components of specific types of gear (e.g. escape hatches in lobster pots) and should not be seen as the solution for all ALDFG



The Global Ghost Gear Initiative is the world's only cross-sectoral alliance dedicated to driving solutions to abandoned, lost and discarded fishing gear globally.

web: www.ghostgear.org

Twitter: @GGGInitiative

Email: info@ghostgear.org

