

Position Paper of Sectoral Department

Abandoned, Lost or, Otherwise Discarded Fishing Gear

Global waters are haunted by ghost nets – fishing gear (nets, lines, fish baskets, etc.) that has been lost or abandoned is summarised under the term ALDFG (abandoned, lost, and otherwise discarded fishing gear) and is often referred to as “ghost gear”. ALDFG is of global concern as it can cause harm to many aquatic species through entanglement and ingestion, threatening both biodiversity but also the livelihoods of coastal fishing communities, due to loss of gear and of harvests. GIZ is convinced of the need for integrated solutions to ALDFG that combine environmental protection with socio-economic benefits.

Background

There are many reasons why fishing gear gets lost, abandoned or discarded: bad weather, operational damages, improper use, gear conflicts, high costs of durable material, insufficient marking and disposal, lack of disposal facilities, lack of storage space on fishing craft, to disguise illegal, unreported, and unregulated fishing (IUU), and logistical difficulties and unclear responsibilities in retrieving gear.^{1, 2} ALDFG can remain active for many years and continue to ‘catch’ fish – a phenomenon known as ghost fishing.^{3, 4} Recent studies suggest that more than 46% of floating macro-plastics in the ocean gyres consists of fishing gear and maritime ropes.^{5, 6} Approximately 2 - 5.7% of all fishing gear is lost or discarded in the ocean each year, including 8.6% of all traps and pots, and 29% of all lines used.^{7, 8} This loss results in a significant impact, with around 75,000 km² of gill and trawl nets being lost in the marine environment⁸, an area equivalent to the size of the Czech Republic. Additionally, 740,000 km of longlines are lost yearly⁸, an amount nearly twice the distance between the Earth and the Moon. Although industrial fisheries are discussed as the primary source of ALDFG⁹, substantial amounts of fishing gear are also lost from smaller sized artisanal and recreational vessels,

largely due to less advanced technology, lower-quality equipment compared to larger fishing vessels and illegal fishing practices.¹⁰ However, these parameters may vary in different regional and national circumstances and must be assessed individually in each context.

ALDFG is the most damaging form of marine litter -

The predominantly plastic-based fishing gear used today can persist in the marine environment for hundreds of years. ALDFG often leads to animals becoming entangled in or ingesting fishing gear, resulting in injury or death substantially impacting ocean life, including endangered species.¹¹ Thus, ALDFG presents an additional threat for aquatic animals and seabirds, which are already heavily impacted by anthropogenic noise, pollution, overfishing, and climate change.^{12, 13}

It is estimated that over 136,000 seals, sea-lions and larger whales are killed each year through entanglement in lost fishing gear¹⁴. ALDFG also harms critical marine habitats like coral reefs and seagrass beds and poses navigation hazards for boats.^{10, 11}

ALDFG is also an economic problem -

An often-overseen issue of ALDFG is the economic cost for the former owners. The overall revenue loss due to costs of removal of litter from nets, damage to catches, repairing gear, entangled propellers and obstructed cooling systems ranges between 1 to 5% for the fisheries and aquaculture sector.¹⁵ These losses constitute additional financial burdens for small-scale fishers already faced with diminishing marine resources and competition through foreign fleets and other major players in the blue economy.

Links of illegal, unregulated, and unreported fishing (IUU) -

ALDFG is also a by-product of IUU fishing practices because (a) fishing gear is intentionally discarded to avoid inspection by authorities; (b) fishermen involved in

IUU practices are reluctant to communicate with other fishermen, increasing the risk of gear loss during conflicts; (c) IUU fishing operations often take place in adverse weather conditions and at night, which also increases the risk of losing gear, and (d) the marking of fishing gear is avoided to prevent it from being associated with specific vessels.

ALDFG has made its way onto political agendas - The loss of fishing gear is already indirectly addressed by existing international agreements such as the United Nations Convention on the Law of the Sea (UNCLOS), the International Convention for the Prevention of Pollution from Ships (MARPOL), and the London Convention and Protocol, which generally address the pollution from ships or direct discharge of waste into the ocean. The ongoing negotiations for a binding UN Plastics Treaty represent another important stride towards addressing ALDFG directly, including net design, production, and end-of life management. At a voluntary level, the FAO Code of Conduct for Responsible Fisheries and more specifically the more recent Voluntary Guidelines on the Marking of Fishing Gear (2019) address this issue.

Furthermore, several regulations and activities exist at regional and national level: in the EU, the EU Single-Use Plastic (SUP) Directive obligates all EU Member States to implement Extended Producer Responsibility (EPR) for fishing gear containing plastics by the end of 2024 and to set collection targets for end-of-life gear in harbours to prevent ALDFG.¹⁶ In Canada, the Ghost Gear Fund was established to financially support organisations and companies to fight ALDFG and to set regulations like the obligation to report lost gear.¹⁷ In the USA, the Save our Seas Act of 2018 aims for research and development on systems and materials that reduce derelict fishing gear.¹⁸ Sound ALDFG regulations are still absent in many developing countries mostly due to limited awareness, capacity, data and resources.¹⁹ Despite these challenges, some countries like Thailand, the Philippines, South Africa, Namibia, and Kenya have already incorporated ALDFG-specific measures, such as gear marking and retrieval incentives, in their national fishery management plans.

Besides all legislative efforts, monitoring, and control of the implementation of international agreements and national actions are crucial for ensuring their effectiveness.

Global Data Distribution on ALDFG

Systematic and robust data collection is essential to support the development of effective regulations. The foremost research on ALDFG has been carried out in North America, encompassing the US, Canada, and the Gulf of Mexico (32), as well as in Europe (28) and Australia (6). Studies in developing nations are dispersed across Asia (7) and South America (5), with a notable absence of peer-reviewed research from Africa.²⁰

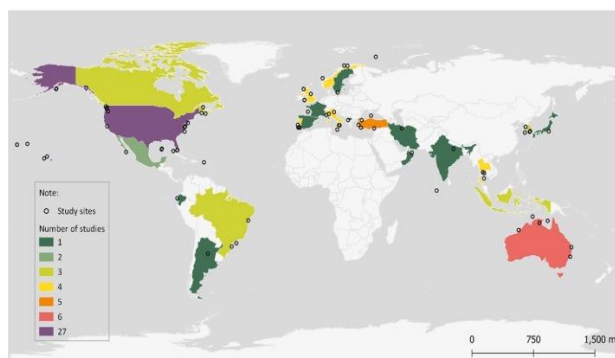


Fig. 1. Map showing study sites and number of ALDFG studies by countries.²⁰

Given the strong link between IUU fishing and ALDFG, combined with the high prevalence of IUU in African waters and the low data coverage in Africa, there is a significant research gap. This also highlights the lack of effective monitoring, control, and surveillance capacities in African countries to document the actual extent of the problem and enforce countermeasures, which hampers global efforts to minimise this problem.^{19, 21}

Our Position

GIZ's work to avoid and reduce marine litter is guided by the concept of the circular economy, which links integrated waste management with sustainable consumption and production. Given the severe impacts on ocean health and its ecosystem services as well as economic aspects for fisheries, addressing the issue of ALDFG is paramount. Efforts should be holistic and prioritise preventing the loss of fishing gear in the first place and only as a second measure focus on retrieval and usage of lost gear. Against this background, GIZ takes the following positions:

■ **Holistic Approach and Integrated Solutions** - Guided by the principles of circular economy, awareness raising, behaviour change and effective governance, we aim to address ALDFG comprehensively, in a participatory, inclusive, and data-driven manner. GIZ advocates for a shift from isolated environmental protection measures towards more integrated solutions that encompass participation of stakeholder groups, capacity building in responsible governance and effective control and regulation, commitment at the international level, and sustainable circular economy practices. These approaches not only ensure long-term environmental sustainability but also bring economic benefits by linking marine protection, socio-economic development, and food security.

■ **Consideration of Contextual Factors** - In assessing the challenges posed by ALDFG it is imperative to consider context-specific factors.

These factors include cultural, political, economic, and social dimensions that influence fishing activities and the handling of (lost or discarded) fishing gear in affected regions. We develop our measures with a focus on their relevance and inclusivity in the respective partner region.

Recommended Actions

GIZ recommends addressing ALDFG upstream as well as downstream through participative actions:

- **Prevention** of ALDFG starts upstream with **designing fishing gear and vessels** in a way that gear is less likely to be lost at sea, e.g. through improved attachment and retrieval mechanisms. In addition, **marking of nets** can be a form of prevention, aiding in recognition and retrieval of nets, and providing support for fisheries management in the detection of IUU. Furthermore, **adequate maintenance, repair, collection, and recycling** is critical to prevent loss and illegal dumping at sea and to implement the circular economy approach to fishing gear. Improved collection mechanisms, such as **waste reception facilities onboard and on land**, are key in this respect. Since some degree of loss will continue to be inevitable, **mitigation measures to minimise the impact and duration of ghost fishing** can also be considered e.g. using ropeless gear, whale release ropes and faster degrading gear²² (see also biodegradable gear under innovations). Potentially higher costs of new materials, marking technologies and more frequent equipment replacement needs to be addressed for artisanal and small-scale-fisheries.

- **Enhancing Fisheries Management to Combat ALDFG** - Implementing effective fisheries management measures is a key enabling mechanism to significantly reduce the incidence of ALDFG. Governmentally funded gear exchange programmes and spatial management strategies serve to mitigate conflicts. Moreover, policies aimed at curbing IUU fishing also address the issue of ALDFG.

- **Sustainable Finance and Financial Incentives**, such as **buy-back, or deposit-refund programs**, are important enablers for tackling ALDFG. They encourage the return of used gear and the recovery of lost equipment while **fostering business models focused on the collection, reuse, repair, and recycling of fishing gear**. Subsidies or tax breaks can help establish recycling systems at fisheries and support shifts to eco-friendlier gear.

Through the establishment of **Extended Producer Responsibility (EPR)** gear producers can be required to finance and/or operate collection and recycling systems for used fishing. Another financing source lies in **Plastic Credits**. Although Plastic Credits have been criticised for enabling companies to avoid direct responsibility, they can

represent a transitional financing opportunity to remove ocean-bound plastics, such as ALDFG. See also [GIZ Position Paper on Plastic Credits](#).

- **Awareness Raising, Training, Education and Capacity Development** is pivotal in addressing ALDFG. Targeted campaigns communicate its risks and impacts on the environment, fisheries economy, and society, while also boosting support for prevention measures and encouraging community involvement in finding solutions.

- **Promoting Social Justice** is crucial in addressing ALDFG, ensuring fair treatment of workers and communities affected by economic and environmental changes. A “Just Transition” approach advocates for equitable policies that do not disproportionately harm fishing communities or workers dependent on fishing, while balancing environmental protection with economic well-being. This could be achieved through financially supported gear exchange programs as mentioned above.

- **Empowering Marginalised Groups Through involvement in Gear Recycling** - Marginalised groups play a vital role in recycling old fishing gear and the subsequent selling of the resulting products on local markets.^{23, 24, 25} We advocate for further initiatives on the empowerment of local communities and marginalised groups and the generation of livelihood through end-of-life gear recycling or in upstream efforts for ALDFG prevention.

- A comprehensive, **Data-Driven Approach is important** to tackle ALDFG and monitoring of progress. Further research and data collection is a key element to understand the specific national and local circumstances, increase performance of mitigation measures and evaluate the effectiveness of introduced measures.

Evidence Based Interactions by GIZ

Reducing Marine Litter from Ships in Vietnam

The [Rethinking Plastics](#) project helped to improve the management of ship-generated waste in ports in East and Southeast Asian countries to prevent ships from illegally dumping their waste at sea, including fishing gear.

Collecting and Recycling Broken Fish Nets in India

The “[Cities Combating Plastic Entering Marine Environment](#)” (**CCP-ME**) initiative collaborates with Port Blair’s fish landing facility to set up a designated area for collecting damaged fish nets from local fishermen, with support from a dedicated material recovery facility. A similar approach is being implemented by GIZ in Goa under the **EU Resource Efficiency Initiative (EU-REI)**.

Monitoring and Tackling Ghost Fishing in Ecuador

The **CoCiBio** project in Esmeraldas, Ecuador, utilised georeferenced ROV (Remote Operated Vehicle) imaging of the sea bottom to map and retrieve discarded fishing gear, which was then classified and recorded in a database. The **MARLI** project complements these efforts by enhancing national and local capacities, promoting circular economy principles, and supporting research on the impact of ghost fishing on local communities and small-scale fisheries.

Innovations

■ New Recycling Business Models to ALDFG

In developing countries, repurposing used fishing gear has become a source of income for local communities. Gear can be transformed into products like jewellery and shoes, which are sold on local markets or internationally through certain brands and NGOs.²⁶

Also, global companies are producing new products from recycled fishing gear at a larger scale²⁷. Yet, concerns over potential greenwashing and sustainability must be taken into account, when considering support for such approaches. Ultimately, only self-sustainable nationwide collection systems can ensure long-term sustainability and the mentioned business models should support the development of such systems.

■ Biodegradable Nets

There is an ongoing debate about so-called biodegradable nets, as they could in theory degrade faster in the environment than conventional fishing gear when lost. However, not many biodegradable alternatives exist on the market yet, and the concept remains under discussion regarding usefulness, feasibility, costs, and potential greenwashing. Focusing on the biodegradability of certain net components that are prone to be lost during use and whose use can currently not be avoided could be a practical approach.²¹

Cooperation Partners

■ Global Ghost Gear Initiative

The Global Ghost Gear Initiative (GGGI) is the world's largest cross-sector alliance in the fight against ALDFG led

by the Ocean Conservancy, an internationally operating NGO for marine conservation. The initiative brings together representatives from the fishing sector, the processing industry, fishing gear manufacturers, NGOs, academia, national governments, and UN agencies. Germany officially joined the GGGI in 2023.

■ **Further Potential Cooperation Partners** include the World Bank (PROBLUE), FAO, UNEP & GPML, PREVENT Waste Alliance, IUCN, UNCTAD, WRI, EIA, COBSEA, WWF and other Local Organizations and NGOs who are already discussing and implementing ALDFG measures.

Sources

- ¹ FAO (2009). "[Abandoned, lost or otherwise discarded fishing gear](#)".
- ² Richardson K, Hardesty BD, Vince JZ and Wilcox C (2021) "[Global Causes, Drivers, and Prevention Measures for Lost Fishing Gear](#)".
- ³ Pecci et al. (1978). "[Ghost fishing of vented and unvented lobster, Homarus americanus, traps](#)".
- ⁴ Lively & Good (2019). "[Chapter 10 – Ghost fishing](#)".
- ⁵ Eriksen et al. (2014). "[Plastic Pollution in the World's Oceans: More than 5 Trillion Plastic Pieces Weighing over 250,000 Tons Afloat at Sea](#)".
- ⁶ Lebreton et al. (2018). "[Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastic](#)".
- ⁷ Richardson et al. (2019). "[Estimates of fishing gear loss rates at a global scale: A literature review and meta-analysis](#)".
- ⁸ Richardson et al. (2022). "[Global estimates of fishing gear lost to the ocean each year](#)".
- ⁹ IISD (2023). "[Ghost Gear: The Hidden Face of Plastic Pollution](#)".
- ¹⁰ Richardson et al. (2021). "[Challenges and misperceptions around global fishing gear loss estimates](#)".
- ¹¹ UNEP (2018). "[How to banish the ghosts of dead fishing gear from our seas](#)".
- ¹² Wilcox et al. (2016). "[Using expert elicitation to estimate the impacts of plastic pollution on marine wildlife](#)".
- ¹³ Lovell (2023). "[Understanding the drivers, scale and impact of abandoned, lost and otherwise discarded fishing gear in small-scale fisheries: an Eastern Caribbean perspective](#)".
- ¹⁴ WAP (2014). "[Fishings phantom menace](#)".
- ¹⁵ EU Commission (2018). "[New proposal will tackle marine litter and "ghost fishing"](#)".
- ¹⁶ EU Commission – DG Mare. "[Workshop on the implementation of EU legislation related to waste fishing gear and passively fished waste in ports](#)".
- ¹⁷ DFO (2021). "[Canada's Ghost Gear Fund delivering results for cleaner oceans](#)".
- ¹⁸ NOAA (2024). "[The Marine Debris Act | Marine Debris Program](#)".
- ¹⁹ Gifford T, Randall P, Marlin D and Nathaniel J. (2024). "[Addressing ALDFG in Africa: a best practice guide](#)".
- ²⁰ Do & Armstrong, (2023). "[Ghost fishing gear and their effect on ecosystem services – Identification and knowledge gaps](#)".
- ²¹ Gilman et al. (2022). "[Matching fishery-specific drivers of abandoned, lost and discarded fishing gear to relevant interventions](#)".
- ²² Global Ghost Gear Initiative (2021). "[Best Practice Framework for the Management of Fishing Gear](#)".
- ²³ Etnayanti, Fachry & Zubair (2020). "[The behavior of Coastal Families Related to the Household Waste Management for the Sustainability of Marine Resources using gender Approach in Kapoposang Islands, South Sulawesi](#)".
- ²⁴ Macusi et al. (2023). "[Women lead small-scale fisheries to sustainability in Surigao del Sur, Philippines](#)".
- ²⁵ Mathis et al. (2022). "[Reducing ocean plastic pollution: Locally led initiatives catalyzing change in South and Southeast Asia](#)".
- ²⁶ Glavec-Geo et al. (2023). "[The Role of Non-profit Organisations \(NGOs\) in Value Creation: Lessons from the Recycling of Fishing Gear in Norway](#)".
- ²⁷ Blue Circular Economy (2022) "[Products from Waste Fishing Nets](#)".

Impressum

Published by:
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

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Eschborn 2024