

Science, Management, and Solutions to Address Marine Litter in the Wider Caribbean Region

Ciencia, gestión y soluciones para abordar los desechos marinos en la región del Gran Caribe

Science, gestion et solutions pour lutter contre les déchets marins dans la région des Caraïbes

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EXTENDED ABSTRACT

Abandoned, lost and discarded fishing gear (ALDFG or “ghost gear”) has been recognized as one of the most harmful forms of marine debris, affecting thousands of marine species and is an increasingly pervasive problem. In addition to affecting 40% of all known marine mammal species (Werner et al., 2016), many of which are included on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, ALDFG also has significant impacts on harvestable fish populations, compromising yields and income from our fisheries, creating higher costs for companies sourcing fish, and posing a threat to continued global food security.

The true extent of the global ALDFG problem is unknown, but in 2009, it was estimated that approximately 10% of marine debris might be ALDFG (Macfadyen et al. 2009). This has been interpreted by some to indicate that at least 640,000 metric tons of fishing gear are lost or abandoned in the ocean each year, though this number is widely disputed (Richardson, K. et al. 2021). With increased global attention on the issue of ghost gear, there have been ongoing attempts to better quantify the amount of gear lost in the ocean every year (Kuczenski, B. et al. 2021). Some recent studies have suggested that between 46% (Lebreton, et al. 2018) - 70% (Eriksen, et al. 2014) of floating macroplastic in the ocean gyres is fishing related when measured by weight. This is also likely to be just the tip of the proverbial iceberg, as the majority of lost gear is likely to be subsurface (lost pots/traps, nets snagged on reefs/wrecks/rocks, etc.), where it is much more difficult to quantify.

The Global Ghost Gear Initiative (GGGI) is a cross-sectoral alliance committed to driving solutions to lost and abandoned fishing gear worldwide. It is also the lead platform under which the global community can unite to improve the health and productivity of the ocean, protect marine life from harm, and safeguard human health and livelihoods. The GGGI's work is focused on ALDFG, but also directly impacts the issues of marine plastics and global food security. The GGGI remains the global thought leaders for information on ghost gear, informing policy processes in both the public and private sectors, and catalyzing practical solutions for the prevention, mitigation and remediation of ALDFG.

The GGGI has been engaging in the Caribbean since 2018, having been a regular observer and giving presentations on ALDFG at the Caribbean Regional Fishing Mechanism (CRFM) annual meetings in Montserrat in 2018 and St. Kitts in 2019. The GGGI currently has several work streams ongoing in the Caribbean in collaboration with GGGI partners consisting of:

1. Gathering data on gear loss causes and rates in Caribbean fisheries in Jamaica, Grenada and Belize via fisher surveys;
2. Creating predictive models on likely locations for ALDFG based on these surveys and fisheries effort and oceanographic data;
3. Trialing gear marking and recovery technology in Jamaica;
4. Assessing end-of-life gear reception facilities in ports;
5. Performing UAV surveys of near shore areas to determine presence of gear and informing a custom gear detection and machine learning algorithm;
6. Facilitating ALDFG workshops based on the GGGI Best Practice Framework for the Management of Fishing Gear (C-BPF) in Belize and Jamaica and in the margins of the Gulf and Caribbean Fisheries Institute (GCFI) 74 conference to facilitate reciprocal learning with fishers and find effective local solutions;
7. Using information gathered from the activities above, drafting a regional action plan for the Caribbean to address ALDFG; and
8. Collaborating with Cefas UK to trial a checklist for a parametric insurance product being developed by Cefas for the World Bank involving incorporation of the GGGI BPF into the checklist to encourage gear recovery ahead of major storm events to reduce gear loss and provide countries with lower premiums for natural disaster insurance.

The session presented at the GCFI 74 conference gave an overview of this project and its outcomes with the intention of expanding this work to other Caribbean countries to stimulate effective local and regional solutions to ALDFG.

Fisheries in the Caribbean represent a way of life for tens of thousands of people, most of whom are involved in small-scale fisheries with millions in the region being supported by the wider industry. However, there are also critical differences in the local conditions on the ground when it comes to both fisheries and ALDFG. In the Western Central Atlantic, which includes the Caribbean, an estimated 64% of assessed commercially harvested fish stocks were found to be fished within

biologically sustainable levels in 2017. Sustainability of the most important commercially landed species in the Caribbean are mostly stable, including three of the Caribbean's most harvested species in terms of landings (S.G. Smikle et al 2010): Round Sardinella, Caribbean spiny lobster, and queen conch, though the latter two are categorized by FAO as being fished at maximum sustainable levels, and the FAO makes the distinction that Round Sardinella is overfished in the Eastern Caribbean, while being likely biologically sustainable in the Western Caribbean. (FAO, 2020) Additionally, Caribbean fisheries are under threat from several other climate change related sources, including changes to ocean currents, temperatures, salinity and pH, which is causing fish populations to change distribution and migration patterns and impacting critical habitats such as coral reefs, which is leading to further declines in fish populations and overall yield (CEMP, 2021). Alongside these critical challenges, most species in the region are being fished at or near maximum sustainable yields.

The issue of ghost gear and its impacts on local commercially harvestable fish populations and the marine ecosystem in general can have considerable impact as well. Initial conversations with fish harvesters in the region via two virtual workshops carried out by the Global Ghost Gear Initiative (GGGI) in July 2021 and a follow up virtual workshop in the margins of the Gulf and Caribbean Fisheries Institute (GCFI) conference in November 2021 indicate that the increased frequency and intensity of major storm systems passing through the region, undoubtedly an effect of climate change, is a major cause of gear loss in the region. It is therefore essential for coordinated action to prevent, mitigate and remediate the ghost gear issue in the Caribbean region to ensure the future sustainability of harvestable fish populations and the livelihoods of those who depend upon them, and the overall health of the ecosystem.

Illustrative of the specific local challenges referenced above when it comes to fisheries in the Caribbean, the GGGI's work above – particularly through interaction with local fishers and fisheries managers – has also made it abundantly clear that these differences apply to approaches to ALDFG as well. Thus any regional action plan for ALDFG will necessarily be a starting point of basic principles which will then need to be applied and adapted to individual countries and potentially regions within individual countries. The GGGI sees these initial activities as a series of first steps to engage in the region and to build on this work moving forward. Pending identification of appropriate funding streams, the GGGI is keen to build on the existing work happening in Jamaica, Grenada and Belize, and also to engage other countries in the Wider Caribbean Region to implement similar project work with the intent of addressing ALDFG systemically across the region to the extent possible. To this end, the GGGI will also be exploring working with the CRFM and potentially CARICOM to develop appropriate strategies to prevent, mitigate and remediate ALDFG throughout the Caribbean.

KEYWORDS: ALDFG, ghost gear, fishing gear, regional, solutions

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