

The Tragedy of Ghost Fishing and Recent Surveys

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SUMMARY

Derelict fishing gear (DFG) is lost or abandoned fishing gear which was no longer under the control of the fisherman and it has the potential impact to the marine habitats. Recent days, most of the fishing gears are fabricated with synthetic fibers besides they are non-biodegradable in nature and have a prolonged environment. More than 90 of the species that are caught by DFG are commercially valuable, which can contribute to a significant loss of revenue for fishermen. Improvement of gear design, increases of navigational awareness of lost gear, reducing fishing effort, Gear marking, integrated GPS with fishing gear would reduce the impacts of ghost fishing.

INTRODUCTION

Abandoned fishing gear has become a global problem. About 6.4lakh tons abandoned nets are reported to be spread across the world's oceans, contributing to around 10% of oceanic litter according to Food and Agriculture Organization and UN Environment Program (UNEP). The derelict gear will allow the entanglement of marine organisms that cause suffocation. Ghost gear can't often decompose effortlessly because of the synthetic materials linked to its manufacture (e.g., nylon, polyolefin), which are reluctant to accept the natural degradation process. There are several places where ghost fishing first appeared. The main reasons for lost fishing gear include mishaps, natural calamities, and inappropriate disposal techniques. Additionally, other environmental factors are also included, like pH levels and temperature: at the bottom of the ocean, the exposure to sunlight will be low, so the duration of the decomposition process will be extended. Ghost fishing is a staggeringly large industry. Ghost fishing is a significant contributor to marine trash, which degrades marine environments and reduces biodiversity, according to the Food and Agriculture Organization of the United Nations (FAO). Ghost gear is thought to contribute significantly to the 8 million metric tons of plastic that end up in the water every year.

Overview of Ghost Fishing

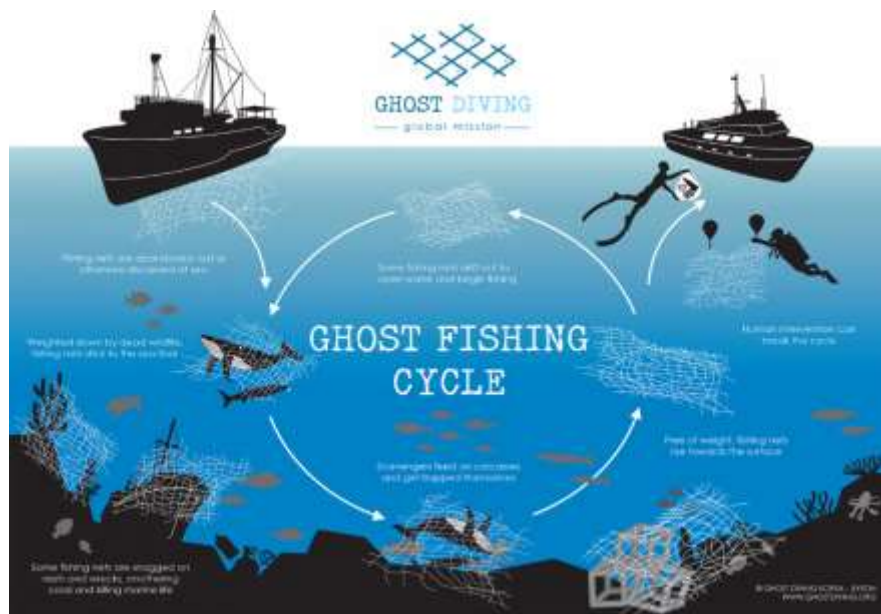
"Ghost fishing" is a term that describes a fishing net that has been deserted or cast off and lost during the fishing operation in waterbodies (ocean, sea, rivers, and lakes). These nets sink and become undetectable in the water. They will induce the mortality of aquatic organisms by swallowing or getting entangled in the destructed gear material, which leads to a wound. Ghost fishing works as a silent killer under the water and acts as a plague on the oceans. An approximate of 640,000 tonnes of ghost gear, which is heavier than 50,000 double-decker buses, are dumped into the ocean annually. Ocean plastic pollution is also caused by associated fishing garbage, such as packing containers, tape, and buoys, and ghost gear, which accounts for 10% of the plastic waste in our seas but represents a far higher proportion of big plastics found floating at the surface. In some specific ocean areas, fishing gear makes up the vast majority of plastic rubbish, including over 85% of the rubbish on the seafloor on seamounts and ocean ridges, and in the Great Pacific Gyre. 300 sea turtles were killed in a single incident in 2018 which was entangled in a ghost fishing net in Mexican waters.

Reason

Ghost fishing has had a growingly problematic adverse effect. The main reason is that, since the introduction of synthetic fibres in India in the late 1950s, gears have mostly been made of non-biodegradable synthetic materials, and the synthetic material has the potential to remain uncomposed in the water for hundreds to thousands of years. Over the past few decades, the fishing industry worldwide has increasingly used plastic in ropes, nets and lines, as well as other fishing equipment. Plastic's lightness, buoyancy, durability and cheapness make it ideal for fishing. Unfortunately, the same qualities also make ghost nets and lines a fatal and growing threat to marine life, and the communities that depend on healthy oceans thriving with life. Ghost fishing is mostly due to passive gears like gillnets, tangle nets, trammel nets and traps. Even though gear loss may happen in all fishing.

These are some reasons that gear goes ghostly:

- Fishing in bad weather conditions
- Dispute with other fishing operations
- Due to natural disasters such as hurricanes, storms, tsunamis, floods, and other natural calamities, fishing gear can be lost or damaged, which can lead to ghost fishing. Fishing gear can be readily damaged or displaced by nature's strong forces, leaving it floating adrift in the water. After then, the lost gear might go fishing on its own, indiscriminately capturing and murdering marine life. Natural disasters can also make the fishing operation more challenging for the fishermen to find misplaced or broken gear and fix it.
- Gear getting tripped by using it on the seabed or rough surface
- Running the gear on excess time
- Illegal, unregulated (IUU), and unreported practices make ghost fishing worse and complicate the situation. To avoid being discovered or apprehended by authorities, illegal fishermen may purposefully discard their gear.
- By Accidentally: The gear can sometimes inadvertently become driven out or released by the fisherman. This reason includes Human negligence, inadequate upkeep, and poor handling techniques might result in equipment being misplaced or left in the ocean. Sometimes fishermen may purposefully throw away equipment that is damaged or no longer economically practicable to retrieve.



Environmental Consequences

Marine life deals with deadly consequences daily; the overall impacts of ghost fishing include both target and non-target species, which will damage both the habitat and environment. Most ghost gear is made of synthetic materials, which may cause heavy plastic pollution and the transfer of toxins and micro plastics into marine food webs, which leads to habitat degradation. Entanglement can cause a vast number of creatures to be removed from an ecosystem, which can cause imbalances that affect the entire food web. Food shortages may affect predators, whereas population expansions in prey species may have further side effects. It's not only associated with fish life; it can pose a threat to coral reefs and seagrass beds by getting entangled in nets and other gear and stopping them from feeding and reproducing.

Recent Survey

The Food and Agriculture Organization (FAO), the Global Ghost Gear Initiative (GGGI), and several researchers are working on a survey based on the mortality of fish due to ghost gear. The recent studies Research from the United States shows that about 82% of the research was mainly focused on the impacts of traps and pots on the species of crab or lobster, and they concluded that 61% reported mortality rates, while only 44% reported escapement rates. Another study found that fishing gear accounts for up to 75–86% of floating plastics in the North Pacific Garbage Patch. In the Maldives, 59 ghost nets were recorded between 2013 and 2014, and 166 olive riddle turtles (*Lepidochelys olivacea*) were recorded as ghost species in the Maldives between 2014 and 2019 over

the Indian Ocean. Olive turtles are entangled between 3400 and 12200. From Indian waters such information regarding ghost fishing by gillnets and traps are very less. In Kerala, 21.4% of total gear was lost, abandoned, or discarded. Motorized large mesh size ring seine were given a higher gear loss of 32.5%, Trammel net 24.4%, and Motorized gillnet 18.75%. These data were collected in 2022. In India, a total of 701 floats, lines, ropes, nets, and strings were reported from the Ganga River Bank in 2021. The data from 2016–2020 shows that 90% of the buoys were never retrieved, and these results also showed that 44% of the buoys were abandoned, 6.6% were beached, and 18.4% were sunk.

CONCLUSION

From the collection of data, bottom gill net and trammel nets are associated more with DFG and affect fishing. An important factor in combating ghost fishing is “**innovation**”. The impacts of ghost gear can be lessened and the environmental impact of fishing activities can be decreased with the development of biodegradable fishing gear in the replacement of synthetic material, which will promote alternative fishing techniques. Using laws and rules to combat ghost fishing. Ghost fishing can be less common with the use of proper disposal techniques and regulations requiring gear tagging. Since ghost fishing is a worldwide problem that necessitates coordinated action, international cooperation is also essential. For a sustainable future, raise education and awareness about the ALDFG issue with the government and non-governmental organizations, fisheries managers, and collaborative partnerships with local fishermen and stakeholders.

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