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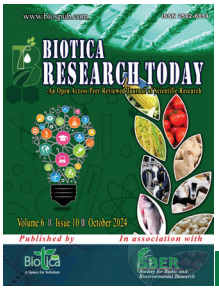

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# The Hidden Peril of the Seas: Ghost Fishing and Its Global Impact

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## Abstract

Ghost fishing has an impact on the marine living ecosystem with the use of old fishing gears like nets and traps that unwittingly continue to catch all other marine species like fishes, sea turtles, sea birds and mammals. Such remnants can spend years on the ocean floor, causing disruption in structures and availability of energy. Better management practices, making gear stronger so it is less likely to be lost, using nets that degrade with time and retrieving gear using submersible drones are all examples of measures to help solve the problem of ghost fishing. In order to reduce the impact of ghost fishing, there is need for local, regional and international mobilization. Global interaction can aid in developing better one way use fishing gears and also networks, which will conserve the ocean and its resources for years to come.

**Keywords:** Ecological damage, Ghost fishing, Ghost net clean-up, Global Ghost Gear Initiative (GGGI)

## Introduction

Ghost fishing, also known as ghost gear, occurs when fishing equipment like nets, lines and traps that have been abandoned or lost continue to kill marine organisms in the sea. This is because ghost fishing captures and kills organisms without being directed at certain fish populations. Unlike active fishing, ghost fishing is indiscriminate and continuous, contributing to excess deaths of marine life and destruction of their habitats that are unnecessary. Ghost gear made of synthetic materials which are strong enough to survive in water for decades poses peculiar danger to it. These materials trap marine mammals, seabirds, sea turtles and sharks while they can damage coral reefs as well. The current systems enable the gear to move long distance in oceans taking it even into marine protected areas as well as no-fishing zones. Therefore, apart from loss of life, its ecological impact goes further than mere disruption of equilibrium among fish communities leading to destruction of vital environments. Fishing industry suffers financial losses due to these economic consequences which are significant as well. In order to deal with ghost fishing issue, prevention, mitigation and recovery has to be put into account. This includes appropriate management practices as well as improved gear design in addition to better retrieval methods and public awareness campaigns. Biodegradable fishing gear and underwater drones for gear retrieval are among the innovative solutions being developed. Global Ghost Gear Initiative (GGGI) is one of the global initiatives that call upon stakeholders to work together in addressing this matter holistically. Although there are challenges that face these efforts, they need to be done at all levels so as to lessen the effects caused by ghost fishing and ensure sustainable utilization of ocean resources for future generations benefit. As a result of increasing demand, cutthroat competition and decreasing number of fish globally, fishermen worldwide have had no other option other than modifying their fishing techniques. According to Carr (1987), both small-scale local artisanal fishers and large-scale commercial undertakings have adapted more robust and long-lasting materials.

## The Scale of the Problem

According to the United Nations Environment Programme (UNEP) and the FAO, the oceans receive around 640,000 tons of gear from fishing every year which is lost or thrown away. This represents roughly 10% of all garbage found in water but has an impact that's disproportionately greater (UNEP, 2005). Ghost nets as an illustration can catch fish for years, entangling everything in their way and causing their ecological consequences to cascade. There are several

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reasons for ghost gear including bad weather conditions, limited disposal or recycling facilities, poor maintenance of gears, expensive retrieval services, fishery conflicts, vandalism, illegal unreported and unregulated (IUU) fishery practices, catch overloads and destructive fishing methods.

## Impacts of Ghost Fishing

Ghost fishing has and continues to impact drastically our oceans; several marine creatures suffer for years before dying while ecosystems get disrupted in the process. It destroys habitats, such as coral reefs and sea grass beds, adds microplastics into the food web and sometimes brings in alien species. The fishing industry bears replacement costs and decreases catches putting pressure on finances thus making it hard for people living near the coastlines economically. It is estimated that ghost catches have a commercial value of about ninety percent (90%) thereby increasing the burden borne by those who rely on fishing for their livelihoods.

## Several Factors Contribute to the Proliferation of Ghost Nets in Marine Environments

Due to bad weather conditions the fishing gear is misplaced in the sea, nets more so are washed away in storms particularly at night when they dry them on beaches. Inadequate access to disposal or recycling facilities means that sometimes it is easier for fishermen to improperly dispose of unwanted gear by throwing it overboard instead of returning it to shore for proper disposal. The problem is further made worse by poor maintenance of gear because most of broken or damaged nets are not frequently repaired or cleaned those results to their loss. Fishermen find it hard to recover their lost nets because doing so requires a lot of money and time. Conflicts between fishers and acts of vandalism can also make the problem worse. For example, trawlers might accidentally or on purpose destroy gear belonging to other fishers, or people might fish in areas where they are not allowed. IUU fishing activities, however, are often characterized by swift departures to evade the law enforcers leaving behind torn or abandoned nets. Also, catch overload may cause nets to break and not be properly disposed. Finally, destructive fishing methods like bottom trawling frequently led to snagging nets into the seafloor and thus contributing to the accumulation of ghost gears (Kaiser *et al*., 1996). Furthermore, various studies have shown that the rate of ghost fishing is always affected by many factors such as abundance of fauna in specific areas, environmental conditions to which the gear is exposed (like currents or storms) and type of habitat.

## Risks of Fishing Aggregating Devices to Sea Turtles and Marine Mammals

FADs are a threat to the sea turtles such as Olive Ridleys and Leatherbacks because they can become entangled in abandoned nets and ropes. Drowning can occur due to this entanglement or even broken limbs, fatigue or injuries related to them. Since deserted gear abounds in open oceans, most entangled Olive Ridley turtles are adults who live there. FADs also threaten marine mammals by causing entrapment and interruptions of their feeding patterns while inadvertently catching other species including sharks. Even when lost, FADs continue to catch fish therefore adding to pollution problems; it has been documented that they have far-reaching impacts on marine mega fauna (Gilman, 2015; Gilman, 2016).

## Contribution of Ghost Gear

Approximately 10% of marine garbage is comprised of ghost gear. Each year, between 500,000 to 1 million tons of fishing apparatus could find its way into the ocean. Fishing nets, traps and pots have considerable loss rates with an influence on approximately 45% IUCN red-listed marine mammal while resulting into as much as a 30% drop in some fish stocks.

## Efforts to Combat Ghost Fishing

Ghost fishing can be dealt with by taking measures to prevent it, minimize the impacts of it and recover from its effects. Some of these preventive measures are: spatial zoning, reduction of fishing effort, use of biodegradable gear, including GPS for retrieval purposes and initiating recycling programs. Development of biodegradable fishing gears is what mitigation efforts are all about while retrieval of abandoned gear involves organizing clean-up exercises for ghost nets. For instance, Net-Works is a project that recycles fishing nets thereby providing employment to coastal regions while Olive Ridley Project helps to create awareness and remove ghost nets found in Indian Ocean. Besides this, underwater drones such as DTG3 ROV play an important role in retrieving lost tackle underwater.

## Global Initiatives and Banishing Ghost Gear

Ghost fishing is now being tackled through collaborative efforts by global organizations. Ghost fishing hazards are being kept at bay through the unification of NGOs, researchers as well as industrialists by Global Ghost Gear Initiative (GGGI) which encourages political activism and creative solutions. The FAO has issued Voluntary Guidelines on the Marking of Fishing Gear (VGMFG) so that it can be managed better, while UNEP supports coastal clean-up projects that help reduce marine debris. Besides, GPML contributes to combating ocean plastics waste. Ghost gear elimination strategies include education, incentive reporting and collection or recycling systems while exploring initiatives like GPS tracking and bioplastic nets. In ghost net removal, habitat restoration and advocating for sustainable fishing practices, Suganthi Devadason Marine Research Institute (SDMRI) works closely with GGGI therefore showing a need for enhancing collective action in order to minimize environmental impacts.

## Conclusion

Marine ecosystems and economies suffer greatly at the hands of ghost fishing which is caused by abandoned or lost equipment. This problem can only be solved through comprehensive measures such as education, technological improvements and international collaboration. GGGI, FAO and UNEP are among organizations involved in prevention, retrieval and remediation efforts aimed at improving gear marking, use of biodegradable gear and better waste management practices. In order to safeguard the health and

productivity of oceans globally, cooperation across nations becomes important in finding sustainable solutions.

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