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GHOST FISHING: UNSEEN POLLUTION IN OUR OCEANS

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Introduction

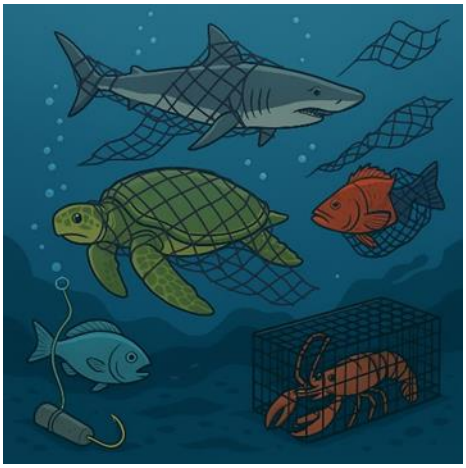
The term "ghost fishing" describes the accidental entrapment of marine creatures by lost, discarded, or abandoned fishing gear, including nets, longlines, and traps. Every year, some 640,000 tons of fishing gear end up in the ocean, where it becomes ghost gear that traps and kills marine life for decades. Under water, these nets, which are often more than 6 km long, float with the tides and ocean currents and are frequently almost undetectable.

The growing number of plastic debris in marine areas serves as a reminder of how seriously humans are affecting the seas. A recent South Pacific expedition found almost 18 tons of plastic waste on a 2.5-kilometer section of Henderson Island, with thousands of pieces being found every day. Similarly, a six-ton sample of trash showed that sixty percent came from commercial fisheries, including plastic fish boxes with labels from New Zealand businesses that had shut down decades before. Illegal fishermen may discard their gear to avoid detection, which contributes to the overall increase in marine pollution. These worries highlight the urgent need for actions to lessen the loss of fishing gear and enhance international cooperation, as well as the efficacy of governments and international organizations in ocean conservation.

With fishing gear increasingly made of synthetic materials in recent decades, the issue is especially serious. Ghost fishing occurs when large quantities of this gear are lost, abandoned, or thrown at sea, trapping and killing marine life for years or even decades. Ghost gear loss has several reasons, but it frequently results from overfishing, illicit, unreported, and unregulated (IUU) fishing, and overcrowded fisheries. The scope and effect of ghost gear have grown along with the global fishing industry's use of synthetic, long-lasting, and buoyant materials. The problem of discarded, lost, and abandoned fishing gear has been recognized since the 1980s, but its true scope is still hard to determine because of the variety of gear types, poor reporting, and difficulties in locating or recovering misplaced gear. About 10% of marine plastic trash is made up of fishing gear, with an estimated 640,000 tons being lost or abandoned in the waters each year, according to an FAO assessment. Studies reveal that fishing operations are responsible for up to 70% of the macroplastics (more than 20 cm) that end up at the ocean's surface, with abandoned fishing buoys accounting for 58% of the total. Due to ocean currents, some ghost gear is extremely mobile and can gather in isolated locations. 42,000 tons of megaplastics (more than 50 cm) were identified in the Great Pacific Garbage Patch, of which 86% were fishing nets, accounting for 46% of the total trash, according to research. These results demonstrate the urgent need to address the harm that lost fishing gear does to the ecosystem and lessen its catastrophic effects on marine life.

Ghost Fishing

Fishing gear that is lost, abandoned, or thrown into the water and continues to trap and kill marine life is known as **"ghost fishing."**



Fishing gear and its Types

The broad range of instruments and methods used to capture fish, crabs, and cephalopods is referred to as fishing gear. The species being targeted, their habitat, and the operation's magnitude all influence the equipment selection. Gears can be tiny, hand-operated devices or enormous, industrial-scale machinery.

Four basic categories may be used to broadly classify fishing gear:

1.Nets

- Deep-water gillnets (deployed below 500 meters) pose greater risks due to their length and extended soak times.
- Shallow-water gillnets are generally easier to recover.

Types of Nets

- ♦ Bottom and Pelagic Trawls
- ♦ Purse Seines
- ♦ Gillnets
- ♦ Driftnets

Impact:

Ghost nets entangle and kill a wide range of marine species including fish, sea turtles, dolphins, whales, and seabirds,while also damaging coral reefs and disrupting marine ecosystems. The presence of trapped animals often attracts scavengers, leading to a cycle of repeated deaths.

Regulations

The United Nations banned drifting gillnets longer than 2.5 km in international waters in 1992. However, deep-water fisheries still deploy large numbers of shorter gillnets.

2. Hooks and Lines

- These can extend over 100 kilometers and contain thousands of baited hooks.
- 29% of lines are estimated to be lost every year.

Impact:

Due to the high density of longline operations, the risk of ghost fishing is elevated. Longlines are particularly harmful when lost or abandoned, as they continue to capture and kill marine life indiscriminately.

3.Traps and Pots

- Commonly used to catch species like lobsters and crabs.
- Annual losses may reach 50,000 to 100,000 traps.

Impact:

Storm-driven movement of traps can damage sensitive habitats such as seagrass meadows and coral reefs. Plastic traps also contribute to overall marine pollution.

4. Fish Aggregating Devices (FADs)

FADs primarily used to catch Tuna.They can be free-floating or anchored and some fisheries also target natural objects.

Types of FADs

- Drifting FADs (dFADs)
- Anchored FADs (aFADs)

Impact:

Drifting FADs frequently entangle marine species like sharks and sea turtles, and the materials they're made from including plastic, metal, and electronic parts create massive volumes of ocean waste when lost.

Impacts of Ghost Fishing Gear

1. Loss of marine biodiversity and habitat degradation
2. Deaths of fish, mammals, and other marine animals
3. Ingestion of plastic debris by marine life
4. Destruction of sensitive ecosystems
5. Accumulation around seamounts and remote regions
6. Economic damage to fishing communities
7. Barriers to long-term ocean recovery

Impacts of Ghost Fishing on Indian Fisheries

In India, gillnet fisheries have reported significant gear losses, resulting in notable financial hardship for local fishers. Coastal surveys in Kerala found that 39.8% of marine litter was linked to fishing activities, with these materials being four times more common in heavily fished zones. Experiments using trawls and nets along Kerala's coast also revealed a high presence of abandoned gear. Between 2018 and 2019, volunteers from the Olive Ridley Project removed ghost nets from Indian waters. In the Gulf of Mannar, diver assessments showed that 43% of debris came from fishing gear, contributing to extensive coral reef damage. A study of 17 beaches along the Hooghly Estuary reported that fishing-related waste made up 17% of collected litter by weight.

Interviews conducted by WWF India indicated that many fishers lose up to 10 nets annually due to various causes. According to Stelfox (2019), some nets affecting sea turtles in

the Maldives likely originated from Indian and Sri Lankan waters, suggesting that small-scale and coastal fisheries contribute significantly to ghost gear. Indian fishing activities have also been identified as a possible source of ALDFG found in Australia's Gulf of Carpentaria.

Causes of Ghost Fishing

A certain level of abandoned, lost, or discarded fishing gear (ALDFG) is inevitable due to the challenging marine environment and limitations of fishing technology. The reasons behind ALDFG differ between and within fisheries, as gear can be a) abandoned, b) lost, or c) deliberately discarded. This means that while some gear is left unintentionally, other instances are the result of intentional decisions. As a result, strategies to reduce ALDFG must be varied and adapted to different contexts. Several direct factors contribute to ALDFG, often tied to the pressures faced by fishers. For example, illegal fishing operations may result in gear being abandoned to avoid detection by authorities, significantly adding to oceanic ALDFG. Operational difficulties and adverse weather conditions also increase the chances of gear being left behind. Spatial pressures such as gear conflicts in overcrowded fishing areas can lead to equipment loss or damage. Economic limitations further complicate the situation, as fishers may resort to dumping old or broken gear at sea rather than dealing with the expense or inconvenience of shore-based disposal. Inadequate or inaccessible waste facilities on land contribute to this problem. Other factors leading to ALDFG include gear getting stuck on reefs or underwater structures, interactions with marine wildlife, prolonged soak times, deep-sea fishing activities, and the deployment of more gear than can feasibly be retrieved. The likelihood of gear loss is also influenced by gear type. Equipment that drags along the ocean floor or operates without constant monitoring is at greater risk of being lost. High risk gear types include trawls, traps and pots, and gillnets

Methods to Mitigate Ghost Fishing

Approaches to reducing the occurrence of abandoned, lost, and discarded fishing gear (ALDFG) can be grouped into two main categories: preventive strategies and corrective actions. Preventive measures are generally more economical than remedial ones. Additionally, many of these methods align with wider fisheries management objectives, such as controlling the harvest rates of target species and minimizing the unintended capture of non-target or vulnerable marine life. Implementing these strategies is crucial in addressing the issue of ALDFG and reducing the impacts of ghost fishing.

Challenges in Management

Accurately assessing the scale of fishing gear loss is challenging due to insufficient reporting. Monitoring and retrieving abandoned gear is also difficult, and there is a general lack of awareness among fishers about the issue. The high cost of cleanup efforts makes it hard to implement advanced technologies on a large scale. Globally, there is limited understanding of how often gear is lost and how long it continues to ghost fish. This knowledge gap is partly due to fishers being reluctant to report lost gear and the extensive time needed for thorough ghost fishing research.

United Nations (UN) Initiatives

Sustainable Development Goal 14.1: Urges countries to reduce marine pollution, including debris, by 2025.

UN General Assembly Resolutions: Resolution 60/31 (2005)-Highlights the need to address ALDFG.

2018 Sustainable Fisheries Resolution: Recommends that states and Regional Fisheries Management Organisations (RFMOs) adopt

effective measures to manage lost and abandoned fishing gear.

Conclusion

In addition to endangering marine biodiversity and harming ecosystems, ghost fishing is a major global problem that greatly increases oceanic plastic pollution. Fishing gear management and regulation initiatives notwithstanding, the ongoing loss and abandonment of nets, traps, lines, and FADs continue to have detrimental ecological and economic effects. Stricter laws, better tracking technologies, better management of fishing gear, and raised awareness among stakeholders and fishermen are all necessary to address this problem. Reduced long-term effects of ghost fishing and the preservation of marine life for future generations depend on international collaboration, ethical fishing methods, and creative solutions like biodegradable fishing gear and retrieval initiatives.

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