

# Ghost nets: Invisible Fishers in the seas

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Fishing gears may get lost into the seas due to rough weather conditions, damages in the gear, entanglement with bottom obstructions like wrecks and reefs or sometimes dragged away by other fishing gears/ boats. Also gears may be discarded intentionally into seas by fishermen if the gear is found defective. These lost gears referred to as abandoned, lost or otherwise discarded fishing gear (ALDFG) continue to catch fishes even though fishermen have lost the control over those gears. The phenomenon of capturing target and non-target fishes and other aquatic organisms by ALDFG known as Ghost fishing causes several harmful impacts on fish stocks as well as on endangered species and benthic habitats (Smolowitz, 1978).

Abandoned fishing gear has become a global problem. About 6.4 lakh 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) (Macfadyen, 2009). Over the last 50 years, the magnitude and impacts of the problem have increased notably due to the growing levels of fishing intensity and increasing durability of fishing gear. Fifty to sixty years ago, nets were fabricated from biodegradable materials like hemp or cotton. With the emergence of synthetic, decay-resistant materials like nylon, nets now can stay active in seas for several years. Concern over ALDFG is increasing due to various negative ecological and economic impacts as well as navigational risks and related safety problems. Studies have shown the occurrence of capture, injuries, and death of marine creatures due to ALDFG (Good et al., 2009; Hong et al., 2013). Living organisms may swallow parts of the lostnets and thus introduce them irreversibly to their digestive system. Ghostnets are posing greater impacts to fishes and crustaceans. Moreover, these nets are non-selective and poses a greater threat to marine organisms irrespective of their sizes and also to sessile species like corals (Chiappone et al., 2005).

Ghost fishing is mostly due to passive gears like gillnets, tangle nets, trammel nets and traps (Brown et al., 2005). Even though gear loss may happen in all fishing

activities, active gears like trawls and seines are not much contributing to ghostfishing. Trawls are non selective nets and during operation they disturb or harm the benthic organisms/environment. However when control over these nets were lost, they become ineffective and does not create much impacts as ghost nets. But passive gears like gillnets and traps keep on fishing for years even after the control over them has been lost. These lost nets may become physically damaged or get heavily colonized by encrusting biota due to which they may lose their catching abilities. But before losing their catching efficiency, these nets might have caught numerous target, non-target and threatened organisms which causes their mortality (Nakashima & Matsouka 2004).

Information regarding the magnitude of gear loss or how long these gears continue to fish are limited. This may be due to the reluctance of fishermen to provide such information and the practical difficulties to undertake such realistic long-term studies (Pawson, 2003). Moreover, losses from the respective fisheries due to lost nets are significant from a conservation and economic point of view. Several retrieval programmes have been undertaken in different parts of the world in order to lessen the number of ghostnets (Cooper et al., 1987; Bech, 1995; Humborstad et al., 2003). The first comprehensive group of studies on lostnets and ghost fishing consequences were by the European Commission funded FANTARED studies, done between 1995–2005 (the FANTARED 1 and 2 projects) into the extent, impact, causes and preventative measures of ghost fishing by static nets and pot fisheries. Various attempts have been made by researchers to reduce the effects of

ghost fishing through: techniques designed to find lost nets, removing lost nets with the help of divers or vessels (Large et al., 2009; Mcelwee, 2012), incorporating biodegradable products into nets (Bilkovic et al., 2012), technological support to fishers etc.

From Indian waters such information regarding ghost fishing by gillnets and traps are very less. Pieces of lost gear washed ashore has been reported. Nets washed ashore with crabs entangled in them has been reported during visits to Mithapur beach of Gujarat coast, under Gujarat coast

## Highlight Points

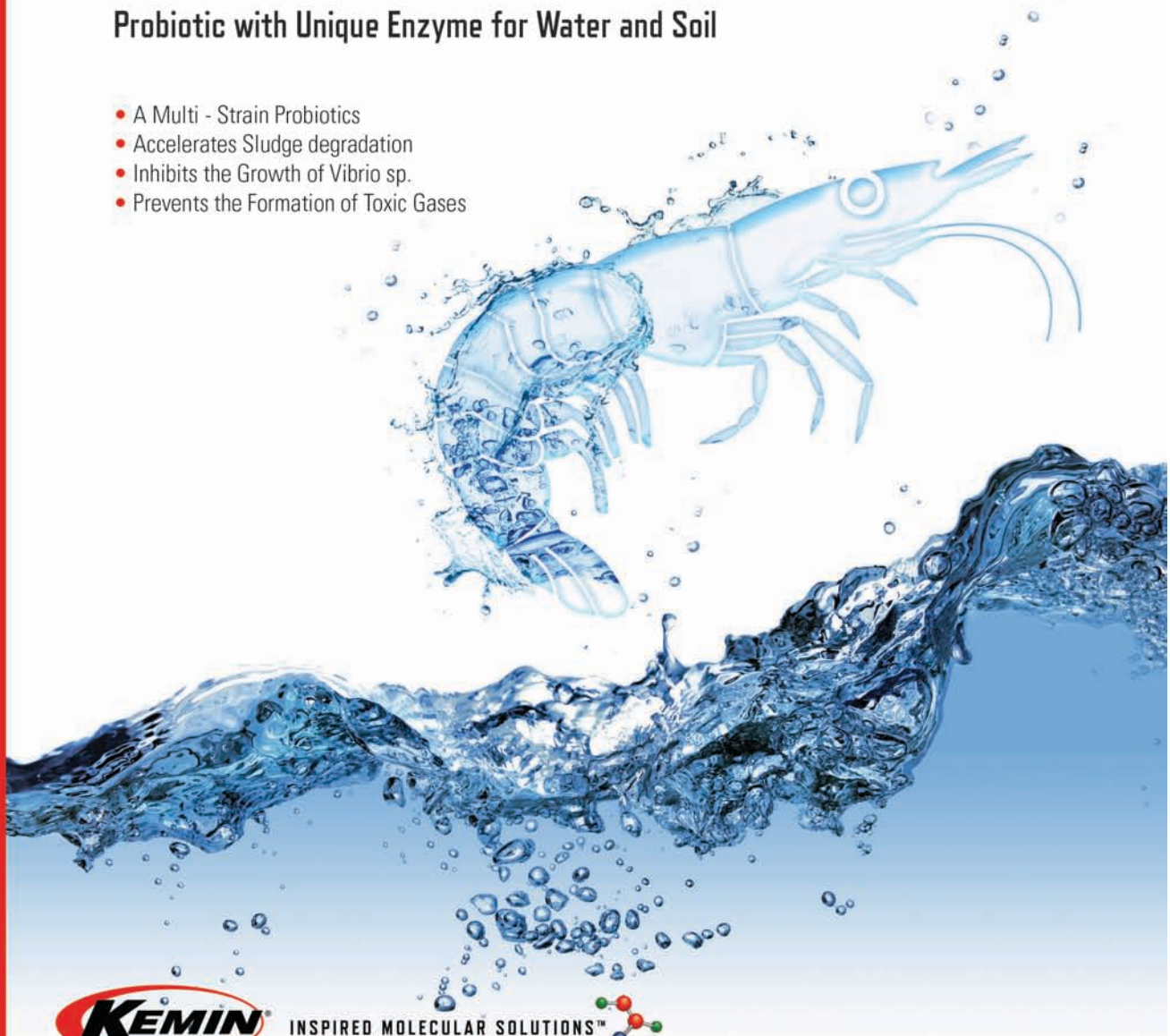
- **Abandoned, lost or otherwise discarded fishing gear (ALDFG) continue to catch fishes, other and other aquatic organisms referred to as Ghost fishing and causes harmful impacts on fish stocks as well as on endangered species and benthic habitats**
- **Ghost fishing is mostly due to passive gears like gillnets, tangle nets, trammel nets and traps**
- **Information regarding the magnitude of gear loss or how long these gears continue to fish are limited.**
- **Scientific study is initiated by ICAR-CIFT to quantify the loss rates of traps and gillnets, reasons for their loss and their catching efficiency.**

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coral securement Project. Retrieval of ghostnets from few places in India has been reported where ghost nets have been removed from Puducherry and Thiruvananthapuram by Temple Reef Foundation and NGO Friends of Marine Life respectively. Fishing gear loss assessment relating to gillnets and trammels nets in Indian waters' was undertaken by ICAR-CIFT, Cochin during 2017 funded by FAO of UN in association with Integrated Coastal Management, Kakinada in the states of Gujarat, Kerala, Tamil Nadu and Andhra Pradesh of India . The study showed that purposeful gear discard into the water body was almost negligible while the abandoned and lost gear was significant in quantity. However details regarding amount of ghost nets/ lostgears and their catching rate, efficiency are still lacking from Indian waters. ICAR- CIFT under ICAR- Extra Mural Research Fund Scheme , has initiated a scientific study to quantify the loss rates of traps and gillnets, reasons for their loss and their catching efficiency from off the coasts of South Kerala and TamilNadu. The information from the study will be useful to provide valuable insights into the extent of ghost fishing as well as to develop mitigation measures in the future.

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