

# Ghost Fishing

## *Impacts and Management*

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*Focal Points at a Glance: The nets that are lost while fishing in the sea give rise to 'ghost fishing'. While ghost fishing results from lost fishing nets and there is not much of awareness in this regard among the fishery enterprises. In this background, the authors appraise us on this aspect, which is very little known to Indian fishery enterprises and fishers.*

### Introduction

Fishing gears are sometimes lost during fishing operations. The abandoned and lost fishing gears which fish are unintentionally trapped as 'Ghost Fishing' nets. The occurrence of this kind of 'unwanted' capture of fish was given global recognition for the first time in the 16th session of the FAO Committee on Fisheries in April 1985. Ghost fishing is also referred to as the 'mortality of fish and other aquatic organisms' that takes place after the control over fishing gear is lost by a fisher (Way, 1976). The ghost fishing happens when some passive fishing gears like gillnets, trammel nets, pots and traps are lost or discarded but continue to catch commercially important fish and crustaceans species as well as non-commercial species of fishes, crustaceans, birds, marine mammals and marine turtles. The lost gear may also continue damaging benthic habitats through abrasion, plucking of organisms, the meshes closing round them causing translocation of sea-bed features and posing problems as a source of litter or entanglement for birds and mammals when washed ashore. They can potentially pose safety risks for fishers if they get entangled with the active fishing gear that the fishers use and vessel propulsion systems.

The modern fishing gears are mostly made of non-biodegradable synthetic fibres that can persist in the environment for long periods. They can therefore theoretically and invisibly continue to catch fish for long periods of time. The

ghost fishing as mentioned is non-selective to species. The graphic and emotive image of dead fish, crustaceans, seabirds and marine mammals in nets and pots which have been lost have increased public and political concern over ghost fishing as an issue particularly in the European waters. This concern originated in the large-scale driftnet fisheries in the Pacific. Till the mid- 1990s there was little research into ghost fishing by enmeshing nets such as bottom set gill nets and trammel nets globally. Much of the research completed on this was undertaken in the waters of North America but in India not much work has been done in this respect till now. However, in the other countries, concern has been developed over the effects of lost gear particularly as in European waters. The European Commission funded series of pan-European studies about the extent of impact results and preventive measures of ghost fishing with a name called FANTARED (FANTARED, 1995).

Most of the work in fishing sector has been dominated by biological and technical analysis with little attention to the socio-economic elements of either the impacts of ghost fishing or the management responses. There remains a lot of uncertainty and misunderstanding over the absolute and relative impacts of gear loss on fish stocks and marine environment and also a lack of information on the economic and socio-economic impacts. Furthermore, there is scant documentation on appropriate

management response to gear loss.

### Impact Extent

Mortality caused by ghost fishing is a factor of gear loss rates and their catch efficiency. The mortality percentage due to lost fishing gear may be dependent on the species present, abundance, vulnerability and ghost gear status (Carr *et al.*, 1994).

*Level of nets loss:* The loss of static fishing gears appears to be common in some fisheries. In relation to the total number of nets that are set, however, the rates of permanent loss are often less. To a large extent, this is because the level of self recovery of nets in most shelf fisheries is now very high with the almost universal adoption of Global Positioning System by fishing vessels in the U.C. (FANTARED, 2003). However, because the length of nets being set is very high, the total length of netting permanently lost can be high, while loss rates are generally low as 1%.

*Loss net evolution:* The vertical profile and zero visibility of gill nets are the primary characteristics that determines their effectiveness of gill net ghost fishing. Moreover, the depth and sea bottom type and the lost gear's exposure to environmental factors like heavy storms, surge and fouling are key determinants of the effective catching efficiency of individual ghost gill nets (Kaiser *et al.*, 1994). While a net may be set in a wide range of environmental conditions, their evolution and catching efficiency

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generally follow similar patterns with rapid declines in catch rates due to degradation of lost net.

Static nets that fish in waters of open bottoms also experience an initial decrease in net height followed by a prolonged period of slow decrease in net height and increase in degradation and tangling due to bio-fouling. Fishing rates may nonetheless continue at (not insignificant) rates of up to 15% of normal gill net rates in some cases (Wayne, 1976). Nets deployed on wrecks tend to degrade rapidly or are tangled in the wreck structure. In bottom conditions, ghost net catches initially show high percentage of fish before becoming increasingly dominated by catches of crustaceans.

*Level of ghost catches in net fisheries:* It is technologically difficult and also expensive to simulate gear loss and to retrieve lost gears. This makes it difficult to estimate ghost fishing mortality rates and also to estimate total ghost catches for the reason that losses are limited and can be estimated approximately. Nonetheless, in most of the fisheries that have been examined the losses of commercial species attributable to loss of static gears were small compared to normal commercial catches. Estimated ghost catches are believed to be well under 1% of landed catches. Even this figure is considered over-estimate as the most common cause of lost gear is gear conflict. Existing evidence suggests that lost gill net could continue to actively catch fish at a rate of approximately 15% of the commercial rate of capture. It is also estimated that an average of 0.06% catches of Japanese drift nets are lost and recovered from water.

*Other gear losses and associated ghost catches:* There is little concern about ghost fishing beyond pots and static nets globally. Mortality rates from lost longline, seine nets and jigging gear are also usually low as they stop fishing immediately or shortly after loss (Sancho *et al*, 2003). The mortality levels from lost trawls are believed to be low because these gears rely on their movement through water for their catching efficiency. Indeed, many of the losses may form additional habitat for organisms such as ocean pout, wolffish and cod and substrate for attaching benthic invertebrates such as hydroids and sea anemone (Carr, 1995).

#### **Causes of gear loss**

The causes of gear loss are important

both in terms of affecting lost gear which is a key determinant of ghost mortality and for determining and developing appropriate management measures. The key causes are summarised as due to conflict with other sectors, principally gear operators, working in deep water, fishing in poor weather conditions or on hard ground, working in very long fleets and working on more of gear than can be hauled regularly. Apart from above reasons, the deep water gill net fisheries already referred to where net loss appears to be the most significant with the dumping of sheet netting believed to be the most significant factor. This raises the important distinction that gear may be lost and discarded or abandoned.

#### **Types of management response**

The management options for addressing lost gear can be classified as either preventive or curative measures. Further to these measures, a broader strategic approach of establishing codes of good practice and the changed behaviour that should flow from them could be equally important (FANTARED, 2003). It is also important to improve communications between fishers and enforcement agencies. The ghost fishing could be effectively lower only by setting the amount of gear that can handle; regularly and efficiently; marking gear properly, including the identity of the vessel; position marking of gear to aid net relocating; paying close attention to weather patterns when poor weather is expected; ensuring to carry net retrieval system onboard when fishing in areas of high marine traffic and always attempting to retrieve lost gear and reporting its loss when possible.

#### **Conclusion**

The cause and extent of ghost fishing is very fishery-specific. This in turn means that care should be taken when generalising about both the extent of the problem and the solutions. In addition, there are some specific fishers operating in deep water where there appears to be particular cause for concern about both net loss and resulting ghost catches. Static gear tends to be very selective and less energy intensive; while marine habitat impacts can be experienced when nets are lost and marine mammals may occasionally become caught in lost gear, impacts are likely to be less than the environmental impacts on trawl fishing. rigging using biodegradable materials and taking account of discarded nets to some extent, minimise impact of ghost fishing.

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### **Common National Marine Export Policy to cover Centre and all States, says Nirmala Sitaraman**

Union minister of State for commerce and industry Nirmala Sitaraman said that the government would prepare a common policy for the Centre and coastal States on aqua exports shortly.

Addressing a meeting organised by the Marine Products Exports Development Authority (MPEDA) at Visakhapatnam on 23.8.2014, the Minister said that the proposed policy would benefit all in the aquaculture sector. She invited suggestions for giving a final shape to the policy. Aqua farmers would get all the benefits enjoyed by agricultural farmers once the policy would come into force, she added.

Nirmala Sitaraman assured the traders that the centre would initiate steps in solving the various issues and promised to provide all facilities for achieving their exports target of US \$ 10 billion by 2020, from the current exports around US \$ 5 billion.

The Minister directed the officials to list out all the long-pending issues of the fisher community and assured them that all of them would be settled on priority basis.

Earlier, Lok Sabha member, Dr. K. Haribabu said that Visakhapatnam is an important location for aqua exports in the country. ☺☺☺