

# Hunting Ghosts in Marine Waters

Ghost nets as part of the marine litter pollution: impacts and solutions

## Occurrence and impacts of ghost nets

On German beaches of the North Sea 51 percent of the litter found comes from sea-based sources, above all from fishing and shipping activities. At the German beaches of the Baltic Sea 7 percent and in the whole of Europe 27 percent of marine litter items found on beaches are related to fishing gear. Ghost nets is the colloquialism for abandoned, lost and otherwise discarded fishing gear, which is no longer under a fisherman´s control, above all nets, but also dolly ropes (chafers from trawling nets), cords, lines, fish traps etc. According to an estimate from the WWF, in 2011 alone, 5,500 to 10,000 gillnets were lost or discarded in the Baltic Sea. Studies show that the remaining catchability of ghost nets is six to 20 percent of what they catch in active use. Marine organisms are dying directly or suffer over longer terms on a sub-lethal basis, e.g. due to reduced mobility, fitness, reproduction success and ability to digest food. Studies funded by UBA/BMU in a gannet colony of Helgoland showed that 97 percent of the nests contained plastic material originating mainly from fishing activities and collected by these birds from the sea´s surface. During the 2014 and 2015 breeding seasons two to five more young, not yet sexually mature birds, died than in other years.

## How to prevent and reduce ghost nets

To tackle the problem it needs a comprehensive approach covering many aspects including prevention, reporting, detection, mapping, retrieval and recycling. Various legal acts addressing the problem such as MARPOL, the EU Marine Strategy Framework Directive, the EU Port Reception Facility Directive and the EU Directive on the reduction of the impact of certain plastic products in the environment contain provisions to address ghost nets, among them for their monitoring and removal, extended producer responsibility, disposal in harbors free of charge, national minimum annual collection rates, circular design for fishing gear to encourage re-use and facilitate recyclability at the end of life. The EU MARELITT Baltic project, with participation of partners from Sweden, Estonia, Poland and Germany (WWF Germany) has developed a sustainable way to approach ghost nets in the Baltic Sea. Close cooperation with fishermen in combination with sonar imaging was identified as successful way to detect ghost nets in the marine environment followed by dedicated professional diving operations to retrieve them. WWF Germany continues now in cooperation with UBA funded by BMU to detect and retrieve ghost nets in the German Baltic Sea and to transfer these experience to the German North Sea. To tackle these issues financing structures and legislation need to be set up and adapted at European level to foster search, retrieval and disposal of ghost nets so they become part of the regulatory practice and enforcement of national public authorities.

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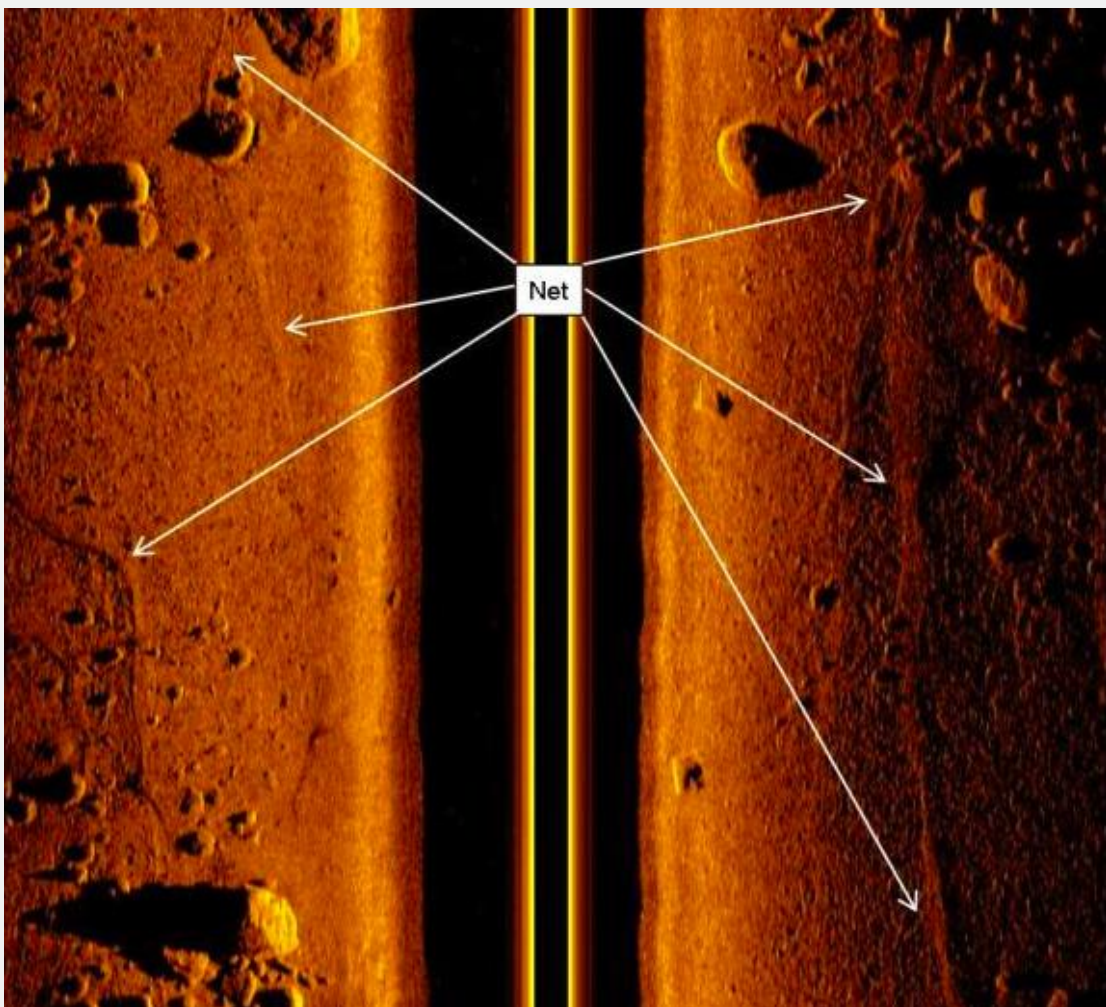
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Category	2014 (n=265)	2015 (n=345)
Plastic litter (total)	97 %	99 %
Nets	95 %	96 %
Cords/strings (Ø < 1cm)	86 %	99 %
Ropes (Ø > 1cm)	56 %	31 %
Packaging	15 %	34 %



Fig. 1 Entangled cormorant in ghost net (W. Wichmann)  
Fig. 2 Gannet entangled in dolly ropes collected at sea (W. Wichmann)  
Fig. 3 Numbers of gannet nets containing plastics of different kinds in birds breeding colony on the island of Helgoland in 2014 and 2015  
Fig. 4 Northern gannet entangled in nest (P. Hübner)  
Fig. 5 Sonar image for detection of ghost nets (WWF Germany)  
Fig. 6 Removal of ghost nets by professional divers (W. Wichmann)

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