

SEA, BEACH AND BIRDS: PLASTICS EVERYWHERE



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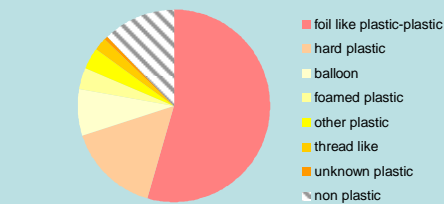
INTRODUCTION

International attention to marine debris has recently increased as the annual global production of plastics is augmenting and the build-up of these materials in the environment may become problematic. The AS-MADE project (Assessment of Marine Debris) aims to assess the occurrence and distribution of debris (mainly plastic litter) in the Belgian marine environment. This project is conducted by the Laboratory of Environmental Toxicology and Aquatic Ecology of Ghent University (project coordinator), the Research Institute for Nature and Forest (INBO), the Coordination Centre for Integrated Coastal Zone Management (ICZM) and the Flemish Marine Institute (VLIZ).

Plastic is found on the seafloor, floating on the water surface and washed ashore

Litter on the Belgian seafloor was collected with a beam trawl or an otter trawl.

On average 2500 pc/km² were collected on the sea floor, mainly monofilament line and fragments of hard plastic.

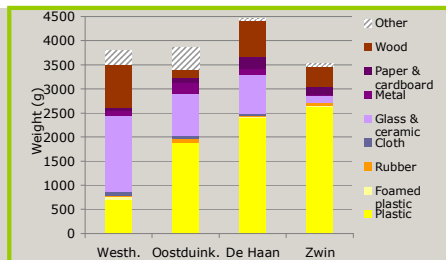


In 2009-2010, 1449 pieces of floating litter have been counted in Belgian offshore waters during monthly ship-based bird surveys.

For every Razorbill counted there was also a piece of plastic detected (density 0.7 ind or pc per km²).

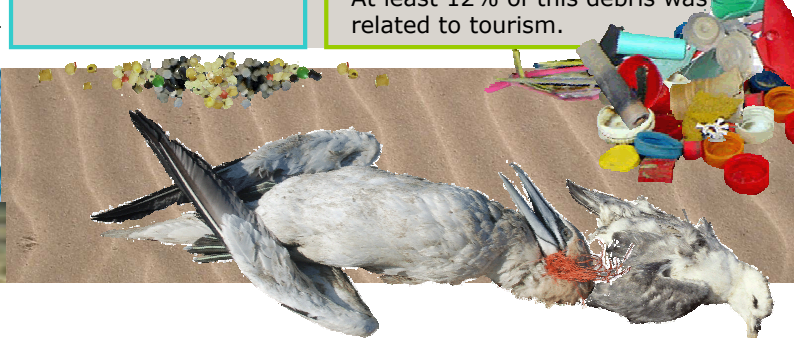
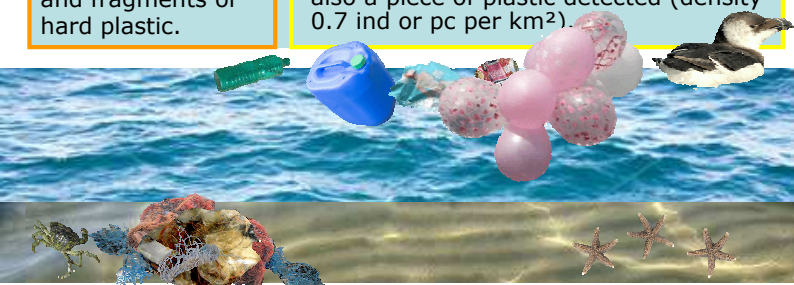
Beached plastic was sampled on 4 beaches with different intensity of tourism and erosion in bands of 100m.

On average 4873 industrial pellets were collected per 100m beach.



Per 100m beach, up to 4.5kg (7852 items) of small debris was collected. 72% of this litter amount was plastic.

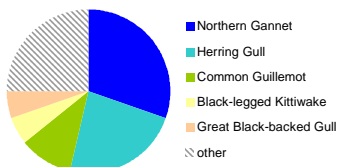
At least 12% of this debris was related to tourism.



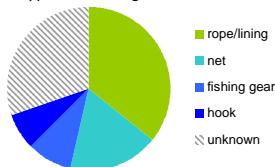
Plastic entangles seabirds . . . and . . . is ingested

Between 1992 and 2010, 10,260 beached birds were counted 0.55% of these were entangled divided over 13 species Northern Gannets were the most sensitive (9% entangled) Fishing gear is the main cause

Species composition of the entangled birds



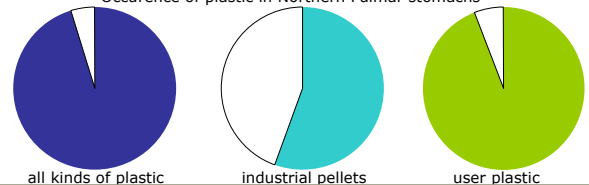
Types of entanglement



From 2002 to 2006, 174 beached Northern Fulmars were dissected.

A Fulmar stomach contained on average 48.2 pieces of plastic equivalent to 0.29 g (0.05 g of industrial pellets and 0.24 g of user plastics).

Occurrence of plastic in Northern Fulmar stomachs



DISCUSSION AND CONCLUSIONS

In the environment, large quantities of industry, tourism and fishery related items were sampled in all the different compartments of the marine ecosystem.

Seabirds were heavily impacted by plastic pollution as they may confuse plastic and food and can be injured or killed by entanglement in plastic. A long-term Dutch study (Van Franeker et al. 2005) showed that Fulmars can be used as monitoring tool for the offshore plastic pollution. An international Ecological Quality Objective has been fixed: not more than 10% of the beached Northern Fulmars should have more than 0.1g of plastic in their stomach. Fulmars collected on the Belgian coast are way above that level with 51% of them having more than 0.1g of plastic in their stomach.

*Van Franeker, J.A., M. Heubeck, K. Fairclough, D.M. Turner, M. Grantham, E.W.M. Stienen, N. Guse, J. Pedersen, K.O. Olsen, P.J. Andersson & B. Olsen, 2005. 'Save the North Sea' Fulmar Study 2002-2004: a regional pilot project for the Fulmar-Litter EcoQO in the OSPAR area. Wageningen, Alterra, Alterra-report 1162. 70 pp.