

Science for Environment Policy

Plastic pollution measured in Mediterranean seabirds

Endangered Mediterranean seabirds are suffering from ingestion of plastic litter, a recent study has shown. Overall, 66% of 171 seabirds studied were found to have plastic fragments in their stomachs and the critically endangered Balearic shearwater was among the worst affected.

Plastic pollution in [marine ecosystems](#) is recognised as a key problem in the Marine Strategy Framework Directive¹ and can have many damaging effects. A wide array of species, such as turtles, sea mammals and birds, may ingest fragments either accidentally or because it resembles their prey. These fragments may then damage or block the digestive system or release toxic chemicals, seriously affecting the health of these animals. The Mediterranean Sea is particularly at risk from plastics pollution with its large areas of industrialised coastline and enclosed nature.

This study is the first to investigate the amount of plastic ingested by Mediterranean seabirds. The researchers collected 171 birds accidentally caught by longliners (fishing boats using lines of baited hooks) between May 2003 and June 2010 along the Catalan coast in the western Mediterranean Sea. Nine species were caught in all, and included shearwaters, gannets, gulls, kittiwakes and skuas. The birds were dissected and the stomach contents were removed, sieved and identified.

The results showed that 113 of the birds (66%) had at least one piece of plastic in their stomachs. The average size of plastic fragment was 3.5 mm with an average weight of 2.26 milligrams. Assorted 'post-consumer' fragments—hard pieces of plastic from [litter](#) such as bottles or boxes—were the most common, followed by pieces of plastic bags or wrappings.

The researchers also found that numbers of pellets, used industrially to transport plastic before being used to produce goods, were very low. This is in line with other studies suggesting the occurrence of this type of plastic pollution has been falling since the 1980s, possibly as a result of policy measures. Recreational activities now seem to be the main source of pollution in the Mediterranean.

Cory's shearwaters (*Calonectris diomedea*) were worst affected, with 94% of these birds containing plastic fragments. They also contained relatively high numbers of fragments, 15 on average. Other species badly affected were Balearic shearwaters (*Puffinus mauretanicus*) and Yelkouan shearwaters (*Puffinus yelkouan*); in both species 70% of birds contained plastic fragments. The researchers suggest these effects may be because shearwaters are less able to regurgitate plastics than, for example, gulls.

All three of the worst affected are of conservation concern: the Balearic shearwater is listed as critically endangered by the IUCN², the Yelkouan shearwater is considered vulnerable and the Cory's shearwater is listed as vulnerable within Spain.

Long-term monitoring is needed to assess the effects of plastic pollution on marine wildlife, the researchers conclude. They also recommend developing stricter controls on waste dumping, aided by bodies such as the Marine Strategy Framework Directive's technical subgroup on marine litter.



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Contact:
marina.codinag@gmail.com;
jqsolis@ub.edu

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1. http://ec.europa.eu/environment/water/marine/directive_en.htm

2. www.iucn.org