



Loggerhead sea turtles (*Caretta caretta*): A target species for monitoring litter ingested by marine organisms in the Mediterranean Sea[☆]



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ARTICLE INFO

Article history:

Received 14 September 2016

Received in revised form

16 June 2017

Accepted 17 June 2017

Keywords:

Marine litter

Sea turtles

Good Environmental Status

Plastic ingestion

Mediterranean Sea

ABSTRACT

Marine litter is any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. Ingestion of marine litter can have lethal and sub-lethal effects on wildlife that accidentally ingests it, and sea turtles are particularly susceptible to this threat. The European Commission drafted the 2008/56/EC Marine Strategy Framework Directive with the aim to achieve a Good Environmental Status (GES), and the loggerhead sea turtle (*Caretta caretta*, Linnaeus 1758) was selected for monitoring the amount and composition of litter ingested by marine animals. An analogous decision has been made under the UNEP/MAP Barcelona Convention for the protection of the Mediterranean Sea, following the Ecosystem Approach. This work provides for the first time, two possible scenarios for the Marine Strategy Framework Directive GES, both related to “Trends in the amount and composition of litter ingested by marine animals” in the Mediterranean Sea. The study validates the use of the loggerhead turtle as target indicator for monitoring the impact of litter on marine biota and calls for immediate use of this protocol throughout the Mediterranean basin and European Region. Both GES scenarios are relevant worldwide, where sea turtles and marine litter are present, for measuring the impact of ingested plastics and developing policy strategies to reduce it. In the period between 2011 and 2014, 150 loggerhead sea turtles, found dead, were collected from the Italian Coast, West Mediterranean Sea Sub-Region. The presence of marine litter was investigated using a standardized protocol for necropsies and lab analysis. The collected items were subdivided into 4 main categories, namely, IND-Industrial plastic, USE-User plastic, RUB-Non plastic rubbish, POL-Pollutants and 14 sub-categories, to detect local diversity. Eighty-five percent of the individuals considered ($n = 120$) were found to have ingested an average of 1.3 ± 0.2 g of litter (dry mass) or 16 ± 3 items.

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1. Introduction

1.1. Marine litter in the environment

Marine litter includes all items that have been made or used by

[☆] This paper has been recommended for acceptance by Eddy Y. Zeng.

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