

## Litter on the seabed



Since 1979 IPMA performs bottom trawls surveys along the Portuguese continental coast to study the abundance and biology of fish stocks, but it was only in 2006 that a routine scheme was implemented for identifying, classifying, recording and processing the litter collected in the bottom trawl gears, and placed for disposal or recycling. Nonetheless, this non targeted and opportunistic sampling still permits the characterization of human activity and its impact on the seabed.

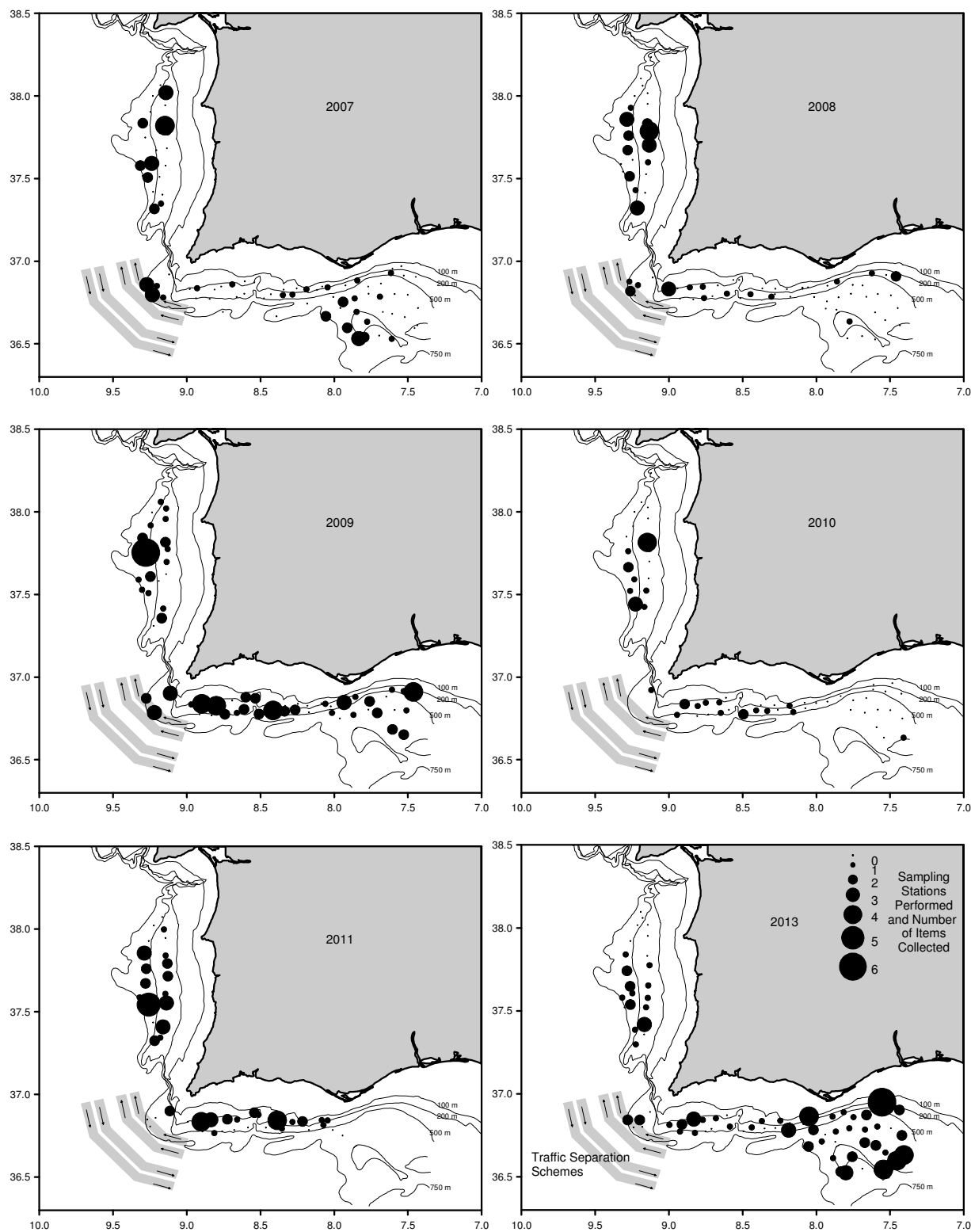
Under the Marine Strategy Framework Directive (MSFD) which aims to "promote the sustainable use of the seas and conservation of marine ecosystems, including the seabed, estuaries and coastal areas, with particular attention to sites with high biodiversity value", and its descriptor 10 for Good Environmental Status, Marine Litter is defined as "any or all material manufactured or processed by man, which persists for a long period of time after being discarded, abandoned or placed in marine or coastal environments".

As set in ICES working groups (International Council for the Exploration of the Sea), litter is categorized into: plastic, paper & cardboard, processed wood, metal, glass & ceramics, cloth, rubber, mix and fishing gear.

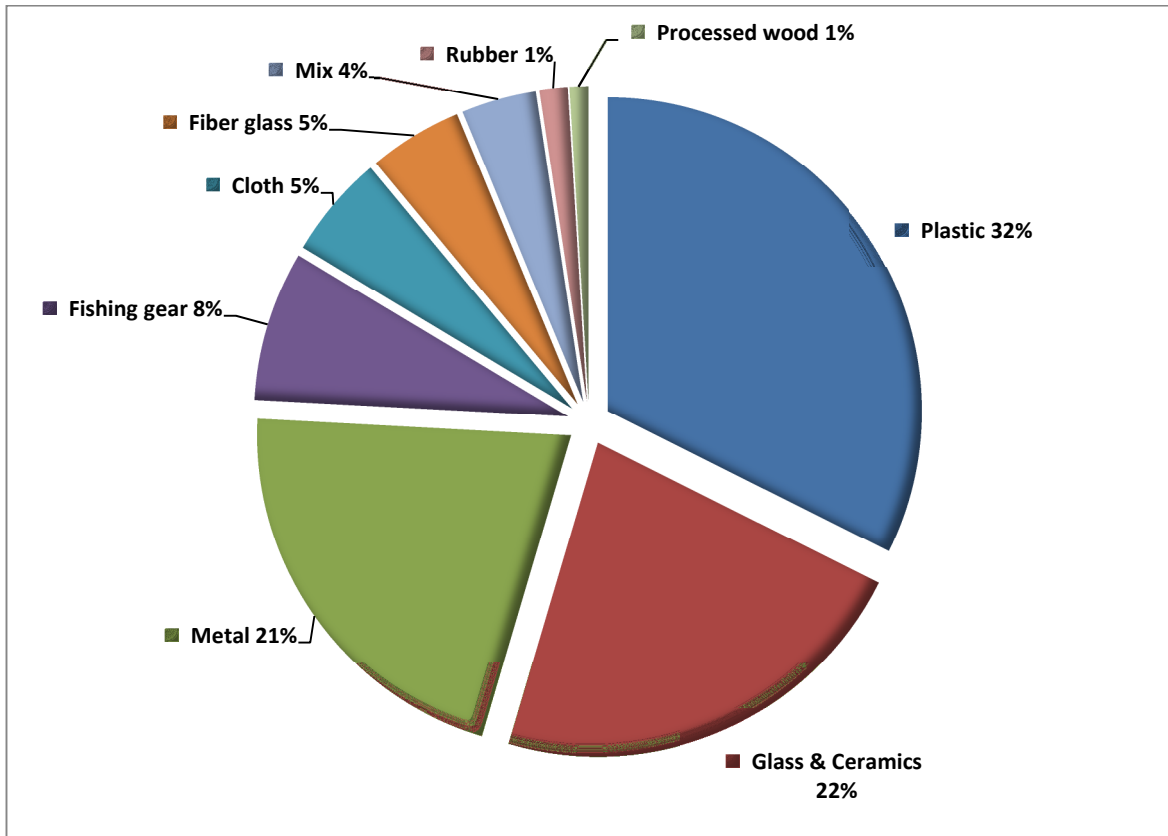
In order to provide a more detailed portrait of the occurrence of litter in the surveys, this preliminary analysis focuses on surveys targeting Crustaceans conducted with bottom trawl nets without rollers on

footrope and therefore more susceptible to collect the material deposited on the seabed. This survey is carried out annually in the 2nd quarter, off the Alentejo and Algarve coasts, between 200 and 750 m depth.

The litter spreads throughout the whole sampled area and is recurrent throughout the survey series. Items with a longer degradation time are the most abundant (Plastic, Metal, Glass & Ceramics) and are mostly derived from day-to-day consumables (see photos). The low presence of fishing gear is explained by the sampling scheme of this survey that lacks stations in coastal fishing areas (as opposed to demersal surveys in which fishing gear represent 60% of the litter collected).



Geographical distribution of litter collected in Crustaceans' surveys between 2007 and 2013, carried out under the National Biological Sampling Program (PNAB-DCF).



Litter's categories collected in Crustaceans' surveys between 2007 and 2013

Distribution of litter collected per category and depth range (% relative to the number of stations in each depth range).

Category	Depth range (m)						
	[100-200[	[200-300[	[300-300[	[400-500[	[500-600[	[600-700[	[700-800[
Fishing gear	3	5	4	3	4	3	4
Rubber			2	3			
Fiber glass			2	3	2	6	7
Processed wood				3		3	
Metal	6	21	16	11	4	6	17
Mix	6	8			1	6	
Plastic	9	18	22	11	15	27	11
Cloth		3	6		2	6	
Glass & Ceramics	3	15	14	14	12	3	13

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