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Meeting of the Ecosystem Approach Correspondence Group on Marine Litter Monitoring

Madrid, Spain, 28 February – 2 March 2017

**Agenda item 6: Marine Litter Metadata Templates and Monitoring Protocols**

**Top Marine Litter Items**

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## **Introduction**

1. Marine litter items found in the Mediterranean include a wide variety of substances also encountered in other marine and coastal areas of the world. Plastic seems to prevail among the recording marine litter items found stranded on the shorelines, floating at sea, or lying on the seafloor of the Mediterranean Sea (UNEP/MAP, 2015).

2. The identification of the major marine litter items found on the Mediterranean coasts, water surface and column, and on the seafloor is considered of major importance in order to:

- Identify and specify sources in relation to the generation of specific marine litter items and minimize their related contribution;
- Target accordingly reduction and policy measures so to reduce the presence of these items in the marine environment;
- Increase public awareness on responsible consumption and littering behaviour especially targeted on these items;
- Assess their potential effect in the marine environment and on marine organisms.

3. The present document aims to present a short analysis of the main marine litter items found on the Mediterranean coasts, surface/water column and seafloor for discussion with the CORMON, to consider the need of developing such a list for the three categories of marine litter items (beach, seafloor and floating litter).

### **Top marine litter items on the Mediterranean Coasts**

4. The main types of litter found on Mediterranean beaches, floating on the sea surface, or lying on the seabed are listed below.

- Plastics: bags, balloons, beverage bottles, caps/lids, food wrappers/ containers, six-pack holders, straws/stirrers, sheeting/tarps, tobacco packaging and lighters;
- Glass: beverage bottles, light bulbs;
- Paper and cardboard of all types;
- Metals: aluminium beverage cans, pull tabs, oil drums, aerosol containers, tin cans, scrap, household appliances, car parts;
- Polystyrene: cups/plates/cutlery, packaging, buoys;
- Cloth: clothing, furniture, shoes;
- Rubber: gloves, boots/soles, tires;
- Fishing related waste: abandoned/lost fishing nets/line and other gear;
- Munitions: shotgun shells/wadding;
- Wood: construction timber, crates and pallets, furniture, fragments of all the previous;
- Cigarette filters and cigar tips;
- Sanitary or sewage related litter: condoms, diapers, syringes, tampons;
- Other: rope, toys, strapping bands.

5. Four main categories of marine litter items seem to be most prominent on the beaches in the northern part of the Mediterranean:

- Items found indicate a predominance of land-based litter, mainly attributed to recreational and tourism activities ranging from 40% (ARCADIS, 2014) to more than 50% (Öko-Institut, 2012 and Ocean Conservancy/ICC 2002-2006). It is also important to note that the amount of

marine litter originating from recreational and tourism activities greatly increases during and after the tourism season which almost doubles.

- Household-related waste, including sanitary waste, is also of great relevance assessed at approximately 40% (ARCADIS 2014).
- Smoking-related waste in general seems to be a significant problem for the whole Mediterranean region, as several surveys suggest (UNEP, 2009).
- The fishing related items are also of significance (UNEP, 2013), as well as shipping (the latter especially off the African coast).

6. A Top ten items list for the Mediterranean Sea (Table 1) has resulted from the 2014 International Coastal Clean-up (ICC) campaign. In the following table the total number of items along with the number of items per 100 m stretch is given collected from 8 different Mediterranean countries, covering a total length of more than 95 km. This is in line with other surveys and beach clean-ups conducted by Mer-Terre NGO in Marseilles and the Greek NGO Hellenic Marine Environment Protection Association (HELMEPA)

Table 1: Top ten items list for the Mediterranean Sea was provided by the International Coastal Clean-up (ICC) resulted from the 2014 results.

	cigarette butts	food wrappers	plastic bottles	caps	straws/ stirrers	Grocery bags (plast.)	glass bottles	other plastic bags	paper bags	cans
Total items	98117	6796	11295	16490	24724	6350	3443	4706	2436	6405
items /100m	175	12	20	29	44	11	6	8	4	11

**Top marine litter items on the Mediterranean Seafloor**

7. Few information exists regarding the main marine litter items on the Mediterranean Sea floor. Marine litter was collected in the Gulf of Lions (France) at depths ranging from 30 to 800m during the period 1994-2009, in the framework of the International Bottom Trawl Survey in the Mediterranean (MEDITS cruises) (Galgani et al., 2011). The average values from 70 stations/year during the 15 years monitoring period gave the following results on the major marine litter types. In later years (2013 – 2014), marine litter collected from the seafloor of the same areas (Gulf of Lions, France) again in the framework of the International Bottom Trawl Survey in the Mediterranean (MEDITS cruises).

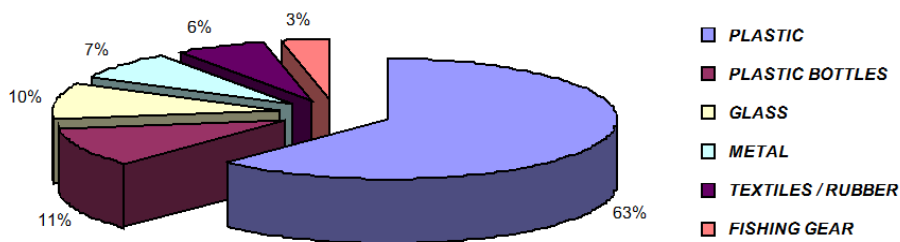


Figure 1: Top-items collected in the Gulf of Lions (France) during the period 1994-2009 (MEDITS cruises)

8. Other studies include a total of 109 bottom-trawl hauls in Greece and Cyprus (Ioakeimidis et al., 2014), a project along the Coasts of El-Mina and Tripoli/Lebanon, and a quantitative assessment of debris present in the deep seafloor (30–300 m depth) which was carried out in 26 areas off the coast of three Italian regions in the Tyrrhenian Sea (Central Mediterranean), using a Remotely Operated Vehicle (ROV) (Angiolillo et al., 2015). These studies present similar results in terms of the most frequently observed items, e.g. plastic bags, plastic bottles, plastic sheets, beverage cans, fishing lines, fishing nets and other marine litter items.

### **Top marine litter items floating in the Mediterranean**

9. A large-scale visual survey of floating debris (natural and anthropogenic sizing >2 cm) was carried out in 2013 in the central and western part of the Mediterranean Sea (Suaria et al., 2014). A total of 167 transect counts were performed for a total of ca. 83 h of observations, covering an overall survey length of 1538.2 km. Anthropogenic marine litter represented 78% (1095 objects) of all sighted objects, of which:

- 82% (898 items) were plastic items mainly comprising of: plastic fragments, bottles, containers, wraps, packaging and shopping bags;
- 13.6% (149 items) were styrofoam objects mainly comprising of: entire or fragmented fish boxes; and
- 4.4% (48 items) were other man-made objects such as manufactured wood, aluminum cans, glass bottles, tetra pack containers, rubber strips, paper and cardboard boxes.
- On the whole, 95.6% of all man-made objects (74.7% of all sighted objects) were petrochemicals derivatives (i.e. plastic and Styrofoam).

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