

COASTAL LITTER IN THE MEDITERRANEAN SEA

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Litter pollution of the Mediterranean coastal zone is a highly sensitive issue because it is a deterrent to coastal tourism, which is so intensively developed in almost all the Mediterranean countries. Yet, information on litter on the Mediterranean coasts is extremely limited. IOC, FAO and UNEP initiated a pilot program aimed at generating basic information on coastal litter such as the litter composition, origin, spatial and temporal distribution, and factors which control this distribution. The program is carried out by five Mediterranean countries: Israel, Turkey, Cyprus, Italy and Spain.

In each of the participating countries, 2-8 transects were established normal to the beach which was selected as a sampling station. In all, 64 transects were sampled on 13 beach stations in the 5 countries. Each transect was sampled at about a monthly interval. The litter pieces in each transect were counted or weighed or both, according to the constituents of the litter.

It was found that plastic items constitute the major part, sometimes even more than 70% of the litter population. This fraction of the litter is composed of plastic fragments, plastic sheets and bags, and plastic containers. Other plastic components such as straps, ropes, fishing nets, etc., appear in small numbers. The rest of the litter consists of wood (driftwood and lumber), metal (beverage tins and aerosols), glass, styrofoam pieces and others.

Litter quantity is related to wave height and inversely related to distance of beach from population center. During winter storms, waves wash the garbage to the backshore leaving the beach relatively clean of debris. Beaches which were close to population centers were also the most polluted ones. The mean litter values in counts (pcs/m) and weight (g/m), respectively, were: Spain 35.2, 168.7; Sicily 102, 1595; Cyprus 10.4, 87.1; Israel 7.3.

An important issue in the coastal litter problem is the origin of the litter which, in general terms, may be either land or sea. Control of land-based litter would be relatively simple in comparison to marine-based litter. It has been shown that litter which consists of a large number of containers of household cleansers and detergents is marine-based, whereas containers which were used for beverages, food and cosmetics are indicative of land-based garbage. In the present study, a detailed analysis on the original use of the container fraction in the litter was not done, but field observations indicate that most of the litter found on the studied beaches was land-based. If this impression is verified, its significance is that using educational, law enforcement and cleaning means may bring about a significant improvement in the coastal cleanliness in the Mediterranean Sea.