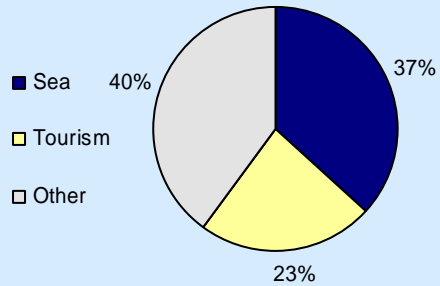


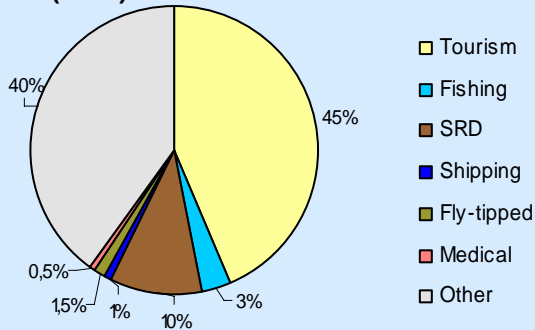
Indicator 14 Amount of marine and coastal litter

Sources of beach litter

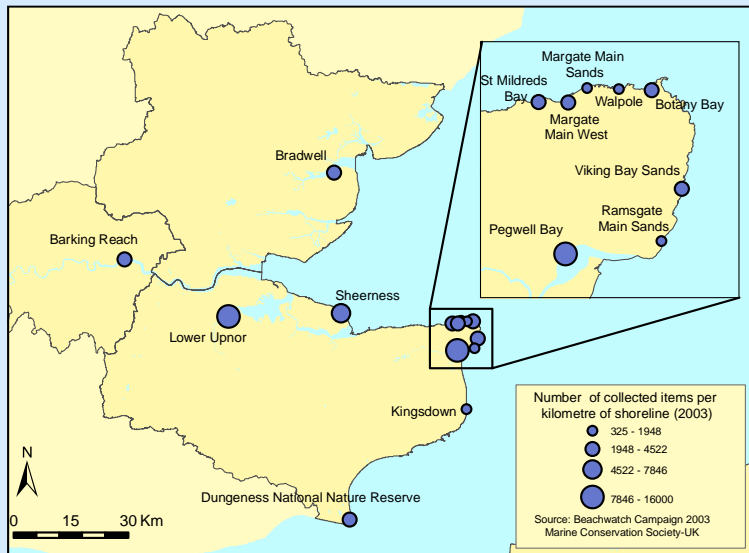
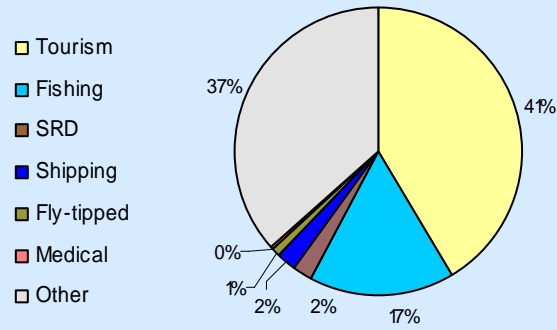
Zeeland 2004



Essex (2005)



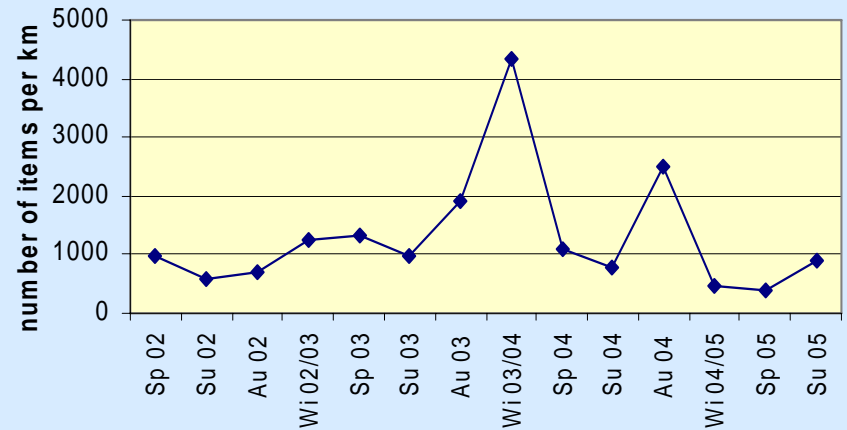
Kent (2005)



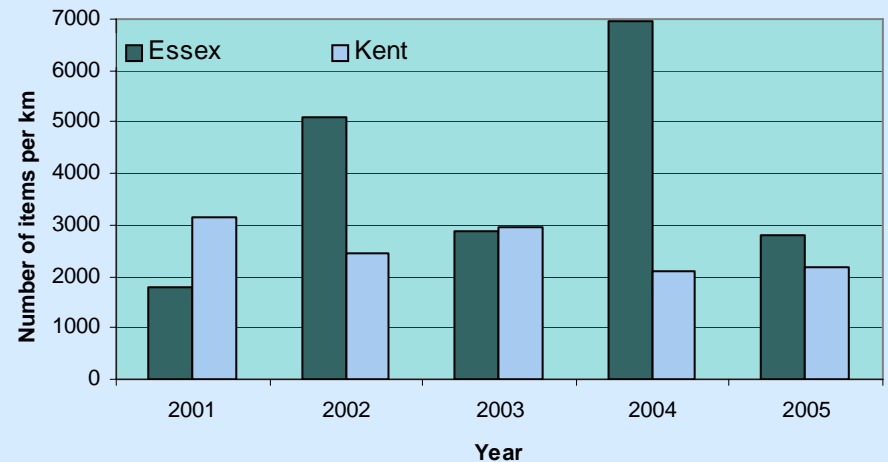
Number of litter items collected on surveyed beaches (Beachwatch UK-MCS)

Numbers of litter items found on beaches

Average number of litter items on Belgian reference beaches (BMM-MUMM)



Average number of litter items collected on surveyed beaches (Beachwatch UK-Marine Conservation Society)



- *Number of items of litter collected per length of shoreline*
- *Type and origin of marine litter*

Key Message

- In spite of the impact of marine and coastal debris and litter on the economy and the environment, data collecting is piecemeal and surveys are largely dependent on the goodwill and enthusiasm of volunteers and NGOs.
- On all surveyed stretches of beach in the Southern North Sea, plastic is the most frequently encountered item contributing as much as 77% of the total amount of debris collected.

Why monitor the amount of marine and coastal litter?

Marine litter causes economic and ecological damage. It is hazardous to marine life and ecosystems. Fulmars live in the open sea and pick up flotsam and jetsam from cargo and fishing activities. In The Netherlands, a survey of beachwashed Fulmars over a five year period (1999-2003) showed that 98% had plastic debris in their stomach contents. Litter poses an additional threat to bathers and beach tourists when it washes ashore. The presence of litter reduces the quality of tourism and the attractiveness of a particular area. Beach-going tourists in Belgium defined 'a clean beach' as 'a beach with no garbage' (56%), and a beach with specifically no man-made garbage like plastic, paper, glass or cans (38%). Beach cleaning requires significant investments on behalf of coastal municipalities. Sources of marine litter are mainly related to waste generated by shipping (fishing and commercial) and tourist and recreational activities. Aside from accidental release of rubbish, most of the marine and coastal litter is avoidable by simple procedures and responsible attitudes. The role of shipping and inadequacies in the ship-to-shore waste delivery procedures is addressed through the EU Directive on Port Reception facilities (Directive 2000/59/EC). Monitoring marine and coastal litter is important to evaluate the impact of and response to policies to reduce marine litter. Data on the origin and type of litter also helps coastal managers to steer awareness campaigns and target the public in the most effective way.

Where do the data come from?

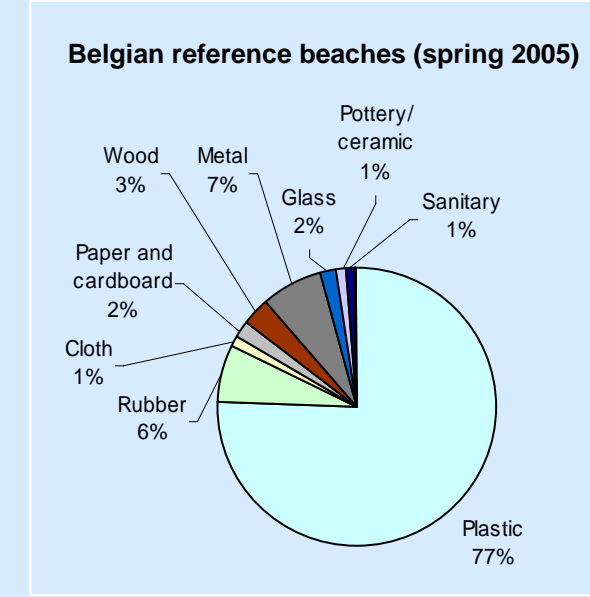
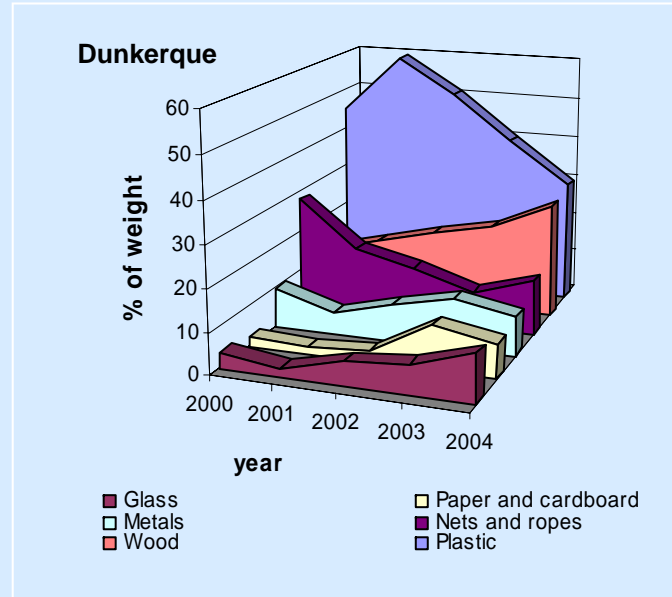
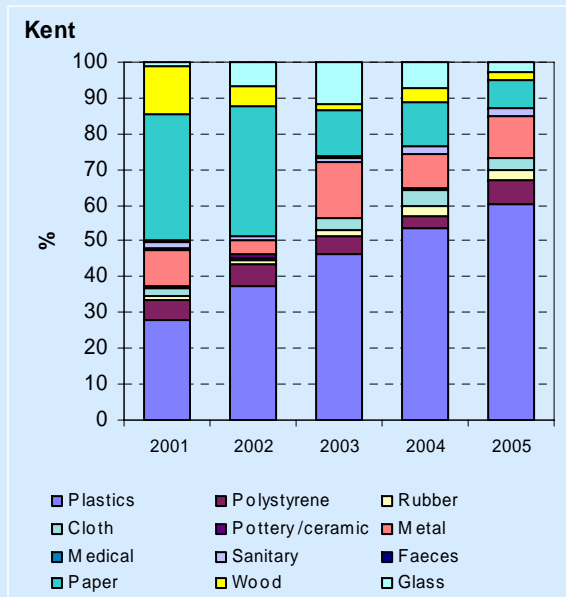
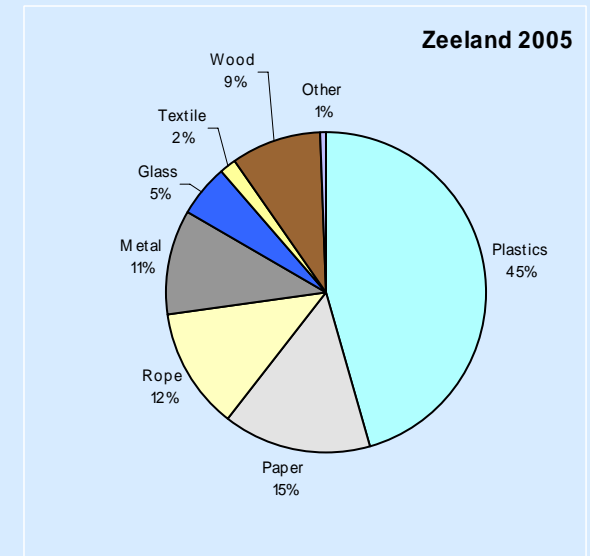
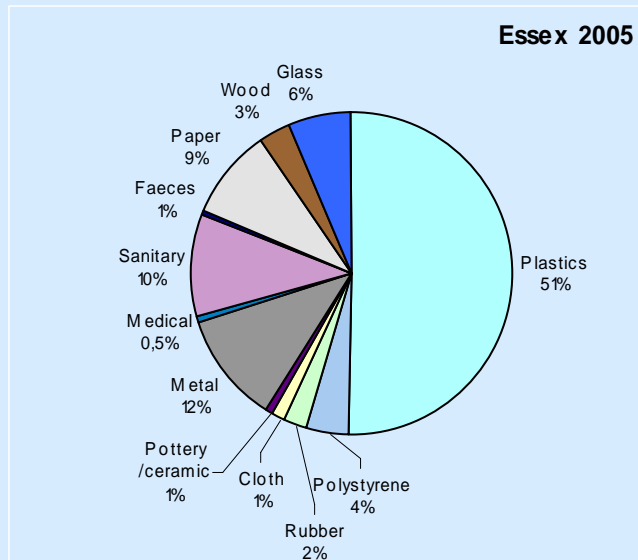
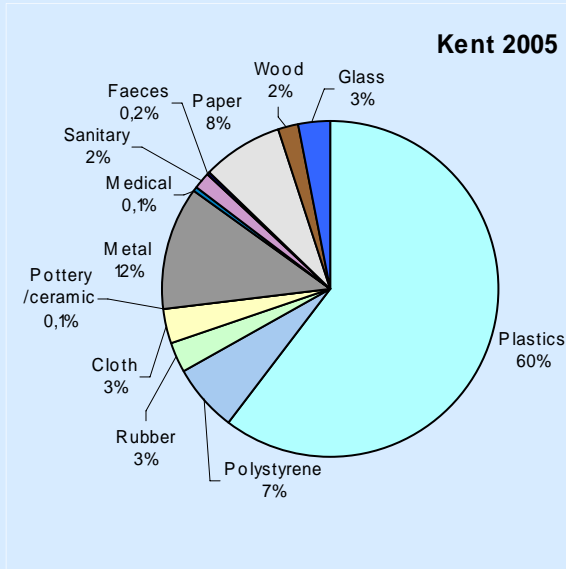
Based on the OSPAR pilot projects on beach litter surveys, the Marine Litter Network collects and provides data on the number and type of litter. These surveys are carried out on particular beaches, of which only 3 are located in the study area: one in Veere (NL) and 2 in Belgium. In some countries, a network of volunteers surveys an important proportion of the beaches annually for litter. These include beaches along the Southern North Sea.

In the UK, the Marine Conservation Society (MCS) organizes the Beachwatch campaign as part of the International Coastal Cleanup (ICC) of the Ocean Conservancy. Results are analysed and reported in the Beachwatch report, published every February and available from the MCS. In the Netherlands, the OSPAR Pilot Project beach surveys are financed and coordinated by the [RWS Directie Noordzee](#). The [Stichting De Noordzee](#) performs the survey work. In Belgium, the reporting authority for the OSPAR Pilot Project (2000-2006) on Monitoring Marine Beach Litter is the Management Unit of the North Sea Mathematical Models and the Scheldt estuary (MUMM-BMM). *Ecoflandres*, a local NGO for social reinsertion in Nord-Pas de Calais, carries out manual beach cleaning on the beaches around Dunkerque and reports on the weight and volume of the litter collected.



Composition of beach litter

(based on number of items in UK, NL and B; based on weight in F)



What does the indicator show?

The average number of items collected per kilometre of shoreline ranges from 1,780 to 5,098 in Essex and between 2,460 and 3,142 in Kent (data 2001-2003). Averages for Zeeland range from 97 to 230 (autumn surveys 2000-2002). During OSPAR surveys on Belgian beaches between 2002 and 2005, averages fluctuate around 1,000 items collected per km, with a peak value of 4,340 in 2004.

Plastic is most commonly found everywhere. In Zeeland it accounts for 53% of the items collected by volunteers in 2002, followed by rope (15%) and paper (12%). The Beachwatch 2003 data from the UK confirms this. Plastics are also recorded as the most frequent litter on Belgian beaches (77% of the items). From the manual cleaning of the beaches around Dunkerque (2000-2004), plastic makes up the most important weight component in yearly averages (between 59% and 30%), in spite of its smaller relative weight.

Data on the origin of the litter cannot be compared between regions, since different categories are employed. However, in Zeeland 18% of the debris is recorded as 'tourism-related', while in Kent and Essex tourism is associated with as much as 56% of the total. Hence, it is difficult to draw conclusions regarding the origin of litter that affects cleanliness of a particular beach. Long-term monitoring is necessary in order to detect trends. However, differences in the composition of marine litter can be detected from one region to another. These variations reflect presence of sources of marine litter from activities generating solid wastes that end up as marine litter. Environmental conditions such as currents and tides also affect the results of monitoring.

What are the implications for planning and managing the coast?

In the early 1970s, the amount of litter discharged to the oceans and seas was estimated at 6.4 million tonnes per year. Plastics have now become the most frequent man-made items encountered at sea and on all beaches in the world. This requires enormous financial and logistical efforts in mechanical beach-cleaning on behalf of coastal municipalities and generates undesirable ecological side-effects. Beachcleaners can have negative impacts on relevant ecological processes such as embryonic dune formation.

In 1991, the North Sea was declared a 'Special Area' under Annex V of MARPOL Convention (1988). This 'garbage annex' includes a total prohibition of disposal of plastics in marine and coastal waters designated as 'Special areas'. The European Union has formulated the Directive on Port Reception Facilities (2000/59/EC) to stimulate and enforce proper disposal of ship waste in harbours. The impact of this Directive, implemented in 2002, will probably become visible on a mid-and long-term.

In 2003, the Environmental Ministers of the Contracting Parties to the OSPAR Convention, agreed to do their "utmost to take measures to eliminate the problem of marine litter",

The OSPAR Commission is developing various Ecological Quality Objectives for the North Sea. The OSPAR Pilot Project on Marine Beach Litter (2000-2006) is providing the basis to continue marine litter monitoring as part of the monitoring of the state of the environment in the North Sea. As a result of its discussions, the Steering Group has agreed on the strategic goal to reach levels of close to zero of man-made litter in the marine environment by 2015.



How reliable is the indicator?

It is difficult to draw conclusions regarding trends in numbers and composition of marine and coastal litter in the absence of long-term datasets. Surveys and monitoring only represent a momentary picture of a highly dynamic situation. The impact of environmental conditions in the days previous to the surveys and monitoring may alter the results of a survey in a particular year. The proximity of disturbing elements (sewage works, poorly managed marinas, ports and tourist facilities) also add to this variability. Further work is needed to attune the categories of litter and origins among countries and data collecting programs. Finally, the number of items collected on surveyed beaches is weather-related and effort-related, and hence observer-dependent.