

Discharges of wastes

Wastes generated on ships include sewage, domestic and operational wastes (garbage) and cargo residues generated during the service of a ship. When ship generated waste is not disposed or delivered legally it contributes to pollution of the marine environment and may have adverse effects on ecosystems.

1. Discharge of Sewage

What is the problem?

Sewage introduces pathogens and nutrients to the water and may contribute to poor water quality and associated effects on human health and marine ecosystems. This includes, especially in coastal areas, microbiological contamination of waters and the passing on of diseases to humans in contact with the water or through consumption of contaminated shellfish. Nutrients can enhance eutrophication, *i.e.* excessive growth of algae and associated adverse effects like oxygen depletion. Sewage may also lead to obvious visual pollution.

What has been done?

MARPOL Annex IV prohibits ships from discharging sewage within a specified distance of the nearest land, unless they have in operation an approved treatment plant.

Governments are required to ensure the provision of adequate reception facilities at ports and terminals for the reception of sewage.

The IMO Marine Environment Protection Committee (MEPC) at its 55th session in October 2006 adopted revised Guidelines on implementation of effluent standards and performance tests for sewage treatment plants which will apply to sewage treatment plants installed onboard after 2010. The MEPC also adopted a standard for the maximum rate of discharge of untreated sewage from holding tanks when at a distance equal or greater than 12 nautical miles from the nearest land.

Did it work?

There is no data available to assess the effect of the measures. It is generally considered that on the high seas, the oceans are capable of assimilating and dealing with raw sewage through natural bacterial action; therefore the effect of sewage from shipping is thought to be minimal. Illegal sewage discharges in coastal areas can however be a significant problem locally and add to pressures from the main sources of excess nutrients coming from land, such as municipal sewers or treatment plants.

2. Discharge of garbage

What is the problem?

With respect to ships, garbage is all kinds of victual, domestic and operational waste (excluding fresh fish but including oily ballast, tank washing and bilge water) generated during the normal operation of a ship. When garbage is not disposed of legally, it becomes litter.

Litter from ships can be as deadly to marine life as oil or chemicals. The greatest danger comes from plastic, which can float for years. Fish and marine mammals may mistake plastic for food, they can also become trapped in plastic ropes, net bags and other items.

What has been done?

The discharge of garbage by ships is regulated by MARPOL Annex V which prohibits the disposal of plastics anywhere into the sea, and severely restricts discharges of other garbage from ships into coastal waters and "Special Areas". The North Sea was established as a Special Area for the control

of discharge of garbage in 1997. This designation was pre-implemented voluntarily through the IMO prior to the actual implementation of MARPOL Annex V.

The OSPAR pilot project on monitoring beach litter (2000 – 2006) and the designation of the North Sea as a Special Area for the purpose of MARPOL Annex V are examples at the practical level of action taken to deal with marine litter in the OSPAR region.

In addition, EU Member States are obliged to provide port waste reception facilities for all sizes of vessels (Directive 2000/59/EC).

Did it work?

A recent assessment suggests that very little progress has been achieved to develop and implement programmes and measure to reduce the illegal input of wastes from its marine sources, or to introduce mechanism for the remediation of existing litter in the coastal and marine environments (OSPAR, 2007). A study of the German Federal Environment Agency suggests that around 60% of the wastes from shipping washed up on the beach of the German North Sea coast in 1991 – 2002 were plastic and styrofoam, with timber providing the second largest waste quantities. Since 1998, OSPAR has monitored levels of beach litter, initially through a pilot project followed by a voluntary monitoring programme which suggests no statistically significant trend in volumes of beach litter between 2001 and 2006 (OSPAR, 2009d). It is however difficult to confirm how much litter actually is attributable to shipping and efforts should be made to improve our knowledge. Marine litter remains an outstanding pollution issue throughout the North-East Atlantic.

A recent study on the effectiveness of EC Directive 2000/59/EC, conducted by the European Marine Safety Agency (EMSA), involved port reception facilities in 50 major European ports (EMSA, 2005). It concluded that

- each port had defined and implemented its own individual system especially relating to cost recovery systems and incentives for ships to deliver waste in ports;
- the Directive had raised awareness amongst ship operators, shipping agents, waste operators and environmental authorities of the environmental impact of illegal discharges into the sea;
- the Directive has led to an improvement of ship waste handling;
- there was a need for detailed and clear guidelines at EU level to ensure uniform implementation of the Directive.

What lessons have we learnt since 1998?

Despite the study by EMSA it is difficult to identify an improvement in the situation with respect to port waste reception facilities as prior to implementation date of measures there was no reporting system in place and most waste operations in ports are contracted out to private operators. These operators often do not report to port authorities and therefore only limited statistics are available.

With respect to reception facilities for operational and oily waste the overall situation is changing, with increased ship traffic, particularly oil tankers, travelling through the region's waters without calling at ports to discharge their waste. As such it will be necessary to continually adjust legislation to take changing transport patterns into account.

➔ *Go to full QSR assessment report on the impact of shipping on the marine environment (publication number 440/2009)*