Marine litter means significant economic damage too

Marine litter not only causes environmental damage, but has significant economic costs for industry. A recent study has now estimated that marine litter in the Asia-Pacific region is likely to cost over US$1.26 billion per year in damage to marine industries. Policy options for reducing this cost are explored.

Marine litter, or debris, is globally widespread; approximately 6.4 million tonnes of waste are estimated to reach the ocean each year, consisting of a wide range of materials, including plastic, wood and metal, mostly from land-based sources, which can be transported around the world by ocean currents.

The study focused on the economic effects of marine debris in the Asia-Pacific region and calculated the cost of damage to marine industries for the 21 economies in the region. Marine industries (shipping, tourism and fishing) are estimated to be worth 3% of GDP for this region and, based on available statistics from Japan, it is believed that 0.3% of marine sector GDP is lost through debris damage. For example, if floating objects become entangled in ship propellers, or engine cooling systems become blocked, time available for fishing is reduced, while maintenance and repair costs increase. The tourism industry can also suffer if littered beaches deter visitors or development.

Based on these assumptions, the study estimated the cost of damage to marine industries to be US$1.26 billion per year. This is very likely to be an underestimate as data on marine debris are lacking. However, it clearly highlights the significance of the issue. Debris is also harmful to wildlife, and can therefore reduce ecosystem services - this is another important indirect cost to consider, but as there is presently no market value for these services, the study did not calculate these costs.

Further calculations suggest that the cost of clearing up plastic waste in this region, whether at sea or on beaches, amounts to $1500 per tonne of waste, on average, although costs of individual clean-ups vary considerably ($100-$20,000 per tonne) depending on the type of waste and method.

The costs of damage and clean-ups need to be weighed up against the costs of prevention, say the researchers, and setting a policy target for achieving an optimal level of waste at sea would be more economically feasible than a zero waste target.

It is not possible to estimate costs of preventative activities at this stage, but possible strategies are investigated by the study, which calls for a mixed policy strategy, i.e. one which considers more actions than regulations. Regulations are governments’favoured approach, as in some circumstances it is straightforward to determine who is responsible for waste and fine accordingly. However, this is only the case on-land. Once waste has ‘escaped’ from its source, it is difficult to enforce regulations as it is unclear where it came from. Regulations can also ban plastic bags, demand recycling or fund technologies, such as litter traps on stormwater drains.

Community-based voluntary approaches, such as anti-litter campaigns, are also popular, but the study argues that greater efforts are needed to change public behaviour. Market-based instruments are less well used in marine litter prevention, but the study suggests they could play a role in some cases. Possible instruments to reduce overall rates of waste production include deposit-refund schemes, taxes on plastic goods to discourage purchase, and encouragement of recyclable packaging.


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