

# Suffocating the Sea

Think about pollution of the sea, and big spectacular oil spills spring to mind. But in fact they are a minuscule part of the problem, responsible for only 5 per cent of the oil that gets into the sea, itself just a small contribution to overall marine pollution.

Normal ship operations – such as discharges of oily ballast water from fuel tanks – pose much more of a problem. But, in fact, by far the biggest culprits are cars and other land vehicles: their used engine oil – and oily water running off roads – provides much the largest percentage of oil pollution in the ocean,



Black-footed albatross fledglings amidst broken glass and other beach detritus.  
Photo: M. Rauzon/UNEP/Topham

after reaching it through drain outlets and sewers.

In all, 80 per cent of sea pollution comes from the land. The greatest load comes from untreated, or lightly treated, effluent from sewers, burdened both by human waste – with harmful bacteria and viruses – and pollution from industry and intensive agriculture.

Human sewage, agricultural fertilizers and other nutrients stimulate great blooms of algae. Sometimes these contaminate shellfish with dangerous poisons, and they always suck oxygen out of the water, often suffocating fish and

## Sticking around

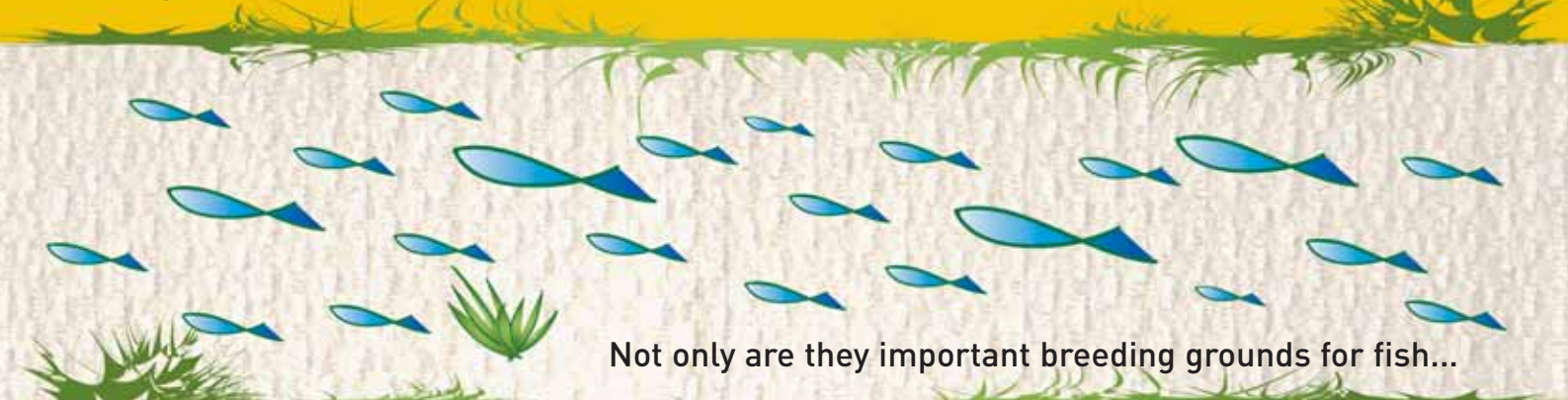
Throw a plastic bottle into the sea, or leave it on the beach after a picnic, and it will still be around in the middle of this millennium. Even a paper bus ticket will take weeks to disintegrate. Rubbish does break down at sea, but as the table shows it can take a surprisingly long time to do so.

### Time taken for objects to dissolve at sea

Paper bus ticket	2-4 weeks	Cotton cloth	1-5 months	Rope	3-14 months	Woollen cloth	1 year
Painted wood	13 years	Tin can	100 years	Aluminium can	200-500 years	Plastic bottle	450 years

Source: Hellenic Marine Environment Protection Association (HELMPEPA)

## Seagrasses the forgotten ocean ecosystem



Not only are they important breeding grounds for fish...



They are a valuable renewable resource providing income for local communities



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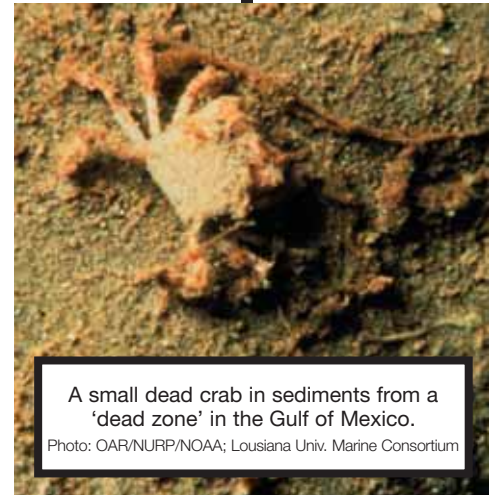
But ensure the products are harvested sustainably

All around the world's coastlines, effluent pours continuously into the sea.

Photo: D. Tapia Munoz/UNEP/Topham

other marine life. This contributes to the growth of 'dead zones' in the seas and oceans. UNEP has identified 146 of them (see map): their numbers have doubled every decade since the 1960s. Two of the biggest – at around 70,000 square kilometres – are in the Gulf of Mexico and the Baltic Sea. Meanwhile, chemicals like polychlorinated biphenyls (PCBs) accumulate in fish.

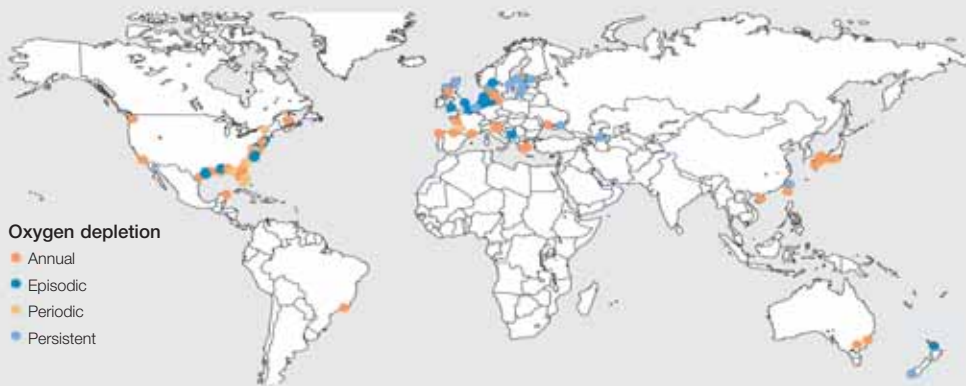
Some 95 per cent of the world's fish catch comes from the coastal waters where we dump our waste. In all, polluted coastal waters cost the world economy \$12.8 billion a year in death and disease.



A small dead crab in sediments from a 'dead zone' in the Gulf of Mexico.

Photo: OAR/NURP/NOAA; Louisiana Univ. Marine Consortium

## Pollution alert: coastal zones starved of oxygen



Dead – or hypoxic – zones, caused by the bloom and subsequent decomposition of algae, can be persistent (all year round), episodic (happening once a year or less), periodic (once a year or more), or annual and associated with the seasons. The hypoxic zone off the coast of Louisiana in the Gulf of Mexico, for example, occurs during the summer months.

Source: UNEP/GEO Year Book 2003

**M**ore than half the world's entire coastline has been put under severe pressure by development. Coastal cities have expanded rapidly. Industries have flocked to the shore, especially those connected to the sea, such as oil exploration, or those needing to be near ports. And tourism – which makes huge demands on land, building materials, water and waste-disposal facilities – puts pressure on natural coastal habitats, destroying, to take just one example, turtle nesting sites.

Coastal and ocean resources can be

Take Mozambique's Guludo eco-lodge, which meets tourists' needs while providing community projects that reduce poverty and promote biological and cultural diversity. Set in the Quirimbas National Park – rich in beautiful beaches, coastal forests, corals, mangroves and seagrasses – it sets out to develop local capabilities and use local materials, and to make the minimum impact on the environment and local ways of life. Visitors stay in *bandas*, spacious tented huts with roofs thatched with *makuti* palm, built with minimal energy, and with thought as

erosion, habitat fragmentation and other problems. WWF and BioRegional's One Planet Living initiative will combine a 4,800-hectare nature reserve and native pine and oak forest restoration project with a 500-hectare tourism development of up to 25,000 beds. Its developers, Pelicano, won local and national backing, in competition with conventional mass-tourism schemes.

The \$1.2-billion project is set to be a global flagship in sustainable development and tourism. It will use sustainable building materials and has ambitious targets for



Mata de Sesimbra, Portugal.

BioRegional

## Coast-effective

WWF-Canon/P.J. Stephenson



Quirimbas National Park, Mozambique.

managed sustainably, but it is difficult because responsibility for them has been fragmented and many different interests are involved. Yet recently an increasing number of small-scale tourist developments have been built on ecological and sustainable principles.

to how the buildings and materials can eventually be reused or recycled.

Then there's the Mata de Sesimbra ecotourism project in Portugal, the world's first large-scale integrated sustainable-building programme, set in an area where urban development is causing coastal

increasing energy and water efficiency and for reducing waste and carbon dioxide emissions. Visitors will pay a green tax to fund restoration, which will include reinstating ecological corridors and recovering wetlands and other important riverine and coastal habitats.