Seas & Oceans: Dead or Alive?

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Seas & Oceans: Dead or Alive?
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Seas & Oceans: Dead or Alive?

Introduction

'The sea unites nations, rather than divides them. It creates a world of neighbours'

Klaus Töpfer
Executive Director UNEP

Seas and Oceans represent 71% of the Earth surface, 360 million km^2 and 97% of the earth water resources.

They are an immense source of biological and natural resources, comparable or even superior to tropical forests.

They are also an economic resource, a reserve for energy sources, and essential to shape the Earth's climate as well as highly productive systems, which continuously recycle chemicals, nutrients and water. 40% of the world's population live within 60 km of the coast and 35 million people depend on fishing.

Oceans are a major source of food and employment, and provide natural routes for communication, transport and trade.

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Introduction (contd)

The ocean is less well known than some distant planets and contains a resource potential that remains partly untapped. But this resource is limited, both in its capacity and ability to absorb the effects of development and pollution. Signs of stress are already visible, especially in low-lying coastal areas and small islands. Symptoms of diseases include: pollution, exhausted fish stocks, disappearing coastlines, rising sea level, increasing surface temperatures that threaten the deep ocean currents, more frequent storms, melting ice caps...

■ 80% of all oil pollution in seas and oceans comes from land based activities. There are nearly 150 oxygen-starved or 'dead zones' in the world's oceans and seas, due to an excess of nutrients, mainly nitrogen originating from agricultural fertilizers, vehicles and factory emissions, and waste. Low-level oxygen makes life difficult for marine animals and for important habitats such as sea grass beds. This is a major threat to fish stocks and to populations depending on this resource.

■ The state of the world fisheries is poor, and continues to degenerate. 70% of commercially valuable fisheries are now fished up to or beyond their sustainable limit, with social, economic and ecological consequences. Illegal longline fishing, which involves lines up to 80 miles long, kills over 300 000 seabirds each year. Unused fishing bycatch amounts to 20 million tons a year, with the death of thousands of small whales, dolphins and porpoises.

■ Habitat alteration results from activities such as dredging, landfill, coastal solid waste dumps, coastal construction and road building, cutting of coastal forests, diver damage from tourism and recreation, among others! For instance, although coral reefs cover less than 0.5% of the ocean floor, 90% of marine species are directly or indirectly dependent on them. Reefs also protect populations along coastlines and serve as buffers between oceans and near shore communities. But 60% of the world's remaining reefs are at significant risk of being lost in the next 30 years if no action is taken.

85% of European coasts are at risk due to infrastructure development and other construction and natural causes.

■ A total average of 3000 alien plant and animal species are transported everyday in ship's ballast waters. When introduced in distant habitats, they may reproduce uncontrollably with sometimes devastating effects on the marine biodiversity and the economy depending on it.

■ Global climate warming would have dramatic effects on the oceans, slowing down their heat regulator function. The International Panel for Climate Change predicts that storms and other extreme weather events will increase in frequency and intensity, damaging coastal ecosystems and their ability to recover.

■ Although shipping is considered to be an environmentally friendly mode of transport, it can have major negative impacts if standards are not observed or enforced. It can lead to major oil accidents, and illegal polluting discharges, ranging from oil to radioactive discharges.

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Action

GPA Action

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) is designed to be a source of conceptual and practical guidance to be drawn upon by national and/or regional authorities for devising and implementing sustained action to prevent, reduce, control and/or eliminate marine degradation.

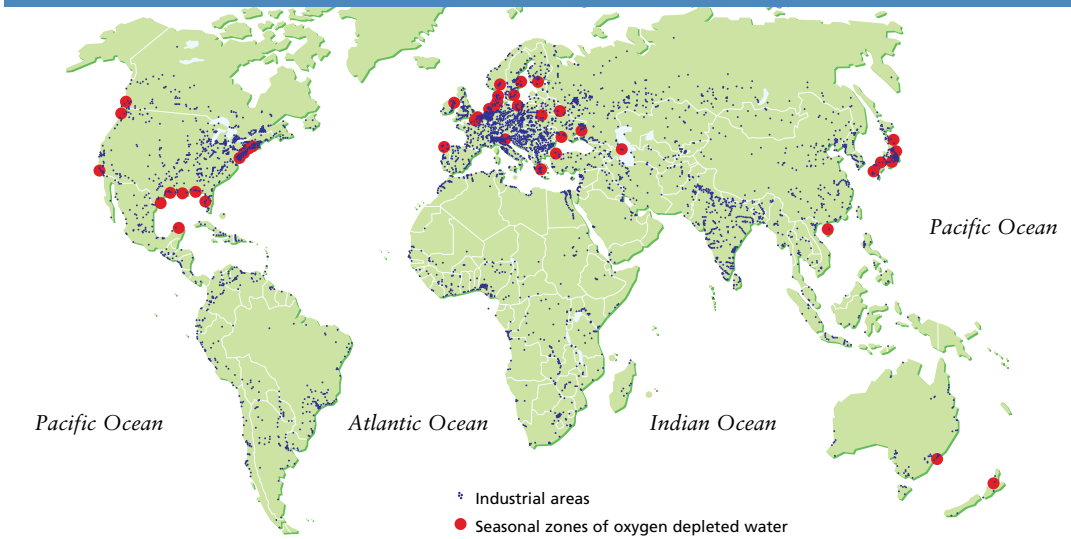
The United Nations Environment Programme (UNEP) provides the secretariat for the GPA. The GPA was enacted in 1995 and endorsed by 108 Governments and the European Commission in response to the increasing threat to the marine environment from human activities on land. Some 80% of the pollution load in the oceans originates from land-based activities. Key pollutant sources include persistent organic pollutants (POPs), heavy metals, radioactive substances, nutrients, oils, litter, physical alteration and destruction of habitat and wastewater/ sewage. Each of these pollutant sources form the basis of a 'node' from the GPA website. These websites are focused on the GPA and are maintained by external, expert institutions (such as the Swedish EPA who have developed the litter and oil nodes).

The Regional Seas add value to the adopted Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, providing a platform for its implementation through their Conventions and the respective Land-based Sources (LBS) protocols.

The GPA is uniquely positioned to facilitate improved cooperation and coordination of freshwater and saltwater issues at local, national, regional and global levels, and to ensure that the concerns of the oceans community are not overlooked or ignored in multilateral fora addressing water and sanitation in the immediate future.

Whilst implementation of the GPA is primarily the task of Governments, partnerships with and input from all sectors of civil society are critical to the success of the programme.

Industrial areas and seasonal zones of oxygen depleted waters



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Action (contd)

European Union Action

The area covered by EU's seas is larger than its landmass. European seas are very different, each influenced by the varying economic activities and social conditions of their neighbouring countries. That great richness has become increasingly undermined in recent years by their unsustainable exploitation and maritime disasters. Oil spill accidents, like those involving the Erica and more recently - the Prestige, have lead to a series of Community initiatives aimed at increasing maritime safety and reducing the likelihood of such disasters recurring.

The EU's Water Framework Directive aims to reduce pollution of the marine environment from land-based sources and to improve the quality of lakes and rivers. Accordingly, the EU drew up a series of action-oriented River Basin Management Plans, each with a clear environmental objective to improve the chemical and biological profile of marine waters, river basins and lakes.

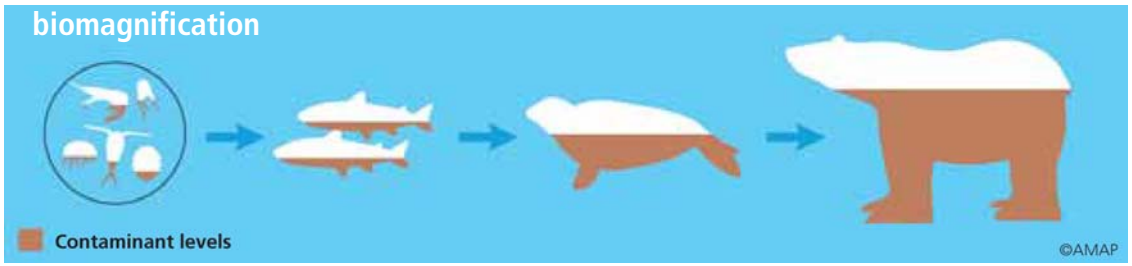
The 6th Environmental Action Programme (2002-2012) stipulates that EU should develop a holistic approach for the protection and conservation of the marine environment with the overall objective of promoting the sustainable use of the seas and for the conservation of marine ecosystems. The first step taken was the publishing of the Commission's Communication 'Towards a strategy to protect and conserve the marine environment'. The EU made a clear political commitment to implement this strategy by 2005. The diversity of the economic conditions and social factors of Europe's waters made it essential for the strategy to be underpinned by a strong regional approach that needs to be gradually integrated across all sectors.

International Action

The 1982 United Nations Convention on the Law of the Sea entered into force in 1994, is a framework of law for the oceans, including rules for deep-sea mining and economic exclusion zones of 200 nautical miles around nation states.

The World Summit on Sustainable Development in 2002 committed countries to create a global network for the protection of marine and coastal zones.

Build up of contamination in Arctic animals:



Biomagnification occurs when contaminant levels are increased in each step of the food web. Predators consume the contaminants stored in their food (prey). As these predators, in turn, become food for the next level of predator, the concentration of contaminants becomes accumulates at each step.

Source: Canadian Department of Indian and Northern Affairs, 1997

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The Arctic Ocean

The Arctic is a large, mostly ice covered ocean. It is one of the planet's relatively undisturbed regions, where indigenous peoples pursue their traditional lifestyle in harmony with land and sea from which they depend for their survival. It is also an important source of commodities for Europe, such as fish, timber, oil and gas, and other minerals. Fishing, forestry, climate change, pollution and even tourism are now new threats to the Arctic environment.

Marine biodiversity is clustered in specific, critical areas such as the Barents Sea, estuaries and deltas such as the Lena Deltas, and coastal areas surrounding island systems such as Novaya Zemlya, Franz Joseph land and Svalbard. Near shore waters, and open leads in the sea ice are important food sources for sea birds such as auks, guillemots and gulls, with thousands and even millions of pairs breeding in cliffs. The Arctic countries have taken several steps to reduce habitat loss and some 2.5 million km^2 are now protected.

Europeans have been fishing in the Arctic for hundreds of years, and the industry is still vital for many countries. Today about half of the fish consumed in the EU comes from the European Arctic. But fish resources are steadily decreasing, with too many ships chasing too few fish.

Offshore oil and gas exploitation and associated transport in Arctic marine waters and vulnerable polar conditions pose particular risks and dangers as it has been illustrated by the Exxon Valdez accident in Alaska.

Seven of the world's largest rivers are in arctic Russia. They drain more than half of the land area of Russia and pour 73 million tons of sediments each year into Arctic coastal areas, together with contaminants causing serious land based pollution. Ocean currents such as the Gulf Stream transport water over long distances and disseminates chemicals and radioactive substances. Similarly pollution carried from Europe to the Arctic has major impact on the Arctic environment: contaminants concentrate in the tissues of animals high in the Arctic food web, such as polar bear, seals and whales. These animals are food sources for indigenous people, exposing them to potentially serious health effects. A large proportion of women in Arctic communities have mercury or PCB levels in their blood well above legal guidelines.

The Arctic is a sentinel for climate change. Some of the environmental impacts of climate change will become evident in the Arctic sooner, because of the specific biological and physical characteristics of the region such as sea ice and permafrost. By the end of this century, the Arctic Ocean could be ice free in the summer.

Regional agreements

The 1991 Arctic Environmental Protection Strategy (AEPS) aims to: protect the Arctic ecosystems; provide for the protection, enhancement and restoration of environmental quality and sustainable utilization of natural resources, including their use by local populations and indigenous peoples; recognize and when possible, seek to accommodate the traditional and cultural needs, values and practices of indigenous peoples, related to the protection of the Arctic environment; review the state of the Arctic environment; identify, reduce and, as a final goal, eliminate pollution.

http://www.arctic-council.org/rovaniem.asp

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The Baltic Sea

The Baltic Sea is one of the largest brackish waters in the world. Its average depth is just 55 m and its greatest depth only 450 m. It takes about 35 years for all the water in the sea to be refreshed by ocean water. It is ecologically unique and home to many species of plants, animals and microorganisms in many different habitats (133 distinct marine and coastal habitat types have been classified for conservation purposes). It is also an important nursery for many species of fish such as cod and herring and hosts seals and migrating birds. Due to its special geographical, climatic and oceanographic characteristics, the Baltic Sea is highly sensitive to the environmental impacts of human activities in its catchments area, home to some 85 million people.

The Baltic Sea is suffering from high concentration of toxic substances and from eutrophication. Other risks come from shipping: oil-spill, waste and over fishing. Eutrophication causes extensive, often toxic, algae proliferation nearly every summer in the Baltic Proper and the Gulf of Finland, affecting the marine ecosystem. Populations of commercially

important species such as cod and herring have been declining due to overfishing and reduced inflow of oceanic water. Wild salmons are increasing but still at a very low level in small rivers due to overexploitation and environmental degradation. By-catches of marine mammals and seabirds are threatening local populations. Hazardous substances like cadmium, mercury, lead and PCBs accumulate in the marine food web and harm ecosystems and human health. PCBs have been blamed for decreasing population of grey seals, mostly in Swedish, Finnish and Estonian waters and are also linked to female sterility. Once released to the Baltic Sea environment, hazardous substances can remain there for a very long time. Shipping has increased over the last twenty years, and at least 70 alien species have been introduced in the Baltic Sea disrupting and harming ecosystems.

Regional agreements

It is protected by the **1974 Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area**. The Helsinki Commission (HELCOM) administers the convention and related regional cooperation. In 1992 the Helsinki Convention increased detail and scope of the1974 Convention by incorporating greater coverage of coastal waters, mandating use of polluter pays and precautionary principles. It entered into force in January 2000 and led to: lower discharges of organic pollutants and nutrients; improvements in the treatment of industrial and municipal wastewater; regulations banning hazardous substances like PCB and DDT; measures to eliminate all illegal discharges by ships. International cooperation on fisheries issues are based on the 1973 Gdansk Convention on Fishing and Conservation of the Living Resources in the Baltic Sea and the Belts (the Gdansk Convention) and through the International Baltic Sea Fisheries Commission.

http://www.helcom.fi/helcom.html

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The Black Sea

Scientists have discovered the remains of a house 100m deep which could be 7500 years old. This corresponds to the view that the Black sea is born from a major ecological change, following the sudden intrusion of Mediterranean waters. Being a closed sea, the Black Sea is particularly vulnerable to pollution, aggravated by demography in rapid expansion. About 16 million people live in its coastal zone, with additional 4 million tourists in the summer.

In the past 20 years, the environment of the Black Sea has deteriorated dramatically in terms of biodiversity, habitats, fisheries resources, aesthetic and recreational value and water quality. The Black Sea has many 'uses' indeed, ranging from fishing tourism and mineral extraction, a major transport route as well as a 'convenient' place to dump solid and liquid waste.

The Black Sea is even more affected by nutrient and industrial pollution than the Mediterranean Sea. It receives the water from the Danube, the Dnieper, the Dniester and the Don. Increased loads of nutrients from rivers (80% of pollution is coming from the Danube) caused an overproduction of tiny phytoplankton, which in turn blocked the light reaching the sea grasses and algae. Eutrophication has damaged severely the entire ecosystem. This problem coupled with pollution and over fishing started a sharp decline of fish resources. To make the matter worse, in the mid 80's a particular successful jelly fish species (Mnemiopsis leidyi), accidently introduced through ballast water of a ship invaded the Sea. Its diet includes tiny animals small fish feed upon. It quickly reached a mass of 900 million tons (ten times the annual fish harvest of the entire world).

Poor planning destroyed much of the coastlines. Uncontrolled sewage pollution has led to frequent beach closures and considerable losses in the tourism industry. In some places, solid waste is being dumped directly in the sea or on valuable wetlands. The Black Sea is an important transit route for oil transport, with 70 million tons of petrol transiting each year. Tankers accidents, operational illegal discharges and oil inputs from the Danube cause severe oil pollution in the range of 100 000 tons a year.

Regional agreements

The 1992 Bucharest Convention on the Protection of the Black Sea Against Pollution was ratified in 1994. It has four specific Protocols concerning:

(1) the control of land-based sources of pollution;

(2) dumping of waste; and

(3) joint action in the case of accidents (namely oil spills);

(4) biodiversity and landscape conservation.

http://www.blacksea-commission.org

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The Caspian Sea

The Caspian Sea is the biggest enclosed body of water on Earth. It is where South-Eastern Europe meets the Asian continent. 11 million people live around the Caspian Sea. This sea has no connection to the world's oceans, its surface level at the moment is around 26.5 m below sea level, and its water is 3 times less salty than oceanic water. The location of the Caspian Sea within several climatic belts has led to significant biological diversity. Over 400 species are unique to the Caspian.
Birds are prolific throughout the year particularly during the migration seasons.
The sea's famous native sturgeon accounted at its peak for approximately 80% of the world's caviar industry.

The Caspian Sea is currently undergoing increasing anthropogenic pressure leading to an increase of eutrophication, water pollution by heavy metals, chemical pollution and overexploitation of the Caspian species. The Caspian's sturgeon is now on the verge of extinction. Petrochemical and refining complexes are major sources of land-based pollution, and discharges and spills from oil and gas drilling have had serious impacts on the environment. In addition to man-made problems, the Caspian sea level has risen almost 2.3 meters since 1978. This mysterious sea level rise has been known to displace thousands of people, destroy investments in industry and infrastructure and cause severe pollution threats via floating of coastal waste.

Regional agreements

Caspian Environment Program (CEP) and the Caspian Convention
The CEP is a regional programme developed for and by the five Caspian Littoral States and funded by UN agencies, the World Bank, the European Union and others. It aims to halt the deterioration of environmental conditions of the Caspian Sea. In November 2003, the Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention) was adopted under the auspices of UNEP. The objective is to facilitate the establishment of concrete environmental targets.

http://www.caspinfo.ru/library_e/doc/treaty.zip

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The Mediterranean Sea

The Mediterranean Sea, once home to Egyptian, Phoenician, Greek and Roman empires, has now 160 million residents and a similar number of annual visitors. Generally shallow, with an average depth of 1500 m, it reaches a maximum depth of 5150 meters off the southern coast of Greece. It is an almost completely closed basin where the continuous inflow of surface water from the Atlantic Ocean is the sea's major source of water renewal. Waters take over a century to be renewed through the Strait of Gibraltar, which is only 300 m deep. The scarce inflow, coupled with high evaporation, makes the Mediterranean much saltier than the Atlantic Ocean.

The Mediterranean Sea is known to have hosted as much as 19 species of cetaceans, such as the striped dolphin and the sperm whale. Three sea turtle species are found in the Mediterranean, two of which nest there and had abundant populations. These turtles are increasingly threatened by nesting habitat degradation due to coastal development as well as incidental catches by fisheries and exploitation at sea.

The density of merchant vessels traffic is particularly high. Although the Mediterranean Sea represents less than 1% of the total area covered by the world's oceans, approximately 30% of the international sea-borne trade volume transits through the Mediterranean Sea. One fifth of all the world's oil spills have occurred in its waters.

The Mediterranean is the world's leading tourist destination, accounting for 30% of international tourism. Coastal tourism causes reduction of natural sites and alteration of landscapes. Mass migration towards the major urban centers in the basin has overstrained the associated public services, such as water supply, roads, and sanitation. More than 500 million tons of sewage are poured into the sea each year, along with 120 000 tons of mineral oils, 60 000 tons of detergents, 100 tons of mercury, 3 800 tons of lead and 3 600 tons of phosphates. Fishing exerts pressure on the environment as well as on the fish stocks.

Regional agreements

The Mediterranean Action Plan (UNEP)
In 1975, 20 Mediterranean countries and the EEC adopted the Mediterranean Action Plan (MAP) under the auspices of UNEP. It was approved in 1976 as the Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution.

The MAP initiates regional proposals and actions for sustainable development in the Mediterranean region. Fisheries issues are dealt with in the General Fisheries Commission for the Mediterranean established under an agreement approved by the FAO Conference in 1949 which came into force on February 1952.

http://www.unepmap.org

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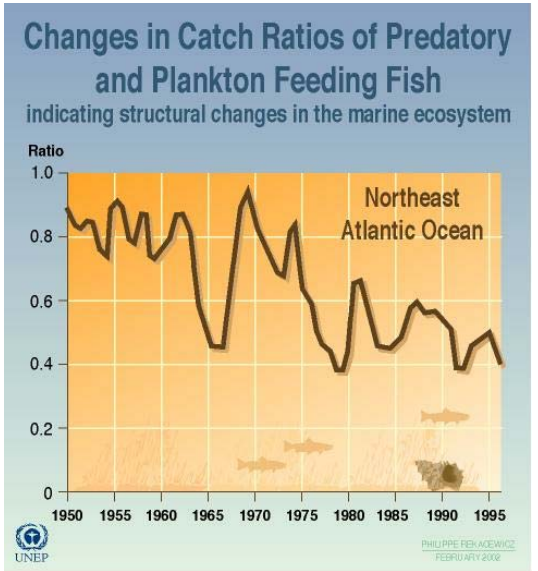
The North East Atlantic Ocean

The North-East Atlantic, from the North Sea to the deep sea, provides a diverse range of coastal and offshore marine habitats. Millions of migratory birds depend on feeding and breeding grounds along the East Atlantic Flyway. The sea is rich in marine wildlife: sharks, seals (including Risso's and bottlenose dolphins and pilot, sperm, minke and fin whales) and commercially important fish stocks. There are highly productive plankton and sea bottom communities, kelp forests, sea grass beds and even cold water coral reefs.

Toxic industrial chemicals, pesticides and nutrients threaten this environment. Pollution is aggravated by discharges of oil and chemicals from offshore platforms and shipping. Plankton variety has declined while algae are growing as a result of elevated nutrient levels, due to nitrogen inputs from land-based sources, such as agricultural run-off. Many of genetically distinct populations of Atlantic salmon have already been destroyed because of overfishing, local pollution in rivers, global pollution and climate change. In Norway and Scotland the growth of salmon farming has introduced serious problems of diseases and parasites to wild salmon. The incidental catch of marine mammals, seabirds, sharks, turtles and other non-fishing species is a serious problem. Coastal and marine habitats are increasingly degraded by harbour construction, industrial development, flood defense and oil, gas, and sand extraction. Deep sea fishing and mining are expected to expand and may threaten remote species and their habitats.



Regional agreements

The area is covered by the **Oslo Convention 1972, the Paris Convention 1974 and the OSPAR convention of 1992**, merging the two and including new principles of conservation. The Convention requires the application of the precautionary and polluter pays principles. It deals with prevention and elimination of pollution from land-based sources, and by dumping or incineration.

It entered into force in 1998 and covers westwards to the east coast of Greenland, eastwards to the continental North Sea coast, south to the Straits of Gibraltar and northwards to the North Pole. The North East Atlantic Fisheries Commission, North Atlantic Salmon Commission and the International Commission for the Conservation of Atlantic Tunas are active in this area.

http://www.ospar.org/

Seas & Oceans: Dead or Alive?

What are the major threats?

■ Land Based Pollution

Most of marine and coastal pollution comes from land, as municipal, industrial and agricultural wastes and run-off, accounting for 80% of all marine pollution. Sewage and wastewater, pesticides, heavy metals and oils – brought by rivers or discharged directly into the sea – have severe effects on human health and coastal ecosystems.

● Oil Pollution

Oil spills, such as the 'Prestige' disaster, have shown the extent of the damage on coastal environments. Non-accidental oil pollution caused by vessels traffic as well as air pollution from ships constitute severe threats to the marine environment: over the last 10 years, 830 000 tons oil have been spilled in EU waters alone.

⬣ Over exploitation

It is a common problem worldwide. More than 70 per cent of the world's commercially important fish stocks are fully fished, overexploited or depleted. Commercial fishing may also damage sensitive habitats such as maerl beds, posidonia meadows and deep sea reefs.

(See Major threats map on p.14)

The incidental catch of non-target species – including porpoises, whales, dolphins, and sea turtles – is killing thousands of individuals in EU waters each year. More than 2 000 dolphins and porpoises are dying annually as by-catch in the Celtic Sea alone.

■ Coastal degradation

Urbanization, road construction, port and marina activities, boating, dredging, mining, coastal agriculture, forestry, and aquaculture, among others, continue to reduce, fragment, or degrade coastal habitats and cause reductions in plant and wildlife populations, leading to extinction of local and regional species.

▼ Invasive alien species

Their introduction represents one of the major threat to the marine environment in general. Alien species are carried around the world in ships' ballast water. When discharged into new environments, they may have harmful effects on marine biodiversity and the native ecosystems. About 7 000 different species are carried around the world each day.

▲ Climate change

Most scientists agree that greenhouse warming of the planet will lead to a general increase in regional temperature and sea-level rise. Sea levels might rise another 15 to 95 cm by the year 2100, because of the combination of thermal expansion of ocean water with the increased influx of freshwater from melting glaciers and ice-sheets. This will in turn affect surface and groundwater flows, the incidence of floods and the movement of marine water masses, such as waves, tides and currents.

● Eutrophication

High levels of nitrogen and phosphorous-based pollutants originating from human activities can be used by phytoplankton as nutrients. Large growths of phytoplankton and algae, known as blooms, prevent light reaching the waters below and stop the growth of deeper plants, reducing biological diversity. Large blooms also reduce the oxygen level in the deep waters and cause the death of thousands of fish that don't have enough air to breath. Blooms may cause huge ugly foams on beaches. There are nearly 150 coastal deoxygenated 'dead zones' worldwide, up to 70 000 km^2, caused mostly by agricultural fertilizers.

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Aliens!

In the mid 80's a jelly fish species *(Mnemiopsis leidyi)*, accidentally introduced to the Black Sea through the ballast water of a ship, invaded the Sea. It quickly reached a total mass of 900 million tons (ten times the annual fish harvest of the entire world).

The species *Dreissena polymor pha* or Zebra Mussel, native to the Black Sea, has been introduced to western and northern Europe, including Ireland and Baltic Sea. This species disrupts native aquatic life and fouls all hard surfaces in mass numbers.

The European Green Crab *(Carcinus maenus)*, native to the European Atlantic Coast, has been introduced to Southern Australia, South Africa, USA and Japan. It competes with and displaces native crabs, becoming a dominant species in invaded areas.

The Round Goby *(Neogobius melanostomus)* is native to the Black, Asov and Caspian Seas and has been introduced to the Baltic Sea and North America. It competes for food and habitat with native fishes including commercially important species, and preys on their eggs and young.

The Cladoceran Water Flea *(Cercopagis pengoi)* is native to the Black and Caspian Seas and has been introduced to the Baltic Sea. It reproduces to form very large populations that dominate the zoo plankton community and clogs fishing nets and trawls, with associated economic impacts.

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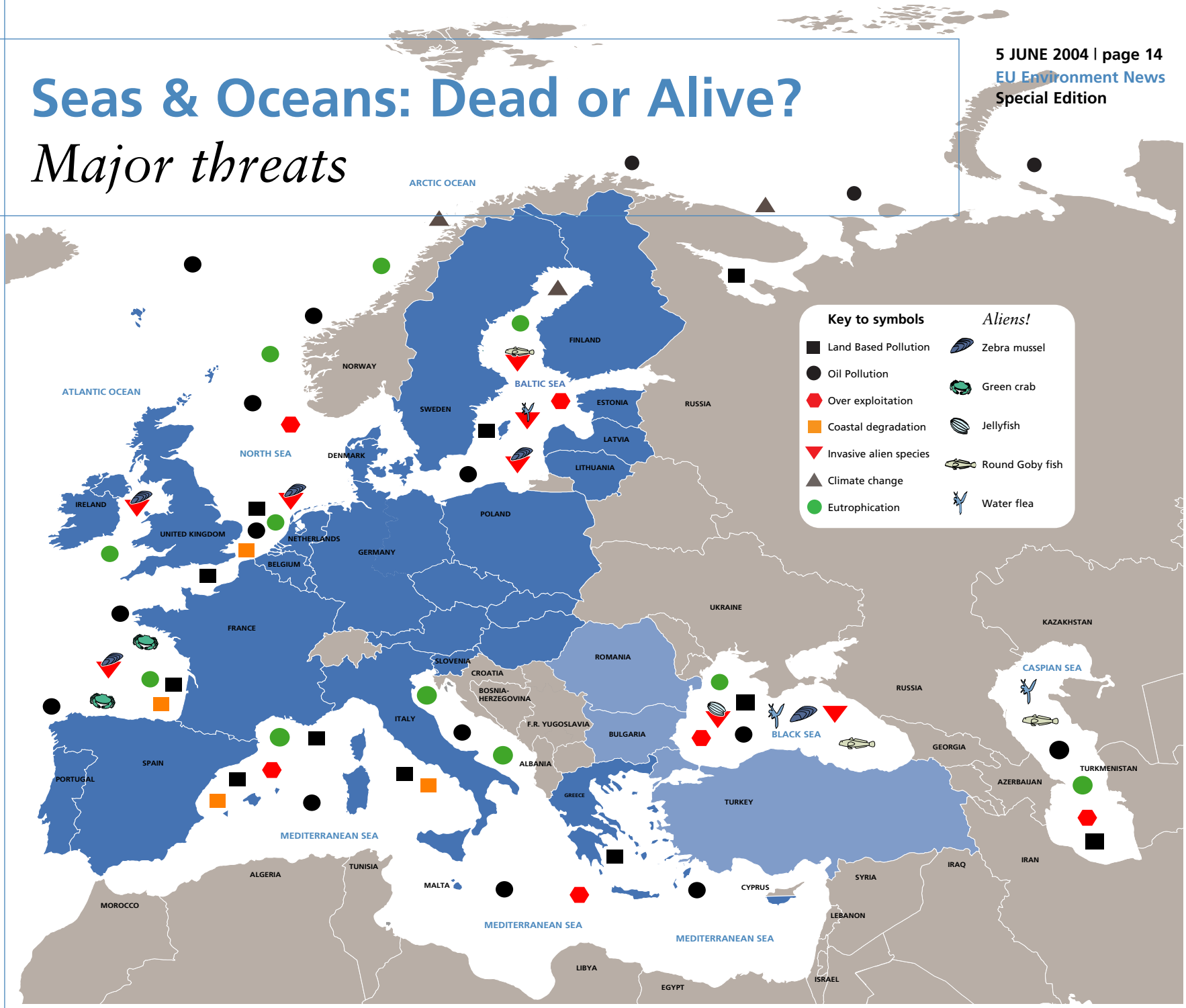
Major threats



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What can you do?

■ In seawater, a plastic bottle takes 10 centuries to disappear, a tin can 100 years, a cigarette butt 6 months and a bus ticket 2 to 4 weeks. Plastic waste kills up to one million sea birds, 100 000 sea mammals and countless fish each year. Animals decompose, not plastic which remains in the ecosystem to kill over and over again. ***So, don't throw things in the sea or on the beach.***

■ Coral reefs protect human populations along coastlines from wave and storm damage and over 90 per cent of marine species are dependent on them. ***Do not pick up shells and pieces of coral reef and don't let others do it.***

■ Some of the tiniest inhabitants of the sea are part of the marine web of life: phytoplankton produces half of the world's total oxygen supply. Plankton is also the base of the food chain, feeding whales and fish species that will be later part of our diet. It is important to keep the balance of this ecosystem. ***Be aware of it and tell others about the environmental situation of oceans and coasts!***

■ If you live by the sea, ***find out about initiatives or groups to protect species or clean beaches and join them sometimes.*** In the event of an oil spill, volunteer action to clean beaches, coasts and sea-waters has made a big difference. In the recent Prestige oil spill (November 2002 in Galicia, Spain) some 30 000 volunteers collaborated in cleaning up.

■ ***Lobby authorities*** for efficient sewage treatment systems in coastal areas. Monitor and denounce the use of agrochemicals that are dangerous to the marine and coastal environment.

■ ***Be a responsible tourist***, be aware of what you do and what you buy (some species are in danger also because of illegal trade and commercial uses).

Links to Websites

- United Nations Environment Programme (UNEP) http://www.unep.org/
- World Environment Day 2004 http://www.unep.org/wed/2004/
- European Commission – DG Environment http://europa.eu.int/comm/environment/water/index.html
- Green Week 2004 http://europa.eu.int/comm/environment/greenweek/index_en.htm
- European Commission – DG Research http://europa.eu.int/comm/dgs/research/index_en.html
- European Environment Agency (EEA) http://www.eea.eu.int/
- Global Programme of Action for the Protection of the Marine Environment from Land-based Activities http://www.gpa.unep.org/
- International Maritime Organization (IMO) http://www.imo.org
- UN Atlas of the Oceans http://www.oceansatlas.com/html/workabout.jsp
- UNESCO – Intergovernmental Oceanographic Commission http://ioc.unesco.org/iocweb/index.php
- Intergovernmental Panel on Climate Change (IPCC) http://www.ipcc.ch/
- WWF World Wildlife Fund for Nature http://www.panda.org

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