

The Deep, Grey Sea

Oceans cover 71% of the Earth's surface. They are vast in size, and importance, to the world. They control climate, sustain life and drive economies. Life itself began in the beautiful oceans, some 3 billion years ago. Today the oceans are home to over a million species of life, including many we've never seen.

The Toxic Tide

Every day the marine environment becomes increasingly contaminated by the direct discharge of sewage treatment plants, chemical and

Such deep-sea habitats are among the least known areas of the oceans, and by pledging not to fish in them, these companies have taken a great step towards sustainability.

— Carl Gustaf Lundin, IUCN Global Marine Programme, on the voluntary fishing moratorium by SIOFPA

pharmaceutical manufacturers, and offshore oil and gas rigs. Indirectly it's contaminated by land from agricultural and urban runoff, and by air from sources such as waste incineration plants. Beluga whales in Canada's St. Lawrence Seaway are so contaminated with industrial chemicals, primarily polychlorinated biphenyls (PCBs), that their carcasses are classified as toxic waste.¹ In the Arctic, the level of a fire-retardant called polybrominated diphenylether is doubling every five years in Arctic ringed seals, and polar bears are developing intersex genitals because of exposure to endocrine-disrupting chemicals, blocking hormone transmission in their bodies.² Some of the common uses for these chemicals are pesticides, fungicides, insecticides and pharmaceuticals.

Overloading on Nutrients

Nutrient overloading is caused by runoff from residential, agricultural and industrial areas. Nutrients are essential to life in the ocean, but accelerated levels of nitrates and phosphates in coastal waters are causing the extreme growth of unicellular marine algae referred to as algae blooms. The algae blooms die, decomposing from bacteria that uses a large amount of oxygen, and resulting in the surrounding water becoming oxygen deficient. This process, called eutrophication, produces dead zones on the ocean floor as large as 40,000 square miles, where marine animals and plants die from suffocation.³ Algae blooms are the cause of red tides, when the sea becomes discolored by the concentration of algae, some of which is toxic, and contaminates shellfish.



ETHAN SMITH

There are 230 cruise ships plying the world's seas, each discharging up to 30,000 gallons of sewage a day.

- Marine Conservation Alliance: www.marineconservationalliance.org
- Marine Conservation Society: www.mcsuk.org
- National Coalition for Marine Conservation: www.savethefish.org
- Ocean Conservancy: www.oceanconservancy.org
- Pew Institute for Ocean Science: www.pewmarine.org

Traffic Jam

There is a non-stop rush hour going on in our oceans. From freighters and cruise ships to fishing boats and pleasure craft, there is a constant buzz of activity. This results in a deafening level of noise pollution for marine mammals, since water magnifies sound, and causes constant collisions with sea life, leaving increasingly fewer places for marine animals to escape.

Exploring the Depths

Oceans comprise 97% of the Earth's water, with 90% of the water lying beyond the shallow continental margins, and most being deeper than 1.5 miles. There are still huge areas of the oceans' depths that humans haven't explored or recorded, yet the advance in technology is impacting marine habitat far below the surface. Fishing, mining, oil exploration and pipelines are exploiting previously undisturbed areas, with serious consequences for the slow-growing deep-sea life.

Bottom trawling is particularly harmful to the deep marine environment, involving large

nets weighted with chains, rollers or rock-hopper gear being dragged along the ocean floor, scooping up as much as 15 tons of fish in a single load.⁴ Trawl nets catch everything in their path, including corals and sponges that create habitat for a wide variety of marine life and take centuries to recover.⁵

The Good News

In 2006 four large fishing companies made a major announcement, the first of its kind in the world. Austral Fisheries Pty Ltd (Australia), Bel Ocean II Ltd (Mauritius), Sealord Group (New Zealand) and TransNamibia Fishing Pty Ltd (Namibia) voluntarily halted their trawling operations in 11 areas of the southern Indian Ocean. These companies, the primary trawling operators in the area, have formed the Southern Indian Ocean Deepwater Fishers' Association (SIODFA), consulting with the United Nations to set aside 190,000 square miles of ocean floor. To verify compliance with the voluntary restrictions, SIODFA will track its vessels with a satellite monitoring system.

A Day at the Beach

The Marine Conservation Society's Beachwatch program reported an 80% increase in beach litter along UK shorelines between 1995 and 2005. Worldwide, over a million birds and 100,000 marine mammals and turtles die from entanglement or ingestion of plastics each year.⁶ What's found on the beach is the tip of the iceberg, because it's impossible to tell how much litter is in the ocean, drifting in the wind and ocean currents. Even colorful balloons, released into the air from events far inland, eventually fall into the ocean, where they're mistaken for food by marine life, clogging digestive tracts and killing them. Another reason not to litter.