

Ocean Blues

Threats and Responses Fact Sheet

FACTS

- Seafood provides almost 20% of the world's total animal protein intake.
- More than 90% of goods traded between countries are transported by sea.
- The largest waterfall on Earth is actually underwater. It is found in the Denmark Strait, and slowly cascades downward for 3.5km.
- Beyond the continental slopes, rocky substrates suitable for growth of cold water corals are rare habitats occupying only 4% of the vast deep sea floor.
- Tropical coral reefs are arguably the richest of all ecosystems in the ocean. In the 110 countries where they are found, 30% of reefs have perished and another 30% will become seriously depleted if no action is taken within the next 20 – 40 years.
- The Gulf Stream carries more water than is carried by all the rivers on Earth.
- Every year 100 million sharks and related species are caught in fisheries. Some species have been reduced by more than 80% over recent years, and many are on the brink of extinction.



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COMMOTION IN THE OCEAN

Commotion: “A condition of turbulent motion”. Our ocean generates incredible power, as experienced with the South East Asia tsunami, causing destruction and despair in coastal communities. Beneath the surface of the ocean, however, lies an extraordinarily-diverse and relatively peaceful world. It is estimated that more than 1 million species live on coral reefs alone, and perhaps as many as 10 million in the deep ocean. Our terrestrial environment is relatively well known, and 10% of the Earth's land masses are now in protected areas.

The ocean covers 70% of the Earth's surface, and yet less than 1% of the marine environment (in Exclusive Economic Zones) falls within a protected area. Many of us have now heard of “the green revolution”, but it is time to engage in the “blue revolution”, in recognition of the enormous value that marine systems have for the maintenance of life on our planet, including our economic systems. The variety of threats facing our global marine environment is as vast as the ocean is deep. How can society assist the planet to avoid suffering the “ocean blues”?

FACTS

- In the last 42 years, capture of wild marine fish for human consumption increased from 20 million tonnes to 84.5 million tonnes, with more than 40% entering international trade.
- Government subsidies - estimated at US\$15-20 billion per year - account for nearly 20% of revenues to the fishing industry worldwide.
- Global by-catch amounts to 20 million tons a year, approximately 25% of the fish caught.
- The worldwide value of Illegal, Unregulated and Unreported (IUU) fishing catches is estimated between US\$4.9 and 9.5 billion. Up to 30% of IUU fishing (US\$ 1.2 billion) occurs beyond national jurisdiction.
- Most cold-water coral reefs in the North East Atlantic show signs of, or have been destroyed by, bottom trawling.
- More than 7,000 species are in transit every day in ships' ballast water, and more than 10 000 million tonnes of ballast water are transported around the world every year.
- Oceans act as an important carbon sink, including a significant proportion of the 6 Gigatonnes (Gt) of carbon (C) which originates from human activities each year, and absorb 2 Gt C per year more CO₂ than they are releasing.
- 19 of the 21 albatross species are under global threat of extinction.
- Over 46,000 pieces of plastic litter are floating on every square mile of ocean today. In the Central Pacific, there are up to 6 kilogrammes of marine litter to every kilogramme of plankton.

WHAT ARE THE THREATS?



Overfishing is one of the major threats to the sustainable supply of food from the marine environment. Seafood provides almost 20% of the world's total animal protein intake, with this figure much greater in many coastal communities. The development of modern fishing gear now enables more fishing to take place in more areas of the ocean; too many targeted species are being taken with often high levels of unwanted bycatch of sharks, seabirds and other non-target species, while deep seabed habitats are

now vulnerable to destruction by bottom trawlers. Without healthy habitats, fish populations will diminish further. Each year over 80 million tonnes of fish are caught in the ocean. Total marine production peaked in 2000 at 87 million tonnes and has declined since. Fifteen out of seventeen of the world's largest fisheries are so heavily exploited that reproduction cycles cannot guarantee continued catches.

In addition to pollution, invasions by **aquatic alien species** are among the most severe threats facing marine ecosystems. Several established alien invasive species threaten critical habitats and important commercial fisheries and have caused enormous economical damages around the world. Ballast water is one of the primary introduction vectors for marine invasive species. More than 7,000 species are in transit every day in ships' ballast water, and more than 10 000 million tonnes of ballast water are transported around the world every year. Marine and aquatic ecosystems are particularly vulnerable to alien species invasions; marine organisms are hard to detect at an early stage, spread rapidly through natural means and, once established, are difficult to eradicate or control.

The ocean not only significantly regulates the planet's climate, but is susceptible to any **changes in climate**. Climate change is an overarching condition to which life on Earth must adapt, or perish. Some changes are already seen to dramatically alter our environment and ecosystems. The Gulf Stream flow has declined 30% in the last half century, with the rate of decline accelerating in the past five years; Alaskan glaciers are melting more rapidly than previously thought, contributing more to sea level rise than any other glacial region on the planet; sea level rise already threatens the existence of low-lying island nations such as the Maldives, and (in combination with extended above-average sea surface temperatures) is responsible for massive coral loss, especially in the central Indian Ocean. Maintaining healthy ecosystems and restoring degraded ones is essential to preserving the resilience of marine life to increasing change.



CORAL REEFS

Coral reef environments are areas of high biodiversity, attracting millions of tourists each year. Reefs provide habitat to a vast assortment of high-protein fish species, harvested by coastal communities, and also protect shorelines from storms and waves.

Coral reefs may act as indicators in a changing global climate. Under sustained conditions of above-average water temperatures, coral animals lose their colour in a phenomenon known as "coral bleaching", and often die. In early 1998 the most significant bleaching ever recorded occurred in conjunction with the El Niño Southern Oscillation event. The concern is that these above-average sea temperatures will become more frequent, offering no chance for recovery.

HIGH SEAS

High seas represent 50% of the Earth's surface. The deep seas are home to vast mountain ridges, canyons, trenches, seamounts, hydrothermal vents and cold-water coral and sponge reefs, displaying intriguing biodiversity often new to science.

Life in the open ocean is often concentrated in "oases" where copious plankton attracts larger animals to feed, breed and spawn. Their riches, coupled with the fact that they formally belong to no one, has left the High Seas open to increasing exploitation and habitat destruction. Effective governance is necessary to deal with issues facing the High Seas, as they represent one of the last frontiers that do in fact belong to everyone.

FISHERIES

Over 75% of the world's major fisheries are currently fully exploited, over-exploited, or depleted.

Around 3.5 million fishing boats use the world's ocean. Only 1% of these are classified as large, industrial vessels, capable of significantly reducing the capacity of some fisheries to ever recover. This sector of the world fishing fleet has the capacity to take around 60% of all the fish caught globally.

Around 15 million people work aboard fishing boats globally; 90% of them work from small-scale, non-industrialized vessels. There are relatively few large fishing vessels, but they dominate the global catch, forcing millions of small-scale operators to compete for heavily depleted stocks of fish.

Populations of large fish with high commercial value, such as tuna, cod, swordfish and marlin, have declined by as much as 90% in the past century.

QUOTES

"The rapid destruction of the coral reefs of the Indian Ocean demonstrates a need for more resilience in our management approaches."
Carl Gustaf Lundin: Head, IUCN Global Marine Programme.

"The world's oceans are increasingly under stress as coastal settlements expand and the exploitation of marine resources intensifies. Impacts on the High Seas are now mounting, and these too must be dealt with before it is too late."
Kristina M. Gjerde, High Seas Policy Advisor, author: Ecosystems and Biodiversity in Deep Waters and High Seas (UNEP, 2006).

"It is important that the protection of marine life and the oceans should not be a case of 'out of sight, out of mind'. Marine conservation is a matter of global priority and utmost urgency; it is time to reverse the trend of marine exploitation".
Mr. Valli Moosa, IUCN President.

"The world urgently needs a comprehensive system of Marine Protected Areas to conserve biodiversity and to help reverse the productivity of the oceans."
Graeme Kelleher: Author, Guidelines for Marine Protected Areas (1999). IUCN.

IUCN'S RESPONSE



The goal of IUCN's Global Marine Programme is to contribute towards conservation of marine biodiversity by promoting, influencing and catalysing sustainable uses and equitable sharing of the resources as well as protecting the ecosystems. The programme works closely with IUCN's World Commission on Protected Areas' (WCPA) marine working group to achieve these aims.

IUCN works to promote the establishment of **networks of representative systems of marine protected areas (MPAs)** to maintain and improve biodiversity and productivity in the ocean. In partnership with the World Bank and the Great Barrier Reef Marine Park Authority, IUCN led the preparation of the 1995 benchmark report "A Global Representative System of Marine Protected Areas", which outlines priority marine areas worthy of protection. Though debate continues on the effectiveness of Marine Protected Areas for fisheries management, increasing evidence indicates that they can contribute to the replenishment of fish stocks, particularly if no-take zones are part of the design.

In addition to its ongoing efforts to support MPAs in national waters, IUCN in conjunction with the WCPA High Seas MPA Task Force, is now working to secure a comprehensive and representative system of MPAs for the High Seas.

IUCN encourages nations to pursue better **international ocean governance** by ratifying and implementing important international agreements such as the UN Convention on the Law of the Sea and the related Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and by promoting international cooperation to improve sustainable and equitable use of ocean resources and biodiversity, including on the High Seas. UNEP and IUCN's forthcoming publication "Ecosystems and Biodiversity in Deep Waters and High Seas" (UNEP, 2006) outlines options, tools and good practices to strengthen international cooperation and action. On an ongoing basis IUCN also contributes to policy developments in a variety of intergovernmental meetings, bringing to bear well-founded, current scientific findings.

IUCN creates partnerships to achieve goals of **protection and sustainable use** of the ocean. A Large Marine Ecosystems Strategy for the Assessment and Management of International Coastal Waters has been initiated with the Intergovernmental Oceanographic Commission of UNESCO, other United Nations agencies, and the US National Oceanic and Atmospheric Administration (NOAA). This project aims at identifying Large Marine Ecosystems and linked watersheds of the world to improve sustainability of their resources. 64 Large Marine Ecosystems, each around 200,000km², cover the coastal waters of the world.

IUCN is tackling different issues related to **marine invasive species** particularly focusing on design of surveys and monitoring systems, setting risk assessment objectives and guidelines, and providing expert advice for developing congruent policies and regulations.

IUCN's involvement in the **Coral Reef Degradation in the Indian Ocean (CORDIO)** project will help assess the extent of coral bleaching, death and any signs of recovery, as well as the long-term ecological and socio-economic implications of coral reef degradation. Some areas of the Indian Ocean's reefs lost up to 90% of their living corals in early 1998 due to sustained above-average sea temperatures, the tsunami in 2004 further added to this stress, the reefs are increasingly degraded by over-exploitation and other human activities, and present trends in coral reef and mangrove health are pointing downward. IUCN is extending its partnership with CORDIO through increased collaboration on reef monitoring and research, developing mitigation and alternative livelihood options, education and awareness, and a geographic expansion to the Andaman Sea. The initiative will promote sound management of coastal and marine ecosystems and their resources, building resilience against future stress, and mitigating impacts of e.g. cyclones and climate change effects.

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MARINE GLOSSARY

Marine Protected Areas: “Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.” These are special places in our marine environment.

Exclusive Economic Zones: The United Nations Convention on the Law of the Sea defines coastal states as having territorial jurisdiction out to 12 nautical miles (n.m.) (22.22km) from a coastal baseline and an Exclusive Economic Zone up to 200 n.m. (370.4km) out.

High Seas: The water column beyond the territorial sea and Exclusive Economic Zones and the seabed Area beyond national jurisdiction are collectively referred to as the High Seas. In particular circumstances, a coastal state may exercise exclusive jurisdiction over seabed resources to the edge of the continental margin up to 350 n.m. (648.1km) from the baseline.

Coral Reefs: The most biologically diverse marine systems on our planet, and built by coral animals (polyps) and coralline algae that make hard skeletons of calcium carbonate, these “reefs” provide a myriad of habitats for around a million species of specialized animals and plants worldwide. The most spectacular and accessible coral reefs are found in the tropics in association with clear warm water and abundant sunshine, although new species are increasingly found with each journey to the deep sea. Cold-water coral reefs are located off the coasts of 41 countries as well as on seamounts and the mid-ocean ridge. Coral communities are sensitive to changes in temperature, and provide an indication of the forecasted changes in global climate.

Biological Diversity: “Biodiversity” means the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species and of ecosystems.

Ecosystem: A dynamic complex of plant, animal and micro-organism communities and their non-living environment as a functional unit.

TO LEARN MORE

IUCN Global Marine Programme (<http://iucn.org/marine>)

WCPA Marine (<http://wcpa.iucn.org/biome/marine/marine.html>)

SSC Marine (http://www.iucn.org/themes/ssc/our_work/marine/indexmarine.htm)

IUCN Marine Projects (http://www.iucn.org/themes/marine/marine_projects.htm)

GMP Newsletter (http://www.iucn.org/themes/marine/gmp_newsletter.htm)

Large Marine Ecosystems of the World (<http://www.edc.uri.edu/lme/>)

The Global Coral Reef Monitoring Network (<http://www.coral.noaa.gov/gcrmn/>)

United Nations Atlas of the Oceans (<http://www.oceansatlas.org/index.jsp>)

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