

17 Bay of Bengal

Overview

The Bay of Bengal is located on the northeastern part of the Indian Ocean. It is bordered by Sri Lanka and India on the west, Bangladesh on the north and Myanmar on the east. The Andaman and Nicobar Islands along the eastern boundary separate the Bay from the adjacent Andaman Sea.

The Bay receives inflows from many large rivers, often passing through large cities before discharging into the Bay. Also, these large rivers contain huge amounts of sediment, creating large fertile deltas, most notably along the Indian and Bangladesh coastlines.

< <http://omp.gso.uri.edu/doee/science/descript/bengal1.htm> >

Location



Basic information

Surface area :

approx. 2 million km²

Nature

< Background >

The Bay of Bengal is located in the tropical monsoon belt. Its environment is strongly affected by monsoons, storm surges and cyclones. Major rivers (the Ganges, Brahmaputra, Meghna, Mahanadi, Godavari, Krishna and Salween) introduce large quantities of freshwater and silt into the Bay, especially during the monsoon season, from July to September. Over 200 km³ of water is drained from the major rivers during this season. This water strongly influences the Bay's hydrological characteristics by producing a warm, low-salinity, nutrient and oxygen-rich layer to a depth of 100 m that stretches over a distance of 1,500 km from the northern shore. Silt from these rivers has created large sandbars near the rivermouths, which has turned the Bay into a shallow sea, especially off the coast of Bangladesh. Approximately 2.5 billion tonnes of sediment are discharged from the Ganges River annually. In deeper waters, high-salinity, low-temperature and low-oxygen waters persist through the year.¹

< <http://na.nefsc.noaa.gov/lme/text/lme34.htm> >

< <http://omp.gso.uri.edu/doee/science/descript/bengal1.htm> >

Satellite photo of Bangladesh, showing the convergence of the Ganga (left) and Meghna (right) rivers before emptying into the Bay of Bengal.



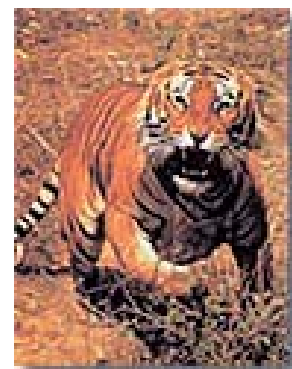
< <http://omp.gso.uri.edu/doee/science/descript/bengal2.htm> >

< Surrounding environment >

The Bay of Bengal is surrounded by several important biological habitats. One of these is the Sundarbans, an extremely large estuarine delta of the Ganges River that contains one of the largest continuous mangrove stretches in the world. The area supports a wide diversity of wildlife, including the endangered Royal Bengal Tiger colony. An area of 1,330 km² in the delta has been declared as a national park and world heritage site, and supports a tiger population of 287 (1984 census).

< <http://na.nefsc.noaa.gov/lme/text/lme34.htm> >

< <http://omp.gso.uri.edu/doee/science/descript/bengal1.htm> >



< <http://www.bengalinet.com/bengaltiger1.htm> >

History and Culture

< Ganges River >

The Ganges River is most famous as a religious and spiritual center for the people of India. It is used as baptizing and memorial sanctuaries. Babies are baptized in the river because people believe it cleanses the soul of the child. For the same reason, the remaining ashes of a person following cremation are released into the river.

The Ganges River also plays a very important role in the normal daily lives of many Indian people. The River is one of the only sources of water for people who can't afford running clean water, and it is commonly used for washing clothes. It is also used as a mass-bathing hole, with over 10 million daily bathers. However, since the River has poor hygienic conditions, partly due to the above activities, many people have been affected by water-borne diseases.

< <http://web.bryant.edu/~langlois/ecology/gangeshistory.htm> >

Social Environment

< Population >

A quarter of the world's population resides in the countries bordering the Bay of Bengal. Approximately 400 million people live in the Bay's catchment area, with a large proportion living in the large coastal cities.

< <http://na.nefsc.noaa.gov/lme/text/lme34.htm> >

< **Industry** >

The major industries that are directly dependent on the Bay of Bengal are tourism, coastal fisheries and coral and sand mining for use in construction.

Fisheries

Fisheries are of major socioeconomic importance to all countries bordering the Bay, as the industry provides direct employment to over 2 million fishermen. The main commercial fish species are shrimp, tuna, yellowfin, big eye and skipjack, with shrimp being the major export earner. The fish catch in the Bay of Bengal was 1.9 million tons in 1981 and 2.4 million tons in 1987. However, there are signs that harvest levels may not be sustainable, especially with regard to tuna fishing. Aquaculture operates intensively along the coast, with over 200,000 fish farmers currently involved, and the industry is expected to expand.

Most of the countries surrounding the Bay are weak in developing clear policies, appropriate strategies and the sustainable management of fishery resources. Following, are some of the problems facing the fishing industry in the Bay of Bengal.

- Increased competition and conflicts between artisanal and large-scale fisherman.
- An alarming increase in cyanide fishing in the coral reefs, caught for the lucrative live-food fish markets in Hong Kong and Singapore.
- Mangroves and estuaries, which are important fish spawning and nursery grounds, are threatened by pollution, sedimentation, dam construction (in Bangladesh) and intensive coastal aquaculture.

< <http://na.nefsc.noaa.gov/lme/text/lme34.htm> >

Environmental Problems

< **Current status** >

Compared to the other enclosed seas, pollution in the Bay of Bengal tends to be localized. This is due to circulation patterns that link the Bay to the Indian Ocean. Even so, the large rivers discharge vast amounts of pollutants into the Bay, including pesticides and industrial waste. Approximately 1,800 tonnes of pesticides enter the Bay of Bengal annually, with high concentrations recorded along the coast, particularly near cities and ports.¹

Oil pollution, offshore oil and gas exploration, and seabed mining are among the sea-based sources of pollution. There is heavy oil-tanker traffic between Japan and the Middle East, with the main shipping route passing through the Arabian Sea and south of Sri Lanka, before entering the Straits of Malacca via a passage below the Nicobar Islands. For this reason, tanker accidents that could result in major oil spills are a constant concern.

< <http://na.nefsc.noaa.gov/lme/text/lme34.htm> >

< **Environmental Protection Measures** >

The countries of the Bay of Bengal need to address a range of trans-boundary problems in the areas of fisheries, oil-spill planning, legal and institutional reviews and pollution-control measures. They need to implement regional agreements and harmonize their legislation. The sheer number of government departments that would need to be consulted and involved makes this a complex endeavor. On the whole, the region lacks enforcement capabilities and sound resource management practices, but areas of cooperation already exist that could be expanded to cover the whole Bay region. A multitude of international, regional and sub-regional institutions operate in the Bay of Bengal, many of which have similar mandates that currently result in overlap and duplication.

An important proponent for change is the Bay of Bengal Program (BOBP), a regional fisheries project executed by FAO, which became operational in 1979. It promotes sound and systematic fisheries management practices to all the fishermen (including artisanal fisherman) of all Bay of Bengal countries except Myanmar.

< <http://na.nefsc.noaa.gov/lme/text/lme34.htm> >

Related organizations and NGOs

Major international organizations of the area are listed below.

- Bangladesh, India, Myanmar, Sri Lanka, Thailand Economic Cooperation (BIMST-EC)
- South Asian Association for Regional Co-operation (SAARC)
- United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
- South Asian Co-operative Environment Programme (SACEP)
- UNEP Regional Coordinating Unit for East Asian Seas
- Indian Ocean Marine Affairs Co-operation (IOMAC)

Fisheries organizations include the following.

- Indian Ocean Fisheries Commission (IOFC)
- Indian Ocean Tuna Commission (IOTC)
- International Forum for the Indian Ocean (IFIOR)
- Indian Ocean Rim Initiative
- Asia-Pacific Fishery Commission (APFIC)
- Network of Aquaculture Centres for Asia (NACA)

< <http://na.nefsc.noaa.gov/lme/text/lme34.htm> >

References

1. UNEP (2002). Global Environmental Outlook 3. United Nations Environment Programme. London and New York, Earthscan