14 Gulf of California

Overview

The Gulf of California, also known as the Sea of Cortez, is a semi-enclosed sea bordered by Baja California and mainland Mexico. It is long and narrow, and opens into the Pacific at its southern end.

The Gulf of California is renowned for its rich and diverse marine life and beautiful landscape, making this area popular with many tourists as a marine recreation area for scuba diving, fishing and snorkeling.

Location

Basic information

Surface area：approx.170,000 km^2

Maximum depth：over 2,000 m

Nature

< Background >

The southern region of the Gulf is deep and slopes towards the 2,000 m deep Guaymas Trench. The Trench has volcanic and hydrothermal vents that support biotic communities which are dependant on hydrogen sulfide, rather than sunlight, for energy. The northern part of the Gulf is shallow, with depths ranging from 0 to 200 m, due to the large amount of silt deposited over the millennia by run-off from the Colorado River. However, nowadays this river rarely flows into the Gulf.

Winds, tidal action and upwelling characterize the Gulf's physical environment. It has mixed semi-diurnal tides and one of the greatest tidal ranges on earth, particularly in the northern region. In the northern Gulf, the distance between the highest and lowest tide covers up to 4 km horizontally and as much as 9 meters vertically.

< http://na.nefsc.noaa.gov/lme/text/lme4.htm >

< Surrounding environment >

The Gulf of California is a highly productive ecosystem. The Gulf's topographical characteristics, the large amount of sunlight and the nutrients provided by upwelling allow high primary productivity throughout the Gulf. The high primary productivity supports sardines and anchovies, which are in turn the main foods for squid, fish, marine birds and marine mammals (sea lions, fin whales, dolphins, orcas and elephant seals). The ecosystem serves as a nursery ground for the gray whale and supports stocks of anchovies and small clupeids. The islands serve as breeding areas for marine birds and mammals. For example, much of the world's populations of the widely-distributed Heermann's gull (*Larus heermanni*), terns (*Sterna maxima*) and the California sea lion breed in the Gulf of California. The northern gulf has many endemic species, including populations of the vaquita, an endangered harbor porpoise, and the totoaba, a large endangered fish.

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History and Culture

< History >

The Gulf of California is one of the youngest ocean bodies in the world. It was formed by the separation of the North American and the Pacific plates by tectonic movement.

Social Environment

< Industry >

▶Fisheries

Fisheries in the Gulf of California are significant in providing food for millions of Mexicans. Major commercial fish species of the Gulf are the Gulf grouper, sardines, anchovies, squid, yellowfin, roosterfish, wahoo, dorado, amberjack, sailfish, blue marlin and striped marlin.

In the past, fishing was conducted on a relatively small scale using hook-and-line equipment. To increase catch, fishermen started to use large boats and shifted towards more efficient fishing methods, such as by gill nets, longlines and trawling. Although fish catch increased with these methods, there has been a reduction in the abundance of many fish species.

< http://na.nefsc.noaa.gov/lme/text/lme4.htm >

Environmental Problems

< Current status >

Human activities are altering the Gulf's ecosystems. The decrease of Colorado River freshwater input has drastically changed the ecological conditions of what used to be an estuarine system, important for fish reproduction. It is now an area of high salinity.

Pollution problems are mostly concentrated in the mid to upper Gulf, with significant pesticide inputs from the agricultural areas in the state of Sonora. However, the main issue affecting ecosystem health has been the increase in fishing vessels and the improvement in fishing equipment, from small pangas, handlines and spearguns to more efficient gill nets, trawls and longlines. Species in danger of economic extinction in the Gulf include the cabrilla, black and white seabass, Gulf grouper, yellowtail, dog snapper and sierra. Sea turtles, hammerhead

sharks and giant manta rays are virtually gone.

< http://na.nefsc.noaa.gov/lme/text/lme4.htm >

< Environmental Protection Measures >

Frustrated by decades of overfishing and mismanagement, Mexican people are making a stand for greater local control over the Gulf's marine resources, and more law enforcement and integrity in the government. In 1998, Mexican President Ernesto Zedillo asked the governors of the four states bordering the Gulf to prepare a plan for the regional, long-term use of its resources. The move indicated a shift from economic exploitation to environmental protection and a loosening of the federal government's historic control over the region. Initiatives by local residents aim to safeguard the coast from poaching, promote marine conservation and work for local control over fish and shellfish. Currently, there are 2 marine parks — the Cabo Pulmo National Marine Park and the Loreto National Marine Park.

The United States is providing financial assistance for the environmental protection of the Gulf. Mexican NGOs, such as The Sea of Cortez International Preservation Foundation, seek to motivate change in policies for the purpose of preserving the biodiversity and ecological balance of the Gulf. Effective management needs good data, and current information on catch and effort by area and gear type is very limited. A program for collecting and analyzing such data from both the recreational and commercial sectors is required.

Furthermore, to sustain the health of the ecosystem, there is a need to develop public educational materials, an ecotourism-based economy, to seek stronger legislation and regulations prohibiting the use of certain types of fishing equipment and to form policy and management strategies for utilizing the Gulf.

< http://na.nefsc.noaa.gov/lme/text/lme4.htm >

▶Related organizations and NGO

- Sea of Cortez International Preservation Foundation — Non-profit foundation dedicated to conserving the Gulf of California < http://www.mexicofile.com/seaofcortezfoundation/ >