

GREAT BARRIER REEF (GBR)

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Context:

An adversely changing climate and rising sea surface temperatures (SST) have exposed the Great Barrier Reef (GBR) to its highest temperature in more than 400 years and pose an existential threat to the world heritage site.

Background:

Scientists in their recent assessment have found that the ocean temperatures at the reef are hottest in the past 407 years and threaten the ecosystem that is larger than the size of Italy.

About Coral Reefs:

1. Coral reefs are diverse underwater ecosystems formed by colonies of tiny marine animals called coral polyps.
2. They are often referred to as the “rainforests of the sea” due to their rich biodiversity, supporting around 25% of all marine species. This is a remarkable statistic given the fact that reefs cover just a tiny fraction (less than one percent) of the earth’s surface and less than two percent of the ocean bottom.
3. Coral reefs provide vital ecosystem services, including coastal protection, tourism, and fisheries.

Formation:

1. Coral polyps secrete calcium carbonate, which accumulates over time to form the hard structures of reefs.
2. Reefs thrive in warm, shallow waters with plenty of sunlight, typically found in tropical and subtropical regions.
3. The Indo-Pacific region account for 90.9% of world’s reef area while the Atlantic-Caribbean and Eastern Pacific regions account for 7.6% and 0.5% respectively.
4. With a highly skewed distribution, Indonesia and Australia alone account for 35% of the world’s reef area.
5. High near shore turbidity and freshwater runoff from rivers, limit reef development and thus the Indian Subcontinent has a scanty growth of reefs along the coastline.

Coral reefs are mainly found to have three characteristic structures:

1. Fringing reef- reefs grow close to the shore, forming the border of the continents and project seaward (fringing reefs are found in Gulf of Mannar, Palk bay and in Andaman and Nicobar Islands of India);
2. Barrier reef- separated from the main land mass by a lagoon or a narrow region of sea, like the Great Barrier Reef in Australia;

3. Atoll- the low reefs mostly oval or circular ring in shape enclosing a lagoon (Atolls in India are mainly found in Lakshadweep islands)

The Great Barrier Reef:

1. Location: The Great Barrier Reef (GBR) is located off the northeastern coast of Australia, in the Coral Sea.
2. It is the largest coral reef system in the world, stretching over 2,300 kilometers.
3. The GBR is home to thousands of species, including over 1,500 species of fish, 400 types of coral, and numerous species of sharks, rays, and marine mammals.
4. It also hosts several endangered species, such as the dugong and large green sea turtle.
5. World Heritage Status: Designated a UNESCO World Heritage site in 1981 for its outstanding universal value and exceptional natural beauty.



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