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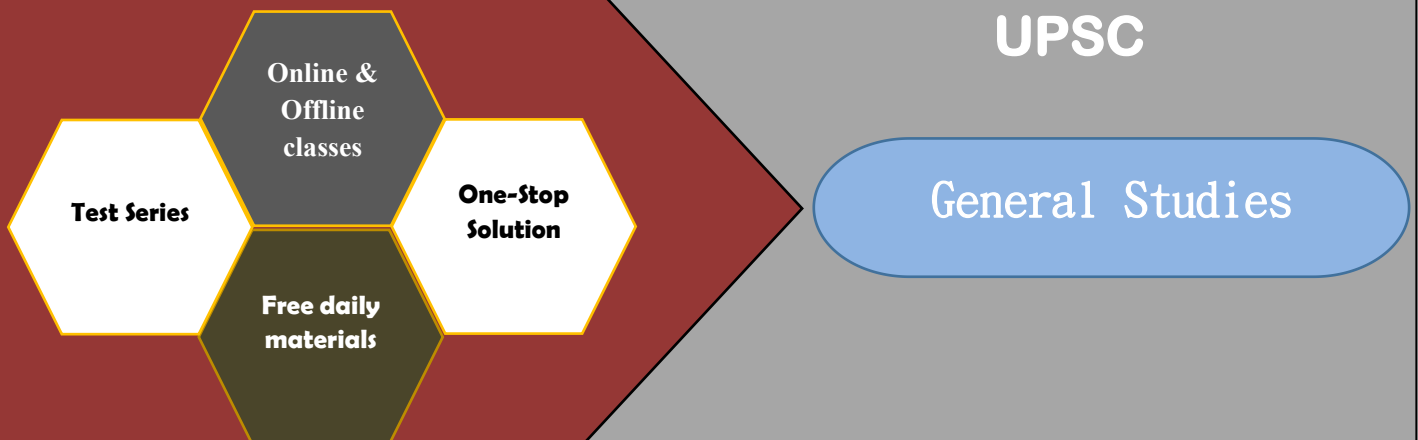
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Great Barrier Reef

Notes for civil services preparation



Great Barrier Reef

- Recently, the **UNESCO World Heritage Committee** has recommended that the Australia's Great Barrier Reef should be added to a list of **"in danger" World Heritage Sites**.
- Placement on the **"in-danger list"** is **not** considered a **sanction**.
- Some nations have their sites added to **gain international attention** and **help to save them**.

Key Points

Reason behind this Move:

- It was recommended to add to the list because of the **impact of climate change**.
- Despite **Reef 2050**, the **coral reef ecosystem** has suffered three major **bleaching** events since 2015 due to **severe marine heatwaves**.
- The **Reef 2050 Long-Term Sustainability Plan** is the **Australian and Queensland Government's** overarching framework for protecting and managing the Great Barrier Reef by 2050.
- When corals face stress by changes in conditions such as temperature, light, or nutrients, they expel the symbiotic algae zooxanthellae living in their tissues, causing them to turn completely white. This **phenomenon** is called **coral bleaching**.
- **Marine heatwave** is an event of anomalous warm sea surface temperatures (SST) from several days to years.

Repercussions:

- It prompted environmental groups to take aim at the Australian government's reluctance to take stronger climate action.
- Australia, which is one of the **world's largest carbon emitters per capita**, has remained reluctant to commit to stronger climate action and has cited **jobs as a major reason to back the country's fossil fuel industries**.
- It has not updated its climate goals since 2015.

About Great Barrier Reef:

- It is the **world's most extensive** and spectacular **coral reef ecosystem** composed of over 2,900 individual reefs and 900 islands.
- The reef is located in the **Coral Sea (North-East Coast)**, off the coast of Queensland, Australia.
- It can be seen from outer space and is the world's biggest single structure made by living organisms.
- This reef structure is composed of and built by billions of tiny organisms, known as **coral polyps**.
- They are made up of **genetically identical organisms** called **polyps**, which are tiny, soft-bodied organisms. At their base is a hard, protective limestone skeleton called a calicle, which forms the structure of coral reefs.
- These polyps have **microscopic algae called zooxanthellae** living within their tissues. The corals and algae have a mutualistic (symbiotic) relationship.
- It was selected as a **World Heritage Site in 1981**.

Initiatives to Protect Corals:

- A number of global initiatives are being taken to address the issues, like:

International Coral Reef Initiative

- Global Coral Reef Monitoring Network (GCRMN)
- Global Coral Reef Alliance (GCRA)
- **The Global Coral Reef R&D Accelerator Platform**
- Similarly, the **Ministry of Environment and Forests and Climate Change (MoEF&CC), India** has included the studies on coral reefs under the **Coastal Zone Studies (CZS)**.
- In India, the **Zoological Survey of India (ZSI)**, with help from Gujarat's forest department, is attempting a process to restore coral reefs using "**biorock**" or **mineral accretion technology**.
- **National Coastal Mission Programme**, to protect and sustain coral reefs in the country.

Coral Reef

Largest Coral Reef Area:

- **Indonesia** has the **largest coral reef area in the world**.
- **India, Maldives, Sri Lanka and Chagos** have the **maximum coral reefs in South Asia**.
- The **Great Barrier Reef of the Queensland coast of Australia** is the **largest aggregation of coral reefs**.

Coral Reef Areas in India:

- India has four coral reef areas: **Gulf of Mannar, Andaman and Nicobar Islands, Lakshadweep islands** and the Gulf of Kutch.

Benefits:

- Protect humanity from natural calamities.
- Provide revenue and employment through tourism and recreation.
- Provide habitats for fishes, starfish and sea anemones.

Use:

- They are used in jewellery.
- Coral blocks are used for buildings and road construction.
- The lime supplied by corals is used in cement industries.

Threats:

- Due to **anthropogenic activities** such as coastal development, destructive fishing methods and pollution from domestic and industrial sewage.
- Due to **increased sedimentation, over-exploitation and recurring cyclones**.
- **Coral diseases** such as **black band and white band** due to infectious microorganisms introduced by the human population that live on the coastal regions.

Role of Mangroves:

- **Mangrove forests** play a crucial role in **helping the coral reef system** by acting as filters and providing protection from **cyclones**, storms and tsunamis.

