Fourth Global Coral Bleaching

Prelims – *General issues on Environmental ecology, Bio-diversity*

Mains (GS III) – *Environmental Conservation, environmental pollution and degradation.*

Why in news?

Recently, scientists have confirmed that the world is experiencing its fourth global coral bleaching event, which has affected nearly 84% (83.7%) of the planet's coral reef area.

- **Coral reefs** – A coral reef is ***an underwater ecosystem*** formed of colonies of coral polyps.
- They are referred to as ***Rainforests of the sea*** and it supports 1/3rd of global marine species.
- **Symbiotic Relationship** – Corals rely on microscopic algae (zooxanthellae) living in their tissues, which provide food and energy through photosynthesis.
- **Global Distribution** – Coral reefs exist in the *Pacific, Atlantic, and Indian oceans*.
- ***Australia's Great Barrier Reef*** is the largest in the world.
- **Coral bleaching** – It is caused when the when reef water remains too hot for too long, putting corals under stress.
- The stress compels corals to expel marine algae (zooxanthellae) residing inside their tissues.
- These algae provide food and energy from the sun through photosynthesis.
- Once the algae are expelled, corals turn white (bleaching), exposing their skeleton and makes corals vulnerable to diseases.
- Prolonged and extreme heat exposure leads to *coral mortality*.
- Corals can recover from bleaching in conducive environments, but recovery can take years or even decades.
- **Global bleaching events** – It is the widespread mass bleaching of Coral reefs that affects coral reefs area globally.
    - **1st global coral bleaching event (1998)** - 21%
    - **2nd global coral bleaching event (2010)** - 37%
    - **3rd global coral bleaching event (2014-2017)** - 68%
    - **4th global coral bleaching event (2023-2025)** - 83.7%
- Mass coral bleaching has been recorded in at least *83 countries and territories.*
- This is the most widespread global bleaching event surpassing the previous global bleaching event.
- **Causes** – Record high ocean temperatures that remains elevated over a period of time across the Pacific, Atlantic, and Indian oceans.
- Climate models predicts that nearly every coral reef on the planet will experience annual bleaching events between 2040 and 2050.

- The Great Barrier Reef is currently undergoing its *6th mass bleaching event*, with its *1st mass bleaching occurred in 1998*.
- This is the 2nd time the Great Barrier Reef has experienced consecutive bleaching events, with the first being in 2016-17.

Reference

Down to Earth| Mass Global Bleaching Event

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