



CURRENT AFFAIRS



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YELLOW BANNED DISEASE DAMAGES THE CORAL REEFS

This article covers “Daily current events “and the topic is ‘Yellow banned Disease Damages Coral Reefs’ which is in news, it covers the “Environment and ecology” In GS-3, and the following content has relevance for UPSC.

For Prelims: About yellow banned disease, Coral reefs

For Mains: GS-3, Environment disease

Why in news:

- According to recent reports, Thailand’s enormous tracts of the ocean floor are being destroyed by a condition known as yellow band disease that is fast spreading.
- The reefs may be more susceptible to yellow-band disease as a result of overfishing, pollution, and rising water temperatures brought on by climate change, according to scientists.

ABOUT HOW YELLOW BAND DISEASE HARMS THE CORAL REEFS

- The yellow-band disease, so named because of the color it gives corals before it kills them, was discovered decades ago and has severely damaged Caribbean reefs. No known treatment exists.
- Several environmental stressors, such as rising water temperatures, pollution, sedimentation, and increasing competition for resources from other organisms, contribute to the development of the Yellow Band illness.
- These elements may weaken the coral and increase its susceptibility to bacterial and fungal infections.
- Contrary to the consequences of coral bleaching, the impacts of the disease cannot be reversed.

ABOUT: CORALS

- Corals are marine invertebrates that belong to the phylum Cnidaria's class Anthozoa.
- Typically, they are found in dense colonies made up of several, similar polyps.
- Coral polyp colonies make up the underwater ecosystems known as coral reef
- In their tissues, zooxanthellae, a kind of photosynthetic algae, coexist with coral polyps in a symbiotic relationship.
- Through photosynthesis, these algae give the coral energy, while the coral gives the algae the substances they require for growth as well as a safe environment.

A CORAL REEFS

- Millions of microscopic polyps that form massive carbonate structures are what give rise to coral reefs. The biggest living thing on the planet and the only ones that can be seen from space are coral reefs.
- Corals can be found in both shallow and deep waters throughout the oceans of the world, but reef-building corals can only be found there. This is because the algae found in their tissues prefer water temperatures between 22 and 29 °C and require sunshine for photosynthesis.
- There are also deep-water corals that may survive up to 20,000 feet below the surface in chilly, gloomy water (6,000 m). In the deep ocean, you can find both stony corals and soft corals. The same algae are not present in deep-sea corals,
- While deep-sea corals don't have the same algae and can survive without sunlight or warm water, they also grow very slowly. They can be discovered, for example, on seamounts, which are underwater peaks.

VARIOUS CORAL TYPES

- Barrier, fringing, and atoll coral reefs are the three main varieties.
- Fretting reefs are the most prevalent type of reef. This kind of reef develops in the ocean straight from the coast. Along the coastline and adjacent islands, they create borders.
- An atoll is created when a volcanic island completely submerges below the surface and a fringing reef continues to grow upward from it. Atolls typically have an open lagoon in the center of a circle or an oval shape.
- In that they likewise surround a shoreline, barrier reefs are similar to bordering reefs; however, they are separated from the land by a body of water as opposed to extending outward from the shore. As a result, between the reef and the beach, there is a lagoon of open, frequently deep water.
- The world's largest coral reef system is located in Indonesia. South Asia's coral reefs are most abundant in India, the Maldives, Sri Lanka, and the Chagos Islands. The Great Barrier Reef, which stretches 1,931 kilometers in length and varies in width from 16 to 322 kilometers off the Queensland coast of Australia, is the biggest collection of coral reefs.

Significance

- Ecological Relevance A varied range of plant and animal species can find a home on the coral reef, one of the planet's most productive and diverse ecosystems.
- By absorbing carbon dioxide and defending coasts from erosion and storm damage, they also play a crucial part in regulating the planet's temperature.
- Coral reefs are important economically because they support several sectors like fishing, tourism, and recreation. They also offer information on biotechnology and medicine.
- Coral reefs absorb wave energy, safeguard coasts, and lessen the effects of storms and sea level rise, acting as natural buffers against the effects of climate change.
- **Biodiversity:** Fish, sharks, crustaceans, mollusks, and a wide variety of other marine life can be found in coral reefs. They are regarded as the ocean's rainforests.

Threats

- Ocean acidification and coral bleaching are two effects of climate change that coral reefs are particularly susceptible to.
- Coral bleaching is when the algae (zooxanthellae) residing in the coral polyps' tissues are expelled, turning the coral white.
- **Pollution:** Sewage, agricultural runoff, and industrial discharge are just a few of the pollutants that harm coral reefs.
- These contaminants can damage the general health of the reef ecosystem and bring about coral illness and death.
- **Overfishing:** Overfishing has the potential to upset the delicate ecosystems of coral reefs, which could result in a drop in coral populations.
- Coastal development can harm coral reef and worsen the condition of the reef ecosystem as a whole. Examples include the building of ports, marinas, and other infrastructure.
- Coral reefs are also in danger from invasive species, such the lionfish, which can displace local species and upset the ecosystem's general balance.

PRESERVATION OF CORALS

- Tech-Related Intervention
- **Cyromesh:** Can be used to store coral larvae at -196°C.
- Coral larvae can be kept in Cyromesh at -196°C and eventually released back into the wild.
- **Biorock:** the construction of coral-friendly artificial reefs
- National Coastal Mission Programme in India
- International Initiative for Coral Reefs
- A platform for Global Coral Reef R&D Acceleration.

Way ahead

- Around the world, up to 10% of coral reefs have deteriorated, and another 30% are predicted to vanish within the next 20 years. If suitable conservation and management measures are not implemented, all coral reefs in the Indo-Malayan region risk extinction over the next 40 years, according to researchers.
- For the effective management of coral reefs, an integrated coastal management plan is urgently required. A law is required to shield them from human-made activity.
- Coral overexploitation must be strictly controlled, and fishing practices that harm corals must be outlawed.
- Domestic sewage, industrial waste, chemical, and fertilizer pollution ought to be curbed. Boats should not be anchored in locations with coral reef present.
- Mangrove forests serve as filters and shield the coral reef system from cyclones, storms, and tsunamis, which is why they are so important. Mangrove forest destruction in reef zones ought to be outlawed. The local community might be enlisted to help with the planting of mangrove species in reef zones.
- Fishermen and other members of the local community should be made aware of the value of coral reefs by the relevant authorities. Students in schools and colleges should be taught about the coral reef's significant ecological merits and other advantages.

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