Black Band Disease (BBD)

Prelims: *Current events of national and international importance | Ecology & Environment*

Why in news?

A recent study reveals that heat stress combined with a rare disease has wiped out 75% of Goniopora coral colonies on Great Barrier Reef.

> ***Goniopora corals*** *– Commonly known as flowerpot/daisy corals, are a genus of colonial stony corals found throughout the Indo-Pacific in lagoons and turbid water conditions.*

- **Black Band Disease –** It is a severe, globally occurring ***coral disease*** characterized by a ***visible black, expanding band*** that degrades coral tissue, leading to tissue death and bare skeleton.
- **Caused by –** Consortium of microbes such as
  - **Cyanobacteria** (photosynthetic, toxin-producing).
  - **Sulfate-reducing bacteria (SRB)** (thrive in oxygen-free zones).
  - **Sulfide-oxidizing bacteria (SOB)** (use chemical energy).
- Together, they create ***toxic sulfides and anoxic conditions***, leading to coral tissue death.
- **Historical Context –** 1st reported by Antonius (**1973**) in Belize, Caribbean.
  - BBD is common in the Caribbean but historically rare in the southern Great Barrier Reef,
- It was distinguished from other coral diseases (white plague, white band) by its visible microbial biomass.
- **Environmental triggers –** The incidence of this disease is associated with ***sharp rises in sea surface temperature & nutrient pollution***, driven by environmental stressors like ocean warming and contamination.
- **Symptoms**
  - **Black Band Formation** – A distinct, dark, tar-like band appears at

the leading edge of the infection.
    - **Tissue Degradation** – The band moves across the coral, completely consuming the living tissue.
    - **Exposed Skeleton** – Behind the band, the white coral skeleton is left exposed.
- **Treatment –** The BBD is ***manually treated*** by removing the infected tissue and microbial mat.
- **Prevention –** Reducing stressors like pollution and addressing climate change to lower water temperatures are crucial for prevention.
- **Impact**
    - **High virulence** – BBD is a highly virulent disease that can rapidly kill coral colonies.
    - **Widespread threat** – It affects numerous coral species and reefs globally, impacting reef health.

References

1. Down to Earth | Black Band Disease (BBD)
2. Springer Link | Black Band Disease (BBD)

SHANKAR IAS PARLIAMENT
Information is Empowering