

Revival of Bleached Corals

Prelims: Current events of national and international importance | Environment

Why in News?

Recently, new experiments highlight active recovery pathways for corals that have already expelled their symbiotic algae.

Key Findings

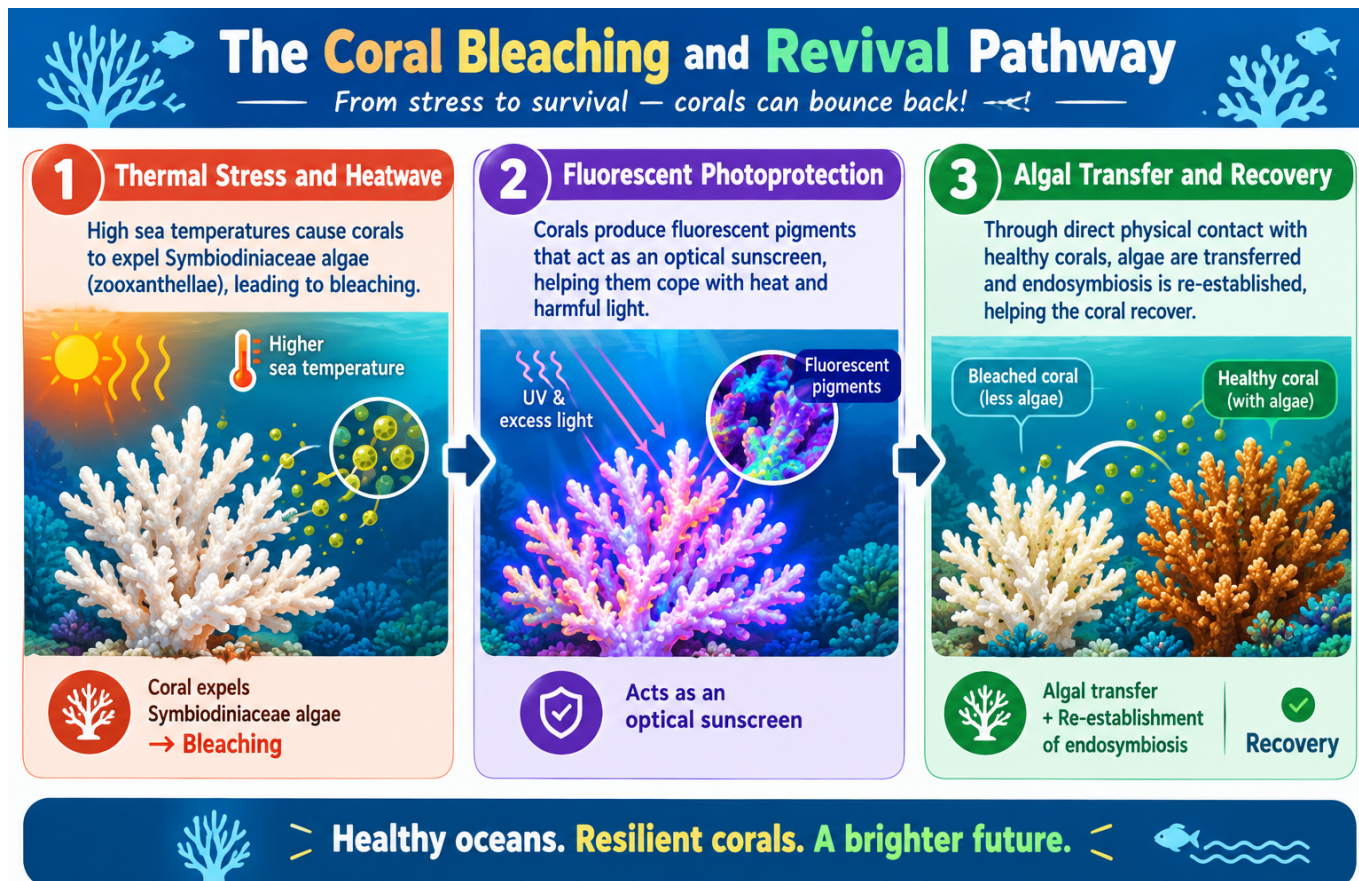
- **Physical Contact & Algal Transfer**
 - Researchers demonstrated that placing bleached corals in direct physical proximity or contact with unbleached, healthy specimens allows for the transfer of **symbiotic microalgae (Zooxanthellae / Symbiodiniaceae)**.
 - This re-introduces the photosynthetic engine necessary for the coral animal's long-term survival and nutrient uptake.
- **Colorful Bleaching**
 - When corals expel algae, excess light bounces off the stark white calcium carbonate skeleton, causing severe internal light stress.
 - In response, corals produce vibrant fluorescent pigments—acting as an "optical sunscreen".
 - This photoprotective layer creates a favorable light environment inside the tissue, aiding the return and survival of newly acquired algal symbionts.

Indian Context

- India features four major coral reef regions, all of which face heightened stress due to marine heatwaves (exacerbated by events like El Niño).
- **Lakshadweep Archipelago** - Ring-shaped coral atolls exceptionally vulnerable to rising sea surface temperatures.
- **Andaman and Nicobar Islands**- Rich fringing reefs, including those inside the **Mahatma Gandhi Marine National Park**.
- **Gulf of Mannar & Palk Bay (Tamil Nadu)** - Diverse fringing and patch reefs.
- **Gulf of Kutch (Gujarat)** - High-turbidity, shallow coral communities.

Significance for Coral Conservation Policy

- **Active Restoration** - Offers a novel scientific paradigm—moving beyond static protection or shading to active biological rescue and assisted re-symbiosis.
- **Reef Rehabilitation Tool** - Could inform future marine nursery designs where healthy "donor" corals are co-cultured alongside bleached corals to accelerate ecosystem recovery following marine heatwaves.



Reference

[The Hindu | Bleached corals brought back to luminous life](#)



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