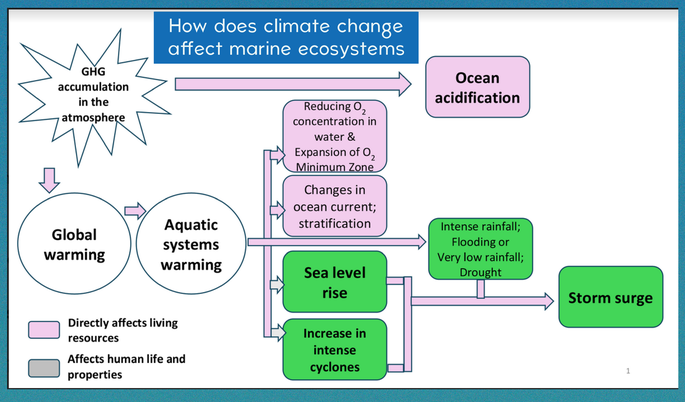
CLIMATE CHANGE IN INDIA: WHAT DO WE KNOW AND HOW?

CLIMATE CHANGE EXACERBATES ISSUES IN MARINE ECOSYSTEMS AND FISHERIES

Marine ecosystems are affected by weather changes in temperature, wind and precipitation patterns; ocean acidification, changes in salinity and seawater temperature; changes in ocean currents and tides and increasingly intense cyclones. These factors impact distribution, abundance, growth, reproduction and mortality of marine organisms.

Coral reefs are an indicator of climate change impacts. Our studies on corals in the Indian seas show that as seawater temperatures rise, mass coral bleaching events and infectious coral disease outbreaks are becoming more frequent, leading to their mass mortality.





Bleached (white) coral from Lakshadweep. If the temperature remains above normal for more than 15 days, they will die.

Since most marine animals are cold-blooded, they are sensitive to ambient temperature. For example, we have found seawater temperature rise has affected the distribution and biological characteristics of Sankara (Threadfin Bream). Changes in fish distribution, growth and reproduction have impacted seafood security and economies in India.



Sankara fish (Threadfin Bream fish)

Such changes are expected to disrupt fish resource distribution and abundance, timing and locations of fishing, preservation, marketing and consumption. This will exacerbate the existing negative effects of pollution and unsustainable fishing practices on fish stocks and marine ecosystems.

While we need to improve our understanding about climate change impacts to marine systems, there is also an urgent need to combine climate change adaptation measures with conventional fisheries and ecosystem management.

CONTRIBUTOR

E Vivekanandan,
Bay of Bengal Programme Inter-Governmental Organisation

REFERENCES

Thermal thresholds for coral bleaching in the Indian seas, 2008. Vivekanandan, E and others. The Marine Biological Association of India.
Vulnerability of corals to warming of the Indian seas: a projection for the 21st century, 2009. Vivekanandan, E and others. Current Science.
Impact of rise in seawater temperature on the spawning of threadfin breams, 2009. Vivekanandan, E. and M. Rajagopalan. Global Climate Change and Indian Agriculture (ed. P.K. Aggarwal), ICAR, New Delhi

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