

## Competitive Exams: Current Affairs 2011: Dead water zones

### Dead Water Zones

- Levels of dissolved oxygen in the tropical oceans are dropping at a rate that threatens the survival of fish and other marine organisms. This reduction is seen off the coast as well as further away from the land where the water-depth exceeds 1, 500 metres. The dead zones 'off the coast are primarily the result of booms in phytoplankton growth due to nitrogen-rich fertilizers leaking from agricultural lands. If the incidence of hypoxia (low dissolved oxygen) has risen ten-fold globally in the past 50 years, the jump is nearly 30-fold in the case of the United States' coastal waters. The Pacific coast has witnessed a sixfold increase in the number of hypoxic sites in the last 20 years. A recent study (Scientific assessment of hypoxia in US coastal waters) by key US federal agencies reveals that nearly half of the 650 waterways covered are experiencing hypoxic conditions. Particularly worrying is the reconfirmation of hypoxic condition in the waters off Oregon and Washington, the second largest hypoxic region in the US and the third largest in the world. The inner continental-shelf waters off Oregon, which exhibit hypoxic conditions only during summer, have no nutrient supply. Climate change may be the cause, as warming reduces solubility of oxygen, thereby affecting the mixing of warmer surface water with deeper oxygen-deficient water. But a definite link cannot be established in the absence of long-time oxygen measurements. A news item published in Nature last month has it that water at 50 metres depth off the Oregon coast was turning hypoxic as water above the oxygen minimum zone (OMZ) is steadily losing oxygen. The OMZ, which is permanently oxygen-deprived and occurs naturally at a depth 600 – 1, 200 metres, is slowly expanding vertically and extending towards the coast.
- The outcome in both dead zones one caused by pollution and the other by hypoxic water, probably due to climate change is a large-scale migration of fishes and other free-swimming marine organisms, and the death of bottom dwellers like crabs and starfish. Fish-kills happen when oxygen levels drop suddenly as reported in Oregon during certain years. Fish-kills or large-scale migration of fish can have enormous economic and ecological consequences. Since the effects of climate change cannot be reversed even in the mid-term, marine organisms can be saved only through immediate and drastic action to reduce the quantum of fertilizer leaking into the oceans.
- Strategies to reduce nutrient loading have proved successful in reducing the level of hypoxia in the Long Island Sound estuary, for instance.

Courtesy: The Hindu and Times of India

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