

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
RAJYA SABHA  
UNSTARRED QUESTION NO.1780  
ANSWERED ON 16/03/2023**

**Rise of sea level in Visakhapatnam**

**1780. Shri G.V.L. Narasimha Rao:**

Will the Minister of **EARTH SCIENCES** be pleased to state:

- (a) the condition which is referred to as dead zone in a sea/ ocean;
- (b) whether a large dead zone has been discovered in Bay of Bengal, if so, its extent and details;
- (c) whether the dead zone formation extends near Andhra coast and particularly near Visakhapatnam, details thereof;
- (d) the factors contributing to dead zone formation near Visakhapatnam;
- (e) factors responsible for marine pollution in Visakhapatnam coast, its impact;
- (f) whether there is a rise in sea level near Visakhapatnam; and
- (g) impact of the dead zone and sea rise on marine life and marine economy in Andhra Pradesh, particularly the Visakhapatnam coast?

**ANSWER**

**THE MINISTER FOR STATE (INDEPENDENT CHARGE) FOR  
MINISTRY OF SCIENCE AND TECHNOLOGY  
ANDEARTH SCIENCES  
(DR. JITENDRA SINGH)**

- (a) "Dead zone" refers to a reduced level of dissolved oxygen in the sea/ocean water. The concentration of dissolved oxygen in dead zone is less than 2  $\mu\text{M/l}$  (micro moles per litre). Such zones are generally devoid of any life except microbes and fungus.
- (b) The dead zone in Bay of Bengal is sporadic and usually occur in the continental slope regions of the Bay of Bengal ie., 100 to 300 m depth regions, especially in its north, though with some spatial variability by the governing oceanic factors such as weak aeration due to currents flowing in these regions, decomposition of sinking organic matter produced at the upper sunlit column, cross-shelf transport of organic matter, etc.
- (c) Yes, Sir. Shelf edge and slope regions of north Andhra (including off Visakhapatnam) have generally been observed with such zones, albeit its extent and intensity is governed by inter- and intra- annual variability of oceanic processes.

- (d) The oceanic factors like poor ventilation (weak aeration) by the currents flowing in the region(s), extent of sinking organic matter produced in the upper sunlit zone and their decomposition at the depths, cross-shelf transport of organic matter, etc. generally govern the degree of deoxygenation (oxygen depletion) in any region.
- (e) There is no specific study on identifying the specific factors that are responsible for marine pollution along Visakhapatnam Coast. However, In general, discharge of industrial effluents/sewage, flushing of port waters, deposition of atmospheric dust with nutrients, etc. are all responsible for marine pollution over the coast. In addition, under the sea water quality monitoring program of MoES through National Centre for Coastal research (NCCR), the coastal waters of Visakhapatnam is found to be moderate to good condition.
- (f) Sea level along the Visakhapatnam is rising at a rate of 1.05mm/y based on the monthly mean tide gauge data recorded during 1937-2013.
- (g) The impact of the sea level rise on marine life and the marine economy is not assessed. However, the sea level rise coupled with high wave/swell events will exacerbate coastal flooding in low-lying areas through coastal inundation and erosion. Dead zone will cause migration of marine life.

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