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## **Oxygen Minimum Zone in the Southwestern Bay of Bengal: Observations during the Pre-summer Monsoon**

G. Pathirana<sup>a</sup>, K. Priyadarshani<sup>b</sup>, P.A.K.N. Dissanayake<sup>a</sup>, D. Wang<sup>c</sup>, T. Priyadarshana<sup>b</sup> and L. Jian<sup>c</sup>

<sup>a</sup> *Department of Oceanography and Marine Geology, Faculty of Fisheries and Marine Sciences & Technology, University of Ruhuna, Sri Lanka*

<sup>b</sup> *Department of Limnology and Water Technology, Faculty of Fisheries and Marine Sciences & Technology, University of Ruhuna, Sri Lanka*

<sup>c</sup> *State Key Laboratory of Tropical Oceanography, South China Sea Institute of Oceanology, China*

Corresponding author: upgpathirana@gmail.com

The occurrence of a strong Oxygen Minimum Zone (OMZ) is known in the Bay of Bengal (BoB). Studies have suggested that the intensity of the OMZ in the BoB is relatively weak compare to the prominent OMZs in the Arabian Sea (AS) and the Eastern Tropical Pacific (ETP), which is attributed primarily to the differences in productivity in the region. A field survey was conducted along 85° E, between 6° - 10° N onboard *R/V Shi Yan 3* from 25<sup>th</sup> April to 28<sup>th</sup> April 2018 during the pre-summer monsoon in the Southwestern BoB to examine its OMZ. The main objective of this study is to explain the characteristics of the OMZ with respect to the observed physical and biological parameters. In the present study, boundaries of the OMZ are determined considering the waters with [DO] ≤ 1 mg/L. Findings reveal that the depth of the mixed-layer (ML) is around 50m with a dissolved oxygen concentration (DO) of ~6 mg/L. The oxycline locates just below the ML with a thickness of ~75 m, and coincide with the thermocline, halocline, and the Deep Chlorophyll Maximum (DCM). The highest concentrations of chlorophyll (> 0.2 mg/m<sup>3</sup>) are limited to the oxycline. The OMZ is evident in the Southwestern BoB with a thickness of ~675 m, and located between 125 m – 800 m. The average [DO] of the OMZ is 0.58 mg/L, and it is relatively high compared to the known [DO] of the OMZ in the AS (0.06 mg/L) and the ETP. In agreement with previous studies, the low productivity (consumption) observed in the OMZ (< 0.1 mg/m<sup>3</sup>), rapid sink of organic matter (incomplete oxidation), and the presence of an anticyclonic eddy (ventilation) may be the reasons for the observed higher level of DO in the OMZ in the Southwestern BoB compared to that in the AS and the ETP.

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