

Status and changing patterns on coral reefs in Thailand during the last two decades

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1. <https://link.springer.com/article/10.1007/s43621-025-01691-y>

The screenshot shows the Springer Nature Link article page. The article title is "The designing of 3D-printed modular artificial reefs through design thinking framework: a case study in Koh Khai, Chumphon Province, Thailand". It is a research article published on 08 August 2025, Volume 6, article number 783. The page includes a "Download PDF" button and a "Discover Sustainability" badge. The abstract states: "Coral reefs degradation in Thailand demands scalable, community-accessible restoration solutions. This study addresses the limitations of conventional artificial reefs by developing 3D-printed modular artificial reefs (3DMARs) optimized for ecological performance, usability, and low-resource deployment. Formulated through the lens of design expertise". The page also features a "Sections" menu with links to Abstract, Introduction, Methodology, Result/implementation phase, Discussion, and Conclusion.

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- Manual Book. DMCR Publishing. 2018. <https://www.dmcr.go.th/detailLib/3759> (accessed on 9 December 2024).
- 19. Phongsuwan N, Chankong A, Yamarunpathana C, Chansang H, Boonprakob R, Petchkummerd P, Thongtham N, Paokantha S, Chanmethakul T, Panchaiyapoom P, Bundit O-A. Status and changing patterns on coral reefs in Thailand during the last two decades. *Deep Sea Res Part II*. 2013;96:19–24. <https://doi.org/10.1016/j.dsr2.2013.02.015>
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The "Sections" menu on the right includes links to Abstract, Introduction, Methodology, Result/implementation phase, Discussion, Conclusion, Data availability, Change history, Notes, References, Acknowledgements, Funding, Author information, Ethics declarations, Additional information, Rights and permissions, and About this article.

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RESEARCH ARTICLE | JULY 17 2025

Laboratory investigation of internal solitary waves breaking on reef-lagoon systems

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Coral reefs face severe threats from bleaching and degradation driven by natural and anthropogenic factors, such as global warming and ocean acidification. Internal solitary waves (ISWs) breaking in reef-lagoon systems play a critical role in modulating coral reef ecosystems by inducing upwelling currents that deliver cold, nutrient-rich deep water to reefs, potentially mitigating thermal stress and coral bleaching. However, the hydrodynamic processes governing ISW-driven upwelling and their ecological implications remain underexplored. This study advances prior research by using synchronized particle image velocimetry and planar laser-induced fluorescence in laboratory experiments to measure high-resolution velocity and density fields over realistic reef-lagoon topographies. These measurements enable precise quantification of upwelling dynamics, including maximum run-up height, upwelling velocity, and cold-water intrusion extent and duration. We also analyze bottom Reynolds stress and turbulent burst events via quadrant analysis to elucidate mechanisms of turbulent transport, sediment resuspension, and material exchange under varying coral roughness conditions. Our findings reveal that higher ISW amplitudes enhance upwelling intensity, promoting cold-water propagation across the reef flat, while rough coral surfaces play a dual role: they impede upwelling spread but enhance near-bed turbulence and material exchange.

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Assessment of the coral habitability status of marine ecosystems along the eastern coast of the Andaman Islands, India

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