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REVIEWER□S REPORT

Manuscript No.: IJAR- 57276

Title: Assessment of Coral bleaching due to thermal stress over Indian Ocean.

Recommendation:
Accept as it is □□□□□□□□□□□□□.
Accept after minor revision□□□
Accept after major revision
Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity			✓	
Significance			✓	

Reviewer Name: **Dr ANAPANA GOPAL**

Reviewer□s Comment for Publication.

General Comments
The manuscript titled "Assessment of Coral Bleaching due to Thermal Stress over Indian Ocean" addresses an important and globally relevant issue—coral bleaching driven by thermal stress. The study integrates satellite-derived Sea Surface Temperature (SST), Marine Heat Wave (MHW) metrics, and remote sensing reflectance (Rrs) to estimate coral bleaching in the Andaman region. The topic is timely and significant, particularly in the context of climate change and marine ecosystem degradation.
However, while the study shows potential, the manuscript requires substantial revision in terms of clarity, methodological rigor, language quality, and presentation before it can be considered for publication.

Content and Originality
The study attempts to correlate MHW with Percentage of Coral Bleaching (PCB) and further links spectral indices (Rrs ratio) to bleaching thresholds, which is a valuable interdisciplinary approach.
The proposed regression relationship (PCB = 1.36 × MHW − 13.957) and threshold ratio (2.5) provide applied value for monitoring programs.
However, the novelty is moderate, as similar approaches using SST anomalies and remote sensing for coral bleaching detection already exist in literature.
The manuscript lacks a clear statement of novelty—it should explicitly highlight how this approach improves upon previous studies.

Technical Quality
The methodology is generally relevant but lacks clarity and reproducibility:
The definition and computation of MHW require clearer explanation and proper referencing.
The regression model is presented, but statistical validation details are insufficient (e.g., sample size, error metrics, confidence intervals).
The use of Rrs (412/531 nm ratio) is interesting but needs stronger justification and comparison with existing indices.
Figures (e.g., Figures 3–7 across pages 6–9) show spatial and temporal variations, but:
Resolution and labeling need improvement.

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Interpretation of results is somewhat descriptive rather than analytical.
Units, equations, and symbols are inconsistently formatted (e.g., Equation 1 on page 5 is poorly written).

Language and Presentation

The manuscript contains numerous grammatical errors, awkward phrasing, and typographical mistakes, such as:
"Coral reef is an endangered species…" (should be ecosystem)
"Keywards" instead of "Keywords"
Frequent sentence structure issues throughout the paper
Scientific writing style is inconsistent and needs major language editing.
Terminology should be standardized (e.g., PCB vs CBP used inconsistently).

Structure and Organization
The manuscript follows a standard structure (Abstract, Introduction, Methodology, Results, Conclusion), but:
The flow between sections is weak.
Objectives are not clearly separated or emphasized.
Results and Discussion are combined but lack critical discussion and comparison with existing studies.
Figures and tables are not always properly referenced or explained in the text.
The conclusion section is brief and does not adequately discuss limitations or future scope.

References and Citations
The manuscript includes a reasonable number of references covering coral bleaching and remote sensing. However:
Citation formatting is inconsistent.
Some references are incomplete or poorly formatted (e.g., missing years, improper journal details).
More recent literature (post-2020) should be included to strengthen the study. In-text citations are sometimes improperly structured.

Overall Recommendation

The study has scientific relevance and practical importance, especially for coral reef monitoring using remote sensing. However, the manuscript currently suffers from significant issues in language, methodology clarity, and presentation.

Final Decision

Minor Revision Required