Special Issue

Thermal Stress and Photosynthetic Resilience in Marine Organisms and Ecosystems Under Climate Change

Message from the Guest Editor

Global oceans and coastal ecosystems are experiencing unprecedented thermal anomalies that profoundly impact photosynthetic organisms. In this Special Issue, we seek to bring together original research and comprehensive reviews that elucidate how marine photoautotrophs detect, respond to, and recover from heat-induced damage.

- Heat-induced alterations in photosystem efficiency: Studies that quantify how elevated temperatures disrupt electron transport, photochemistry, and energy dissipation pathways in both microalgae and macroalgae.
- Photoprotection and pigment remodelling: Investigations into xanthophyll cycle dynamics, non-photochemical quenching, and changes in accessory pigments as adaptive responses to thermal stress.
- Molecular and cellular repair mechanisms.
- Community-level shifts and coral bleaching thresholds.
- Coupled modelling and remote sensing approaches.
- Thermal acclimation and bioengineering strategies.

By uniting these diverse perspectives—ranging from molecular photophysiology to ecosystem modelling and bioengineering—we aim to provide a holistic understanding of photosynthetic resilience in marine environments under climate change.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

Journal of Marine Science and Engineering (*JMSE*, ISSN: 2077-1312) focuses on research in the fields of Ocean Engineering, Coastal Engineering, Physical Oceanography, Geological Oceanography, Marine Biology, and Marine Environmental Science. It publishes reviews, regular research papers, and short communications, as well as Special Issues on particular subjects. Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the maximum length of the papers.

Editor-in-Chief

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