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

Dr. Andrei Herdean

Faculty of Science, University of Technology, Sydney, Australia

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Journal of Marine Science and Engineering
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
jmse@mdpi.com

mdpi.com/journal/jmse

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Message from the Editor-in-Chief

The *Journal of Marine Science and Engineering* (*JMSE*; ISSN 2077-1312) is an international peer-reviewed open access journal which provides an advanced forum for studies related to marine science and engineering. The journal aims to provide scholarly research on a range of topics, including ocean engineering, chemical oceanography, physical oceanography, marine biology and marine geosciences. We invite you to publish in our journal sharing your important research findings with the global ocean community.

Editor-in-Chief

Prof. Dr. Charitha Pattiaratchi
School of Engineering, The UWA Oceans Institute, The University of Western Australia, Perth, WA 6009, Australia

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