

Special Issue

Hydrodynamic Performance, Optimization, and Design of Marine Turbines

Message from the Guest Editor

Marine renewable energy has emerged as a promising contributor to the global transition toward sustainable power generation. Among the various technologies, marine turbines—encompassing tidal, current, and wave-driven systems—play a crucial role in harnessing the hydrodynamic of the oceans. Understanding and improving the hydrodynamic performance of marine turbines is vital. Advances in CFD, experimental testing, and field deployments have provided valuable insights into energy extraction mechanisms. Blade geometry refinement, array configuration strategies, and control techniques have further enhanced turbine performance while minimizing wake effects and ecological impact. Innovative design approaches aim to enhance adaptability, minimize structural loading, and extend operational lifespan. This Special Issue focuses on the integration of performance analysis, optimization frameworks, and novel design concepts to advance the development of high-efficiency marine turbines. By combining theoretical modeling, laboratory investigations, and real-world applications, it seeks to provide a comprehensive understanding that will guide future innovations in marine renewable energy systems.

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.

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