Guest Editor's Letter

Mariculture has been an important part of food production and coastal livelihoods in many parts of the world for centuries, continually evolving in response to changing conditions.

This Special Issue, Mariculture: *Advancing Sustainable Marine Food Production,* brings together studies examining ongoing changes in mariculture across a broad range of environmental, biological, production-related and consumer-related aspects, from marine heatwaves, ecosystem interactions, marine litter, and animal health to product quality, long-term sectoral change, and consumer attitudes. Several studies focus specifically on the Adriatic and its coastal and riverine environments.

Together, these studies underscore the multidimensional nature of sustainable mariculture, encompassing the condition of the marine environment, the health and biology of farmed organisms, interactions with surrounding ecosystems and wild populations, product quality and safety, production systems, and the broader social and economic context. These interconnected aspects require cooperation among researchers, producers, experts, and authorities to ensure that scientific knowledge informs effective management and practical solutions.

In March 2026, many of these themes were also addressed at the second scientific and professional meeting, *Adriatic Mariculture 2026*, held in Ston, Croatia. The meeting brought together scientists, experts, institutional representatives, and producers from Croatia and other Adriatic countries. As Guest Editor of this Special Issue and Chair of the Organizing Committee of *Adriatic Mariculture 2026*, I would like to emphasize the close connection between the two initiatives. The Special Issue was conceived as part of the broader scientific exchange surrounding the meeting, and the call for contributions also invited participants to further develop their work for submission to this volume. The exchange in Ston therefore helped shape the *Special Issue*, while the papers published here build on several of the topics addressed at the meeting. Mali Ston Bay, a sensitive coastal ecosystem with a long tradition of oyster farming, provided a natural context for considering sustainable shellfish farming, with particular attention to the European flat oyster *Ostrea edulis,* which is increasingly recognized as a conservation priority across Europe. The discussion also extended to broader questions of biosecurity, environmental pressures, and the long-term sustainability of mariculture. Particular attention was given to the risks associated with the unintended transfer of non-native organisms and pathogens, reinforcing the importance of a precautionary, evidence-based approach to management. Key priorities emerging from the meeting included regular ecosystem monitoring, site-level biosecurity planning, early disease warning systems, stronger veterinary oversight, appropriate technological solutions, and closer cooperation among scientists, producers, and relevant authorities. The meeting also highlighted the role of infrastructure, market conditions, administrative frameworks, marine-spatial planning, and effective use of development and innovation funding in shaping the sector's capacity to adapt and develop. These considerations were reflected in the conclusions of *Adriatic Mariculture 2026*, which provide a regional perspective on many of the issues explored in this Special Issue. The full conclusions were published in Croatian and are publicly available at https://www.unidu.hr/wp-content/uploads/2026/05/Zakljucci-Adriatic-Mariculture-20206-Ston.pdf

The Adriatic, with its long tradition of marine food production, faces environmental, biological, and economic pressures that increasingly require coordinated responses. Since many ecological and health-related processes extend across administrative boundaries, cooperation across the region will remain important. Such cooperation can support the continued development of sustainable mariculture while protecting marine ecosystems, biological resources, and coastal communities.

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