Journal of
Marine Science and Engineering

MDPI

Editorial

Marine Fisheries Management

Paola Rumolo

Institute of Marine Sciences—National Research Council (ISMAR-CNR), 80133 Naples, Italy; paola.rumolo@cnr.it

Effective marine fisheries management is a useful tool for counteracting the worldwide decline in fish stocks, which could have serious ecological and socioeconomic consequences. Recently, an increasing number of national and international efforts have been dedicated to establishing well-identified guidelines for the sustainable management of fish stocks, thereby providing a baseline for quantifying future changes. In this context, research appears to be a key process, and the aim of this Special Issue was to identify an area of research specifically dealing with multispecies fisheries management models, the trophic relationships of exploited species, the ecosystem's response to fishing pressure and other interacting drivers (e.g., climate change) at multitrophic levels, and the identification of the key environmental factors driving species' spatial distribution and habitat utilization.

The Special Issue includes nine contributions [1–9] published from 2021–2022. All of these papers provide useful case studies from around the world, quantifying the degree of compliance with a well-recognized set of conditions necessary for sustainable fisheries and providing useful information for marine fisheries policies. The fisheries sector has increased its focus on sustainable resources and ecosystems, from biological individual and local information to general stock assessment. In this context, the contributions of this Special Issue appear important for assessing short- and long-term changes in the biological sector, providing an important basis and visibility for future management effectiveness.

Seasonal variations in the species composition of set net fisheries was the focus of Han and Choi [1], using the East Sea of Korea as an example. The authors showed how water temperature influenced fish composition (and consequently, high catch rates) by finding a high dominance of migratory pelagic fish species associated with warm currents. Seasonal variations in the species composition of set net fisheries can serve as important baseline information for improving the predictability of future changes in fishery resources, especially concerning the type of fish caught according to the seasonal changes in the water temperature.

Stock assessment is necessary to understand the status of fishery stocks. In the context of an ecosystem-based fisheries assessment approach (EBFA), Kang and Zhang [2] analyzed the possibility of incorporating other driving forces, including various human activities and natural processes more closely linked to coastal ecosystem, into the already known EBFA. The authors tested the applicability of the proposed approach, supporting the necessity of extending EBFA to onshore ecosystems. Barman et al. [3] and Alam et al. [4] evaluated the stock status of three sardine species and two shrimp species, respectively, in Bangladesh. Barman et al. [3], using the length-based Bayesian biomass (LBB) technique, evidenced overfishing for one of the three sardine species. The authors suggested decreasing fishing pressure, reducing the number and type of fishing vessels, and restricting the harvest season. Alam et al. [4], due to the historic overexploitation of both shrimp species, suggested annual catch limits, and predicted an increase in the stocks' biomass within ten successive years of this policy's implementation. Moreover, the authors suggested a further rigorous stock assessment after ten years to evaluate the impact of the implemented management policy, and the adoption of new strategies to manage these fisheries sustainably in the future.

The effectiveness of fisheries policies was evaluated by Huang et al. [5], who collected the biological information (length composition, length–weight relationship, growth, mortality, sexual maturity, and feeding intensity) of *Johnius belengerii* in Xiamen Bay in two

Citation: Rumolo, P. Marine Fisheries Management. *J. Mar. Sci. Eng.* **2023**, *11*, 1377. https://doi.org/10.3390/jmse11071377

Received: 29 June 2023
Accepted: 30 June 2023
Published: 6 July 2023

long-term periods. The authors showed an improvement in biological information due mainly to two strategies: setting closed fishing periods, and non-fishing areas. The results of the study established the effectiveness of a long-term series of fishing policies.

Borme et al. [6] reported a case study in the Adriatic Sea (Italy) based on the trophic ecology of small pelagic fishes (represented by *Sardina pilchardus*), which is of fundamental importance to improving the assessment and management of this species. The authors, in addition to providing additional data on the sardine diet in different seasons, described the daily feeding cycle and estimated feeding selectivity of the species using a taxonomic determination of the main prey in their gut contents.

Glamuzina et al. [7] highlighted the presence of invasive species such as *Callinectes sapidus* (Atlantic blue crab) in the Adriatic Sea, and proposed the use of artisanal tools to control the crab's reproductive and recruitment phases. The authors proposed to transform the proliferation of this invasive populations from a threat to biodiversity to an opportunity for a new valuable fishery resource with real market value and demand. The authors concluded that artisanal harvesting may also contribute to efficient control of blue crab populations by reducing ecosystem damage and lowering the governmental costs associated with potential eradication.

Finally, Lu et al. [8,9] presented two case studies on the genetic structure and phylogeography of two swimming crabs (*Portunus pelagicus* and *Portunus sanguinolentus*). The aim of the first study [8] was to evaluate their genetic structure, phylogeography, and historical demography by applying partial sequences to the control region in the mitochondrial DNA to examine the *Portunus pelagicu* population. The results, in addition to showing indicators of demographic expansion (which was affected by the Pleistocene glacial cycles) and human introduction, highlighted the possible dispersal routes of *P. pelagicus* throughout Southeast Asia. In the second study [5], an analysis of partial sequences from the mitochondrial control region allowed the authors to determine the population genetic structure, phylogeography and historical demography of *Portunus sanguinolentus* in East Asia. The results suggested that several past and present habitat configurations have shaped the genetic patterns of *P. sanguinolentus* to date. In particular, during Pleistocene glaciations, when sea levels were low, this species may have moved along the coast from Southeast Asia to China, having first been colonized the Hong Kong area after spreading to the coast of mainland China.

Acknowledgments: The author wishes to thank all the contributors to and reviewers of this Special Issue.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Han, J.; Choi, Y.-U. Seasonal Variations in the Fish Species Composition and Community Structures on the Eastern Coast of South Korea. *J. Mar. Sci. Eng.* **2022**, *10*, 1102. [CrossRef]
2. Kang, H.; Zhang, C.-I. A Concept and Framework of the Extended Ecosystem-Based Fisheries Assessment Approach Incorporating Other Driving Forces. *J. Mar. Sci. Eng.* **2021**, *9*, 545. [CrossRef]
3. Barman, P.P.; Liu, Q.; Al-Mamun, M.A.; Schneider, P.; Mozumder, M.M.H. Stock Assessment of Exploited Sardine Populations from Northeastern Bay of Bengal Water, Bangladesh Using the Length-Based Bayesian Biomass (LBB) Method. *J. Mar. Sci. Eng.* **2021**, *9*, 1137. [CrossRef]
4. Alam, M.S.; Liu, Q.; Schneider, P.; Mozumder, M.M.H.; Uddin, M.M.; Monwar, M.M.; Hoque, M.E.; Barua, S. Stock Assessment and Rebuilding of Two Major Shrimp Fisheries (*Penaeus monodon* and *Metapenaeus monoceros*) from the Industrial Fishing Zone of Bangladesh. *J. Mar. Sci. Eng.* **2022**, *10*, 201. [CrossRef]
5. Huang, L.-M.; Wang, J.-Q.; Shih, Y.-J.; Li, J.; Chu, T.-J. Revealing the Effectiveness of Fisheries Policy: A Biological Observation of Species Johnius belengerii in Xiamen Bay. *J. Mar. Sci. Eng.* **2022**, *10*, 732. [CrossRef]
6. Borme, D.; Legovini, S.; de Olazabal, A.; Tirelli, V. Diet of Adult Sardine Sardina pilchardus in the Gulf of Trieste, Northern Adriatic Sea. *J. Mar. Sci. Eng.* **2022**, *10*, 1012. [CrossRef]
7. Glamuzina, L.; Conides, A.; Mancinelli, G.; Glamuzina, B. A Comparison of Traditional and Locally Novel Fishing Gear for the Exploitation of the Invasive Atlantic Blue Crab in the Eastern Adriatic Sea. *J. Mar. Sci. Eng.* **2021**, *9*, 1019. [CrossRef]

8. Lu, Y.-M.; Shih, C.-H.; Chen, P.-C.; Kao, W.-C.; Lee, Y.-C.; Han, Y.-S.; Tzeng, T.-D. Genetic Variations and Expansion of the Blue Swimmer Crab (*Portunus pelagicus*) in Southeast Asia. *J. Mar. Sci. Eng.* **2022**, *10*, 1071. [CrossRef]
9. Lu, Y.-M.; Shih, C.-H.; Chen, P.-C.; Kao, W.-C.; Lee, Y.-C.; Han, Y.-S.; Tzeng, T.-D. Phylogeography and Genetic Structure of the Swimming Crabs *Portunus sanguinolentus* (Herbst, 1783) in East Asia. *J. Mar. Sci. Eng.* **2022**, *10*, 281. [CrossRef]