

Despite these challenges, intelligent fisheries still hold significant potential to support sustainable development when technological innovation is combined with inclusiveness, people-centered approaches, and ecological protection. Existing applications of IoT monitoring, AI analysis, and blockchain traceability have already improved efficiency, reduced waste, and increased transparency, while helping small-scale fishers access data and markets more effectively. AIoT and marine intelligent technologies can support adaptive management and ecological restoration by providing real-time information on resources and fishing intensity, and Industry 4.0 approaches may further reduce environmental impacts. Nevertheless, intelligent technologies are not a universal solution. Their long-term value depends on lowering application costs, improving digital skills, and establishing fair data-sharing mechanisms that reflect the realities of small-scale fisheries. Ultimately, intelligent technology is a tool for transformation, and its effectiveness rests on how well it is integrated into institutional reforms and evolving interest relationships within the fishery sector.

### Acknowledgments

The authors extend sincere thanks to two anonymous peer reviewers for their feedback on the manuscript.

### Conflict of Interest Disclosure

The authors affirm that this research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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