

Intelligent Fishers Harness Aquatic Organisms and Climate Change

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Abstract : Tropical fisheries are vulnerable to the physical and biogeochemical oceanic changes associated with climate change. Warmer temperatures and extreme weather have been damaging the abundance and growth patterns of aquatic organisms. In recent year, the shrinking of fish stock and labor shortage have increased the threat to global aquacultural production. Thus, building a climate-resilient and sustainable mechanism becomes an urgent, important task for global citizens. To tackle the problem, Taiwanese fishermen applies the artificial intelligence (AI) technology. In brief, the AI system (1) measures real-time water quality and chemical parameters in fish ponds; (2) monitors fish stock through segmentation, detection, and classification; and (3) implements fishermen's previous experiences, perceptions, and real-life practices. Applying this system can stabilize the aquacultural production and potentially increase the labor force. Furthermore, this AI technology can build up a more resilient and sustainable system for the fishermen so that they can mitigate the influence of extreme weather while maintaining or even increasing their aquacultural production. In the future, when the AI system collected and analyzed more and more data, it can be applied to different regions of the world or even adapt to the future technological or societal changes, continuously providing the most relevant and useful information for fishermen in the world.

Keywords : aquaculture, artificial intelligence (AI), real-time system, sustainable fishery

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