Introducing a Successful Japanese Marine Ranching Project: Shiraishijima Island's Marine Ranching Project in Okayama

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This paper introduces technical aspects of a Japanese Marine Ranching Project carried out in the western part of the Seto Inland Sea, in Okayama prefecture. The project aims to provide a station to increase fisheries resources for local fishing communities. Recently, local fishers have faced a severe depletion of fish stock and demanded the Okayama prefectural government to support them regenerating the state of the sea. The Marine Ranching Project was a result of this local request, and it was launched in 1991. The ranching covers the sea area, which is approximately 350ha between two outer islands, Shiraishijima and Takashima Island. The ranching is consisted of artificial fish shelters (11,320 units) and an acoustic feeding equipment in order to manipulate fish movement patterns and make them stay within the marine ranching area where the ideal spawning and nursery grounds are created. It has taken almost ten years to complete the full implementation of the ranching and cost approximately US$21 million. The project target to increase the stock of 7 main species (Japanese red seabream, Gilthead, Rockfish, Marbled rockfish, Seabass, Red spotted Grouper, Fat greenling) and other native fish and the system is maintained and managed by the local fishermen association of Shiraisijima Island. The prohibition of trawling was also set from1992 in the central region of the marine ranching.

The ranch is principally designed to supply appropriate habitats for those targeted species and it primarily aims to regenerate the rate of their population recruitment. Thus, it is critical to enhance the environmental capacity of the marine area in terms of the ecosystem structure, taking account of the area's trophic dynamics and habitat variations including already existing both artificial and natural marine reefs and sea grass beds. So far, this ranching has doubled the catch amount of targeted species and marked approximately 15% increase of general fish catch. However, it has also created a conflict between commercial and recreational fishers, who are attracted by the ample fish stock.

From the perspectives of both community management and resource/ecosystem recovery, the marine ranching has been very successful and, we would argue, it would be more efficient and

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beneficial if we construct more marine ranching and create networks to sustain habitat continuity within the marine ecosystem.