Marine Protected Area Design By Fishery Knowledge In Tsushima Island

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In recent years, marine ecosystems are experiencing accelerating losses of wildlife populations and species, contributing to greater awareness of ecosystem integrity. The issue of Marine Protected Areas (MPA) was raised as one of the main topics for the 10th meeting of the Conference of the Parties (COP10) to the Convention on Biological Diversity (CBD) in Nagoya. In this context, Japan's Ministry of the Environment has for the first time initiated a national strategy for marine ecosystems that defines MPA. On this backdrop, for the first MPA designation in Japan, an investigative commission centering on fishery operators has been set up in Tsushima, Nagasaki Prefecture. This study provides insights into the methods being considered for establishing an MPA at Tsushima. The content of our research was as follows: First, we created a map using the Geographic Information System (GIS) to collect information about potential Protected Areas as determined by each local fishery corporation and clarify how they identified important fishery sites. Second, we identified marine area that should be protected in view of the results of an analysis of fish catches, geographical conditions, and physical conditions complexly determined by using GIS. Third, we carried out local observations to clarify the close relationships between fishing ground locations, sea-bottom topography and tidal flows. Results are following: 1) Visualizing information using GIS allowed me to grasp the spatial features of Tsushima's coastal area. Analysis of the GIS information clarified areas of algae distribution, assisting predictions of fish habitation areas. This helped determine marine areas that should be protected. 2) We confirmed the influence of the tides on the warm Tsushima current, and observed upwelling on site. Considering three-dimensional marine structure is thought to enable the determination of effective protection areas in MPA design.