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New challenge of integrated fisheries information system and links to future large-scale research plan in marine ecology

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Oceanography is moving toward the construction of operational observing systems in coastal regions. This issue is of global interest for sustainable use of fisheries and aquaculture resources. In particular, satellite remote sensing and marine-GIS for fisheries and aquaculture has been developing rapidly, and an operational use is required for sustainable development and management. We started Hakodate Marine Bio Cluster Project in the Regional Innovation Cluster Program (Global Type) from 2009 supported by the Grant-in-Aid for University and Society Collaboration from the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan. Through this project, we develop an integrated coastal fisheries information system that combines satellite remote sensing, observations from a buoy network, 4-D VAR data assimilation system, ecosystem modeling, and marine-GIS spatial modeling to delineate the potential fishing zone for coastal squid fisheries, and to predict suitable sites for scallop and kelp aquaculture in southern Hokkaido coastal region, Japan. New challenges in the field of fisheries information systems now include developing systems capable of analyzing the marine environment in 3D, prediction and validation of oceanographic parameters, and dissemination of new information products to the user community in real or near-real time. We will present the overview of this on-going project and discuss on expanding those activities to future large-scale research plan in marine ecology.

Keywords: integrated fisheries information system, satellite remote sensing, marine-GIS, Hakodate Marine Bio Cluster, marine ecology