Ecosystematic Methods of Selecting Appropriate Technology for Recovering the Estuarine Environment

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The environment in enclosed sea area has been worse for a few decades and strongly desired for restoring comfortable coastal and estuarine environment. Some projects for recovering coastal environment have already started for last several years in Japan. After obtaining the consensus-building for desired recovery goal in a given site, the appropriated technology should be selected with taking the estuarine environmental characteristics and geological and social background into consideration.

The Research Association of Coastal Ecosystem Engineering (RACES), in which the authors are research members, has been studied on the evaluation method of effectiveness of technologies for recovering estuarine environment and the selection method of an appropriate technology for the site location and environmental condition for last a few years. In the study, a database of environmental information of Osaka bay was created by using GIS technology in order to illustrate and understand environmental change of Osaka bay. In addition, environmental deterioration mechanisms were considered in their all bearing and the result was diagramed in a figure. As a next step, some technologies for recovering environment were classified by the environment recovery purposes and the functions. Further, the applicable conditions of each technology were investigated by a questionnaire survey against influential individuals and engineers familiar with real fields.

In the presentation, first of all the transition of environment of Osaka bay will be shown and the problems, which come up from the work to create the database and are significant to know the estuarine environment correctly, will be discussed. Secondly, some directions in recovery and improvement of estuarine environment will be suggested based on the created diagram of environmental deterioration in estuaries. Moreover, the applicable conditions of the technologies for recovering estuarine environment based on the questionnaire survey will be presented. Finally, availability and importance of the ecosystem model for understanding the present environment from viewpoint of function and structure of the ecosystem and forecasting the future environments with and/or without applying the structures for recovering environment.