Causes of Coastal Water Pollution and Characteristics of Sediments in Jinhae Bay, Korea

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Among Korean coastal area, Jinhae Bay recently became a public concern because of deterioration of its environment. The Jinhae Bay was one of most treasured natural resource with bountiful culturing, recreation and enjoyment of nature's beauty. Recently frequent red tide outbreaks and massive mortalities of shellfish have been reported in this bay. In this study, organic loads to Jinhae Bay were investigated at 46 sites of incoming streams and discharges in the summer season of 1991. The total COD, nitrogen and phosphorus to Jinhae bay were determined as 45 tons/day, 29 tons/day and 242 kgs/day, respectively. The distribution of input loadings was well correlated to the parameters of water quality, numbers of phytoplankton and CODs of surficial sediments. Organic pollutants rather than toxic substances such as lead, cadmium, copper, chromium, mercury and PCBs have been accumulated in Jinhae bay.

The parameters measured in sediments from Jinhae bay were CODs, organic carbon, TKN as organic nitrogen, phosphorus forms, metal speciations and grain size of sediments. The average COD of surficial sediments was 31.57 mg/g, which was much higher than those of Seto Inland Sea in Japan.

Wastewater treatment plants have been planed and built to reduce loadings into this bay and sediments have been dredged since 1990 as a decontamination process with monitoring of water quality.