ANALYSIS OF CURRENT STATUS AND TREND OF SEDIMENT ENVIRONMENTAL QUALITY IN DAYA BAY

HAN BAOXIN, PENG HAIJUN, LAI ZHIGANG, AND CAI XINGDE
South China Institute of Environmental Science, SEPA, P.O. Box 510655,Yuancun, Guangzhou, China

Daya Bay is a semi-closed bay in South China coastal area. Its geographical location is at east longitude 22° 30′ to 22° 50′ and north latitude 114° 30′ to 114 ° 53′ . The length from north to south is approximately 30 kilometers and the width of bay mouth is approximately 15 kilometers. The length of coastal line is about 150 kilometers and the waters area is about 700 km^2. According to the investigation data, there is abundant resource of marine creature and fishery in Daya Bay, with more than 345 species of fishes, more than 100 types of Cephalopoda and Crustacean living. Daya Bay is a legislated marine national park for aquatic resource in Guangdong Province. Since the approval of construction of Daya Bay Economic and Technical Development Zone in 1991, the pollutant loads have increased by several times in this area. The pollutant discharge has led to rapid increase of pollutant content in the sediment. There is severe pollution of sediment in part of the waters, which has obviously affected the marine living and reduced the quality of the aquatic food product. For this reason, this paper has collected the sediment monitoring data in Daya Bay from 7 stations over the past 13 years (from 1990, 1995 through to 2001, 2002). Comprehensive comparison of the monitoring results has been made for the past 13 years. Adverse change of environment quality has been found, which includes: the Cu, Pb, As and Sulfide content has increased significantly in the whole inner bay area. The Hg content in S9 station in the inner bay has increased significantly. The Pb, Cu and Hg content has exceeded the sediment quality standard. Although the As and Sulfide content increasing rapidly, it can still meet the standard requirement. The sediment content can also meet the standard requirement though the overall Oil and Zn content have increased in the whole bay. In inner bay, the overall Cd content is in decreasing trend. The Hg content in S8 station in inner bay has significantly decreased. The Cd and Hg content can meet the standard requirement. Based on the current and past status of the sediment pollution in Daya Bay, this paper has analyzed the source and reason of sediment pollution. Finally, author proposed the corresponding control measures for the whole Daya Bay area.