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Seafloor environmental changes effected by the construction of artificial lake in Kojima Bay, Okayama

Atsuko Amano^{1*}, Shin-ichi Onodera², Takaharu Sato², Guangzhe Jin², Yuta Shimizu², Mitsuyo Saito³

¹AIST, ²Hiroshima University, ³Ehime University

Kojima Bay is an estuary located at the southern coastal area in Okayama Prefecture. Its topographic has been varied by the effect of deposition processes in natural and reclamations. In addition, artificial lake called Kojima Lake was formed by dikes construction at the eastern part of the bay in 1959 AD. In order to examine the impacts of the formation of Kojima Lake to the seafloor environment, we collected 4 core samples in the bay and lake and analyzed sedimentary structures by soft-X ray radiographs, grain size and ²¹⁰Pb dating.

Three cores were mainly composed of mud sediments and one core in Kojima Lake divided three sections by sedimentary structures; bioturbated section in the lower of core, sharply-defined laminated section in the middle and bioturbated section in the surface. Results of ²¹⁰Pb dating showed that the ages of boundary between these sections were 1960 and 1980 AD, respectively. On the other hand, core collected in the mouth bay showed two sections which were a sand section in the lower of core and a mud section in the surface. These core results imply the seafloor environmental variations accompanied with the construction of Kojima Lake in 1959 AD as the following. Before the construction of the lake, benthic activities were very active in the interior of the bay. However, hydrodynamic condition became a stagnant and benthic activities were very little after 1960s. And it was probably that improvements of water quality slightly restored benthic activities after 1980s.

Keywords: sediment, grain size, Pb210 dating, artificial lake, Kojima Bay