

Influence on River Flow and Environment of the Estuary by Development of Water Resources at the Kako River Basin.

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The Kako River is the longest first class river in Hyogo Prefecture. The Kako River weir started operating in 1989, and the weir and the dams of upper and middle reaches of the weir started operating integrally in 1992. This study tried to quantify the river flow decrease and to examine the influence on the environment of the estuary by development of water resources at the Kako River basin. The study found that the river flow from the Kako River mouth to the sea decreased by 20.5 percent per year under the mean precipitation after integrally operating start of the Kako River weir and the dams (Fig.1). The decrease of surface salinity near the Kako River mouth on flood season became smaller after the operation and the annual means of surface salinity increased significantly (Fig.2). It was thought that it is important to evaluate the influence on the environment of the estuary quantitatively using a model in future.

Keywords: Development of water resources, Kako river basin, Kako river weir, Decrease of river flow, Increase of salinity at the estuary

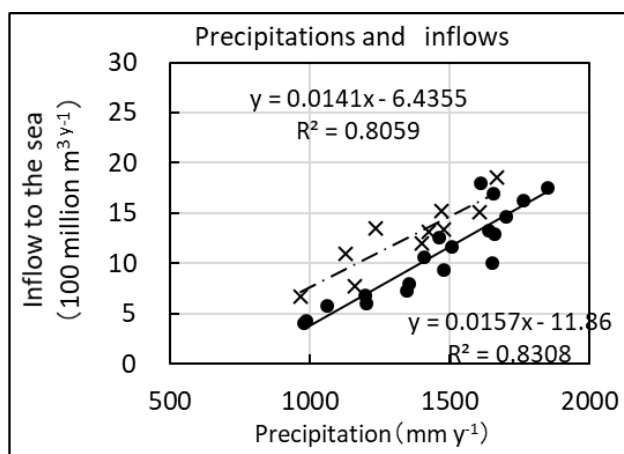


Fig. 1 Relationship between precipitations at Nishiwaki and inflows from the Kako River mouth to the sea. Precipitations and inflows are annual amounts of daily data. ● : after integrally operating start of the Kako River weir. × : before integrally operating start.

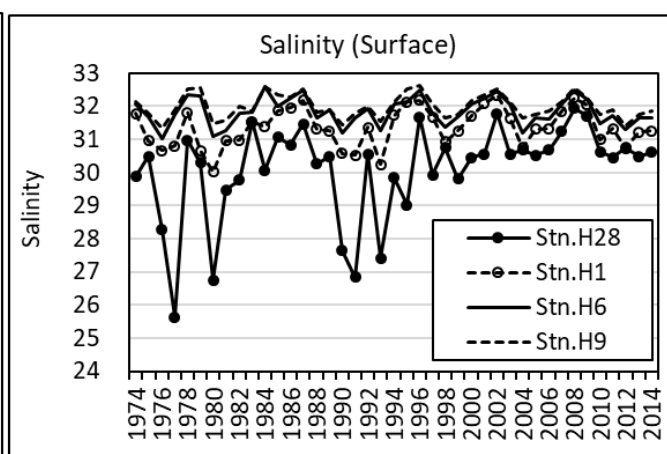


Fig. 2. Changes of annual means of surface salinity at 4 stations toward offshore from the Kako River mouth.