

STUDIES AND SURVEYS ON FISHWAYS AND FISH MIGRATION AT THE NAGARAGAWA ESTUARY BARRAGE

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The Nagaragawa Estuary Barrage is the first estuary barrage in Japan that has installed natural-flow fishways. For other types of fishways new technologies have been developed and introduced also. Kiso Sansen Estuary Resources Study Team (KST) (1963-1968), the Ministry of Construction (MOC; now the Ministry of Land, Infrastructure and Transport (MLIT)) and Water Resources Development Public Corporation (WARDEC; now Japan Water Agency (JWA)) (1990, 1992 and 1995) have conducted studies on the fishways of the barrage and migratory fish species in the Nagara River Estuary since the estuary barrage project was planned. Through construction stage the studies were carried out continuously. After the barrage went into operation, MOC (MLIT from 2001) and WARDEC (JWA from 2003) (1996-2005) started monitoring in order to check functions of fishways in relation with environmental conditions of the estuary, and it is still being carried on.

KST (1963-1968) conducted studies at the planning stage and before the commencement of barrage construction. The studies yielded information on the habitats and behavior of fish species. Based on the ecological information seed production techniques were developed for ayu (sweetfish) and satsukimasu salmon, which were likely to be affected by barrage operation.

MOC and WARDEC (1990 and 1992) accumulated knowledge on habitat and behavior of bottom fish species through subsequent studies during the construction of the barrage, and they determined the type of fishway structure to be adopted according to the study results.

Before the gates went into operation, MOC and WARDEC (1995) verified findings from the studies and deliberations conducted thus far through test operations. In the monitoring of the estuary barrage after it went into service, MOC (MLIT from 2001) and WARDEC (JWA from 2003) (1996-2005) studied the migratory behavior of fish species likely to be affected by barrage operation, and they confirmed effectiveness of the fishways (Fig.1).

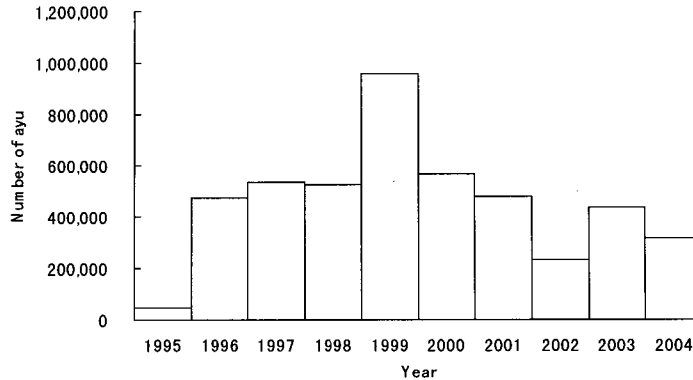


Fig. 1 Actual Count of ayu that swam upstream passing through the left bank inducing type fishway at the Nagaragawa Estuary Barrage (annual totals).

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