

Hydraulic Characteristics of the Tidal River Dongcheon in Busan City

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Abstract : Even though various management practices such as sediment dredging were attempted to improve water quality of Dongcheon located in Busan, the environmental condition of this stream was deteriorated. Therefore, Busan metropolitan city had pumped and diverted sea water to upstream of Dongcheon for several years. This study explored hydraulic characteristics of Dongcheon to configure the best management practice for ecological restoration and water quality improvement of a man-made urban stream. Intensive field investigation indicates that average flow velocities at depths of 20% and 80% from the water surface ranged 5 to 10 cm/s and 2 to 5 cm/s, respectively. Concentrations of dissolved oxygen for all depths were less than 0.25 mg/l during low tidal period. Even though density difference can be found along stream depth, density current seems rarely generated in Dongcheon. Short period of high tidal portion and shallow depths are responsible for well-mixing nature of Dongcheon.

Keywords : hydraulic, tidal river, density current, sea water

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