

Application of Eco-hydraulics Principles in Rehabilitation of Urban River System

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Abstract

The urban rivers have unique hydraulic characteristics between natural rivers and artificial canals. These hydraulic characteristics determine the characteristics of urban rivers with small environmental capacity and fragile ecosystems. With the development and utilization of natural resources, the pollutants that have been produced enter the river through different channels, which seriously damages the urban river ecosystem. Therefore, how to restore contaminated water to a normal state and reproduce a natural, self-regulating ecosystem is one of the most concerned issues in recently. Eco-hydraulics is a cross-disciplinary subject of hydraulics biology and ecology. It is closely related to the protection of rivers, wetlands, and ecological self-repair. In this study, The basic principle of eco-hydraulics is concisely described and its approaches to protection and rehabilitation of river are introduced. The conception of establishing gardenesque eco-pond for urban use is suggested. The strategies including changing the hydrodynamic features of rivers, adjusting the breeds and species and constructing the gardenesque eco-pond for improving the exist ing urban rivers are proposed. It provides scientific information and guidance for the restoration of rivers and wetlands by studying the close relationship between river hydraulic characteristics, currents, and rivers and ecosystems.

Keyword : Eco-hydraulics; Rehabilitation of river; Urban river;

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