IWRM2018-157
8th International Water Resources Management Conference of ICWRS

Effects of Diversified Flow Regime on River Self-purification capability

Yijia Xing, Xiaowei Cheng, Zhi Wang, Qiuyu Xu, and Weibin Pan
South China University of Technology, College of Environment and Energy, China (ppwbpan@scut.edu.cn)

In this study, riprap practice was implemented in Donghochung River to diversify the flow regime and to study whether the river self-purification capability was changed. It was observed that the concentration of dissolved oxygen, and redox potential in the segment 30-meter downstream from riprap practice was increased with the variation of the river flow regime. In addition, it was found that the enzymatic activities increased after riprap implementation, leading to an increased aeration capability of water and a supplementary appropriate habitat for more microorganisms. Further, life cycle assessment incorporating gravel extraction, refinement, and delivery, indicated that the energy consumption of riprap practice is less and one-off while its effects can last a long time, compared with the aeration. According to the evolution of flow regime and water quality in the target segment, it could be concluded that the diversified flow regime could intensify the turbulence, creating an increased oxygen enrichment ability and a diversified eco-habitat.

Keywords: Riprap practice, Flow regime, Self-purification capability;