Characteristics of Physical Habitats in Rivers Pooled by Large Weirs

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In Korea, so called Four Major River Project was carried out in the period of 2009 – 2011 for securing water resources, flood control, improving water quality, creating multi-purpose space for residents, and etc. Project details include dredging riverbeds, reinforcement of embankment, and construction of large weirs in the four major rivers. A total number of 16 large weirs were constructed to secure water resources, and the construction of large weirs resulted in rivers pooled by series of blockages. This study investigated the change of physical habitats in rivers in pooled by large weirs in Korea via literature survey. The field monitoring in the Han-gang River by Kim et al. (2018) revealed that the number of both species and individuals of macroinvertebrates decreased seriously. The field study in the Geum-gang River by Lee and An (2019) showed that the numbers of both endemic fish species and riffle benthic species decreased, with relative abundance of exotic fish species increased seriously. Another monitoring in the Youngsan-gang River by Kwak et al. (2016) indicated that the percentage of lentic fish species increased seriously. This is supported by physical habitat simulation by Seo and Park (2013), revealing that the WUA of lotic fish species decreased. In order to reduce the pool effect, the gates of some large weirs were opened from 2018. The study by Kim et al. (2022) indicated that the percentage of the pool, 92.7% before gate opening, decreased to 55% and riffle increased dramatically. In addition, physical habitat simulation by Choi and Lee (2020) showed that the WUA of a representative lotic fish species increased by a factor of 13.

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