



Impacts of small bypass plants on water chemical characteristics and macroinvertebrate communities in the Lancang River basin of southwest China

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ABSTRACT

In order to explore the effects of the cascade bypass small hydropower stations (SHSs) on the water chemical characteristics and macroinvertebrate communities, three SHSs in Jingguhe stream of Lancang River basin have been investigated. A total of 50 species were recorded, including 4 mollusks, 5 Oligochaeta, and 41 aquatic insects, and the *Polypedilum* spp. was the dominant species. The results indicated that the construction and operation of SHSs had a significant impact on water velocity and depth but the water chemical characteristics. Some differences in Shannon–Wiener index and species richness were found between the dewatered reaches and the recovered-water reaches. Moreover, in these three SHSs, the density and biomass in recovered-water reaches were higher than in dewatered reaches. The relative abundances of filter collectors, predators, and scraper, as the different functional feeding groups, in mixed discharge sections were significantly higher than in reduced discharge sections for all SHSs. The macroinvertebrates community in dewatered reaches had been subjected to a certain external disturbances.

Keywords: Small bypass hydropower plants; Macroinvertebrate community structure; Water chemical characteristics; Lancang River basin

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