

## Composition and structure of benthic macroinvertebrate community in two reservoirs in Hubei province, China: Response to eutrophication

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### ABSTRACT

Water quality and benthic macroinvertebrate samples were collected from two reservoirs in central China from November 2006 to August 2007. Twenty-nine benthic macroinvertebrate taxa were identified, including 10 oligochaetes, 15 aquatic insects and four molluscs. Some of the most common taxa were *Aulodrilus plurisetus*, *Limnodrilus hoffmeisteri*, *Cryptochironomus* sp., *Polypedilum* sp. and *Tokunagayusurika akamusi*. Average densities of the macroinvertebrates were similar in both reservoirs (about 300 ind.m<sup>-2</sup>), whereas there was a large difference in biomass with 430.7 mg.m<sup>-2</sup> in Daoguanhe reservoir and 1294.3 mg.m<sup>-2</sup> in Jinshahe. Density and biomass of the benthic macroinvertebrates varied over time in both reservoirs with the highest values in November of 2006. Density and biomass also varied spatially. Water temperature, depth, sediment composition and nutrients were correlated with the density of benthic organisms. The biological quality of reservoirs was evaluated with the Shannon diversity, Margalef richness and Goodnight–Whitley indices. Both chemical and biological analyses indicated that Jinshahe reservoir is slightly polluted and still in good ecological conditions, while Daoguanhe reservoir is more heavily polluted, with macroinvertebrate community typical of polluted waters. Studying the condition of the benthic macroinvertebrate communities yielded important information about the health of the reservoirs and the stress factors that influence environmental conditions.

**Keywords:** Macroinvertebrates; Spatial patterns; Water quality assessment; Artificial lakes; Diptera Chironomidae; Oligochaeta

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