Study on meticulous management targets for water health of typical mountainous river basin based on classification of water bodies

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Water management plays a crucial role in eco-security as well as environmental health of a river basin. Management of the river basin in China with emphasis on management of water quality currently, is lack of consideration on aquatic ecosystem and hydro-morphology, which are key factors of water health. This study takes Baoxing river basin as an example, which is a typical mountainous river basin in core area of Giant Panda National Park with abundant bio-diversity and significant ecological function. 25 water bodies were classified and corresponding spatial management units were defined for Baoxing river basin based on hydro-morphological characteristics as well as eco-environmental pressures. Then the bio-indicators focusing on benthic macroinvertebrates were selected preliminarily for each management unit of Baoxing river basin based on sampling as well as monitoring with considering aquatic ecosystem, water quality and hydro-morphology. The management targets of aquatic ecosystem and water quality were defined for each spatial management unit of Baoxing river basin based on analysis of response mechanism of bio-indicators, water quality and hydro-morphology. 6 kinds of macroinvertebrates were defined as bio-indicators for corresponding spatial management units and corresponding bio-density range and water quality requirements were defined as the targets for water health management of each management unit as well, which will be the key basis for meticulous and integrity management of mountainous river basin.