

## **An index of river health for river plain network regions**

**YING ZHANG, LING LIU, JIANZHONG WANG, JUAN CHEN &  
CHENGPENG LU**

*State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering, Hohai University, Nanjing 210098, China*  
[zhangying\\_lyn@hhu.edu.cn](mailto:zhangying_lyn@hhu.edu.cn)

**Abstract** We propose a new concept – “water health” – based on ecological health to describe the degradation of aquatic ecosystems in relation to human-induced watershed alterations, and present a partial application of these ideas in a river plain network region. An indicator framework for the analysis and assessment of “water health” is presented which takes environmental, ecological, landscape and social service functions into consideration. The meaning and method of determination of each indicator is described. The entropy method was adopted to calculate the weight of index, applying the weighted sum model. These approaches were implemented to assess the four main functions of “water health” for Xinghua city, China. It was found that the water quality is inferred as being only lightly polluted – “the general stage”; ecological and landscape functions were also in this category. In addition, large-scale exploitation of the social service function has also influenced the regional environment to some extent.

**Key words** water health; river health; ecological integrity; indicators; river plain network regions