

## **Impact of the Three Gorges Reservoir operation on the downstream ecological water use**

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**Abstract** With population increase and economic growth, the flow regime of the Yangtze River has been altered to some extent by human activities, and particularly dam construction. Dam-induced alterations in the flow regime of the Yangtze River will unavoidably influence water allocation among different water uses and instream ecological water requirements may not be satisfied. To assess the impacts of the Three Gorges reservoir operation on the downstream minimum instream ecological water requirements, this paper selected the Three Gorges Reservoir and Yichang hydrological station below the reservoir as case study sites. On the basis of long-term time series of daily discharge data, the reservoir outflow was simulated under two water storing schemes and the degree to which the downstream minimum ecological flow was satisfied was computed. The output of this paper could provide references for the integrated management of the Yangtze River water resources and the assessment of dam-induced impacts on the Yangtze River ecosystem health.

**Key words** Yangtze River; Three Gorges Reservoir; Yichang hydrological station; minimum instream ecological flow