**Variation of phosphorus inflow to the Three Gorges Reservoir: Impact of human activities**

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Increasing human activities have inevitably affected the ecological environment of the Three Gorges Reservoir (TGR) region in recent years. While present research attention is mainly dedicated to the downstream effects of the TGR, few studies have been focused on the great change of inflows to the TGR. In this study, we reveal the impact of human activities, including external input and the operation of upstream cascade reservoirs, on the phosphorus load inflows to the TGR based on the data in 2004-2017. The sediment and phosphorus load inflows to the TGR fluctuated in the first 9 years, and showed a significant downward trend since 2013, with drastic decreases of 82.1% and 65.9%. A macroscopic quantification method utilizing double mass curves was developed to separate the contribution from external input and upstream cascade reservoirs. Results show that external effects were the main driving factor for phosphorus load increment in the studied area, while sediment entrapment of upstream cascade reservoirs reduced the phosphorus inflow to the TGR. The unfavorable inflow situation caused by intensified human activities makes TGR suffer a danger from rising phosphorus load pressure, which may have profound impacts on the ecological environment of the TGR as well as the downstream Yangtze River.