Water diversion is not to blame for phosphorus enrichment in Taihu Lake

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The Water Diversion Project from the Yangtze River to Taihu Lake (WDYT) has been widely recognized as an urgent and effective engineering measure to increase water resources, ameliorate the hydro-environment and safeguard the water supply of Taihu Basin. However, some previous studies claimed that WDYT has brought in allochthonous nutrients and should take responsibility for the dramatic increase in phosphorus loading of Taihu Lake in recent years, because Yangtze River has a higher average phosphorus concentration than Taihu Lake. To ensure correct public understanding and provide a critical response to the misconception about the source of phosphorus loading, we quantified contribution of water diversion from the Yangtze River to phosphorus loadings of Taihu Lake over the past twenty years. We reveal that WDYT only diverted 4.3% annually of total phosphorus input of Taihu Lake in the last decade and should not be responsible for the increase in phosphorus concentration and loading in Taihu Lake. We conclude that phosphorus input from the Huxi Region contribute 78% of phosphorus input of Taihu Lake and should be primarily responsible for the high phosphorus concentration of Taihu Lake. Our findings have provided constructive guidance for water resource management of Taihu Basin and administrative decision of the second stage of WDYT.