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Urban impacts on the water quality of selected water bodies in the Three Gorges Reservoir, China

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Urban systems belong to the major input sources for pollutants into aquatic systems. In China, the rising urbanisation and industrialisation causes a growing pressure on rivers, lakes and estuaries. With the recent impoundment of the Yangtze River by the Three Gorges Dam, the newly formed Three Gorges Reservoir is additionally experiencing drastic changes in the flow regime [1]. In the frame of the Sino-German "Yangtze-Project" [2] samples were taken from the water bodies in proximity to the Cities of Chongqing, Kaixian and Wushan during a field campaign in April 2011. Water samples were analysed for inorganic contents in suspended solids and the dissolved phase to assess the impact of these cities on the water quality of the reservoir.

Results show that input from urban sources, together with the effects from the impoundment of the Yangtze River, deteriorates the quality of water and sediments in the Three Gorges Reservoir. Water in the Wushan Lake is trapped in by the Yangtze River flowing by, which leads to longer retention times of effluent water from the city. The chemical composition of the lake water is also measurable upstream in the Daninghe itself and might be due to the backwater effect. In the Xiaojiang River near Kaixian the low flow velocity from the backwater effect of the Yangtze, together with influences from the city have led to problems with algal blooms. High metal concentrations at Chongqing indicate a strong impact of this megacity on the water quality of the Three Gorges Reservoir and the sediments of the Yangtze River.

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