

Research on the water quality characteristics in controlling sections in Yangtse Rive and its effects to Yangtse Rive estuary

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In this present study, three sections including Cuntan (upstream), Yichang (middlestream) and Jiangning (downstream) in Yangtse River were selected, and the diversities of water quality were analyzed on the basis of the data of water quality and hydrography monitoring in 2004-2005. The average of pH was 8.07 (from 7.95 to 8.15) in Yichang section, and 7.83 (from 7.6 to 8.0) in Datong section throughout the river, indicating that the middle and downstream water quality in Yangtse Rive was acid characteristic, and the pH value was less than 7.0 according to the runoff gross.

The suspended particle results showed that it was 311.8, 100.7 and 102.1 mg/L in Cuntan section, Yichang section and Datong section, respectively, indicating that the Three Gorges Reservoir has significant retention effects on suspended particles and the ratio of retention was about 67.7 %.

The index of COD_{Mn} showed that it was 3.37, 2.44 and 2.17 mg/L in Cuntan section, Yichang section and Datong section, respectively, indicating that the Three Gorges Reservoir from Cuntan to Yichang retained and eliminated those organic compounds and caused 27.6 % contamination decreasing. Although the middle- and downstream of Yangtze River accepted large amounts of organic pollutants, the organic pollutants discharged along sections were decomposed and the COD_{Mn} contents also reduced 11.1 % from Yichang section to Datong section. All of these suggest that Yangtse Rive can eliminate the COD_{Mn} to some extent.

The NH₃-N results showed that it was 0.15, 0.12 and 0.32 mg/L in Cuntan section, Yichang section and Datong section, respectively, indicating that the Three Gorges Reservoir from Cuntan to Yichang has self-purified capacity and caused 20% NH₃-N reduction. The concentrations of NH₃-N, however, increased 166.7 % from Yichang Section to Datong Section, indicating that the NH₃-N loading from middle- and downstream in Yangtse Rive exceeded the self-purification capacity of the mainstream in Yangtse Rive and the water quality declined significantly.

To similar the NH₃-N, total phosphorus (TP) results showed that 0.16, 0.10 and 0.12 mg/L in Cuntan section, Yichang section and Datong

section, respectively, indicating that the Three Gorges Reservoir from Cuntan to Yichang has self-purified capacity and caused 37.5% TP reduction, while 20.0% TP increased from Yichang section to Datong section.

NO₃-N results showed that it is 1.24, 1.40 and 1.52 mg/L in Cuntan section, Yichang section and Datong section, respectively, indicating that there was an increasing trend from Cuntan section to Datong section. The NO₃-N discharged mainly from municipal, industrial effluents and agricultural runoff, which accounted for about 50 %, respectively.

In view of the contamination control, the water quality of main channel in Yangtse River can not be affected, and there was no obvious effect on Yangtse River estuary environment with the presupposition that the COD_{Mn} discharge must meet the criterion in effluents discharging areas under present conditions. And it is necessary to improve the treatment efficiency of municipal and industrial effluents, to control the agricultural pollution loading, and to reduce the NH₃-N and TP discharges for ensuring the water quality in Yangtse River. At present, the main pollution factors are inorganic nitrogen and phosphorus in Yangtse Rive estuary, and so it is significant to control the TP and NO₃-N discharges for improving Yangtse River estuary environment and adjacent marine environment. Thus, in view of the gross controlling, it is not enough to control the water quality in Yangtse Rive area with COD controlling only, and it is necessary to control the contamination gross with different orientations and criterions.

Restoration of nutrient laden shrimp culture systems through improved feed technology an aspect of coastal zone management

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The effluents from shrimp farms are known to develop eutrophication in discharged sits viz., adjacent coastal waters due to excess nutrients like phosphorus (P). In order to restore normalcy in such sites, a case study was undertaken at Tharuvaikulam shrimp farm area (south India) during March to July 2006. The effluents