

Spatial Distribution and Accumulation of Heavy Metals in Estuary of Poyang Lake Using the Hydro- geomorphological Partitions

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Poyang Lake is the largest freshwater lake in China. Raohe river is one of the five river systems and the most serious heavy metal contaminated areas of Poyang lake. To investigate the spatial distribution and accumulation of heavy metals in estuary of Raohe river, six types of hydraulic characteristic zones were chosen in estuary of Raohe river. Characteristics of heavy metal distribution in surface sediments of different zones are analyzed, and the influence of hydraulic property on heavy metal distribution is discussed. Heavy metal pollution and potential risk in surface sediment of estuary wetland are estimated using Hakanson potential ecological risk index. Result shows that the heavy metal concentration in sediment exceeds the background value. According to environmental quality standard for soil, Cu was the main pollutants in sediment. The results also suggest that hydrodynamic condition plays the key role in the spatial distribution of heavy metals. Heavy metal contents are higher in the wet season in which the rising water level withstands river inflow. Area with slower water flow tends to become enriched area of heavy metals. Moderate potential ecological risk is found in saucer lake within estuary area. Cu, Cd and Hg is the main contribution of potential ecological risk.