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淀山湖沉积物磷分布特征

Forms and distribution of phosphorus in sediments of Dianshan Lake

关键词: [沉积物](#) [磷](#) [淀山湖](#) [垂直分布](#)

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摘要: 本研究分析了淀山湖沉积物中磷空间分布特征.结果表明,淀山湖沉积物含有较丰富的磷,TP变化范围在266~1146 mg·kg⁻¹之间,全湖平均含量为572 mg·kg⁻¹,空间分布存在显著的异质性.受上游来水影响,淀山湖沉积物TP含量总体上由西北向东南逐步降低,其中以北部湖区沉积物污染程度最高.表明虽然近年仍有大量的外源污染物进入淀山湖,但淀山湖总体存在一定的自净能力.以全湖平均来看,淀山湖沉积物中磷存在形态由高到低顺序为HCl-P>NaOH-P>OP>Ex-P.Ex-P含量最低,不足TP的1%.沉积物NaOH-P与TP相关性良好,表明沉积物中TP含量的增加,主要来自于NaOH-P.在空间分布上,西北部湖区TP主要以NaOH-P为主,东南部TP主要以HCl-P为主.OP在表层沉积物中分布较平均,在垂直分布上,各样点底部有机磷所占TP的比例普遍高于上层,暗示近年来生源磷沉积处于下降趋势.

Abstract: Based on field sampling work conducted in August 2010, phosphorus forms and distribution in the sediments of Dianshan Lake were analyzed. The results showed that the content of total phosphorus and phosphorus fractions varied significantly in different regions. The TP contents ranged from 266 to 1146 mg·kg⁻¹ with the maximum values in the north sampling sites. The spatial distribution of TP in surface sediment tended to decrease from the northwest to the southeast region. The rank of phosphorus fractions was HCl-P>NaOH-P>OP>Ex-P in terms of the average concentration. Ex-P existed in minor quantities, accounting for less than 1% of TP. OP changed dramatically in different regions, and the concentrations in deeper layers were higher than those on the surface. HCl-P was the major phosphorus fraction in the east lake region. Similar to TP, the proportions of NaOH-P were higher in the northwest lake region. There was a significant positive correlation between TP and NaOH-P in the sediments of the Dianshan Lake ($r=0.820$). It was suggested that eutrophication in the north and northwest regions of Dianshan Lake was more serious than other regions, and most proportion of the TP was from anthropogenic sources.

Key words: [sediments](#) [phosphorus](#) [Dianshan Lake](#) [vertical distribution](#)

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