Biogenic Silica Distribution in the Sediments from Arrow Bamboo Lake in Jiuzhaigou World Nature Heritage Reserve, China: Environmental Implication

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Abstract: The Biogenic silica (BSi) contents were determined in the sediments from Arrow Bamboo Lake in Jiuzhaigou National Reserve. Furthermore, the relationship between sediment total organic carbon (TOC) content, grain-size fraction and BSi content were discussed in order to trace the anthropogenic and/or natural effect on water quality and lacustrine sedimentation. The content of BSi ranged between 5.5 and 15.8 mg/g, and the BSi content in the sediments had a significantly positive correlation with TOC. Also, the BSi content was mainly controlled by the grain-size distribution in the core sediments, and the stronger adsorption to BSi occurred in the finer grain fraction. The variation of BSi values from the sediments in Arrow Bamboo Lake, insignificantly coupling with the air temperature, indicated the vital effects of deforestation and tourism on lake water and sediments.

Key words: Biogenic silica (BSi); sediments; TOC; grain-size fraction; Arrow Bamboo Lake; Jiuzhaigou World Nature Heritage Reserve

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