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研究论文

香溪河河流生态系统服务功能评价

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摘要 河流作为水资源的重要载体，在水资源危机日益严峻的我国，有特别重要的意义。尤其是近年来国内对水电开发的强度不断上升，如何科学地评价河流在不同情况下给人类带来的效益，进而有效地开发与管理河流生态系统，是生态学家面临的重大任务和挑战。香溪河是三峡水库湖北段的最大支流，其生态系统服务功能的正常发挥与否会影响河流沿岸居民的生产生活，也会影响其自身和相关生态系统的稳定，其河流的状况将直接影响到三峡水库。在对河流生态系统服务功能分类的基础上，结合数据的可获得性，对部分河段生态系统服务功能进行初步评价。研究结果表明，所研究河段生态系统服务功能总价值可达8.41×108元•a-1 ，各种功能的价值量排序为贮水功能>发电>旅游>调蓄洪水>水供给>水产品>输沙>净化>大气组分调节>控制侵蚀。经分析所研究河段的水电开发和旅游功能是其核心服务功能，提出在河流管理中既要考虑到核心功能的发挥，又要保证其它功能的支持作用得以实现的管理策略。

关键词 河流生态系统；服务功能；评价；香溪河

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A preliminary assessment on the Xiangxi River ecosystem services

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Abstract River, as an important water carrier, has special significance in China, where water resource crisis is getting increasingly worse. During the past a few years, many rivers in China have been developed by building hydropower stations. How to scientifically appraise the rivers' responses to the development in different situations, and how to effectively develop and manage the river ecosystems, represent a significant obligation and challenge for ecologists. The Xiangxi River is the longest tributary in Hubei portion of the Three Gorges Reservoir. The status of the river can influence the reservoir in many ways. The function of the river ecosystem services may impact the living and working conditions of the surrounded habitants and the sustainable development of related ecosystems and the river itself. Based on the past studies about the ecosystem services on water ecosystems, this paper divides the river ecosystem services by the characteristics of composition and structure, ecological processes and effectiveness of river ecosystems, into three categories: providing goods, regulating and supporting, cultural services. As a result, the total monetary value of the calculated services of the studied reaches of Xiangxi River was 8.41×108 Yuan RBM•a-1 in 2003. The values of various services were ordered as water storage > hydro-energy > traveling >flood control > supplying fresh water > aquatic product > transportation of sand > water purification > gas regulation > erosion control. It also showed that traveling and hydro-energy were among the most important ecosystem services. River management strategy is proposed to optimize all the services to keep river the status of ecosystem sustainable development.

Key words river ecosystem _ services _ assessment _ Xiangxi River

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