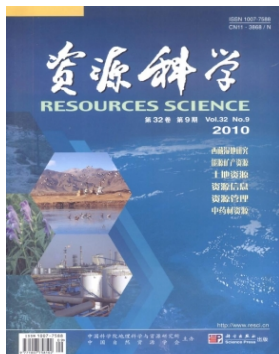


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Evaluation of Wetland Ecosystem Services in Wuliangsuhai

DUAN Xiao-nan,WANG Xiao-ke,OUYANG Zhi-yun.Evaluation of Wetland Ecosystem Services in Wuliangsuhai[J].Resources Science,2005,27(2):110-115.

Authors: [DUAN Xiao-nan](#) [WANG Xiao-ke](#) [OUYANG Zhi-yun](#)**Abstract:**

The wetland ecosystem services in arid and semi-arid regions are very important to local environment and livelihood of people. Located in an arid region of northwestern China, Wuliangsuhai is the largest wetland in the valley of the Yellow River. Based on field investigation and statistic data available, a frame of wetland ecosystem services in Wuliangsuhai and methods to evaluate their values are constructed. According to their features, two kinds of ecosystem services are identified: product supply services of direct values and environmental and life support services of indirect values. The main technique for valuing this ecological function of the wetland is the production function approach, and valuing the non-market environmental services through the use of surrogate market valuation. Results show that the direct values including provision of ecosystem products, and recreation and tourism are 0.45×108 RMB, mainly the values of reed production. The indirect values in terms of water resource regulating, wildlife habitat provision, environmental purification, air ingredients controlling, and culture services are 6.68×108 RMB, which is 14.84 times higher than direct values. From above estimated values, it can be concluded that the wetland ecosystem services have great ecological and economic values. The values of wetland ecosystem services in Wuliangsuhai are ranked as follows: regulating air ingredients > water resources regulating > wildlife habitat provision > products provision > environmental purification > recreation and tourism. The function of regulating air ingredients is of the highest value, which indicates that this function is very important in wetlands dominated by emergent macrophytes. The value of regulating water resources is 26.08 percent of the total ecosystem values, and the percentage was lower compared to results achieved in similar researches in other regions. It is indicated that shortage of water resource and eutrophication caused by non-point pollution from Hetao irrigation district are major problems facing Wuliangsuhai to fulfill wetland ecosystem services. The methods applied in the paper are convenient and widely used, but the criteria and principles of evaluation especially for wildlife habitat provision and culture services need to be improved in further studies.

Keywords: [Wetland](#) [Ecosystem services](#) [Ecological value](#) [Assessment](#)**Affiliation in Chinese:**中国科学院生态环境研究中心系统生态重点实验室, 中国科学院生态环境研究中心系统生态重点实验室, 中国科学院生态环境研究中心系统生态重点实验室 北京 100085, 北京 100085, 北京 100085[View Abstract](#) [Download Pdf](#)[Ask Subject librarian](#)[Citation Analysis](#)**This article has been cited by other articles(30):**

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- 5)、王建华 吕宪国. [Valuing wetland services: the complexity and a review of studies](#)[J].Ecology and Environmet,2007,16(3):1058-1062.
- 6)、DUAN Xiao-nan,WANG Xiao-ke,OUYANG Zhi-yun and Wang Ruo-yu. [Synthetically Modeling Crop Production of Irrigated Area and Wetland Protection of Wuliangsu Lake in Inner Mongolia](#)[J].Resources Science,2008,30(4):628-633.
- 7)、付新峰,谷晓伟,刘晓岩,何宏谋. [乌梁素海生态功能定位初步分析](#)[J].Yellow River,2008,30(10).
- 8)、Wang Yajuan,Liu Xiaopeng. [The Water Quality Comprehensive Evaluation and Analysis of Yuehai Wetland in Yinchuan](#)[J].Journal of Ningxia University(Natural Science Edition),2008,29(4).
- 9)、LI Min-yu,CUI Hong,DUO Hua-yu. [Services Function and Value Assessment on Wetland Ecosystem of Nanhu Park of Hohhot](#)[J].Inner Mongolia Forestry Investigation and Design,2009,32(3).
- 10)、Yuan Weiling,Cao Cougui,Wang Jinping. [Economic valuation of gas regulation as a Service by rice-duck-fish complex ecosystem](#)[J].Ecological Economy,2008,4(3).
- 11)、邵小平,刘小鹏,渠晓毅. [银湖湖泊湿地生态系统服务价值评估](#)[J].Chinese Journal of Ecology,2008,27(9).
- 12)、SHAO Ning-ping,LIU Xiao-peng,QU Xiao-yi. [Valuation of lake wetland ecosystem services of Yinchuan City](#)[J].Chinese Journal of Ecology,2008,27(9).
- 13)、MA Yu-jun,HUANG Xian-jin,XU Miao-miao,ZHONG Tai-yang,DU Wen-xing. [Sensitivity Analysis of Ecosystem Service Value to Coastal Tideland Development in Jiangsu Province](#)[J].China Land Science,2006,20(4):28-34.
- 14)、WANG Juan1,MA Wen-jun2,CHEN Wen-ye3. [Evaluation of service function value of Maqu alpine wetland ecosystem in the First Meander of the Yellow River](#)[J].Pratacultural Science,2010,27(1).
- 15)、陈奕,许有鹏,宋松. [Wetland eco-health assessment based on pressure-state-response model and fractal theory](#)[J].Environmental Pollution & Control,2010,32(6).
- 16)、ZHANG Lu,YANG Aimin,WU Sainan,GAN Hong. [Study on eco-environmental benefit of urban green space within water-receiving areas from Phase I of Mid-route of South-to-North Water Transfer Project](#)[J].Water Resources and Hydropower Engineering,2010,41(4).
- 17)、WANG Chunlian,ZHANG Yili,WANG Zhaofeng and BAI Wanqi. [Changes of Wetland Ecosystem Service Value in the LhasaRiver Basin of Tibetan Plateau](#)[J].Resources Science,2010,32(10):2036-2042.

- [18]、段晓男 王效科 郭玉华 叶俊峰 欧阳志云. [Effects of Environmental Factors on Evolution of Reed Community in Wuliangsu Lake, Inner Mongolia](#)[J]. Journal of Arid Land Resources and Environment, 2006, 20(3): 175-179.
- [19]、张晓云 吕宪国. [Overview of Research on Valuation of Wetland Ecosystem Services](#)[J]. Forest Resources Management, 2006(5): 81-86.
- [20]、殷书柏 吕宪国. [Discussion on Some Problems of Rapid Assessment of Wetland Function](#)[J]. Wetland Science, 2006, 4(1): 1-6.

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- [2]、 WANG Chunlian, ZHANG Yili, WANG Zhaofeng and BAI Wanqi. [Changes of Wetland Ecosystem Service Value in the Lhasa River Basin of Tibetan Plateau](#)[J]. Resources Science, 2010, 32(10): 2036-2042.
- [3]、 LI Yu-ying, LI Yi-min, GAO Wan-li, MEI Le-xiang. [On the service function of Danjiangkou reservoir wetland ecosystem](#)[J]. Journal of Nanyang Teachers College, 2007, 6(3): 46-50.
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- [5]、 LIU Li, WANG Xu-hui, ZHAO Xu-yang, LU Zi. [The Research Progress of Wetland Ecological Service Function Evaluation](#)[J]. Journal of Shijiazhuang University, 2007, 9(3): 94-97.
- [6]、 CUI Bao, shan, YANG Zhi, feng. [THE CLASSIFICATION AND CASE STUDY ON ECO-ENVIRONMENTAL WATER REQUIREMENT OF WETLANDS](#)[J]. Resources Science, 2003, 25(1): 21-28.
- [7]、 CHEN Zhi-ping. [Evaluation on functions of forest ecosystem and its economic value in Liangzi Lake wetland](#)[J]. Journal of Ezhou University, 2009, 16(2).
- [8]、 XU Xin-cheng, ZHANG Hong-mei. [Protection of Wetland and Biodiversity](#)[J]. Journal of Shangqiu Vocational and Technical College, 2003, 2(3): 47-49.
- [9]、 HE Juan, SHU Xiaobo and YU Xiubo. [Surveys and Analysis of Farmers' Perception about Wetland Ecosystem Services in Povang Lake](#)[J]. Resources Science, 2010, 32(4): 776-781.
- [10]、 LIU Ke, ZHAO Wenji, DU Qiang and TAN Hongwu. [Characteristics of the Dynamic Changes of the Beidaqang Wetland in Tianjin, China](#)[J]. Resources Science, 2010, 32(12): 2356-2363.
- [11]、 SHI Bao-jun a, LI Xing-guang. [On the Sustainable Development of the Ecological Resources of Hengshui Lake Wetland](#)[J]. Journal of Hengshui University, 2012, 14(1): 5-7.
- [12]、 LI Ji-feng. [Ecology plan on the city wetland](#)[J]. Journal of Nanyang Teachers College, 2006, 5(12): 65-67.
- [13]、 QIN Zhong, ZHANG Jiaen, LUO Shiming, XU Huaqin and Zhang Jin. [Estimation of Ecological Services Value for the Rice-Duck Farming System](#)[J]. Resources Science, 2010, 32(5): 864-872.
- [14]、 WANG Chunlian, ZHANG Yili, WANG Zhaofeng and BAI Wanqi. [Analysis of Landscape Characteristics of the Wetland Systems in the Lhasa River Basin](#)[J]. Resources Science, 2010, 32(9): 1634-1642.
- [15]、 LONG Xin, ZHEN Lin, CHENG Shengkui, YAN Bangyou, MA Li, PAN Ying, JIANG Luguang, YANG Li and CAO Xiaochang. [Impact of the 1998 Flood on Ecosystem Services in the Povang Lake Region, China](#)[J]. Resources Science, 2012, 34(2): 220-228.
- [16]、 YAN Li, WANG Jin-keng and HUANG Hao. [An Assessment of Ecosystem Health in Dongxi River Basin based on PSR Framework](#)[J]. Resources Science, 2008, 30(1): 107-113.
- [17]、 Zhuang Xiuqin. [Conservation And Sustainable Exploitation Of Wetland In Hongze Lake](#)[J]. Journal of Suihua University, 2003, 23(4): 25-27.
- [18]、 YI Wei-hua, SHANG Qing-fang. [Research on Wetland Landscape Ecology in Arid and Semi-arid Areas in Northwest China](#)[J]. Journal of Hexi University, 2007, 23(2): 70-73, 79.
- [19]、 WANG Xuelei, Du Yun. [Value Assessment of the Lake Honghu Wetland and Protection of Its Biodiversity](#)[J]. Bulletin of the Chinese Academy of Sciences, 2002, 16(3).
- [20]、 CHEN Ke-long, LI Shuang-cheng, ZHOU Qiao-fu, DUO Hai-rui and CHEN Qiong. [Analyzing Dynamics of Ecosystem Service Values based on Variations of Landscape Patterns in Qinghai Lake Area in Recent 25 Years](#)[J]. Resources Science, 2008, 30(2): 274-280.

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