

# 湖泊科学

## (Hupo Kexue)

2026年 第38卷 第3期 5月6日

### 目次

#### 专稿

- 浮游植物生长限制因子的审视:湖泊水华精准治理的科学基础 ..... (875)  
邹伟,秦伯强,吴天浩,许海,宋子豪,张运林,朱广伟
- 淡水生态系统损害评价体系的构建与应用 ..... (885)  
王聪,王智,厉恩华,张露,刘昔,李书印,李瑞雯,陈珊,邢鹏,敖偲成,卢少勇,  
谭铁军,杨军

#### 综述

- 水库沉积物微生物群落的生态学研究进展 ..... (903)  
高煜,林莉,潘雄,董磊,陈玉玲,郭子玮,许全喜

#### 研究论文

##### ——富营养化与水华防控

- 呼伦湖蓝藻水华驱动因子及防控对策 ..... (919)  
李兴月,刘晓民,刘廷玺,张生,王梓行,卢宗福,王文娟,杨耀天
- 丹江口水库(丹库区)浮游植物功能群时空特征及水质评价 ..... (931)  
靳佳霖,吕绪聪,曾大海,丁厚宽,高云霓,陈海燕,袁华涛,李学军
- 细胞配额解析中营养水库藻类生长的资源限制与营养阈值 ..... (943)  
杨瑾晟,吴越,曹文雅,徐洪亮,陈开宁,史小丽
- 长江中游浅水湖泊磷赋存形态特征及其对浮游植物群落结构的影响:以湖北省长湖为例 ..... (955)  
杨新宇,郭祉宾,向逸,李学梅,朱挺兵,魏念
- 2011—2020年太湖藻源性碳汇时空特征分析与估算模型构建 ..... (970)  
朱鹏,李子轩,秦伯强,施文卿
- 基于便携式高光谱近感快速监测内陆水体叶绿素 $a$ 浓度 ..... (980)  
骆夏杨,李娜,张运林,郭宇龙,马宗伟
- 枯水季“引江济太”对受水河湖水体磷素分布的影响 ..... (994)  
李馨雅,吴修锋,戴江玉,吴时强,刘倩倩,程旭,钟优

##### ——生物地球化学与水环境保护

- 表面流人工湿地微污染进水下沉积物营养盐累积特征及污染评价 ..... (1006)  
姚亮亮,朱立琴,张海阔,马杰,严春敏,蒲亚帅,宋从清,李大胜,王玲,李一平
- 黄河小浪底水库水沙调控对其下游氮迁移转化及通量的影响 ..... (1021)  
李艳利,高凯洋,任世航
- 内蒙古岱海表层沉积物氟化物赋存特征及基于吸附解吸动力学影响因素分析 ..... (1033)  
王熙正,卢俊平,刘莹慧,吕纯剑,孙嘉乐,米家辉,李卓,张昊
- 不同水文期“引江济淮”工程(安徽段)溶解性有机质来源解析及关联因素分析 ..... (1046)  
杨波,唐晓先,高芮,黄麟,刘晓薇,张玲,王昌辉
- 我国北方灌区尾间湖泊不同形态碳的来源、季节变化及驱动因子分析:以乌梁素海为例 ..... (1058)  
赵轶鸣,于瑞宏,位俊燕,杨旭,耿悦,王效壮,李向伟

平水年鄱阳湖洲滩湿地 CO <sub>2</sub> 通量的昼夜差异及主控因素 .....	(1075)
李 琦,陶亮亮,王 容,吴心渠,戚君燕,刘元波	
丹江口水库丰水期与枯水期 CO <sub>2</sub> 通量变化特征及影响因素 .....	(1089)
卢名燊,吴 玥,陈梦晗,付琛昊,秦淑静,刘 攀,张 榕,程 磊	
基于源解析的黄河三角洲湿地 PFAS 生态风险 .....	(1102)
吕永高,刘雪松,张 涛,王旭清,张 洁	
滇池表层沉积物甾醇空间分布特征及生态环境意义 .....	(1114)
周冰倩,张晓楠,张 灿,牛豪格,牛婷雨,冷铭睿,赵翔宇,王启睿,贺 信,杨骁羿,陈 亮, 张虎才	
<b>——淡水生态与生物多样性保育</b>	
走航式大体积 eDNA 采样法开发及其在长江鱼类监测中的应用 .....	(1127)
王一帆,钟文军,张 颜,张 松,李 栩,张效伟	
三峡库区外来鱼类短颌鲚的繁殖现状及适应性对策研究 .....	(1136)
吴彤飞,鲁桃秀,吕红健,丁钰玮,杨 黎,田志黎,席 丹,邓华堂,姚维志,付 梅	
丹江口水库消落区植被结构特征 .....	(1149)
程靖华,张志永,史 方,邹 曦,彭晓然,朱 稳,袁玉洁,张道熙	
一种基于多光谱与雷达影像区分浮叶与挺水植物的方法 .....	(1158)
龚亚琪,王赐玥,张 萌,李 述,何 亮,葛 刚	
土壤水分梯度和刈割频次对鄱阳湖藁草的影响 .....	(1170)
李子如,王晨溪,夏少霞,于秀波	
江湖阻隔对长江中下游湖泊软体动物群落分类多样性的影响 .....	(1183)
马强强,郑 鹏,张 昆,张 飞,蒋小明	
基于环境因子的串珠藻科 Batrachospermaceae 濒危机制分析 .....	(1192)
张国涛,魏彩花,郭伟楠,南芳茹,冯 佳,谢树莲	
基于中宇宙实验的湖泊微生物结构与功能对短期热浪响应差异 .....	(1200)
庄新风,唐浩然,赵星辰,李雅暄,王 锦,任明磊,任 泽,张 玮,彭霖虹,邓建明	
<b>——流域水文与水资源安全</b>	
1980—2020 年鄱阳湖退水期水体滞留时间时空演变及对水情的响应 .....	(1210)
仝 钰,姚 静,万荣荣,李 冰,谭志强,徐力刚,郑光辉	
基于随机森林混合模型的鄱阳湖局部地形遥感反演 .....	(1222)
伍 婵,赖格英,黄 慧,申 娜	
鄱阳湖洪泛湿地水热通量模拟研究 .....	(1235)
彭 晨,储小东,李云良,邢子康,陈 婷,杨 扬,杨 美	
鄱阳湖洪泛区地下水流准三维数值模拟与水均衡分析 .....	(1253)
何景媛,安 杰,杨 扬,宋 钢,彭 晨,邢子康,李云良	
闽江上游水库泄流调控对极端咸潮入侵事件的影响 .....	(1268)
黄雅丽,胡朝阳,刘 阳,葛建忠,付开雄,林 斌,陈 华	
<b>——河湖演变与全球变化响应</b>	
基于机器学习模型的东北地区湖冰物候变化特征及驱动因子分析 .....	(1281)
彭 灿,陈立文,章光新,孙敬轩	
鄱阳湖流域南部湖泊沉积物记录的百余年来生态环境演化过程 .....	(1295)
魏衍显,孙伟伟,赵雁捷,王 荣,张恩楼	

(本期责任编辑:杨柳)

# Journal of Lake Sciences

( ISSN 1003-5427 )

Volume 38 Issue 3; May 6, 2026

## Contents

### Feature article

Revisiting the limiting factors of phytoplankton proliferation: A scientific basis for cost-efficient management of lake blooms 875

Zou Wei, Qin Boqiang, Wu Tianhao, Xu Hai, Song Zihao, Zhang Yunlin & Zhu Guangwei

Construction and application of assessment system for freshwater ecosystem damage 885

Wang Cong, Wang Zhi, Li Enhua, Zhang Lu, Liu Xi, Li Shuyin, Li Ruiwen, Chen Shan, Xing Peng, Ao Sicheng, Lu Shaoyong, Tan Tiejun & Yang Jun

### Reviews

Ecological research advances in microbial communities within reservoir sediments: A comprehensive review 903

Gao Yu, Lin Li, Pan Xiong, Dong Lei, Chen Yuling, Guo Ziwei & Xu Quanxi

### Research papers

#### —*Eutrophication, bloom prevention and control*

Driving factors and control measures of cyanobacterial bloom in Lake Hulun 919

Li Xingyue, Liu Xiaomin, Liu Tingxi, Zhang Sheng, Wang Zihang, Lu Zongfu, Wang Wenjuan & Yang Yaotian

Spatiotemporal characteristics of phytoplankton functional groups and water quality evaluation in Dankou District, Danjiangkou Reservoir 931

Jin Jialin, Lv Xucong, Zeng Dahai, Ding Houkuan, Gao Yunni, Chen Haiyan, Yuan Huatao & Li Xuejun

Cell quotas explained the resource limitations and nutritional thresholds on algae growth in mesotrophic reservoirs 943

Yang Jinsheng, Wu Yue, Cao Wenya, Xu Hongliang, Chen Kaining & Shi Xiaoli

Characteristics of phosphorus fractions and their effects on phytoplankton community structure in the middle reaches of the Yangtze River: A case study of Lake Changhu, Hubei 955

Yang Xinyu, Guo Zhibin, Xiang Miao, Li Xuemei, Zhu Tingbing & Wei Nian

Spatial-temporal patterns of algae-derived carbon sink in Lake Taihu from 2011 to 2020 and estimation model development 970

Zhu Peng, Li Zixuan, Qin Boqiang & Shi Wenqing

Rapid monitoring of chlorophyll-*a* concentration in inland water bodies using a portable proximal sensing technology 980

Luo Xiayang, Li Na, Zhang Yunlin, Guo Yulong & Ma Zongwei

Impact of dry-season water diversion from the Yangtze River to Lake Taihu on phosphorus distribution in water-receiving areas 994

Li Xinya, Wu Xiufeng, Dai Jiangyu, Wu Shiqiang, Liu Qianqian, Cheng Xu & Zhong You

#### —*Biogeochemistry and aquatic environment protection*

Accumulation characteristics and pollution assessment of nutrients in sediments of surface flow constructed wetlands treating slightly polluted water 1006

Yao Liangliang, Zhu Liqin, Zhang Haikuo, Ma Jie, Yan Chunmin, Pu Yashuai, Song Congqing, Li Dasheng, Wang Ling & Li Yiping

Impacts of the water-sediment regulation scheme at Xiaolangdi Reservoir on nitrogen migration, transformation, and flux in the lower Yellow River 1021

Li Yanli, Gao Kaiyang & Ren Shihang

Analysis of fluoride occurrence characteristics and influencing factors in surface sediments of Lake Daihai (Inner Mongolia) based on adsorption models 1033

Wang Xizheng, Lu Junping, Liu Yinghui, Lv Chunjian, Sun Jiale, Mi Jiahui, Li Zhuo & Zhang Hao

Deciphering dissolved organic matter sources and their controlling factors in the Yangtze-to-Huaihe Water Diversion Project: Insights from the Anhui Section across hydrological scenarios 1046

Yang Bo, Tang Xiaoxian, Gao Rui, Huang Lin, Liu Xiaowei, Zhang Ling & Wang Changhui

Analysis of the sources, seasonal variations, and driving factors of different carbon forms in a terminal lake in irrigation areas, northern China: A case study of Lake Ulansuhai	1058
Zhao Yiming, Yu Ruihong, Wei Junyan, Yang Xu, Geng Yue, Wang Xiaozhuang & Li Xiangwei	
Diurnal variation and drivers of CO <sub>2</sub> fluxes in the Lake Poyang floodplain wetland during a normal flow year	1075
Li Qi, Tao Liangliang, Wang Rong, Wu Xinqu, Qi Junyan & Liu Yuanbo	
Comparison and influence factors of carbon dioxide flux in Danjiangkou Reservoir during wet and dry periods	1089
Lu Mingshen, Wu Yue, Chen Menghan, Fu Chenhao, Qin Shujing, Liu Pan, Zhang Lu & Cheng Lei	
Ecological risk of PFAS in wetland of the Yellow River Delta based on source apportionment	1102
Lv Yonggao, Liu Xuesong, Zhang Tao, Wang Xuqing & Zhang Jie	
Spatial distribution and sources of sterols in surface sediments of Lake Dianchi	1114
Zhou Bingqian, Zhang Xiaonan, Zhang Can, Niu Haoge, Niu Tingyu, Leng Mingrui, Zhao Xiangyu, Wang Qirui, He Xin, Yang Xiaoyi, Chen Liang & Zhang Hucai	
— <i>Freshwater ecology and biodiversity conservation</i>	
A cruise-based large-volume eDNA sampling method for fish monitoring in the Yangtze River	1127
Wang Yifan, Zhong Wenjun, Zhang Yan, Zhang Song, Li Xu & Zhang Xiaowei	
Reproductive status and adaptive strategies of non-native <i>Coilia nasus</i> in the Three Gorges Reservoir Region	1136
Wu Tongfei, Lu Taoxiu, Lv Hongjian, Ding Yuwei, Yang Li, Tian Zhili, Xi Dan, Deng Huatang, Yao Weizhi & Fu Mei	
Vegetation structure characteristics in the water-level fluctuation zone of Danjiangkou Reservoir	1149
Cheng Jinghua, Zhang Zhiyong, Shi Fang, Zou Xi, Peng Xiaoran, Zhu Wen, Yuan Yujie & Zhang Daoxi	
A method for distinguishing floating-leaved plants and emergent plants based on multispectral and radar imagery	1158
Gong Yaqi, Wang Ciyue, Zhang Meng, Li Shu, He Liang & Ge Gang	
Effects of soil moisture gradient and mowing frequency on <i>Carex</i> in Lake Poyang	1170
Li Ziru, Wang Chenxi, Xia Shaoxia & Yu Xiubo	
Impact of river-lake disconnection on the taxonomic diversity of molluscan communities in lakes of the middle and lower reaches of the Yangtze River	1183
Ma Qiangqiang, Zheng Peng, Zhang Kun, Zhang Fei & Jiang Xiaoming	
Endangered mechanism of Batrachospermaceae (Rhodophyta) based on environmental factors	1192
Zhang Guotao, Wei Caihua, Guo Weinan, Nan Fangru, Feng Jia & Xie Shulian	
Differential responses of lake microbial structure and function to short-term heatwaves: Evidence from a mesocosm experiment	1200
Zhuang Xinfeng, Tang Haoran, Zhao Xingchen, Li Yaxuan, Wang Jin, Ren Minglei, Ren Ze, Zhang Wei, Peng Jihong <sup>6</sup> & Deng Jianming	
— <i>Catchment hydrology and water resources security</i>	
Spatiotemporal variations in residence time and response to hydrological regime during the receding period of Lake Poyang (1980–2020)	1210
Tong Yu, Yao Jing, Wan Rongrong, Li Bing, Tan Zhiqiang, Xu Ligang & Zheng Guanghui	
Remote sensing inversion of local topography in Lake Poyang using a hybrid random forest model	1222
Wu Chan, Lai Geying, Huang Hui & Shen Na	
Simulations of water and heat flux in the Lake Poyang floodplain wetland	1235
Peng Chen, Chu Xiaodong, Li Yunliang, Xing Zikang, Chen Ting, Yang Yang & Yang Mei	
Quasi-3D groundwater flow simulation and water budget analysis in the Lake Poyang floodplain using FE-FLOW model	1253
He Jingyuan, An Jie, Yang Yang, Song Gang, Peng Chen, Xing Zikang & Li Yunliang	
The impact of upstream reservoir discharge regulation on extreme saltwater intrusion events in the Minjiang River	1268
Huang Yali, Hu Zhaoyang, Liu Yang, Ge Jianzhong, Fu Kaixiong, Lin Bin & Chen Hua	
— <i>Sedimentation and global change</i>	
A machine-learning model for identifying characteristics and driving factors of lake ice phenology changes in Northeast China	1281
Peng Can, Chen Liwen, Zhang Guangxin & Sun Jingxuan	
Ecological and environmental evolution over the past century recorded in lake sediments from the southern Lake Poyang Basin	1295
Wei Yanxian, Sun Weiwei, Zhao Yanjie, Wang Rong & Zhang Enlou	