**Xiao Zhang**

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| Wuhan, China | [xiaozhang\_sdh@whu.edu.cn](mailto:xiaozhang_sdh@whu.edu.cn) |

**EDUCATION**

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| **Sept. 2016** | **School of Resource and Environmental Science, Wuhan University, China.** |
| **-Aug. 2023** | **Ph.D. Environmental Science (Successive Postgraduate and Doctoral Program)** |

Research on the driving mechanism of algal bloom outbreaks in the middle and lower reaches of the Hanjiang River under the operation of cascade reservoirs.

A coupled watershed hydrodynamic-water quality-water ecology model in the middle and lower reaches of the Hanjiang River basin was constructed to study the driving mechanism of hydrological and meteorological factors on the algal bloom and the impact of inter-basin water diversion on the risk of algal bloom outbreaks.

Received a fund for project“The impact mechanism of land surface processes on water eutrophication”, from the Open Research Foundation of Key Laboratory of the Pearl River Estuarine Dynamics and Associated Process Regulation, Ministry of Water Resources, China.

Supervised the graduation project of 4 undergraduate and 3 master's students.

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| **Apr. 2021** | **SIAM Dept. Eawag, Switzerland.** |
| **-Mar. 2022** | **Ph.D. Joint cultivation. Environmental Science** |

Hydrologic impacts of cascading reservoirs under climate variability. This work was published on Journal of Hydrology: Regional Studies.

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| **Sept. 2012** | **School of Resource and Environmental Science, Wuhan University, China.** |
| **-Jun. 2016** | **BA. Environmental Science** |

Research on the Water Quality Model in Danjiangkou Reservoir. **Excellent bachelor's degree thesis** in Hubei province, China.

**SCHOLARSHIP AND AWARDS**

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| 2021 | **CSC scholarship**- Award made by China Scholarship Council for abroad joint cultivation of Chinese doctoral students |
| 2019 | **Scholarship of Academic Excellence**- Award made by Wuhan University for top 20% of students based on the academic level within each school |
| 2018 | **Excellent graduate students of Wuhan University-**Elected by the School of Resource and Environmental Science, Wuhan University for outstanding graduate student |

**RESEARCH INTEREST**

Hydrology and nutrient cycle; Hydrodynamic modelling; Water resource/quality management;

**PUBLICATIONS**

* **Xiao Zhang**, Hong Yang, Wanshun Zhang, Fabrizio Fenicia, Hong Peng, Gaohong Xu. Hydrologic impacts of cascading reservoirs in the middle and lower Hanjiang River basin under climate variability and land use change[J]. Journal of Hydrology: Regional Studies, 2022, 44: 101253.
* **Xiao Zhang**, Xiaomin Chen, Wanshun Zhang, Hong Peng, Gaohong Xu, Yanxin Zhao, Zhenling Shen. Impact of Land Use Changes on the Surface Runoff and Nutrient Load in the Three Gorges Reservoir Area, China[J]. Sustainability, 2022, 14(4): 2023.
* Yonggui Wang, Bernard A. Engel, Panpan Huang, Hong Peng, **Xiao Zhang**, Meiling Cheng, Wanshun Zhang. Accurately early warning to water quality pollutant risk by mobile model system with optimization technology[J]. Journal of Environmental Management, 2018, 208: 122-133.
* Xiaomin Chen, Gaohong Xu, Wanshun Zhang, Hong Peng, Han Xia, **Xiao Zhang**, Qian Ke, Jing Wan. Spatial Variation Pattern Analysis of Hydrologic Processes and Water Quality in Three Gorges Reservoir Area[J]. Water, 2019, 11(12): 2608.
* Zhenling Shen, Wanshun Zhang, Hong Peng, Gaohong Xu, Xiaomin Chen, **Xiao Zhang**, Yanxin Zhao. Spatial characteristics of nutrient budget on town scale in the Three Gorges Reservoir area, China.[J]. The Science of the total environment, 2022, 819: 152677.
* Anna Jiang, Wanshun Zhang, Feng Zhou, Hong Peng, Xin Liu, Yue Wang, **Xiao Zhang**. Quantitative Assessment of Spatial–Temporal Characteristics of Agricultural Development Level in China: A County-Level Analysis. Sustainability 2023, 15, 15816. https://doi.org/10.3390/su152215816
* Wanshun Zhang, **Xiao Zhang**, Yonggui Wang, Hong Peng. Large scale watershed grid segmentation method, patent (in Chinese), 2019. Patent number: ZL 201711177159.0 (tutor first author)
* Mengyue Ma, **Xiao Zhang**, Dynamic calculation of watershed eco-compensation based on non-point pollution load estimation[J]. Yangtze River, 2019, 50(07): 77-82. (in Chinese)
* Yonggui Wang, **Xiao Zhang**, Wanshun Zhang. A fast simulation and early warning system for basin-scale emergency water environmental risk[J]. Environmental Science & Technology, 2018, 41(7):164-171. (in Chinese)
* Yonggui Wang, **Xiao Zhang**, Wanshun Zhang. The concept and demand of water environment management based on river administrator system[J]. CHINA WATER RESOURCES, 2018(4): 26-28. (in Chinese)
* Huawei Tu, Li Wang, **Xiao Zhang**, Yuan Liang, Shijia Shen, Di Wen, Hong Peng. Research on the Restoration of Urban Lake Water Environment under the Impact of River Network[J]. CHINA RURAL WATER AND HYDROPOWER. 2020(12): 101-105. (in Chinese)
* Man Zhang, Wanshun Zhang, **Xiao Zhang**, Ping Guo, Chongming, Li. Tempo-spatial variation of water quality in Three Gorges Reservoir area since its 175 m experimental impoundment [J]. Yangtze River, 2022, 53(03): 68-73. (in Chinese)
* Wanshun Zhang, Lin Li, Hong Peng, **Xiao Zhang**, Han Xia, Ziqian Zhang. Dynamic water environment capacity of urban river network for water environment improvement [J]. Water Resources Protection, 2022, 38(01): 167-175. (in Chinese)
* Jin Wan, Hong Peng, Jinjin Xia, **Xiao Zhang**, Yonggui Wang. Rapid alert for abrupt water heavy metal pollution in ungauged basins[J]. Yangtze River, 2017,48(09):16-19. (in Chinese)
* Hong Peng, Wenting Zhou, Wanshun Zhang, Han Xia, **Xiao Zhang**, Hao Wang. Construction and application of cloud traceability system for sudden water pollution in River Basin[J]. Water Resources Protection, 2022,38(01):176-181. (in Chinese)
* Wanshun Zhang, Ziqian Zhang, Hong Peng, Lin Li, **Xiao Zhang**, Han Xia, Lin Zhang. Water quality variations of Jinshan Lake Basin in Guangdong，Hong Kong and Macao Great Bay Area [J]. Water Resources Protection, 2021,37(05):1-8. (in Chinese)
* Study on the change of hydrological and water environment after the operation of the Three Gorges Reservoir, book, 2018.12, ISBN: 978-7-5492-0236-2. Responsible for the book chapter eight. (in Chinese)

**SELECTED PROJECT EXPERIENCES**

* “Risk assessment and early warning technology for water environment in three gorges reservoir area and upstream watershed”, 2016-2018. Belong to **the Major Science and Technology Program for water pollution control and treatment of China**. Responsible for the model integration of watershed model and 3D hydrodynamic-water ecology model.
* “Multi-objective combined operation technology of cascade reservoirs in the upper reaches of the Yangtze River”, 2016-2021. **The National Key Research and Development Program of China.** Responsible for high-performance parallel computing of 3D hydrodynamic and water ecology model.
* “The driving mechanism of migration of source factors and water bloom outbreak in the middle and lower reaches of Hanjiang River under the action of cascade regulation”, 2019-2023. **National General Program of Natural Science Foundation of China.** Responsible for the development of a coupled watershed-hydrodynamic-water quality model in the middle and lower reaches of Hanjiang River.
* “The impact mechanism of land surface processes on water eutrophication”, 2018-2021. **Project Leader.**
* “Research and development of water environment quality target management simulation and prediction system for typical watershed”, 2017-2018. Responsible for the development of hydrodynamic and water quality model in typical river (Pengxi River) and lakes (Taihu Lake) of Yangtze River basin.
* “Dynamic change analysis and quarterly warning report of water environment in Taihu Lake”, 2019. Responsible for the coupling development of remote sensing inversion model and 2D ecological water quality model in Taihu Lake.
* “Comprehensive management plan of water environment in Nanhu Basin (Wuhan)”, 2019-2020. Responsible for the development of 2D ecologic water quality model in Nanhu Lake, which include the hydrodynamic module, water quality module, phytoplankton growth dynamics module, and water-sediment interface module.
* “Study on water environment improvement of complex water system using hydrodynamics and water quality simulation technology”, 2019. Responsible for the coupling development of 1D river network and 2d lake hydrodynamic and water quality model.

**PRESENTATIONS**

* “Refined Simulation of Hydrology and Water Quality in River Basin”, the third Sino-French Workshop on Water Science in Shanghai, Shanghai, PRC, October 2017.
* “The indicator system for assessing the cumulative risk of algal blooms in the Three Gorges Reservoir”, The 22rd International Congress on Modelling and Simulation, Hobart, AU, December 2017.

**EXHIBITIONS**

* “Water quality monitoring and early warning technology system and data platform”, Exhibition Product Commentator, International Summit of New Technology for Ecology and Environment 2019, Nanjing & Chengdu, PRC, 2019.
* “Basin water environmental risk assessment and early warning platform”, Exhibition Product Commentator, International Summit of New Technology for Ecology and Environment 2017, Nanjing, PRC, June 2017.

**RESEARCH SKILLS**

Proficient with FORTRAN and parallel programming (MPI and OpenMP) in Windows and Linux system.

Proficient with Python, R, and MATLAB programming and data processing.

Proficient with tools such as ArcGIS, QGIS, ENVI, TECPLOT.

Proficient with commonly used environmental models such as SWAT, SWMM, MIKE, EFDC, etc.

Proficient with ADCP, Stalker-II-SVR, multiparameter water quality measuring instrument (YSI ProPlus), etc.

Familiar with weather research model WRF.

Familiar with earth system model CESM.