

Dr. Meili Feng

Assistant Professor of Environmental Science

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Contact

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Qualifications

Joint PhD in River Science (University of Trento, Italy & Freie Universität Berlin, Erasmus Mundus SMART programme - Science for Management of Rivers and their Tidal systems, 2013-2016)

MSc Environmental Science (Beijing Normal University, 2010-2013)

BSc Natural Resources Management and Urban Planning (Taiyuan University of Technology, 2006-2010)

Expertise Summary

I am a freshwater hydrologist with expertise in measuring and managing the impact of human activities and climate changes on aquatic systems using hydrological and ecologic functional approaches. My scientific expertise lies in river hydrology and freshwater ecology, but I have a much broader interest in environmental management particularly eco-hydrological modeling approaches. Most of my work has involved using interdisciplinary approaches to tackle complex environmental issues with specific focuses on hydropower regulations under the impact of extreme climatic events such as flood, drought, and heatwaves.

I have worked extensively alongside civil environmental engineers, sedimentologists, and freshwater ecologists in the University of Trento, Italy on projects of developing hydraulic approaches to understand the temporal-spatial propagation of hydropeaking effects created by the hydropower production activities, and to analyze the water temperature variation under hydropeaking effects while having ecological implications of fish thermal habitat suitability in the alpine rivers.

Another part of my work was carried out in the Freie University Berlin in collaboration with biologists and river ecologists to model the spatial distribution of water residence time while improving the mechanisms of nutrient retention time module in the water quality modeling software MONERIS developed by the Leibniz- Institute of Freshwater Ecology and Inland Fisheries (IGB) Berlin. I am also a visiting research fellow in the Department of Ecohydrology at IGB for 15 months as the associate institution.

Major research interests

I have a broad range of research interests related to the assessment and management of human activities and climate change affecting aquatic systems.

I am particularly interested in investigating how hydropower production activities impact ecological functioning and the delivery of ecosystem services by hydrological processes.

Areas of interest include:

- River hydrology and ecologically related implications
- Water quality modeling based on biogeochemistry processes
- The impacts of hydropower regulation on river thermal regimes and fish habitat suitability
- Temporal-spatial characterization of hydropeaking and thermopeaking effects
- Networks analysis and ecosystem approaches to management
- Nutrient cycling and river ecology in quasi-steady and unsteady systems

Work experience

2015-2016 Visiting researcher. Leibniz-Institute of Freshwater Ecology and Inland Fisheries Berlin.

2014 Research consultant. Environmental policy project in the Yellow River Basin.

2011-2012 Research assistant. National Centre for Resources Satellite Data and Application, Ministry of Civil Affairs of the P.R.C.

2010-2012 Field experiments technician. State Key Laboratory of Water Environment Simulation, School of Environment, Beijing Normal University, China

Teaching

Contributes to teaching for:

Introduction to Aquatic Ecology (School of Environmet, Beijing Normal University)

Research Grants

Project	Duration	Funding Body	Amount
Erasmus Mundus SMART PhD fellowship	11/2013 – 11/2016	European Commission	€128,000

Additional skills and interests

Computer: MATLAB, R, Python, Access, MS Office

Languages: Mandarin (Native), English (Fluent), Italian (Basic), French (Intro)

Esteem Indicators

Membership

2014 – present International association for hydro environment engineering and research (IAHR)

2015 – present Society for Freshwater Science (SFS)

2016 – present International water association (IWA) Young Water Professionals group

2016 – present United Nations Volunteers (UNV) talent pool

2017 – present British Ecology Society (BES)

Publications

• Peer Reviewed Journal Articles:

Qi, M., **Feng, M.**, Sun, T., & Yang, W. (2016). Resilience changes in watershed systems: a new perspective to quantify long-term hydrological shifts under perturbations. *Journal of Hydrology*, 539 (281-289) DOI: 10.1016/j.jhydrol.2016.05.039

Tang, S., Sun, T., Shen, X., Qi, M., & **Feng, M.** (2015). Modeling net ecosystem metabolism influenced by artificial hydrological regulation: An application to the Yellow River Estuary, China. *Ecological Engineering*, 76, 84-94.

Sun, T., & **Feng, M. L.** (2013). Multistage analysis of hydrologic alterations in the Yellow River, China. *River Research and Applications*, 29(8), 991-1003. DOI: 10.1002/rra.2586

S. Tang, T. Sun, X. Shen, **M. Feng.** (2013). Dissolved oxygen dynamics model and its application in estuary subject to turbidity variability. *Journal of Hydraulic Engineering* 44(11): 1286-1294.

Liu S, **Feng ML.** (2012) Study on the evaluation for water resource vulnerability in Yangqu County based on remote sensing and GIS technology. *Journal of Taiyuan University of technology*, 43(1):77-82. (in Chinese with English Abstract)

• Conference Proceedings:

M.L. Feng, T. Sun, L.X. Zhang, X.M. Shen, Net Ecosystem Metabolism Simulation by Dynamic Dissolved Oxygen Model in Yellow River Estuary, China, *Procedia Environmental Sciences*, Volume 13, 2012, Pages 807-817, ISSN 1878-0296, <http://dx.doi.org/10.1016/j.proenv.2012.01.074>.

Feng ML, Sun T, Zolezzi G. "Trade-Offs Model Of Multi-Objective Reservoir Operation With Uncertainties", 11th International Conference on Hydroinformatics, 8-1-2014. http://academicworks.cuny.edu/cgi/viewcontent.cgi?article=1402&context=cc_conf_hic

Feng, M., A. Sevilla, G. Zolezzi, Toffolon M. , and S. Piccolroaz (2015), Hydropower influence on river thermal regimes: from thermopeaking alteration to mitigation of climatic extremes? , Symposium for European Freshwater Sciences (SEFS), Geneva (Switzerland), 5-10 July 2015.

Feng ML, Zolezzi G. "Hydropeaking diffusion activities in alpine rivers", 11th International Symposium on Ecohydraulics-ISE 2016, University of Melbourne, Australia. <http://proceedings.ise2016.org/papers/26618.pdf>

• Other Science Publications:

Meili Feng (2016) Flow and thermal regimes in river networks: effects of hydropower regulation and climate extremes. PhD thesis, University of Trento. <http://eprints-phd.biblio.unitn.it/1874/>

Invention Patent (2012). Sun T, **Feng ML** and Xu J. 2012.09.12. A trade-offs method for multi-objective environmental flows analysis. CN 102663236 A. <https://www.google.com/patents/CN102663236A?cl=en>