

LIYING LI

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EDUCATION

Ph.D. in Environmental Science, University of California, Merced, California, CA, 2021-2024

Master of Science in Project Management (Sustainability), Northwestern University, Evanston, IL, 2013-2015

M.Sc. in Environmental Policy and Regulation, Department of Geography, London School of Economics, UK, 2011-2012

Bachelor of Engineering in Environmental Engineering, Dalian University of Technology, Dalian, China, 2007-2011

EXPERTISE

AI and Machine-learning models for ecology•

- Spatial and temporal explicit species modeling
- Remote-sensing data application
- Climate change impacts on ecosystems
- Spatial statistics
- Land use land cover processing and mapping
- Economic optimization
- Climate change adaptation and
- Systematic Conservation Planning.

PROFESSIONAL EXPERIENCE

National Center of Ecological Analysis and Synthesis

University of California, Santa Barbara | Santa Barbara, CA

Aug 2024 – Present

Postdoctoral Researcher

- Working collaboratively with an interdisciplinary working group led by the Tampa Bay Estuary Program in Florida, researching Gulf of Mexico restoration and fishery management using fishery-independent measurement data and AI.
- Led two independent research projects on coastal birds' distribution across the Gulf of Mexico with sea level rise.
- Led seagrass and nekton AI distribution modeling, collaborated with Coastal Ecology and Seagrass Biology Lab, and directly collaborated with Professor Kelly Darnell of The University of Southern Mississippi, and a research network across Mississippi, Texas, and Florida funded by the NOAA Restore program
- Developing modeling frameworks and machine learning tools to handle remote-sensing and birds' data in population composition and trends analysis

University of California, Merced | Merced, CA

Jan 2021 – Aug 2024

Graduate Research Assistant and teaching assistant

I was a fully funded GSR by NSF-USDA-Integrated Food, Energy, and Water Studies for California's Central Valley. PI and direct supervisor: Prof. Martha Conklin, Prof. Josue Medellion-Azuara, and Prof. Joshua Viers

- Produced scientific papers
- Innovatively integrated a range of research methods that are highly interdisciplinary.
- Efficiently collaborated with researchers and stakeholders with diverse backgrounds.
- Produced environmental policy-friendly science to maintain agriculture and ecosystem co-benefits.
- Accomplished my teaching assignments in the Engineering Economics course twice.
- Successfully presented polished talks and posters at international conferences such as IGARSS and AGUs with positive feedback from professors and peers.

School of Environment, Tsinghua University | Beijing, China

Jan 2016 – Dec 2019

Associate Researcher

Conducting environmental economics and policy analysis research. Advisor: Prof. Miao Chang. Examples of my job include:

- Independently accomplished research on Investment Gap Analysis for Municipal Wastewater Treatment Facility Construction in China.
- Responsibly in charge of and completed book chapter editing of “Environmental Technology Development in China”.
- Successfully completed policy analysis report on “Making Business Case of Environmental Protection Technologies” for the Environmental Protection Bureau.

School of Environment, Tsinghua University | Beijing, China
Associate Researcher

Oct 2012 – Aug 2013

I was in a role as a junior research scientist, conducting environmental policy analysis research. Advisor: Prof. Tianzhu Zhang.

- Independently conducted research on Oil Spill Accidents in Rivers’ First-response Procedures and the Policies to Facilitate Such Procedures.
- Collaboratively conducted research on analyzing carbon dioxide emission drivers in Beijing using input-output economic tables (A Life-cycle analysis study)

SELECTED PUBLICATIONS

- Li, Liying, Cole, S., Rodriguez-Flores, J. M., Hestir, E., Fink, D., Viers, J. H., Medellin-Azuara, J., Conklin, M., & Harmon, T. (2025). Synergies Between Agricultural Production and Shorebird Conservation With Climate Change in the Central Valley, California, With Optimized Water Allocation and Multi-Benefit Land Use. *Global Change Biology*, 31(6). <https://doi.org/10.1111/gcb.70304>
- Li, Liying, Hestir, E., Fink, D., Viers, Rodriguez-Flores, J. M., J. H., Medellin-Azuara, J., Conklin, M., (2025). Nature-based Solutions to Reduce Carbon Emissions, Control Groundwater Overdraft, and Conserve Avian Biodiversity with Multi-Benefit Environmental and Sustainability Indicators. Under Review.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5401085
- Liying Li, Junwen Bai, Shoukun Sun, Marcos Zuzuarregui, Danial Fink, Zhe Wang, Heather Lahr, Courtney Scarborough, Caitlin Young. Hidden patterns of biodiversity loss as birds respond to sea level rise.
<https://lily6966.github.io/papers/Population%20hurdle%20model%200829.pdf>
- Liying Li, Marcos Zuzuarregui, Junwen Bai, Shoukun Sun, Yangkang Chen, Zhe Wang, Danial Fink. Storm Surge and Sea Level Rise Impacts on Avian Biodiversity by Functional Traits: Assessment Using Adaptive Ensemble Deep Learning Models.
<https://lily6966.github.io/papers/Storm%20Surge%20and%20Sea%20Level%20Rise%20Impacts%20on%20Avian%20Biodiversity%20by%20Functional%20Traits.pdf>
- Li, Liying, M. S. Dogan, M. Maskey, et al. 2025. “Optimized Water Allocation with Managed Groundwater Recharge and Prioritized Wetland Deliveries to Moderate Human-Nature Water Use Tradeoffs Under Climate Change.” *Journal of Hydrology: Regional Studies* 60: 102496. <https://doi.org/10.1016/j.ejrh.2025.102496>.
- Yafei Wang, Hongyan Zhao, Liying Li, Zhu Liu, Sai Liang, Carbon Dioxide Emission Drivers for a Typical Metropolis Using Input-output Structural Decomposition Analysis. *Energy Policy* 2013; 58: 312–8. Citation:220.
- Liying Li, Integrating Climate Change Impact in New Building Design Process: A Review of Building Life Cycle Carbon Emission Assessment Methodologies. *Cleaner Engineering and Technology* 2021; 5, 100286. Citation: 58.
- Xiaona Li, Shuo Chen, Liying Li, Xie Quan, Huimin Zhao, Electrochemically Enhanced Adsorption of Nonylphenol on Carbon Nanotubes: Kinetics and Isotherms Study. *Journal of Colloid and Interface Science* 415 (2014) 159-164. Citation: 34.

- Maskey, Mahesh L., Mustafa S. Dogan, Angel Santiago Fernandez-Bou, Liying Li, Alexander Guzman, Wyatt Arnold, Erfan Goharian, Jay R. Lund, and Josue Medellin-Azuara. "Managing Aquifer Recharge to Overcome Overdraft in the Lower American River, California, USA." Water 14, no. 6 (2022): 966. Citation: 13.
- Liying Li, The Governance of Low-Carbon Transitions in a Multilevel Perspective Framework: How Does the Concept of 'System Transformation' Work? Energy Research Journal. 2020, Vol. 11: 45-53. Citation: 7
- Liying Li. Assessing Climate Change Impacts and Adaptation Options of Rain-Fed Agriculture in Africa with an Integrated Modelling Framework. In Geo-Extreme 2021, pp. 203-212. Citation: 1.

WORKING PAPERS/PRESENTATIONS

- Liying Li. Multi-benefit Conservation Planning for Balancing the Competing Land and Water Use for Human and Biodiversity Conservation. AGU 2024. <https://lily6966.github.io/papers/agu2024.pdf>
- Liying Li, Josue Medellin-Azuara, Integrated modeling framework for shorebird population changes under land-use and climate changes using remote-sensed and citizen science data for Central Valley farmlands in California. AGU fall meeting 2023. Oral presentation
- Liying Li, Spencer Cole, Erin L. Hestir, Josue Medellin-Azuara, Identifying the priority areas for non-breeding shorebird habitat provisioning from agricultural land: conserving water, biodiversity, and agriculture. International Geoscience and Remote Sensing Symposium 2023. Oral presentation
- Liying Li, J Medellin-Azuara, Co-benefits of Managed Aquifer Recharge in California: Integrated Assessment of Climate and Land Use Change Impacts on Agriculture with Spatial Explicit Ecosystem Service Analysis. AGU Fall Meeting 2021, Poster
- Chen Qing, Chang Miao, Liying Li, and Peikun Guo, Analysis of the Investment Need for Municipal Wastewater Treatment Facility Construction in China During the 13th Five-Year Plan Period. ICSI 2016 Conference, Poster.

PROFESSIONAL MEMBERSHIP

- American Geophysical Union (AGU)
- American Association for the Advancement of Science (AAAS)
- Ecological Society of America (ESA)
- Geological Society of America (GSA)
- Society for Conservation Biology (SCB)

FELLOWSHIP

- Gulf Ecosystem Initiative Postdoctoral Fellow
- ES Bobcat Summer Fellowship, **2021 & 2023**
- ES Professional Development Fellowship, **2022**
- NSF-Bakersfield College Faculty Diversification Teaching Fellow, **2022- 2023**