Curriculum Vitae – Xiaochen Zhao, Ph.D.

Research Assistant Professor
Department of Oceanography and Coastal Sciences
Center for Computation and Technology (joint)
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Education

2021	**Ph.D.**	**Oceanography and Coastal Sciences**	**Louisiana State University, LA, USA**
2016	**M.S.**	**Coastal and Oceanographic Engineering**	**University of Florida, FL, USA**
2013	**B.E.**	**Coastal Engineering**	**Tianjin University, Tianjin, China**

Research Interests

- Saltwater intrusion and water quality
- Wetland vegetation dynamics and habitat shifts
- Extreme weather event disturbance and recovery
- Coastal system resistance and resilience
- Watershed hydrology and land-ocean connection
- Carbon storage and sequestration
- Coastal restoration and resource management

Professional Appointments

2025–present Research Assistant Professor, Coastal System Ecology and Modeling
Center for Computation and Technology, Louisiana State University.

2022–2024 Postdoctoral Researcher, Coastal System Hydrology and Ocean Modeling
Center for Computation and Technology, Louisiana State University.

2016–2021 Research Assistant, Coastal Wetlands Ecology and Modeling
Dept. of Oceanography & Coastal Sciences, Louisiana State University.

2015–2016 Research Assistant, Coastal & Estuarine Processes
Dept. Civil and Coastal Engineering, University of Florida. Publications

Published

Total citations as of January 2026: 296; h-index: 7 (Google Scholar)

[11] Hassan, M., Nasiri, H., Rovai, A., Vargas Lopez, I., Mousa, Y., Meyers, A., Pineda Gomez, J.A., **Zhao, X.**, Jensen, D.J., Peacock, A.E., Armitage, A.R., Brinkley, J., Sebastian, B., Berkowitz, J., Simard, M., Twilley, R., and Jafari, N. (2025). Shear Behavior of Mangrove Soils in Louisiana and Texas: A Dual Approach Using Horizontal Shear Testing and In-Situ Penetration Techniques. In Geo-Extreme 2025, p.134–140.

[10] **Zhao, X.**, Xue, Z. G., Bao, D., Warner, J., & Ou, Y. (2025). Investigating hurricane-induced salt variation across the land-estuary-ocean continuum using a dynamically coupled hydrological-ocean model. Journal of Geophysical Research: Oceans, 130, e2024JC022011. https://doi.org/10.1029/2024JC022011

[9] Rivera-Monroy, V.H., **Zhao, X.**, Wang, H., Xue, Z.G. (2022). Are Existing Modeling Tools Useful to Evaluate Outcomes in Mangrove Restoration and Rehabilitation Projects? A Minireview. Forests, 13(10), p.1638. https://doi.org/10.3390/f13101638

[8] **Zhao, X.**, Rivera-Monroy, V. H., Li, C., Vargas Lopez, I., Rohli, R.V., Xue, Z.G., Castañeda-Moya, E., Coronado-Molina, C. (2022). Temperature Across Vegetation Canopy-Water-Soil Interfaces Is Modulated by Hydroperiod and Extreme Weather in Coastal Wetlands. Fronters in Marine Science, 9:852901. https://doi.org/10.3389/fmars.2022.852901

[7] **Zhao, X.**, Rivera-Monroy, V.H., Farfán, L.M., Briceño, H., Castañeda-Moya, E., Travieso, R., Gaiser, E. (2021). Tropical cyclones cumulatively control regional carbon fluxes in Everglades mangrove wetlands (Florida, USA). Scientific Reports 11, 13927. https://doi.org/10.1038/s41598-021-92899-1

[6] He, D., Rivera-Monroy, V.H., Jaffé, R., **Zhao, X.** (2021). Mangrove leaf species-specific isotopic signatures along a salinity and phosphorus soil fertility gradients in a subtropical estuary. Estuarine, Coastal and Shelf Science, 248, 106768. https://doi.org/10.1016/j.ecss.2020.106768

[5] **Zhao, X.**, Rivera-Monroy, V. H., Wang, H., Xue, Z.G., Tsai, C.-F., Willson, C.S., Castañeda-Moya, E., Twilley, R.R. (2020). Modeling soil porewater salinity in mangrove forests (Everglades, Florida, USA) impacted by hydrological restoration and a warming climate. Ecological Modelling, 436, 109292. https://doi.org/10.1016/j.ecolmodel.2020.109292

[4] Castañeda-Moya, E., Rivera-Monroy, V.H., Chambers, R.M., **Zhao, X.**, Lamb-Wotton, L., Gorsky, A., Gaiser, E.E., Troxler, T.G., Kominoski, J.S., Hiatt, M. (2020). Hurricanes fertilize mangrove forests in the Gulf of Mexico (Florida Everglades, USA). Proceedings of the National Academy of Sciences, 117(9), 4831-4841. https://doi.org/10.1073/pnas.1908597117

[3] Rivera-Monroy, V.H., Elliton, C., Narra, S., Meselhe, E., **Zhao, X.**, White, E., Sasser, C.E., Visser, J.M., Meng, X., Wang, H., Xue, Z., Jaramillo, F. (2019). Wetland Biomass and Productivity in Coastal Louisiana: Base Line Data (1976–2015) and Knowledge Gaps for the Development of Spatially Explicit Models for Ecosystem Restoration and Rehabilitation Initiatives. Water, 11(10), 2054. https://doi.org/10.3390/w11102054

[2] Rivera-Monroy, V.H., Danielson, T.M., Castañeda-Moya, E., Marx, B.D., Travieso, R., **Zhao, X.**, Gaiser, E.E, Farfán, L.M. (2019). Long-term demography and stem productivity of Everglades mangrove forests (Florida, USA): Resistance to hurricane disturbance. Forest Ecology and Management, 440, 79-91. https://doi.org/10.1016/j.foreco.2019.02.036

[1] Uchida, E., Rivera-Monroy, V.H., Ates, S.A., Castañeda-Moya, E., Gold, A.J., Guilfoos, T., Hernandez, M.F., Lokina, R., Mangora, M.M., Midway, S.R., McNally, C., Polito, M.J., Robertson, M., Rohli, R.V., Uchida, H., West, L., **Zhao, X.** (2019). Collaborative Research Across Boundaries: Mangrove Ecosystem Services and Poverty Traps as a Coupled Natural-Human System. In Collaboration Across Boundaries for Social-Ecological Systems Science (pp. 115-152). Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-13827-1_4

Synergistic Activities

Teaching and Mentoring Experience

- Mentored undergraduate student as part of LSU Summer REU supported by MissDelta Initiative funded by the National Academies of Sciences, Engineering, and Medicine. (May–August 2025)
- Co-Mentored graduate students at Dept. of Oceanography & Coastal Sciences (2022-present)
- Teaching assistant in a graduate-level class field trip (Fall 2018–2021)
- Trained and mentored five undergraduate student workers in laboratory analysis (2016-2020)
- Trained and contributed to undergraduate student research in wetland hydrology as part of the LSU Undergraduate Research and Creativity Symposium (2021)
- Mentored undergraduate student to assess carbon storage and fluxes in coastal wetlands as part of the LSU Undergraduate Research and Creativity Symposium (2019)
- Mentored undergraduate visiting scholars in coastal wetland ecology research (2019–2021)

Outreach and Engagement

- Department Open House: Presented research activities and engaged with students
- Ocean Commotion: Participated in state-wide K-8 students and public outreach on coastal and ocean sciences

Services

- AGU (12/2025), SOC (05/2025) sessions early-career convener
- Manuscript Reviewer: *Restoration Ecology, Wetlands Ecology and Management, Ocean and Coastal Management, Forests, ISPRS Journal of Photogrammetry and Remote Sensing, Ecological Engineering, Geophysical Research Letters, Science of the Total Environment, Scientific Report, JGR Biogeosciences, Estuarine, Coastal and Shelf Science*

Workshop & Professional Training

- The Noah-MP Annual Users' Workshop, May 23-25, 2023. Location: The National Center for Atmospheric Research (NSF NCAR) Foothills Lab, Boulder, CO.
- NextGen Coastal Meeting at the National Water Center (NOAA NWC), November 15 and 16, 2022. Location: Tuscaloosa, AL (University of Alabama).
- The Southeastern Conference (SEC) Emerging Scholars Career Preparation Workshop, September 27-29, 2022. Location: University of Missouri, Columbia, MO.
- Delta-X Applications Workshop hosted by NASA JPL, May 4-5, 2022. Location: Baton Rouge, LA. Virtual.
- The community WRF-Hydro modeling system abridged virtual training workshop hosted by NCAR and CUAHSI, October 6-8, 2021, Virtual.
- LICOR eddy covariance data processing training workshop, March 20-21, 2019, LSU, Baton Rouge, LA. (logistics assistant and attendee)
- Early Career Researcher Training funded by South Central Climate Adaptation Science Center (SC-CASC), August 5-10, 2018, Baton Rouge/New Orleans, LA. (logistics assistant and auditor)
- Mangrove Ecosystem Services and Poverty Traps, Research Dissemination Workshop (part of NSF funded CNH system research), August 6-7, 2018. Location: Pangani District Council Office, Pangani, Tanzania. Presentation title: “Mangrove Forest Structure and “Blue Carbon” Value”. (research assistant)

Presentations

Conference Abstracts

[28] **Zhao, X.,** Xue, Z.G., Johnson, P., Miller, P.W., Vargas Godoy, M.R., Molini, A., Ensemble Projections of Mississippi River Discharge Using a High-Resolution Land Surface Model. AGU25, December 15-19. Location: New Orleans, LA. (poster)

[27] Lei, Z., **Zhao, X.,** Bao, D., Xue, Z.G., Wang, Y., Ou, Y., Zang, Z. Resilience of Lagoonal Estuaries: Salinity and Residence Time Recovery From Compound Flooding Induced by Hurricane Harvey (2017). AGU25, December 15-19. Location: New Orleans, LA. (oral)

[26] Wang, Y., Bao, D., Xue, Z.G., **Zhao, X.**, Lei, Z. Compound Flooding in Deltaic Landscapes: Lessons from Hurricane Ida with a Coupled Hydrological–Ocean Model. AGU25, December 15-19. Location: New Orleans, LA. (poster)

[25] Mahatab Uddin, S.M., Rivera-Monroy, V.H., Blanchard, T., Zhao, X., Fraser, M.G., Davila-Lechuga, C., Chevez Sahona, J., and Vargas-Lopez. I. Scrub and Fringe Mangrove Wetlands Leaf Productivity and Expansion are controlled by Air Temperature, Phosphorus Availability, and Salinity in Port Fourchon, Louisiana, USA. AGU25, December 15-19. Location: New Orleans, LA. (poster)

[24] Wang, Y., Xue, Z.G., Bao, D., **Zhao, X.**, Liu, B., Zang, Z. Using HAFS to Drive a Dynamically Coupled Hydrological-Ocean Model for Hurricane-Induced Compound Flooding Forecast. State of the Coast (SOC) 2025 Conference, May 31-June 2. Location: New Orleans, LA. (oral)

[23] **Zhao, X.,** Xue, Z.G., Bao, D., Ou Y., Warner J. (2024). Investigating the Hurricane-induced Salt Variation across the Land-Estuary-Ocean Continuum Using A Dynamically Coupled Hydrological-Ocean Modeling. American Meteorological Society (AMS)’s 39th Conference on Hydrology, January 12-

16. (oral) & State of the Coast (SOC) 2025 Conference, May 31-June 2. (Lightning talk). Location: New Orleans, LA.

[22] **Zhao, X.**, Xue, Z.G., Wang, Y., Yu, W., Bao, D. (2024). A High-resolution Process-based Hydrological Operational Modeling System for the Mississippi River Basin. Deltas 2024 Symposium, August 15-16. Location: Baton Rouge, LA. (oral)

[21] **Zhao, X.,** Xue, Z.G., Bao, D., Ou Y., Warner J. (2024). Investigating the Hurricane-induced Salt Variation across the Land-Estuary-Ocean Continuum Using A Dynamically Coupled Hydrological-Ocean Modeling. Unifying Innovations in Forecasting Capabilities workshop, July 22-26. Location: Jackson, Mississippi, MS. (oral)

[20] **Zhao, X.**, Xue, Z.G., Wang, Y., Yu, W., Bao, D. (2024). A High-resolution Process-based Hydrological and Sediment Modeling System for the Mississippi River Basin. AGU Ocean Science Meeting (OSM) 2024, February 18-23. Location: New Orleans, LA. (oral)

[19] Wang, Y., Xue, Z.G., **Zhao, X.**, Bao, D. (2024). A Numerical Investigation of Compound Flooding during Hurricane Ida using a Dynamically Coupled Hydrological-Ocean Model. AGU Ocean Science Meeting (OSM) 2024, February 18-23. Location: New Orleans, LA. (poster)

[18] **Zhao, X.**, Xue, Z.G., Bao, D. (2023). Assessing the hurricane-induced saltwater intrusion in Houston-Galveston region: a dynamically coupled hydrological-ocean modeling approach. Coastal & Estuarine Research Federation Biennial Conference (CERF), November 12-16, Portland, OR. (oral)

[17] **Zhao, X.**, Xue, Z.G., Yu, W., Bao, D., Wang, Y. (2023). Gulf-COAWST: A High-resolution Process-based Operational Water and Sediment Forecast System. State of the Coast (SOC) 2023 Conference, May 31-June 2. Location: New Orleans, LA. (oral)

[16] **Zhao, X.**, Xue, Z.G., Yu, W., Yin, D., Bao, D., Wang, Y. (2022). A High-resolution Operational Forecast System for Mississippi River Basin: Calibration for Lower Mississippi River Watershed. Unifying Innovations in Forecasting Capabilities workshop, July 18-22. Location: College Park, Maryland, MD. (poster)

[15] **Zhao, X.**, Rivera-Monroy, V.H., Farfán, L.M., Briceño, H., Castañeda-Moya, Travieso, R., Gaiser, E.E. (2022). Tropical Cyclones Cumulatively Control Regional Carbon Fluxes in Everglades Mangrove Wetlands (Florida, USA). Ocean Carbon & Biogeochemistry (OCB) Summer Workshop, June 20-23, Woods Hole Oceanographic Institution (WHOI), MA. (poster & lightning talk)

[14] **Zhao, X.**, Rivera-Monroy, V. H., Li, C., Vargas Lopez, I., Rohli, R.V., Xue, Z.G., Castañeda-Moya, E., Coronado-Molina, C. (2022). Temperature Across Vegetation Canopy-Water-Soil Interfaces Is Modulated by Hydroperiod and Extreme Weather in Coastal Wetlands. The Gulf of Mexico Conference (GOMCON), April 25-28, Baton Rouge, LA. (oral)

[13] Rivera-Monroy, V. H., **Zhao, X.**, Vargas-Lopez, I. (2021). Louisiana's Mangroves Carbon Storage Capacity in the Context of Increasing Subsidence and Sea Level Rates: Management Constraints and Economic Implications. State of the Coast (SOC), June 2-4, Virtual conference. (oral)

[12] Rivera-Monroy, V. H., **Zhao, X.**, Castañeda-Moya, E., Coronado-Molina, C., Travieso, R., Richards, J. (2021). Scrub Mangrove Forest Spatial Growth Patterns and Foliar Productivity in the Everglades National Park, Florida, USA: Assessing Foundation Species Stoichiometric Properties. 13th International Symposium on Biogeochemistry of Wetlands, March 22-25, Virtual symposium. (oral)

[11] Castañeda-Moya, E., Rivera-Monroy, V. H., Chambers, R. M., **Zhao, X.**, Lamb-Wotton, L., Gorsky, A., Gaiser, E.E., Troxler, T.G., Kominoski, J.S., Hiatt, M. (2019). Hurricanes fertilize coastal wetlands in the Gulf of Mexico: The case of Florida Everglades mangroves. Coastal & Estuarine Research Federation Biennial Conference (CERF), November 3-7, Mobile, AL. (oral)

[10] Rivera-Monroy, V.H., Rodríguez-Zúñiga, M., Farfán, L., Velázquez-Salazar, S., Vázquez-Balderas, B., Villeda-Chávez, E., Troche-Souza, C., Cruz-López, M., **Zhao, X.**, Rohli. R. (2019). Mangrove Productivity and Carbon Storage is controlled by Hurricanes, Geomorphology, and Hydrology along Mexico's coastline. Coastal & Estuarine Research Federation Biennial Conference (CERF), November 3-7, Mobile, AL. (oral)

[9] **Zhao, X.**, Rivera-Monroy, V.H., Castañeda-Moya, E., Travieso, R., Gaiser, E.E., Farfán, L. (2019). Accounting for Carbon Fluxes Caused by Pulsing Disturbances in Mangrove Wetlands Carbon Budgets (Everglades, USA). Coastal & Estuarine Research Federation Biennial Conference (CERF), November 3-7, Mobile, AL. (oral)

[8] Rivera-Monroy, V. H., **Zhao, X.**, Castañeda-Moya, E., Travieso, R., Gaiser, E.E. (2019). Do Not Forget Phosphorus! A Critical Driver controlling Mangrove Carbon Storage in the Everglades Mangrove Ecotone Region, Florida USA. The 5th international Mangrove Macrobenthos and Management meeting (MMM5), July 1-5, Singapore, Singapore. (oral)

[7] **Zhao, X.**, Rivera-Monroy, V.H., Mangora, M.M., Castañeda-Moya, E., Blanchard, T. (2019). Carbon Storage Assessment in a Small-Mangrove dominated Estuary (Kipumbwi-Sange) in Coastal Tanzania. The 5th international Mangrove Macrobenthos and Management meeting (MMM5), July 1-5, Singapore, Singapore. (poster)

[6] Rivera-Monroy, V. H., Kelsall, M., **Zhao, X.**, Vargas-Lopez, Ivan, Blanchard, T. (2018). Hydroperiod and Stoichiometry Ratios Control Foliar Decomposition Rates in Marsh-Mangrove Ecotones in Coastal Louisiana. State of the Coast (SOC), May 30- June 1, New Orleans, LA. (oral)

[5] **Zhao, X.**, Rivera-Monroy, V.H., Castañeda-Moya, E., Travieso, R., Gaiser, E.E. (2018). Allocating the relative Role of Pulsing Disturbances to the Carbon Budget of Everglades Mangrove Wetlands: A Modelling-Empirical Approach. Florida Coastal Everglades LTER All Scientists Meeting, May 7-8, Miami, FL. (poster)

[4] Rivera-Monroy, V.H., Danielson, T.M., Castañeda-Moya, E., Kelsall, M., Gaiser, E.E., Travieso, R., **Zhao, X.**, Kominoski, J.S. (2017). Effect of phosphorus availability and hurricane disturbance interactions on the elemental stoichiometry of mangrove litterfall. Coastal & Estuarine Research Federation Biennial Conference (CERF), November 5-9, Province, RI. (oral)

[3] **Zhao, X.**, Rivera-Monroy, V.H., Tsai, T.F., Twilley, R.R., Willson, C., Zuo, X., Castañeda-Moya, E., Coronado-Molina, C. (2017). Modeling Water and Salt Budgets in Mangrove Forests (Everglades, Florida) in the Context of Hydrological Restoration. Coastal & Estuarine Research Federation Biennial Conference (CERF), November 5-9, Province, RI. (oral)

[2] Kelsall, M., Rivera-Monroy, V.H., Danielson, T.M., Castañeda-Moya, E., Gaiser, E.E., Travieso, R., **Zhao, X.**, Kominoski, J.S. (2017). Spatiotemporal patterns (2008-2014) of elemental stoichiometry (carbon:nitrogen:phosphorus) in mangrove litterfall after canopy defoliation caused by Hurricane Wilma (2005) along the Shark River Estuary, Florida. Florida Coastal Everglades LTER All Scientists Meeting, May 8-9, Miami, FL. (poster)

[1] **Zhao, X.**, Rivera-Monroy, V.H., Richards, J., Castañeda-Moya, E., Coronado-Molina, C., Gaiser, E.E., Travieso, R., Gann, D., Kelsall, M. (2017). Scrub mangrove forest spatial growth patterns and foliar productivity in the Taylor River, Everglades National Park, Florida, USA: Assessing a tagging technique for long term ecological studies. Florida Coastal Everglades LTER All Scientists Meeting, May 8-9, Miami, FL. (poster)