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RESEARCH INTERESTS

- Coastal and estuarine hydrological and biogeochemical processes
- Coastal eco-geomorphological feedbacks
- Modeling coastal hydrology, biogeochemistry and vegetation dynamics
- Restoration and management of coastal ecosystems

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.**	**Port, Channel and Coast Engineering**	Tianjin University, Tianjin, China.

RESEARCH EXPERIENCE

2022– **Postdoc Researcher**, Louisiana State University, Baton Rouge, LA
2016–2021 **Research Assistant**, Louisiana State University, Baton Rouge, LA
2015–2016 **Research Assistant**, University of Florida, Gainesville, FL

PUBLICATIONS

Peer-Reviewed (Journal papers and book chapter)

[7] **Zhao, X.**, Rivera-Monroy, V.H., Farfán, L.M., Briceño, H., Castañeda-Moya, Travieso, R., Gaiser, E.E. (2021). Tropical cyclones cumulatively control regional carbon fluxes in Everglades mangrove wetlands (Florida, USA). Sci Rep 11, 13927 (2021). 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

PROFESSIONAL TRAINING

- 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

SERVICES AND ACTIVITIES

Workshop

- Mangrove Ecosystem Services and Poverty Traps, Research Dissemination Workshop, August 6-7, 2018. Location: Pangani District Council Office, Pangani, Tanzania. Presentation title: "Mangrove Forest Structure and "Blue Carbon" Value". (Analyzed data, co-authorship)

Mentorship

- Mentor and train undergraduate students in field sample protocols and data analysis for coastal wetlands in 2019 and 2021 as part LSU Undergraduate Research and Creativity Symposium
- Mentor and train visiting scholar conducting laboratory analysis, field sampling and data management and analysis

Teaching Experience

- Introduction of field experiment design and sampling techniques. Teaching assistant in graduate-level class field trip, Fall 2018-2021, LSU campus and Louisiana coastal wetlands.

Manuscript Reviewer

- Journal: Restoration Ecology, Wetlands Ecology and Management

Media coverage

- Science X news "New Research Reveals How Hurricanes Shape the Coastal Landscape in the Everglades". February 20, 2020. https://phys.org/news/2020-02-reveals-hurricanes-coastal-landscape-everglades.html
- LSU newspapers The Daily Reveille interview "LSU researchers travel to Tanzania to study coastlines". September 19, 2018. http://www.lsunow.com/daily/lsu-researchers-travel-to-tanzania-to-study-coastlines/article_a056647c-bb82-11e8-b885-43f1a7f87ef8.html

PROFESSIONAL PRESENTATIONS

Invited Talk

[2] **Zhao, X.** (2021). Assessing Mangrove Wetland Structure and Function Regulated by Environmental Gradients under Climate Change and Increasing Human Impacts: A Modeling Approach. University of Florida, Gainesville, Florida, October 26, Seminar (*hybrid*).

[1] **Zhao, X.** and Rivera-Monroy, V.H. (2020). Soil temperature spatiotemporal regimes under climate change are modulated by hydroperiod in temperate and subtropical coastal wetlands: Assessing local

effects for robust global upscaling. Webinar Series hosted by South Central Climate Adaptation Science Center (SC-CASC), May 27, Webinar.

Conference Abstracts

[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)

RESEARCH GROUP/MEMBERSHIPS

- Florida Coastal Everglades Long Term Ecological Research (FCE LTER), 2016-2021
- South Central Climate Adaptation Science Center (SC-CASC), 2016-2021
- Coastal and Estuarine Research Federation (CERF), 2017-2020