Dr. Caitlin R. R. Turner

NSF EAR Postdoctoral Research Fellow
Institute of Arctic and Alpine Research (INSTARR), University of Colorado Boulder
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EDUCATION

Louisiana State University, USA May 2026
Ph.D. in Oceanography & Coastal Sciences
Reconnecting the River: Upstream inputs and downstream impacts of a large-scale coastal freshwater diversion

Stockton University, USA December 2020
B.S. in Marine Science: Oceanography
Minor: Mathematics

Westfield State University, USA December 2015
B.A. in Multidisciplinary Studies
Focus: Secondary Education, General Science, and Geography & Regional Planning

Commonwealth of Massachusetts, USA January 2016
General Math and Science (5 – 8) Teaching Certification: #489387

PROFESSIONAL EXPERIENCE

NSF Postdoctoral Research Fellow August 2026 – Present
University of Colorado at Boulder, Institute of Arctic and Alpine Research (INSTARR)
Primary Advisor: Dr. Irina Overeem; Career Mentor: Dr. Gregory Tucker

Postdoctoral Scholar May 2026 – August 2026
Louisiana State University, Department of Oceanography & Coastal Sciences
Advisor: Dr. Matthew Hiatt

Graduate Research Assistant 2021 – 2026
Louisiana State University, Department of Oceanography & Coastal Sciences
Advisor: Dr. Matthew Hiatt

EarthScape Visiting Research Scholar 2025
University of Colorado Boulder, INSTARR
Hosts: Dr. Mark Piper, Dr. Irina Overeem, and Dr. Greg Tucker

Route Setter and Climbing Instructor 2022 – 2026
UpTown Rock Climbing Gym

Undergraduate Researcher and Teaching Assistant 2019 – 2020
Stockton University, College of Natural Sciences and Mathematics

Hydrographic Systems Technician (Internship) 2020
ECHO81: Equipment and Consulting for Hydrographic Operations

Science and Nature Specialist and Curriculum Developer 2016 – 2018
Girl Scouts of Eastern Massachusetts

Middle School Math & Science Teacher 2015 – 2018
Archdiocese of Boston, Massachusetts

PUBLICATIONS

Total Citations (Google Scholar) = 9 | h-index = 2

In Review/Revision:

[3]**Turner, C. R. R.**, Hiatt, M., & Martin, J. (under revision). *Improving long-term daily gauge forecasting using*

a CNN–LSTM neural network: Applications in the Mississippi River Basin. Journal of Geophysical Research: Machine Learning and Computation.

Peer Reviewed:
[2]Hammond, C., Bargu, S., **Turner, C. R. R.**, Hiatt, M., & White, J. R. (2025). *The impact of seasonal hydrological disturbances on the presence and formation of toxic cyanobacteria blooms on coastal Louisiana. Frontiers in Marine Science*, 12, 1618353. 10.3389/fmars.2025.1618353

[1]**Turner, C. R. R.**, & Hiatt, M. (2025). *Water exposure time distributions controlled by freshwater releases in a semi-enclosed estuary. Water Resources Research*, 61(7), e2025WR040287. 10.1029/2025WR040287

PUBLISHED SOFTWARE AND MODELS

Software (archived releases):
[2]**Turner, C. R. R.**, Hiatt, M., & Martin, J. (2026). *caitlinturner/GaugePredict: v1.0.0* (v1.0.0) [Software]. Zenodo. 10.5281/zenodo.16907442

[1]Hariharan, J., Wright, K., **Turner, C. R. R.**, Barnhart, K., & Passalacqua, P. (2025). *passaH2O/dorado: v2.6.0* (v2.6.0) [Software]. Zenodo. 10.5281/zenodo.16907442

Hydrodynamic models (archived):
[2]**Turner, C. R. R.**, & Hiatt, M. (2025). *Lake Pontchartrain Calibrated Model* [Hydrodynamic model]. HydroShare. 10.4211/hs.f1c83ff830bb47c5a7c84e6f5217ea5c

[1]**Turner, C. R. R.** (2025). *Lake Pontchartrain Toy Model* [Hydrodynamic model]. HydroShare. 10.4211/hs.2301e151c62d4febb59655885458ab0c

FUNDING

Total funding = $425,549 | Turner share = $425,549
Total funding as PI = $425,549 | Total funding as co-PI = $0 **Awarded | Total = 1**

2026–2028 | National Science Foundation, EAR Postdoctoral Fellowship
Ice to Estuary: Influence of Glacial Outburst Floods on Estuarine Morphodynamics and Water Transport
PI; Requested total budget = $425,549

AWARDS AND FELLOWSHIPS

Postdoctoral Research Fellowship, National Science Foundation (NSF) (2026)
Syvitsky Student Modeler Award, Community Surface Dynamics Modeling System (CSDMS) (2026)
EarthScape Visiting Scholar, CSDMS (2025)
Graduate Research Scholar, Louisiana Sea Grant College Program (2020–2024)
Coastal Studies Institute Travel Award, Louisiana State University (2023, 2024)
Departmental Fellow, Louisiana State University, Dept. of Oceanography & Coastal Sciences (2021–2023)
Spring School Participant, CSDMS (2022)
Student Award, The Hydrographic Society of America, Southeast Chapter (2022)
Travel Award, Gulf Estuarine Research Society (2022)
Outstanding Student Section Award (President and Co-Founder), Marine Technology Society (2021)
Best Student Poster, Atlantic & Southern Estuarine Research Society Joint Meeting (2020)

TEACHING AND INSTRUCTION

Introduction to MATLAB for Coastal Sciences (Guest Lecturer, Louisiana State University, 2021–2025)
Coastal Oceanography (Teaching Assistant, Stockton University, 2020)
Physics I and II (Teaching Assistant, Stockton University, 2019–2020)

INVITED PRESENTATIONS

' indicates presenting author

[7]**Turner, C. R. R.**'. *GaugePredict: From a Narrow Research Question to a General Open-Source Forecasting Tool.* **Keynote Address**, Community Surface Dynamics Modeling System (CSDMS) Spring Meeting, May 2026.

[6]Hiatt, M.', **Turner, C. R. R.**. *Controls of physical drivers on phytoplankton community adaptations in a river diversion-influenced estuary.* Harmful Algal Bloom Task Force, Louisiana State University, 2025

[5]Cook, J.', **Turner, C. R. R.**' (co-presenters). *Reaching a Wider Audience.* American Geographical Society, July 2023.

[4]Hiatt, M.', Hammond, C. N., & **Turner, C. R. R.**. *Controls of physical drivers on phytoplankton community adaptations in a river diversion-influenced estuary.* Louisiana Sea Grant: *Harmful Algal Blooms: On the National Stage and in Louisiana* Webinar (virtual), November 2022.

[3]Hiatt, M.', **Turner, C. R. R.**, Hammond, C. N., & Bargu, S. *Drivers of water transport timescales in coastal environments and implications for water quality and algal bloom formation.* University of Louisiana at Lafayette (seminar), Lafayette, LA, September 2022.

[2]**Turner, C. R. R.**'. *Oceanographic Instrumentation.* Stockton University, October 2020.

[1]**Turner, C. R. R.**'. *Discovering the Ocean at Home.* Girl Scouts of Eastern Massachusetts (virtual), April 2020.

SUPERVISION AND MENTORING

Current Undergraduate Students | 1
Geremiah Perkins (2026 - Present), Baton Rouge Community College and Louisiana State University, Louisiana

PROFESSIONAL SERVICE AND OUTREACH

Invited Co-facilitator, Community Surface Dynamics Modeling System (CSDMS) Spring Meeting Breakout Session (2026): Co-facilitated the breakout session, *Evolving Cybertools and AI for Science*, at the 2026 CSDMS Spring Meeting.
Co-organizer, CSDMS Roadshow & Louisiana State University (LSU) (2026): Co-organized a CSDMS Roadshow event at LSU.
Scholarly Peer Review (2025–Present): Reviewer for *Water Resources Research* and *Hydrological Processes*; chapter reviewer for *GeoHorizons: Using Earth Observation Data for Disaster Resilience in a Changing World*.
Data and Workflow Support, Louisiana Clean Fuels (Nonprofit) (2024–Present): Developed reproducible Google Colab pipelines for electric vehicle fleet data quality control and reporting; trained staff to maintain and deploy workflows for utility reports and federal grant submissions.
Session Convener and Chair, American Geophysical Union (2023–Present): Convened and chaired sessions on landscape biophysical interactions, hydrodynamics, sedimentary processes, and morphodynamics; coordinated abstract review and moderated scientific discussion.
Conference Co-organizer, Gulf Estuarine Research Society Spring Meeting (2023): Co-organized the 2023 Spring Meeting, including coordination of financial support.
STEM Outreach, Louisiana State University and Louisiana Sea Grant College Program (2021–2025): Participated in Ocean Commotion Education Days, Elementary School Wetland Days, EnvironMentors, Trinity Day School Hydrology Day, Buchanan Elementary School Career Days, and Glen Oaks Middle School School.
Student Representative, Gulf Estuarine Research Society (2021–2023): Represented student members and contributed to society activities and communication.
Chapter Co-Founder and President, Marine Technology Society (2019–2020): Co-founded and led a

student chapter; organized meetings, outreach, and professional development events.
Webinar Co-Organizer, Marine Technology Society *Stay Connected* Summer Series (2019–2020): Co-organized virtual seminars connecting students and professionals in marine technology.
STEM Outreach, Stockton University (2019–2020): Pleasantville Middle School Marine ROV Club advisor; Marine Field Station tour guide; Oyster Restoration of Barnegat Bay; Teen/Tween Science & Technology Camp; and New Jersey Shore Quiz Bowl.

TRAINING AND WORKSHOPS

Coastal HPC Bootcamp (August 2023)
Delft3D-FM WAQ Module (June 2022)
Louisiana Sea Grant REACH Mentorship Training (January 2022)
Delft3D Coastal Modeling (April 2021)
QPS Hydrographic Software (July 2020)
ECHO81 Multibeam Installation and SONAR Fundamentals (November 2019)
HYPACK Hydrographic Data Processing Software (October 2018)

TECHNICAL SKILLS

Programming Languages: Python (primary), R, MATLAB (associate certification), HTML, LaTeX
Scientific Computing and Machine Learning: PyTorch, scikit-learn, SHAP, DFM tools (Deltares), Spyder, VS Code, Jupyter, Anaconda, Git, High-Performance Computing (HPC)
Hydrodynamic and Environmental Modeling: Delft3D-FM, Delft3D-FM WAQ, DeltaRCM
Geospatial and Remote Sensing: QGIS, SeaDAS, QPS, HYPACK
Oceanographic Instrumentation: ADCPs (Nortek, Teledyne), CTDs, sound velocity profilers, multibeam and side-scan sonar, sub-bottom profilers, altimeters, inertial navigation systems, GPS, water quality sondes
Field Operations: Field campaign design, small-vessel operations (<8 m), instrument deployment and recovery, sonar installation and integration

COMPLETE LIST OF CONFERENCE ABSTRACTS & PRESENTATIONS

' indicates presenting author
** indicates high school student under my supervision*

[15]**Turner, C. R. R.**'. *GaugePredict: From a Narrow Research Question to a General Open-Source Forecasting Tool*. **Keynote Presentation**. Community Surface Dynamics Modeling System (CSDMS) Meeting. May 2026.
[14]**Turner, C. R. R.**', Hammond, N., Bargu, S., White, J. R., Hiatt, M. *Reconnecting the River: Freshwater Diversions as Nature-Based Solutions and Their Implications for Water Transport and Bloom Formation in Estuarine Environments*. American Geophysical Union (AGU) Ocean Sciences Meeting. February 2026.
[13]**Turner, C. R. R.**', Hiatt, M. *Forecasting Operational and Non-Operational Flows in River Diversions by Hybrid Neural Networks*. American Geophysical Union (AGU) Fall Meeting. December 2025.
[12]**Turner, C. R. R.**', Hiatt, M. *Forecasting Operational and Non-Operational Flows in River Diversions with Convolutional Neural Networks*. Society for Industrial and Applied Mathematics (SIAM) Conference on Mathematical & Computational Issues in the Geosciences. October 2025.
[11]**Turner, C. R. R.**', Hiatt, M. *Water Exposure Time Distributions Controlled by Freshwater Releases in a Semi-Enclosed Estuary*. Society for Industrial and Applied Mathematics (SIAM) Conference on Mathematical & Computational Issues in the Geosciences. October 2025.
[10]**Turner, C. R. R.**', Hiatt, M. *Water exposure time distributions controlled by freshwater releases in a semi-enclosed estuary*. American Geophysical Union (AGU) Fall Meeting. December 2024.
[9]**Turner, C. R. R.**', Hammond, N., Bargu, S., White, J. R., Hiatt, M. *Phytoplankton community adaptations controlled by water exposure time driven by freshwater releases in a semi-enclosed estuary*. American Geophysical Union (AGU) Fall Meeting. December 2024.
[8]**Turner, C. R. R.**', Hiatt, M. *Harmful Algal Bloom Hotspots? Characterizing Exposure Time and Hydrodynamics in a Diversion-Influenced Estuary*. American Geophysical Union (AGU) Fall Meeting. December 2023.
[7]**Turner, C. R. R.**', Hiatt, M. *Characterizing Water Residence Time and Hydrodynamics in a Diversion-Influenced Estuary: Implications for Water Quality*. Louisiana Water Conference. August 2023.

[6]Hawkins, T.'*, **Turner, C. R. R.** *Cyprus Trees: Louisiana's coastal protection from hurricane damage.* Louisiana State University Discover Day. April 2022.

[5]**Turner, C. R. R.**', Hammond, N., Bargu, S., Hiatt, M. *Controls on water transport timescales and phytoplankton communities in Lake Pontchartrain, Louisiana.* American Geophysical Union (AGU) Fall Meeting. December 2022.

[4]**Turner, C. R. R.**', Hammond, N., Bargu, S., Hiatt, M. *Controls on water transport timescales and phytoplankton communities in Lake Pontchartrain, Louisiana.* Gulf Estuarine Research Society (GERS) Annual Meeting. October 2022.

[3]Alabdullatif, J.', Dale, J.', Davis, J.', Gan, T.', Piper, M., **Turner, C. R. R.**', Vulis, L.' *Mississippi River Sediment PyDeltaRCM Learning Module.* Community Surface Dynamics Modeling System (CSDMS) Spring Meeting. May 2022.

[2]**Turner, C. R. R.**', Russell, K.' *Elemental Analysis Applications with Portable X-Ray Fluorescence for Coastal Wetlands Research.* American Geophysical Union (AGU) Fall Meeting. December 2021.

[1]**Turner, C. R. R.**', Benson, P., Marino, D., Hughes, S., Pfeiffer-Herbert, A. *Wind effects on estuary exchange flow at a bar-built inlet.* Atlantic Estuarine Research Society (AERS) and Southern Estuarine Research Society (SERS) Joint Meeting. Virtual. November 2020.