

Craig T. Connolly, Ph.D. |  
Postdoctoral Fellow

Columbia University  
Lamont-Doherty Earth Observatory  
61 Route 9W, Palisades, NY 10964  
connolly@ldeo.columbia.edu  
Cell: (518) 260-0513  
Website

## EDUCATION

---

University of Texas at Austin Aug 2014 – Aug 2019  
Ph.D. in Marine Science  
Concentration in Teaching & Mentoring  
Advisor: James W. McClelland

College of the Holy Cross Aug 2009 – May 2013  
B.A. in Biology (major) & Environmental Studies (minor)

## PROFESSIONAL EXPERIENCE

---

Postdoctoral Research Fellow Oct 2020 – present  
Department of Environmental Health Sciences, Columbia University (Primary)  
Lamont-Doherty Earth Observatory, Columbia University  
Data Science Institute, Columbia University  
U.S. Geological Survey Powell Center for Analysis and Synthesis

Postdoctoral Research Scientist Sept 2019 – Sept 2020  
Lamont-Doherty Earth Observatory, Columbia University (Primary)  
U.S. Geological Survey Powell Center for Analysis and Synthesis

Graduate Student Research Intern May – Aug 2019  
U.S. Geological Survey Alaska Science Center

Graduate Research or Teaching Assistant Aug 2014 – Aug 2019  
University of Texas at Austin Marine Science Institute

National Ocean Sciences AMS Graduate Intern May 2016 – Nov 2018  
Woods Hole Oceanographic Institution

Guest Student  
Sandia National Laboratories Aug 2018  
National High Magnetic Field Laboratory May 2018

Research Assistant Aug 2013 – July 2014  
Woodwell Climate Research Center

Researcher July 2013 & July – Aug 2014  
The Polaris Project Arctic Field Course

Tibor T. Polgar Research Fellow May – Aug 2012  
Cary Institute of Ecosystem Studies

Research Assistant May – Aug 2010  
University of Massachusetts, Amherst

## HONORS, AWARDS, & FELLOWSHIPS

---

Blavatnik Regional Postdoctoral Award Nominee | Lamont-Doherty Earth Observatory 2020

Postdoctoral Fellowship   National Institute of Environmental Health Sciences   \$132,000	2020
Dissertation Writing Fellowship   University of Texas at Austin Graduate School   \$17,210	2019
Student Travel Award   University of Texas Marine Science Institute   \$1,000 (annually)	2015 – 2018
National High Magnetic Field Laboratory Research Award   Florida State University   \$500	2018
Professional Development Award   University of Texas at Austin   \$600	2017
Student Travel Award   Coastal & Estuarine Research Federation   \$300	2017
Hurricane Harvey Grant   American Society for Biochemistry & Molecular Biology   \$1,000	2017
Graduate Research Fellowship   North Pacific Research Board   \$25,000	2016
Prestigious Fellowship Supplement   University of Texas at Austin Graduate School   \$1,000	2016
Student Travel Award   United States Permafrost Association   \$500	2016
Student Travel Award   Association for the Sciences of Limnology & Oceanography   \$500	2016
NOSAMS Graduate Internship Award   Woods Hole Oceanographic Institution   \$13,510	2015
Graduate Recruitment Fellowship   University of Texas at Austin Graduate School   \$6,000	2014
Grant-in-Aid of Research   Sigma Xi Scientific Research Society   \$1,000	2014
Student Travel Award   The Polaris Project Arctic Field Course   \$500 (annually)	2013 – 2014
Returning Student Award   The Polaris Project Arctic Field Course   \$1,500	2014
Rising Stars in the Arctic   The Polaris Project Arctic Field Course   \$1,500	2013
Tibor T. Polgar Research Fellowship   Hudson River Foundation   \$5,300	2012
Second Place-Poster Presentation   Entomological Society of America Meeting   \$50	2012

## PUBLICATIONS

---

In preparation:

1. DeYoung B., Stahl M.O., Connolly C.T., Bostick B.C. et al. (2021) | Characterizing global variability in groundwater arsenic | *Scientific Data*
2. Connolly C.T., Spencer, R.G.M., McClelland, J.W.M. (2021) | Bioavailability of dissolved organic matter in groundwater inputs to Arctic coastal waters | *Journal of Geophysical Research: Biogeosciences* >>

In review:

3. Connolly C.T., Stahl M.O., DeYoung B., Bostick B.C. (2021) | Surface flooding as a key driver of groundwater arsenic contamination in Southeast Asia | *Environmental Science and Technology* >>

Accepted or in press:

4. Rawlins M.A, Connolly C.T., McClelland J.W. (2021) | Modeling terrestrial dissolved organic carbon loading to western Arctic rivers | *Journal of Geophysical Research: Biogeosciences*
5. Connolly C.T., Crump B.C., Dunton K.H., et al. (2021) | Seasonality of dissolved organic matter in lagoon ecosystems along the eastern Alaska Beaufort Sea coast | *Limnology and Oceanography* >>

Peer-reviewed:

6. Bristol E.M., Connolly C.T., Lorenson T.D., Richmond B.M. et al. (2021) | Geochemical characterization of coastal permafrost and estimation of organic matter fluxes to the Beaufort Sea via shoreline erosion near Drew Point, Alaska | *Frontiers in Earth Science: Biogeoscience* | 8 | 639 >>
7. Pedrazas M.N., Cardenas M.B., Demir C., Watson J.A., Connolly C.T., McClelland J.W. (2020) | Ice-free lagoon sediment within the continuous permafrost zone | *Science Advances* | 6(43) | eabb5083 >>

8. Connolly C.T., Burkart G., Cardenas M.B., Spencer R.G.M., McClelland J.W. (2020) | Groundwater as a major source of dissolved organic matter to Arctic coastal waters | Nature Communications | 11 | 1479 >>
9. Connolly C.T., Khosh M.S., Burkart G., Douglas T.A., Holmes R.M., Jacobson A.D., Tank S.E., McClelland J.W. (2018) | Watershed slope as a predictor of fluvial dissolved organic matter and nitrate concentrations across geographical space and catchment size in the Arctic | Environmental Research Letters | 13 | 104015 >>
10. Ober K.A. & Connolly C.T. (2015) | Geometric morphometric and phylogenetic analyses of Arizona Sky Island populations of *Scaphinotus petersi* Roeschke (Coleoptera: Carabidae) | Zoological Journal of the Linnaean Society | 175(1) | pp. 107-118 >>
11. Connolly C.T., Sobczak W.V., Findlay S.E.G. (2014) | Salinity effects on Phragmites decomposition dynamics among the Hudson River's freshwater tidal wetlands | Wetlands | 34(3) | pp. 575-582 >>

Technical reports:

12. Bull, D.L., E.M. Bristol, E. Brown, R.C. Choens, C.T. Connolly, C. Flanary, J.M. Frederick, B.M. Jones, C.A. Jones, M. Ward Jones, J.W. McClelland, A.Mota, I. Tezaur (2020) | Arctic Coastal Erosion: Modeling and Experimentation | SAND2020-10223, Sandia National Laboratories, NM >>
13. Connolly C.T., Sobczak W.V., Findlay S.E.G. (2013) | Field and laboratory investigations on the effects of salinity on decomposition dynamics among the Hudson River's freshwater tidal wetlands | Section I: 1-31 pp. | In S.H. Fernald, D.J. Yozzo and H. Andreyko (eds.) | Final Reports of the Tibor T. Polgar Fellowship Program | Hudson River Foundation >>

## INVITED SEMINARS

---

1. “Dissolved organic matter in Arctic watersheds and coastal waters” | Union College | 1 November 2019 | Schenectady NY
2. “Dissolved organic matter in Arctic watersheds and coastal waters” | USGS Alaska Science Center | 26 June 2019 | Anchorage AK
3. “Groundwater as a major source of dissolved organic matter to Arctic coastal waters” | Sandia National Laboratories | 13 February 2019 | Albuquerque NM
4. “Studies on the transport of dissolved organic matter from land to sea in the Arctic” | Seminar Series for the Marine Chemistry & Geochemistry and Geology & Geophysics Departments | Woods Hole Oceanographic Institution | 4 September 2018 | Woods Hole MA
5. “Dissolved organic matter and linkages between land and sea in the Arctic” | Science Seminar Series | Woodwell Climate Research Center | 24 August 2018 | Woods Hole MA
6. “Groundwater as a source of dissolved organic matter to lagoons of the eastern Alaska Beaufort Sea coast” | Biogeochemistry Discussion Series | Woods Hole Oceanographic Institution | 1 Dec 2017 | Woods Hole MA
7. “Groundwater as a source of dissolved organic matter and inorganic nutrients to lagoons of the eastern Alaska Beaufort Sea coast” | Sharing Knowledge in Areas of Cryosphere Hydrogeology | University of Texas at Austin Jackson School of Geosciences | 27 October 2017 | Austin TX
8. “Our current understanding and questions that remain about the geochemistry and hydrology of groundwater inflows to lagoon systems along the eastern Alaska Beaufort Sea coast” | University of Texas at Austin Jackson School of Geosciences | 28 April 2017 | Austin TX
9. “Characterizing groundwater sources of organic matter to Arctic coastal waters” | National Ocean Sciences Accelerator Mass Spectrometry facility | Woods Hole Oceanographic Institution | 16 Nov 2016 | Woods Hole MA
10. “Seasonal freshwater sources of dissolved organic matter to Arctic coastal waters” | Marine Science Club | University of Texas at Austin | 11 March 2015 | Austin TX
11. “Permafrost thaw and climate change: the mud-filled path to graduate school” | Environmental Studies Honorary | College of the Holy Cross | 25 November 2014 | Worcester MA

12. “Why the global carbon cycle matters in a changing Arctic system” | 9<sup>th</sup> Grade Environmental Studies Class | Falmouth Academy High School | 9 April 2014 | Falmouth MA
13. “Disaster relief volunteering” | Responses to Environmental Crisis Discussion Forum | College of the Holy Cross | 14 November 2011 | Worcester MA

## CONFERENCE PRESENTATIONS

---

1. McGarry T.J., Connolly C.T., Halpert E., Bostick B.C. (poster) | Analyzing the relationship between remotely sensed environmental conditions and arsenic absorption in rice during the growing season in Cambodia | American Geophysical Union Fall Meeting | December 13-17 2021 | New Orleans, LA
2. Bristol E.M., Connolly C.T., Behnke M.I., Bosman S. et al. (TBD) | Biodegradability of organic matter eroding along the Alaska Beaufort Sea Coast | American Geophysical Union Fall Meeting | December 13-17 2021 | New Orleans, LA
3. Connolly C.T., McClelland J.W., Rawlins M.A., Koch J.C. (oral) | Spatial variations in dissolved organic carbon inputs and sources along the Canning River continuum, North Slope of Alaska | Coastal & Estuarine Research Federation | November 1-4 and 8-11 2021 | remote
4. Bristol E.M., Connolly C.T., Lorensen T.D., Richmond B.M. et al. (oral) | Land-to-ocean fluxes and biolability of organic matter eroding along the Beaufort Sea coast near Drew Point, Alaska | European Geophysical Union General Assembly | April 19-30 2021 | remote >>
5. Rawlins M.A., Connolly C.T., McClelland J.W. (poster) | Simulating riverine dissolved organic carbon export across the Western Arctic | North American Carbon Program | March 2021 | remote >>
6. Connolly C.T., Stahl M.O., Erikson M.L., et al. (oral) | Predicting arsenic contamination and heterogeneity across scales using environmental geospatial analysis and machine learning | Columbia Data Science Institute Conference: Machine Learning in Science & Engineering | December 14-15 2020 | remote >>
7. Connolly C.T., Stahl M.O., DeYoung B., Bostick B.C. (poster) | Flooding regulates groundwater arsenic contamination in southeast Asia | Superfund Research Program Meeting | December 14-15 2020 | remote
8. Connolly C.T., Stahl M.O., DeYoung B., Bostick B.C. (oral) | Linking surface flooding behavior to groundwater arsenic heterogeneity across scales in southeast Asia | American Geophysical Union Fall Meeting | December 1-17 2020 | remote >>
9. Shneider D., Gerson H.N., Dominguez M.I., Dabek P., Zhang B., Raftopoulos Connolly C.T., Bostick B.C. (poster) | Climate’s current and future effect on arsenic uptake in rice | American Geophysical Union Fall Meeting | December 1-17 2020 | remote >>
10. Park D., Connolly C.T., Nghiem A.N., Stahl M.O., Bostick B.C. (poster) | Linking suspended sediment in floodwaters to groundwater redox status and arsenic levels along the Lower Mekong River of Cambodia | American Geophysical Union Fall Meeting | December 1-17 2020 | remote >>
11. Connolly C.T., Stahl M.O., DeYoung B., et al. (oral) | Flooding drives groundwater arsenic contamination in southeast Asia | Geological Society of America Conference | October 25-29 2020 | remote >>
12. Rawlins M.A., McClelland J.W., Connolly C.T. (poster) | Changing characteristics of runoff and freshwater discharge from northern Alaska rivers and associated dissolved organic carbon export to the Beaufort Sea coast | Alaska Marine Science Symposium | January 27-31 2020 | Anchorage AK | USA >>
13. Bristol E.M., Connolly C.T., McClelland J.W. et al. (poster) | Geochemical characterization of eroding coastal permafrost and organic matter fluxes to the Beaufort Sea near Drew Point, Alaska | American Geophysical Union Fall Meeting | December 9-13 2019 | San Francisco CA | USA >>
14. Pedrazas M.A., Cardenas M.B., McClelland J.W., Connolly C.T. (poster) | Electrical resistivity imaging reveals thawed substrate beneath and across an entire Arctic lagoon within continuous permafrost | American Geophysical Union Fall Meeting | December 9-13 2019 | San Francisco CA | USA >>
15. McClelland J.W., Connolly C.T., Rawlins M.A. (oral) | Fluvial nitrogen export from the North Slope of Alaska to the Beaufort Sea: spatial patterns and implications for biological production in coastal waters |

Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting | February 23 – March 2 2019 | San Juan | Puerto Rico

16. Bristol E., Connolly C.T., Bull D., Jones B., Ilgen A., Lorenson T., et al. (oral) | Biogeochemistry of eroding soils along the Beaufort Sea coastline | Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting | February 23 – March 2 2019 | San Juan | Puerto Rico
17. Connolly C.T., Kellogg C.T.E, Crump B.C., Dunton K.H., McClelland J.W. (oral) | Seasonality of dissolved organic matter in lagoon ecosystems along the eastern Alaska Beaufort Sea coast | American Geophysical Union Fall Meeting | December 10-14 2018 | Washington DC | USA >>
18. Frederick J.M., Bull D.L., Mota A., Thomas M.A., Jones B., Jones C., Kasper J., Connolly C.T., McClelland J.W., Roberts J.D. (poster) | Development of a tightly coupled numerical model for Arctic coastal erosion, Infrastructure Risk, and Evaluation of Associated Coastal Hazards | American Geophysical Union Fall Meeting | December 10-14 2018 | Washington DC | USA >>
19. Connolly C.T., McNichol A., Gaylord M.L., Spencer R.G.M., Galy V., McClelland J.W. (poster) | Tracing terrestrial sources of dissolved organic carbon in an Arctic lagoon ecosystem using Ramped PyrOx | Radiocarbon Conference | June 17-22 2018 | Trondheim | Norway
20. Connolly C.T. & McClelland J.W. (oral) | Groundwater as a source of dissolved organic matter and inorganic nitrogen to lagoons of the eastern Alaska Beaufort Sea coast | Alaska Marine Science Symposium | January 23-25 2018 | Anchorage AK | USA >>
21. Connolly C.T., Spencer R.G.M., Cardenas M.B., McNichol A.P., et al. (oral) | Groundwater as a source of dissolved organic matter and inorganic nutrients to lagoons along the eastern Alaska Beaufort Sea coast | Woods Hole Oceanographic Institution, Massachusetts Institute of Technology, and Harvard University Joint Graduate Climate Conference | November 10-12 2017 | Woods Hole MA | USA
22. McClelland J.W., Connolly C.T., Rawlins M.A., Dunton K.H. (oral) | Watershed export and estuarine nitrogen dynamics along the Alaskan Beaufort Sea coast | Coastal & Estuarine Research Federation Biennial Conference | November 5-9 2017 | Providence RI | USA
23. Connolly C.T., Khosh M.S., Burkart G., Holmes R.M., Tank S.E., McClelland J.W. (oral) | Fluvial dissolved organic matter and inorganic nitrogen concentrations across space and scale in the Arctic | Coastal & Estuarine Research Federation Biennial Conference | November 5-9 2017 | Providence RI | USA
24. Connolly C.T., Spencer R.G.M., Cardenas M.B., Bennett P.C., McNichol A.P, McClelland J.W. (oral) | Characterizing groundwater sources of organic matter to Arctic coastal waters | American Geophysical Union Fall Meeting | December 12-16 2016 | San Francisco CA | USA >>
25. McClelland J.W., Connolly C.T., Khosh M.S., Burkart G., Holmes R.M., Tank S.E. (poster) | Synthesis of fluvial dissolved organic matter and inorganic nitrogen data across space and scale in the Arctic: circumpolar truths and regional distinctions | American Geophysical Union Fall Meeting | Dec 12-16 2016 | San Francisco CA | USA >>
26. Connolly C.T., Khosh M., Burkart G., Holmes R., Tank S.E., McClelland J.W. (oral) | Patterns in fluvial organic matter concentrations and watershed yields across space and scale in the Arctic | Association for the Sciences of Limnology and Oceanography Meeting | June 5-10 2016 | Santa Fe NM | USA
27. Connolly C.T., Spawn S.A., Sullivan H.L., Ludwig S., Schade J.D., Natali S.M. (poster) | The effects of permafrost thaw on organic matter quality and availability along a hill slope in northeastern Siberia | American Geophysical Union Fall Meeting | December 15-19 2014 | San Francisco CA | USA >>
28. Connolly C.T., Sather K., Ludwig S., Sullivan H.L., Schade J.D., Sobczak W.V., Mann P.J. (poster) | Organic matter biolability and enzyme activities within stream benthic sediments in northeastern Siberia | American Geophysical Union Fall Meeting | December 9-14 2013 | San Francisco CA | USA >>
29. Sather K. L., Connolly C.T., Mann P.J., Schade J.D. (poster) | Stream sediment flux responses to varied permafrost carbon composition in the Siberian Arctic | American Geophysical Union Fall Meeting | December 9-14 2013 | San Francisco CA | USA >>

30. Connolly C.T., Sobczak W.V., Findlay S.E.G. (poster) | Salinity effects on Phragmites decomposition dynamics among the Hudson River's freshwater tidal wetlands | Thirty-second annual biology undergraduate research symposium | College of the Holy Cross | May 7 2013 | Worcester MA | USA
31. Connolly C.T. & Ober K.A. (poster) | Morphometric analysis of *Scaphinotus petersi* populations in the Arizona Sky Islands | Entomological Society of America Annual Meeting | November 11-14 2012 | Knoxville TN | USA
32. Connolly C.T., Sobczak W., Findlay S. (oral) | Field and laboratory investigations on the effects of salinity on decomposition dynamics among the Hudson River's freshwater tidal wetlands | Polgar Fellowship Program Symposium | Cary Institute of Ecosystem Studies | August 23 2012 | Millbrook NY | USA
33. Connolly C.T., Sobczak W.V., Findlay S.E.G. (poster) | Field and laboratory investigations on the effects of salinity on decomposition dynamics among the Hudson River's freshwater tidal wetlands | 19th annual Summer Research Symposium | College of the Holy Cross | September 7 2012 | Worcester MA | USA >>
34. Connolly C.T. & Ober K.A. (poster) | Evolutionary divergence of *Scaphinotus petersi* in the Arizona Sky Islands | 18th annual Summer Research Symposium | College of the Holy Cross | Sept 9 2011 | Worcester MA |USA >>
35. Connolly C.T., CaraDonna P.J., Barber N.A. (poster) | The efficacy of cucumber pollinators in western Massachusetts | 17th annual Summer Research Symposium | College of the Holy Cross | September 10 2010 | Worcester MA | USA >>

## DEPARTMENTAL TALKS

---

1. “Predicting groundwater arsenic concentrations in southeast Asia using remotely sensed observations” | Lamont-Doherty Earth Observatory of Columbia University | 4 November 2020 | remote
2. “Linking flooding to groundwater arsenic heterogeneity and risk of exposure across scales in southeast Asia” | Department of Environmental Health Sciences of Columbia University | 19 October 2020 | remote
3. “Seasonality of dissolved organic matter in lagoon ecosystems along the eastern Alaska Beaufort Sea coast” | University of Texas Marine Science Institute | 22 February 2019 | Port Aransas TX
4. “Patterns in fluvial dissolved organic matter and nitrate concentrations across geographical space and catchment size in the Arctic” | University of Texas Marine Science Institute | 2 February 2018 | Port Aransas TX
5. “Characterizing groundwater sources of dissolved organic matter to Arctic coastal waters” | University of Texas Marine Science Institute | 24 February 2017 | Port Aransas TX
6. “Patterns in fluvial organic matter concentrations and watershed yields across space and scale in the Arctic” | University of Texas Marine Science Institute | 29 July 2016 | Port Aransas TX

## RESEARCH GRANTS

---

In review:

- Bill & Melinda Gates Foundation Global Grand Challenges: Smart Farming Innovations for Small-Scale Producers | “Scalable Technology Innovations that Increase Rice Yield and Improve Human” | PIs: B.C. Bostick & C.T. Connolly | \$1.5M

Under revision:

- NSF Signals in the Soil (SitS) | “Collaborative Research: Scaling Direct Observations of the Temporal and Spatial Evolution of Soil Redox Status and its Link to Arsenic Uptake by Rice” | PIs: B.C. Bostick & C.T. Connolly | \$990K

Awarded:

- The Columbia Center for Climate Research Grant | “Linking Climate to the Environmental Conditions that Drive Rice Arsenic Contamination in South and Southeast Asia” | PIs: C.T. Connolly & B.C. Bostick | 2021-2022 | \$10K

- Microsoft AI for Earth Azure Compute Grant | “Scalable Technology Innovations to Reduce Arsenic Contamination in Rice Grown by Small-Scale Producers in South and Southeast Asia” | PIs: C.T. Connolly & B.C. Bostick | 2021-2022 | \$15K
- NSF Office of Polar Programs (OPP) | “Collaborative Research: The physical and chemical dynamics of groundwater flow across the land-sea interface in Arctic coastal ecosystems” | Co-author under PIs: M.B. Cardenas, J.W. McClelland, & M.A. Charette | NSF-OPP-ANS-1938820 | 2020-2023 | ~\$795K
- NSF–U.S. Geological Survey (USGS) | Non-Academic Research Internship for Graduate Students | “Quantifying Groundwater Resources and Biogeochemical Fluxes on Alaska’s North Slope and in the Arctic National Wildlife Refuge ” | PI: C.T. Connolly. Advisors: J.C Koch & J.W. McClelland | 2019-2020 | ~\$31K

## TEACHING & MENTORING GRANTS

---

- Columbia Earth Institute 2021 Summer Undergraduate Intern Program | “What Are the Drivers of Arsenic Contamination and Heterogeneity in Groundwater in Southeast Asia and the USA, and How Can We Predict Arsenic Concentrations Across Spatial Scales?” | PIs: C.T Connolly and B.C Bostick | ~\$11K
- Columbia Earth Institute 2021 Spring Undergraduate Research Assistantship | “Predicting Arsenic Contamination and Heterogeneity in Groundwater Across Scales in Southeast Asia and the USA” | PI: C.T Connolly | ~\$2K

## TEACHING & COMMUNITY ENGAGEMENT

---

### Teaching Assistant

Columbia University Mailman School of Public Health

- Contaminant Mixtures Workshop in Environmental Health Studies Summer 2021

University of Texas at Austin

- Marine Ecology Lab Fall 2016
- Marine Ecology Spring 2015
- Introduction to Biology Lab Fall 2014

College of the Holy Cross

- Freshwater Ecology Fall 2012

### Scientist in Residence Teaching Fellow

Port Aransas Texas Public School District

- Environmental Studies Class for 4<sup>th</sup>, 5<sup>th</sup>, and 8<sup>th</sup> Grades Fall 2015 – Spring 2016

### Invited Course Lectures

Union College

- Groundwater Hydrology Fall 2020
- Environmental Studies Seminar Series Spring 2020

University of Texas at Austin

- Marine Biogeochemistry Fall 2018
- Principles of Marine Science Ecosystem Oceanography Spring 2018
- Coastal Watersheds Field Course Summer 2015

Falmouth Massachusetts Academy High School

- 9<sup>th</sup> Grade Environmental Studies Class Spring 2014

### Program Coordinator

University of Texas at Austin and U.S Fish and Wildlife Service

- Kaktovik Alaska K-12 Summer Oceanography Program Summer 2017

### Program Instructor

University of Texas at Austin

- Marine Science Institute K-12 Summer Science Program Summer 2016, 2017, & 2018

- Kaktovik Alaska K-12 Summer Oceanography Program Summer 2015, 2016, & 2017

### Student Mentor

- Coastal & Estuarine Research Federation Conference Fall 2017
- Falmouth Massachusetts Academy High School Science Fair Fall 2013 – Spring 2014

### Science Fair Judge

- Port Aransas Texas Elementary and High School Science Fairs Fall 2016, 2017, & 2018 and Spring 2017
- Falmouth Massachusetts Academy Annual High School Science Fair Spring 2014

### Education & Outreach Liaison

- Woodwell Climate Research Center Fall 2013 – Spring 2014

### WORKSHOPS & PANELS

---

1. Environmental Contaminant Mixtures Workshop: Applications in Environmental Health Studies | Columbia University Mailman School of Public Health SHARP Training: Skills for Health And Research Professionals | 19 & 20 August 2021| remote
2. Google Earth Engine Boot Camp: Methods for Using Satellite and Geospatial Data for Environmental Exposure Science | Columbia University Mailman School of Public Health SHARP Training: Skills for Health And Research Professionals | 21 & 22 June 2021| remote
3. AI for Earth Summit | Microsoft AI for Earth, Azure, and Planetary Computer | 24-26 May 2021 | remote
4. Crowdsourced Manuscript Workshop | Worldwide Hydrobiogeochemical Observation Network for Dynamic River Systems (WHONDRS) | initiated 30 April 2021 | remote
5. Unlearning Racism in Geoscience | National Science Foundation & Woods Hole Oceanographic Institution | 18 January – 7 May 2021 | remote
6. Using High Performance Computing to Enhance Your Research | Columbia University IT Research Computing Services | 23 & 30 March 2021 and 6 April 2021 | remote
7. Using Cloud Resources for High Performance Computing | Columbia University IT Research Computing Services | 16 & 18 March 2021 | remote
8. Building a Productive Learning Environment for Your Lab/Research Team | Columbia University Irving Medical Center | 19 February 2021 | remote
9. Inclusive and Culturally Competent Teaching in the Earth Sciences | Lamont-Doherty Earth Observatory of Columbia University| 8 January 2021 | remote
10. The Next Generation of Geoscience Leaders: Strategies for Excellence in Diversity and Inclusion | Geological Society of America Conference | 27 October 2020 | remote
11. Panelist on graduate school for undergraduates | 20 October 2020 | College of the Holy Cross | remote
12. Diversity and Inclusion Discussion | UT Marine Science Institute | est. 1 Nov 2018 | Port Aransas TX
13. Ocean Educators Night | Alaska Marine Science Symposium | 23 January 2018 | Anchorage AK
14. Communicating Ocean Sciences | Alaska Marine Science Symposium | 22 January 2018 | Anchorage AK
15. Coastal Resilience and Adaptation | Alaska Marine Science Symposium | 22 January 2018 | Anchorage AK
16. Becoming a Public Scholar Advocate | Graduate Climate Conference | 10 Nov 2017 | Woods Hole MA
17. How to Communicate Your Research to Any Audience | University of Texas at Austin | 17 Oct 2017 | Austin TX
18. Writing Center Workshop and Retreat | UT Marine Science Institute | 31 March – 1 April 2017 | Port Aransas TX
19. Career Opportunities & Networking | American Geophysical Union Fall Meeting | 14 December 2016 | San Francisco CA

20. Student and Early Career Scientist Conference | American Geophysical Union Fall Meeting | 11 December 2016 | San Francisco CA
21. Writing Proposals for Funding | UT Marine Science Institute | 12 & 24 May 2016 | Port Aransas TX
22. Writing a Winning Proposal: Vital Tips From Program Officers for Early Career Scientists | Association for the Sciences of Limnology and Oceanography Summer Meeting | 6 June 2016 | Santa Fe NM

## PROFESSIONAL SERVICE

---

### Executive Committee Member

Lamont-Doherty Earth Observatory of Columbia University

- Postdoctoral Research Scientist Representative Sept 2021 – present

### Seminar Series Co-chair

Lamont-Doherty Earth Observatory of Columbia University

- Geochemistry Division Seminar Series Aug 2020 – present

### Conference Session Co-convener

American Geophysical Union Fall Meeting

- Conference session on Arctic coastal change Dec 2019

### Journal Reviewer

2017 – present

- AAAS: Science Advances
- AGU: Geophysical Research Letters
- IOP: Environmental Research Letters
- Biogeochemistry
- Science in the Total Environment
- Nature Reviews Earth & Environment
- AGU: Journal of Geophysical Research: Biogeosciences
- Nature Communications

### Marine Science Graduate Student Representative

University of Texas at Austin

- College of Natural Science Dean's Graduate Council 2017
- University Graduate Student Assembly 2017

### Graduate Student Association

University of Texas at Austin Marine Science Institute

- Director of Athletics and Recreation 2016

## VOLUNTEER SERVICE

---

### All Hands and Hearts Volunteer

June 18 – July 15 2011; July 24 – 28 2011; Oct 9 – 13 2011

- Tornado and flood disaster relief activities in Birmingham, AL, Schoharie, NY, and Springfield, MA.

### Unified Special Olympics

Fall 2011 & 2012

College of the Holy Cross

- Participant in Holy Cross Goes Unified Special Olympics sport activities and social events with athletes.

## PROFESSIONAL ORGANIZATIONS

---

Geological Society of America

American Geophysical Union

Association for the Sciences of Limnology & Oceanography

United States Permafrost Association

Coastal & Estuarine Research Federation

## STUDENT MENTEES

---

- Eden Halpert (undergraduate student, Barnard College)
- Maanal Chowdhury (undergraduate student, Barnard College)
- Janet Vo (undergraduate student, Barnard College)
- Tavehon Jonnathan (undergraduate student, Columbia University)
- Jennifer Wu (undergraduate student, Columbia University)
- Adina Cazacu-De Luca (undergraduate student, Columbia University)
- Beryl Sinclair (graduate student, Columbia University)
- Beck DeYoung (undergraduate student, Union College)
- Devon Park (undergraduate student, Columbia University)
- Bridget Vasquez (undergraduate student, Columbia University)
- Summer Internship Group (10 New York City high school students)

## FIELDWORK

---

Canning River Watershed, Arctic National Wildlife Refuge, Alaska	Summer 2019 & 2021
Northeastern Lagoon Ecosystems, Kaktovik, Alaska	Summer 2015, 2016, & 2017
Mission and Aransas Rivers, National Estuarine Research Reserve, Texas	Year-round 2015 – 2017
Kolyma River Watershed, Northeast Science Station, Cherskiy, East Siberia	Summer 2013 & 2014
Hudson River Tidal Wetlands, New York	Summer 2012
South Caicos of the Turks and Caicos Islands, British West Indies	Spring 2012
University of Massachusetts Amherst Center for Agriculture	Summer 2010

## LABORATORY SKILLS

---

- Water-borne and rice geochemical concentration analysis using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) (training in progress).
- Ultra-high resolution dissolved organic matter (DOM) molecular characterization using solid-phase extraction and Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (FTICR-MS).
- Stable and radiocarbon isotopic composition analysis ( $\Delta^{14}\text{C}$  and  $\delta^{13}\text{C}$ ) using the UV-oxidation of DOC method, an Elementar el Vario Cube C/N analyzer, and the Ramped Pyrolysis Oxidation instrument via vacuum line transfer and cryogenic purification of oxidized  $\text{CO}_2$  samples.
- Quantifying water-borne dissolved organic matter and inorganic nutrients (e.g., DOC, TDN,  $\text{NO}_3^-$ ,  $\text{NO}_2^-$ ,  $\text{NH}_4^+$ , and  $\text{PO}_4^{3-}$ ) using a Shimadzu DOC/TDN analyzer, SEAL QuAAtro inorganic nutrient analyzer, and BioTek  $\mu$ Quant microplate spectrophotometric methods.
- Characterizing physical water chemical properties (e.g., temperature, conductivity, salinity, pH, dissolved oxygen, biological oxygen demand “BOD”) using YSI water quality meters/sondes.
- Measuring stream/river discharge using a SonTek acoustic Doppler FlowTracker.
- Modeling submarine groundwater discharge with measures of radon ( $^{222}\text{Rn}$ ) from RAD7 instruments.
- Characterizing DOM composition from chromophoric DOM (CDOM) and fluorescent DOM (FDOM) optical properties using a Perkin Elmer Lambda 35 dual beam scanning spectrophotometer, Ocean-Optics USB-ISS-UV/VIS miniature spectrophotometer, and Horiba FluoroMax series fluorescence spectrometer.
- Quantifying field and laboratory soil- $\text{CO}_2$  gas fluxes using a portable LI-COR LI-820  $\text{CO}_2$  analyzer.
- Quantifying microbial extracellular enzyme activity rates using BioTek microplate colorimetric methods.
- Quantifying microbial biomarker ergosterol using High Performance Liquid Chromatography (HPLC).

## COMPUTER SKILLS

---

Software and techniques:

- ❑ Microsoft AI for Earth and Azure High-Performance Cloud-computing technical resources (in progress).
- ❑ Geospatial analysis (GIS) and remote sensing in Google Earth Engine, ArcGIS, and R computing software.
- ❑ Large data analysis, data compilation and synthesis, statistics, visualization and figure production, machine learning applications, predictive model development, and code programming in R computing software.
- ❑ Statistical analysis in the SAS and SPSS software packages.
- ❑ Webpage design in the WordPress/Wix online interfaces.
- ❑ Figure production in Inkscape visualization software (similar to Adobe Illustrator).
- ❑ Microsoft Office and Google tools (e.g., Excel/Sheets, PowerPoint/Slides, Word/Docs).

## RELEVANT COURSEWORK

---

### University of Texas at Austin

Mentoring Undergraduate Researchers  
Marine Organic Geochemistry  
Scientific Communication (taken annually)  
Mentored Teaching  
Isotope Ecology  
Introduction to Evidence Based Teaching  
Adaptations to the Marine Environment  
Coastal Watersheds  
Marine Biogeochemistry  
Marine Ecosystem Dynamics  
Statistical Methods II  
Applied Karst Hydrogeology  
Environmental Isotope Geochemistry  
Teaching Assistant Fundamentals  
Paleoclimatology  
Geomicrobiology  
Geographic Information Systems in Water Resources

### College of the Holy Cross

Chemistry Equilibrium & Reactivity  
Undergraduate Research: Ecosystem Ecology  
Biological Statistics  
Research: River Ecology & Global Change  
Physiology  
Biochemistry I  
Field Botany  
Freshwater Ecology  
Introduction to Geology  
Environmental Ethics  
Organic Chemistry I  
Genetic Analysis  
Chemistry Atoms & Molecules  
General Ecology  
Calculus in Physical & Life Sciences I & II  
The Wilderness in U.S. History  
Introduction to Biology I & II

### School for Field Studies Center for Marine Resource Studies

Tropical Marine Ecology  
Principles of Marine Resource Management  
Directed Research: Seagrass Ecology & Anthropogenic Impacts  
Environmental Policy and Socioeconomic Values

## LANGUAGES

---

- ❑ French: Spoken (intermediate), Written (intermediate), and Reading (intermediate)
- ❑ Spanish: Spoken (novice), Written (novice), and Reading (novice)

## NEWS & MEDIA

---

Personal website: >>

LinkedIn profile: >>

Departmental profiles: >> >> >>

Google scholar: >>

Press releases:

- “Coastal Permafrost More Susceptible to Climate Change Than Previously Thought” *by* A. Caputo >>
- “Hidden Source of Carbon Found at the Arctic Coast” *by* S. Palmer >>

News highlights:

- “Predicting Groundwater Arsenic Levels and Variability Around the World” *by* K. Alexanyan >>
- Columbia University Postdoc Society: August 2021 Postdoc of the Month >>
- Columbia University Dept. of Environmental Health Sciences Spring 2021 Newsletter: Staff Spotlight >>
- “Graduate Student, Craig Connolly, is on a roll” *by* S. Palmer >>
- “From Worcester to Siberia” *by* D. Soboski >>
- “Holy Cross Biology Major Studies Climate Change on the Hudson River” *by* D. Catrone >>

Field notes:

- Woodwell Climate Research Center Polaris Project >>
- School for Field Studies Center for Marine Resource Studies, Turks and Caicos >>

## PERSONAL INTERESTS

---

- SCUBA Diving; Rock Climbing; Music (Guitar & Violin); Surfing; Sports; Hiking; Traveling

## REFERENCES

---

James McClelland

Professor

University of Texas at Austin, Marine Science Institute

Email: [jimm@utexas.edu](mailto:jimm@utexas.edu)

Ph: (361) 749-6756

Benjamin Bostick

Associate Research Professor

Columbia University, Lamont-Doherty Earth Observatory

Email: [bostick@ldeo.columbia.edu](mailto:bostick@ldeo.columbia.edu)

Ph: (845) 365-8659

Mason Stahl

Assistant Professor

Union College

Email: [stahlm@union.edu](mailto:stahlm@union.edu)

Ph: (518) 388-6942