

CAL DUNHAM BUELO

Aquatic ecosystems, algal blooms, data science



EDUCATION

Present
|
2016

University of Virginia, Dept. of Environmental Sciences

Ph.D. Candidate

📍 Charlottesville, VA

Advisor: Dr. Michael Pace

2014
|
2010

University of Wisconsin

B.S. in Biology, Mathematics

📍 Madison, WI



EMPLOYMENT

2016
|
2014

Research Technician, Pace Lab

University of Virginia, Dept. of Environmental Sciences

📍 Charlottesville, VA

- Planned and carried out field experiments as part of a multi-institutional research group
- Trained, supervised, and mentored undergraduate researchers
- Set up and operated lab equipment and field sensor systems
- Led management of group databases and data analysis for publications

2014
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2011

Undergraduate Researcher, Cascade Research Group

University of Wisconsin, Center for Limnology

📍 Land O' Lakes, WI and Madison, WI

- Completed field and lab analysis of lake limnological properties and fish populations
- Entered data and managed project fish database
- Conducted own research for REU and directed study coursework



PUBLICATIONS

In
Review

Phytoplankton biomass, dissolved organic matter and temperature drive respiration in whole lake nutrient additions

Limnology and Oceanography

ML Pace, **CD Buelo**, SR Carpenter.

In Press

No evidence of widespread algal bloom intensification in hundreds of lakes

Frontiers in Ecology and the Environment

GM Wilkinson, JA Walter, **CD Buelo**, ML Pace

CONTACT INFO

✉ cbuelo10@gmail.com or

✉ cdb8g@virginia.edu

📞 +1 608-576-8741

🌐 calbuelo.com

🐙 github.com/cbuelo

TECHNICAL SKILLS

R (base, tidyverse, Shiny, package development)

Python, SQL, Git, Linux, Bash

Installation and maintenance of automated water quality sensor systems

This resume was made with the R package [pagedown](#).

Last updated on 2020-11-24.

- 2020 ● **Air-water gas exchange in lakes and reservoirs measured from a moving platform by underwater eddy covariance**
[Limnology and Oceanography: Methods](#)
P Berg, ML Pace, **CD Buelo**
- 2018 ● **A synthesis of modern organic carbon accumulation rates in coastal and aquatic inland systems**
[Scientific Reports](#)
GM Wilkinson, A Besterman, **CD Buelo**, J Gephart, ML Pace
- **Filial cannibalism by largemouth bass (*Micropterus salmoides*): a three-decade natural history record from a small northern temperate lake**
[Journal of Freshwater Ecology](#)
CJ Dassow, A Collier, JYS Hodgson, **CD Buelo**, JR Hodgson
- **A modeling analysis of spatial statistical indicators of thresholds for algal blooms**
[Limnology & Oceanography Letters](#)
CD Buelo, SR Carpenter, ML Pace
- **Early warning signals precede cyanobacterial blooms in multiple whole-lake experiments**
[Ecological Monographs](#)
GM Wilkinson, SR Carpenter, JJ Cole, ML Pace, RD Batt, **CD Buelo**, JT Kurtzweil
- 2017 ● **Reversal of a cyanobacteria bloom in response to early warnings**
[Proceedings of the National Academy of Sciences USA](#)
ML Pace, RD Batt, **CD Buelo**, SR Carpenter, JJ Cole, JT Kurtzweil, GM Wilkinson
- 2016 ● **Exogenously produced CO₂ more than doubles the flux of greenhouse gases from three north temperate lakes**
[Geophysical Research Letters](#)
GM Wilkinson, **CD Buelo**, JJ Cole, ML Pace



SELECTED PRESENTATIONS

- 2020 ● **Forecasting Algal Blooms**
CD Buelo, N Nazemi. *UVA School of Data Science Presidential Fellowship Presentation*
- 2019 ● **Algal blooms and ecosystem metabolism in a managed drinking water reservoir**
CD Buelo, ML Pace. *UVA Global Water Initiative Graduate Water Symposium Presentation*
- **Time vs. space: comparing statistical indicators of algal blooms**
CD Buelo, ML Pace, SR Carpenter. *ASLO Aquatic Sciences Meeting*

- 2018
 - **Lake experiments to test early warnings of resilience loss**
CD Buelo, ML Pace. *UW Trout Lake Station Weekly Seminar*
 - **Spatial indicators of algal blooms using remote sensing**
CD Buelo. *Virginia Space Grant Consortium Research Conference*
 - **Algal blooms and ecosystem metabolism in a drinking water reservoir**
CD Buelo, ML Pace. *EnviroDay: UVA Envi. Sci. Graduate Student Symposium*
- 2017
 - **Storms, algal blooms, and CuSO₄ treatment in a drinking water reservoir**
CD Buelo, CS Hanley, GM Wilkinson, ML Pace. *Virginia Water Monitoring Council Conference (invited speaker & panelist)*
 - **Spatial resilience indicators of algal blooms**
CD Buelo, ML Pace, SR Carpenter. *ASLO Aquatic Sciences Meeting*
- 2015
 - **Storms, algal blooms, and CuSO₄ treatment in a drinking water reservoir**
CD Buelo, CS Hanley, ML Pace, GM Wilkinson. *Water Resources Conference of the Virginias*
 - **Data analysis and visualization with R**
CD Buelo. *Environmental Electronics Undergrad Course (Guest Lecture)*
- 2014
 - **Trophic cascades, early warnings of regime shifts, and terrestrial subsidies in lakes**
CD Buelo, JT Kurtzweil. *University of Notre Dame Environmental Research Center Summer Seminar Series*
- 2012
 - **Effects of a food web shift on largemouth bass diet and juvenile growth**
CD Buelo. *UW-Madison Biology 152 Mentored Research Poster Session (poster presentation)*
 - **Changes in fish growth during a trophic cascade**
CD Buelo. *UW Trout Lake Station Undergraduate Research Seminar*



HONORS, AWARDS, GRANTS

- 2019
 - **UVA Presidential Fellowship in Data Science**
\$41,000
 - **UVA Dept. of Environmental Studies Moore Graduate Research Award**
\$5,000
- 2018
 - **UVA Environmental Resilience Institute Rapid Response Grant**
\$14,000. PI: Michael Pace, Co-PIs: Alice Besterman and **Cal Buelo**
 - **NASA Virginia Space Grant Consortium Graduate Fellowship Renewal**
\$6,000
- 2017
 - **UVA Dept. of Environmental Studies Exploratory Research Award**
\$1,250

- **NASA Virginia Space Grant Consortium Graduate Fellowship**
\$6,000
- 2016 ● **National Science Foundation Graduate Research Fellowship**
\$138,000
- 2013 ● **UW College of Agriculture and Life Sciences Irving W. Gerhardt Scholarship**
- 2012 ● **National Science Foundation Research Experience for Undergraduates Award**

PROFESSIONAL ACTIVITIES

● Mentorship

- Kayla Wernsing, Iowa State University, 2019
- Sara McCormack, University of Denver, 2019
- Carson Lambert, University of Virginia, 2019
- Dat Ha, University of Virginia, 2018-2019
- Anne Marie Saunders, University of Virginia, 2018
- Jon Stetler, Paul Smith's College, 2016-2017¹
- Meredith Kadjiski, Wells College, 2016¹
- Daniel De Jesús, University of Puerto Rico at Cayey, 2016¹
- Brandon Dobraska, University of Wisconsin, 2016²
- Anders Uppgaard, University of Wisconsin, 2015
- Rachel Meulman, University of Virginia, 2015-2016^{3,4}
- Colin Dassow, St. Norbert College, 2014-2015
- Devon Brown, University of Virginia, 2014
- Charlie Hanley, University of Virginia, 2014

● Volunteer

- UW Trout Lake Open House (2013 - 2016, 2018)
- NSF GRFP Applicant Review Panel, UVA Office of Graduate & Postdoc. Affairs (2017)

● Membership

- Association for the Sciences of Limnology and Oceanography

● Reviewer

- Limnology and Oceanography
- Limnology and Oceanography: Methods
- Hydrobiologia

¹ University of Notre Dame
Practicum in Environmental Field
Biology mentee

² University of Wisconsin Center
for Limnology Zinn Fellow

³ NSF Research Experiences for
Undergraduates Fellow

⁴ University of Virginia
Distinguished Major Program
Scholar