ABIGAIL LEWIS

Smithsonian Environmental Research Center, Edgewater, MD, USA
abigail.sl.lewis@gmail.com | (262) 565-7269

EDUCATION

2019–2024 Virginia Tech, Blacksburg, VA
Ph.D. in Biological Sciences, Advisor: Dr. Cayelan Carey
Dissertation: *Oxygen dynamics in the bottom-waters of lakes: Understanding the past to predict the future*
Preparing the Future Professoriate Certificate
Interfaces of Global Change Fellow

2015–2019 Pomona College, Claremont, CA
Bachelor of Arts in Biology, Spanish minor, *magna cum laude*
Advisors: Dr. Wallace Meyer III, Dr. Andre Cavalcanti
Senior thesis: *Effects of artificial light at night on benthic freshwater carbon cycling*

RESEARCH POSITIONS

2024–present **Smithsonian Institution**, Edgewater, MD
Smithsonian Climate Change Fellowship supervised by Drs. James Holmquist and Genevieve Noyce

2019–2024 **Virginia Tech**, Blacksburg, VA
NSF Graduate Research Fellow and ICTAS Doctoral Scholar supervised by Dr. Cayelan Carey

2018 **University of Wisconsin Madison**, Madison, WI
NSF REU Intern supervised by Dr. Anthony Ives

2017 **Cary Institute of Ecosystem Studies (CIES)**, Millbrook, NY
NSF REU Intern supervised by Drs. Kathleen Weathers (CIES) and David Richardson (SUNY New Paltz)

2016–2017 **Pomona College**, Claremont, CA
Ecology Research Assistant supervised by Dr. Wallace Meyer III

2016 **Pomona College Internship Program**, Claremont, CA
Environmental Research Internship with Steve Rowell
- Researched remote sensing technologies and prepared reports for artist Steve Rowell to inform his work

FELLOWSHIPS (total of ~$575,420)

2024 **Fulbright Postdoctoral Fellowship** (Spain; ~$32,500, *declined*)
- Proposal title: "Analyzing and forecasting greenhouse gas dynamics in the bottom waters of lakes worldwide"

Science Communication In the Parks (SCIP) Fellowship ($3000)
- Science communication fellowship run by the Ecological Society of America and the U.S. National Parks Service
- Supplemental travel funding for 1-week science communication residency at Assateague Island National Seashore ($500)

2023 **Smithsonian Climate Change Fellowship** ($133,920)
- Two-year postdoctoral fellowship

2019 **NSF Graduate Research Fellowship** ($141,000)
- Three years of graduate funding and tuition

ICTAS Doctoral Scholar, Virginia Tech (~$192,000)
- Four years of graduate funding and tuition (two years accepted)

Cunningham Fellowship, Virginia Tech (~$76,000; *declined)*
- Two years of graduate funding and tuition

SELECTED GRANTS, AWARDS, AND HONORS (total of $30,340)

2024 **Outstanding Doctoral Student Award**, Virginia Tech College of Science ($500)

Trailblazing Award, Ecological Society of America Student Section ($700)

Outstanding Student Presentation Award, American Geophysical Union ($200)

2023 **Noel Krieg Graduate Fellowship**, Virginia Tech ($2,000)

2022 **Make-a-Difference Award**, Virginia Tech College of Science Roundtable ($10,000)

Mary and George Schaeffer Stream Team Excellence Award, Virginia Tech ($1,000)

Katherine S. McCarter Graduate Student Policy Award, Ecological Society of America

Graduate Academy for Teaching Excellence Associate, Virginia Tech

2021 **AGU Sharing Science Grant** ($1,000)
- Funded the development of a flipped science fair, where elementary students judged graduate student science fair posters

2019 **John Stauffer Scholarship for Academic Merit**, Pomona College ($12,000)

Vaile Prize, Pomona College ($600)
- Awarded to an outstanding senior biology major

Distinction in the senior exercise, Pomona College

Senior Service Award, Pomona College ($100)

2015 **National Merit Scholar**

PEER-REVIEWED PUBLICATIONS (* indicates mentored undergraduate student)
Total of 25 published or in review; 9 first-author

In review **Lewis, A. S. L.** and C. C. Carey. Ecological memory of spring air temperature drives summer water quality dynamics in temperate lakes. In review at *Limnology and Oceanography: Letters*.

Hounshell, A. G., **A. S. L. Lewis**, D. W Howard, H. L. Wander, M. E. Lofton, P. C. Hanson, and C. C. Carey. Dissolved organic carbon dynamics are driven by water temperature, primary production, and anoxia over five years of whole-ecosystem experiments in a eutrophic reservoir. In review at *Ecosystems*.

2024 Mesman, J. P., C. C. Barbosa, **A. S. L. Lewis**, F. E. Olsson, S. Calhoun-Grosch, H.-P. Grossart, R. Ladwig, R. S. La Fuente, K. Münzner, L. G. T. Nkwalale, R. M. Pilla, K. Suresh and D. J. Wain. 2024. Challenges of Open Data in aquatic sciences: issues faced by data users and data providers. *Frontiers in Environmental Science*. https://doi.org/10.3389/fenvs.2024.1497105

Olsson, F. E., C. C. Carey, G. Harrison, R. Ladwig, M. F. Lapeyrolerie, **A. S. L. Lewis**, M. E. Lofton, F. Montealegre-Mora, J. S. Rabaey, C. J. Robbins, X. Yang, R. Q. Thomas. 2024. What can we learn from 100,000 freshwater forecasts? A synthesis from the NEON Ecological Forecasting Challenge. *Ecological Applications*.

Howard, D. W., J. A. Brentrup, D. C. Richardson, **A. S. L. Lewis**, F. E. Olsson, and C. C. Carey. Variability in ice cover does not affect annual metabolism estimates in a small eutrophic reservoir. *JGR Biogeosciences* , 129, e2024JG008057. https://doi.org/10.1029/2024JG008057

Malmborg, C. A., A. M. Willson, L. M. Bradley, M. A. Beatty, D. H. Klinges, G. Koren, **A. S. L. Lewis**, K. Oshinubi, and W. M. Woelmer. Defining Model Complexity: An Ecological Perspective. *Meteorological Applications*, 31(3), e2202*.* https://doi.org/10.1002/met.2202

Wander, H. L., **A. S. L. Lewis**, D. W. Howard, M. E. Lofton, W. M. Woelmer, B. L. Brown, and C. C. Carey. 2024. Zooplankton community structure and diel migration patterns vary over hours, days, and years in the pelagic and littoral zone of a eutrophic reservoir. *Journal of Plankton Research*, fbae017. https://doi.org/10.1093/plankt/fbae017

Man, X., C. Lei, K. A. Bierlein, L. D. Bryant. **A. S. L. Lewis**, C. C. Carey, J. C. Little. 2024. Computationally characterizing the diffusive boundary layer in lakes and reservoirs. *Journal of Soils and Sediments.* https://doi.org/10.1007/s11368-024-03767-0

Lewis, A. S. L., A. Breef-Pilz, D. W. Howard, M. E. Lofton, F. Olsson, H. L. Wander, C. E. Wood, M. E. Schreiber, C. C. Carey. 2024. Reservoir Drawdown Highlights the Emergent Effects of Water Level Change on Reservoir Physics, Chemistry, and Biology. *JGR Biogeosciences.* 129, e2023JG007780. https://doi.org/10.1029/2023JG007780

Lewis, A. S. L., M. P. Lau, S. F. Jane, K. C. Rose, Y. Be'eri-Shlevin, S. H. Burnet, F. Clayer, H. Feuchtmayr, H. P. Grossart, D. W. Howard, H. Mariash, J. Delgado Martin, R. L. North, I. Oleksy, R. M. Pilla, A. P. Smagula, R. Sommaruga, S. E. Steiner, P. Verburg, D. Wain, G. A. Weyhenmeyer, C. C. Carey. 2024. Anoxia Begets Anoxia: a positive feedback to the deoxygenation of temperate lakes. *Global Change Biology*. 30(1), e17046. http://doi.org/10.1111/gcb.17046

- Reported in 35 news stories from 33 outlets (Altmetric)

2023 **Lewis, A. S. L.**, D. W. Howard, G. Koren, C. Kowalski, J. McLachlan, J. A. Peters, O. Tabares, G. Smies. 2023. Ethics in ecological forecasting: a case-based learning set. *Teaching Issues and Experiments in Ecology*. 19(13).

Lewis, A. S. L., G. O'Malley, G. K. Palissery, A. Hensley, C. López Lloreda, C. Perez, E. K. Bueren. 2023. Flipped Science Fair invites children to judge graduate student posters through a university-community partnership. *Journal of STEM Outreach*. 6(1), 1–12. https://doi.org/10.15695/jstem/v6i1.14

Thomas, R.Q., C. Boettiger, C.C. Carey, M.C. Dietze, L.R. Johnson, M.A. Kenney, J.S. Mclachlan, J.A. Peters, E.R. Sokol, J.F. Weltzin, A. Willson, W.M. Woelmer, and **Challenge Contributors**. 2023. The NEON Ecological Forecasting Challenge. *Frontiers in Ecology and the Environment.* 21(3), 112–113. https://doi.org/10.1002/fee.2616

Woelmer, W. M., A. G. Hounshell, M. E. Lofton, H. L. Wander, **A. S. L. Lewis**, D. Scott, C. C. Carey. 2023. The importance of time and space in biogeochemical heterogeneity and processing along the reservoir ecosystem continuum. *Aquatic Sciences*. 85(2), 66. https://doi.org/10.1007/s00027-023-00959-7

Lewis, A. S. L., M. E. Schreiber, B. R. Niederlehner, A. Das*, N. W. Hammond, M. E. Lofton, H. L. Wander, C. C. Carey. 2023. Effects of Hypoxia on Coupled Iron and Carbon Cycling Differ by Timescale in Two Freshwater Reservoirs. *Journal of Geophysical Research: Biogeosciences*. 128(1), e2022JG007071. https://doi.org/10.1029/2022JG007071

Lewis, A. S. L., C. R. Rollinson, A. J. Allyn, J. Ashander, S. Brodie, C. B. Brookson, E. Collins, M. C. Dietze, A. S. Gallinat, N. Juvigny-Khenafou, G. Koren, D. J. McGlinn, J. A. Peters, N. R. Record, C. J. Robbins, J. Tonkin, and G. M. Wardle. 2023. The power of forecasts to advance ecological theory. *Methods in Ecology and Evolution*. 14(3), 746–756. https://doi.org/10.1111/2041-210X.13955

2022 Jane, S., J. L. Mincer, M. P. Lau, **A. S. L. Lewis**, J. T. Stetler, K. C. Rose. 2022. Longer duration of seasonal stratification contributes to widespread increases in lake hypoxia and anoxia. *Global Change Biology*. 29(4), 1009–1023. https://doi.org/10.1111/gcb.16525

Lofton, M. E., D. W. Howard, R. P. McClure, H. L. Wander, W. M. Woelmer, A. G. Hounshell, **A. S. L. Lewis**, C. C. Carey. 2022. Experimental thermocline deepening alters vertical distribution and community structure of phytoplankton in a four-year whole-reservoir manipulation. *Freshwater Biology*. 67(11), 1903–1924. https://doi.org/10.1111/fwb.13983

Carey C. C., P. C. Hanson, R. Q. Thomas, A. B. Gerling, A. Hounshell, **A. S. L. Lewis**, M. E. Lofton, R. P. McClure, H. L. Wander, W. M. Woelmer, B. R. Niederlehner, M. E. Schreiber. 2022. Anoxia decreases the magnitude of the carbon, nitrogen, and phosphorus sink in freshwaters. *Global Change Biology*. 28(16), 4861–4881. https://doi.org/10.1111/gcb.16228

Lewis, A. S. L., W. M. Woelmer, H. L. Wander, D. W. Howard, J. W. Smith, R. P. McClure, M. E. Lofton, N. W. Hammond, R. S. Corrigan, R. Q. Thomas, C. C. Carey. 2022. Increased adoption of best practices in ecological forecasting enables comparisons of forecastability across systems. *Ecological Applications.* 32(2), e02500. https://doi.org/10.1002/eap.2500

2021 Carey, C. C., W. M. Woelmer, M. E. Lofton, R. J. Figueiredo, B. J. Bookout, R. S. Corrigan, V. Daneshmand, A. G. Hounshell, D. W. Howard, **A. S. L. Lewis**, R. P. McClure, H. L. Wander, N. K. Ward, R. Q. Thomas. 2021. Advancing lake and reservoir water quality management with near-term, iterative ecological forecasting. *Inland Waters.* 12(1), 107–120. https://doi.org/10.1080/20442041.2020.1816421

Woelmer, W. M., L. M. Bradley, L. T. Haber, D. H. Klinges, **A. S. L. Lewis**, E. Mohr, C. L. Torrens, K. I. Wheeler, A. M. Willson. 2021. 10 Simple Rules for training yourself in an emerging field. *PLOS Computational Biology*. 17(10), e1009440. https://doi.org/10.1371/journal.pcbi.1009440

2020 **Lewis, A. S. L.**, B. S. Kim, H. L. Edwards, H. L. Wander, C. M. Garfield, H. E. Murphy, N. D. Poulin, S. D. Princiotta, K. C. Rose, A. E. Taylor, K. C. Weathers, C. R. Wigdahl-Perry, K. Yokota, D. C. Richardson, D. A. Bruesewitz. 2020. Prevalence of nitrogen and phosphorus colimitation of freshwater phytoplankton explained by nitrogen deposition and lake characteristics across northeastern United States. *Inland waters.* 10(1), 42–50. https://doi.org/10.1080/20442041.2019.1664233

2018 Frassl, M. A, D. P. Hamilton, B. A. Denfeld, E. de Eyto, S. E. Hampton, P. S. Keller, S. Sharma, **A. S. L. Lewis**, G. A. Weyhenmeyer, C. M. O'Reilly, M. E. Lofton, N. Catalán. 2018. Ten simple rules for collaboratively writing a multi-authored paper. *PLOS Comp. Bio.* 14(11), e1006508. https://doi.org/10.1371/journal.pcbi.1006508

2017 Lewis, S. E., J. J. Piatt., **A. S. L. Lewis.** 2017. Impact of a diet of native or non-native leaves on an amphipod *Gammarus pseudolimnaeus*. *Freshwater Science.* 36(4), 739–749. https://doi.org/10.1086/694855

OTHER TECHNICAL WRITING

2024 American Meteorological Society. 2024. The Future of Ecological Forecasting.
- Contributed to conceptualization, drafting, and revising

2023 Bickley, S. L., S. Sickler, **A. S. L. Lewis**, C. D. Davis, K. Macdonald. Weiss reservoir is a source of greenhouse gas emissions. *Public comment submitted to the U. S. Federal Energy Regulatory Commission*. https://elibrary.ferc.gov/eLibrary/filelist?accession_num=20230113-5184

2021 **Lewis, A. S. L.**, B. Toh, J. Zwart, A. Shiklomanov, L. Johnson, E. White, H. Moustahfid, K. Heilman, A. Griffin, J. Peters, Q. Thomas, M. Dietze. 2021. Uncertainty quantification, Data assimilation, Modeling & Statistics. *Ecological Forecasting Initiative Task View.* https://projects.ecoforecast.org/taskviews/uncertainty-quantification-data-assimilation-modeling-statistics.html

NOVEL CODE PUBLICATIONS

2024 **Lewis, A. S. L.** 2024. abbylewis/Spring_memory: Data analysis of bottom-water temperature and oxygen dynamics in 615 lakes (v1.0.0). *Zenodo.* doi:10.5281/zenodo.10714287.

Lewis, A. S. L., M. E. Lofton, A. Breef-Pilz, and F. Olsson. 2024. abbylewis/BVR_Drawdown: Effects of a 2022 drawdown on water quality in Beaverdam Reservoir (v1.1.0) [R]. *Zenodo*. https://doi.org/10.5281/zenodo.8330109

2023 **Lewis, A. S. L.** and M. P. Lau. 2023. abbylewis/Anoxia-Begets-Anoxia: Data analysis of biogeochemical dynamics in 656 lakes (v1.1.1) [R]. *Zenodo*. https://doi.org/10.5281/zenodo.10086950

Lewis, A. S. L. 2023. abbylewis/FeDOC: Effects of hypoxia on coupled carbon and iron cycling in two freshwater reservoirs (v1.1.0) [R]. *Zenodo*. https://doi.org/10.5281/zenodo.7527419

Wander, H. L., **A. S. L. Lewis**, D. W. Howard, M. E. Lofton, W. M. Woelmer, B. L. Brown, and C. C. Carey. 2023. hlwander/bvr_zoops_code: Zooplankton exhibit multiple diel migration strategies and substantial interannual changes in community structure in a eutrophic reservoir: Code (v1.0) [R]. *Zenodo.* https://doi.org/10.5281/zenodo.8417404

DATA PUBLICATIONS (* indicates mentored undergraduate student).

For annually-revised datasets, the citation for the most recent year is presented and the years of previous co-authored revisions are listed to the left.

2024 McAfee, B.J., M.E. Lofton, A. Breef-Pilz, K.J. Goodman, R.T. Hensley, K.K. Hoffman, D.W. Howard, **A. S. L. Lewis**, D.M. McKnight, I.A. Oleksy, H.L. Wander, C.C. Carey, A. Karpatne, and P.C. Hanson. 2024. LakeBeD-US: Ecology Edition - a benchmark dataset of lake water quality time series and vertical profiles. Environmental Data Initiative. https://doi.org/10.6073/pasta/c56a204a65483790f6277de4896d7140

2024 *2023* *2022* *2021* *2019* Carey, C. C., **A. S. L. Lewis**, A. Breef-Pilz. 2024. Time series of high-frequency profiles of depth, temperature, dissolved oxygen, conductivity, specific conductance, chlorophyll a, turbidity, pH, oxidation-reduction potential, photosynthetically active radiation, colored dissolved organic matter, phycocyanin, phycoerythrin, and descent rate for Beaverdam Reservoir, Carvins Cove Reservoir, Falling Creek Reservoir, Gatewood Reservoir, and Spring Hollow Reservoir in southwestern Virginia, USA 2013-2023 ver 14. Environmental Data Initiative. https://doi.org/10.6073/pasta/b406e9a104dafb1b91e1ad85a19384db

2024 *2023* *2022* *2021* Carey, C. C., F. E. Olsson, B. R. Niederlehner, A. Breef-Pilz, **A. S. L. Lewis**. 2024. Time series of dissolved methane and carbon dioxide concentrations for Falling Creek Reservoir and Beaverdam Reservoir in southwestern Virginia, USA during 2015–2023 ver 8. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/5a45f25ba0440a5efd32177a9103fb5f

2024 Carey, C. C., **A. S. L. Lewis**, and A. Breef-Pilz. 2024. Time series of
2023 methane and carbon dioxide diffusive fluxes using an Ultraportable
2022 Greenhouse Gas Analyzer (UGGA) for Falling Creek Reservoir and Beaverdam Reservoir in southwestern Virginia, USA during 2018–2023 ver 3. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/d2810a856f4b3d75d63b88993581260e

2024 Carey, C.C., A. Breef-Pilz, A. D. Delany, A. G. Hounshell, **A. S. L. Lewis**, H. L. Wander, G. Haynie, M. Kricheldorf, and E. Tipper. 2024. Time series of high-frequency sensor data measuring water temperature, dissolved oxygen, conductivity, specific conductance, total dissolved solids, chlorophyll a, phycocyanin, fluorescent dissolved organic matter, turbidity at discrete depths, and water level in Beaverdam Reservoir, Virginia, USA in 2009-2023 ver 4. Environmental Data Initiative. https://doi.org/10.6073/pasta/31bb6047e0ac367c60a61884338799c4

2023 **Lewis, A. S. L.**, M. P. Lau, S. F. Jane, Y. Beeri-Shlevin, S. H. Burnet, F. Clayer, H. Feuchtmayr, H. Grossart, D. W. Howard, H. Mariash, J. Delgado-Martin, R. L. North, I. Oleksy, R. M. Pilla, K. C. Rose, A. P. Smagula, R. Sommaruga, S. E. Steiner, P. Verburg, D. Wain, G. A. Weyhenmeyer, and C. C. Carey. 2023. Dissolved oxygen, temperature, chlorophyll-a, total phosphorus, total nitrogen, and dissolved organic carbon at multiple depths in 822 lakes from 1921-2022 ver 1. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/2cd6628a942de2a8b12d2b19962712a0

Schreiber, M. E., C. E. Wood, **A. S. L. Lewis**, N. W. Hammond, K. M. Krueger, M. E. Lofton, R. P. McClure, Z. W. Munger, A. Breef-Pilz, N. K. Ward, A. B. Gerling, B. R. Niederlehner, A. G. Hounshell, M. F. Verne, and C. C. Carey. 2023. Sediment trap time series data for Beaverdam Reservoir and Falling Creek Reservoir in southwestern Virginia, USA 2018 through 2022 ver 1. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/3e5d11ce1a38542d95250cdce18d6987

Lewis, A. S. L., M. E. Schreiber, B. R. Niederlehner, A. Das*, and C. C. Carey. 2023. Total organic carbon, total nitrogen, and iron-bound organic carbon in surficial sediment and settling particulate material from Falling Creek and Beaverdam Reservoirs in 2019 and 2021 ver 1. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/a1d49c266b57465daa863cde4b1d4b4e

Lewis, A. S. L., B.R. Niederlehner, A. Das*, H.L. Wander, M.E. Schreiber, and C.C. Carey. 2023. Experimental microcosm incubations assessing the effect of hypoxia on aqueous iron and organic carbon, pH, sediment organic carbon, and sediment iron-bound organic carbon ver 1. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/60a7784acef3038d3c8a16776a5b5746

2022 Carey, C. C., H. L. Wander, R. P. McClure, M. E. Lofton, K. D. Hamre, J. P. Doubek, A. B. Gerling, **A. S. L. Lewis**, A. Breef-Pilz. 2022. Secchi

2021 depth data and discrete depth profiles of photosynthetically active radiation, temperature, dissolved oxygen, and pH for Beaverdam Reservoir, Carvins Cove Reservoir, Falling Creek Reservoir, Gatewood Reservoir, and Spring Hollow Reservoir in southwestern Virginia, USA 2013–2021 ver 10. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/887d8ab8c57fb8fdf3582507f3223cd6

2022 Carey, C. C., **A. S. L. Lewis**, D. W. Howard, W. M. Woelmer, P. A. Gantzer, K. A. Bierlein, J. C. Little, WVWA. 2022. Bathymetry and watershed area for Falling Creek Reservoir, Beaverdam Reservoir, and Carvins Cove Reservoir ver 1. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/352735344150f7e77d2bc18b69a22412

Jane, S. F., J. L. Mincer, M. P. Lau, **A. S. L. Lewis**, J. T. Stetler, K. C. Rose. 2022. Temperature and dissolved oxygen profiles for three Swiss lakes: 1972–2016 ver 6. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/7c08d0a4417f73d733d2a7eba43f57ea

2021 *2020* Carey, C.C., W. M. Woelmer, **A. S. L. Lewis**, A. Breef-Pilz, D. W. Howard, and B. J. Bookout. 2021. Time series of high-frequency sensor data measuring water temperature, dissolved oxygen, pressure, conductivity, specific conductance, total dissolved solids, chlorophyll a, phycocyanin, and fluorescent dissolved organic matter at discrete depths in Falling Creek Reservoir, Virginia, USA in 2018-2020 ver 5. Environmental Data Initiative. https://doi.org/10.6073/pasta/88896f4a7208c9b7bddcf498258edf78.

2021 **Lewis, A. S. L.**, W. M. Woelmer, H. L. Wander, D. W. Howard, J. W. Smith, R. P. McClure, M. E. Lofton, N. W. Hammond, R. S. Corrigan, R. Q. Thomas, and C. C. Carey. 2021. Systematic review of near-term ecological forecasting literature published between 1932 and 2020 ver 1. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/c4bea94f100f39a6b73c7b9a577df214

Lofton, M.E., D.W. Howard, R.P. McClure, H.L. Wander, W.M. Woelmer, A.G. Hounshell, **A. S. L. Lewis**, and C.C. Carey. 2021. Time series of phytoplankton biovolume at the depth of the vertical chlorophyll maximum in Falling Creek Reservoir, Vinton, VA, USA 2016–2019 ver 1. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/2de760e8b72e474c31e42526f5360f9a

2020 Wander, H. L., **A. S. L. Lewis,** H. L. Edwards, and D. C. Richardson. 2020. Zooplankton density and size data in Lake Awosting, Lake Minnewaska, and Mohonk Lake, NY, USA 2013–2018 ver 1. *Environmental Data Initiative.* https://doi.org/10.6073/pasta/befde8268750ff108b59d8198eb989a1

INVITED PRESENTATIONS (presenters underlined)

2024 **Lewis, A. S. L.** and C. C. Carey. 2024. Synthesis of long-term water quality data from 615 lakes highlights seasonally-distinct effects of climate change on lake ecosystem function. Invited talk at: *Ecological Society of America*. Long Beach, CA, USA.

Lewis, A. S. L. 2024. Trailblazing Award Presentation. Invited talk at: *Ecological Society of America*. Long Beach, CA, USA.

Lewis, A. S. L. 2024. Oxygen dynamics in the bottom waters of lakes: Understanding the past to predict the future. Invited seminar at: *Helmholtz Centre for Environmental Research - UFZ*. Magdeburg, Germany.

Lewis, A. S. L. 2024. Deoxygenation of temperate lakes: Understanding the past to predict the future. Invited seminar at: *Lake Superior State University*. Sault Ste. Marie, MI, USA.

2023 **Lewis, A. S. L.** 2023. Using forecasts to understand ecosystems. Invited talk at: *American Meteorological Society 103rd Annual Meeting.* Boulder, CO, USA (virtual).

Lewis, A. S. L. 2023. Using forecasts to understand ecosystems. Invited talk at: *Ecological Forecasting Initiative Student Association Meeting* (virtual).

2022 **Lewis, A. S. L.**, W. M. Woelmer, H. L. Wander, D. W. Howard, J. W. Smith, R. P. McClure, M. E. Lofton, N. W. Hammond, R. S. Corrigan, R. Q. Thomas, C. C. Carey. 2022. Near-term ecological forecasting: state of the field. Invited talk at: *INTECOL 2022*. Geneva, Switzerland (virtual).

Lewis, A. S. L., A. Hensley, C. López Lloreda, C. Perez, E. Bueren, G. Palissery, G. O'Malley, H. Wander, and S. Drew. 2022. Flip the Fair: an intersection of science communication, outreach, and empowerment. Invited talk at: *Virginia Tech Life Sciences Seminar*. Blacksburg, VA, USA.

2021 **Lewis, A. S. L.** 2021. *Virginia Tech graduate commencement address*. Blacksburg, VA, USA.

Lewis, A. S. L. 2021. Oxygen: stories of fire, beer, and the guillotine. *Science on Tap*, Blacksburg, VA, USA.

Kroehler, C., P. Raun , J. Appiah-Kubi, C. Colleary, V. Diaz, **A. S. L. Lewis**, and A. Wendler. 2021. Girls Launch! Providing Female Scientist Role Models to Early Elementary Children. *Virginia Tech Widening Inclusivity in the (Geo)Sciences Seminar.* Blacksburg, VA, USA.

Kroehler, C., J. Appiah-Kubi, C. Colleary, V. Diaz, **A. S. L. Lewis**, and A. Wendler. 2021. Girls Launch! A Pandemic Response to Providing Female Scientist Role Models to Children. *Virginia Tech CENI Playdate*. Blacksburg, VA, USA.

2020 **Lewis, A. S. L.** 2020. The Unseen Nature of Lakes. *Skype a Scientist LIVE*. Virtual Q&A.

- An invited 45-minute live-streamed Q&A with a general audience talking about lakes

SELECTED CONTRIBUTED PRESENTATIONS (presenters underlined; *indicates mentored undergraduate student)

2024 **Lewis, A. S. L.**, J. Rabaey, K. Attermeyer, P. Aurich, S. Bansal, B. Bertolet, R. Bhattacharya, I. Bussmann, S. B. Cadieux, E. Calamita, C. Carey, F. Clayer, T. Davidson, B. R. Deemer, B. Denfeld, W. Eckert, C. Esposito, A. Gorsky, N. Griffiths, H-P. Grossart, D. Hamilton, M. Holgerson, B. Huser, T. Iwata, J. Jansen, S. Juutinen, P. Kortelainen, M. Koschorreck, T. Kragh, A. Laas, T. Larmola, I. Laurion, M. F. Lehmann, L. Liu, A. Matoušů, D. Nizzoli, C. Ordóñez, M. Peacock, R. Pilla, J. Pu, T. Riis, T. Saarela, A. B. Santoso, C. Schubert, B. S. Sherman, J. S. Sø, K. Strock, K. Stenehjem, K. Tsuchiya, K. Wendt-Potthoff, G. A. Weyhenmeyer, and P. Znachor. Patterns and drivers of bottom-water greenhouse gas concentrations across 522 lakes worldwide. Oral presentation at: *AGU 2024*. Washington, D.C.

Lewis, A. S. L. and C. C. Carey. Ecological memory of spring air temperature drives summer water quality dynamics in temperate lakes. Oral presentation at: *ASLO*; June 2024. Madison, WI.

2023 **Lewis, A. S. L.**, W. Zhi, J. Mai, N. Basu, C. C. Carey. Ecological memory of climate and land use change shapes water quality across >650 widespread lakes. Oral presentation at: *AGU fall meeting*; December 2023. San Francisco, CA.

- Outstanding Student Presentation award

Lewis, A. S. L., M. Lau, S. Jane, K. Rose, Y. Be'eri-Shlevin, S. H. Burnet, F. Clayer, O. Erina, H. Feuchtmayr, H. P. Grossart, T. Harris, D. Howard, A. James, H. Mariash, J. Delgado Martin, R. North, I. Oleksy, R. M. Pilla, J. A. Rusak, R. Sommaruga, P. Verburg, D. Wain, J. Watkins, G. Weyhenmeyer, C. C. Carey. Anoxia Begets Anoxia: a positive feedback to the deoxygenation of temperate lakes. Poster presented at: *GLEON*; June 2023. Ryn, Poland.

2022 **Lewis, A. S. L.**, M. Lau, S. Jane, K. Rose, Y. Be'eri-Shlevin, S. H. Burnet, F. Clayer, O. Erina, H. Feuchtmayr, H. P. Grossart, T. Harris, D. Howard, A. James, H. Mariash, J. Delgado Martin, R. North, I. Oleksy, R. M. Pilla, J. A. Rusak, R. Sommaruga, P. Verburg, D. Wain, J. Watkins, G. Weyhenmeyer, C. C. Carey. Declining oxygen concentrations are associated with increased phosphorus and chlorophyll-a across 504 lakes. Poster presented at: *GLEON*; November 2022. Lake George, NY.

Lewis, A. S. L., W. M. Woelmer, H. L. Wander, D. W. Howard, J. W. Smith, R. P. McClure, M. E. Lofton, N. W. Hammond, R. S. Corrigan, R. Q. Thomas, C. C. Carey. Near-term ecological forecasting: state of the field. Oral presentation at: *Ecological Forecasting Initiative 2022 virtual meeting*; May 2022.

Lewis, A. S. L., B. R. Niederlehner, A. Das*, N. W. Hammond, M. E. Schreiber, C. C. Carey. Effects of Hypoxia on Coupled Iron and Carbon Cycling Differ by Timescale in Two Freshwater Reservoirs. Oral presentation at: *Interfaces of Global Change Research Symposium*; May 2022. Blacksburg, VA.

- 1st Place Platform Presentation and Karen P. DePauw Outstanding Interdisciplinary Presentation Award

Lewis, A. S. L., B. R. Niederlehner, A. Das*, N. W. Hammond, M. E. Schreiber, C. C. Carey. Effects of Hypoxia on Coupled Iron and Carbon Cycling Differ by Timescale in Two Freshwater Reservoirs. Oral presentation at: *Joint Aquatic Sciences Meeting*; May 2022. Grand Rapids, MI.

Lewis, A. S. L., C. López Lloreda, G. O'Malley, H. Wander, E. Bueren, S. Drew, A. Hensley, C. J. Kroehler, A. D. Lowery, G. K. Palissery, C. Perez, C. Pihlstrom, P. Raun. Flip the Fair: an intersection of science communication, outreach, and empowerment. Oral presentation at: *Joint Aquatic Sciences Meeting*; May 2022. Grand Rapids, MI.

2021 **Lewis, A. S. L**., B. R. Niederlehner, A. Das*, N. W. Hammond, M. E. Schreiber, C. C. Carey. High levels of iron-bound organic carbon correspond to multi-annual oxygenation history in two reservoirs. Poster presented at: *GLEON virtual meeting*; October 2021.

Lewis, A. S. L., R. P. McClure, P. C. Hanson, C. C. Carey. Integrated whole-ecosystem experiments and ecosystem modeling reveal that seasonal oxygen depletion is driven primarily by temperature in a eutrophic reservoir. Oral presentation at: *ASLO virtual meeting*; June 2021.

2020 **Lewis, A. S. L.**, M. E. Lofton, R. P. McClure, W. M. Woelmer, P. C. Hanson, R. Q. Thomas, C. C. Carey. Near-term, iterative forecasts highlight the relative importance of two drivers for dynamic oxygen concentrations in a drinking water reservoir. Oral presentation at: *AGU General Assembly 2020;* December 2020 (virtual).

Lewis, A. S. L., M. E. Lofton, R. P. McClure, W. M. Woelmer, P. C. Hanson, R. Q. Thomas, C. C. Carey. Bottom-water temperatures drive changing rates of oxygen depletion in a drinking water reservoir. Poster presented at: *GLEON 21.5*; October 2020 (virtual).

Lewis, A. S. L., M. E. Lofton, R. P. McClure, W. M. Woelmer, P. C. Hanson, R. Q. Thomas, C. C. Carey. Near-term, iterative ecological forecasts provide insight into the drivers of changing oxygen concentrations in a drinking water reservoir. Poster presented at: *ESA Annual Meeting*; August 2020 (virtual).

Lewis, A. S. L., B. R. Niederlehner, N. W. Hammond, M. E. Schreiber, C. C. Carey. High levels of iron-bound organic carbon correspond to multi-annual oxygenation history in two reservoirs. Poster accepted at *ASLO Annual Meeting*; June 2020 *(meeting canceled).*

Carey, C. C., **Lewis, A. S. L.**, Hounshell, A. G., Howard, D. W., McClure, R. P., Hammond, N. W., Lofton, M. E., P. C. Hanson, J. C. Little, M. Schreiber, F. Birgand. Dynamic carbon-oxygen interactions over minute to annual time scales in an experimentally-oxygenated reservoir. Oral presentation at: *EGU General Assembly 2020*; May 2020 (virtual).

Lewis, A. S. L., P. C. Hanson, C. C. Carey. Oxygen demand can be predicted by oxygenation rates and temperature. Oral presentation at: *Virginia Water Conference*; March 2020. Richmond, VA.

Lewis, A. S. L., A. G. Hounshell, R. P. McClure, N. W. Hammond, D. W. Howard, M. E. Lofton, H. L. Wander, W. M. Woelmer, F. Birgand, P. C. Hanson, J. C. Little, M. E. Schreiber, C. C. Carey. Consequences of changing oxygen availability for carbon cycling in freshwater ecosystems. Poster presented at: *Virginia Tech Research Day*; February 2020. Blacksburg, VA.

2019 **Lewis, A. S. L.**, A. G. Hounshell, R. P. McClure, N. W. Hammond, D. W. Howard, M. E. Lofton, H. L. Wander, W. M. Woelmer, F. Birgand, P. C. Hanson, J. C. Little, M. E. Schreiber, C. C. Carey. Consequences of changing oxygen availability for carbon cycling in freshwater ecosystems. Poster presented at: *GLEON 21 All-hands Meeting*; November 2019. Huntsville, ON.

2017 **Lewis, A. S. L.**, D. C. Richardson, K. Weathers. Depth Affects Nutrient Limitation of Phytoplankton within a Stratified Lake. Poster presented at: *REU Symposium*. Council on Undergraduate Research; October 2017; Alexandria, VA.
- By nomination from the Cary Institute for Ecosystem Studies

Kim, B. S., **A. S. L. Lewis**, H. L. Edwards, H. L. Wanders, A. E. Taylor, N. Poulin, S. Princiotta, K. Yokota, C. Wigdahl, K. Rose, D. C. Richardson, D. A. Bruesewitz. Patterns of Nutrient Limitation in Sixteen Northeastern United States Lakes. Poster presented at: *GLEON 19 Meeting*; October 2017; New Paltz, NY.

TEACHING EXPERIENCE

Fall 2023 **Co-instructor of record: Advanced R Programming** (BIOL 6064)
Virginia Tech
- Designed and taught a graduate seminar on advanced programming in R (13 students)
- All teaching materials are available in an open-source GitHub repository

Spring 2022 **Teaching Assistant: Principles of Biology Laboratory**
Virginia Tech
- Taught three lab sections with 7–24 students each

Spring 2020 **Guest lecture: Ecology**
Virginia Tech
- Topic: Freshwater biogeochemistry in a changing world

Fall 2018 **Teaching Assistant: Ecology for Non-Majors**
Pomona College
- Coordinated laboratory exercises and field logistics for an introductory ecology class
- Fostered scientific literacy and excitement among a non-scientific audience

Spring 2018 **Writing Mentor: Introduction to Ecology and Evolution**
Pomona College
- Led mentor sessions to help undergraduate students learn scientific writing

Spring 2018 **Volunteer Instructor: Bilingual (Spanish and English) kindergarten**
Mountain View Elementary School

Spring 2018 **Rooftop Garden Project Environmental Mentor**
The Draper Center for Community Partnerships, Pomona College
- Developed programing for biweekly workshops on earth science and environmental justice for local high school students

UNDERGRADUATE STUDENTS MENTORED

2023 **Ryan Keverline**

2019–2023 **Arpita Das**
- Coauthor on seven datasets, three presentations, and a published manuscript

2020 **Nick Ruszkowski**

SELECTED OUTREACH

2019–2024 **Outreach Committee Lead**, Virginia Tech Stream Team
- Organized a "flipped science fair" where elementary students judged 27 graduate student posters
- Coordinated summer camp activities for students at the Blacksburg Nature Center
- Built and painted a "stream box" with resources for kids to learn about streams. Installed the box near a stream at a local park
- Led a booth at the VT Science Festival (audience of >5,000 K12 students and families) in 2019–2023
- Coordinated Wikipedia editing sessions to highlight women and minoritized researchers

2021–2024 **Virginia Scientist-Community Interface (VS-CI)**
Reservoir Greenhouse Gas Emissions Team Member
- Used the G-RES tool to quantify greenhouse gas emissions from five reservoirs in Alabama with non-profit partners (e.g., Alabama Rivers Alliance)
- Submitted results as a public comment in the relicensing process for Weiss reservoir

2022–2023 **Letters to a Pre-Scientist Pen-pal**
- Exchanged letters with a 6th grade student to help broaden perceptions of STEM

2020–present **Science Fair Judge**
- Virginia State Science and Engineering Fair: 2020, 2021
- Blue Ridge Highlands Regional Science Fair: 2020–2024
- Terra Rochester Finger Lakes Science & Engineering Fair: 2020

2020 **Girls Launch! Fellow**, Blacksburg, VA
- Developed an activity and video for kindergarten students to learn about water and see female scientists in action ($1,000 stipend)

2020 **Skype a Scientist: No Time Like the Presentation**
- One of 10 scientists selected to give a 10 minute, live-streamed research presentation to a general audience

2018–2020 **Envirobites (envirobites.org)**
Contributor and editor
- Published 16 articles communicating environmental research to a general audience

2015–2019 **Pomona College Sustainability Office**
- Initiated a Zero Waste Events Program to eliminate trash from major campus events
  - Featured in The Week and on the United Nations website
- Led a team of six sustainability interns to develop outreach programs
- Developed and oversaw three week-long Sustainability Festivals
- Created and edited a published Action Plan with sustainability initiatives and goals for the next 15 years
- Represented the student body on a college advisory board

SELECTED PROFESSIONAL SERVICE

2024 **American Meteorological Society**, Committee on Ecological Forecasting
- Co-authored "The Future of Ecological Forecasting A Statement of the American Meteorological Society"

American Geophysical Union, San Francisco, CA

2024
2023
- Lead organizer: "Model-Data Integration and Novel Paradigms in Ecosystem Forecasting" session
- Co-organizer: "Ecological Forecasting in the Earth System" session

Ecological Forecasting Initiative

2020–present
- Theory Working Group co-chair

2022–present
- Education Working Group member

2020–2024
- Student Association member

2021–present **Global Lake Ecological Observatory Network**
- Metabolism Working Group co-moderator

2022 **Graduate Research Development Program (GRDP) reviewer**, Virginia Tech

2020–2021 **GLEON Student Association Communications Committee**

PEER-REVIEW FOR:

- *Global Change Biology*
- *Limnology and Oceanography Letters*
- *Journal of Geophysical Research – Biogeosciences*
- *Global Ecology and Biogeography*
- *Ecosphere*
- *Water Resources Research*
- *Scientific data*
- *Inland Waters*

SOCIETY AFFILIATIONS

- Global Lake Ecological Observatory Network (GLEON)
- Ecological Forecasting Initiative (EFI)
- Ecological Society of America (ESA)
- Association for the Sciences of Limnology and Oceanography (ASLO)
- American Meteorological Society (AMS)
- Society for Open, Reliable, and Transparent Ecology and Evolutionary biology (SORTEE)
- American Association for the Advancement of Science (AAAS)
    - Sponsored membership through AAAS/*Science* Program for Excellence in Science