

Nicholas S. Marzolf
Curriculum Vitae

Contact Information and Links

nmarzol@ncsu.edu [ResearchGate](#)
[Personal website](#) [Publons](#)
[@NickMarzolf](#) [ORCID](#)
[Google Scholar](#) [GitHub](#)

Education

- 2017 – 2021 **Ph.D.** Department of Forestry and Environmental Resources, College of Natural Resources, North Carolina State University. Advisor: Dr. Marcelo Ardón. Title: *Drivers and consequences of CO₂ inputs to lowland Neotropical streams, Costa Rica.*
- 2013 - 2015 **M.S. Ecology.** Odum School of Ecology, University of Georgia. Co-Advisors: Dr. Alan P. Covich and Dr. Stephen W. Golladay. Thesis Title: *Environmental Limits on the Dispersal of Pomacea maculata in Lake Seminole.*
- 2009 - 2013 **B.S. Biology.** College of Liberal Arts and Sciences, University of Florida.

Work Experience

- 2021 Postdoctoral Research Scholar, College of Natural Resources, North Carolina State University
Visiting Research Scholar, Department of Biology, Duke University
Instructor, ENV100, Student Success in Environmental First Year
- 2018 - 2021 Graduate Research and Teaching Assistant, Department of Forestry and Environmental Resources, North Carolina State University
- 2018 Organization for Tropical Studies Graduate Student Fellow
- 2017 - 2018 Provost and Graduate School Fellow, North Carolina State University
- 2017 Research Technician III, Joseph W. Jones Ecological Research Center.
Supervisor: Stephen W. Golladay
- 2016 Research Technician II, Joseph W. Jones Ecological Research Center. Supervisor: Stephen W. Golladay
- 2013 – 2015 Graduate Research Assistant. University of Georgia, Odum School of Ecology, Advisors: Alan P. Covich, Stephen W. Golladay
- 2013 Hourly Technician, Joseph W Jones Ecological Research Center. Supervisor: Paul V. McCormick
- 2011 – 2013 Lab Technician, Ecotoxicology Lab. AMEC: Environment and Infrastructure. Supervisor: Pamela Bellotti

Publications (* denotes undergraduate co-authors)

Peer Reviewed Journal Articles

Gómez-Gener, L., G. Rocher-Ros, T. Battin, M. J. Cohen, H. Dalamgro, K. J. Dinsmore, T. Drake, C. Duvert, A. E. Prast, Á. Horgby, M. Johnson, L. Kirk, F. Machado-Silva, N. S.

- Marzolf, M. J.** McDowell, W. H. McDowell, H. Miettinen, A. K. Ojala, H. Peter, J. Pumpanen, D. Riveros-Iregui, I. Santos, J. Six, E. H. Stanley, M. B. Wallin, S. White, and R. A. Sponseller. 2021. Global carbon dioxide efflux from rivers enhanced by high nocturnal emissions. *Nature Geoscience*:1–6.
<https://phys.org/news/2021-04-streams-rivers-emit-carbon-dioxide.html>
- Marzolf, N. S.**, and M. Ardón. 2021. Ecosystem metabolism in tropical streams and rivers: a review and synthesis. *Limnology and Oceanography* 66:1627–1638.
- Rüegg, J., C. C. Conn, E. P. Anderson, T. J. Battin, E. S. Bernhardt, M. B. Canadell, S. M. Bonjour, J. D. Hosen, **N. S. Marzolf**, and C. B. Yackulic. 2020. Thinking like a consumer: linking aquatic basal metabolism and consumer dynamics. *Limnology and Oceanography Letters* 6:1–17.
- Marzolf, N. S.**, C. Smith, and S. Golladay. 2019. Limpkin (*Aramus guarauna*) establishment following recent increase in nonnative prey availability in Lake Seminole, Georgia. *The Wilson Journal of Ornithology* 131:179.
- Marzolf, N. S.**, S. Golladay, P. McCormick, A. Covich, and S. Wilde. 2018. Inter- and intra-annual apple snail egg mass dynamics in a large southeastern US reservoir. *Hydrobiologia* 811:155–171.
- Marzolf, N. S.**, S. W. Golladay, and A. P. Covich. 2015. Is environmental calcium availability limiting dispersal of an invasive snail in Lake Seminole and associated smaller lakes? Pages 1–5 *in* R. J. McDowell, C. Pruitt, and R. A. Bahn, editors. *Proceedings of the 2015 Georgia Water Resources Conference*. Athens, GA.

In review

- Shivers, S. D., Golladay, S. W., Waters, M. N., Wilde, S. B., **Marzolf, N.S.**, Covich, A. P. Invasive species interactions affect nutrient cycling in a shallow reservoir: A mesocosm experiment. *Freshwater Biology*.
- Marzolf, N. S.**, D. M. Baca*, T. K. Bruce*, M. Vega-Gómez*, C. D. Watson*, C. N. Ganong, A. Ramírez, C. M. Pringle, and M. Ardón. Do experimental pH increases alter the structure and function of a lowland tropical stream? For *Ecosphere*.
- Marzolf, N.**, Small, G., Ganong, C., Pringle, C., Ramirez, A., Duff, J., Ardón, M. Partitioning ecological and groundwater inorganic carbon sources in a lowland tropical stream, Costa Rica. For *Biogeosciences*.

In prep

- Espino, A. R.*, A. M. Meza-Salazar, A. P. Jackman, C. N. Ganong, A. Ramírez, M. Ardón, and **N. S. Marzolf**. How does rainfall affect acidification events in Neotropical streams, Costa Rica? For *Freshwater Biology*.

Data Products

Interactive visualization tool, STREAMS Project Long-term data
 (https://nmarzolf.shinyapps.io/LTREB_Data/)

Grants and Scholarships

2021 FER-GSA Conference Award (\$30)
 NSF Post-Doctoral Scholarship (\$37500)

- 2019 Laarman International Gift Fund for International Research, Department of Forestry and Environmental Resources Award, NCSU (\$3220)
- 2018 Organization for Tropical Studies Graduate Student Fellowship (\$5200)
- 2017 - 2018 University Graduate Fellowship, NCSU (\$24000)
Provost Fellowship, NCSU (\$4000)
- 2014 US Army Corp of Engineers Research Grant. Invasive Apple Snail eDNA in Lake Seminole (\$2500)
- 2013 – 2015 Research Assistantship, University of Georgia and Joseph W. Jones Ecological Research Center Graduate Cooperative (\$42,000)
- 2009 – 2013 Athletic Band Scholarship, School of Music, University of Florida (\$2500)
- 2009 – 2013 Florida Bright Futures Scholarship (\$25,000/year)

Awards and Honors

- 2015 Second Place, Best Graduate Student Poster. 2015 Georgia Water Resources Conference. Athens, GA.
- 2014 Best Poster Award. Florida Lake Management Society Annual Meeting. Stuart, FL.

Invited Talks

- International Society of Tropical Foresters, NCSU Chapter. January 2020. Invited by Meredith Hovis. *Partitioning inorganic carbon fluxes in headwater streams, Costa Rica*. Universidad de Costa Rica, Stream Ecology. Invited Talk. June 2019. Primer of Stream Ecology and Methods for Estimating Stream metabolism at La Selva Biological Station, Costa Rica. Delivered in Spanish.
- Missouri Western State University Invited Lecture, BIO 220. March 2019. (Natural and Cultural History of Costa Rica). *Long-term trends reveal effects of El Niño Cycles in lowland Neotropical streams, Costa Rica*. Invited by Dr. Carissa Ganong.
- North Carolina State University Department of Forestry and Environmental Resources Seminar Series, Raleigh, NC. December 2018. *Alternative states and regime shifts across a Neotropical stream elevation gradient*. Organized by Sarah Slover
- Southern Division of the American Fisheries Society Spring Meeting, Savannah, GA. January, 2015. *Development and Use of eDNA Methods to Monitor Dispersal of Invasive Apple Snail, Pomacea maculata, in a SE Reservoir*. Organized by Bryant Bowen.
- National Shellfisheries Association Annual Meeting, Knoxville, TN. March, 2017. *An Overview of Apple Snail Research in Lake Seminole, GA*. Organized by Shirley Baker.

Presentations

- Marzolf, N.,** Small, G., Ganong, C., Pringle, C., Ramirez, A., Duff, J., Ardón, M. Partitioning ecological and groundwater inorganic carbon sources in a lowland tropical stream, Costa Rica. *Oral presentation*. Society for Freshwater Science Annual Meeting. May 23, 2021. Presented virtually due to the COVID-19 pandemic.
- Marzolf, N.,** Ardón, M., Ramírez, A., Pringle, C. Long-term trends reveal effects of El Niño Cycles in lowland Neotropical streams, Costa Rica. *Oral presentation*. Association for the Sciences of Limnology and Oceanography Annual Meeting. February 2019. San Juan, Puerto Rico.
- Marzolf, N.,** Ardón, M., Ramírez, A., Pringle, C. M. Long-term trends in water chemistry in

- geothermally-modified groundwater influenced lowland tropical streams. *Poster presentation*. Society for Freshwater Science Annual Meeting. May 2018. Detroit, MI.
- Golladay, S. W., **Marzolf, N. S.**, Smith, C. R., Shivers, S. D., Covich, A. P. Of Limpkins and Apple Snails: Invasive Species, Novel Ecosystems, and an Uncertain Future. *Oral Presentation*. Georgia Chapter of the Wildlife Society Annual Meeting. September 2017. Covington, GA.
- Smith, C. R., Golladay, S. W., **Marzolf, N. S.** Invertebrate Resistance/Resilience Mechanisms in an Intermittent Stream Among Years with Varying Hydroperiods. *Oral Presentation*. Society for Freshwater Science Annual Meeting. June 2017. Raleigh, NC.
- Golladay, S. W., **Marzolf, N. S.**, Smith, C. R. Applying the Sustainable Boundary Approach to Develop Flow Guidelines in the Unregulated Flint River, Georgia. *Oral Presentation*. Society for Freshwater Science Annual Meeting. June 2017. Raleigh, NC.
- Marzolf, N. S.**, Golladay, S. W.; Smith, C. R. Intra- and inter annual apple snail population dynamics in Lake Seminole. *Poster Presentation*. Society for Freshwater Science Annual Meeting. June 2017. Raleigh, NC.
- Marzolf, N. S.**, Shivers, S. D., Clayton, B., Golladay, S. W., Covich, A. P. Intra- and inter annual apple snail population dynamics in Lake Seminole. *Oral Presentation*. Georgia Water Resources Conference. April 2017. Athens, GA.
- Marzolf, N. S.**, Shivers, S. D., Smith, C. S., Golladay, S. W., Covich, A. C. An Overview of Apple Snail Research in Lake Seminole, GA. *Oral Presentation*. National Shellfisheries Association Annual Meeting. March 2017. Knoxville, TN.
- Marzolf, N. S.**, Shivers, S. D., Golladay, S. W., and Covich, A. P. Potential Physiochemical Limitation on the Dispersal of the Invasive Apple Snail: Applying the Novel Ecosystem Concept in a Large Reservoir. *Oral Presentation*. Ecological Society of America Annual Meeting. August 2016. Ft Lauderdale, FL.
- Shivers, S. D., **Marzolf, N. S.**, Covich, A. P., Golladay, S. W. Hydrologic drivers of submerged aquatic vegetation coverage alter nutrient retention: Applying the novel ecosystem concept to a large reservoir. *Oral Presentation*. Ecological Society of America Annual Meeting. August 2016. Ft. Lauderdale, FL.
- Smith, C. S., **Marzolf, N. S.**, Golladay, S. W. Changing Ecosystems. *Oral Presentation*. ACF Freshwater Mussel Workshop. August 2-4, 2016. Newton, GA
- Marzolf, N. S.**, Golladay, S. W., Covich, A. P., Wilde, S. B., McCormick, P. V. Rapid Expansion of an Invasive Snail and Implication for Water Quality in a Novel Ecosystem. *Poster Presentation*. University of Georgia Celebration of Graduate Education in Support of the Land-Grant Mission. March 2016. Tifton, GA.
- Marzolf, N. S.**, Shivers, S. D., Golladay, S. W., and Covich, A. P. Abiotic Effects on Spatial Distribution and Abundance of Two Highly Invasive Species in a Novel Lake Ecosystem. *Oral Presentation*. Society of Freshwater Science Annual Meeting. May 2015. Milwaukee, WI.
- Marzolf, N. S.**, Shivers, S. D., Golladay, S. W., and Covich, A. P. Is Environmental Calcium Availability Limiting the Dispersal of an Invasive Snail in Lake Seminole and Associated Smaller Lakes? *Poster Presentation*. 2015 Georgia Water Resources Conference. April 2015. Athens, GA.

- Marzolf, N. S.**, Kaul, R. B. Owen, J. H., Covich, A. P., Drake, J. M., and Golladay, S. W. Development and Use of eDNA Methods to Monitor Dispersal of Invasive Apple Snail, *Pomacea maculata*, in a SE Reservoir. *Oral Presentation*. Southern Division of the American Fisheries Society Spring Meeting. January 2015. Savannah, GA.
- Marzolf, N. S.**, Covich, A. P., Golladay, S. W., McCormick, P.V., and Wilde, S. B. Quantifying Effects of Invasive Apple Snails (*Pomacea maculata*) in a Large Reservoir: an Outline for Research. *Poster Presentation*. Florida Lake Management Society Annual Meeting. June 2014. Stuart, FL.
- Marzolf, N. S.** Faster than a Swimming Snail: Understanding Ecological Impacts of Apple Snails in Lake Seminole. *Oral Presentation*. Odum School of Ecology Graduate Student Symposium. January 2014. Athens, GA.

Undergraduate student mentorship

- 2021 **Ashton Espino.** Determining the frequency, magnitude, and duration of acidification events in tropical streams across a groundwater gradient, Costa Rica. Organization for Tropical Studies, Research Experience for Undergraduate Program, La Selva Biological Station, Costa Rica. Co-mentored with Ana Meza-Salazar.
- 2019 **Yessica Jimenez:** *The effect of variable stream pH on the activity of stream insects*. Organization for Tropical Studies, Research Experience for Undergraduate Program, La Selva Biological Station, Costa Rica. Co-mentored with Alonso Ramírez.
- 2018 **Terrius Bruce.** *Stream macroinvertebrates as indicators in response to changes in pH in tropical streams*. Organization for Tropical Studies, Research Experience for Undergraduate Program, La Selva Biological Station, Costa Rica. Co-mentored with Alonso Ramírez. Currently: PhD Student, University of Arkansas
- Dominic Baca.** *Microbial respiration on woody debris across a natural phosphorus gradient & an experimental pH gradient in Neotropical freshwater streams in Costa Rica*. Organization for Tropical Studies, Research Experience for Undergraduate Program, La Selva Biological Station, Costa Rica. Co-mentored with Alonso Ramírez.
- Mariely Vega-Gomez.** *Effect of stream pH on leaf litter decomposition in tropical lowland streams*. National Science Foundation Supplement for Research Experience for Undergraduates. La Selva Biological Station, Costa Rica. Co-mentored with Marcelo Ardón. Currently: PhD Student, North Carolina State University.

Teaching

- 2021 **ENV 100 Instructor of Record.** Success in the Environmental First Year
- 2020 **ENV 101 Lead TA.** In-person teaching and support of four TAs and instructors for 150-person course introducing first-semester freshman to topics in environmental science and forestry, with use and manipulation of online teaching tools. Taught as combination of online and in-person due to COVID-19.
- 2019 **ENV 101 TA.** In class support of instructors, including grading, attendance, help in the field, attendance for a first-semester freshman course.

Workshop Instruction

- 2018 – 2021 **Data Management for the OTS REU.** Introductory workshop to data collection, management, and analysis for OTS LSAMP REU students, La Selva Biological Station, Costa Rica. Does not include 2020, which was cancelled due to the COVID-19 pandemic.
- 2018 - 2019 **An ethical discussion of water use, conservation, and climate change.** Discussion of ethics in the hydrosphere for the OTS LSAMP REU students, La Selva Biological Station, Costa Rica.

University Service

Search Committee member for College of Natural Resources Dean of Diversity, Equity, and Inclusion

Training

- 2018 **NSF Workshop Respiration Regimes: A cross-biome perspective.** Ovronnaz, Switzerland. September 2018
- Fundamentals of Ecosystem Ecology Graduate Course.** Cary Institute of Ecosystem Studies. Millbrook, NY. January 2018
- 2014 - 2015 **Prescribed Fire Course.** Joseph W. Jones Ecological Research Center. Newton, GA.
- 2014, 2016 **ACF Freshwater Mussel Workshop.** Joseph W. Jones Ecological Research Center. Newton, GA.

Professional Membership

- 2018 – pres. Association for the Sciences of Limnology and Oceanography
- 2018 – pres. North American Lake Management Society
- 2016 – pres. Ecological Society of America
- 2014 – pres. Florida Lake Management Society
- 2014 – pres. Society for Freshwater Science

Reviewer

- Hydrobiologia* (2019 – pres., n = 1)
- Freshwater Science* (2019 – pres., n = 2)
- Aquatic Ecology* (2020 – pres., n = 2)
- Journal of Geophysical Research: Biogeosciences* (2020 – pres., n = 1)
- Biogeosciences* (2021 – pres., n = 2)

References

- Stephen W. Golladay** (sgollada@jonesctr.org), Associate Scientist, Joseph W. Jones Ecological Research Center. 3988 Jones Center Dr. Newton, GA. 39870
- Marcelo Ardón** (mlardons@ncsu.edu), Associate Professor, Dept. of Forestry and Environmental Resources, North Carolina State University, 2800 Faucette Dr., Raleigh NC, 27606

Alan Covich (alanc@uga.edu), Professor, Odum School of Ecology, University of Georgia. Rm
139 140 E. Green St., Athens, GA 30602