

Lorena Pinheiro-Silva, PhD

Assistant Research Scientist

University of Maryland Center for Environmental Science

2020 Horns Point Road, Cambridge, MD 21613, United States

E-mail: lsilva@umces.edu | Cellphone: +1(443)521-6227 | [LinkedIn](#) | [Website](#)

EDUCATION

2021 | Ph.D. in Ecology, Universidade Federal de Santa Catarina, Brazil (Awarded Best Doctoral Dissertation)

2016 | M.Sc. in Biological Science, Universidade Federal do Estado do Rio de Janeiro, Brazil

2013 | B.Sc. in Biological Sciences, Universidade Federal do Estado do Rio de Janeiro, Brazil

EMPLOYMENT

2022-Present: Assistant Research Scientist, University of Maryland Center for Environmental Science, Cambridge-MD, US

2024-2025: Postdoctoral Fellow, University of Missouri, Columbia-MO, US

2024-2025: Applied Science Fellow, The Nature Conservancy, Chesapeake Bay Agriculture Program, Maryland/DC Chapter, US

2021: Instructor, Department of Ecology, Universidade Federal de Santa Catarina, Florianópolis-SC, Brazil

2021-2022: Postdoctoral Fellow, Department of Ecology, Universidade Federal de Santa Catarina, Florianópolis-SC, Brazil

2020-2022: Environmental Consultant, Eletrosul Centrais Elétricas S.A., Florianópolis, Brazil

2018-2019: Visiting Research Assistant, Ecology, Evolution and Biodiversity Conservation Department, Katholieke Universiteit Leuven, Belgium

2016-2021: Research Assistant, Department of Ecology, Universidade Federal de Santa Catarina, Florianópolis-SC, Brazil

2014-2016: Research Assistant, Department of Ecology and Zoology, Universidade Federal do Estado do Rio de Janeiro, Rio de Janeiro-RJ, Brazil

CURRENT RESEARCH PROJECTS

Using satellite-derived water color to test whether lakemounts are biological hotspots. Great Lakes Fishery Commission Project Pilot Proposal, Fishery Research Program.

Role: Co-PI

Harnessing Machine Learning and Satellite Remote Sensing to Assess the Impact of Best Management Practices in Water Quality. Harry R Hughes Center for Agro-Ecology, State of Maryland.

Role: Co-PI

Mind the GAP: Integrating In-Situ and Earth Observation Data to Assess Climate Change Impacts on African and Latin American Lakes. The Global Lake Ecological Observatory Network

Role: PI

Flow Imaging Microscopy (FlowCam) for Enhancing Monitoring of Cyanobacterial Harmful Algal Blooms (CyanoHABs) in Missouri Water Bodies. Environmental Protection Agency

Role: PI

Using above-water radiometric measurements in Crow Pond to validate satellite retrievals from small eutrophic waters. Prairie Fork Charitable Endowment Trust

Role: PI

Retrospective analysis of anthropogenic change in Midwest reservoirs: Integrating earth observing data with statewide reservoir monitoring programs. National Aeronautics and Space Administration

Role: Key Personal

Zooplankton International Geospatial – ZIG [\[Link\]](#). The Global Lake Ecological Observatory Network

SELECTED PUBLICATIONS

Articles published

15. Figary, S. E., Meyer, M. F., Pilla, R. M., Currie, W. J., ..., **Pinheiro-Silva, L.**, et al. The Zooplankton International Geospatial (ZIG) dataset: A global repository of spatiotemporal freshwater zooplankton community composition data from lakes and reservoirs to support ecological research. *Limnology and Oceanography Letters* (Accepted in Jun 2026).
14. **Pinheiro-Silva, L.**, Silsbe, G. Richardson, D. C., North, R. L. Long-term trends and controls on water color in Missouri reservoirs. *Frontiers in Environmental Science*, 13:1725096, 2025.
13. Dos Santos, R. M. A., **Pinheiro-Silva, L.**, Rocha, O., Petrucio, M. M., Rodrigues, L. C. First record of the invasive dinoflagellate *Ceratium furcoides* (Levander) Langhans, 1925 in a subtropical coastal freshwater lagoon in the state of Santa Catarina, Brazil. *Acta Limnologica Brasiliensia*, 37:e34, 2025.
12. **Pinheiro-Silva, L.**, Gianuca, A. T., De Meester, L., Declerck, S. Quantifying the contribution of community trait and diversity to ecosystem functioning. *Oikos*, e:110267, 2025.
11. Lopes, M. N., **Pinheiro-Silva, L.**, Miguel, L. G., Bonecker, C., Cardoso, G. F. M., Nuñez, A. P. O., Kavaguichi-Leite, N. K., Petrucio, M. M. A Decade of Invasion: distribution patterns and temperature influence on *Kellicottia bostoniensis* (Rousselet, 1908), in the Upper Uruguay River basin. *Acta Limnologica Brasiliensia*, 37: e19, 2025.
10. Lopes, M. N., **Pinheiro-Silva, L.**, Ribolli, J., Ávila-Simas, S. Lopes, C. A., Cardoso, G. F. M., Guerreschi, R. M., Kavaguichi-Leite, N. K., Petrucio, M. M., Nuñez, A. P. O. Density of *Limnoperna fortunei* larval stages in a cascade of subtropical reservoirs: spatiotemporal variation and environmental influences. *Environmental Monitoring and Assessment*, 196: 998, 2024.
9. Paz, V. R., Salustio-Gomes, C., Cavalcanti, V. R., **Pinheiro-Silva, L.**, Fernandes, A. B. B. Pichorim, M., Gianuca, A. T. Scale-dependent effects of urbanization on avian diversity in a Neotropical region. *Urban Ecosystems*, 28:1-15, 2024.
8. Bomfim, F. de F., Vanvelk, H., **Pinheiro-Silva, L.**, Brans, K. I., Lansac-Tôha, F. A., De Meester, L. The effect of temperature and predation on performance in monoculture and in competition in three Daphniidae differing in body size. *Limnology and Oceanography*, 9999, 1-13, 2023.
7. Massocato, T., Robles, V., Moreira, B., Castro-Varela, P., **Pinheiro-Silva, L.**, Oliveira, W., Vega, J., Avilés, A., Bonomi Barufi, J., Röhrig, L., Figueroa, F.L. Growth, biofiltration and photosynthetic performance of *Ulva* spp. Cultivated in fishpond effluents: An outdoor system study. *Frontiers in Marine Science*, 9:981468, 2022.
6. Alves, J., **Pinheiro-Silva, L.**, Schuster, K., Matthiensen, A., Petrucio, M. Environmental conditions are more effective than nutrient availability and spatial processes on explaining microphytoplankton functional structure in a subtropical hypereutrophic reservoir. *Austral Ecology*, v. 47, p. 291-305, 2022.
5. Macêdo, R. L., **Pinheiro-Silva, L.**, Klippel, G., Puga, A. L., Rocha, O., Branco, C. W. C. Short-term effects of formaldehyde preservation on length-weight relationship on freshwater cladoceran *Ceriodaphnia silvestrii* Daday 1902. *Acta Limnologica Brasiliensia*, v. 33, e27, 2021.
4. Lopes, M. das N., **Pinheiro-Silva, L.**, Matté, E., Safanelli, J. L., Petrucio, M. M., Leite, N. K. Anthropogenic effects on the pollutant load of forest watersheds in southern Brazil. *Fundamental Applied Limnology*, v. 195, p. 9-19, 2021.
3. **Pinheiro-Silva, L.**, Gianuca, A. T., Silveira, M. H., Petrucio, M. M. Grazing efficiency asymmetry drives zooplankton top-down control on phytoplankton in a subtropical lake dominated by non-toxic cyanobacteria. *Hydrobiologia*, v. 847, p. 2307-2320, 2020.
2. Lopes, M. das N., Decarli, C. J., **Pinheiro-Silva, L.**, Lima, T. C., Leite, N. K., Petrucio, M. M. Urbanization increases carbon concentration and p_{CO_2} in subtropical streams. *Environmental Science and Pollution Research*, v. 27, p. 18371-18381, 2020.
1. Almeida, Rafael M., Nóbrega, G. N., Junger, P. C., Figueiredo, A. V., Andrade, A. S., ..., **Pinheiro, L. S.**, et al. High primary production contrasts with intense carbon emission in a eutrophic tropical reservoir. *Frontiers in Microbiology*, v.7, p.717, 2016.

Datasets published

5. The Zooplankton International Geospatial (ZIG) dataset: A global repository of spatiotemporal freshwater zooplankton community composition data to support ecological research ver 1. *Environmental Data Initiative* [\[Link\]](#)
4. *In-situ* hyperspectral data using skylight-blocked approach, 2024, *NASA SeaBASS* [\[Link\]](#)

3. Quantifying the contribution of community trait mean and diversity to ecosystem functioning. [Dryad \[Link\]](#)
2. Missouri reservoir water quality data (2022 – current) from the Statewide Lake Assessment Program (SLAP) ver 1. [Environmental Data Initiative \[Link\]](#)
1. In-situ hyperspectral data using skylight-blocked approach, 2023, [NASA SeaBASS \[Link\]](#)

Technical Reports

4. **Pinheiro-Silva, L.** (2020–2025) Surface Water Quality Monitoring in São Domingos Reservoir, MS, Brazil. Series of 20 quarterly monitoring reports for Eletrosul Centrais Elétricas S.A.
3. **Pinheiro-Silva, L.** (2022–2023) Health Impacts of Wind Turbines on Local Residents. Coxilha Negra Wind Park, RS, Brazil. Eletrosul Centrais Elétricas S.A.
1. **Pinheiro-Silva, L.** (2023) Surface and Subterranean Water Quality Monitoring. Bi-annual reports for Coxilha Negra Wind Park, RS, Brazil. Eletrosul Centrais Elétricas S.A.

GRANTS, AWARDS, AND FELLOWSHIPS

Grants

External, *submitted*

North, E., **L. Pinheiro-Silva**. Scientific Writing and Communication. [Mid-Shore Community Foundation Application, State of Maryland](#) (\$10,000).

External, *funded*

Possamai, B., **L. Pinheiro-Silva**, J. D. Stockwell. Using satellite-derived water color to test whether lakemounts are biological hotspots. [Great Lakes Fishery Commission Project Pilot Proposal, Fishery Research Program](#) (\$19,845; *funded in full*).

Silsbe, G. M., **L. Pinheiro-Silva**, Xiaoxu, G., M. Houser. Harnessing Machine Learning and Satellite Remote Sensing to Assess the Impact of Best Management Practices in Water Quality. [Harry R Hughes Center for Agro-Ecology, State of Maryland](#) (\$106,882; *funded in full*).

L. Pinheiro-Silva, Z. M. Kouhanestani, R. L. North, B. Deng, P. Ni. Flow Imaging Microscopy (FlowCam) for Enhancing Monitoring of Cyanobacterial Harmful Algal Blooms (CyanoHABs) in Missouri Water Bodies. Water Center Funding Competition, [Environmental Protection Agency](#) (\$19,879; *funded in full*).

Houser, M., A. Jacobs, **L. Pinheiro-Silva**. Increasing Effectiveness of Landowner Engagement to Accelerate Wetland Restoration Across the Chesapeake Bay Watershed. Chesapeake Bay Program GIT Funding Competition, [Environmental Protection Agency](#) (\$95,000; *funded in full*).

Internal, *funded*

L. Pinheiro-Silva, R. L. North, G. M. Silsbe. Using Above-Water Radiometric Measurements in Crow Pond to Validate Satellite Retrievals from Small Eutrophic Waters. [Prairie Fork Conservation Area](#) (\$19,108 requested; *funded in full*).

Awards, Fellowships and Scholarships

2025

3rd Place Graphical Abstract Competition for the abstract titled: Combining Water Quality with Climatic, Geographical, and Remote Sensing Data to Uncover Watershed Changes, National Postdoc Appreciation Week 2025, University of Missouri, MO, USA

Early career travel grant, Association for the Science of Limnology and Oceanography, ASLO ASM 2025, Charlotte, NC, USA

2024

Applied Science fellowship from The Nature Conservancy, Easton, MD, USA

Travel grant, Ocean Colour Above-Water Radiometry towards Satellite Validation, Acqua Alta Oceanographic Tower and Venice, Italy

2023

Travel grant, Ocean Optics Summer Class, Bowdoin College, Orr's Island, ME, USA

Travel grant, Data Harmonization Workshop, Cornell Biological Field Station, Bridgeport, NY, USA

2022

2021 Travel grant, GLEON 2022 All Hands' Meeting, Lake George, NY, USA
Post-Doctoral fellowship awarded by Engie S.A. (Global Energy Company)
Thesis was nominated for the Best Doctoral Dissertation Award in the field of Biodiversity in Brazil
Thesis was awarded the 2021 Best Doctoral Dissertation in the Graduate Program in Ecology at UFSC

2009-2020

Doctoral scholarship awarded by Engie S.A. (Global Energy Company)
Visiting scholar fellowship program awarded by the Coordination for the Improvement of Higher Education Personnel (CAPES)
Doctoral scholarship awarded by the Coordination for the Improvement of Higher Education Personnel (CAPES)
Master's scholarship awarded by the National Council for Scientific and Technological Development (CNPq)
Technological development fellowship awarded by Light S.A. (Electric Power Distribution Company)
Undergraduate research training scholarship awarded by the Foundation for Research Support of the State of Rio de Janeiro (FAPERJ)
Undergraduate scholarship awarded by the Student Support Service of UNIRIO

SERVICE ACTIVITIES

Journal Reviewer Scientific Reports; Remote Sensing; Remote Sensing Applications: Society and Environment; Inland Waters; Aquatic Sciences; Functional Ecology; Peer J; Science of the Total Environment; Oecologia Australis; Hydrobiologia; Wetlands.

Journal Editor Bioika (Guest Editor).

Book Reviewer Fieldwork in Ecology – Babitonga Bay Edition (ISSN: 978-85-8328-069-9; *in Portuguese*).

Grant Reviewer Clean Water Montgomery Grant Program (Maryland, USA; 2025); National Research, Development and Innovation Office (Budapest, Hungary; 2022-2023); Fundação Grupo Boticário: Proposals for Nature Conservation in Protected Areas (Brazil; 2022).

Society Memberships (current) Association for the Sciences of Limnology and Oceanography (ASLO; since 2023), Global Lake Ecological Observatory Network (GLEON; since 2017)

SKILLS

Data Science & Modeling Advanced R and Python | Machine learning and deep learning | Time series analysis | Advanced statistics and inference | Ecological and environmental modeling | AI workflow integration.

Geospatial & Remote Sensing Cloud-based GIS (Google Earth Engine) | Advanced spatial analysis and mapping | Satellite image processing and analysis-ready data (ARD) production | Geospatial data management.

Social-Ecological Research Survey data analysis (open- and closed-ended responses) | Integration of social, ecological, and geospatial datasets | Impact assessment | Environmental decision support.

Instrumentation and Field Capabilities Automated instrumentation, sensors for radiometry above and in water, chlorophyll-a analysis, including filtration, extraction, and benchtop fluorometry, mesocosms design and set up, limnology fieldwork, water chemistry laboratory work, ion-chromatography, spectrophotometer analysis, microscope planktonic work.

Decision Support & Communication Interactive dashboards (R Shiny) | Code version control (GitHub) | Reproducible reporting (Quarto, R Markdown) | Data visualization (ggplot2, Plotly, Leaflet, Matplotlib).

Languages Portuguese (Native) | English (Fluent) | Spanish (Professional Working Proficiency).

SELECTED SYNERGISTIC ACTIVITIES

2026–Present Advisory Group Maryland, Maryland State Parks: Developing Harmful Algal Bloom (HAB) management actions for Clopper Lake, MD, US.

2025–Present Scientific Committee Member: Brazilian Congress of Limnology 2026

2023 Early Adopter for RAdCor model [\[Link\]](#)

2023–Present GLEON (Global Lake Ecological Observatory Network) Leadership:

- Steering Committee Member (Elected 2024–Present)
- Committee for Inclusive Collaboration (Elected 2023–Present)
- Remote Sensing Working Group (2023–Present)
- Communication Committee (2023–2024)

2022–2024 Member of the Early Career Committee of the Brazilian Society of Limnology (ABLimno)

INVITED TALKS

2026 | Career Development and Support for the Next Generation of Environmental Scientists and Practitioners. Chesapeake Community Research Symposium, Annapolis, MD, US.

2026 | Environmental Topics and Careers. Youth Environmental Action Summit, Wye Mills, MD, US.

2025 | From Space to Stream: Using Satellite and AI to track Nutrient Pollution in the Choptank River. Horn Point Laboratory Education Series, Oxford, MD, US. [\[Link\]](#)

2025 | Using Remote Sensing to Monitor and Assess Water Quality Trends in Inland Water. Horn Point Laboratory Seminar, Cambridge, MD, US.

2023 | Using Community Science to Enhance Earth Observation Data. Virtual Summit: Incorporating Data Science and Open Science in Aquatic Research. [\[Link\]](#)

2022 | Early Career Limnologist Working Group. XVIII Brazilian Congress of Limnology (Virtual).

2020 | Cyanobacterial blooms and its effects on zooplankton structure and dynamics. YouTube Channel: Popularização ABLimno (Virtual). [\[Link\]](#)

2019 | The water quality in Peri Lake. Federal Justice of Santa Catarina, Florianópolis, SC, Brazil.

2019 | Long-term monitoring program in Peri Lake. Science at the Bar, Florianópolis, SC, Brazil.

TEACHING AND MENTORING

Graduate level

Pinheiro-Silva, L. *Remote Sensing Applications in Inland Waters* (1h30). Guest lecture at the Graduate Program in Global Environmental Remote Sensing (MESS698X), University of Maryland Center for Environmental Science, USA (Nov 09, 2025).

Pinheiro-Silva, L., Suhs, R, B. *Introduction to Statistics* (30h). Full course at the Graduate Program in Biology of Fungi, Algae and Plants, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Nov 11-26, 2021)

Pinheiro-Silva, L. *Statistics applied to Environmental Analysis* (30h). Full course at the Graduate Program in Environmental Criminology, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Oct 18-28, 2021)

Pinheiro-Silva, L., Lopes, M. N. *Scientific Career* (2h). Guest lecture at the Graduate Program in Ecology, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Jun 14, 2021)

Pinheiro-Silva, L., Machado, A. M. S. *Statistical Modeling Applied to Ecology* (60h). Teaching Assistant at the Graduate Program in Ecology, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Apr 9-31, 2021)

Pinheiro-Silva, L., Blanco, G. D., Lopes, R. P. *Field course in Coastal and Terrestrial Ecology*. Teaching Assistant at the Graduate Program in Ecology, Universidade Federal de Santa Catarina, São Francisco do Sul, SC, Brazil (Oct 5-19, 2019)

Undergraduate level

Pinheiro-Silva, L. *Remote Sensing Applications in Inland Waters* (1h). Guest lecture at the Undergraduate Program in Lake Ecology, University of Missouri-Columbia, USA (Sep 30, 2024).

Pinheiro-Silva, L. *Energy Flow and Nutrient Cycling in Ecosystems* (3h). Guest lecture at the Undergraduate Program in Biology, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Mar 9, 2022).

Pinheiro-Silva, L. *Energy Flow and Nutrient Cycling in Ecosystems* (3h). Guest lecture at the Undergraduate Program in Environmental Engineering, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Feb 24, 2022).

Pinheiro-Silva, L. *Freshwater Ecology*. Teaching internship at the Undergraduate Program in Biology, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Mar-Jun 2017).

Pinheiro-Silva, L. *Introduction to Ecology*. Teaching internship at the Undergraduate Program in Environmental Engineering, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Aug-Nov 2017).

Pinheiro-Silva, L. *Freshwater Ecology* (2h). Guest lecture at the Undergraduate Program in Environmental Engineering, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil (Oct 25, 2016).

Pinheiro-Silva, L. *Human Ecology*. Teaching Assistant at the Undergraduate Program in Natural Science, Universidade Federal do Estado do Rio de Janeiro, Rio de Janeiro, RJ, Brazil (Mar-Dec 2012).

Pinheiro-Silva, L. *Animal Biology II*. Teaching Assistant at the Undergraduate Program in Environmental Science, Universidade Federal do Estado do Rio de Janeiro, Rio de Janeiro, RJ, Brazil (Mar-Dec 2011).

Pinheiro-Silva, L. *Animal Biology I*. Teaching Assistant at the Undergraduate Program in Environmental Science, Universidade Federal do Estado do Rio de Janeiro, Rio de Janeiro, RJ, Brazil (Jun-Dec 2010).

Mentoring

2025

Internship supervisor, Kari Leake, Department of Natural Resources, University of Missouri-Columbia, USA

2024

Internship supervisor, Anthony King, Department of Biochemistry, University of Missouri-Columbia, USA

Internship supervisor, Kari Leake, Department of Natural Resources, University of Missouri-Columbia, USA

2023

Co-supervisor, Honors thesis in Biological Sciences, Lucas Miguel Garbo, Universidade Federal de Santa Catarina, Brazil. Project: Acute ecotoxicity of ashes from the burning of highland grassland vegetation on *Daphnia magna*. Supervisor: Prof. Dr. Bruno Figueiredo

Student Awards

2025

Best Poster Presentation, Kari Leake, Show Me Research Week, University of Missouri-Columbia, USA

MEDIA

Interactive Web Applications

2026 | R Shiny web application for visualizing Zooplankton International Geospatial (ZIG) dataset.

2024 | R Shiny web application for visualizing social science survey data.

2023 | R Shiny web application for processing and visualizing radiometric data.

Workshop Facilitation

- Facilitated international workshops on *Peer Review, Open Access, and Scientific Publishing* (2024).

Articles in outreach media

- El Informe Planeta Vivo y el futuro de la biodiversidad en América Latina. *Revista Bioika*, April 9, 2026 [\[Link\]](#).
- La importancia la fauna para el equilibrio ecológico y la vida. *Revista Bioika*, November 4, 2025 [\[Link\]](#).
- De la Demanda de Alimentos a la Pérdida de Biodiversidad: el Riesgo de las Especies Exóticas en la Acuicultura. *Revista Bioika*, August 28, 2025 [\[Link\]](#).
- Introducing the new co-chair elect of the CCC: Rebecca North. *GLEON Blog*, February 1, 2023 [\[Link\]](#).

Interviews

- How satellites may be the Bay's best defense against pollution. *WHCP radio*, Shore Stories, September 8, 2025 [\[Link\]](#).