Matthew S. Schuler

Email: schulerm@montclair.edu
Website: www.freshwaterlab.com

Professional appointments

2024-present	**Doctoral Program Director, Environmental Science and Management** Montclair State University. Montclair, NJ
Summer 2024	**Graduate Program Coordinator, Department of Biology** Montclair State University. Montclair, NJ
2019-present	**Assistant Professor, Department of Biology** Montclair State University. Montclair, NJ
2018-2020	**Textbook and Teaching Module Editor** Macmillan Publishing. Raleigh, NC
2018-2020	**Adjunct Faculty, Department of Biology** Arizona State University. Tempe, AZ
2015-2019	**Postdoctoral Researcher, Department of Biology** Rensselaer Polytechnic Institute. Troy, NY

Education

2009-2015	**PhD – Washington University in St. Louis**
2007-2009	**MS – Indiana State University**
2002-2007	**BS – University of Wisconsin – Stevens Point**

Professional experience

2010-2013	EPA STAR Graduate Research Fellow Washington University in St. Louis
2001-2008	Research Assistant Sandhill Wildlife Area. Wisconsin Department of Natural Resources
2005-2007	Undergraduate Academic Advisor Student Success Center. University of Wisconsin – Stevens Point
2006-2007	Volunteer Avian Rehabilitation Assistant Raptor Education Group Inc.
2006	Avian Research Assistant Long Range Mountains, Newfoundland. Acadia University
2005	Endangered Species Ecologist (Team Lead) Fort McCoy Military Reservation. Colorado State University
2003-2004	Executive Board Chairperson (Events and Fundraising) Residence Hall Association. University of Wisconsin – Stevens Point
2004	Teaching and Research Assistant Treehaven Field Station. University of Wisconsin – Stevens Point
2003	Environmental Educator Central Wisconsin Environmental Station.

Research interests

I am an ecologist interested in the conservation of freshwater ecosystems. My research aims to investigate how patterns of biodiversity change in response to anthropogenic stressors. I use experimental manipulations, long-term field studies, modeling, and sensor networks to address issues threatening environmental health. I primarily use aquatic invertebrates such as protists and zooplankton as sentinels of ecosystem health.

Awards and certifications

2012	National Science Policy Award - Ecological Society of America
2007	State Biology Student of the Year Award – Wisconsin Wildlife Society
2007	Conservation Student of the Year – Portage County Wildlife Society
2007	Chancellor's Award for University Leadership – UWSP
2006	National Leadership Award – Rocky Mountain Elk Foundation
2006	Eric Munson Award for Conservation and Avian Studies – UWSP
2005	University Leadership Award – UWSP
2004-present	Permitted bird bander – USGS (with Richard P. Thiel)

Grants and fellowships

In review

2024	"CAREER: Investigating mechanism of ecosystem resilience of wetlands affected by urban flooding". PI-Schuler, M.S. National Science Foundation. ($1,334,984 requested). Submitted *July, 2024*
2024	"Understanding the requirements for microbial function in extreme soil ecosystems". PI-Goodey, N. Co-PI-Schuler, M.S and Meredith, R. National Science Foundation. ($1,359,036 requested). *Submitted September, 2024*

Funded

2022	"Environmental DNA analysis of fish communities in the Musconetcong River Watershed." PI-Wu, M. Senior researchers, Hsu, M.S. Schuler, D.M. Bobo. Musconetcong River Watershed Association ($38,000).
2022	"Using shotgun sequencing to test the effects of salt pollution on microbial communities in freshwater environments." PI-Schuler, M.S. Montclair State University Summer Research Grant ($4,375).
2020-2021	"Quantifying the effects of salt pollution on aquatic-terrestrial linkages." PI-Schuler, M.S. Montclair State University Summer Research Grant ($4,000).
2020-2023	"Assessment of the impacts of OCNGS on gelatinous zooplankton and planktonic community structure". PI-Bologna, P.A.X; CoPIs-J.R. Gaynor, R. Meredith, M.S. Schuler. NJ Department of Environmental Protection ($68,233).
2019-2020	"Understanding the association between salt contamination and heavy metal contamination in drinking wells in New Jersey". NJ Water Resources Research Institute. PI-Schuler, M.S. ($15,000).

2010-2013 "The importance of structural and thermal heterogeneity in maintaining species richness". Environmental Protection Agency Science To Achieve Results (STAR). PI-Schuler, M.S.; CoPI-J.L. Orrock. ($111,000).

2007-2009 "Testing a spatially-explicit theory of thermoregulation". Travel and Research Grant. Indiana State University. Schuler, M.S. and M.J. Angilletta. ($1,450).

2008 "Using optimality models to understand thermal adaptation in ectotherms". Technology Advancement Grant. Schuler, M.S. and M.J. Angilletta. ($5600).

2007 "Natural history and survey of Costa Rica". International Travel and Research Grant. University of Wisconsin – Stevens Point. Schuler, M.S. ($1000).

2006 "The effect of rat poison on an invasive slug at Hawai'i Volcanoes National Park" Student Research Grant. University of Wisconsin – Stevens Point. Schuler, M.S. and E.J. Judziewicz. ($600).

Contracted proposals declined

2024 "A survey of the Hudson River." Hudson River Foundation. PI-HDR inc. ($2,000,000 requested, Schuler contract $80,454)

Declined

2024 "Microplastics and PFAs co-exposure in aquatic organisms." PI-Khursagara, A.J, Co-PI-Schuler, M.S. The Water Research Foundation ($132,118 total; $98,436 requested)

2023 "CAREER: Investigating mechanism of ecosystem resilience of wetlands affected by urban flooding". PI-Schuler, M.S. National Science Foundation. ($912,086 requested). Submitted July 2023.

2023 "Investigating how biotic and abiotic factors alter the resilience of urban wetlands to cyanobacteria blooms". PI-Schuler, M.S. Hudson River Foundation. ($49,807 requested). Submitted November 2022.

2022 "BRC-BIO: Evaluating the ecological consequences of altered environmental heterogeneity caused by road salt pollution at different spatial scales". PI-Schuler, M.S. National Science Foundation. ($480,443 requested). Submitted June 2022.

2022 "CAREER: Investigating aquatic-terrestrial linkages disrupted by community disassembly in stream ecosystems affected by salt pollution". PI-Schuler, M.S. National Science Foundation. ($797,481 requested).Submitted July 2022.

2022 "Using aerially collected eDNA and eRNA to rapidly quantify biodiversity at potential solar energy facilities." PI-Schuler, M.S. CO-PIs – Lal, P., Desalle, R., Naeem, S. Department of Energy. ($1,670,000 requested). Submitted April 2022

2022 "SG: The relative importance of abiotic conditions and microbial diversity in the resilience of pond communities following homogenization due to

	flooding." PI-Schuler, M.S. National Science Foundation. ($199,810 requested). Submitted February 2022
2022	"BRC-BIO: Evaluating the ecological consequences of altered environmental heterogeneity caused by road salt pollution at different spatial scales". PI-Schuler, M.S. National Science Foundation. ($492,059 requested). Submitted January 2022.
2021	"RAPID: The resilience of microbial communities and the potential role of microbial diversity in community resilience to biotic homogenization of freshwater environments. PI-Schuler, M.S. National Science Foundation. ($151,000 requested). Submitted July 2021.
2021	"Evaluating the potential environmental and biotic homogenization caused by salt pollution in the Hudson River Watershed". PI-Schuler, M.S. Hudson River Foundation. ($48,714 requested). Submitted August 2021.

Publications *Denotes Montclair undergraduate author

Accepted/published

37. Vigil, J.P.* and **M.S. Schuler**. 2024. Salt pollution reduces turbidity, dissolved organic matter, and cyanobacteria in experimental vernal pool communities. Science of the Total Environment. 931. DOI: 10.1016/j.scitotenv.2024.172948

36. Borrelli, J.J., **M.S. Schuler**; W.D. Hintz; M. Alldred; B.M. Mattes; C. Schermerhorn; E. Yates; L.W. Eichler; M.A. Lucius; R.A. Relyea. 2024. Putting a lake together: Integrating synthetic data and field observations to build a better food web. *Food webs*. 37. DOI: 10.1016/j.fooweb.2023.e00315

35. Borrelli, J.J., **M.S. Schuler**; W.D. Hintz; M. Alldred; B.M. Mattes; C. Schermerhorn; E. Yates; L.W. Eichler; M.A. Lucius; R.A. Relyea. 2024. Considering sub-basins in the spatio-temporal dynamics of lake food webs. Aquatic Sciences. 86(8). DOI: 10.1007/s00027-023-01022-1

34. Ruka, A., J.R. Johansen, J. Leps, M**.S. Schuler**, B.M. Mattes, E. Yates, and R.A. Relyea. *2023.* Seasonal diatom community responses to development and climate change in Lake George, an oligotrophic lake in the Adirondack Mountains. *Hydrobiologia*. 849(12), 2761-2780. DOI: 10.1007/s10750-022-04892-y

33. Arnott, S.E., V. Fugère, C.C. Symons, S.J. Melles, B.E. Beisner, M. Cañedo-Argüelles, M.-P. Hébert, J.A. Brentrup, A.L. Downing, D.K. Gray, D. Greco, W.D. Hintz, A. McClymont, R.A. Relyea, J.A. Rusak, C.L. Searle, L. Astorg, H.K. Baker, Z. Ersoy, C. Espinosa, J.M. Franceschini, A.T. Giorgio, N. Göbeler, E. Hassal, M. Huynh, S. Hylander, K.L. Jonasen, A. Kirkwood, S. Langenheder, O. Langvall, H. Laudon, L. Lind, M. Lundgren, E.R. Moffett, L. Proia, **M.S. Schuler,** J.B. Shurin, C.F. Steiner, M. Striebel, S. Thibodeau, P.U. Cordero, L. Vendrell-Puigmitja, G.A. Weyhenmeyer, and A.M. Derry. (2022), Widespread variation in salt tolerance within freshwater zooplankton species reduces the predictability of community-level salt tolerance. *Limnology and Oceanography Letters*. 8(1), 8-18. DOI: 10.1002/lol2.10277

32. Hintz, W.D, S.E. Arnott, C.C. Symons, D.A. Greco, A. McClymont, J.A. Bentrup, M. Cañedo-Argüelles,A.M. Derry, A.L. Downing, D.K. Gray, S.J. Melles, R.A. Relyea, J.A. Rusak, C.L. Searle, L. Astorg, H.K. Baker, B.E. Beisner, K.L., Cottingham, Z. Ersoy, C. Espinosa, J.M. Franceschini, A.T. Giorgio ,N. Göbeler, E. Hassal, M.P. Hébert, M. Huynh, S. Highlander, K.L. Jonasen, A.E. Kirkwood, S. Langerheder, O. Langvall, H. Laudon, L. Lind, M. Lundgren, L. Proia, **M.S. Schuler**, J.B. Shurin, C.F. Steiner, M. Striebel, S. Thibodoeau, P. Urrutia-Cordero, L. Vendrell-Puigmitja, G.A. Weyhenmeyer. 2022. Current water quality guidelines across North America and Europe do not protect lakes from salinization. *Proceedings of the National Academy of Sciences.* 119(9) e2115033119. DOI:10.1073/pnas.2115033119

31. Hébert, M.P., C.C. Symons, M. Cañedo-Argüelles, S.E. Arnott, A.M. Derry, V. Fugère, W.D. Hintz, S.J. Melles, L. Astorg, H.K. Baker, J.A. Brentrup, A.L. Downing, Z. Ersoy, C. Espinosa, J.M. Franceschini, A.T. Giorgio ,N. Göbeler, D.K. Gray, D. Greco, E. Hassal, M. Huynh, S. Hylander, K.L. Jonasen, A.E. Kirkwood, S. Langenheder, O. Langvall, H. Laudon, L. Lind, M. Lundgren, A. McClymont, L. Proia, R.A. Relyea, J.A. Rusak, **M.S. Schuler**, C.L. Searle, J.B. Shurin, C.F. Steiner, M. Striebel, S. Thibodeau, P. Urrutia Cordero, L. Vendrell-Puigmitja, G.A. Weyhenmeyer, B.E. Beisner. 2022. Lake salinization drives consistent losses of zooplankton abundance and diversity across coordinated experiments. *Limnology and Oceanography Letters.* 8(1), 19-29. DOI: 10.1002/lol2.10239

30. Coldsnow, K. D., Hintz, W. D., **Schuler, M. S.**, Stoler, A. B., & Relyea, R. A. 2021. Calcium chloride pollution mitigates the negative effects of an invasive clam. Biological Invasions. 23(5), 1349-1366. DOI: 10.1007/s10530-020-02443-x

29. **Schuler, M. S.**, W.D. Hintz, D.K. Jones, B.M. Mattes, A.B. Stoler, and R.A. Relyea. 2020. Context-dependent effects of invasive mollusks in experimental freshwater lakes. *Ecosphere.* 11(10), e03196. DOI:10.1002/ecs2.3196

28. García-Quismondo, M., W.D. Hintz, **M.S. Schuler**, and R.A. Relyea. 2020. Modeling diel vertical migration with membrane computing. *Journal of Membrane Computing*. 3(1), 35-50. DOI: 10.1007/s41965-020-00038-y

27. Kornecki, K.M., **M.S. Schuler**, M.E. Katz, R.A. Relyea, F.M.G. McCarthy, M.F. Schaller, D.P. Gillikin, J.C. Stager, C.W. Boylen, L. Eichler, and S. Nierzwicki-Bauer. 2020. The canary in the coal mine: testate amoebae record anthropogenic impacts in oligotrophic Lake George, NY sediments. *The Journal of Foraminiferal Research.* 50(2), 128-140. DOI: 10.2113/gsjfr.50.2.128

26. Hintz, W.D., **M.S. Schuler**, J.J. Borrelli, L.W. Eichler, A.B. Stoler, V.W. Moriarty, L.E. Ahrens, C.W. Boylen, S.A. Nierzwicki-Bauer, and R.A. Relyea. 2020. Concurrent increases and decreases of epilimnetic water quality in an oligotrophic lake over 37 years. *Limnology and Oceanography.* 65(5), 927-938. DOI: 10.1002/lno.11359

25. Hintz, W.D., **M.S. Schuler**, D.K. Jones, K.D. Coldsnow, A.B. Stoler, and R.A. Relyea. 2019.

Multi-trophic impacts of an invasive species are influenced by bottom-up nutrient effects. Science of the Total Environment. 694, 133704. DOI: 10.1016/j.scitotenv.2019.133704

24. Chase**,** J.M., L. Gooriah, F. May, W.A. Ryberg, **M.S. Schuler**, D. Craven, T.M. Knight. 2019. A framework for dissecting ecological mechanisms underlying the island species-area relationship. *Frontiers in Biogeography.* 11(1), e40844. DOI:10.21425/F5FBG40844

23. **Schuler, M.S.**, M. Cañedo-Argüelles, W.D. Hintz, B. Dyack, S. Birk, and R.A. Relyea. 2019*.* Regulations are needed to protect freshwater ecosystems from salinization. *Philosophical Transactions of the Royal Society B.* 374(1764). DOI:10.1098/rstb.2018-0019.

22. DeWitt, P.D., D.R. Visscher, **M.S. Schuler**, and R.P. Thiel. 2019. Predation risk suppresses lifetime reproductive success in a wild mammal. *Oikos*. 128(6), 790-797. DOI:10.1111/oik.05935.

21. Lind, L., **M.S. Schuler**, W.D.Hintz, D.K. Jones, B.M. Mattes, A.B. Stoler, and R.A. Relyea. 2018*.* Salty fertile lakes: How salinization and eutrophication alter the structure of freshwater communities. *Ecosphere.* 9(9), e02383. DOI:10.1002/ecs2.2383.

20. Jones, D.K., E.K. Yates, B.M. Mattes, W.D. Hintz, **M.S. Schuler**, and R.A. Relyea. 2018. Timing and frequency of exposure modifies retention of induced tolerance to contaminants in amphibians. *Environmental Toxicology and Chemistry.* 37(8), 2188-2197. DOI:10.1002/etc.4177.

19. **Schuler, M.S.** and R.A. Relyea. 2018*.* A review of the combined threats of heavy metals and road salts to freshwater ecosystems. *Bioscience.* 68(5): 327-335.

18. **Schuler, M.S.** and R.A. Relyea. 2018*.* Road salts and organic additives affect mosquito recruitment: an emerging problem in wetlands. *Oikos*. 127(6): 866-874.

17. Jones, D.K., W.D. Hintz, **M.S. Schuler**, E.K. Yates, B.M. Mattes, and R.A. Relyea. 2018*.* Inducible tolerance to agrochemicals was paved by evolutionary responses to predators. *Environmental Science and Technology.* 51(23): 13913-13919.

16. DeWitt, P.D., **M.S. Schuler**, D.R. Visscher, and R.P. Thiel. 2017. Nutritional state reveals complex consequences of risk in a wild predator-prey community. *Proceedings of the Royal Society B.* 284(1858).
15. **Schuler, M.S.**, J.M. Chase, and T.M. Knight. 2017. Habitat size modulates the influence of heterogeneity on species diversity patterns in an experimental zooplankton community. *Ecology*. 98(6): 1651-1659.

14. **Schuler, M.S.**, J.M. Chase, and T.M. Knight. 2017. Habitat size alters the importance of dispersal for species diversity in a freshwater zooplankton community. *Ecology and Evolution*. 7(15): 5774-5783.

13. Stoler, A.B., W.D. Hintz, D.K. Jones, L. Lind, B.M. Mattes, **M.S. Schuler,** R.A. Relyea. 2017. Leaf litter mediates the negative effect of road salt on forested wetland communities. *Freshwater Science*. 36(2): 415-426.

12. Stoler, A.B., W.D. Hintz, D.K. Jones, L. Lind, B.M. Mattes, **M.S. Schuler**, R.A. Relyea. 2017. Effects of a common insecticide on wetland communities with varying quality of leaf litter inputs. *Environmental Pollution*. (226): 452-462.

11. **Schuler, M.S.**, W.D. Hintz, D.K. Jones, L. Lind, B.M. Mattes, A.B. Stoler, K. Sudol, and R.A. Relyea. 2017. In search of safer alternatives: How common road salts and organic additives alter freshwater food webs. *Journal of Applied Ecology*. 54(5): 1353-1361.

10. Hintz, W.D., B.M. Mattes, **M.S. Schuler**, D.K. Jones, A.B. Stoler, L. Lind, and R.A. Relyea. 2017. Salinization triggers a trophic cascade in experimental freshwater communities with varying food-chain length. *Ecological Applications*. 27(3): 833-844.

9. Jones, D.K., B.M. Mattes, W.D. Hintz, **M.S. Schuler**, A.B. Stoler, L. Lind, R.O. Cooper, and R.A. Relyea. 2017. Investigation of road salts and biotic stressors on freshwater wetland communities. *Environmental Pollution*. (221): 159-167.

8. Stoler, A.B., B.M. Walker, W.D. Hintz, D.K. Jones, L. Lind, B. M. Mattes, **M.S. Schuler**, and R.A. Relyea. 2017. Combined effects of road salt and an insecticide on wetland communities. *Environmental Toxicology and Chemistry*. 36(3): 771-779.

7. Sears, M.W., M.J. Angilletta, **M.S. Schuler,** J. Borchert, K.F. Dilliplane, M. Stegman, T. Rusch, and W.A. Mitchell. 2016. Configuration of the thermal landscape determines thermoregulatory performance of ectotherms. *Proceedings of the National Academy of Sciences*. 113(38): 10595-10600.

6. **Schuler, M.S.**, J.M. Chase, and T.M. Knight. 2015. More individuals drive the species energy-area relationship in a zooplankton community. *Oikos.* 124(8): 1065-1070.

5. **Schuler, M.S.** and J.L. Orrock. 2012. The maladaptive significance of maternal effects in plants. *Evolutionary Ecology*. 26(3): 475-481.

4. **Schuler, M.S.**, M.W. Sears, and M.J. Angilletta. 2011. Food consumption does not affect the preferred body temperature of Yarrow's spiny lizard (*Sceloporus jarrovii*). *Journal of Thermal Biology*. 36(2): 112-115.

3. **Schuler, M.S.**, J.J. Storm, B.C. Cooper, M.W. Sears, and M.J. Angilletta. 2011. Isopods failed to acclimate their thermal physiology of locomotor performance during predictable or stochastic cooling. *PloS ONE*. 6(6): e20905.

2. Angilletta, M.J., B.S. Cooper, **M.S. Schuler,** and J.G. Boyles. 2010. The evolution of thermal physiology in endotherms. *Frontiers in Bioscience E*. (2): 861-881.

1. **Schuler, M.S.** and R.P. Thiel. 2008. Annual vs. multiple year home range sizes of individual Blanding's turtles *Emydoidea blandingii* in Central Wisconsin. *The Canadian Field-Naturalist*. 122(1): 61-64.

State reports

1. Bologna, P., Gaynor, J., Meredith, R. and **Schuler, M.S.** 2023. Assessing the impacts of the Oyster Creek Nuclear Generating Station and its closure on gelatinous zooplankton and planktonic community structure. Final Report. New Jersey Department of Environmental Protection. Trenton, NJ. 146 pages.

Teaching experience

Montclair State University

2024	Instructor – Community Ecology BIOL 422/535 (cross-listed)
2024	Instructor – Applied Ecological Statistics (Spring, Lecture). BIOL 486/595 (cross-listed)
2024	Instructor –Principles of Biology II (Spring and Fall, Lecture). BIOL 113
2024	Instructor – Dissertation Advisement (Fall, mentor) EAES 900
2024	Instructor – Master's thesis research (Spring, mentor) BIOL 698
2024	Instructor – Graduate Independent Research Course (Spring and Fall, mentor) BIOL 599
2024	Instructor – Research in Biological Literature (Spring and Fall, mentor) BIOL 597
2024	Instructor – Externship in Biological Research (Spring, mentor) BIOL 409
2024	Instructor – Independent Research Course (Spring and Fall, mentor) BIOL 418
2023	Instructor – Principles of Biology II (Spring and Fall, Lecture). BIOL 113
2023	Instructor – Advanced Ecology (Fall, lecture) BIOL 570
2023	Instructor – Graduate Independent Research Course (Fall, mentor) BIOL 599
2023	Instructor – Research in Biological Literature (Fall, mentor) BIOL 597
2023	Instructor – Independent Research Course (Spring and Fall, mentor) BIOL 418
2022	Instructor – Externship in Biological Research (Spring, mentor) BIOL 409

2022 Instructor – Advanced Ecology (Fall, lecture)
BIOL 570
2022 Instructor – Principles of Biology II (Spring, lecture and lab; Fall, lecture)
BIOL 113
2022 Instructor – Master's thesis research (Spring, mentor)
BIOL 698
2022 Instructor – Independent Research Course (Spring and Fall, mentor)
BIOL 418
2022 Instructor – Externship in Biological Research (Spring, mentor)
BIOL 409
2022 Instructor – Graduate Independent Research Course (Spring, mentor)
BIOL 599
2022 Instructor – Research in Biological Literature (Spring, mentor)
BIOL 597
2021 Instructor – Population and Community Ecology (Fall, lecture and lab)
BIOL 486/586 (cross-listed)
2021 Instructor – Principles of Biology II (Spring, lecture and lab; Fall, lecture)
BIOL 113
2021 Instructor – Graduate Independent Research Course (Spring and Fall, mentor)
BIOL 599/AQUA 599 (cross-listed)
2021 Instructor – Research in Biological Literature (Spring and Fall, mentor)
BIOL 597
2021 Instructor – Independent Research Course (Spring and Fall, mentor)
BIOL 418
2021 Instructor – Master's thesis research (Spring, mentor)
BIOL 698
2020 Instructor – Advanced Ecology (Fall, lecture)
BIOL 570
2020 Instructor – Principles of Biology II (Spring and Fall, lecture and lab)
BIOL 113
2020 Instructor – Undergraduate Independent Research (Spring and Fall, mentor)
BIOL 418
2020 Instructor – Community Ecology (Spring, lecture)
BIOL 495/586 (cross-listed)
2020 Instructor – Externship in Biological Research (Spring, mentor)
BIOL 409
2019 Instructor – Principles of Biology II (Fall, lecture)
BIOL 113

Arizona State University

2018-2019 Instructor – Introduction to Ecology (Bio 213; online lecture)

Rensselaer Polytechnic Institute

2016-2019 Guest Lecturer – Principles of Ecology
2016 Guest Instructor – Introduction to Ecology

Washington University in St. Louis

2014 Teaching Assistant – Introduction to Environmental Biology
2011-2014 Teaching Assistant – Experimental Ecology
2013 Teaching Assistant – Population Ecology
2011 Teaching Assistant – Introduction to Ecology

Student mentoring

Montclair State University

PhD students (1)

2022- Arif Ahmed

Master's students (9)

Thesis:

2024- Dan Angel Dufresne
2024- Nicholas Jacob (Funded by Wehner Scholarship)
2023-2024 Justin Howell
2022-2024 Megan Klutts (Funded by Wehner Scholarship)
2021-2024 Kevin Peteroy
2020-2021 Emily Stone (Funded by Wehner Scholarship)

Non-thesis:

2022-2024 Joseph Affinito
2021-2022 Darius Chisolm
2021-2022 Samantha Aaron

Undergraduate students (22)

2024- Leslie Suruy
2024- Raj Burman
2024- Crystal Nwalor
2023- Averi Loria
2023-2024 Vincent Alonso
2023 Faith Colllier
2023-2024 Justin Green
2023 Litzy Ponce
2023-2024 Nicole Triana (Funded by LSAMP)
2023 Cris Belen (Computer Science)
2023 Sarah Hajjar
2023 Iana Isabelle Paulino
2023 Uzair Khan
2021-2023 Yousef Dimian
2022-2023 Jared Vigil (Funded by the Dean's Summer Research Fellowship)
2021-2022 Thara Polanco-Diaz (Funded by LSAMP)
2021-2022 Nazar Kruvchuck

2021-2022 Marwha Kayali (Funded by the Dean's Research Fellowship)
2021 Colleen Potocki
2020-2021 Lindsey Montas
2020 Khaled Elzokm
2020-2021 Alexis Garofelo (Funded by LSAMP)

Graduate committees (30)

Thesis:

2024- Anthony Barrera
2024- Jason Albrecht
2024- Jesi Herterich
2023- Will Cartelli (MS)
2023- Rachel Sechrist (MS)
2022- Nicolina Lentine (PhD)
2020- Cailin O'Connor (PhD)
2023-2024 Noah Macchirole (MS)
2023-2024 Angela Chemidlin (MS)
2023-2024 Dominika Polchowska
2023-2024 David Ogando (MS)
2023-2024 Julia Skowronski (MS)
2023-2024 Anthony Tamberelli (MS)
2022-2023 Tina Ollo (MS)
2021-2022 Victor LoPiccolo (MS)
2021-2022 Valin Booker (MS)
2021-2022 Madeline Baum (MS)
2021-2022 Ken Hamel (MS)
2021-2022 Kaitlyn Maguire (MS)
2021-2022 John Thraen (MS)
2020-2021 Stephanie Beck (MS)
2020-2021 Stephanie Getto (MS)
2020-2021 Melissa Mazarro (MS)
2019-2020 Alyssa Petitdemange (MS)
2019-2020 Christian Bojorquez (MS)
2019-2020 Veronica Puza (MS)
2019-2020 Domenica Mousa (MS)

Non-thesis

2023 Balpreet Kaur (MS)
2023 Magali Romero (MS)
2021 Tanner Melendez (MS)

High school students

2022 Izzy Christmas (Weston Researcher)
2022 Ella Makin (Weston Researcher)

Rensselaer Polytechnic Institute

I recruited 56 undergraduate researchers to the Relyea Lab, supervised 16 students, and conducted independent research with 6 students.

2018 Zan Koenig – Modeling how spatial and temporal autocorrelation affect patterns of macroinvertebrate abundance and diversity.
2017 Audrey Boraski – Testing the effects of invasive species and climate change on freshwater food webs.
2017 David Nesich – Testing the effects of invasive species and climate change on freshwater food webs.
2016 Hannah Barrett – Understanding the consequences of multiple stressors on the structure of freshwater food webs.
2016 Reilly Cooper – The effects of salt alternatives and additives on freshwater ecosystems.
2015 Kelsey Sudol – The effects of interacting invasive mollusks in freshwater ecosystems.

Washington University in Saint Louis and Tyson Research Center

The internship program at Tyson Research Center allows students to rotate with mentors and gain experience in experimental and theoretical ecology. I worked with 22 students, directly supervised 12 students, and conducted independent research with 3 students.

2012 Kelly Muething – Zooplankton diversity affected by timing and magnitude of spring warming events.
2011 Kyle Vickstrom – The effects of habitat area and dispersal on patterns of species richness.
2011 Eric Dougherty – How habitat area interacts with environmental factors to affect species richness patterns.

Indiana State University and Sevilleta Long Term Ecological Research Station

I mentored students through the Sevilleta LTER summer internship and the NSF REU program, I led weekly paper discussions, showed students common field methods in ecology, and introduced students to behavioral and physiological ecology.

2009 Monica Stegman – Thermoregulatory costs of heterogeneous environments for lizards.
2009 Kathy Dilliplane – Measuring thermal heterogeneity using copper models and iButton thermocrons.
2008 Travis Rusch – The costs of thermoregulation under the risk of predation.
2007 Ben Williams – Understanding how organisms acclimate in variable environments.
2007 Jamison Mize – Thermoregulation and behavior of lizards in heterogeneous environments.

Outreach

2019-Present	As an Assistant Professor, I have initiated and joined conservation projects that involve public outreach and community science data. In 2020 I initiated a project in the town of Wayne, NJ to address how flooding affects an urban wetland. I have met with homeowners around the wetland and discussed wetland management with city officials and I continue to formalize a working relationship between the city of Wayne and Montclair State University. In 2023 I joined a project initiated by the town of Lincoln Park, NJ to restore a degraded riparian zone along the Pompton River, just south of where I do my research in Wayne, NJ. I also regularly conduct interviews with local news agencies such as NJ.com to discuss conservation efforts, and I wrote an Earth Day opinion piece for the New Jersey Star Ledger in 2022 highlighting the importance of riparian zone conservation for flood management.
2015-2019	As part of the Jefferson Project, I presented and discussed the importance of protecting freshwater resources with members of the public at open house events. Additionally, I met with government and industry representatives to discuss the ecological and economic importance of our research. I also assisted with the RPI First Year Experience and the Harlem Academy Experience, to inform students about ecological research opportunities, and the importance of protecting freshwater resources.
2002-2008	Through the Wisconsin Department of Natural Resources and the Timber Wolf Information Network, I gave public presentations about natural resource management and wolf conservation programs.

Invited talks and presentations

2024 New Jersey Institute of Technology. Newark, NJ.
Salt pollution and its effects on community structure and ecosystem functioning

2024 Fairfield University. Fairfield, CT.
Investigating how urban landscapes alter freshwater environments

2023 Montclair State University (Water in Nature Conference). Montclair, NJ.
Investigating how urban landscapes alter freshwater environments

2023 Montclair State University (Environmental Sciences Series). Montclair, NJ.
Investigating how urban landscapes alter freshwater environments

2022 Sussex County Bird Club. Sussex, NJ.
From saw-whets to Sandhills: ecological trends in bird communities

2022 The University of Toledo. Toledo, OH.
Investigating how urban landscapes alter freshwater environments

2021 Rutgers University. New Brunswick, NJ.

From pollution to policy: Understanding and mitigating human impacts on freshwater environments.

2021 Montclair Bird Club. Sussex, NJ.
From saw-whets to Sandhills: ecological trends in bird communities

2020 Seton Hall University. Orange, NJ.
From pollution to policy: Understanding and mitigating human impacts on freshwater environments.

2019 Daemen College. Amherst, NY.
From pollution to policy: Understanding and mitigating the effects of road salts in fresh waters.

2019 Montclair State University. Montclair, NJ.
From pollution to policy: Understanding and mitigating human impacts on freshwater environments.

2018 Wellesley College. Wellesley, MA.
From pollution to policy: Understanding and mitigating human impacts on freshwater environments.

2018 Massachusetts Institute of Technology. Boston, MA.
Using artificial intelligence to model lake dynamics and food webs. With: Eli Dow and Mike Kelly (equal presenter contribution).

2018 Union College. Schenectady, NY.
The Jefferson Project: Experiments and models used to understand lake dynamics. With Campbell Watson and Mike Kelly (equal presenter contribution).

2017 State University of New York – Binghamton. Binghamton, NY.
Understanding how heterogeneity affects patterns of species richness and diversity.

2017 Union College. Schenectady, NY.
The Jefferson Project: An initiative to make lakes smarter. With Jeremy Farrell, Mike Henderson, and Mike Kelly (equal presenter contribution).

2016 Siena College. Loudonville, NY.
In search of safer alternatives: How common road salts and organic additives alter freshwater food webs.

2016 Union College. Schenectady, NY.
The Jefferson Project: An initiative to make lakes smarter. With Jeremy Farrell and Mike Kelly (equal presenter contribution).

2016 Rensselaer Polytechnic Institute. Troy, NY.
The Jefferson Project: An initiative to make lakes smarter. Earth Day Celebration Seminar Series.

2013 University of Missouri – Saint Louis. Saint Louis, MO.
More individuals drive the species energy-area relationship.

2008 University of Wisconsin – Stevens Point. Stevens Point, WI.
Developing a spatially-explicit theory of behavioral thermoregulation.

Oral presentations (contributed presentations not shown)

2020 Schuler, M.S., et al. (Co-organizer of session "Matching Theory, Data, and Solutions Through Collaborations Among Scientists and Practitioners"). Building bridges between universities, industry, and NGOs to inform science policy. Ecological Society of America Annual Meeting. Virtual.

2019 Schuler, M.S., et al. (Co-organizer of session on freshwater salinization). From pollution to policy: Understanding and mitigating human impacts on freshwater environments. Ecological Society of America Annual Meeting. Louisville, KY

2018 Schuler, M.S., et al. Understanding how common road salts and organic additives alter freshwater food webs. New York State Federation of Lake Associations Annual Meeting. Lake George, NY

2017 Schuler, M.S., et al. In search of safe alternatives: How common road salts and organic additives alter freshwater food webs. Ecological Society of America Annual Meeting. Portland, OR

2015 Schuler, M.S., et al. Habitat size modulates the influence of heterogeneity on species diversity patterns in an experimental zooplankton community. Ecological Society of America Annual Meeting. Baltimore, MD

2014 Schuler, M.S., et al. Habitat size mediates the importance of dispersal for patterns of species diversity. Ecological Society of America Annual Meeting. Sacramento, CA

2010 Schuler, M.S. and R.P. Thiel. Evidence of the hydra effect in a terrestrial mammal. Washington University in St. Louis. Saint Louis, MO

2008 Schuler, M.S. and M.J. Angilletta. Testing models of behavioral thermoregulation and acclimation in ectotherms. Indiana State University. Terre Haute, IN

2007 Schuler, M.S. and R.P. Thiel. Annual vs. multiple year home range sizes of individual Blanding's turtles in Central Wisconsin. Wisconsin Wildlife Society. Madison, WI

2007 Schuler, M.S. and E.J. Judziewicz. Impact of rat removal on leopard slug feeding habits in tropical forests on the Big Island, HI. UWSP Research Symposium. Stevens Point, WI

2007 Schuler, M.S. and R.P. Thiel. Life range analysis of Blanding's turtles in Sandhill Wildlife Area. UWSP College of Natural Resources Research Symposium. Stevens Point, WI

2006 Schuler, M.S. and R.P. Thiel. Annual vs. multiple year home range sizes of individual Blanding's turtles in Central Wisconsin. National Wildlife Society. Anchorage, AK

2006 Schuler, M.S. and R.P. Thiel. Home range, habitat use, and food selection of recolonizing fishers in the Central Forest Region of Wisconsin. UWSP College of Natural Resources Research Symposium. Stevens Point, WI

Poster presentations (contributed presentations not shown, *indicates student poster)

2024 *Ahmed, A. and Schuler, M.S. Effects of multiple stressors on freshwater microalgae: a microcosm assay. Montclair State University

2024 *Ahmed, A. and Schuler, M.S. Combined effects of atrazine and NaCl on freshwater quality and growth of *Selenastrum capricornutum*. GLEON International Virtual Meeting

2024 *Ahmed, A. and Schuler, M.S. Combined effects of atrazine and NaCl on freshwater quality and growth of *Selenastrum capricornutum*. Montclair State University Wehner Research Symposium

2023 *Vigil, J.P. and Schuler, M.S. The effects of salts on the emergence of zooplankton. Wehner Research Symposium. Montclair State University

2022 *Vigil, J.P. and Schuler, M.S. The effects of salts on the emergence of zooplankton. CSAM Summer Scholars Symposium. Montclair State University

2022 Schuler, M.S., et al. Investigating the consequences of flooding on an urban wetland metacommunity. Ecological Society of America Annual Meeting. Montreal, QC, CA

2022 *Kayali, M. and M.S. Schuler. Does Flooding Result in Long-term Biotic Homogenization of Pond Communities?. CSAM Spring 2022 Student Research Program. Montclair, NJ.

2022 *Polanco-Diaz, T. and M.S. Schuler. Microplastics from dish sponges. New Jersey LSAMP Conference. Virtual

2021 *Garofalo, A. and M.S. Schuler. Bacteria and their associations with contaminants in freshwater environments. New Jersey LSAMP Conference. Virtual

2017 Schuler, M.S., et al. Modeling niches and food webs using machine learning. Global Lake Ecological Observatory Network Annual Meeting. New Paltz, NY.

2013 Schuler, M.S. More individuals drive the species energy-area relationship. Saint Louis Ecology, Evolution and Conservation Conference. Saint Louis, MO

2013 Schuler, M.S. More individuals drive the species energy-area relationship. Ecological Society of America Annual Meeting. Minneapolis, MN

2013 Schuler, M.S., et al. The influence of habitat area on mechanisms of diversity. International Biogeography Society. Miami, FL

2012 Schuler, M.S. Mechanisms that affect diversity in aquatic systems. Ecological Society of America Annual Meeting. Portland, OR

2011 Schuler, M.S. The maladaptive significance of maternal effects for plants. Environmental Protection Agency. Washington, DC

2011 Schuler, M.S. and J.L. Orrock. The maladaptive significance of maternal effects for plants. Saint Louis Ecology and Evolution Meeting. Tyson Research Center, Eureka, MO

2009 Schuler, M.S. and S.L. Lima. Why spring's song is winter's new friend: effects of urbanization on the American robin (*Turdus migritorius*). Society of Integrative and Comparative Biology. Boston, MA

2009 Schuler, M.S., et al. Acclimation of thermal physiology in predictable and stochastic environments: a test of optimality theory. Society of Integrative and Comparative Biology. Boston, MA

2008 Schuler, M.S. and R.P. Thiel. Long-term vs. short-term studies: a life range analysis of Blanding's turtles in Central Wisconsin. Society of Integrative and Comparative Biology. San Antonio, TX

Popular media

Popular media coverage

Discover Magazine, Science Magazine, PNAS, National Public Radio, Smithsonian Magazine, Motherboard Magazine, The European Commission, The Science Media Centre of Canada, The Wildlife Society, Science Daily, and The Environmental News Network.

News interviews and Podcasts

2023 NJ at heart of wildfire season how dry conditions and less snow this year won't help. NJ.com

2022 One of N.J.'s largest vertical farms is still growing. Take a look inside. *New Jersey Star-Ledger*

2022 We can't let spotted lanternflies win! How N.J. counties are waging war against the pests. *New Jersey Star-Ledger*

2022 Bear sightings on rise in Monmouth, Ocean counties NJ. *Asbury Park Press.*

2022 N.J. plastic bag ban: Why are grocery stores banned from using paper bags? *NJ.com*

2022 5 ways N.J.'s plastic bag ban will change your life, for better and worse. *NJ.com*

2022 Plastic bag ban rule-breakers can face daily fines. Here's how to report them. *NJ.com*

2022 Plastic remains the most collected litter at New Jersey beaches. *WHYY and WBGO (PBS and NPR)*

2021 Environmental Engineering Chemistry: The effects of road salts on freshwater communities. *The University of Pittsburgh*

Editorials and blog posts

2022 EARTH DAY: What we can do to keep the Garden State beautiful? | Opinion. *New Jersey Star-Ledger*

2022 Study Shows Freshwater Lakes Increasingly Polluted by Salt. *Montclair University News*

2018 Road salt, organic additives, and mosquitoes. *The Approach Blog at RPI.*

2016 Jefferson Project – Macro-invertebrates. *The Approach Blog at RPI.*

2015 Wiring food webs at Lake George. *Ecological Society of America Blog.*

Professional service

Montclair State University

2024 Grant Reviewer - Vermont Sea Grant

2023-present NJDEP Science Advisory Committee – Ecology subcommittee

2023-present College Vitality Assessment Committee (and Curriculum Committee)

2023 Delegation to ASU to test virtual reality systems for Biology at MSU

2023 Ad-hoc grant reviewer – National Science Foundation Ecosystem Sciences

2022-present	Coordinator of the Montclair Wehner Research Symposium (Darwin Day)
2022	Committee member - Multidisciplinary Science Curriculum Committee
2022	Grant reviewer – Wehner Fellowship Committee (MSU internal)
2022	Fellowship Committee – Goldwater Fellowship (MSU internal)
2022	Grant reviewer – Minnesota Environmental Trust Fund
2021	Grant reviewer – Wehner Fellowship (MSU internal)
2021-present	MSU Graduate Council (elected member)
2021	Search Committee – Biology Department Technician
2021-present	Curriculum Committee – Biology Department
2021-2023	Session proposal reviewer – Ecological Society of America
2020	MSU Research Day Committee – Member
2020	Grant reviewer – USDA
2019	Grant reviewer – Connecticut Institute of Water Resources
2019	Grant reviewer – Minnesota Sea Grant
2019-2024	ESA Emerging Ecological Issues Committee – Member
2020	Co-organizer special session on building bridges in science for ESA 2020
2019-present	Grant reviewer – Society of Wetland Scientists

Rensselaer Polytechnic Institute

2019	Co-organizer special session on freshwater salinization at ESA 2019
2015-2019	Recruit and supervise all undergraduate researchers
2015-2019	Hire, supervise, and manage payroll for all summer interns

Washington University in St. Louis

2012-2013	Ecology Faculty Search Committee
2012-2013	EEPB Seminar Series Coordinator
2010-2011	EEPB Seminar Series Coordinator

University of Wisconsin – Stevens Point

2006-2007	Student Research Symposium Chairperson
2006-2007	UWSP Representative to the Wisconsin Wildlife Federation
2004-2007	Timber Wolf Information Network member
2004-2005	UWSP Environmental Health and Safety Committee Board Member

Journal reviews

Ecology and Society, Bioscience, Journal of Vector Biology, Journal of Animal Ecology, Journal of Ecology, Animal Conservation, PeerJ, Ecology Letters, Science of the Total Environment*, Ecological Applications, Ecology, Environmental Pollution*, Aquatic Ecology, Freshwater Biology*, Ecography*, Hydrobiologia*, Evolutionary Ecology*, Journal of Herpetology, Auk, Israeli Journal of Ecology, Journal of Thermal Biology*, Journal of Comparative Physiology, South American Journal of Herpetology, Source Code for Biology and Medicine, Ecology and Evolution, Fundamental and Applied Limnology, Aquatic Sciences*, Journal of Plankton Research*, The Science of Nature, Water Resources Research*, Environmental Science and Pollution Research, Freshwater Science*, Journal of*

Hazardous Materials, Environmental Entomology, Communications Earth & Environment, Scientific Reports, Anthropocene
**Indicates multiple reviews*

Associated field stations and organizations

Darrin Fresh Water Institute. Bolton Landing, NY
Tyson Research Center. St. Louis, MO
Sevilleta National Wildlife Refuge. Socorro, NM
Sandhill Wildlife Area. Babcock, WI

Associated organizations

Ecological Society of America (ESA)
Global Lake Ecological Observatory Network (GLEON)
Northeast GLEON (NEGLEON)
Society of Freshwater Scientists (SFS)