

Megan M. Tomamichel, M.S., Ph.D.

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Feedbacks between the environment, aquatic populations, anthropogenic influences, and disease

EDUCATION

- 2024 Ph.D. in Ecology: University of Georgia
“Aquatic Disease Ecology in a Changing World: Temperature Effects on Aquatic Host-Parasite Systems”. Supervisors: Drs. Jeb Byers and Richard Hall
- 2018 M.S. in Conservation Sciences: University of Minnesota – Twin Cities
*“Predicting the Impacts of *Heterosporis sutherlandae* on the Yield of a Yellow Perch Population: An Integrated Modeling Approach”*. Supervisors: Drs. Paul Venturelli and Nicholas Phelps
- 2013 B.A. in Zoology and Creative Writing (Honors): University of Wisconsin – Madison
“The Importance of Allochthony to Fish Consumers during a Photic Manipulation of a Naturally Productive Lake”. Honors thesis advisor: Dr. Stephen Carpenter

PROFESSIONAL EXPERIENCE

- 2026+ Assistant Professor in Integrative Environmental and Organismal Health: Iowa State University
Conduct research investigating the interactions between the environment, parasites, and infectious disease in marine and freshwater systems.
- 2024-2026 Postdoctoral Researcher: Virginia Institute of Marine Science
Research blue crab population and disease dynamics and the interaction with harvest and ecological communities. Supervisor: Dr. Jeff Shields
- 2018 Senior Researcher: University of Minnesota – Twin Cities
Investigated the role of recreational boater movement to the spread of aquatic invasive species in Minnesota. Supervisor: Dr. Nicholas Phelps
- 2011-2013 Laboratory Technician: University of Wisconsin – Madison
Maintained inbred copepod lines to determine the genetic causes of adaptation to different saline environments. Supervisor: Dr. Carol Lee
- 2012 Research Experience for Undergraduate Technician: University of Wisconsin – Madison
Collected limnological data and conducted experiments examining the role of multiple carbon sources in freshwater lake systems. Supervisor: Dr. Stephen Carpenter

PEER REVIEWED PUBLICATIONS

** Indicates undergraduate co-author*

- 2026 **Tomamichel, M.M.**, Walters, T., Fox, E.M.K. *, Rivera, A. *, O’Hare, M., Minniefield, A., Braun, M., Hall, R.J., Frischer, M.E., Byers, J.E. (2026). “Changes in Transmission Rates Drive Seasonal Patterns of Shrimp Black Gill Disease”. *Philosophical Transactions of the Royal Society of London* (Special Issue: Managing Marine Diseases). doi: [10.1098/rstb.2024.0327](https://doi.org/10.1098/rstb.2024.0327).
- 2025 **Tomamichel, M.**, Lowe, K.I. *, Arnold, K. M.H., Frischer, M.E., Irwin, B.J., Hall, R.J., Osenberg, C.W., Byers, J. E. (2025). “Warmer is Deadlier: A Meta-Analysis Reveals Increasing Temperatures Accentuate Disease Effects on Fisheries Hosts”. *Ecology Letters*. (28)7: e70156, doi: [10.1111/ele.70156](https://doi.org/10.1111/ele.70156).
- 2024 Irwin, B., **Tomamichel, M.M.**, Frischer, M., Hall, R., Davis, A. *, Bliss, T., Rohani, P., Byers, J. (2024). “Managing the Threat of Infectious Disease in Fisheries and Aquaculture Using

Structured Decision Making”. *Frontiers in Ecology and the Environment*. (22)2: e2695, [doi:10.1002/fee.2695](https://doi.org/10.1002/fee.2695).

- 2023 **Tomamichel, M.M.**, Walters, T. L., Hall, R.J. Byers, J.E., Frischer, M.E. (2023). “A Methodology to Produce Specific Pathogen-Free Penaeid Shrimp for Use in Empirical Investigations of Parasite Ecology”. *Journal of Shellfish Research*. 42(1), 133-142. [doi:10.2983/035.042.0114](https://doi.org/10.2983/035.042.0114).
- 2021 Kao, S., Enns, E.A., **Tomamichel, M.M.**, Doll, A., Escobar, L.E., Qiao, H., Craft, M.E., Phelps, N.B.D. (2021). “Network Connectivity of Minnesota Waterbodies and Implications for Aquatic Invasive Species Prevention”. *Biological Invasions*. [doi:10.1007/s10530-021-02563-y](https://doi.org/10.1007/s10530-021-02563-y).
- 2020 **Tomamichel, M.M.**, Venturelli, P.A., Phelps, N.B.D. (2020). “Field and Laboratory Evaluation of the Microsporidia Parasite, *Heterosporis Sutherlandae*: Prevalence, Severity, and Transmission”. *Journal of Aquatic Animal Health*. 33, 84-93. [doi:10.1002/aah.10122](https://doi.org/10.1002/aah.10122).
- 2018 **Tomamichel, M.M.**, Hodgins, N.C., Venturelli, P.A., Phelps, N.B.D. (2018). “The Prevalence and Potential Fisheries Consequences of *Heterosporis sutherlandae* in a Minnesota Lake”. *PLOS ONE*. 13(6), e0199580. [doi:10.1371/journal.pone.0199580](https://doi.org/10.1371/journal.pone.0199580).
- 2018 Honsey, A., Martin, T., Schroeder, L., **Tomamichel, M.**, Huempfer, N., Venturelli, P. (2018). “Reeling Them In: Initial Insight into the Factors Affecting Presentation Attendance at American Fisheries Society Meetings”. *Fisheries*. 43(2), 98-105. [doi:10.1002/fsh.10018](https://doi.org/10.1002/fsh.10018).
- 2017 Escobar, L.E., Mallez, S., McCartney, M., Lee, C., Zielinski, D.P., Ghosal, R., Bajer, P.G., Wagner, C., Nash, B., **Tomamichel, M.**, Venturelli, P., Mathai, P., Kokotovich, A., Escobar-Dodero, J., Phelps, N. (2017). “Aquatic Invasive Species in the Great Lakes Region: An Overview”. *Reviews in Fisheries Science & Aquaculture*. 26(1), 121-138. [doi:10.1080/23308249.2017.1363715](https://doi.org/10.1080/23308249.2017.1363715).

BOOK CHAPTERS

- 2026 **Tomamichel, M. M.** (2026). “Temperature Effects on Disease”. In: *The Ecology and Evolution of Marine Parasites and Disease*. Eds: Byers, J.E., Blakeslee, A. H., Wares, J.

MANUSCRIPTS IN PREPARATION

* Indicates undergraduate co-author

- In Revision* **Tomamichel, M. M.**, Indseth, Ella H.*, Smith, Lindsey L., Jones, David D., Chen, X, Shields, Jeffrey D.”Temperature alters sublethal effects of *Hematodinium perezii* infection in juvenile blue crabs (*Calinectes sapidus*)”. *The Journal of Parasitology*.
- Submitted* **Tomamichel, M. M.**, Rohani, P.J., Belcher, C.N., Leonard, E., Braun, M., Frischer, M.E., Byers, J.E. “Falling into phase: temperature and disease cycles converge in a multidecadal dataset of prevalence in commercial shrimp”. *Proceedings of the Royal Society B: Biological Sciences*.
- Submitted* Danforth, I. A., **Tomamichel, M.M.**, Páez, D.J., Wargo, A.R. “Empirical evidence that a novel recovery rate advantage drives the evolution of enhanced virulence due to imperfect vaccination”. *PNAS*.

FELLOWSHIPS AND TRAINEESHIPS (selected)

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| 2024 | Virginia Institute of Marine Sciences: Research, Academic Inclusion, and Scientific Engagement (RAISE) Post-Doctoral Fellowship | \$140,000 |
| 2023 | United States Fisheries and Wildlife Service– Directorate Fellowship Program (USFWS – DFP) | \$8,160 |

2021	Georgia Sea Grant Research Traineeship	\$25,000
2018	National Science Foundation Fellowship - Interdisciplinary Disease Ecology Across Scales (NSF IDEAS)	\$102,000
2017	University of Minnesota – Twin Cities Judd Fellowship for International Travel and Research	\$2,500

GRANTS AND AWARDS (selected)

2026	Thomas M. Frost Award for Excellence in Graduate Research (Ecological Society of America – Aquatic Ecology Section)	\$800
2025	Batten School & VIMS Postdoc Tide Starter Grant	\$2,000
2023	Southeastern Conference (SEC) Dissertation Completion Award	\$35,000
2022	University of Georgia Graduate School Travel Award	\$1,500
2021	Odum School of Ecology Small Grant	\$4,988
2019	University of Georgia Innovative and Interdisciplinary Research Grant	\$2,000

INVITED PRESENTATIONS

2026	Tomamichel, M. M. “Aquatic Disease Ecology in a Changing World: Temperature and Other Environmental Drivers of Disease Dynamics”. Iowa State University.
2026	Tomamichel, M. M. "Fisheries Disease Ecology in a Changing World: Environmental Drivers of Aquatic Host-Parasite Dynamics". University of South Carolina.
2025	Tomamichel, M. M. “Aquatic Disease Ecology in a Changing World: Temperature Effects on Aquatic Host-Parasite Systems”. Texas A&M – Galveston.
2024	Tomamichel, M. M. “Aquatic Disease Ecology in a Changing World: Temperature Effects on Aquatic Host-Parasite Systems”. Institute of Marine and Environmental Technology.
2024	Tomamichel, M. M. “Aquatic Disease Ecology in a Changing World: Temperature Effects on Aquatic Host-Parasite Systems”. Georgia Department of Natural Resources – Coastal Resources Division.
2024	Tomamichel, M. M., Rohani, P., Belcher, C.N., Leonard, E., Braun, M., Hall, R.J., Frischer, M.E., Byers, J.E. “Time Series Analysis Reveals Warmer Temperatures Correlate with Earlier Shrimp Black Gill Disease Annual Emergence and Longer Epidemic Duration”. Georgia Department of Natural Resources – Coastal Resources Division Government Workshop.
2022	Tomamichel, M., Phelps, N.B.D, Venturelli, P.A., February 13-16 th , “Predicting the impacts of <i>Heterosporis sutherlandae</i> on the Yield of a Yellow Perch Population: An Integrated Modeling Approach”. 82 nd Midwest Fish & Wildlife Conference.
2018	Tomamichel, M.M., Kao, S., Enns, E.A., Doll, A., Escobar, L.E., Qiao, H., Craft, M.E., Phelps, N.B.D. “Network Connectivity of Minnesota Waterbodies and Implications for Aquatic Invasive Species Prevention”. Riverkeepers Stakeholder Meeting.

PRESENTATIONS (selected)

- 2026 Danforth, I. A., **Tomamichel, M. M.**, Wargo, A. R., “An empirical test of the imperfect vaccine hypothesis with infectious hematopoietic necrosis virus (IHNV) in rainbow trout.” Lightning talk at the Ecology and Evolution of Infectious Disease Annual Conference.
- 2026 **Tomamichel, M. M.**, Jones, E., Smith, L., Baker, P., Jones, D. D., Chen, X., Shields, J. D. “Filtering Disease: Do Eastern Oysters Produce a Dilution Effect on *Hematodinium perezii* in Blue Crabs?” Poster at the Ecology and Evolution of Infectious Disease Annual Conference.
- 2026 **Tomamichel, M. M.**, Indseth, E., Smith, L., Jones, D., Chen, X., Shields, J. “Temperature Alters Sublethal Effects of *Hematodinium perezii* Infection in Juvenile Blue Crabs (*Callinectes sapidus*). Benthic Ecology Meeting.
- 2025 **Tomamichel, M.M.**, “Temperature and Seasonality Effects on Aquatic Host-Parasite Ecology”. Ecosystem Health Departmental Seminar, Virginia Institute of Marine Science.
- 2025 Danforth, I.A., **Tomamichel, M.M.**, Ramos, A.R., Wargo, A.R., “The Impact of an IHNV DNA Vaccine on Transmission and Virulence Evolution in Rainbow Trout (*Oncorhynchus mykiss*).” American Fisheries Society Fish Health Section Summer Seminar Series. **Awarded best student presentation.**
- 2025 Danforth, I.A., **Tomamichel, M.M.**, Wargo, A.R., “Evaluating the Risk of Infectious Hematopoietic Necrosis Virus (IHNV) Virulence Evolution in Vaccinated Rainbow Trout (*Oncorhynchus mykiss*)”. 48th Eastern Fish Health Workshop.
- 2025 **Tomamichel, M.M.**, “Temperature Effects on Marine Disease”. Benthic Ecology Meeting.
- 2024 Byers, J.E., **Tomamichel, M.M.**, Walters, T.L., Fox, E.M.K, Rivera, A., O’Hare, M., Minniefield, A., Braun, M. J., Hall, R.J. Frischer, M.E., “Changes in Transmission Rates Drive Seasonal Patterns of Shrimp Black Gill Disease”. Ecology Society of Chile.
- 2024 Irwin, B. J., **Tomamichel, M. M.**, Frischer, M. E., Hall, R. J., Davis, A. D. E., Bliss, T. H., Rohani, P. and Byers, J. E., “Structured Decision Making for Managing the Threat of Infectious Disease in Fisheries”. 154th annual meeting of the American Fisheries Society.
- 2024 **Tomamichel, M.**, Walters, T., Fox, E.M.K, Rivera, A., O’Hare, M., Minniefield, A., Braun, M., Hall, R.J., Frischer, M.E., Byers, J.E., “Changes in Transmission Rate Drives Seasonal Patterns of Shrimp Black Gill Disease Caused by the Apostome Ciliate *Hyalophysa lynni*. The American Society of Parasitologists Annual Meeting. **Awarded Best Student Paper.**
- 2023 **Tomamichel, M.**, Lowe, K.I., Arnold, K. M.H., Frischer, M.E., Irwin, B.J., Hall, R.J., Osenberg, C.W., Byers, J. E. May 24 and August 10, The Effect of Temperature, Host, and Parasite Traits on Parasite-Induced Mortality in Fisheries: A Meta-Analysis”. Ecology and Evolution of Infectious Disease Conference and the Ecological Society of America Annual Meeting.
- 2023 **Tomamichel, M.**, Lowe, K.I., Arnold, K. M.H., Frischer, M.E., Irwin, B.J., Hall, R.J., Osenberg, C.W., Byers, J. E. The Effect of Temperature, Host, and Parasite Traits on Parasite-Induced Mortality in Fisheries: A Meta-Analysis”. Odum School of Ecology Graduate Student Symposium. **Awarded Best Talk in Section.**
- 2021 **Tomamichel, M.**, Byers, J., Hall, R. J., Walters, T., Frischer, M., “Seasonal Changes in Transmission and Treatment of *Hyalophysa lynni* Infection in Commercial Shrimp” (Virtual Poster). Ecological Society of America and Ecology of Infectious Disease Annual Conferences.
- 2020 Ragonese, I., **Tomamichel, M.M.**, Wilson, C. “Disease Emergence: Multi-Scale Factors that Tip Host-Parasite Relationships from Relatively Benign to Pathogenic”. Odum School of Ecology Graduate Student Symposium.

2017	Tomamichel, M. , “Not a Nitpicky Problem: Factors Effecting the Density of Sea Lice (<i>Caligus</i> sp.) in Chilean Salmon Farms” (Poster). Judd Fellowship Symposium.
2017	Tomamichel, M. , Kleinhans, M., Phelps, N., Craft, M., Venturelli, P. “Predicting the Impacts of <i>Heterosporis sutherlandae</i> on the Yield of a Yellow Perch Population: An Integrated Modeling Approach.” (Poster). Ecology and Evolution of Infectious Disease Annual Conference.
2017	Tomamichel, M. , Venturelli, P., Phelps, N., Hodgins, N. “An Integrated Approach to Modeling <i>Heterosporis sutherlandae</i> in Leech Lake, MN.” American Fisheries Society – Fish Health Section. Awarded Best Student Paper.

MENTORING EXPERIENCE

2025-2026	Co-mentored five undergraduate technicians in field data collection, experimental design, data manipulation and analysis, and manuscript preparation at William & Mary
2025-2026	Mentored three undergraduate math students in ecological mechanistic and statistical modeling at William & Mary
2024	Co-mentored an undergraduate student producing her senior thesis at William & Mary
2023	Co-mentored an undergraduate student producing a poster presented at the annual Odum School of Ecology Graduate Student Symposium
2022	Co-mentored two undergraduate students as they pursued experiential learning credits
2021	NSF Research Experience for Undergraduates – Co-mentor, University of Georgia
2021	Skidaway Institute of Oceanography’s Community – Engaged Internship – Co-mentor, Skidaway Insitute of Oceanography
2021	Center for Undergraduate Research Opportunity – Co-mentor, University of Georgia
2020-2021	Co-advised two undergraduates during independent study. Produced a poster and two manuscripts, University of Georgia
2020-2021	Co-supervised undergraduate lab technician at the University of Georgia’s Skiday Institute of Oceanography
2019-2021	Co-supervised three employees for meta-analysis data extraction, University of Georgia
2017-2019	Co-supervised two undergraduate and one high school student, University of Georgia
2017-2019	Co-supervised two employees for emprical studies on an invasive pathogen study, University of Minnesota
2016	Research Experience for Undergraduate – Co-advisor, University of Minnesota

TEACHING EXPERIENCE

2025-2026	Instructor and developer of “Research Reviews”, a research development and science communication seminar, Virginia Institute of Marine Science
2024-2025	Co-instructor and developer for “Scientific Writing and Applications” workshop, Virginia Institute of Marine Science
2023	Teaching Assistant for undergraduate course: “Ecology Lab”, University of Georgia.

2022	Guest instructor for Marine Science Methods course: “Black Gill in Georgia’s Shrimp”, Sapelo Island, University of Georgia
2022	Teaching Assistant for undergraduate course: “Ecological Basis of Environmental Issues”, University of Georgia
2021-2022	Coordinator and curriculum developer for graduate student course: “Machine Learning for Ecologists”, University of Georgia.
2019-2023	Invited lecturer in Freshman odyssey course, “One Health and Zoonotic Spillover”, University of Georgia.
2017	Guest lecturer to undergraduate class: “Fish Immobilization”, University of Minnesota.

SERVICE

2026	Peer Reviewer for <i>Nature Ecology & Evolution</i> , <i>Marine Ecological Progress Series</i> and <i>Estuaries and Coasts</i> .
2026	Judge for STEAM-H Essay Contest and Scholarship Program hosted by the Virginia Council on Women.
2025	Peer Reviewer for <i>Philosophical Transactions of the Royal Society of London</i> , <i>Estuaries and Coasts</i> , and <i>Journal of Animal Ecology</i>
2025	Research, Academic Inclusion, and Scientific Engagement Post – Doctoral Fellowship Hiring Committee Member
2024	National Science Foundation Biological Oceanography Review Panel Member
2024	Graduate Student Representative on the Center for the Ecology of Infectious Diseases Seed Grant Review Panel – University of Georgia
2022-2023	Co-chair of Graduate Student Organization – University of Georgia
2021-2022	Co-chair Graduate Student Symposium – University of Georgia
2021	Graduate Student Representative on Faculty Search Committee – University of Georgia
2020-2021	Advocates for Anti-Racism in Life Sciences
2020-2021	Graduate Student Organization Seminar Committee Representative – University of Georgia
2018-2021	Graduate Student Symposium - Member on various committees – University of Georgia
2016	Bighead Carp Risk Assessment Facilitator – University of Minnesota

OUTREACH

2026	Teachers Research Internship – Mentor: mentored two public grade schoolteachers over a two week internship where teachers shadowed scientists to generate lesson plans for future use.
2025-2026	Marine Science Day – Volunteer: educated the public on the impacts of disease, climate, and harvest on blue crab populations.
2025	Eastern Shore Lab Teacher’s Education Workshop – presented on the ecological factors influencing disease dynamics to local grade-school teachers. Assisted in the development of lesson plans about these concepts.

2023-2024	<i>Caretta Research Project</i> – Volunteer: Assisted in various projects supporting sea turtle conservation education.
2020-2023	<i>Eco-Reach</i> – Volunteer: Participated in education and outreach activities with local underserved elementary and middle schools several times a year
2018-2022	<i>Athens Science Observer</i> – Editor and Author
2017	University of Minnesota Conservation Sciences Graduate Program – Social Media Coordinator
2010- 2011	Racine Zoo – Conservation Education Intern and Camp Counselor

WORKSHOPS ATTENDED

2026	Integrating Ecology and Evolution of Infectious Disease Research into Undergraduate Courses
2026	GenAI: A Conversation About Teaching & Research at VIMS
2025	Implicit Bias in Hiring Practices
2024	Five Shifts in Research and Teaching Practices Towards a More Inclusive and Ethical Ecology – Moving Knowledge to Action
2023	Five Practices of Decoloniality in Ecology
2020	Exploring Representation and Identity within the Sciences
2020	Intro to Git
2020	Intro to Spatial Data Analysis
2019	Center for the Ecology of Infectious Diseases – IDEAS Computational Workshop
2019	Science Communication Convention
2018	Conservation Medicine One Health Workshop

PROFESSIONAL ASSOCIATIONS

2024+	American Society of Parasitologists
2018+	Ecological Society of America – Early Career and Aquatic Ecology Sections
2015+	American Fisheries Society – Fish Health Section
2018-2024	University of Georgia Odum School of Ecology Graduate Student Organization

SCIENCE COMMUNICATION PUBLICATIONS

2022	Tomamichel, M. (2022). For the Love of Shrimp: Investigating Shrimp Black Gill Disease on the Georgia Coast [Blog post]. Retrieved from: https://gacoast.uga.edu/studentblog/for-the-love-of-shrimp-investigating-shrimp-black-gill-disease-on-the-georgia-coast/
2021	Tomamichel, M. (2021). Behind Brown Eyes: Theory of Mind in our Canine Companions [Blog post]. Retrieved from: https://athensscienceobserver.com/2021/11/30/behind-brown-eyes-theory-of-mind-in-our-canine-companions/

- 2020 Tomamichel, M. (2020). The Fault in Our Epigenome: The Science Behind Aging [Blog post]. Retrieved from: <https://athensscienceobserver.com/2020/10/29/the-fault-in-our-epigenome-the-science-behind-aging/>
- 2020 Tomamichel, M. (2020). The Dilution Effect: Placebo or Panacea? [Blog post]. Retrieved from: <https://athensscienceobserver.com/2020/03/26/the-dilution-effect-placebo-or-panacea/>
- 2019 Tomamichel, M. (2019). Divide and Conquer! A Parasitic Worm's Key to Survival. [Blog post]. Retrieved from: <https://athensscienceobserver.com/2019/11/18/divide-and-conquer-a-parasitic-worms-key-to-survival/>
- 2019 Tomamichel, M. (2019). Emerging Diseases and Wildlife: How Small Changes Can Have Big Consequences [Blog post]. Retrieved from <https://athensscienceobserver.com/2019/03/07/emerging-diseases-and-wildlife-how-small-changes-can-have-big-consequences/>
- 2018 Tomamichel, M. (2018). Redeeming Typhoid Mary [Blog post]. Retrieved from: <https://athensscienceobserver.com/2018/10/17/redeeming-typhoid-mary/>