

# Jeffrey T. Miller

University of Minnesota · Microbial and Plant Genomics

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## EDUCATION AND APPOINTMENTS:

University of Minnesota, Postdoctoral Scholar

January 2019-Current

- Advisor: Suzanne McGaugh

University of California, Davis, Ph.D., Pharmacology and Toxicology

December 2018

- Advisor: Andrew J. Whitehead

Saint Cloud State University, MS, Cell and Molecular Biology

May 2011

- Advisor: Heiko Schoenfuss

Minnesota State University Moorhead, BA, Ecology and Evolutionary Biology

May 2009

- Advisor: Brian D. Wisenden

## RESEARCH EXPERIENCE:

Postdoctoral Scholar - University of Minnesota, Department of Ecology, Evolution, and Behavior

- *Research: Identification of the premature termination codons and molecular mechanisms that contribute to cave and surface populations of *Astyanax mexicanus*.* Analysis includes multiple population whole-genome sequences and gene expression profiles to associate genetic variation with cavefish phenotypes.

Graduate Research - University of California Davis, Department of Environmental Toxicology

- *Dissertation: Mapping the Genetic Basis of Rapid Evolution to Industrial Pollutants in Atlantic Killifish.* Conducted a comparative analysis of genome structure of killifish and other sequenced vertebrates. Used a quantitative genomic approach to determine the architecture of rapidly evolved resistance to the teratogenicity of pollutants in coastal killifish populations.

Graduate Research - Saint Cloud State University, Department of Biology

- *Thesis: Contribution of Wastewater to Endocrine Disruption in Minnesota Rivers.* Developed tools and conduct analyses to determine the contribution of environmental variation and endocrine disruptors on the behavior and physiology (protein expression) of fish.

Undergraduate Research - Minnesota State University Moorhead, Biosciences Department

- *Research: Chemical ecology of alarm-cues in freshwater fish.* Designed and conducted field and laboratory trials to determine if *Umbra limi* skin extract elicits anti-predator behavior.

## AWARDS AND FUNDING:

National Institute of Environmental Health Sciences Predoc Training Fellowship (2016-2018)

Henry A. Jastro Graduate Research Award (2018)

National Science Foundation GK-12 Teaching Fellowship (2014-2015)

Western Society of Naturalists Travel Award (2015)

Society of Environmental Toxicology and Chemistry Research Scholarship (2014)

George Freiderich Wildlife Protection Fund Fellowship (2013)

Society for Environmental Toxicology and Chemistry Travel Award (2012)

## PUBLICATIONS:

**Miller, J.**, Reid, N., Nacci, D., Whitehead, A. (2019) Developing a High-Quality Linkage Map for the Atlantic Killifish *Fundulus heteroclitus*. *G3: Genes, Genomes, Genetics* (9), 9 2851-2862.

Rochman, C., Tahir, A., Williams, S., Baxa, D., Lam, R., **Miller, J.**, Teh, F.C., Werorilangi, S., Teh, S. J. (2015) Plastic in seafood: Plastic Debris in Fish and Bivalves Sold for Human Consumption. *Scientific Reports* (5), 14340.

Dubansky, B., Whitehead, A., **Miller, J.**, Rice, C. D., & Galvez, F. (2013) Multitissue Molecular, Genomic, and Developmental Effects of the Deepwater Horizon Oil Spill on Resident Gulf killifish (*Fundulus grandis*). *Environmental Science and Technology* (47), 5074–5082.

Kolok, A., **Miller, J.**, Schoenfuss, H. (2012) The Mini Mobile Environmental Monitoring Unit: a Novel Bio-Assessment Tool. *Journal of Environmental Monitoring* (14) 1, 202-208

Wisenden, B., Karst, J., **Miller, J.**, Miller, S.D. Fuselier, L. (2008) Anti-Predator Behavior in Response to Chemical Cues in *Umbra limi*. *Environmental Biology of Fishes* (82), 85-92

## IN PREPERATION:

**Miller J.**, Clark, B., Reid, N., Nacci, D., Champlain, D., Whitehead, A. Genetic Architecture of Pollution Resistance in Parallel Populations of Killifish.

**Miller J.**, Gallop, J., Weagley, J., Sung J., Stahl, B., Jaggard, J., Jeffery, W., Borowsky, R., Ornelas-García, C., Maldonado, E., Warren, W., Keene, A., Rohner, N., McGaugh, S. A Population Genomics Approach Reveals Premature Termination Codons that Impact Morphological and Behavioral Evolution in *Astyanax mexicanus*.

Warren, W., Aspiras, A., Boggs, T.E., Borowsky, R., Carlson, B., Damen, F., Ferrufino, E., Gross, J., Keene, A., Kenzior, A., Kowalko, J., Lemieux, M. E., McGaugh, S., **Miller, J. T.**, Mommersteeg, M., Moran, R., Peuß, R., Riddle, M., Sifuentes-Romero, I., Stahl, B., Sung, J. Y., Tabin, C., Thakur, S., Rohner, R. A high-resolution genome of *Astyanax mexicanus*. surface fish for comparing population-specific genetic differences contributing to trait evolution.

## PLATFORM PRESENTATIONS:

**Miller, J.**, Clark, B., Champlin, D., Nacci, D., Whitehead, A.W. November 2018. Genetic Architecture of Pollution Resistance in Multiple Populations of Killifish. Society for Environmental Toxicology and Chemistry.

**Miller, J.**, Cherr, G., Whitehead, A. April 2015. 'Aquatic Copper-Oxide Nanoparticle Exposure May Target Osmoregulatory Plasticity of Fish from Salinity Variable Environments.' Northern California Society of Environmental Toxicology and Chemistry.

**Miller, J.**, Martinovic, D., Bartel, SE., Schoenfuss, HL. May 2011. 'Abiotic Influences on Estrogenic Biomarker Expression in Riverine Conditions of Exposure to Treated Wastewater.' International Conference on Pollutant Responses in Marine Organisms.

**Miller, J.**, Martinovic, D., Bartel, SE., Schoenfuss, HL. March 2011. 'How Does Treated Wastewater Effluent Affect the Biology of Fish in Receiving Streams?' Minnesota Pollution Control Agency Wastewater Operations Conference.

**Miller, J.**, Martinovic, D., Bartel, SE., Schoenfuss, HL. March 2011. 'Bioassessment of Wastewater's Estrogenic Impacts: Various Methods of Exposure. Can Biomarkers Be Altered Differentially?' Mid-West Society of Environmental Toxicology and Chemistry.

## POSTER PRESENTATIONS:

**Miller, J.,** Clark, B., Champlin, D., Nacci, D., Whitehead, A.W. November 2018. Genetic Architecture of Pollution Resistance in Multiple Populations of Killifish. Genetics Society of America: Population, Evolutionary, and Quantitative Genetics.

**Miller, J.,** Clark, B., Champlin, D., Nacci, D., Whitehead, A.W.(2017) The Genetic Architecture of Pollution Resistance Among Convergent Populations of Killifish (*Fundulus heteroclitus*). National Meeting for Society for Environmental Toxicology and Chemistry.

**Miller, J.,** Cherr, G., Whitehead, A. (2014). Impairment of Killifish Osmoregulatory Function by Aquatic Nano-Copper Oxide Exposure. Western Society of Naturalists Annual Meeting.

**Miller, J.,** Pilcher, W., Champlin, D., Proestou, D., Nacci, D., Whitehead, A.W. (2012). Genomic responses to PAHs in 2 pollution tolerant populations of *Fundulus heteroclitus*. National Meeting for Society for Environmental Toxicology and Chemistry.

**Miller, J.,** Martinovic, D., Bartel, S. E., Schoenfuss, H. L. (2010). Quantifying Exposure & Effects of Endocrine Active Chemicals in the Environment through Parallel Field and Laboratory Studies of Bioindicators in *Pimephales promelas*. National Meeting for Society of Environmental Toxicology and Chemistry.

## TEACHING EXPERIENCE:

*Guest Lecture* - University of Minnesota, Zoology (November 25th 2019)

*Invited Lecture* - Bowdoin College, Ocean Change Evolution (October 7th 2019)

*Instructor* - Data and Software Carpentry Workshops:

- Genomics (R/Bash), California State University, Monterey Bay (March 22-23 2018)
- Python (Python/Git/Bash), Minnesota State University (October 27-28 2017)

*Teaching Assistant* - Data Intensive Biology Summer Institute, UC Davis

- Analyzing Next-Generation Sequencing Data Workshop (Summer 2017 and 2018)

*GK-12 Teaching Fellow* - National Science Foundation:

- UC Davis Bodega Marine Laboratory (Fall 2014-Spring 2015)

*Graduate Teaching Assistant* - University of California, Davis

- Introduction to Biology: Essentials of Life on Earth (Fall 2017-Current)
- Introduction to Biology: Principles of Ecology and Evolution (Fall 2016-2017)
- Environmental Toxicology: Biological Effect of Toxicants (Fall 2014)

*Graduate Teaching Assistant* - Louisiana State University

- Introduction to Biology for Science Majors (Fall 2011-Spring 2012)

## EMPLOYMENT:

*Graduate Research Assistant* – St. Cloud State University Toxicology (Spring 2010-Fall 2011)

*Biological Science Technician* – United States Park Service (Summer 2010)

*Wilderness Technician* – United States Forest Service (Summer 2008 and 2009)

*Outdoor Education Coordinator* - Student Conservation Assoc. (Winter 2007-Summer 2008)

## **AFFILIATE MEMBERSHIPS:**

UC Davis Center for Population Biology	(Winter 2017-2019)
UC Davis Data Science Initiative	(Winter 2017-2019)
UC Davis Coastal and Marine Sciences Institute	(Winter 2016-2019)

## **COMMITTEES AND SERVICE:**

Evolutionary Applications Reviewer	(2018-Current)
UC Davis Bodega Marine Laboratory Marine Ecology Outreach	(2013-2018)
UC Davis Pharmacology and Toxicology Graduate Admissions Committee	(Winter 2013)
NorCal Society for Environmental Toxicology and Chemistry Board of Directors	(2014-2015)
Archbold Biological Station Volunteer Herpetology and Stream Ecology	(Summer 2011)
Student Conservation Association Outdoors Education Program Coordinator	(Winter 2008)

## **REFERENCES:**

Dr. Andrew Whitehead – University of California, Davis  
4138 Meyer Hall 1 Shields Avenue, Davis, California 95616  
Professor of Environmental Toxicology  
Phone: (530) 754-8982 – Email: [awhitehead@ucdavis.edu](mailto:awhitehead@ucdavis.edu)

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2099 Westshore Rd, Bodega Bay, CA 94923  
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Dr. Susan Williams - University of California, Davis  
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