

Gail Schwieterman, Ph.D.

Carleton College
gschwieterman@carleton.edu
(614) 570-7567
gailschwieterman.com

EDUCATION

- Doctor of Philosophy in Marine Science** **2020**
Virginia Institute of Marine Science (VIMS), William & Mary
“The impacts of acute hypoxic exposure and other concomitant stressors on the cardiorespiratory physiology of coastal elasmobranch fishes”
- Bachelor of Arts, Major: Biology Minor: Chemistry** **2012**
Oberlin College

POSTDOCTORAL POSITIONS

- Chesley Postdoctoral Faculty Fellow; Biology Department** **2021-2023**
Carleton College
- Postdoctoral Fellow; Ecology, Evolution, & Marine Biology Department** **2020-2021**
University of California, Santa Barbara
“Serological Drivers of Cardiorespiratory Collapse at High Temperatures in a Marine Ectotherm”

PEER-REVIEWED PUBLICATIONS (*indicate undergraduate mentee)

Journal Articles – In Review

11. Shiffman D, Arguedas Alvarez T, Bangle CW, Boyt R, Cote I, Daly-Engel TS, Davis ACD, Gaskins LC, Graham J, Graham R, Johri S, Macdonald CC, Paig-Tran E, Roca A, **Schwieterman GD**, Whitenack LB, Wiley TR, Ferry LA. 2022. What can Professional Scientific Societies do to Improve Diversity, Equity, and Inclusion: A Case Study of the American Elasmobranch Society. *Frontiers in Education, STEM Education*.

Journal Articles – Published

10. **Schwieterman GD**, Hardison EA, Eliason EJ. 2022. Effect of thermal variation on the cardiac thermal limits of a eurythermal marine teleost (*Girella nigricans*). *Current Research in Physiology*, 5 109-117. <https://doi.org/10.1016/j.crphys.2022.02.002>
9. Bouyoucos IA, Sempendorfer CA, Planes S, **Schwieterman GD**, Weideli OC, Rummer JR. 2022. Applying ecological and physiological concepts to identify coastal reef shark nursery areas. *Marine Ecology Progress Series*, 682 137-152. <https://doi.org/10.3354/meps13941>
8. **Schwieterman GD**, Rummer JL, Bouyoucos IA, Bushnell PG, Brill RW. 2021. A lack of red blood cell swelling in five elasmobranch fishes following air exposure and

exhaustive exercise. *Journal of Comparative Biology and Physiology Part A*, 258: 110978

7. **Schwieterman GD**, Winchester MM, Sheils HA, Bushnell PG, Bernal D, Marshall HM, Brill RW. 2021. Impacts of simulated capture stress and adrenergic stimulation on elasmobranch cardiac function measured using isolated myocardial strips. *Comparative Biology and Physiology: Part B*. 191 127-141. <https://doi.org/10.1007/s00360-020-01328-8>
6. Bouyoucos IA, Watson S, Planes S, Simpendorfer CA, **Schwieterman GD**, Whitney NM, Rummer JL. 2020. The power struggle: Assessing interacting global change stressors via experimental studies on sharks. *Scientific Reports*, 10(1) 1-12. <https://doi.org/10.1038/s41598-020-76966-7>
5. **Schwieterman GD**, Bouyoucos IA, Rummer J, Brill RW. 2019. Analyzing elasmobranch blood samples in the field: Blood stability during storage and validation of the Hemocue® hemoglobin analyzer. *Conservation Physiology* 7(1), cozo81 <https://doi.org/10.1093/conphys/cozo81>
4. **Schwieterman GD**, Crear DP, Anderson BA, Lavoie D*, Sulikowski JA, Bushnell P, Brill RW. 2019. Combined effects of acute temperature change and elevated pCO₂ on the metabolic rates and hypoxia tolerances of Mid- and North-Atlantic fishes: clearnose skate (*Rostaraja eglanteria*), summer flounder (*Paralichthys dentatus*) and thorny skate (*Amblyraja radiata*). *Biology*, 8(3), 56. <https://doi.org/10.3390/biology8030056>
3. Crear DP, Brill RW, Bushnell PG, Latour RJ, **Schwieterman GD**, Steffen RM*, Weng KC. 2019. The impacts of warming and hypoxia on the performance of an obligate ram ventilator. *Conservation Physiology*. 7 (1): cozo26; [doi:10.1093/conphys/cozo26](https://doi.org/10.1093/conphys/cozo26)
2. Whitney NM, White CF, Gleiss AC, **Schwieterman GD**, Anderson P, Hueter RE, and GB Skomal. 2016. A novel method for determining post-release mortality, behavior, and recovery period using acceleration data loggers. *Fisheries Research*. 183: 210-221. <https://doi.org/10.1016/j.fishres.2016.06.003>
1. Whitney NM, Taquet M, Brill R, Girard C, **Schwieterman GD**, Dagorn L, and KN Holland. 2016. Swimming depth of dolphinfish (*Coryphaena hippurus*) associated and unassociated with fish aggregating devices. *U.S. Fishery Bulletin*. 114 (4): 426-434. <https://doi.org/10.7755/FB.114.4.5>

Book Chapters

1. Eliason EJ, Van Wert J, **Schwieterman GD**. 2022. Applied Aspects of the Cardiorespiratory System, in: *Fish Physiology 39A: Conservation Physiology for the Anthropocene – A Systems Approach*. Elsevier, London.

CONFERENCE PRESENTATIONS (*indicate undergraduate mentee)

Oral Presentations

7. Schwieterman, GD, Hardison, EA, Eliason, EJ. When they go low, we go high: Jensen's Inequality in a eurythermal marine teleost. Society of Experimental Biology. Virtual, July 2021
6. Schwieterman, GD, Hardison, EA, Eliason, EJ. A Change of Heart: Jensen's Inequality in a eurythermal marine teleost. Canadian Society of Zoologists. Virtual, May 2021
5. Schwieterman GD, Lavoie D*, Crear D, Anderson B, Sulikowski JA, Brill RW. Temperature and pH Changes on Metabolic Rates and Hypoxia Tolerance of clearnose skate (*Rostroraja eglanteria*), summer flounder (*Paralichthys dentatus*), and thorny skate (*Amblyraja radiata*). Joint Meeting of Ichthyologists and Herpetologists, American Elasmobranch Society, Snowshoe, UT, Jul 2019
4. Schwieterman GD, Bouyoucos IA, Rummer J, Brill RW. Analyzing elasmobranch blood samples in the field: Blood stability during storage and validation of the Hemocue® hemoglobin analyzer. AFS Tidewater Chapter Meeting, Salisbury, MD, Feb 2019
3. Schwieterman GD, Lavoie D*, Crear D, Anderson B, Sulikowski JA, Brill RW. Interactions of Acute Temperature and pH Changes on Metabolic Rates and Hypoxia Tolerance: A Comparison Between Mid- and North-Atlantic Species. AFS Annual Meeting, Atlantic City, NJ, Aug 2018
2. Schwieterman GD, Winchester MM, Bushnell P, Brill RW. The Impact of Simulated Capture Stress on the Elasmobranch Heart. Sharks International, Joao Pessoa, Brazil, Jun 2018
1. Schwieterman GD, Winchester MM, Bushnell P, Brill RW. Capture Stress and the Elasmobranch Heart. American Fisheries Society, Tidewater Chapter Annual Meeting, Moorehead City, NC, Jan 2018

Poster Presentations

7. Schwieterman GD, Lavoie D*, Crear D, Anderson B, Sulikowski JA, Brill RW. Temperature and pH Changes on Metabolic Rates and Hypoxia Tolerance of clearnose skate (*Rostroraja eglanteria*), summer flounder (*Paralichthys dentatus*), and thorny skate (*Amblyraja radiata*), Ocean Sciences, San Diego, CA, Feb 2020
6. Olive D*, Schwieterman GD, Bushnell P, Brill RW. Red Blood Cell Swelling in the Clearnose Skate (*Rostroraja eglanteria*). Association for the Sciences of Limnology and Oceanography, Puerto Rico, Feb 2019.
5. Lavoie DR*, Schwieterman GD, Brill RW. Aerobic Scope and Hypoxia Tolerance of the Clearnose Skate (*Raja eglanteria*) Under Different Temperature and pH Conditions. Biennial Mtg. Ocean Sciences Meeting, Portland, OR, Feb 2018

4. Schwieterman GD, Brill RW. The influence of acute temperature changes on metabolic scope and hypoxia tolerance of clearnose skates (*Raja eglanteria*) under rising temperatures. American Fisheries Society, Tidewater Chapter Annual Meeting, Virginia Beach, VA, Mar 2017
3. Schwieterman GD, Lear K, Marshall H, Morris J, White C, Hueter R, Skomal G, Whitney N. Post-Release Mortality of Coastal Sharks in a Commercial Longline Fishery. Joint Meeting of Ichthyologists and Herpetologists, American Elasmobranch Society, New Orleans, LA, Jul 2016
2. Schwieterman GD, Copeman L, Ryer C. The effect of dietary lipids and fatty acids on growth rates of juvenile tanner crabs (*Chionoecetes bairdi*). Association for the Sciences of Limnology and Oceanography, New Orleans, LA, Feb 2013
1. Schwieterman GD, Copeman L, Ryer C. The effect of dietary lipids and fatty acids on growth rates of juvenile tanner crabs (*Chionoecetes bairdi*). Society for the Advancement of Chicanos and Native Americans in Science, Seattle, WA, Oct 2012

AWARDS AND HONORS

Finalist, Presidents Award, Canadian Society of Zoology	2021
Best Paper, Biology	2021
Dean's Fellowship, VIMS (\$6,000)	2019
Third Place Best Student Oral Presentation, AFS Tidewater Chapter	2019
Norfolk Southern Fellowship (\$3,800)	2017
Best Poster, AFS Tidewater Chapter Meeting	2017
Hargis Fellowship, VIMS Foundation (\$2,200)	2016
VIMS Foundation Fellowship (\$4,000 over two years)	2015 & 2016
Young Professionals Recruitment Award, American Elasmobranch Society	2015
Outstanding Poster Presentation in Marine Science, Society for the Advancement of Chicanos and Native Americans in Science	2012

RESEARCH FUNDING (\$337,450 Total)

NSF Postdoctoral Research Fellowship in Biology (\$168,000, Declined)	2021
Tri-County Blood Bank Post-Doctoral Fellowship (\$57,000)	2020
American Elasmobranch Society Travel Grant (\$500)	2019
VIMS Graduate Student Travel Grant (\$600)	2019
NSF Graduate Research Opportunities Worldwide (\$5,000)	2018
International Women's Fishing Association Scholarship (\$1,750)	2017 and 2018
VIMS Travel Grant (\$1,500 over three years)	2017 - 2019
VIMS Graduate Student Association Research Grant (\$1,000)	2017
VIMS Academic Studies Research Grant (\$3,900 over two years)	2016 and 2017
Seaside Foundation Scholarship (\$1,200 over two years)	2016 and 2017
VIMS Equipment Trust Fund Grant (\$3,000)	2016
NSF Graduate Research Fellowship (\$138,000 over three years)	2015 - 2020
Thomas J. Watson Fellowship (\$28,000)	2013 - 2014

NSF-BIO REU Travel Scholarship (\$1,000)	2013
Mote Intern Scholarship (\$2,000)	2013
Battelle Scholarship (\$2,000 for tuition)	2011 and 2012
John F. Oberlin Scholarship (\$91,000 tuition over four years)	2009 - 2012

RESEARCH EXPERIENCE

Researcher and Grant Writer, Mote Marine Laboratory, FL	2014 - 2015
Fisheries Observer, Pretoma, Costa Rica	2013
Intern, Behavioral Ecology and Physiology, Mote Marine Laboratory, FL	2013
NSF REU Intern, Hatfield Marine Science Center, OR	2012
Winter Fellow, Woods Hole Oceanographic Institute, MA	2012

TEACHING EXPERIENCE

Lead Instructor

BIOL 126 "Energy Flow in Biological Systems with Lab", Carleton College	2023
- Introductory course for majors and nonmajors	
BIOL 262 & 263 "Ecological Physiology with Lab", Carleton College	2022
- Upper-level lab-based course for biology majors	
BIOL 360 "Climate Change Beneath the Waves", Carleton College	2021 and 2022
- Upper-level seminar course for biology majors	
MSCI 398 "Caught! Implication of Capture Stress", William & Mary	2020
- Self-designed, upper-level course for marine science minors	
EXCO 334 "One Fish Two Fish: An Introduction to Marine Life", Oberlin College	2012
- Self-designed, one credit course for non-biology majors	

Teaching Assistant

MSCI 330 "Introduction to Marine Science", William & Mary	2020
- Graded exams and homework, built Blackboard exams and assignments, held office hours, wrote study guides	
MSCI 331 "Field Studies in Marine Environments", William & Mary	2018 and 2019
- Assisted in lab and field experiments; graded exams, advocated for students; oversaw student meals, lodging, and transportation at the field lab	

Guest Lectures

Hormonal Control of Metamorphosis, University of North Florida	2022
Applied Shark Physiology, University of California, Santa Barbara	2021
Thermal Physiology, University of California, Santa Barbara	2020
Introduction to Marine Science, William & Mary	2020
Field Studies in Coastal Marine Environments, William & Mary	2017-2019
Ocean Acidification, William & Mary	2017

Instructional Development

New Faculty Workshop	2021
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- Role-played difficulty teaching scenarios, critiqued colleagues' teaching, practiced integrating UDL into our course design
Center of Innovative Teaching, Research and Learning Workshops, 2021
University of California, Santa Barbara
- Towards more inclusive active learning classrooms: How groups of students are differentially impacted by active learning
Engaging Teaching Symposium, University of California, Santa Barbara 2020
- Attended workshops on decolonizing the classroom, recipes for learning, and virtual instruction
MSCI 508: College Science Teaching, VIMS 2019
- Developed curriculum to include active learning strategies, inclusive language, and techniques for undergraduate student engagement

UNDERGRADUATE MENTORING EXPERIENCE

Anwasha Mukherji, Carleton College	2022
Daven Rock, Carleton College	2022
Eloïse Cowan, Carleton College	2022
Bella Giglio, University of California, Santa Barbara	2020
Nilanjana Das, VIMS	2019
Brenda Pereda Rodriguez, VIMS	2019
Bethany Brodbeck, VIMS	2019
Julie Brücker, VIMS	2019
Connor Van Vooren, VIMS	2019
Danielle Olive, NOAA EPP Program	2018
Danielle Lavoie, NOAA Hollings Program	2017

OUTREACH AND EDUCATION PUBLICATIONS

3. Schwieterman, G. 2020. Water, water everywhere! Any to drink? Conservation Physiology in Action. 8(1) coaa071, <https://doi.org/10.1093/conphys/coaa071>
2. Schwieterman, G. 2019. Is Droning on Becoming Unbearable? Conservation Physiology in Action. 7(1) coz034, <https://doi.org/10.1093/conphys/coz034>
1. Schwieterman, G. Can't Catch My Breath! A Study of Metabolism in Fish Subjects: Environmental Science, Marine/Ocean Science, Life Science/Biology Grades: 6-8. Virginia Scientists & Educators Alliance (VA SEA), Virginia Institute of Marine Science, College of William & Mary. Virginia Institute of Marine Science, April 21, 2017.

OUTREACH AND EDUCATION PRESENTATIONS

12. Fish Physiology: The Whys and Hows, Invited Lecture, University of North Florida, Jacksonville, FL, January 2022
11. Fish Physiology: The Whys and Hows, Invited Lecture, Carleton College, Northfield, MN, April 2021

10. Careers After Graduate School, Invited Panelist, Professional Development Lecture Series, VIMS, Gloucester Point, VA, April 2021
9. Shark Physiology at VIMS, Invited Lecture, Research Experience for Undergraduates at VIMS, Wachapreague, VA, May 2019
8. The End of the Line: An Inside Scoop, Invited Lecture, A Scientist Walks Into a Bar, Alewerks Brewery, Williamsburg, VA, Apr 2018
7. Red Blood Cell Swelling in Elasmobranch Fishes? Fisheries Science Departmental Seminar, Virginia Institute of Marine Science, College of William & Mary, Gloucester Point, VA, February 2019
6. Capture Stress and the Elasmobranch Heart, Invited Lecture, James Cooke University, Townsville, Australia, Dec 2018
5. The Impact of Simulated Capture Stress on Elasmobranch Cardiac Function, Fisheries Science Departmental Seminar, Virginia Institute of Marine Science, College of William & Mary, Gloucester Point, VA, April 2018
4. Something's Fishy about Coastal Climate Change, Invited Lecture, MSCI 398 Ocean Acidification, College of William & Mary, Williamsburg, VA, Oct 2017
3. Sharktopus vs. Sharknado, Invited Lecture, College of William & Mary Graduate Student Journal Club, College of William & Mary, Williamsburg, VA, September 2017
2. Skating By: A Coastal Elasmobranch and Climate Change. Fisheries Science Departmental Seminar, Virginia Institute of Marine Science, College of William & Mary, Gloucester Point, VA, April 2017
1. Skating By: A Coastal Elasmobranch and Climate Change, Invited Lecture, Public Seminar Series, VIMS Eastern Shore Laboratory, Wachapreague, VA, Jun 2016

LEADERSHIP AND SERVICE

Nominations Committee, American Elasmobranch Society	2020-Present
Elected Student Representative, VIMS Academic Council	2017-2020
Virginia At-Large Representative, AFS Tidewater Chapter	2017-2020
Elected Secretary, VIMS Graduate Student Association	2016-2017
Scientist, Gills Club	2016-Present
Presenter, Marine Life Day, VIMS Eastern Shore Laboratory	2016-2018
Scientist, Virginia Scientists and Educators Alliance (VA SEA)	2015-2017
Member, VIMS Green Team	2015-2018
Student Representative, VIMS Research Seminar Series	2015-2016
Education and Outreach Specialist, Shark Savers, Hong Kong	2013

Reviewer for:

DIVERSITY, EQUITY, AND INCLUSION WORK

Positions

Appointed Postdoc Representative, University of California, Santa Barbara Diversity, Equity, and Inclusion Committee	2021
Appointed Student Representative, VIMS Diversity and Inclusion Committee	2017-2020
VIMS Representative, William & Mary LGBTQ+ Task Force	2018

Trainings

Antiracism at Carleton College	2022
Safer Science: Protecting at-risk Researchers when Conducting Fieldwork	2021
The Syllabus as an Equity Practice, California Education Learning Lab	2021
Decolonizing the Classroom, California Education Learning Lab	2020
Navigating Professional and Personal Boundaries, Virginia Center for Inclusive Communities	2019
4 th Annual Diversity and Inclusion Symposium, William & Mary	2019
What is Cultural Diversity?, Virginia Center for Inclusive Communities	2019
3 rd Annual Diversity and Inclusion Symposium: Race in Higher Ed, William & Mary	2018
Welcoming International Diversity, Virginia Center for Inclusive Communities	2018
2 nd Annual Diversity and Inclusion Symposium: Implicit Bias, William & Mary	2017
Let's Talk About Race, Virginia Center for Inclusive Communities	2017

PROFESSIONAL MEMBERSHIPS

Canadian Society of Zoology	2021-Present
Society for Experimental Biology	2017-Present
Society for Integrative and Comparative Biology	2017-Present
American Fisheries Society	2016-Present
American Elasmobranch Society	2014-Present

REFERENCES

Erika Eliason
University of California, Santa Barbara
Santa Barbara, CA 93106-9620
eliason@ucsb.edu
+1 805 893 2966

Jodie Rummer
James Cook University
Townsville, QLD 4811 Australia
jodie.rummer@jcu.edu.au
+61 7 4781 5300

John Graves
Virginia Institute of Marine Science
Gloucester Point, VA 23062
graves@vims.edu
+1 804 684 7352

Daniel Hernández
Carleton College
Northfield, MN
hernandez@carleton.edu
+1 507 222 5643

