McMaster University
Department of Biology

Giulia S. Rossi

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EDUCATION

2021	University of Guelph	**PhD**, Integrative Biology	*Advisor: Dr. Patricia Wright*
2016	University of Victoria	**MSc**, Biology	*Advisor: Dr. Verena Tunnicliffe*
2014	University of Guelph	**BSc,** Honours, Marine & Freshwater Biology (*with distinction*)	

RESEARCH POSITIONS

2023-*present* **Postdoctoral Fellow,** McMaster University (Dr. Alexander Little)
Maternity leave: April 2024 – May 2025

2021-2023 **NSERC and L'Oréal-UNESCO for Women in Science Postdoctoral Fellow**
University of Toronto (Dr. Kenneth Welch Jr.)

PEER-REVIEWED PUBLICATIONS

* denotes co-first authorship; *italics* denote undergraduate mentees

24. Mantulak RK, Gill SK, **Rossi GS**, Little AG (*in review*) Exercise training induces muscle remodeling independent of estrogen-related receptor (ERR) expression in adult zebrafish. J. Exp. Biol. *Submission ID: jeb252349.*

23. **Rossi GS**, Venkatesh S, McDonald AE, Little AG (2026) An ancient oxidase lost in vertebrates promotes extreme stress tolerance in an emerging Cnidarian model for ecology, evolution, and biomedicine. J. Exp. Biol. 229, *jeb252244.*

22. Welch Jr. KC, **Rossi GS** (2026) The sugar oxidation cascade: Convergent metabolic strategies in hovering vertebrate nectarivores. J. Exp. Biol. 229, jeb251216. ***Invited special issue review.***

21. **Rossi GS**, Welch Jr. KC (2024) Vampire bats rapidly fuel running with essential or non-essential amino acids from blood meal. Biol. Lett. 20, 20240553. **Featured by over 40 news outlets, including The New York Times, CBC Radio's Quirks and Quarks (*aired on November 9, 2024*), The Economist, New Scientist, Science News, The Times of London, PhysOrg, IFL Science, Smithsonian Magazine, and Reuters.**

20. Wu NC, Alton L, Bovo RP, Carey N, Currie SE, Lighton JRB, McKenchnie AE, Pottier P, **Rossi GS**, White CR, Levesque D (2024) Reporting guidelines for terrestrial respirometry: Building openness, transparency of metabolic rate and evaporative water loss data. Comp. Biochem. Physiol. A. Mol. Integr. Physiol. 296, 111688. ***Special issue article.***

19. **Rossi GS***, *Elbassiouny A**, Jamison J, Welch Jr. KC (2024) Heat exposure limits pentose phosphate pathway activity in bumble bees. Conserv. Physiol. 1, coae031.

18. *Young S*, **Rossi GS**, Bernier N, Wright PA. (2024) Cortisol enhances aerobic metabolism and locomotor performance during the transition to land in an amphibious fish. Comp. Biochem. Physiol. A. 288, 111558.

Featured by Outside JEB.

17. **Rossi GS**, Welch Jr. KC (2023) Leptin resistance does not facilitate migratory fattening in ruby-throated hummingbirds (*Archilochus colubris*). Integr. Comp. Biol. 63, icad046. ***Invited symposium article.***

16. **Rossi GS***, *Labbé D**, Wright PA (2022) Out of water in the dark: Plasticity in visual structures and function in an amphibious fish. J. Exp. Zool. A. Ecol. Integr. Physiol. 337, 776-784.

15. Blewett TA, Binning SA, Weinrauch AM, Ivy CM, **Rossi GS**, Borowiec BG, Lau GY, Overduin S, Aragao I, Norin T (2022) Physiological and behavioural strategies of aquatic animals living in fluctuating environments. J. Exp. Biol. 225, jeb242503. ***Invited review.***

14. Turko AJ*, **Rossi GS***, Blewett TA, Currie S, Taylor DS, Wright PA, Standen EM (2022) Context-dependent relationships between athletic performance and body composition in the amphibious fish *Kryptolebias marmoratus*. J. Exp. Biol 225, jeb243372.

13. Turko AJ, **Rossi GS** (2022) Habitat choice promotes and constrains phenotypic plasticity. Biol. Lett. 18, 20210468. ***Invited opinion piece.***

12. *Allore CA*, **Rossi GS**, Wright PA (2021) Seeing in the swamp: Hydrogen sulfide inhibits eye metabolism and visual acuity in a sulfide-tolerant fish. Biol. Lett. 17, 20210329.

11. Turko AJ*, **Rossi GS***, Wright PA* (2021) More than breathing air: Evolution and Physiology of amphibious fishes. Physiol. 36, 307-314. ***Invited review.*** **Featured on the September issue cover.**

10. **Rossi GS**, Wright PA (2021) Does leaving water makes fish smarter? Terrestrial exposure and exercise improves spatial learning in an amphibious fish. Proc. R. Soc. B. 20210603. **Featured by Nature, The Atlantic, PhysOrg, Oceanbites, and CBC Radio's Quirks and Quarks (*aired on June 19, 2021*).**

9. **Rossi GS***, Cochrane PV*, Wright PA (2020) Fluctuating environments during early development can limit adult phenotypic flexibility: Insights from an amphibious fish. J. Exp. Biol. 223, jeb228304.

8. **Rossi GS**, Cramp RL, Wright PA, Franklin CE (2020) Frogs seek hypoxic microhabitats that accentuate metabolic depression during dormancy. J. Exp. Biol. 223, jeb213363. **Featured by Conservation Physiology.**

7. **Rossi GS**, Wright PA (2020) Hypoxia-seeking behaviour, metabolic depression, and skeletal muscle function in an amphibious fish out of water. J. Exp. Biol. 223, jeb213355. **Featured by Oceanbites.**

6. *McFarlane W*, **Rossi GS**, Wright PA (2019) Amphibious fish 'get a jump' on terrestrial locomotor performance after exercise training. J. Exp. Biol. 222, jeb213348. **Featured by Hakai Magazine.**

5. **Rossi GS**, Cochrane PV, Tunnah L, Wright PA (2019) Ageing impacts phenotypic flexibility in an air-acclimated amphibious fish. J. Comp. Physiol. B. 189, 567-579.

4. **Rossi GS***, Tunnah L*, Martin KE, Turko AJ, Taylor DS, Currie S, Wright PA (2019) Mangrove fishes rely on emersion behavior and physiological tolerance to persist in sulfidic environments. Physiol. Biochem. Zool. 92, 316–325.

3. *Cochrane PV*, **Rossi GS**, Tunnah L, Jonz MG, Wright PA (2019) Hydrogen sulphide toxicity and the importance of amphibious behaviour in a mangrove fish inhabiting sulphide-rich habitats. J. Comp. Physiol. B. 189, 223-235.

2. **Rossi GS**, Turko AJ, Wright PA (2018) Oxygen drives skeletal muscle remodeling in an amphibious fish out of water. J. Exp. Biol. Jeb180257.

1. **Rossi GS**, Tunnicliffe V (2017) Trade-offs in a high CO_2 habitat on a subsea volcano: condition and reproductive features of a bathymodioline mussel. Mar. Ecol. Prog. Ser. 574, 49-64.

Book Chapters

2. **Rossi GS** (2024) Life Above the Surface – Using the Aerial Environment. In Encyclopedia of Fish Physiology (Second Edition). Elsevier. *Invited by Dr. Jodie Rummer.*

1. **Rossi GS**, Borowiec, BG (2024) Fish Muscle Physiology and Plasticity. In Encyclopedia of Fish Physiology (Second Edition). Elsevier. *Invited by Dr. Emily Standen*.

AWARDS & RECOGNITION

Major Scholarships & Fellowships

2021	NSERC Postdoctoral Fellowship	90,000 CAD
	NSERC and L'Oréal-UNESCO Women in Science Supplement **(press release)**	10,000 CAD
	University of Toronto Scarborough NSERC PDF Top-Up	20,000 CAD
	Izaak Walton Killam Memorial Postdoctoral Fellowship, U Alberta **(declined)**	104,000 CAD
	University of Toronto Scarborough Postdoctoral Fellowship **(declined)**	90,000 CAD
2019	Alexander Graham Bell Canada Graduate Scholarship – Doctoral	70,000 CAD
	Ontario Graduate Scholarship **(declined)**	15,000 CAD
2014	University of Victoria Graduate Award	8,000 CAD

Scientific Research & Communication Awards

2025	Canadian Society of Zoologists' President's Award	500 CAD
2020	Canadian Society of Zoologists' William S. Hoar Award	500 CAD
	Department of Integrative Biology Distinguished Graduate Speaker Award	300 CAD
2018	MacCrimmon Award in Aquatic Science	1,000 CAD
	University of Guelph Registrar's Research Grant	1,500 CAD

Travel Awards

2026	Canadian Society of Zoologists' Travel Support	200 CAD
2025	Canadian Society of Zoologists' Caregiver's Award	500 CAD
2023	Canadian Society of Zoologists' Travel Support	200 CAD
2019	Canadian Society of Zoologists Student Research Award for Travel	500 CAD
	Society for the Study of Amphibians and Reptiles Grant in Herpetology	650 CAD
	Company of Biologists Travelling Fellowship	4,200 CAD
	Society of Experimental Biology Travel Support	675 CAD
2018	Canadian Society of Zoologists' Travel Support	300 CAD
	University of Guelph Registrar's Travel Grant	800 CAD
2016	Graduate Course at Cân Tho' University, Vietnam, Travel Support	250 CAD

Total Awarded: **419,075 CAD**

PRESENTATIONS

Invited Academic Seminars

2026 Mechanisms supporting extreme stress tolerance in an intertidal Cnidarian. Physiology Seminar Series, University of Guelph (March 6, 2026).

An ancient oxidase lost in vertebrates promotes extreme stress tolerance in an emerging Cnidarian model for ecology, evolution, and biomedicine. Biology Seminar Series, Stowers Institute for Medical Research (January 29, 2026).

2025 A novel mechanism of hydrogen sulphide tolerance in a burrowing anemone. Biology Seminar Series, University of Saskatchewan (November 27, 2025).

Vampire bats rapidly fuel running with essential or non-essential amino acids from a blood meal. VOX Physiologica Seminar Series, McMaster University (September 23, 2025).

Embracing the stink: Hydrogen sulphide toxicity and tolerance in aquatic animals. Research Presentation for **tenure-track job interview**, University of Ottawa (May 5, 2025)

Life on the edge: An animal's guide to dealing with extreme challenges. Research Presentation for **tenure-track job interview**, University of British Columbia (January 21, 2025).

2024 Embracing the stink: A passionate dive into hydrogen sulphide toxicity in aquatic animals. Molecules, Cells, and Systems Seminar Series, University of Alberta (January 26, 2024).

2023 Embracing the stink: A passionate dive into hydrogen sulphide toxicity in aquatic animals. Comparative Physiology Seminar Series, University of British Columbia (November 17, 2023).

From air to insight: Unraveling physiology through animal breath. Research Presentation for **tenure-track job interview**, University of Prince Edward Island (August 3, 2023).

Packing on the pounds: How do hummingbirds fatten for migration? Plenary symposium speaker, Canadian Society of Zoologists meeting, Saskatoon, Canada (May 14-19, 2023).

The birds, the bees, and the physiological challenges associated with a nectivorous lifestyle. VOX Physiologica Seminar Series, McMaster University (April 11, 2023).

The role of leptin in regulating torpor use and pre-migratory fat gain in ruby-throated hummingbirds. Plenary symposium speaker, Society of Integrative and Comparative Biology meeting, Austin, USA (January 3-7, 2023).

2022 Amphibious fishes: a physiological and evolutionary perspective. Biology Series, University of Toronto (September 23, 2022)

Fish at the air-water interface: a physiological and evolutionary perspective. Ecology and Evolutionary Biology Seminar Series, Kansas State University (March 31, 2022).

Amphibious fishes: What are they, and how did they come to be? Ecology, Evolution, Behavior & Organismal Biology Seminar Series, Kennesaw State University (February 10, 2022).

2021 The physiology and evolutionary history of amphibious fishes. Comparative Physiology Seminar Series, University of Ottawa (December 9, 2021).

Animals seek hypoxic microhabitats that accentuate metabolic depression during dormancy. Plenary symposium speaker, Canadian Society of Zoologists virtual meeting (May 17, 2021).

Neural plasticity and the ecological implications for an amphibious fish. Department of Integrative Biology Seminar Series, University of Guelph (February 4, 2021). **Winner of the Graduate Distinguished Speaker Award.**

2019 Frogs seek hypoxic microhabitats to accentuate metabolic depression during estivation. Conservation Physiology Seminar Series, University of Queensland (May 28, 2019).

Out of the swamp: Evolution, ecology, and physiology of amphibious fishes. Marine and Freshwater Biology Society, University of Guelph (February 3, 2019).

2018 Surviving environmental extremes: The strategy of an amphibious mangrove fish. VOX Physiologica Seminar Series, McMaster University (October 2, 2018).

Conference Presentations

* denotes presenting author

2026 **Rossi GS***, Venkatesh S, McDonald AE, Little AG. An ancient oxidase lost in vertebrates

promotes extreme stress tolerance in an emerging Cnidarian model for ecology, evolution, and biomedicine. Talk presented as part of the Society of Experimental Biology meeting, Florence, Italy (July 7-9, 2026) in the **Young Scientist Award competition.**

Mantulak RK*, Gill SK, **Rossi GS**, Little AG. Exploring the role of estrogen-related receptors in exercise-induced skeletal muscle remodelling in zebrafish (*Danio rerio*). Talk presented as part of the Society of Experimental Biology meeting, Florence, Italy (July 7-9, 2026).

Gill SK*, **Rossi GS**, Little AG. Early-life physical activity as a determinant of adult athleticism in zebrafish (*Danio rerio*). Talk presented as part of the 4th Canadian Zebrafish Research Community meeting, Montréal, Canada (May 15th, 2026).

Page M*, **Rossi GS**, Little AG. Mechanisms supporting extreme stress tolerance in *Nematostella vectensis.* Talk presented as part of the Canadian Society of Zoologists meeting, Ottawa, Canada (May 11-14, 2026).

Mantulak RK, Gill SK, **Rossi GS**, Little AG. Conserved phenotypes, divergent mechanisms: Exercise induced skeletal muscle remodeling in zebrafish. Talk presented Talk presented as part of the Canadian Society of Zoologists meeting, Ottawa, Canada (May 11-14, 2026).

2025 **Rossi GS***, Venkatesh A, McDonald AE, Little AG. Embracing the stink: A novel mechanism of hydrogen sulphide tolerance in a burrowing anemone. Talk presented as part of the Canadian Society of Zoologists meeting, Waterloo, Canada (May 12-15, 2025). **Winner of the President's Award for most outstanding postdoctoral presentation.**

2024 **Rossi GS**, Welch Jr. KC.* Amino acids at the races: Vampire bats rapidly fuel running with blood meal protein. Talk presented as part of the Canadian Society of Zoologists meeting, Moncton, Canada (May 6-10, 2024).

Rossi GS, Welch Jr. KC.* Amino acids at the races: Vampire bats rapidly fuel running with blood meal protein. Talk presented as part of the Society of Integrative and Comparative Biology meeting, Seattle, USA (January 2-6, 2024).

2023 **Rossi GS**, Welch Jr. KC.* Amino acids at the races: Vampire bats rapidly fuel running with blood meal protein. Talk presented as part of the North American Symposium for Bat Research, Winnipeg, Canada (October 11-14, 2023).

2022 **Rossi GS***, Welch Jr. KC. Packing on the pounds: the role of leptin in the premigratory fattening of hummingbirds. Talk presented as part of the Canadian Society of Zoologists virtual meeting (May 9-13, 2022).

Young S*, **Rossi GS**, Bernier N, Wright PA. Does cortisol drive adaptive metabolic changes in the transition to land? Talk presented as part of the Rice Lake Comparative Physiology and Biochemistry (virtual) Workshop (March 4-5, 2022). **Winner of the Louise Milligan Award for most outstanding undergraduate presentation.**

2021 **Rossi GS***, Wright PA. Leaving water makes fish smarter: Terrestrial exposure and exercise improves spatial learning in an amphibious fish. Talk presented part of the Society for Experimental Biology virtual meeting (June 29-July 8, 2021).

Turko AJ*, **Rossi GS***, Blewett TA, Currie S, Taylor DS, Wright PA, Standen EM*. Context-dependent relationships between athletic performance and body composition in the amphibious fish *Kryptolebias marmoratus*. Talk presented as part of the Canadian Society of Zoologists virtual meeting (May 17-21, 2021).

Rossi GS*, Wright PA. Leaving water makes fish smarter: Terrestrial exposure and exercise improves spatial learning in an amphibious fish. Talk presented as part of the Canadian Society of Zoologists virtual meeting (May 17-21, 2021).

Allore C*, **Rossi GS**, Wright PA. The impact of hydrogen sulphide on the visual acuity of an

amphibious fish. Talk presented as part of the Canadian Society of Zoologists virtual meeting (May 17-21, 2021).

Rossi GS*, Labbé D, Wright PA. Use it or lose it: The impact of prolonged darkness and air-exposure on the visual system of an amphibious fish. Talk presented as part of the Society for Integrative and Comparative Biology virtual meeting (January 3-February 28, 2021).

Allore C*, **Rossi GS**, Wright PA. Peek-a-boo I see you: The impact of hydrogen sulphide on the visual acuity of an amphibious fish (*Kryptolebias marmoratus*). Talk presented as part of the Rice Lake Comparative Physiology and Biochemistry (virtual) Workshop (February 19-20, 2021).
Runner up for the Louise Milligan Award for most outstanding undergraduate presentation.

2020 **Rossi GS***, Cochrane PV, Wright PA. Phenotypic plasticity and the oxygen cascade: Novel insights from an amphibious fish. Talk presented as part of the Canadian Society of Zoologists virtual meeting (May 27-29, 2020). **Winner of the William S. Hoar Award for most outstanding student presentation.**

Rossi GS*, Cochrane PV, Wright PA. Fluctuating environments during development can limit adult phenotypic flexibility: Insights from an amphibious fish. Poster presented as part of the Rice Lake Comparative Physiology and Biochemistry Workshop, Keene, Canada (January 31-Februrary 2, 2020).

Labbé D*, **Rossi GS,** Wright PA. The influence of air-exposure and darkness on the optic tectum size and visual acuity of an amphibious fish. Talk presented as part of the Rice Lake Comparative Physiology and Biochemistry Workshop, Keene, Canada (January 31-Februrary 2, 2020). **Winner of the Louise Milligan Award for most outstanding undergraduate presentation.**

2019 **Rossi GS***, Wright PA. Amphibious fish seek hypoxic microenvironments to accentuate metabolic depression out of water. Talk presented as part of the Society of Experimental Biology meeting, Seville, Spain (July 2-5, 2019).

Wright PA*, McFarlane W, **Rossi GS**. Amphibious fish hit the gym: Jump training improves locomotory performance on land. Talk presented as part of the Society of Experimental Biology meeting, Seville, Spain (July 2-5, 2019).

Rossi GS, Cochrane PV*, Tunnah L, Wright PA. Fish should be concerned about ageing: Old age diminishes the response to air exposure in adult amphibious fishes. Talk presented as part of the Canadian Society of Zoologists meeting, Windsor, Canada (May 13-17, 2019).

Rossi GS*, Wright PA. Surviving environmental extremes: the strategy of an amphibious mangrove fish *Kryptolebias marmoratus*. Talk presented as part of the Rice Lake Comparative Physiology and Biochemistry Workshop, Keene, Canada (January 25-27, 2019).

McFarlane W, **Rossi GS**, Wright PA. Terrestrial exercise training improves jumping performance in the amphibious mangrove rivulus *Kryptolebias marmoratus*. Talk presented as part of the Rice Lake Comparative Physiology and Biochemistry Workshop, Keene, Canada (January 25-27, 2019).

2018 **Rossi GS***, Tunnah L, Martin KE, Turko AJ, Taylor DS, Currie S, Wright PA. Mangrove fishes rely on emersion behavior and physiological tolerance to persist in sulfidic environments. Poster presented as part of the Canadian Society of Ecology and Evolution meeting, Guelph, Canada (July 18-21, 2018).

Rossi GS*, Turko AJ, Wright PA. Oxygen drives skeletal muscle remodeling in an amphibious fish out of water. Talk presented as part of the Canadian Society of Zoologists meeting, St. John's, Canada (May 7-11, 2018).

Standen E*, Turko AJ, Currie S, Blewett T, Taylor DS, **Rossi GS**, and Wright PA. Surface tension, muscle mass and emersion performance in the mangrove rivulus (*Kryptolebias marmoratus*). Talk presented as part of the Canadian Society of Zoologists meeting, St. John's, Canada (May 7-11, 2018).

Turko A, Wright PA, Currie S, Blewett T, Taylor S, **Rossi GS**, Standen EM*. Life history trade-offs

depend upon habitat quality in an amphibious mangrove fish. Talk presented as part of the Society for Integrative and Comparative Biology meeting, San Francisco, USA (January 3-7, 2018).

Rossi GS*, Wright PA. Environmental determinants of oxidative skeletal muscle hypertrophy in an amphibious mangrove fish. Talk presented as part of the Rice Lake Comparative Physiology and Biochemistry Workshop, Keene, Canada (January 26-28, 2018).

Cochrane P*, **Rossi GS**, Wright PA. To jump or not to jump: the behavioural responses of *Kryptolebias marmoratus* to hydrogen sulphide. Talk presented as part of the Rice Lake Comparative Physiology and Biochemistry Workshop, Keene, Canada (January 26-28, 2018).

2017 Turko AJ, Wright PA, Currie S, Blewett TA, Taylor DS, **Rossi GS**, Standen EM*. Athletes vs parents: Life history trade-offs in an amphibious mangrove fish. Talk presented as part of the Canadian Society of Zoologists meeting, Winnipeg, Canada (May 15-19, 2017).

Turko AJ, Wright PA, Currie S, Blewett TA, Taylor DS, **Rossi GS***, Standen EM. To jump, or not to jump? Life history trade-offs in an amphibious fish. Talk presented as part of the University of Guelph Graduate Student Symposium, Guelph, Canada (April 27, 2017).

2016 **Rossi GS***, Tunnicliffe V. The reproductive and physiological condition of *Bathymodiolus septemdierum*. Talk presented as part of the University of Victoria Biology Graduate Symposium, Victoria, Canada (November 9-10, 2016).

2015 **Rossi GS***, Tunnicliffe V. The reproductive condition of hydrothermal vent mussel, *Bathymodiolus septemdierum*, from the Mariana Volcanic Arc. Talk presented as part of the Ecology and Evolution Retreat, Squamish, Canada (November 13-15, 2015).

Rossi GS*, Tunnicliffe V. Gametogenesis of hydrothermal vent mussel (*Bathymodiolus septemdierum*) living in extremely acidic conditions. Talk presented as part of the University of Victoria Biology Graduate Symposium, Victoria, Canada (November 9-10, 2015).

TEACHING & MENTORSHIP

Invited Guest Lectures

2026 Science Communication: Tips for engaging the public with your science writing. Animal Physiology (3rd year course), McMaster University (March 2, 2026).

2025 Vampire bats rapidly fuel running with essential or non-essential amino acids from a blood meal. Topics in Physiology (3rd year course), McMaster University (November 6, 2025).

2024 Science Communication: Tips for engaging the public with your science writing. Animal Physiology (3rd year course), McMaster University (March 4, 2024).

Cardiovascular systems V: Reptile heart anatomy and physiology. Comparative Vertebrate Anatomy and Physiology (3rd year course), McMaster University (February 27, 2024).

Embracing the stink: A dive into hydrogen sulphide toxicity in aquatic animals. Comparative Environmental Physiology (3rd year course), University of Alberta (January 26, 2023).

2023 Phenotypic plasticity in an amphibious fish. Topics in Physiology (3rd year course), McMaster University (November 9, 2023).

Animals seek hypoxic microhabitats that accentuate metabolic depression during dormancy. Comparative Physiology (3rd year course), Chapman University (March 28, 2023).

Evolution, ecology, and physiology of amphibious fishes. Comparative Environmental Physiology (3rd year course), University of Alberta (February 28, 2023).

2022 Fish at the air-water interface: a physiological and evolutionary perspective. Comparative Environmental Physiology (3rd year course), University of Alberta (March 21, 2022).

Amphibious fishes: What are they, and how did they come to be? Biology Seminars (4th year course) Kennesaw State University (February 10, 2022).

2021 Evolution, ecology, and physiology of amphibious fishes. Adaptational Physiology (4th year course), University of Guelph (March 25, 2021).

Evolution, ecology, and physiology of amphibious fishes. Comparative Environmental Physiology (3rd year course), University of Alberta (February 26, 2021).

Data Repositories: Why deposit your data, and how? Research Ethics in Biology (Graduate course), University of Guelph (February 3, 2021).

2020 Why microhabitats matter: Insights from amphibious species. Comparative Animal Physiology II (3rd year course), University of Guelph (*cancelled due to COVID-19*).

2018 Conserving biodiversity: Community and ecosystem ecology. Introduction to Biology (1st year course), University of Guelph (November 26, 2018).

Evolution, ecology, and physiology of amphibious fish: Tips and tricks for research. Marine and Freshwater Research (4th year course), University of Guelph (October, 25, 2018).

Trade-offs in a high CO_2 habitat on a subsea volcano. Integrative Biology of Invertebrates (3rd year course), University of Guelph (October 18, 2018).

Evolution, ecology, and physiology of amphibious. Integrative Vertebrate Biology (4th year course), University of Guelph (September 17, 2018).

Teaching Experience

2023 ***Sessional Lecturer:*** Experimental and Comparative Animal Physiology (ZOO*4170), University of Guelph (**ZOO*4170 class website**).

2022-2023 ***Course Instructor:*** Oral Presentation Skills, Graduate Center for Academic Communication, University of Toronto (offered to MSc and PhD students; x3 offerings)

2022 ***Workshop Instructor and Developer:*** Community Engagement: How to Effectively Communicate Your Research to the Public. Graduate Center for Academic Communication, University of Toronto (offered to MSc and PhD students; x2 offerings)

Teaching Assistant (*11 appointments*)

2022 Writing NSERC Proposals (GCAC*1018), University of Toronto

2017-2021 Comparative Histology (ZOO*3000), University of Guelph
Marine and Freshwater Biology (IBIO*4600), University of Guelph
Integrative Biology of Invertebrates (ZOO*3700), University of Guelph
Vertebrate Structure and Function (ZOO*2090), University of Guelph
Adaptational Physiology (BIOL*4010), University of Guelph (×2)

2014-2016 Survey of Invertebrates (BIOL*321), University of Victoria
Biology of Marine Invertebrates (BIOL*322), University of Victoria
General Biology I (BIOL*190A), University of Victoria
General Biology II (BIOL*190B), University of Victoria

Teaching Courses & Certificates

2022 Teaching Fundamentals Certificate, University of Toronto (6 modules)

i. Introduction to Active Learning – Theory and Strategy (November 3, 2021)
ii. Inclusive Teaching Strategies for Supporting English as an Additional Language (EAL) Students (December 2, 2021)
iii. Promoting Gender Diversity in STEM (March 4, 2022)
iv. Cultural Humility in Teaching (July 12, 2022)

v. What's your Story? Supporting Anti-Oppressive Education through Storytelling (July 20, 2022)
vi. Preparing Your Teaching Dossier (October 12, 2022)

Student Supervision

2026 **Simer Gill:** Developmentally plastic effects of exercise on training capacity in zebrafish (*Danio rerio*). MSc thesis (co-supervisor with Dr. Alexander Little), McMaster University.

Megan Page: Mechanisms supporting extreme stress tolerance in an intertidal cnidarian, *Nematostella vectensis*. MSc thesis (co-supervisor with Dr. Alexander Little), McMaster University.

Ryan-Imran Mahalingam: The importance of alternative mitochondrial pathways in mediating metabolic rate and growth in a regenerating marine invertebrate. BSc Honours project, McMaster University.

Laila Ahmed: Development of a transgenic zebrafish model to visualize glucocorticoid signalling *in vivo.* BHSc Project Course, McMaster University.

2023 **Alaa Elbassiouny**: Heat exposure limits pentose phosphate pathway activity in bumblebees. BSc Honours project, University of Toronto Scarborough (Rossi et al. 2024. Cons. Physiol. 1, coae031).

Pronati Mahmud, **Pablo Diaz Zakelj**, **Alaa Elbassiouny**, **Phutadol Boontem**, **Heather Luk**: The influence of advanced glycation end-products (AGEs) on hummingbird behaviour and physiology. BSc team research project, University of Toronto Scarborough (Moreno-Borrallo et al. in preparation).

Devni Appuhamilage: Does acoustic enrichment promote vocalization and activity in ruby-throated hummingbirds? Commissioned project by the Animal Care Committee, University of Toronto Scarborough.

2022 **Sarah Young**: The role of cortisol in regulating energy metabolism and locomotion in an amphibious fish out of water. BSc Honours project. Co-supervised with Patricia Wright and Nicholas Bernier, University of Guelph (Young et al. 2024. Comp. Biochem. Physiol. A. 288, 111558).

2021 **Claire Allore**: Seeing in the swamp: Hydrogen sulphide inhibits eye metabolism and visual acuity in a mangrove fish. BSc Honours project. Co-supervised with Patricia Wright, University of Guelph. Thesis resulted in a publication (Allore et al. 2021. Biol. Lett. 20210329).

Jasmine Televi: Emersion behaviour of the amphibious mangrove rivulus (*Kryptolebias marmoratus*) across ontogeny. BSc Honours project. Co-supervised with Paige Cochrane and Patricia Wright, University of Guelph.

2020 **Daniel Labbé**: Prolonged darkness and air-exposure impairs visual performance in an amphibious fish. BSc honours project. Co-supervised with Patricia Wright. Thesis resulted in a publication (Rossi et al. 2022. J. Exp. Zool. A. 337, 776-784).

2019 **William McFarlane**: Amphibious fish 'get a jump' on terrestrial locomotor performance after exercise training on land. BSc honours project. Co-supervised with Patricia Wright. Thesis resulted in a publication (McFarlane et al. 2019. J. Exp. Biol. 222, jeb213348).

2018 **Paige Cochrane**: Hydrogen sulphide toxicity and the importance of amphibious behaviour in a mangrove fish inhabiting sulphide-rich habitats. BSc honours project. Co-supervised with Patricia Wright. Thesis resulted in a publication (Cochrane et al. 2019. J. Comp. Physiol. B. 189, 223-235).

Sarah McDonald, **Cathal Doherty**, **Natasha Widmer**: College of Biological Science Undergraduate Student Mentorship Program (CoBUMP). I provided bi-weekly advice and support on thesis projects, graduate school applications, and scholarship applications.

SCIENCE COMMUNICATION & COMMUNITY OUTREACH

Science Communication Roles

2023 **Workshop facilitator** (with Dr. Tamzin Blewett) for the inaugural Canadian Society of Zoologists' Science Communication Workshop. Dr. Blewett and I created activities for graduate students and postdoctoral fellows to practice the effective communication of scientific research using social media outlets (e.g., Twitter).

2022 **Writer for Outside JEB**, which is a featured section of the Journal of Experimental Biology (JEB). I contribute lay summaries of exciting primary research papers.

Science Communication and Outreach panelist for the Virtual Trainee Mixer at the Canadian Society of Zoologists virtual conference.

2020 **Writer for preLights**, a platform where I contribute short highlights of the best preprints in biology. Supported by the Company of Biologists.

Science Communication Publications

2026 Early Carrer Researcher (ECR) Spotlight – Giulia Rossi. J Exp. Biol. 229, **jeb251908**.

2025 Ghander A, **Rossi GS**, Welch Jr. KC, Smith DR. (*submitted*) Vampire Bats: Sucking the Most Out of Blood. Front. Young Minds. *Submission ID: TBD.* ***Peer-reviewed by kids for kids***.

2023 Catfish give 'holding your breath' a whole new meaning. J. Exp. Biol. 226, **jeb245038**.

A clashing colour combination with deadly consequences. J Exp. Biol. 226, **jeb245025**.

Hot hearts can beat faster when meat is on the menu. J. Exp. Biol. 226, **jeb245012**.

Intertidal mussels survive harsh Canadian winters. J. Exp. Biol. 226, **jeb244997**.

2022 Heat waves harm fish brains. J. Exp. Biol. 225, **jeb243529.**

Friends warn friends about feasts and famines. J Exp. Biol. 225, **jeb243514**.

Butterflies feeling 'the butterflies'. J Exp. Biol. 225, **jeb243490**.

Baby birds beat the heat thanks to singing parents. J. Exp. Biol. 225, **jeb243446**.

2020 Convergent evolution of conserved repeated adaptation to extreme environments. PreLights. Company of Biologists (**Preprint Highlight**).

2017 Dear Future Marine Biologists. Toronto, Canada. Kindle Publishing (**Children's Book**).

Community Outreach Roles

2023-*present* **Board of Directors, Chair** for the Canadian Association for Girls in Science.

2015-2023 **Volunteer** for the Canadian Association for Girls in Science. My roles have included organizing and leading hands-on activities (annually), supervising monthly events (18 times), and maintaining social media outlets for the Guelph-Kitchener-Waterloo chapter.

2022 **Invited panelist** for the Canadian Association for Girls in Science's annual celebration for the International Day of Women and Girls in Science. Other invited panelists include, Dr. Anne Innis Dagg (giraffologist) and Miriam Michael (engineer at the Canadian Space Agency)

2017-2020 **Founder of Marine Biology Day** at the University of Guelph. I designed and implemented an annual full-day marine biology outreach program at the University of Guelph for local classrooms (Grades 1-8). I prioritized hosting classrooms with a high proportion of students that are refugee claimants and/or new immigrants to Canada (*cancelled in 2021, COVID-19*).

Community Outreach Presentations & Publications

2024 Success Stories from the Canadian Association for Girls in Science alumni (**Giulia Rossi Video**).

2022 Congratulations to Giulia Rossi, Winner of the 2021 L'Oréal Women in Science Award! Canadian

Society of Zoologists Blog (February 16, 2022). **Blog Post.**

Q&A with Dr. Giulia Rossi for the International Day of Women and Girls in Science. Canadian Association for Girls in Science Newsletter **(Issue 10**; February 11, 2022).

My path to becoming a comparative animal physiologist? Women in Science Speaker Series (Grades 9-12), Notre Dame Catholic Secondary School, Toronto Catholic District School Board (January 12, 2022).

2021 What does it mean to be a scientist? Mnjikaning Kendaaswin Elementary School (Grades 7-8), Chippewas of Rama First Nation (June 18, 2021).

2019 Physics Day with the Canadian Association for Girls in Science, University of Waterloo (September 20, 2019). **Featured by CTV News (In your Backyard)**.

2018 Dear Future Marine Biologists, Visiting Author for the Fiction Festival, Our Lady of Grace Elementary School (Grades 1-8), Waterloo Catholic District School Board (March 23, 2018). **Featured by CTV News (In Your Backyard)**.

SERVICE

Editorial Roles

2026-*present* **Associate Editor** for Frontiers for Young Minds. My primary responsibilities include overseeing the review process, recruiting science mentors and young peer-reviewers, and acting as an advisor for the journal.

2022-*present* **Junior Editorial Board Member** for the Journal of Experimental Zoology A (JEZ-A). My primary responsibilities include serving as a peer reviewer and promoting JEZ-A through various communication platforms (e.g., social media).

2018-*2026* **Editorial Assistant to the Deputy Editor-in-Chief** of the Journal of Experimental Biology (JEB). I facilitate the distribution of manuscripts to selected reviewers and all correspondence between the Monitoring Editor, reviewers, and authors using the *JEB*'s online platforms (Bench>Press and Editorial Manager).

Committee Roles

2025-*present* **Chair** of the Postdoctoral Fellow Section of the Canadian Society of Zoologists. Along with a co-chair, I am responsible for overseeing all PDF section activities, including representing the section at council meetings, leading fundraising activities, and adjudicating research and travel awards.

2018-2020 **Graduate student member** on the Integrative Biology Department Council at the University of Guelph. I was responsible for attending all departmental meetings and articulating the questions and concerns of the Integrative Biology graduate students to faculty and staff.

2019 **Graduate student member** on the Department Vision and Academic Plan Committee Focus Group at the University of Guelph. As a focus group, our responsibility was to provide feedback on the Strategic Plan for the Integrative Biology Department.

2015-2016 **Graduate student member** on the University of Victoria Pedagogical Merit Review Committee. As a committee, our responsibility was to ensure that all research or teaching involving animals at the university was conducted in accordance with requirements of the Canadian Council on Animal Care.

Conference Roles

2023 **Judge** for the H.I. Battle Award for best student poster in the Comparative Physiology and Biochemistry section at the Canadian Society of Zoologists Annual Meeting.

2021-2022 **Q&A Moderator** for the Neurophysiology (2021) and Bird Ecophysiology and Biochemistry (2022) sessions at the Canadian Society of Zoologists Virtual Meeting.

2021-2022 **Judge** for the Rice Lake Comparative Physiology and Biochemistry Workshop. I scored several undergraduate presentations for the Louise Milligan Undergraduate Presentation Award and the 3 Minute Thesis Award.

2018 **Volunteer** at the Canadian Society of Ecology and Evolution annual meeting. I chaired 12 contributed oral presentation sessions and handled all audio/visual requirements for these sessions.

2016 **Chair of the judging committee** for the University of Victoria Biology Graduate Symposium. I coordinated the activities of the committee (6 members). We were responsible for acquiring impartial faculty to judge oral presentations by graduate students in the Biology Department, and for creating a comprehensive judging rubric.

Research Roles

2015 **Volunteer biologist** on Ocean Networks Canada's Wiring the Abyss 2015 Expedition aboard the Thomas G. Thompson. I collected and logged deep-sea hydrothermal vent species from the west coast of Canada and the USA.

2012-2013 **Lab and field technician** at the Department of Fisheries and Oceans Canada. My roles included *(i)* collecting, processing and analyzing phytoplankton samples, *(ii)* conducting primary productivity and bacterial growth experiments with radioisotopes operating commercial vessels and ensuring the safety of all passengers on board.

Reviewing Roles

2018-present **Reviewer** for various journals including Conservation Physiology, Biology Letters, Journal of Experimental Biology, Journal of Comparative Physiology B, Journal of Thermal Biology, Ecology of Freshwater Fish, Biology Open, Canadian Journal of Zoology, Aquaculture Research, etc.

PERSONAL & PROFESSIONAL DEVELOPMENT

Courses

2022 **Indigenous Canada**, University of Alberta (12 weeks)
Course Instructor: Paul Gareau

2020 **The Science of Well Being**, Yale University (10 weeks)
Course Instructor: Laurie Santos

Professional Memberships

American Association for the Advancement of Science (AAAS)
American Society for Ichthyologists and Herpetologists (ASIH)
Canadian Society of Zoologists (CSZ)
Society for Experimental Biology (SEB)
Society for Integrative and Comparative Biology (SICB)
Society for the Study of Amphibians and Reptiles (SSAR)