

# Giulia Sarina Rossi

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## EDUCATION

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

## RESEARCH POSITIONS

2023-2026	<b>Postdoctoral Fellow</b> , McMaster University (Little Lab)
2021-2023	<b>NSERC and L'Oréal-UNESCO for Women in Science Postdoctoral Fellow</b> , University of Toronto Scarborough (Welch Lab)

## PEER-REVIEWED PUBLICATIONS

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

19. **Rossi GS\***, *Elbassiouny A\**, Jamison J, Welch Jr. K.C. (submitted, 2024) Heat exposure limits pentose phosphate pathway activity in bumble bees. *Glob. Change Biol. Submission ID: GCB-24-0222*.
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.
17. **Rossi GS**, Welch Jr. KC (2023) Leptin resistance does not facilitate migratory fattening in ruby-throated hummingbirds (*Archilochus colubris*). *Integr. Comp. Biol.* 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**, Tunncliffe V (2017) Trade-offs in a high CO<sub>2</sub> 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 ( <a href="#">press release</a> )	10,000 CAD
	University of Toronto Scarborough NSERC PDF Top-Up	20,000 CAD
	Izaak Walton Killam Memorial Postdoctoral Fellowship, Ualberta ( <b>declined</b> )	104,000 CAD
	University of Toronto Scarborough Postdoctoral Fellowship ( <b>declined</b> )	90,000 CAD
2019	Alexander Graham Bell Canada Graduate Scholarship – Doctoral	70,000 CAD
	Ontario Graduate Scholarship ( <b>declined</b> )	15,000 CAD
2014	University of Victoria Graduate Award	8,000 CAD

**Scientific Research & Communication Awards**

2022	Canadian Society of Zoologists' Cameron Award	<i>nominated</i>
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**

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 C�n Tho' University, Vietnam, Travel Support	250 CAD
<b>Total Awarded:</b>		<b>417,875 CAD</b>

**PRESENTATIONS****Invited Academic Seminars**

- 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, 2023).
- 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 annual meeting (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 annual meeting (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 (Franklin Lab) 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

- 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 North American Society of Integrative and Comparative Biology annual meeting (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 (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 Workshop virtual meeting (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 Workshop virtual meeting (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 awards competition (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-February 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-February 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 annual 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 annual 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 annual 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 annual 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 annual 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, 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, 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 annual 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\***, Tunncliffe V. The reproductive and physiological condition of *Bathymodiolus septemdiarium*. Talk presented as part of the University of Victoria Biology Graduate Symposium, Victoria, Canada (November 9-10, 2016).

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

**Rossi GS\***, Tunncliffe V. Gametogenesis of hydrothermal vent mussel (*Bathymodiolus septemdiarium*) 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

2024 Embracing the stink: A passionate dive into hydrogen sulphide toxicity in aquatic animals. Comparative Environmental Physiology (3<sup>rd</sup> year course), University of Alberta (January 26, 2023).

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

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

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

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

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

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

Evolution, ecology, and physiology of amphibious fishes. Comparative Environmental Physiology (3<sup>rd</sup> 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 (3<sup>rd</sup> year course), University of Guelph (*cancelled due to COVID-19*).

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

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

Trade-offs in a high CO<sub>2</sub> habitat on a subsea volcano. Integrative Biology of Invertebrates (3<sup>rd</sup> year course), University of Guelph (October 18, 2018).

Evolution, ecology, and physiology of amphibious. Integrative Vertebrate Biology (4<sup>th</sup> 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)

- 2022-2033 Writing NSERC Proposals (SGSGCAC1018), 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 Mentorship

- 2023 **Alaa Elbassiouny:** Revealing the role of the pentose phosphate pathway during exercise and/or thermal stress in ruby-throated hummingbirds and native bumblebees BSc Honours project, University of Toronto Scarborough ([Rossi et al., submitted. Glob. Change Biol. GCB-24-0222](#)).
- 2022 **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.
- 2021 **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](#)).
- 2020 **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.

2019 **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](#)).

2018 **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](#)).

2017 **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

2023 Catfish give ‘holding your breath’ a whole new meaning. J. Exp. Biol. 226, [jeb245038](#).

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 **Board of Directors member** for the Canadian Association for Girls in Science. ([Press Release](#)).



- 2015-present **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

- 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

- 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-present **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 platform (Bench>Press).

### Committee Roles

- 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.
- 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)