Emma Rachel Moffett

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Professional Preparation

2022- 20xx | Research Associate | Imperial College London
Ecosystem services, biodiversity, and climate change
Advisor: Dr. Will Pierce

2019- 2022 | Postdoctoral Scholar | The University of California, Irvine
Thermal plasticity in mountain Daphnia, the influence of salt on plankton communities, a global analysis of the temperature sensitivity of aquatic ectotherms, and the evolution of diadromy in Rainbow Trout
Advisor: Dr. Celia Symons

2016- 2019 | PhD | The University of Auckland
Thermal history drives trait divergence and alters the ecological role of a freshwater consumer (*Gambusia affinis*).
Doctor of Philosophy in Environmental Science.
Advisors: Dr. Kevin Simon and Dr. George Perry

2013- 2014 | MSc | The University of Auckland
Microbial Response to Urbanisation and Earthquake Damage in New Zealand Streams.
Master of Science in Environmental Science with First Class Honors, grade: A+
Advisor: Dr. Kevin Simon

2011- 2012 | PG Dip Sci | The University of Auckland
Postgraduate Diploma in Science in Environmental Science with distinction.

2007- 2011 | B.A. & B.S. | The University of Auckland
Bachelor of Science in Biological Sciences specializing in Environmental Science.
Bachelor of Arts in History and Geography.

Publications

16. Arnott, S.E., Fugère, F., Symons, C.C., **Moffett**, **E.R.** &… Derry, A.M. (2022) Broad-scale intraspecific variation in freshwater zooplankton salt tolerance. *Limnology and Oceanography Letters*. DOI: 10.1002/lol2.10277

15. **Moffett**, **E.R.**, Fryxell, D.C., Benavente, J.N., Palkovacs, E.P., Kinnison, M.T., Symons, C.C. & Simon, K.S. (2022) The effect of pregnancy on metabolic scaling in the viviparous *Gambusia affinis*. *Integrative and Comparative Biology*. DOI: 10.1093/icb/icac099.

14. Harrison, J.F., Biewener, A., Bernhardt, J.R., Burger, J.R., Brown, J.H., Coto, Z.N., Duell, M.E., Lynch, M., **Moffett, E.R.,** Norin, T., Pettersen, A.K., Smith, F.A., Somjee, U., Traniello, J.F.A. and Williams, T.M. (2022) An Integrated Perspective on the Causes of Hypometric Metabolic

Scaling in Animals. *Integrative and Comparative Biology*. DOI: 10.1093/icb/icac136.

13. **Moffett, E.R**., Fryxell, D.C. & Simon, K.S. (2022) Populations exposed to elevated temperatures show increased boldness and reduced temperature sensitivity of multiple metabolic traits. *Ecology and Evolution*. DOI: 10.1002/ece3.8853.

12. Fryxell, D.C., **Moffett, E.R**., Simon, K.S., Kinnison, M., & Palkovacs, E.P. (2022) From Southern Swamps to Cosmopolitan Model: Humanity's Unfinished History with Mosquitofish*, Fish and Fisheries, 00, 1– 19*. DOI: 10.1111/faf.12604.

11. **Moffett, E.R**., Fryxell, D.C., Palkovacs, E.P., Finnbar, L. & Simon, K.S. (2021) Consumer trait responses to warming track resource changes along replicated thermal gradients, *Proceedings of the Royal Society B*. DOI: 10.1098/rspb.2021.2144.

10. **Moffett, E.R**., Baker, H.K., Bonadonna, C.C., Shurin, J.B. & Symons, C. (2020) Cascading effects of freshwater salinization on plankton communities in the Sierra Nevada, *Limnology and Oceanography,* 10.1002/lol2.10177

9. Fryxell, D.C., Hoover, A.N., Alvarez, D.A., Arnesen, F.J., Benavente, J.N., **Moffett, E.R**., Kinnison, M.T., Simon, K.S. & Palkovacs, E.P. (2020) Recent warming reduces the reproductive advantage of large size and contributes to evolutionary downsizing in nature. *Proceedings of the Royal Society B: Biological Sciences*, 287: 20200608. DOI: 10.1098/rspb.2020.0608.

8. Wood, Z. T., Fryxell, D. C., **Moffett, E.R**., Kinnison, M.T., Simon, K.S. & Palkovacs, E.P (2020) Prey experience cryptically shifts trophic cascade from density- to trait-mediated, *Oecologia*, 1-12. DOI: 10.1007/s00442-020-04610-2.

7. **Moffett, E.R**., Fryxell, D.C., Palkovacs, E.P., Kinnison, M. & Simon, K.S. (2018) Local adaptation reduces the metabolic cost of environmental warming, *Ecology*, 99(10), 2318-2326. DOI: 10.1002/ecy.2463.

6. Neale, M.W., & **Moffett, E.R**. (2016) Re-engineering buried urban streams: Daylighting results in rapid changes in stream invertebrate communities. *Ecological Engineering*, 87, 175-184. DOI: 10.1016/j.ecoleng.2015.11.043.

5. **Moffett, E.R.** & Neale, M.W. (2015) Volunteer and professional macroinvertebrate monitoring provide concordant assessments of stream health. *New Zealand Journal of Marine and Freshwater Research*, 49 (3), 366-375. DOI: 10.1080/00288330.2015.1018913.

4. **Moffett, E.R**., Simon, K.S., & Harding, J. S. (2015) Urbanisation and earthquake disturbance influence microbial nutrient limitation in streams. *Freshwater Biology*, 60 (8), 1671-1687. DOI: 10.1111/fwb.12600.

3. Neale M.W., **Moffett, E.R**., Hancock P. & Phillips N. (2017) River Ecology Monitoring: State and Trends 2003-2013, Auckland Council Technical Report, TR 2017/011. PDF Link.

Forthcoming papers **[Available upon request]**

In-preparation or in-review

2. **Moffett, E.R**., Fryxell, D.C., Munch, S. B., Oke, K.B. & Symons, C. C. A global analysis of the temperature sensitivity of aquatic ectotherm growth rate: comparing field and laboratory patterns. *In preparation*.

1. **Moffett, E.R**., Fryxell, D.C., Perry, G.L.W. & Palkovacs, E.P. & Simon, K.S. Thermal history alters the ecological role of consumer body size, *In preparation.*

Scholarships/ Awards

2022 *ASLO Early career researcher travel grant*
The Association for the Sciences of Limnology and Oceanography ($1000)

2021 *Dean's Early Career Research Excellence Award*
University of California, Irvine ($2500)

2021 *Society for Integrative and Comparative Biology*
Travel Award ($1,500)

2020 *University of California, Irvine*
Microbiome Initiative award (In-kind)

2019 *University of Auckland*
Best Ph.D. thesis award ($1000)

2017 *Research Experience Awards Project*
Awarded to employ an undergraduate student for three months over the summer.

2018 *New Zealand Freshwater Science Society*
Best Student Paper Award ($1,000)

2018 *Educational Charitable Trust*
Dame Dorothy Winstone Final Year Doctoral Awards ($16,000)

2018 *Society of Oceanography and Limnology*
Trust Fund Travel Award ($2000)

2015 *The University of Auckland*
The University of Auckland Doctoral Scholarship ($125,000)

2016 *New Zealand Biosecurity Institute*
Study Award ($5,000)

2015 *New Zealand Freshwater Science Society*
Best Student Paper Award ($1,000)

2015-2018 *V.H. Jolly Travel Fund*
Conference Travel Grant ($500)

2013 *The University of Auckland*
Lucy Beatrice Moore Prize in Environmental Science ($1,000)

2013 *The University of Auckland*
Masters Award ($3,000)

2012 *The University of Auckland*
Norman Thom Award ($1,250)

2012 *Auckland Regional Council*
Partnership Programme ($5,000 + 3 months paid work experience)

Presentations

Invited seminars

2022 *'Causal Mechanisms of Interspecific Scaling Patterns.'* Scaling symposium, Society for Integrative and Comparative Biology, Pheonix, Arizona, USA.

2019 *'Thermal history drives trait divergence and alters the ecological role of a freshwater consumer.'* One-hour seminar at the University of California, San Diego, USA.

Conference presentations

2022 *'Idiosyncratic Responses to Interacting Scales of Thermal Variation in Pond Zooplankton Communities.'* Joint Aquatic Sciences Meeting (JASM). Grand Rapids, MI, USA.

2021 *'A global analysis of the temperature sensitivity of aquatic ectotherm growth rate: comparing field and laboratory patterns.'* Ecological Society of America (ESA), online.

2021 *'Do functional responses change with local thermal adaptation?'* Ecological and Evolutionary Ethology of Fishes (EEEF), online.'

2018 *'Phenotypic divergence alters the ecological role of consumers under warming.'* New Zealand Freshwater Science Society (NZFSS), Nelson, New Zealand.

2018 *'Intraspecific variation in body size affects ecosystem functioning.'* Ecological Society of America (ESA), New Orleans, U.S.A.

2017 *'Intraspecific variation in body size affects ecosystem functioning.* New Zealand Freshwater Science Society (NZFSS), Hamilton, New Zealand

2016 *'Intraspecific variation in consumer metabolism and nutrient excretion driven by temperature.'* New Zealand Freshwater Science Society (NZFSS), Invercargill, New Zealand.

2016 *'Some like it hot: Intraspecific variation in consumer metabolism and nutrient excretion driven by temperature.'* Society for Freshwater Science (SFS), Sacramento, California.

2015 *'Stream Microbial Response to Urbanisation and Earthquake Damage.'* New Zealand Freshwater Science Society (NZFSS), Invercargill, New Zealand.

2015 *'Extracellular enzyme activity and urbanization.'* New Zealand Ecological Society (NZES), Auckland, New Zealand. Poster presentation.

Service

Reviewer for journals/ proposals

National Science Foundation (NSF), Ecology, PloS One, Freshwater Biology, Limnology and

Oceanography, Journal of Animal Ecology, PeerJ, Proceedings of the Royal Society B, Royal Society Open Science, Integrative and Comparative Biology.

Committees

2021-2022 University of California, Irvine 6th annual postdoctoral conference committee co-chair.

2021 Poster presentation judge for 'Ecological and Evolutionary Ethology of Fishes' conference.

2016-2018 Student representative for the New Zealand Freshwater Science Society (2016-2018). Encouraged student participation at the conference by distributing scholarships, organizing workshop events, and distributing feedback to students.

2015-2018 School of Environment Ph.D. Student Committee chair and member (2015- 2018). Supporting Ph.D. students via social and work events and communication of issues through the appropriate channels.

Outreach & volunteering

2021 Contributed to a popular science article; https://www.popsci.com/story/science/salt-winter-roads-environment-fresh-water/

2020-2021 University of California Irvine, The Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SCANAS). Participation in outreach, shadow a scientist and explain your research to a 12-year-old.

2020-2021 University of California Irvine, Climate change through Learning, Empowerment, Action, and Networking (CLEAN). CLEAN Education supplements existing elementary (1st- 8th grade) science education for local schools.

2017-2019 Graduate Student Recruiter. Twice a year I represented The University of Auckland at recruitment events. My duties included discussing the day-to-day life of academia and courses and research options with prospective students and showcasing departmental resources and laboratory spaces.

2018 Wrote about the need to urgently conserve New Zealand's freshwater fish to prevent extinction in a local newspaper. https://www.newsroom.co.nz/ideasroom/time-to-step-up-to-save-nz-whitebait

2017-2018 Regular volunteer pest monitoring at Waiatarua wetland. Monthly commitment to maintaining pest traps throughout the reserve and occasional planting days (2017-2018).

2017 Participated in a blind panel to discuss political policies on freshwater management in New Zealand, https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11907801&fbclid=IwAR1uu

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2018 Stream conservation volunteer at Wai Care in New Zealand. This position involved organizing and assisting with stream citizen science involving local schools, including water quality testing, stream ecological surveys, organizing displays for local restoration projects, and stream riparian planting.

2016 Discussed the effects of urbanization on water quality and biota in Auckland as part of the Fluid City initiative at James Cook High School, New Zealand. This initiative collaborates with social and physical scientists and encourages students at low decile schools to become involved in science through practical exercises and art.

2015 Stream outreach days for high school students from Riccarton High School, New Zealand.

Initiatives

2021 Women in research (WIR) mentoring program for postdoctoral students.

2021 Faculty success program at The University of California, Irvine.

2021 Completed the Inclusive Excellence Certificate Program.

2020 Completed the black thriving initiative program at the University of California, Irvine.

2020 ZotAbility Ally Training.

Teaching

Mentoring and teaching assistantships

2019-ongoing — *Course coordinator, BIOSCI 199, University of California, Irvine*
Organizing projects, lab work, data analysis, and presentations of coursework for undergraduate students.
Mentee's: Hunter Rojas, Emily Lee, Steven Nguyen, Nathan Lee, Jatin Singh, Tyler Queja.

2016-2019 — *Research Experience mentorships- The University of Auckland*
Organizing laboratory and field research projects, discussing data analysis, and assisting with data interpretation and report writing.
Mentee's: Onalee Lindsay, Sarah Steward, Patricia Clarke.

2013-2019 — *Graduate Teaching Assistant - The University of Auckland*
Responsibilities include running small-classroom (30-40 students) computer tutorials, office hours, discussion sessions, practical laboratory sessions, instructing field classes, grading essays, reports, and exams.
Courses include:
ENVSCI 714: Aquatic Ecology
BIOSCI330: Freshwater and Estuarine Ecology

ENVSCI201: Sustaining Our Environment
BIOSCI101: Essential Biology: From Genomes to Organisms
BIOSCI107: Biology for Biomedical Science: Cellular Processes
ENVSCI203: Modelling Environmental Systems
GEOG102: Geography of the Human Environment

Lectures

2021 '*Basics of Adobe Illustrator*,' University of California, Irvine, Eco Evo 203C.

2020 '*An introduction to R Markdown*,' University of California, Irvine, Eco Evo 203C.

2017 '*Heating up interactions: Intraspecific variation in metabolic rate and behavior'* lecture, The University of Auckland.

2017 '*Water quality and urbanization'* lecture for ENVSCI 201, University of Auckland.

2016 '*Ecological effects of urban land use in New Zealand*' lecture for ENVSCI 201, University of Auckland.

Advancement

2021-Ongoing Certificate in Teaching Excellence Program (CTEP), Division of Teaching Excellence and Innovation (DTEI), University of California, Irvine.

2021 Implementing active learning strategies in your classroom to enhance student learning.

2021 Approaching Inclusive Teaching through the "Hidden Curriculum."

Relevant work experience

2019 *Freshwater Ecologist – Puhoi Stour Consulting*
Data collection, statistical analysis, technical report writing, and manuscript preparation.

2015-2016 *Senior Freshwater Ecologist – Auckland Council*
Responsibilities included sample collection (fish, invertebrates, heavy metals, nutrients, and carbon), statistical analysis, Technical report writing, and manuscript preparation.

2011-2012 *Park Ranger- Auckland Council West*
Responsibilities included vegetation and pest monitoring in local parks and site surveys.

2010-2011 *Graduate Environmental Specialist - Auckland Council Internship*
Responsibilities included freshwater fish e-fishing surveys, macroinvertebrate surveys in soft and hard-bottomed streams, stream Ecological Valuations (SEV), collecting water, biofilm samples, sediment samples, and vegetation surveys.

Relevant skills

Software R, R Markdown (YAML), ArcGIS, ArcPro, QGIS, SPSS, Primer, SigmaPlot, Adobe Suite,

MS Office Suite.

Laboratory Spectrophotometry, fluorometry, Lachat QuikChem 8500 Flow Injection Analyser, EL cube elemental analyzer, cavity ring-down spectrometry (Greenhouse gas analysis), microplate Fluorometer, flow-through respirometry, fish and invertebrate dissections, constructing nutrient diffusing substrates, substrate preparation for extracellular enzyme activity measurement. Freshwater fish laboratory rearing.

Field Experimental design, ecological sampling of freshwater, terrestrial and marine environments, e-fishing, seining, dip-netting, zooplankton, macroinvertebrate sampling, zooplankton sampling, green-house gas sampling, primary productivity measures, habitat assessments, seedling plots, sediment coring, habitat classification.