

**Dr. Michael David Rennie**  
**Curriculum Vitae**

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**RESEARCH INTERESTS** (*“Statement of Research Achievements and Interests” available on request*)

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My research group is focused on understanding the fundamental linkages between metabolic performance of individuals and ecosystem-level processes, and how these relationships are modulated in altered environments. Human activities can affect ecosystems through multiple pathways of effects, or stressors, which in turn can alter the physiological performance of individuals (e.g., activity, feeding efficiency, growth and reproduction) and community composition of aquatic ecosystems. Changes at both scales have direct consequences for the pathway and efficiency of energy flow through food webs. Using a combination of fish tracking technology, hydroacoustics, respirometry, calorimetry, computer modeling and life history theory, we seek to demonstrate the mechanistic relationship between individual, population and ecosystem-level traits.

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**PROFESSIONAL EMPLOYMENT HISTORY**

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- Jan. 2015– Present**     ***Assistant Professor and Canada Research Chair in Freshwater Ecology and Fisheries, Department of Biology, Lakehead University, Thunder Bay, ON***
- Lead the Community Ecology and Energetics (CEE) Lab, guiding and conducting research on freshwater environments and fisheries, evaluating metabolic and community change in the face of ecosystem disturbance <http://www.ceelab.ca/> (see also “*Research Interests*”)
  - Supervise postdoctoral researchers, undergraduate and graduate students (see also “*Training of highly qualified personnel*”)
  - Developed and teach courses in experimental limnology, biostatistics and fisheries ecology (see also “*Teaching experience*”)
  - Secure National, Provincial and International funding for research activities
  - Service on faculty, departmental and supervisory committees
  - Manage financial accounts
- Jan. 2015– Present**     ***Research Fellow, International Institute for Sustainable Development (IISD)- Experimental Lakes Area, Winnipeg, MB***
- Oversee and provide guidance on fish research program at the Experimental Lakes Area
  - Oversee and provide guidance on transfer of ELA database to new platform
  - Core team member for IISD-ELA strategic planning, 2014-2019
- Apr. 2014– Dec. 2014**     ***Research Scientist, IISD- Experimental Lakes Area, Winnipeg, MB***
- Led independent research on fish populations at the Experimental Lakes Area (ELA)
  - Supervised staff (1 full-time, 1-2 students, 2-3 seasonal employees per year)
  - Led and developed youth science outreach initiatives at ELA
- Sept. 2010– Apr. 2014**     ***Research Scientist, Fisheries and Oceans Canada, Winnipeg, MB***
- Led independent research on fish populations at the Experimental Lakes Area (ELA) and participated in highly collaborative whole-lake manipulation studies
  - Provided scientific advice to DFO managers and biologists and to external clients
  - Supervised staff (1 full-time, 1-2 students, 2-3 seasonal employees annually)
  - Managed financial accounts
  - Used mark-recapture methods for population abundance estimation

- Updated 40+ year dataset on ELA fishes; initiated archive and data rescue initiative for fish samples, bony structures and data
- Collaborated with Environment Canada on mercury sampling on ELA lakes in support of the Clean Air Regulatory Agenda
- Co-chair, Physical Samples subcommittee, National Science Data Management Committee

**Jan–Apr 2010**      ***Instructor, University of Toronto Mississauga, ON*** (see also “Teaching Experience”)  
 •Designed course outline, lectures and labs for a course in advanced biostatistics  
 •Supervised four teaching assistants and assisted in tutorial instruction  
 •Graded student tests and assignments

**Sep 2008–  
Sep 2010**      ***Postdoctoral Fellow, Trent University, ON*** (see also “Academic Experience”)  
 •Investigated temporal changes in food web structure associated with environmental change and species invasions on Lake Simcoe

## EDUCATION AND ACADEMIC EXPERIENCE

### Academic Work:

**Jan 2015–  
Present**      **Assistant Professor**, Department of Biology, Lakehead University, ON, Canada  
**Tier 2 Canada Research Chair** in Freshwater Ecology and Fisheries  
 Principal Investigator, Community Ecology and Energetics (CEE) Laboratory

**Sept 2015–  
Present**      **Adjunct Professor**, Department of Biology, University of Waterloo  
 Participation on graduate student committees

**Sept 2012–  
Present**      **Adjunct Professor**, Department of Biological Sciences, University of Manitoba  
 Supervising graduate and undergraduate students, sitting on student committees

**Sep 2008–  
Sep 2010**      **Postdoctoral Fellow**, Environmental and Life Sciences Program, Trent University  
**Supervisor:** Dr. David O. Evans  
**Research Topic:** Evaluating historical food web changes in Lake Simcoe

### Degrees:

**Oct 2003–  
Oct 2008**      **Doctor of Philosophy**, Department of Ecology and Evolutionary Biology,  
 University of Toronto  
**Convocation:** June 2009  
**Supervisors:** Dr. W. Gary Sprules, Dr. Timothy B. Johnson  
**Thesis title:** Influence of invasive species, climate change and population density on life  
 histories and mercury dynamics of two *Coregonus* species

**Sep 2001–  
Oct 2003**      **Master of Science, Zoology**, University of Toronto  
**Supervisors:** Dr. Nicholas Collins, Dr. Brian Shuter and Dr. Bryan Henderson  
**Thesis title:** Mercury in aquatic food webs: refining the use of mercury in energetics  
 models of wild fish populations

**Sep 1994–  
Jun 1999**      **Bachelor of Science, Ecology**, University of Calgary  
**Supervisor:** Dr. Leland J. Jackson  
**Thesis title:** Patterns in submerged aquatic macrophyte structure and littoral invertebrate  
 abundance

## **Training of Highly Qualified Personnel:**

### ***Technical Staff***

- 2017: Corwin Andrews, Lab Technician (casual), Lakehead University  
2014: Katie Shepard, Fisheries Technician (casual), Fisheries and Oceans Canada  
2013-14: Chandra Rodgers, Fisheries Biologist, Fisheries and Oceans Canada and IISD-  
Experimental Lakes Area  
2012: Kim Palmquist, Fisheries Technician (casual), Fisheries and Oceans Canada  
2011: Sara Braun, Fisheries Technician (casual), Fisheries and Oceans Canada  
2010-2014: Sandy Chalanchuk, Fisheries Technician, Fisheries and Oceans Canada

### ***Postdoctoral***

- 2013-2014: Sonya Havens, Visiting Postdoctoral Fellow, Fisheries and Oceans Canada  
*Evaluating links between environmental change and fish productivity*

### ***Graduate students***

- PhD:** 2017-present: Margaret Schweitzer, Lakehead University  
*Evaluating predictors of fish productivity in boreal lakes*
- MSc:** 2016-present: Victoria Langen, Lakehead University  
*Changes in the offshore food web of Lake Simcoe following dreissenid invasion*
- 2016-present: Graydon McKee, Lakehead University  
*Movement patterns of Lake Superior Walleye*
- 2016-present: Marissa Wegher, Lakehead University  
*Spatial variation in trophic transfer efficiency in Lake Superior*
- 2015-present: Brendan Allan, Lakehead University  
*Influence of prey naiveté on predator detection and response*
- 2015-present: Lauren Hayhurst, Lakehead University  
*Nanosilver effects on fish populations and energetics in a whole ecosystem experiment*
- 2015-2017: Patrick Kennedy, University of Manitoba  
*The influence of the prey community on the growth and life history variation of aquatic apex predators in the Canadian boreal shield*
- 2012-2015: Laura Murray, University of Manitoba (co-supervised with Jim Roth)  
*Effects of nanosilver on stress and metabolism of fish*
- 2012-2015: Marianne Geisler, University of Manitoba (co-supervised with Darren Gillis)  
*Forecasting the effect of invasive mussels on walleye (*Sander vitreus*) habitat occupancy and production*

### ***Undergraduate theses, Co-operative education and summer undergraduate students***

- 2016-17: Brennan Deboer, BSc Honours, Lakehead University *Changes in yellow perch diets associated with nanosilver exposure in freshwater lakes*  
Kyle Stratton, BSc Honours, Lakehead University *Diversity of life history characteristics of Lake Superior migratory rainbow trout*  
Brandon Vennell, NSERC USRA, BSc Honours, Lakehead University *Differences in resting metabolic rate between domestic and wild rainbow trout*  
Sarah Warrack, BSc Honours, University of Manitoba *The occurrence of microplastics in the Red and Assiniboine Rivers*
- 2015-16: Marissa Wegher, BSc Honours, Lakehead University *Evaluating correspondence between baitfish communities in bait shops vs. natural lakes*  
\*Philip Anderson, Queen's University. *Evaluating sample processing techniques for enumerating surface microplastics in Lake Winnipeg*
- 2014-15: Riley Bartel (co-op), University of Manitoba. *Climate variation drives annual growth in warmwater fishes*  
Lauren Hayhurst (co-op), University of Manitoba

**2013:** \*Jessica Mai (co-op), University of Manitoba. *The effects of climate change on lake trout and white sucker spawning phenologies*

**2012:** \*Michele Nicholson (co-op), University of Manitoba. *Apparent extirpation of prey fish communities following northern pike introduction*

Emianka Sotiri (co-op), University of Manitoba. *Seasonal and spatial variation in Yellow perch energy densities at the ELA*

Brendan Allan, University of Manitoba

**2011:** Amy Gilbert (co-op), University of Winnipeg

Candace Wright (co-op), University of Manitoba

**2010:** Sara Braun, University of Manitoba

(\*Undergraduate students who produced significant research contributions)

### **Graduate student supervisory committees**

**2016-present:** Hannah Taylor, MSc, Lakehead University

**2016-present:** Joseph Tonin, MSc, University of Manitoba

**2016-present:** Hannah Britton-Foster, MSc, Lakehead University

**2016-present:** Kerman Bajina, MSc, Lakehead University

**2015-present:** Cassandra Eckman, MSc, Lakehead University

**2015-present:** Lindsey Maendel, MSc, Lakehead University

**2015-present:** Brent Lewis, MSc, University of Waterloo

**2015-present:** Stephen Slongo, MSc, Lakehead University

**2012-present:** Jonathan Martin, PhD, Trent University

**2011-present:** Matt Guzzo, PhD, University of Manitoba

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## **AWARDS**

### **Recognition:**

**2016 Prix D'Excellence Award for Excellence in Science. Fisheries and Oceans Canada.** Recognizing leadership role and efforts while a DFO employee towards the National Physical Samples Steering Committee. *"the Prix d'Excellence is the Department's most prestigious award and was established to honour the best and most exemplary employee contributions to Fisheries and Oceans Canada."*

### **External Research Grants:**

<b>Grant Title/ Granting agency</b>	<b>Value</b>	<b>Institution</b>	<b>Period Held</b>
Evaluating change in fisheries for Lake Superior North Shore First Nations/ <i>various First Nations</i>	\$15,525	Lakehead University	2017
Changes in the Food Web of Black Bay, Lake Superior/ <i>North Shore Steelhead Association</i>	\$20,000	Lakehead University	2017
Spatial variation in Lake Superior fish energetics/ <i>Ontario Ministry of Natural Resources and Forestry</i>	\$15,000	Lakehead University, University of Windsor	2017
Infrastructure operating grant/ <i>CFI</i>	\$32,400	Lakehead University	2016-2021
Discovery Grant/ <i>NSERC</i>	\$140,000	Lakehead University	2016-2021
Indicators of fish productivity/ <i>Manitoba Hydro</i> (Co-applicant)	\$340,000	IISD-Experimental Lakes Area	2016-2019
Walleye Movement in the Red River and Lake Winnipeg/ <i>Fish and Wildlife Enhancement Fund</i> (Co-applicant)	\$136,100	Manitoba Sustainable Development, Lakehead University	2016-2018
Evaluating changes in nearshore carbon delivery in Lake Simcoe / <i>Ontario Ministry of Environment and Climate Change</i>	\$58,400	Lakehead University	2016-2018

<b>Grant Title/ Granting agency</b>	<b>Value</b>	<b>Institution</b>	<b>Period Held</b>
Recovery of fish populations from environmental nanosilver release/ <i>MITACS Accelerate</i>	\$15,000	Lakehead University	2016
<i>Canadian Foundation for Innovation John Evans Leadership Fund/Ontario Research Fund</i>	\$337,500	Lakehead University	2015-2016
<i>IISD-ELA Research Fellow support in aid of research (\$20,000 annual support)</i>	\$60,000	IISD-Experimental Lakes Area	2015-2017
Habitat and community dynamics as drivers of Northern Pike ( <i>Esox lucius</i> ) growth potential/ <i>Rainy Lake Fisheries Charity trust</i>	\$10,000	University of Manitoba	2015-2017
Determining the extent of plastics pollution in Lake Winnipeg/ <i>Lake Winnipeg Foundation</i>	\$6,000	IISD-Experimental Lakes Area	2015-2016
Canada Research Chair in Freshwater Ecology and Fisheries/ <i>NSERC</i>	\$500,000	Lakehead University	2015-2020
Effects of nanosilver on a lake ecosystem (Collaborator)/ <i>NSERC Strategic Grant</i>	\$736,200	Trent University, University of Manitoba, ELA	2011–2014
Determining stability in relationships between fish trophic position and mercury concentration following <i>Bythotrephes</i> invasion (Co-investigator)/ <i>Ontario Federation of Anglers and Hunters</i>	\$4,000	University of Toronto	2010–2012
Evaluating changes in lake whitefish feeding habits (Co-investigator)/ <i>Great Lakes Fishery Commission</i>	USD \$67,091	Trent University	2010–2012
Internal versus external sources of carbon in Lake Simcoe and effects on offshore water quality (Co-investigator)/ <i>Environment Canada Lake Simcoe Clean Up Fund</i>	\$204,000	Trent University	2009–2011
Ontario Federation of Anglers and Hunters/ <i>Toronto Sportsmen's Show Sport Fisheries Research Grant</i>	\$2,000	University of Toronto	2006–2007
Undergraduate Industrial Research Award/ <i>NSERC</i>	\$3,600	Chemex Labs Alberta Inc.	1996

### **Competitive funding internal to Fisheries and Oceans Canada:**

<b>Funding envelope/ Grant title</b>	<b>Value</b>	<b>Period Held</b>
Strategic Program for Ecosystem-Based Research and Advice/ <i>Evaluation of ecosystem measures for assessing impacts to fish productivity</i> (co-applicant)	\$86,000	2013-2015
Aquatic Invasive Research/ <i>Potential effects of zebra mussels on walleye production</i>	\$2,000	2013-2014
Strategic Program for Ecosystem-Based Research and Advice/ <i>Forecasting the Effects of Invasive Dreissenid Mussels on Habitat Occupancy and Production of Walleye</i> (Sander vitreus)	\$34,000	2013-2014
Strategic Program for Ecosystem-Based Research and Advice/ <i>Evaluation of ecosystem measures for assessing impacts to fish productivity</i> (co-applicant)	\$65,000	2012-2013
Aquatic Invasive Species Research/ <i>Potential effects of zebra mussels on walleye production</i>	\$8,000	2012-2013
Aquatic Invasive Species Monitoring/ <i>Monitoring the</i>	\$13,000	2012-2013

<b>Funding envelope/ Grant title</b>	<b>Value</b>	<b>Period Held</b>
<i>spread of the spiny water flea, rusty crayfish, smallmouth bass in Northwestern Ontario and the Prairie Region</i> (co-applicant)		
Aquatic Climate Change Adaptation Services Program/ <i>Assessing climate-mediated impacts to boreal lakes through whole-ecosystem manipulation</i> (co-applicant)	\$76,000	2012-2013
Aquatic Invasive Species Monitoring/ <i>Evaluating the distribution of the spiny water flea in Northwestern Ontario</i> (co-applicant)	\$5,000	2011-2012

(Over \$175,000 in Student/Postdoctoral Academic Awards, details available upon request)

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## SCIENCE COMMUNICATION

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**Peer Reviewed Publications: (\* are publications of supervised students; underline denotes corresponding author when not first author)**

*Accepted:*

40. MacKay, M., Verseghy, D., Fortin, V and **Rennie, M.D.** Wintertime Simulations of a Boreal Lake with the Canadian Small Lake Model. JHM-D-16-0268. Accepted by the Journal of Hydrometeorology 23 May 2017.

*In Press:*

39. \*Murray, L., **Rennie, M.D.**, Svendsen, J.C. and Enders, E.C. 2017. Effect of nanosilver on metabolism in Rainbow Trout (*Oncorhynchus mykiss*): An investigation using different respirometric approaches. Environmental Toxicology and Chemistry doi: 10.1002/etc.3827.

*Published:*

38. Fera, S.A., **Rennie, M.D.** and Dunlop, E.S. 2017. Broad shifts in the resource use of a commercially harvested fish following the invasion of dreissenid mussels. Ecology 98: 1681–1692. doi: 10.1002/ecy.1836
37. \*Murray, L., **Rennie, M.D.**, Enders, E.C., Pleskach, K. and Martin, J. 2017. Effect of nanosilver on cortisol release and morphometrics in Rainbow Trout (*Oncorhynchus mykiss*). Environmental Toxicology and Chemistry. 36: 1606–1613. doi: 10.1002/etc.3691
36. \*Murray, L., **Rennie, M.D.**, Svendsen, J.C. and Enders, E.C. 2017. Respirometry increases cortisol levels in rainbow trout *Oncorhynchus mykiss*: implications for measurements of metabolic rate. Journal of Fish Biology 90: 2206–2213. doi: 10.1111/jfb.13292
35. \*Anderson, P.J., Warrack, S., Langen, V., Challis, J.K., Hanson, M.L. and **Rennie, M.D.** 2017. Microplastic contamination in Lake Winnipeg, Canada. Environmental Pollution 225: 233–231. Doi: <http://doi.org/10.1016/j.envpol.2017.02.072> (Media: CBC Radio, SRC, Chronicle Journal, Net News Ledger)

34. \*Geisler, M.E., **Rennie, M.D.**, Gillis, D.M. and Higgins, S.N. 2016. A predictive model for water clarity following dreissenid invasion. *Biological Invasions* 18(7): 1989–2006. doi: 10.1007/s10530-016-1146-x
33. Chen, J., **Rennie, M.D.** Sadi, B., Zhang, W. and St-Amant, N. 2016. A study on the levels of radioactivity in fish samples from the Experimental Lakes Area in Ontario, Canada. *Journal of Environmental Radioactivity* 153: 222–230. doi: <http://doi.org/10.1016/j.jenvrad.2016.01.005>
32. **Rennie, M.D.** Weidel, B.C., Claramunt, R.M. and Dunlop, E.S. 2015. Changes in depth occupied by Great Lakes Lake Whitefish populations and the influence of survey design. *Journal of Great Lakes Research* 41(4): 1150–1161. doi:10.1016/j.jglr.2015.09.014
31. Fera, S.A., **Rennie, M.D.** and Dunlop, E.S. 2015. Cross-basin analysis of long-term trends in the growth of Lake Whitefish in the Laurentian Great Lakes. *Journal of Great Lakes Research*, 41(4): 1138–1149. doi:10.1016/j.jglr.2015.08.010. *Chandler Misner award for most notable paper in the Journal of Great Lakes Research, 2015.*
30. **Rennie, M.D.** and Venturelli, P.A. 2015. The Ecology of lifetime growth in percid fishes (Book chapter, invited contribution). *In: Biology and Culture of Percid Fishes – Principles and Practices.* Editors: P. Kestemont, K. Dabrowski and R C. Summerfelt. Springer.
29. \*Nicholson, M.E., **Rennie, M.D.** and Mills, K.H. 2015. Apparent extirpation of prey fish communities in lakes following northern pike (*Esox lucius*) introduction. *Canadian Field Naturalist*, 129(2): 165–173. doi: <http://dx.doi.org/10.22621/cfn.v129i2.1697>
28. de Kerckhove, D.T., **Rennie, M.D.** and Cormier, R. 2015. Censoring government scientists and the role of consensus in science advice. *EMBO reports*, 16: 263–266. doi: 10.15252/embr.201439680.
27. Samarasin, P., Minns, C.K., Shuter, B.J., Tonn, W.M., and **Rennie, M.D.** 2015. Fish diversity and biomass in northern Canadian lakes: northern lakes are more diverse and have greater biomass than expected based on species–energy theory. *Canadian Journal of Fisheries and Aquatic Sciences*. 72: 226–234. doi:10.1139/cjfas-2014-0104 (Media: Ottawa Citizen)
26. Kidd, K.A, Paterson, M.J, **Rennie, M.D.**, Podemski, C.L., Findlay, D.L., Blanchfield, P.J. and Liber, K. 2014. Responses of a freshwater food web to a potent synthetic oestrogen. *Philosophical Transactions of the Royal Society Series B*. 369: 20130578. doi: 10.1098/rstb.2013.0578 (Media: CBC radio)
25. Guzzo, M.M., **Rennie, M.D.** and Blanchfield, P.J. 2014. Evaluating the relationship between catch per unit effort and abundance for littoral cyprinids in small boreal shield lakes. *Fisheries Research* 150: 100–108. doi: <http://dx.doi.org/10.1016/j.fishres.2013.10.019>
24. **Rennie, M.D.** 2013. Context-dependent changes in lake whitefish populations associated with dreissenid invasion (Book chapter, invited contribution). *In: Quagga and Zebra Mussels: Biology, Impacts, and Control.* 2nd Edition. Tom Nalepa and Don Schosser, Editors. CRC press. pp. 661–680.

23. **Rennie, M.D.** Evans D.O. and Young, J.D. 2013. Increased dependence on nearshore benthic resources in the Lake Simcoe ecosystem after dreissenid invasion. *Inland Waters* 3: 297–310. doi: 10.5268/IW-3.2.540
22. Palmer, M.E., Hiriart-Baer, V.P., North, N.L. and **Rennie, M.D.** 2013. Summary of Lake Simcoe's past, present and future. *Inland waters* 3: 119–124. doi: 10.5268/IW-3.2.622
21. Palmer, M.E., Hiriart-Baer, V.P., North, N.L. and **Rennie, M.D.** 2013. Preface: Towards a better understanding of Lake Simcoe through integrative and collaborative monitoring and research. *Inland Waters* 3: 47–50. doi: 10.5268/IW-3.1.589
20. North, R.L., D. Barton, A.S. Crowe, P.J. Dillon, R.M.L. Dolson, D.O. Evans, B.K. Ginn, J. Hawryshyn, H. Jarjanazi, J.W. King, J.K.L. La Rose, L. Leon, C.F.M. Lewis, G.E. Liddle, Z.H. Lin, F.J. Longstaffe, R.A. Macdonald, L. Molot, T. Ozersky, M. Palmer, R. Quinlan, **M.D. Rennie**, M.M. Robillard, D. Rode, K.M. Ruhland, A. Schwalb, J.P. Smol, E. Stainsby, J.J. Trumpickas, J.G. Winter, J.D. Young. 2013. The state of Lake Simcoe (Ontario, Canada): the effects of multiple stressors on phosphorus and oxygen dynamics. *Inland Waters* 3: 51-74. doi: 10.5268/IW-3.1.529
19. **Rennie, M.D.**, Ozersky, T. and Evans, D.O. 2012. Effects of formalin preservation on freshwater benthic invertebrate isotopic values over decadal time scales. *Canadian Journal of Zoology*. 90: 1320–1327. doi: 10.1139/z2012-101
18. **Rennie, M.D.** and Verdon, R. 2012. Assessing length-related biases in standard weigh equations (Gerow 2011): Reply to Comment. *North American Journal of Fisheries Management* 32: 953–955 doi:10.1080/02755947.2012.678967
17. **Rennie, M.D.** 2012. Interpreting stable isotope patterns with depth: a comment on Riley et al. (2011). *Journal of Great Lakes Research* 38: 580–581. doi:10.1016/j.jglr.2012.06.003
16. **Rennie, M.D.** and Evans, D.O. 2012. Decadal changes in benthic invertebrate communities following dreissenid establishment in Lake Simcoe. *Freshwater Science* 31: 733–749. doi:10.1899/11-079.1
15. **Rennie, M.D.**, Johnson, T.B., and Sprules, W.G. 2012. Energy acquisition and allocation patterns of lake whitefish (*Coregonus clupeaformis*) are modified when dresenids are present. *Canadian Journal of Fisheries and Aquatic Sciences* 69: 41–59. doi: 10.1139/F2011-126.
14. **Rennie, M.D.**, Ebener, M. and Wager, T. 2012. Can migration mitigate the effects of ecosystem change? Patterns of dispersal, energy allocation and acquisition in Great Lakes lake whitefish (*Coregonus clupeaformis*). *Advances in Limnology* 63: 429–454.
13. **Rennie, M.D.**, Strecker, A.L. and Palmer, M. 2011. *Bythotrephes* invasion elevates trophic position of zooplankton and fish: implications for contaminant biomagnification. *Biological Invasions* 13: 2621–2634. doi: 10.1007/s10530-011-0081-0
12. Jimenez, A., **Rennie, M.D.**, Sprules, W.G. and La Rose, J. 2011. Changes in the benthic invertebrate community in Lake Simcoe 1983–2008. *Journal of Great Lakes Research* 37 Suppl. 3: 103–112. doi: 10.1016/j.jglr.2010.07.002



11. **Rennie, M.D.**, Purchase, C.F., Shuter, B.J., Collins, N.C., Abrams, P.A. and Morgan, G.E. 2010. Prey life history and bioenergetic responses across a predation gradient. *Journal of Fish Biology* 77: 1230–1251. doi: 10.1111/j.1095-8649.2010.02735.x
10. **Rennie, M.D.**, Sprules, W.G., Vaillancourt, A. 2010. Changes in fish condition and mercury vary by region, not *Bythotrephes* invasion: A result of climate change? *Ecography*, 33: 471–482. doi: 10.1111/j.1600-0587.2009.06160.x
9. **Rennie, M.D.**, Sprules, W.G. and Johnson, T.B. 2009. Factors affecting the growth and condition of lake whitefish (*Coregonus clupeaformis*). *Canadian Journal of Fisheries Sciences*, 66: 2096–2108. doi: 10.1139/F09-139
8. Fernandez, R., **Rennie, M.D.** and Sprules, W.G. 2009. Changes in nearshore zooplankton communities associated with species invasions and potential effects on larval lake whitefish (*Coregonus clupeaformis*). *International Review of Hydrobiology*, 94: 226–243. doi: 10.1002/iroh.200811126
7. **Rennie, M.D.**, Sprules, W.G. and Johnson, T. 2009. Resource switching in fish following a major food web disruption. *Oecologia*, 159: 789–802. doi: 10.1007/s00442-008-1271-z
6. **Rennie, M.D.** and Verdon, R. 2008. Development and evaluation of condition indices for the Lake whitefish. *North American Journal of Fisheries Management*, 28: 1270–1293. doi: 10.1577/M06-258.1
5. **Rennie, M.D.**, Purchase, C.F., Lester, N., Collins, N.C., Shuter, B.J. and Abrams, P.A. 2008. Lazy males? Bioenergetic differences in energy acquisition and metabolism explain sexual size dimorphism in percids. *Journal of Animal Ecology*, 77: 916–926. doi: 10.1111/j.1365-2656.2008.01412.x
4. McNickle, G.G., **Rennie, M.D.** and Sprules, W.G. 2006. Potential effects of zebra mussel (*Dreissena polymorpha*) invasion on benthic invertebrate communities and lake whitefish (*Coregonus clupeaformis*) in South Bay, Lake Huron. *Journal of Great Lakes Research*, 32: 180–193. doi: 10.3394/0380-1330(2006)32[180:CIBICO]2.0.CO;2 Received “Highly Cited Author Award”, *Journal of Great Lakes Research*, 2006-2008; Top-20 most cited articles 2005-2009.
3. **Rennie, M.D.**, Collins, N.C., Purchase, C.F. and Tremblay, A. 2005. Predictive models of benthic invertebrate methylmercury in Ontario and Québec lakes. *Canadian Journal of Fisheries and Aquatic Sciences*, 62: 2770–2783. doi:10.1139/f05-181
2. **Rennie, M.D.** and Jackson, L.J. 2005. The influence of habitat complexity on littoral invertebrate distributions: patterns differ in shallow prairie lakes with and without fish. *Canadian Journal of Fisheries and Aquatic Sciences*, 62: 2088–2099. doi:10.1139/f05-123
1. **Rennie, M.D.**, Collins, N.C., Shuter, B.J., Rajotte, J.W. and Couture, P. 2005. A comparison of methods for estimating activity costs of wild fish populations: more active fish observed to grow slower. *Canadian Journal of Fisheries and Aquatic Sciences*, 62: 767–780. doi:10.1139/f05-052

*Submitted:*

Guzzo, M., Blanchfield, P. and Rennie, M.D. Behavioural adaptation to climatic variation alters the dominant energy pathway of a cold-water predator. Submitted to Proceedings of the National Academy of Sciences of the USA, 8 May 2017. 2017-02584.

Guzzo, M., Blanchfield, P., Banh, S., Brandt, C., Cassidy, A., Chapelsky, A., Donaher, N., Zacharias, P., Currie, S., Lamarre, S., **Rennie, M.D.** and Treberg, J. Blood biochemical markers in wild lake trout (*Salvelinus namaycush*) reveals red blood cell glutathione status as a sensitive candidate marker of thermal stress. Submitted to Conservation Physiology 6 October 2016, CONPHYS-2016-064. Revision requested Oct. 15, 2016.

**Internally-Peer Reviewed Publications and Government Reports:**

\*Havens, S., **Rennie, M.**, Blanchfield, P., Paterson, M. and Higgins, S. 2014. Evaluation of eutrophication and water level drawdown on Lake Whitefish (*Coregonus clupeaformis*) productivity; Fish habitat assessment. Canadian Technical Report of Fisheries and Aquatic Sciences 3110: vi + 40 p.

Tam, P.Y., **Rennie, M.D.** and Cairns, E. 2003. Method for determination of Total Mercury in freshwater fish and invertebrate tissues. University of Toronto at Mississauga.

**Rennie, M.D.**, Verbeek, A.G. and Ramamoorthy, S. 1997. Biodegradation of aspen and conifer leachates. *In: Proceedings of the 24<sup>th</sup> Annual Aquatic Toxicity Workshop.* Canadian Technical Report of Fisheries and Aquatic Sciences 2192: 20–21.

**Rennie, M.D.** 1996. Biodegradation of Aspen and Conifer Leachates: Toxicology and Chemistry. 47 pages. Final report for Chemex Labs Alberta Inc.

**Media/Web/Social Media:**

Author, Editor of “UnmuzzledScience” blog: <http://www.unmuzzledscience.wordpress.com>

- Blog provided a forum for discussion to help improve the function of government science in the federal public service
- As of Feb. 2017, more than 120,000 views (average 175 views per day)
- Currently maintained to document challenges faced by government scientists with occasional posts on relevant topics to open communication of government science

Twitter handle: @not\_Klaatu

6 April 2017: Audio interview with CBC Information Radio reporting results of Anderson et al. 2017 reporting microplastic concentrations in Lake Winnipeg comparable to Lake Erie <http://www.cbc.ca/news/canada/manitoba/lake-winnipeg-microplastics-1.4058070>

6 April 2017: Television interview with Radio Canada «Lac Winnipeg : des quantités de microplastiques comparables à celles du lac Érié» reporting results of Anderson et al. 2017 <http://ici.radio-canada.ca/nouvelle/1026630/lac-winnipeg-quantites-microplastiques-comparables-lac-erie>

25 January 2017: Audio interview with CBC Up North: Reaction to limitation of communications by US federal scientists under Trump administration and the importance of communicating publicly funded federal science <http://www.cbc.ca/player/play/862680643766>

11 May 2016: Audio interview with CBC As It Happens about the announced hiring of 135 science staff at Fisheries and Oceans Canada <http://www.cbc.ca/radio/asithappens/as-it-happens-wednesday-edition-1.3577228/ottawa-goes-on-a-fish-scientist-hiring-binge-1.3577230>

10 November 2015: Audio interview on CBC Superior Morning, "Liberals' promise to unmuzzle scientists a good first step, researcher says" <http://www.cbc.ca/news/canada/thunder-bay/scientists-liberal-government-relationship-1.3312001>

26 October 2015: Interview with Vice Canada about the outlook for Canadian Science following the election of a Liberal majority government. [http://www.vice.com/en\\_ca/read/we-asked-scientists-about-how-much-better-life-will-be-with-harper-gone](http://www.vice.com/en_ca/read/we-asked-scientists-about-how-much-better-life-will-be-with-harper-gone)

15 October 2015: Interview with CBC Radio, Manitoba, countering assertions that instances of government science muzzling were fabricated or heresy. Web story based on interview discussion: <http://www.cbc.ca/news/canada/manitoba/conservatives-not-muzzling-scientists-experimental-lakes-researcher-disagrees-1.3271830>

6 September 2015: Video interview: Operations at the Experimental Lakes Area looking much different than 2 years ago. TBT News Hour. <https://www.youtube.com/watch?v=dL2P6XXLdw4#action=share>  
Story starts at 4:04.

30 August 2015: Experimental Lakes Area expands mandate far beyond fish (web). Thunder Bay News Watch. [http://www.tbnewswatch.com/News/374836/Experimental\\_Lakes\\_Area\\_expands\\_mandate\\_far\\_beyond\\_fish](http://www.tbnewswatch.com/News/374836/Experimental_Lakes_Area_expands_mandate_far_beyond_fish)

22 May 2015: Government scientists should speak freely- sometimes. Globe and Mail (with Andrew Leach; print) <http://www.theglobeandmail.com/globe-debate/government-scientists-should-speak-freely-sometimes/article24552056/>

22 May 2015: Interview with CBC radio, Thunder Bay: Ex-government scientist in northwestern Ontario says muzzling was part of "toxic" work environment <http://www.cbc.ca/news/canada/thunder-bay/ex-government-scientist-in-northwestern-ontario-says-muzzling-was-part-of-toxic-work-environment-1.3083325>

5 May 2015: Article for Canadian Journalists for Free Expression 2014-15 Review: All quiet on the science front: silencing scientists threatens evidence-based decision making (print). Pages 34-35. [https://issuu.com/cjfe/docs/cjfe\\_2014-15\\_review\\_of\\_free\\_express/35?e=1482178/12659173](https://issuu.com/cjfe/docs/cjfe_2014-15_review_of_free_express/35?e=1482178/12659173)

26 Feb. 2015: Expert opinion, Blue bristles littering Red River Mutual Trail from snow clearing machine (print) <http://metronews.ca/news/winnipeg/1297191/blue-bristles-littering-red-river-mutual-trail-from-snow-clearing-machine/>

6 Feb. 2015: Coverage of Samarasin et al. 2015, Ottawa citizen (print): <http://ottawacitizen.com/news/national/arctic-lakes-hold-more-fish-than-anyone-knew>

15 Jan. 2015: Live in-studio interview with CBC Information Radio on plastic pollution in Lake Winnipeg

15 Jan. 2015: Selkirk Record interview on study evaluating plastic pollution in Lake Winnipeg (print)

14 Jan. 2015: Interlake spectator interview on successful funding to investigate plastic pollution in Lake Winnipeg (print): <http://www.interlaketoday.ca/2015/01/14/lake-winnipeg-foundation-gives-cash-for-projects>

10 Nov. 2014: Radio Interview with CBC “As It Happens” on the Ottawa Citizen editorial, below <http://www.cbc.ca/news/technology/muzzling-federal-scientists-may-be-damaging-to-government-itself-1.2831576>

6 Nov. 2014: Editorial, “Let my fellow scientists speak”, Ottawa Citizen (print): <http://ottawacitizen.com/news/politics/michael-rennie-let-my-fellow-scientists-speak>

28 Oct. 2014: Canadian Chemical News, print interview on whole-lake nanosilver experiment at the Experimental Lakes Area

17 Oct. 2014: Radio interview with CBC Thunder Bay on published collaborative research (Kidd et al. 2014): <http://www.cbc.ca/superiormorning/episodes/2014/10/17/blame-the-pill-1/>

1 Oct. 2014: Guest post on Science Borealis (Canadian science communication website): Rising from the ashes: Canada’s Experimental Lakes Area (web) <http://blog.scienceborealis.ca/rising-from-the-ashes-canadas-experimental-lakes-area/>

8 Sept. 2014: National Public Radio interview on effects of aquaculture on native fish populations (radio, web): <http://www.npr.org/blogs/thesalt/2014/09/08/346874331/could-great-lakes-fisheries-be-revived-through-fish-farms>

26 Aug. 2014: Maclean’s Magazine on-line, “Unmuzzle the scientists? Critics say ‘Yes, Please’” (web): <http://www.macleans.ca/society/science/un-muzzle-the-scientists-mp-ted-hsu-responds/#Michael>

### **Invited Research Lectures:**

Tiny particles, (potentially) big problem? Microplastics in Lake Winnipeg, Canada. (Keynote speaker). April 26, 2017. Annual General Meeting of the Lake Winnipeg Foundation, Winnipeg, MB, Canada.

A multi-scale approach to fisheries conservation. January 12, 2017. University of Alberta Department of Biological Sciences, Edmonton, AB, Canada.

Current threats to the Lake Winnipeg Ecosystem. October 24, 2016. Presentation to Science First, Winnipeg, MB, Canada.

The threat of invasive dreissenid mussels to inland fisheries. October 18, 2016. Presentation to the Faculty of Natural Resource Management, Lakehead University, Thunder Bay, ON, Canada.

Microplastic pollution in inland waters. June 17, 2016 (Plenary speaker). SETAC Prairie Northern Chapter 7<sup>th</sup> Annual Meeting, Winnipeg, MB, Canada.

Evaluating (and anticipating) the effects of dreissenid mussels on inland fisheries. April 14, 2016. University of Minnesota, St. Paul, MN, USA.

The role of dreissenids in changing Great Lakes Fisheries. April 7, 2016. Large Lakes Observatory, University of Minnesota, Duluth, MN, USA.

IISD-Experimental Lakes Area Research: small lakes, global impact. September 26, 2015. (Keynote speaker). Annual meeting of the Prairie Division of the Canadian Association of Geographers. Kenora, ON, Canada.

Effects of large scale ecological change on fish life histories. April 1, 2015. Swiss Federal Institute of Aquatic Science and Technology (Eawag), Kastainenbaum, Switzerland.

Assessing plastic pollution in freshwater systems- what's the threat to Lake Winnipeg? February 25, 2015. Manitoba Environmental Industry Association Remediation and Prevention Conference, Winnipeg, MB, Canada.

Life history consequences of large-scale ecological change. February 11, 2015. University of Lethbridge, Lethbridge, AB, Canada.

Changes in lake whitefish diet, growth and behaviour following dreissenid establishment. February 19, 2014. Lake Winnipeg Research Consortium Annual Science Workshop, Winnipeg MB, Canada.

Linking behaviour to life history through ecosystem change. January 15, 2014. Lakehead University, Department of Biological Sciences, Thunder Bay, ON, Canada.

Drivers and consequences of ecosystem-level change. November 25, 2013. University of Alberta Department of Biological Sciences, Edmonton, AB, Canada.

Finding the ghost of ecosystems past: Gaining ecological insights from biological tissue archives. November 23, 2012. University of Manitoba, Department of Biological Sciences, Winnipeg, MB, Canada.

Species invasions should affect fish contaminant levels, but do they? July 10, 2012. Experimental Lakes Area Seminar Series, Experimental Lakes Area, ON, Canada.

What drives yellow perch young-of-year growth? A case study from ELA lake 239. February 11, 2012. Freshwater Institute Ecosystem Research Discussion Group, Winnipeg, MB, Canada.

Temporal changes in resource use among Lake Simcoe fishes. August 17 2011. Experimental Lakes Area Seminar Series, Experimental Lakes Area, ON, Canada.

Teasing apart the effects of multiple stressors on aquatic food webs. Feb. 2, 2010. Freshwater Institute, Winnipeg, MB, Canada.

Identifying drivers of change in aquatic food web structure. January 27, 2010. Trent University, Peterborough, ON, Canada.

Using chemical tracers to gain ecological insights. Sep 25, 2009. Ontario Ministry of Natural Resources Aquatic Research and Development Section Annual Meeting, Algonquin Park, ON, Canada.

Dreissenid mussels: Bonus or blight for lake whitefish populations? December 8, 2008. Trent University, Department of Biology, Peterborough, ON, Canada.

Plasticity in the growth and life history lake whitefish populations: A case study of potential factors affecting change. Feb 22, 2006. Ontario Ministry of Natural Resources Upper Great Lakes Management Unit Seminar Series. Owen Sound, ON, Canada.

**Contributed Presentations (first author only):**

**Rennie, M.D.,** Murray, L., Enders, E.C., Pleskach, K., Martin, J., Svendsen, J.C. and Hayhurst, L. January 8, 2017. Direct exposure of nanosilver induces a stress response but does not affect whole body performance measures. Canadian Conference for Fisheries Research, Montreal, QC, Canada.

**Rennie, M.D.,** Charles, C., Bartel, R., Higgins, S., Chalanchuk, S. and Mills, K. October 9, 2016. Effects of climatic trends and variability on fish growth and survival in freshwater lakes. Society for Environmental Toxicology and Chemistry 7<sup>th</sup> World Congress, Orlando, FL, USA.

**Rennie, M.D.,** Blanchfield, P.J., Orihel, D. and Biro, P. July 9, 2016. Personality-biased differences in metabolic efficiency as a mechanism for divergent contaminant accumulation rates. Canadian Society for Ecology and Evolution, St. John's, NL, Canada.

**Rennie, M.D.,** Anderson, P. and Langen, V. June 10, 2016. First estimate of microplastic pollution in Lake Winnipeg. International Association for Great Lakes Research Annual Meeting, Guelph, ON, Canada.

**Rennie, M.D.,** Kling, H. and Scott, K. Feb. 18, 2015. Assessing plastic pollution in Lake Winnipeg. Lake Winnipeg Research Consortium Annual Science Workshop, Winnipeg, MB, Canada.

**Rennie, M.D.,** Nicholson, M. and Mills, K.H. Jan 8, 2015. Extirpation of prey fish following pike introduction. Canadian Conference for Fisheries Research, Ottawa, ON, Canada.

**Rennie, M.D.,** Paterson, M.J. and Findlay, D. Aug 19, 2014. Testing biomass size spectrum theory with whole-lake experiments. Annual meeting for the American Fisheries Society, Quebec City, QC, Canada.

**Rennie, M.D.,** Chalanchuk, S. and Mai, J. May 27, 2014. Climatic drivers of fish life history traits at the Experimental Lakes Area. Genomes to biomes: joint meeting of the Canadian Society for Ecology and Evolution, Society for Canadian Limnologists and Society of Canadian Zoologists. Montreal, QC, Canada.

**Rennie, M.D.,** Weidel, B., Claramunt, R. and Dunlop, E.S. Jan. 5, 2014. Changes in the depth distribution of Great Lakes lake whitefish. Canadian Conference for Fisheries Research, Yellowknife, NWT, Canada.

**Rennie, M.D.,** Dupuis, A. and Paterson, M. Jan. 4, 2013. Ontogenic effects of climate warming in warm water fishes. Canadian Conference for Fisheries Research, Windsor, ON, Canada.

**Rennie, M.D.,** Evans, D.O., LaRose, J.K.L. and Robillard, M.M. May 27, 2011. Temporal changes in resource use among Lake Simcoe fishes. Lake Simcoe Science Forum, Barrie, ON, Canada.

- Rennie, M.D.** and Evans, D.O. Jan 9, 2011. Temporal changes in the bioenergetics of Lake Simcoe fishes. Canadian Conference for Fisheries Research, Toronto, ON, Canada.
- Rennie, M.D.**, Evans, D.O., LaRose, J.K.L. and Robillard, M.M. May 19, 2010. Temporal changes in the importance and identity of coldwater fish resources. Annual Meeting of the International Association of Great Lakes Research. Toronto, ON, Canada.
- Rennie, M.D.**, Wagner, T. and Ebener, M. May 18, 2010. Can migration mitigate the effects of ecosystem change? Patterns of dispersal, energy allocation and acquisition in Great Lakes lake whitefish (*Coregonus clupeaformis*) (Poster). Annual Meeting of the International Association of Great Lakes Research. Toronto, ON, Canada.
- Rennie, M.D.** and Evans, D.O. Jan. 9, 2010. Long-term changes in the benthic invertebrate community of Lake Simcoe, Ontario. Canadian Conference for Fisheries Research, Winnipeg, ON, Canada.
- Rennie, M.D.**, Strecker, A.L. and Palmer, M. Oct. 1, 2009. *Bythotrephes* invasion elevates trophic position of fish and zooplankton communities. 4<sup>th</sup> International *Bythotrephes* workshop, Oct 1, Dorset, ON, Canada.
- Rennie, M.D.**, Jimenez, A., LaRose, J. and Sprules, W.G. Apr 21, 2009. Multivariate approaches to evaluating change in the Lake Simcoe benthic invertebrate community (Poster). Inaugural Lake Simcoe Synthesis Workshop, Toronto, ON, Canada.
- Rennie, M.D.** Randomization and graphing in R. Feb 2, 2009. Toolbox Seminar Series, Department of Ecology and Evolutionary Biology, Toronto ON, Canada
- Rennie, M.D.**, Sprules, W.G., Vaillancourt, A. Jan 10, 2009. Changes in fish condition and mercury vary by region rather than food chain length: A result of climate change? Canadian Conference for Fisheries Research, Ottawa, ON, Canada.
- Rennie, M.D.** Dec 5, 2008. Dreissenid mussels: blight or bonus for lake whitefish populations? Trent University Ecology and Evolution Seminar Series, Peterborough, ON, Canada.
- Rennie, M.D.** Nov 19, 2008. Human effects on ecosystems: Aquatic ecosystems in a changing climate. Presentation made to Grade 8 students through Virtual Researcher On Call program. Toronto, ON, Canada.
- Rennie, M.D.**, Johnson, T.B., and Sprules, W.G. Aug 28, 2008. More fish or more active? Invader-induced changes in lake whitefish activity rates. 10<sup>th</sup> International Symposium on the Biology and Management of Coregonid Fishes. Winnipeg, MB, Canada.
- Rennie, M.D.**, Murphy, S., Heaton, M. and Robinson, C. Aug 21, 2008. Multi-partner educational programs based on salmon re-introduction initiatives 138<sup>th</sup> Annual Meeting of the American Fisheries Society, Ottawa, ON, Canada.
- Rennie, M.D.**, Johnson, T.B., and Sprules, W.G. May 12, 2008. Evaluating growth declines in lake whitefish. 3<sup>rd</sup> annual meeting of the Canadian Society for Ecology and Evolution, Vancouver, BC, Canada.

- Rennie, M.D.,** Sprules, W.G. and Johnson, T.B. Apr 19, 2008. Resource switching in fish following a major food web disruption. 2<sup>nd</sup> annual Ecology and Evolutionary Biology Colloquium, University of Toronto, Toronto, ON, Canada.
- Rennie, M.D.** Mar 14, 2008. Evaluating the effects of food web disruptions on fish populations. University of Toronto at Mississauga Biology Seminar Series (Ph.D. exit seminar), Mississauga, ON, Canada.
- Rennie, M.D.,** Johnson, T.B. and Sprules, W.G. Sep 6, 2007. Are dreissenids a red herring? Evaluating alternative explanations for growth declines of lake whitefish (*Coregonus clupeaformis*) in the Great Lakes basin. 137<sup>th</sup> Annual Meeting of the American Fisheries Society, San Francisco, CA, USA.
- Rennie, M.D.,** Sprules, W.G., and Johnson, T.B. Aug 17, 2007. Evaluating the role of the invasive spiny water flea (*Bythotrephes longimanus*) on fish contaminant burdens. 30<sup>th</sup> Congress of the International Association of Theoretical and Applied Limnology, Montreal, QC, Canada.
- Rennie, M.D.,** Sprules, W.G., and Johnson, T.B. Jun 1, 2007. Assessing temporal diet changes in whitefish using stable isotopes. 50<sup>th</sup> Annual Meeting of the International Association of Great Lakes Research. University Park, PA, USA.
- Rennie, M.D.** Apr 28, 2007. Re-introducing Atlantic salmon to Lake Ontario via classrooms. Annual Conference of the Ontario Society for Environmental Education. Lakefield, ON, CA.
- Rennie, M.D.** Oct 3, 2006. Contribution of diet to growth differences between lake whitefish stocks in the Upper Great Lakes. Lake Whitefish Natural Mortality Workshop, Ann Arbor, MI, USA.
- Rennie, M.D.,** Sprules, W.G. and Johnson, T.B. May 24, 2006. Identifying correlates of historic growth and condition records for the lake whitefish, *Coregonus clupeaformis*. International Association of Great Lakes Research. Annual Meeting, Windsor, ON, Canada.
- Rennie, M.D.** Jan 14, 2006. Atlantic Salmon re-introduction efforts on Lake Ontario: Building on the Fish Friends model. Let's Talk Science Partnership Program Eastern Regional Conference, Hamilton, ON, Canada.
- Rennie, M.D.,** Sprules, W.G. and Johnson, T.B. Jan 7, 2006. Evaluating changes in lake whitefish life histories after aquatic invertebrate invasions. Society of Canadian Limnologists, Annual Meeting, Calgary, AB, Canada.
- Rennie, M.D.,** Sprules, W.G. and Johnson, T.B. Sep 21, 2005. How do we know when the menu has changed? Evaluating spatial and temporal variation in Great Lakes lake whitefish diets. Lake Whitefish Natural Mortality Workshop, Ann Arbor, MI, USA.
- Rennie, M.D.,** Sprules, W.G., Johnson, T. and McNickle, G.G. Jun 22, 2005. Long-term trends in growth and life histories of lake whitefish in Lake Huron: Climate, diet or density? Summer meeting of the American Society of Limnologists and Oceanographers, Santiago de Compostela, Spain.
- Rennie, M.D.,** Sprules, W.G., Yan, N., Villiancourt, A., and Hayton, A. Apr 27, 2005. Utility of a government database to assess affects of non-indigenous species on mercury levels of coregonines. Second North American Biennial Cercopagid workshop, Kingston, ON, Canada.



- Rennie, M.D.**, Apr 14, 2005. Evaluation of a condition index for the lake whitefish, *Coregonus clupeaformis*. Ontario Ministry of Natural Resources Fisheries Assessment Unit Meeting. Barrie, ON, Canada.
- Rennie, M.D.**, McNickle, G.G., Sprules, W.G. and Johnson, T. Jan 8, 2005. Prey electivity of lake whitefish in the Canadian waters of Lake Huron. Society of Canadian Limnologists, Annual Meeting, Windsor, ON, Canada.
- Rennie, M.D.**, Collins, N.C., Purchase, C.F. and Tremblay, A. Jun 14, 2004. Predictive models of benthic invertebrate methylmercury in Ontario and Québec lakes. Summer Meeting of the American Society of Limnologists and Oceanographers, Savannah, GA, USA.
- Rennie, M.D.** May 11, 2004. Establishing a graduate student-based science outreach program at an Ontario University. (Poster) Ontario Ecology and Ethology Colloquium, Mississauga, ON, Canada.
- Rennie, M.D.**, Collins, N.C., Henderson, B. and Shuter, B.J. Jan 10, 2004. Minimizing error in model estimates of consumption and activity for wild fish populations. Canadian Conference for Fisheries Research, Annual Meeting. St. John's, NF, Canada.
- Rennie, M.D.**, Collins, N.C., Henderson, B., Shuter, B. and Coture, P. Aug 12, 2003. Can growth variation between populations of perch be explained by variation in consumption and activity? 133<sup>rd</sup> Annual Meeting of the American Fisheries Society, Québec City, QC, Canada.
- Rennie, M.D.**, Collins, N.C., Henderson, B. and Shuter, B. Apr 3, 2003. Validating activity costs in wild fish populations. Ontario Ministry of Natural Resources Fisheries Assessment Unit Meeting. Dorset, ON, Canada.
- Rennie, M.D.**, Collins, N.C., Henderson, B. and Shuter, B. Mar 22, 2003. Using enzyme activity and independent observations to evaluate modelled activity estimates. University of Toronto Research Colloquium. Toronto, ON, Canada.
- Rennie, M.D.**, Collins, N.C., Henderson, B. and Shuter, B. Jan 4, 2003. Evaluating bioenergetic activity costs in yellow perch populations using the mercury mass balance model. Canadian Conference for Fisheries Research, Annual Meeting. Ottawa, ON, Canada.
- Rennie, M.D.** and Collins, N.C. Jan 4, 2003. Do environmental factors affect mercury concentrations in benthic invertebrates? (Poster). Society of Canadian Limnologists, Annual Meeting. Ottawa, ON, Canada.
- Rennie, M.D.** and Jackson, L.J. Jan 5, 2002. Does fish predation affect patterns of littoral invertebrate distribution and abundance in ponds? Society of Canadian Limnologists, Annual Meeting. Vancouver, BC, Canada.

**Public outreach:**

Gairdner talk, Lakehead University (to local high school students). All lake Great and small (and the slimy things that live in them). March 9, 2017.

## Expert panel discussions:

What can we do about mercury in our water? March 6, 2017. Lakehead University, Thunder Bay, ON, Canada.

Current threats to the Lake Winnipeg Ecosystem. October 24, 2016. Hosted by Science First, Winnipeg, MB, Canada.

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## TEACHING EXPERIENCE (*Full Dossier available upon request*)

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### Instructor:

- 2017-present**     **Biology of Fishes (Biology 4212), Lakehead University**  
Co-developed a course to provide students with an understanding of the evolutionary history of fishes, and the use of fisheries life history data to inform management practices. Includes hands-on labs focused on identification, preparation and determination of age using calcified structures, mark-recapture techniques of population estimation and the use of mathematical models in describing and understanding fisheries.
- 2016-present**     **Biostatistics (Biology 3112), Lakehead University**  
•Developed and taught a winter semester course to provide students with the skills to analyze typical ecological data using traditional and modern approaches.  
•Instructed students in using statistical program R.  
•Advised teaching assistants in appropriately managing their time and in tutorial instruction.  
•Managed course content and discussion forums using web-based software.
- 2015-present**     **Experimental Limnology and Aquatic Ecology (Biology 4152), Lakehead University**  
•Developed and taught a 2-week intensive field course based at the IISD-Experimental Lakes Area investigating hands-on field-based approaches to aquatic research with an emphasis on experimentation and student-driven research projects.
- Winter 2010**     **Biometrics Level II (Biology 361), University of Toronto Mississauga**  
•Designed course outline, lectures and examinations for a third and fourth-year advanced undergraduate course on statistics applied to biological investigations. Topics included regression, analysis of variance, non-parametric and resampling techniques.  
•Advised teaching assistants in appropriately managing their time and in tutorial instruction.  
•Managed course content and discussion forums using web-based software.

### Course facilitation:

- 2016-present**     **Ontario Universities Program in Field Biology (Biology 4153), Lakehead University**  
•As University coordinator, advise, enrol and administer Lakehead University students participating in other Ontario University field courses
- Fall 2014-present**     **Fish and Wildlife Practice (Natural Resources Management 4251), Lakehead University**  
•With staff at the Experimental Lakes Area, organized, facilitated and led students through collection, marking and release of fishes for mark-recapture program  
•Constructed an exercise for students to use Schnabel census methods to estimate fish abundance from an ELA reference lake, combine and discuss results as a class.

## Guest lectures:

### Winter 2015 Introduction to Toxicology (Biology 2380), University of Manitoba

- Provided a 75-minute guest lecture on the topic of whole-ecosystem experiments as an example of whole-ecosystem toxicology, and the important role of this approach in helping guide environmental policy.

### Boreal Ecology (Biology 3318), University of Manitoba

- Provided a 75-minute guest lecture on limnology in boreal regions, and the important role played by inland waters in the boreal zone.

### Fall 2014 Critical thinking in Biological Sciences (Biology 7220), University of Manitoba

- Provided a 30-minute guest lecture on the topic of ecosystem subsidies, followed by student-led discussion
- Selected three readings on the topic to introduce the concept to students and provide background for the lecture, two weeks prior to the lecture

## Teaching Assistantships:

### 2007–08, Aquatic Biology (Biology 332), University of Toronto Mississauga

- 2003–04
- Led laboratories and field trips dealing with a wide range of topics and techniques used in aquatic biology and limnology; marked assignments, final projects and oral presentations.

### Winter 2007, Biometrics Level II (Biology 361), University of Toronto Mississauga

- 2006, 2005
- Led laboratories addressing regression, concepts of power, analyses of variance, analysis of covariance, non-parametric techniques, and computer-intensive approaches.
  - Advised students on the implementation of appropriate statistical procedures, marked independent projects.
  - Composed web-based tutorials on implementing *R* to explore topics above.

### Fall 2003, Ecology (Biology 205), University of Toronto Mississauga

- 2002, 2001
- Assigned both a teaching and marking position, co-operated with instructors to design data submissions and assignments, graded of midterm and final exams.
  - Taught concepts of population biology, population regulation, island biogeography, field sapling and experimental design.

## Professional Development:

### Sep 2006– Teaching Assistants' Training Programme, University of Toronto

- 2008
- Advanced University Teaching Preparation Certificate, requiring attendance at 10 teaching seminars, two in-class teaching evaluations and an evaluation of a teaching dossier.

## Other Teaching Experience:

### Nov 2008 Virtual Researchers On Call, Ontario

- Led a 1.5 hour discussion via web-conferencing regarding effects of climate change on aquatic ecosystems with a rural Southern Ontario Grade 8 class.

### May 2000– Barrier Island Naturalist, Seabrook Island, South Carolina, USA

- Aug 2001
- Designed flexible lesson plans had to accommodate students six to sixty years old.
  - Covered topics ranging from marine and freshwater ecology, coastline ecology, and maritime forest ecology to astronomy and “nightwalks”, heavily emphasizing hands-on and experiential-based learning.

- Fall 1998     ***Biology Curriculum Enhancement Course, University of Calgary***  
•Aided teachers by constructing teaching aids that could be used in future years.  
•Instructed fifth and sixth grade children once a week on curriculum topics in ecology.
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## PROFESSIONAL AND ACADEMIC SERVICE

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- 2017–  
present     ***Faculty representative, Let’s Talk Science Outreach Program, Lakehead University***  
•Provide a point of first contact for Let’s Talk Science student volunteers  
•Provide guidance and suggestions on program development  
•Advocate for the program to University Administration
- 2017-  
present     ***Science Advisory Board, International Joint Commission***  
•Participating in a working group investigating declines in the offshore productivity of the Great Lakes.
- 2017     ***Biology Chair Search Committee, Lakehead University***  
•Solicited and evaluated nominations for Chair among internal candidates. Acted as Scrutineer for voting.
- 2016-  
present     ***Animal Care Committee, Lakehead University***  
•Review Animal Use Protocols and make recommendations for safe and humane handling  
•Inspection of laboratories and facilities
- 2016     ***NSERC PGS-M review panel, Lakehead University***  
•Reviewed PGS-M application files and recommended awardees
- 2016-  
present     ***Field Safety Committee, Biology Faculty representative, Lakehead University***  
•Represent Biology faculty at the Field Safety Committee, a sub-committee of the Health and Safety committee at Lakehead University  
•Helped to align Departmental field safety protocols with those across several field-based university departments for both research and field courses
- 2016-  
present     ***Biology Aquatics Facility (BAF) Committee, Lakehead University***  
•Help assign and allocate space in the BAF according to space availability and research needs  
•Identify research needs and infrastructure improvements required to maximize research potential in the facility
- Feb. 2011-  
present     ***Communications officer, Society for Canadian Limnologists***  
•Facilitate communications among society members  
•Led re-design of society logo, web page ([www.socanlimnol.ca](http://www.socanlimnol.ca))  
•Editor-in-chief and creator of society newsletter, “The Current”  
•Editor, content manager of society web page, twitter feed (@Can\_Limnology)
- Sept 2013–  
April 2015     ***Faculty representative, Biological Sciences (University of Manitoba), Let’s Talk Science Outreach Program***  
•Provided a point of first contact for Let’s Talk Science student volunteers  
•Provided guidance and suggestions on program development

**Jan 2011–  
Apr 2014**      ***Co-chair, National Science Data Management Physical Samples Steering Committee, Fisheries and Oceans Canada***

- Strategize for national funding for data management priorities among regions
- Leading development of a national physical archive database for DFO

**Jan 2010–  
Apr 2014**      ***Environmental Science representative, Regional Science Data Management Committee, Central and Arctic Region, Fisheries and Oceans Canada***

- Participated in drafting of Terms of Reference, regional update meetings to discuss data management/ data rescue initiatives within the region

*(Professional experience during Graduate and Undergraduate training available upon request)*

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## **VOLUNTEER EXPERIENCE**

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### **Volunteer Awards:**

<b>Award</b>	<b>Location/Agency</b>	<b>Period Held</b>
Gordon Cressy Student Leadership Award	University of Toronto Mississauga	2008
Principal's Involvement Award	University of Toronto Mississauga	2008
Graduate Student Leadership Award	University of Toronto Mississauga	2008
Volunteer Recognition Award	University of Toronto Mississauga	2008
Certificate of Recognition	Let's Talk Science	2005
Lifetime Achievement Award, CFRE Radio	University of Toronto Mississauga	2005
Outstanding Volunteer Award	University of Toronto Mississauga	2004
Volunteer Recognition Award	University of Toronto Mississauga	2004
Atomic DJ Award, CFRE Radio	University of Toronto Mississauga	2003

**Sept 2015–  
Present**      ***Scout leader, Scouts Canada, Thunder Bay, ON***

- Leading local Cub pack in weekly activities and weekend outings

**Jul 2002–  
2008**      ***Volunteer, Let's Talk Science Partnership Program, University of Toronto Mississauga, ON***

- Designed and facilitated hands-on activities with classrooms in the Greater Toronto Area.
- Helped maintain the local Let's Talk Science website.
- Developed and coordinated a program (in association with the Ontario Ministry of Natural Resources and the Lake Ontario Atlantic Salmon Recovery Team) bringing Atlantic Salmon reintroduction efforts in Lake Ontario into primary and secondary school classrooms; helped initiate the program in Halton region and Prince Edward County.
- Participated with coordinators from four other universities to facilitate an emergency funding package for the National Partnership Program.

**Jan 2002–  
Sep 2006**      ***Disc Jockey, CFRE Campus Radio, University of Toronto Mississauga, ON***

- Produced and hosted a weekly music show, highlighting current Canadian artists.
- Assisted in training of new DJs.
- Recipient of "Atomic DJ" award for best DJ, 2003; Lifetime achievement award, 2005.

**Apr 2002–  
2006**      ***Judge, Peel Region Science Fair, Mississauga, ON***

- Selected medal winners amongst participants, grades 7–12.

- Jul 2002–  
2005**      **Volunteer Coordinator, Let's Talk Science Partnership Program, University of Toronto Mississauga, ON**
- Founded Mississauga branch of this science outreach program in 2002; organized volunteer recruitment and training; organized partnerships between graduate students and teachers, and volunteer participation in other community-based activities; established strong relationships between university scientists and the broader Mississauga community.
  - Participated as a volunteer making classroom visits, judging science fairs and other university/community science outreach events.
  - Helped initiate the program at Scarborough Campus, 2004.
  - Led funding initiative to secure university support for the program at all three University of Toronto campuses (secured \$75,000 for the period 2004/05–2007/08).
  - Helped organize the Partnership Program Regional Conference, 2005.
- Oct 2001–  
Dec 2001**      **Volunteer, CIUT Campus Radio, University of Toronto, ON**
- Aided in studio construction, CD library organisation, marketing.
- Mar 2000–  
Aug 2000**      **Land Use, Development and Special Projects Member, Calgary River Valleys Committee, AB**
- Promoted public awareness and protection of Calgary's river valley ecosystems.
  - Commented on developments and shared concerns with Calgary City Council.
- Mar 1999**      **Judge, Calgary Youth Science Fair, Calgary, AB**
- Selected medal winners with a panel of judges.

## PROFESSIONAL MEMBERSHIPS AND SERVICES

### Peer Reviewing:

Advances in Limnology	Fisheries Research
Aquatic Invasions	Freshwater Biology
Aquatic Living Resources	Hydrobiologia
Archives of Environmental Contamination and Toxicology	Inland Waters
Biological Invasions	Isotopes in Environmental and Health Studies
Canadian Journal of Fisheries and Aquatic Sciences	Journal of Animal Ecology
Conservation Biology	Journal of Applied Ecology
Ecography	Journal of Great Lakes Research
Ecological Applications	Limnologica
Ecology	Limnology and Oceanography
Ecology of Freshwater Fish	Marine Ecology Press Series
Environmental Pollution	Oikos
Environmental Science and Technology	Royal Society Open Science
Evolutionary Applications	Science of the Total Environment
FACETS	Transactions of the American Fisheries Society

**Grant Reviewing:** Canadian Foundation for Innovation, NSERC, Alberta Biodiversity Grants (Alberta Conservation Society), Wisconsin Sea Grant, Great Lakes Fishery Commission

**Editorial positions:**

*Associate Editor*, Canadian Journal of Fisheries and Aquatic Sciences (July 2015–present)  
*Editor-in-chief*, The Current: newsletter of the Society of Canadian Limnologists (2012–present)  
*Assistant Editor*, special issue on Lake Simcoe, Inland Waters (2011–2013)  
*Co-Editor*, Proceedings of the 10<sup>th</sup> Meeting on the Biology of Coregonid Fishes (2010–2012)

**Active Professional Memberships:**

American Fisheries Society, Canadian Aquatic Resources Section, Ontario Chapter  
Society of Canadian Limnologists (Communications Officer, Chief Editor of society newsletter)  
Canadian Society for Ecology and Evolution  
International Association for Great Lakes Research

**Conference Organization Committees:**

**Co-chair**, session on the Lake Ecosystem Nanosilver (LENs) Experiment. Annual meeting of the Society of Canadian Limnologists/ Canadian Conference for Fisheries Research, Jan. 8, 2017, Montreal, QC.  
**Chair**, session on research at the Experimental Lakes Area, Annual meeting of the Society of Canadian Limnologists/ Canadian Conference for Fisheries Research, Jan. 3–5, 2013, Windsor, ON.  
**Session Co-chair**, special session on Lake Simcoe, 2010 International Association for Great Lakes Research, May 17–21, Toronto, ON  
**Session Leader**, 2009 Littoral-pelagic coupling workshop, April 27–30, Algonquin Park, ON  
**Lead Organizer**, 2009 Lake Simcoe Science Synthesis meeting, April 21–22, Toronto, ON  
**Co-organizer**, 2005 Let's Talk Science Eastern Regional Conference, Jan. 28–30, Toronto, ON  
**Session Leader**, 2005 Lake Whitefish Natural Mortality Workshop, Sept. 21–22, Ann Arbor, MI  
**Co-chair**, Social Committee, 2004 Ontario Ecology, Ethology Colloquium, May 10–12, Mississauga, ON

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**PROFESSIONAL SKILLS**

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- Supervision/mentoring*: Currently supervise 1 PhD student, 5 graduate students (MSc) 1 undergraduate student and one technician; sit on 10 graduate student committees; invited external examiner on 4 MSc and 3 PhD committees; Previously supervised numerous undergraduate students and lab/field technicians. Three undergraduate thesis students at the University of Toronto published their work in peer-reviewed journals under my mentorship.
- Analytical lab techniques*: Ten years experience performing total, organic and methyl-mercury analyses using a variety of analytical techniques, and training others to use the same equipment and techniques.
- Independent field research*: Designed, organized and implemented large-scale multi-year field studies.
- Data management*: Construction and maintenance of relational databases, queries using MS Access.
- Modelling*: Use and manipulation of models describing the energetics and mercury accumulation of fish.
- Statistical analysis*: Strong background in data analysis using a wide variety of techniques (parametric and non-parametric, univariate and multivariate analyses, randomization approaches) and statistical software. Estimation of survival, capture probabilities, recruitment and population size for mark-recapture studies using Program MARK.
- Programming*: Experienced with the statistical language, *S*, limited experience with *Python* and version-control software (*Subversion*). Participant in Greg Wilson's Software Carpentry course, Toronto (2006).
- Marine certification*: Pleasure Craft Operator Card (8 June 2006); MED-A3 (Marine Emergency Duties) certification (8 May 2009); SVOP (Small Vessel Operator Proficiency) certification (11 Sept. 2009).
- Safety training*: Working-on-ice training (March 2009), Traffic control training (July 2009), ATV training (2011), Transport of Dangerous Goods training (2011), Safe Chainsaw operation training (2011), Wilderness First-aid/CPR (certified to 2020).

- SCUBA training*: Open-water diver (1998); Oxygen first aid for divers training (2012); Advanced open-water diver (2013); Dry-suit specialty diver (2013); Rescue diver (2013); Ice diver (2014)
- Media training*: I completed a 2-day media training course with Fisheries and Oceans Canada (2012).