

# ANDREW MICHAEL MUIR

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Great Lakes Fishery Commission, 2200 Commonwealth Blvd.,  
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Google Scholar Profile: [Andrew M. Muir](#)

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## EDUCATION

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- Ph.D.** (Fisheries Science) 2008. Factors affecting lake whitefish (*Coregonus clupeaformis*) recruitment in the Laurentian Great Lakes. Advisors: Drs. T.M. Sutton and M.S. Sepúlveda. Purdue University, West Lafayette, IN.
- M.Sc.** (Zoology) 2004. Age estimation of lake whitefish (*Coregonus clupeaformis*) in Lake Huron: reducing the uncertainty. Advisor: Dr. D.L.G. Noakes. University of Guelph, ON.
- B.Sc.** (Zoology) 2000. Honours Fisheries Biology. University of Guelph, ON.

## APPOINTMENTS

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| <b>Adjunct Assistant Professor</b><br>School for Environment and Sustainability – University of Michigan | 2018-present |
| <b>Board of Advisors</b><br>Quantitative Fisheries Center – Michigan State University                    | 2018-present |
| <b>Adjunct Assistant Professor</b><br>University of Waterloo – Department of Biology                     | 2015-present |
| <b>Adjunct Assistant Professor</b><br>Michigan State University – Department of Fisheries and Wildlife   | 2014-present |
| <b>Board of Technical Experts</b><br>Great Lakes Fishery Commission                                      | 2012-present |

## RESEARCH AND PROFESSIONAL EXPERIENCE

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| <b>Science Director</b><br>Great Lakes Fishery Commission        | 2014-present<br>Ann Arbor, MI. |
| <b>Acting Science Director</b><br>Great Lakes Fishery Commission | 2014<br>Ann Arbor, MI.         |
| <b>Science Program Manager</b><br>Great Lakes Fishery Commission | 2013-2014<br>Ann Arbor, MI.    |

## RESEARCH AND PROFESSIONAL EXPERIENCE (continued)

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<b>Research Associate</b> Michigan State University/Great Lakes Fishery Commission	2010-2013 Ann Arbor, MI.
<b>Fisheries Ecologist</b> Golder Associates Ltd.	2008-2010 Yellowknife, NT.
<b>Graduate Research Assistant</b> Purdue University	2006-2008 West Lafayette, IN.
<b>Graduate Research Assistant</b> University of Guelph	2004-2006 Guelph, ON.
<b>Fisheries Assessment Biologist</b> Chippewas of Nawash Unceded First Nation	2000-2006 Warton, ON.
<b>At-Sea Fisheries Observer / Dockside Monitor</b> Archipelago Marine Research (>350 Sea Days)	1996-2000 Victoria, BC.
<b>Field Technician</b> Nuu-chah-nulth Tribal Council Fisheries	1998 Ucluelet, BC.

## TEACHING EXPERIENCE

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<b>Great Lakes Ecology</b> Shanghai Ocean University – 4 day invited course	2015 Shanghai, China
<b>Graduate Teaching Certificate</b> Purdue University, Center for Instructional Excellence	2008 West Lafayette, IN
<b>Aquatic Sampling Techniques (300-level)</b> Teaching Assistant – Lab instructor Purdue University, Department of Forestry and Natural Resources	2006-2008 West Lafayette, IN.
<b>Biology (100-level)</b> Teaching Assistant University of Guelph, Department of Zoology	2003 Guelph, ON.

## ADVISING AND MENTORING

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<b>Shane Flinn, PhD.</b> Committee Member, Michigan State University	2019-present
<b>Zachary Blevins, PhD.</b> Co-Advisor, University of Michigan	2018-present
<b>Tim Bartly, Post Doc.</b> University of Toronto	2017-2019

## ADVISING AND MENTORING (continued)

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<b>Louise Chavarie, Post Doc.</b> Co-Advisor, Michigan State University Current position: Research Fellow, University of Glasgow	2015-2017
<b>Shauna Baillie, Post Doc.</b> Co-Advisor, Dalhousie University Current position: Science Advisor, Fisheries and Oceans Canada Aquaculture, Biotechnology, and Aquatic Animal Health Science Branch, Ottawa	2013-2017
<b>Justin Hoffman, M.Sc.</b> External Committee Member, University of Waterloo Current position: Research Technician, University of Waterloo	2014-2016
<b>Amanda Guthrie, M.Sc.</b> Co-Advisor, Michigan State University Current position: PhD Candidate, Virginia Institute of Marine Science, Center for Coastal Resources Management, William and Mary	2014-2017
<b>Alyse Perreault-Payette, M.Sc.</b> Mentor, University of Laval Current position: Researcher, University Laval	2013-2016
<b>Bailey McMeans, Post Doc.</b> Co-Advisor, University of Guelph Current position: Assistant Professor, Biology Department, University of Toronto	2015-2017

## GRANTSMANSHIP (non-competitive)

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- Great Lakes Acoustic Telemetry Observation System (GLATOS; <https://glatos.glos.us/>). 2013-present. Great Lakes Restoration Initiative. \$7,172,686.
- Native Fishes Restoration. 2013-present. Great Lakes Restoration Initiative. \$3,705,000.
- FishPass – Selective bi-directional fish passage on the Boardman River, MI. 2016-present. Great Lakes Restoration Initiative. \$20,200,609.
- FishPass – Selective bi-directional fish passage on the Boardman River, MI. 2020. Michigan State Dams and Barriers Fund. \$1,650,000.

## GRANTSMANSHIP (competitive)

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- Zielinski, D.P., and **A.M. Muir**. 2020. Customized data carriage for fully automated environmental data sampling at FishPass. Great Lakes Fishery Trust. \$242,000.
- Vander Zanden, J. et al. Diversity of Great Lakes coregonines and the implications for fisheries management and restoration. 2019. Wisconsin Sea Grant. \$238,230.

## GRANTSMANSHIP (competitive continued)

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- Zielinski, D.P., R.G. Swanson, D. Hondorp, A. Fisk, and **A.M. Muir**. 2019. Determining connectivity between the Boardman River, Grand Traverse Bay, and Lake Michigan proper in support of FishPass. Great Lakes Fishery Commission. \$141,749.
- Goetz, F.W., S.P. Sitar, T. Binder, **A. Muir**, J. Hanssen, C. Krueger. 2018. Identifying siscowet spawning sites at Isle Royale using acoustic telemetry. Great Lakes Fishery Commission. \$247,307.
- Muir, A.M.**, C. Vandergoot, J. Markham, T. MacDougall, C. Murry, A.M. Gorman, M. Rogers, R. Kraus, D. Gorsky. 2015. Lake Trout spatial structure and spawning habitat occupancy in Lake Erie. Great Lakes Fish and Wildlife Restoration Act Grants Program. \$205,244.
- Swanson, H., C.C. Krueger, C.R. Bronte, **A.M. Muir**, and S. Sitar. 2013. An investigation of trophic ecology and isotopic niche in humpback lake trout (*Salvelinus namaycush*) from Lake Superior. Great Lakes Fishery Commission \$110,000.
- Muir, A.M.**, P. Vecsei, D.B. Bunnell, N.E. Mandrak. 2012. A colour-illustrated field guide to the Great Lakes ciscoes. Great Lakes Fishery Commission, Great Lakes Fishery Trust (Grant #2013.1286), Fisheries and Oceans Canada, USGS-GLRI, Michigan Sea Grant, Wisconsin Sea Grant, New York Sea Grant, Minnesota Sea Grant. \$76,450.
- Krueger, C.C. and **A.M. Muir**. 2011. Phenotypic diversification of lake trout: the role of ecological opportunity in driving parallel evolution. Great Lakes Fishery Commission. \$280,822.
- Muir, A.M.**, J. Reist, T. Slack, and K. Flores. 2009. Aboriginal traditional knowledge of cisco diversity in Yellowknife Bay, Great Slave Lake. Canadian Interdepartmental Recovery Fund for Species at Risk, Department of Fisheries and Oceans Canada, Aboriginal Funds for Species at Risk. \$85,000.
- Vecsei, P., **A.M. Muir**, H. Machtans. 2009. Interspecific and intraspecific osteological variation in sympatric ciscoes, Yellowknife Bay, Great Slave Lake. Indian and Northern Affairs Canada. \$34,320.
- Reist, J.D., **A.M. Muir**, and 7 others. 2009. Patterns and processes of cisco trophic differentiation in relation to food web structuring using ecological tracers. Great Lakes Fishery Commission. \$134,193.
- Reist, J.D., **A.M. Muir**, and 5 others. 2008. Taxonomy, abundance, critical habitat and limiting factors of shortjaw cisco in Yellowknife Bay, Great Slave Lake, Northwest Territories. Canadian Interdepartmental Recovery Fund for Species at Risk, Fisheries and Oceans Canada Species-at-risk funds, Department of Fisheries and Oceans Canada. \$182,600.
- Muir, A.M.** and M.S. Sepúlveda. 2007. Age and growth of lake whitefish (*Coregonus clupeaformis*) – undergraduate mentoring projects. Purdue University. \$1,000.
- Muir, A.M.** and T.M. Sutton. 2006. Age and growth of stunted versus non-stunted populations of largemouth bass (*Micropterus salmoides*). Purdue University. \$500.
- Muir, A.M.** and S.S. Crawford. 2006. Shortjaw cisco (*Coregonus zenithicus*): reducing uncertainty in life history and ecology through assessment and management. Canadian Interdepartmental Recovery Fund for Species at Risk. \$40,000.

## GRANTSMANSHIP (competitive continued)

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- Muir, A.M.** and S.S. Crawford. 2005. Food habits of lake whitefish (*Coregonus clupeaformis*) in Lake Huron. Department of Fisheries and Oceans Canada – Internship Program. \$10,000.
- Mandrak, N.E., Parker, S., **A.M. Muir**, and S.S. Crawford. 2005. Reducing uncertainty in life history and ecology of shortjaw cisco (*Coregonus zenithicus*). Canadian Interdepartmental Recovery Fund for Species at Risk, Department of Fisheries and Oceans Canada – Species-at-risk funds, Parks Canada. \$70,000.
- Mandrak, N.E., Parker, S., **A.M. Muir**, and S.S. Crawford. 2004. Survey of the Great Lakes deepwater ciscoes (*Coregonus* spp.). Canadian Interdepartmental Recovery Fund for Species at Risk, Department of Fisheries and Oceans Canada – Species-at-risk funds, Parks Canada. \$13,000.
- Mandrak, N.E., Parker, S., **A.M. Muir**, and S.S. Crawford. 2003. Survey of the Great Lakes deepwater ciscoes (*Coregonus* spp.). Canadian Interdepartmental Recovery Fund for Species at Risk, Department of Fisheries and Oceans Canada – Species-at-risk funds, Parks Canada. \$30,000.
- Muir, A.M.** 2003. Age and growth of lake whitefish (*Coregonus clupeaformis*) in Lake Huron. Department of Fisheries and Oceans Canada Youth Internship Program. \$13,000.
- Muir, A.M.** 2002. Equipment donation. Patagonia Outdoors. \$1,000.
- Muir, A.M.** 2001. Official website of the Chippewas of Nawash First Nation. Canada's Digital Collections Federal Funding Program. \$24,000.

## PUBLICATIONS (peer-reviewed)

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\*Underlined authors are students or post-docs supervised

62. Smith, S.R., E. Normandeau, H. Djambazian, P.N. Mudiyansele, **A.M. Muir**, J. Ragoussis, C. Penney, K. Scribner, G. Luikart, C.C. Wilson, and L. Bernatchez. *In review*. A chromosome-anchored genome assembly for lake trout (*Salvelinus namaycush*). Molecular Ecology Resources.
61. Zielinski, D.P., M. Gaden, and **A. Muir**. 2021. Global fish passage issues. Aquaculture and Fisheries 6:111-112.
60. Chavarie, L.S. Voelker, M.J. Hansen, C.R., Bronte, **A.M., Muir**, M.S. Zimmerman, and C.C. Krueger. *In Press*. Temporal instability of lake charr phenotypes: synchronicity of growth rates and morphology linked to environmental variables? Evolutionary Applications.
59. Riley, S.C., M.J. Hansen, C.C. Krueger, D.L.G. Noakes, and **A.M. Muir**. 2021. The Lake Charr: Biology, Ecology, Distribution, and Management. In A.M. Muir, M.J. Hansen, S.C. Riley, and C.C. Krueger (eds) The Lake Charr *Salvelinus namaycush*: Biology, Ecology, Distribution, and Management. Springer.
58. **Muir, A.M.**, D. Bennion, M.J. Hansen, S.C. Riley, and J. Gunn. 2021. Distribution. In A.M. Muir, M.J. Hansen, S.C. Riley, and C.C. Krueger (eds) The Lake Charr *Salvelinus namaycush*: Biology, Ecology, Distribution, and Management. Springer.

## PUBLICATIONS (peer-reviewed continued)

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57. Marsden, J.E., **A.M. Muir**, D.L.G. Noakes, and C.C. Krueger. 2021. Terminology issues in lake charr early development. In A.M. Muir, M.J. Hansen, S.C. Riley, and C.C. Krueger (eds) *The Lake Charr *Salvelinus namaycush*: Biology, Ecology, Distribution, and Management*. Springer.
56. Hume, J.B., P.R. Almeida, C.M. Buckley, L.A. Criger, C.M. Madenjian, K.F. Robinson, C.J. Wang, and **A.M. Muir**. 2020. Managing native and non-native sea lamprey (*Petromyzon marinus*) in the face of anthropogenic change: a prospective assessment of key threats and uncertainties. *Journal of Great Lakes Research*; <https://doi.org/10.1016/j.jglr.2020.08.015>
55. Siefkes, M.J., N.S. Johnson, and **A.M. Muir**. 2020 Development of supplemental sea lamprey control methods. *Journal of Great Lakes Research*.
54. Chavarie, L., K.L. Howland, L.N. Harris, C.P. Gallagher, M.J. Hansen, W.M. Tonn, **A.M., Muir**, C.C. Krueger. 2020. Among-individual diet variation within a lake trout ecotype: lack of stability of niche use. *Ecology and Evolution* DOI: 10.1002/ece3.7158.
53. Zielinski, D.P., R.L. McLaughlin, T.C. Pratt, R.A. Goodwin, and **A.M. Muir**. 2020. Single-stream recycling inspires selective fish passage solutions for the connectivity conundrum in aquatic ecosystems. *Bioscience* <https://doi.org/10.1093/biosci/biaa090>.
52. Chavarie, L., J. Hoffmann, **A.M. Muir**, C.C. Krueger, C.R. Bronte, K.L. Howland, C. Gallagher, S.P. Sitar, M.J. Hansen, M.R. Vinson, L.L. Loseto, W. Tonn, and H. Swanson. 2020. Dietary vs non-dietary fatty acid profiles of lake trout morphs from Lake Superior and Great Bear Lake: Are fish really what they eat? *Canadian Journal of Fisheries and Aquatic Sciences* 77: 1209–1220.
51. Hansen, M.J., L. Chavarie, **A.M. Muir**, M.S. Zimmerman, K.L. Howland, C.C. Krueger. 2020. Variation in the relationship between fork length and total length within and among populations across North America. *Journal of Fish and Wildlife Management* 11 (1): 263-272.
50. Lennox, R.J., G.A. Bravener, H.Y. Lin, C.P. Madenjian, **A.M. Muir**, C.K. Remucal, K.F. Robinson, A.M. Rous, M.J. Siefkes, M.P. Wilkie, D.P. Zielinski, and S.J. Cooke. 2020. Potential changes to the biology and challenges to the management of invasive sea lamprey *Petromyzon marinus* in the Laurentian Great Lakes due to climate change. *Global Change Biology* 26 (3): 1118-1137.
49. Vinson, M.R., J.M. Hoffmann., **A.M. Muir**, C.L. Rosinski, C.C. Krueger, C.R. Bronte, M.J. Hansen, S.P. Sitar, E.W. Allen, L.F. Baker, and H.K. Swanson. 2020. Gut contents from multiple morphs of lake trout (*Salvelinus namaycush*) at two offshore shoals in Lake Superior. *Journal of Great Lakes Research* <https://doi.org/10.1016/j.jglr.2020.06.020>.
48. Campana, S.E., J.M. Casselman, C.M. Jones, G. Black, O. Barker, M. Evans, M.M. Guzzo, R. Kilada, **A.M. Muir**, and R. Perry. 2020. Arctic freshwater fish productivity and colonization increase with climate warming. *Nature Climate Change* DOI: 10.1038/s41558-020-0744-x.
47. Hansen, M.J., C.C. Krueger, **A.M. Muir**, A. Klemetsen, M. Power. 2019. Assessing the impact of "charr" research past, present and future. *Proceeding of the 9<sup>th</sup> International Charr Symposium*. *Hydrobiologia* <https://doi.org/10.1007/s10750-019-04012->
46. Guthrie, A.G, W.W. Taylor, **A.M. Muir**, K. Frank, H.A. Regier. 2019. The role of a binational organization in developing ecosystem-based management in the Great Lakes basin. *Aquatic Ecosystem Health and Management* 20 (3): 329-341.

## PUBLICATIONS (peer-reviewed continued)

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45. Chavarie, L., K.L. Howland, L.N. Harris, M.J. Hansen, C.P. Gallagher, W.J. Harford, W.M. Tonn, **A.M. Muir**, C.C. Krueger. 2018. Habitat overlap of juvenile and adult lake trout of Great Bear Lake: evidence for a lack of predation gradient? *Ecology of Freshwater Fish* 28:485–498.
44. Zielinski, D.P., R.L. McLaughlin, T. Castro-Santos, B. Paudel, P. Hrodey, and **A.M. Muir**. 2019. Alternative sea lamprey barrier technologies: History as a control tool. *Reviews in Fisheries Science and Aquaculture* 27: 4 438-457.
43. Guthrie, A.G., W.W. Taylor, **A.M. Muir**, and H.A. Regier. 2019. Links between Water Quality and Fishery Management in the Great Lakes Basin Support Ecosystem-based Management. *Fisheries* 44 (6): 288-292.
42. Ives, J.T., B. McMeans, K. McCann, A.T. Fisk, T.B. Johnson, D.B. Bunnell, K.T. Frank, and **A.M. Muir**. 2019. Food-web structure and ecosystem function in large freshwater lakes: the Laurentian Great Lakes as a case study. *Freshwater Biology* 64 (1): 1-23.
41. Eshenroder, R.L., C.M. Olds, Y. Kao, C.L. Davis, D.N. Kinney, and **A.M. Muir**. *In Press*. Status of Cisco (*Coregonus artedii*) ecomorphs in Lake Huron, 1917-2016, with speculations about phenotypic plasticity in shorthead cisco. Proceedings of the 2018 Coregonid Symposium.
40. Chavarie, L., K.L. Howland, L.N. Harris, M.J. Hansen, W.J. Harford, C.P. Gallagher, S.M. Baillie, B. Malley, W.M. Tonn, **A.M. Muir**, C.C. Krueger. 2018. From top to bottom: Do Lake Trout diversify along a depth gradient in Great Bear Lake, NT, Canada? *PLoS ONE* 13 (3): e0193925. <https://doi.org/10.1371/journal.pone.0193925>.
39. Baillie, S.M., R.R. Hemstock, **A.M. Muir**, C.C. Krueger, and P. Bentzen. 2017. Small-scale intraspecific patterns of adaptive immunogenetic polymorphisms and neutral variation in Lake Superior lake trout. *Immunogenetics* 70 (1):53-66.
38. Dunlop, E.S., R. McLaughlin, J.V. Adams, M. Jones, O. Birceanu, M.R. Christie, L.A. Criger, J.L.M. Hinderer, R.M. Hollingworth, N.S. Johnson, S.R. Lantz, W. Li, J. Miller, B.J. Morrison, D. Mota-Sanchez, **A. Muir**, M.S. Sepúlveda, T. Steeves, L. Walter, E. Westman, I. Wirgin, and M.P. Wilkie. 2017. Rapid Evolution Meets Invasive Species Control: The Potential for Pesticide Resistance in Sea Lamprey. *Canadian Journal of Fisheries and Aquatic Sciences* 75 (1): 152-168.
37. Perreault-Payette, A., **A.M. Muir**, F. Goetz, C. Perrier, E. Normandeau, P. Sirois, and L. Bernatchez. 2017. Investigating the extent of parallelism in morphological and genomic divergence among lake trout ecotypes in Lake Superior. *Molecular Ecology* 26: 1477–1497.
36. Chavarie, L., W.J. Harford, K.L. Howland, J. Fitzsimons, **A.M., Muir**, C.C. Krueger, and W.M. Tonn. 2016. Multiple generalist morphs of Lake Trout: Avoiding constraints on the evolution of intraspecific divergence? *Ecology and Evolution* 6: 7727–7741.
35. Chavarie, L., **A.M., Muir**, M.S. Zimmerman, S.M. Baillie, M.J. Hansen, N.A. Nate, D.L. Yule, T. Middel, P. Bentzen, and C.C. Krueger. 2017. Challenge to the model of lake charr evolution: shallow- and deep-water morphs exist within a small postglacial lake. *Biological Journal of the Linnaean Society* 120: 578-603.

## PUBLICATIONS (peer-reviewed continued)

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34. Fagan, K., M.A. Koops, M.T. Arts, T.M. Sutton, **A.M. Muir**, and Michael Power. 2016. Lake Whitefish energy and nutrient partitioning in Lakes Michigan, Erie and Superior. *Journal of Great Lakes Research* 43: 144-154.
33. Jonas, J.L., K.J. Broadway, L. Mathews, T.L. Galarowicz, K.L. Pangle, **A.M. Muir**, K.T. Scribner. 2016. Evidence of a remnant self-sustaining form of lake trout in the Lake Michigan Basin. *Journal of Great Lakes Research* 43: 155-162.
32. Baillie, S.M., **A.M. Muir**, C.C. Krueger, and P. Bentzen. 2016. Phenotypic trait variation and patterns of neutral genetic diversity in four distinct lake trout *Salvelinus namaycush* ecomorphs. *BMC Evolutionary Biology* 16:219.
31. Riley, S.C., T.R. Binder, N.J. Watrus, J. Menzies, N. Eyles, J. Janssen, T.R. Tucker, **A.M. Muir**, and C.C. Krueger. 2017. Islands in the ice stream: is spawning habitat for native salmonids in Lake Huron concentrated in paleo-ice stream beds? *Fish and Fisheries* 18 (2): 347-359.
30. Baillie, S.M., **A.M. Muir**, K. Scribner, P. Bentzen, C.C. Krueger. 2016. Loss of genetic diversity and reduction of genetic distance among lake trout *Salvelinus namaycush* ecomorphs, Lake Superior 1959 to 2013. *Journal of Great Lakes Research* 42: 204-216.
29. McMeans, B.C., K.S. McCann, T.D. Tunney, A.T. Fisk, **A.M. Muir**, N. Lester, B. Shuter, N. Rooney. 2016. The adaptive capacity of lake food webs: from individuals to ecosystems. *Ecological Monographs* 86: 4-19.
28. Hansen, M.J., N.A. Nate, **A.M. Muir**, C.R. Bronte, M.S. Zimmerman, and C.C. Krueger. 2016. Life history variation among four lake trout morphs at Isle Royale, Lake Superior. *Journal of Great Lakes Research* 42: 421-432.
27. Hansen, M.J., N.A. Nate, L. Chavarie, C.C. Krueger, **A.M. Muir**, and M.S. Zimmerman. 2016. Life history differences between fat and lean morphs of lake charr (*Salvelinus namaycush*) in Great Slave Lake, Northwest Territories, Canada. *Hydrobiologia* 783:21-35.
26. **Muir, A. M.**, M.J. Hansen, C.R. Bronte, and C. C. Krueger. 2016. If Arctic charr *Salvelinus alpinus* is 'the most diverse vertebrate', what is the lake charr *Salvelinus namaycush*? *Fish and Fisheries* 17: 1194-1207.
25. Turgeon, J., S.M. Reid, A. Bourret, T.C. Pratt, J.D. Reist, **A.M. Muir**, K.L. Howland. 2015. Morphological and genetic variation in Cisco (*Coregonus artedii*) and Shortjaw Cisco (*C. zenithicus*): multiple origins of Shortjaw Cisco in inland lakes require a lake-specific conservation approach. *Conservation Genetics* 17: 45-56.
24. **Muir, A.M.**, M.T. Arts, M.A. Koops, T.B. Johnson, C.C. Krueger, and T.M. Sutton. 2014. Reproductive life-history strategies in lake whitefish *Coregonus clupeaformis* from the Laurentian Great Lakes. *Canadian Journal of Fisheries and Aquatic Sciences* 71: 1-14.
23. **Muir, A.M.**, C.R. Bronte, M.S. Zimmerman, H.R. Quinlan, J.D. Glase, and C.C. Krueger. 2014. Ecomorphological diversity of Lake Charr *Salvelinus namaycush* at Isle Royale, Lake Superior. *Transactions of the American Fisheries Society* 143: 972-987.



## PUBLICATIONS (peer-reviewed continued)

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22. Binder, T.R., Thompson, H.T., **Muir, A.M.**, *et al.* (2015) New insight into the spawning behavior of Lake Trout, *Salvelinus namaycush*, from a recovering population in the Laurentian Great Lakes. *Environmental Biology of Fishes* 98: 173–181.
21. Krueger, C.C., W.C. Shepherd, and **A.M. Muir**. 2014. Predation by alewife on lake trout fry emerging from laboratory reefs: estimation of fry survival and assessment of predation potential. *Journal of Great Lakes Research* 40: 429-434.
20. Riley, S.C., T.R. Binder, N.J. Wattrus, M.D. Faust, J. Janssen, J. Menzies, J.E. Marsden, M.P. Ebener, C. R. Bronte, J.X. He, T.R. Tucker, M.J. Hansen, H.T. Thompson, **A.M. Muir**, C.C. Krueger. 2014. Lake trout in northern Lake Huron spawn on submerged drumlins. *Journal of Great Lakes Research* 40: 415-420.
19. **Muir, A. M.**, P. Vecsei, M. Power, C. C. Krueger, and J. D. Reist. 2013. Morphology and life history of the Great Slave Lake ciscoes (Salmoniformes: Coregonidae). *Ecology of Freshwater Fish* 23:453-469.
18. Kolb, T., E.A. Blukacz-Richards, **A.M. Muir**, R.M. Claramunt, M.A. Koops, W.W. Taylor, T.M. Sutton, M.T. Arts, and E. Bissel. 2013. How to manage data to enhance their potential for synthesis, preservation, sharing and reuse – a Great Lakes case study. *Fisheries* 38: 52-64.
17. **Muir, A. M.**, P. Vecsei, T.C. Pratt, C.C. Krueger, M. Power, and J.D. Reist. 2013. Ontogenetic shifts in morphology and resource use of cisco *C. artedii* from Great Slave Lake, N.T., Canada. *Journal of Fish Biology* 82: 600–617.
16. **Muir, A.M.**, D.M. Leonard, and C.K. Krueger. 2013. Past, present and future of fishery management on one of the world’s last remaining pristine great lakes: Great Bear Lake, Northwest Territories, Canada. *Reviews in Fish Biology and Fisheries* 23: 293-315.15. **Muir, A.M.**, P.V. Vecsei, and C.C. Krueger. 2012. A perspective on perspectives: a method toward reducing variation in digital shape analysis. *Transactions of the American Fisheries Society* 141: 1161-1170.
14. Harford, W.J., **A.M. Muir**, C. Harpur, S.S. Crawford, S. Parker, and N.E. Mandrak. 2012. Seasonal distribution of bloater (*Coregonus hoyi*) in waters of Lake Huron surrounding the Bruce Peninsula. *Journal of Great Lakes Research* 38: 381-389.
13. **Muir, A.M.**, C.T. Blackie, J.E. Marsden, and C.C. Krueger. 2012. Lake charr *Salvelinus namaycush* spawning behaviour: a synthesis of existing knowledge and supplemental observations. *Reviews in Fish Biology and Fisheries* 22: 575-593.
12. **Muir, A.M.**, C.C. Krueger, and M.J. Hansen. 2012. Re-establishing lake trout in the Laurentian Great Lakes: the past, present, and future. Pages 533-588 in W. W. Taylor and C. P. Ferreri, eds. *Great Lakes fishery policy and management: a binational perspective* 2nd edition. Michigan State University Press, East Lansing, Michigan.
11. Vecsei, P., C.T. Blackie, **A.M. Muir**, H.M. Machtans, and J.D. Reist. 2012. A preliminary assessment of cisco (*Coregonus* spp.) diversity in Yellowknife Bay, Great Slave Lake, Northwest Territories. Pages 299-322 in R.F. Tallman, K.L. Howland, M.D. Rennie, and K. Mills (eds.). *Proceedings of the 10<sup>th</sup> International Symposium on the Biology and Management of Coregonid Fishes*. Special Issues in *Advances in Limnology* 63.

## PUBLICATIONS (peer-reviewed continued)

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10. Mezek, T., E. Sverko, M.D. Rudy, D. Zaruk, C.E. Hebert, A.T. Fisk, D.J. McGoldrick, T.J. Newton, T.M. Sutton, M.A. Koops, **A.M. Muir**, T.B. Johnson, M.P. Ebener, and M.T. Arts. 2011. Polymethylene-interrupted fatty acids: biomarkers for native and exotic mussels in the Laurentian Great Lakes. *Journal of Great Lakes Research* 37: 289-297.
9. Blukacz, E.A., M.A. Koops, T. Sutton, M.T. Arts, J. D. Fitzsimons, A.M. Muir, R.M. Claramunt, T.T. Johnson, R.E. Kinnunen, M.P. Ebener, C. Suski, and G. Burness. 2010. Linking lake whitefish (*Coregonus clupeaformis*) condition with male gamete quality and quantity. *Journal of Great Lakes Research* 36 (Supplement 1): 78-83.
8. Claramunt, R.M., **A.M. Muir**, J. Johnson, and T.M. Sutton. 2010. Spatio-temporal trends in the food habits of age-0 juvenile lake whitefish. *Journal of Great Lakes Research* 36 (Supplement 1): 66-72.
7. Claramunt, R.M., **A.M. Muir**, T.M. Sutton, P. Peeters, M.P. Ebener, J.D. Fitzsimons, and M.A. Koops. 2010. Measures of larval whitefish size and abundance as early predictors of year class strength. *Journal of Great Lakes Research* 36 (Supplement 1): 84-91.
6. **Muir, A.M.**, T.M. Sutton, M.T. Arts, R.M. Claramunt, J.D. Fitzsimons, T.B. Johnson, R.E. Kinnunen, M.A. Koops, and M.M. Sepúlveda. 2010. Does condition of lake whitefish spawners affect physiological condition of juveniles? *Journal of Great Lakes Research* 36 (Supplement 1): 92-99.
5. MacPherson, A., J.A. Holmes, **A.M. Muir**, and D.L.G. Noakes. 2010. Assessing feeding competition between lake whitefish *Coregonus clupeaformis* and round whitefish *Prosopium cylindraceum*. *Current Zoology* 56: 109–117.
4. Kuo, Y., M.S. Sepúlveda, T.M. Sutton, H.G. Ochoa-Acuña, **A.M. Muir**, B. Miller, and I. Hua. 2009. Bioaccumulation and biotransformation of decabromodiphenyl ether and effects on daily growth in juvenile lake whitefish (*Coregonus clupeaformis*). *Ecotoxicology* 19: 751-760.
3. **Muir, A.M.**, T.M. Sutton, P.J. Peeters, R.M. Claramunt, and R.E. Kinnunen. 2008. An evaluation of age estimation structures for lake whitefish in Lake Michigan: selecting an aging method based on precision and a decision analysis. *North American Journal of Fisheries Management* 28: 1928-1940.
2. **Muir, A.M.**, M.P. Ebener, J.X. He, and J.E. Johnson. 2008. A comparison of scale and otolith-based age estimates for lake whitefish (*Coregonus clupeaformis*) in Lake Huron. *North American Journal of Fisheries Management* 28: 625-635.
1. Crawford, S.S., and **A.M. Muir**. 2007. Global introductions of salmon and trout in the genus *Oncorhynchus*: 1870-2007. *Reviews in Fish Biology and Fisheries* 18: 313-344.

## PUBLICATIONS (books)

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1. Muir, A.M., M.J. Hansen, S.C. Riley, and C.C. Krueger (eds). 2021. *The Lake Charr *Salvelinus namaycush*: Biology, Ecology, Distribution, and Management*. Springer.

## PUBLICATIONS (science transfer)

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3. Bunnell, B., K. Schilling, J. Dettmers, **A. Muir**, and J. Miller. Restoring native fish to the Great Lakes. DOI's role in a complex, large-scale, societal challenge. Newswave - Winter 2021. U.S. Department of the Interior.

## PUBLICATIONS (science transfer continued)

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2. Eshenroder, R.L., P. Vecsei, N.E. Mandrak, D.L. Yule, O.T. Gorman, T.C. Pratt, D.B. Bunnell, and **A.M. Muir**. 2016. Ciscoes (*Coregonus*, subgenus *Leucichthys*) of the Laurentian Great Lakes and Lake Nipigon. Great Lakes Fishery Commission Miscellaneous Publication 2016-1, Ann Arbor, Michigan.
1. Krueger, C.C., W.C. Shepherd, and **A.M. Muir**. 2014. Research Summary: Predation by Alewife on Lake Trout Fry Emerging from Laboratory Reefs. Lake Scientist.  
<http://www.lakescientist.com/research-summary-predation-alewife-lake-trout-fry-emerging-laboratory-reefs/>

## PUBLICATIONS (technical reports)

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14. **Muir, A.M.**, C.R. Bronte, J.L. Mida Hinderer, J.M. Dettmers, and C.C. Krueger. 2013. Fourth Reintroduction of Native Fishes Workshop. Great Lakes Fishery Commission Report, Weber's Inn, Ann Arbor, MI December 12-14. 51p.
13. **Muir, A.M.** P. Vecsei, and J.D. Reist. 2011. A field guide to the taxonomy of ciscoes in Great Slave Lake, Northwest Territories, Canada. Great Lakes Fishery Commission Miscellaneous Publication 11-2, Ann Arbor, MI. 34 p.
12. **Muir, A. M.**, P. Vecsei, M. Power, C. C. Krueger, and J. D. Reist. 2013. Morphology and life history of the Great Slave Lake ciscoes (Salmoniformes: Coregonidae). Department of Fisheries and Oceans Canadian Science Advisory Secretariat (CSAS) Research Document 2013/047. v + 29p.
11. **Muir, A.M.**, C.C. Krueger, R.L. Eshenroder, and M.S. Zimmerman. 2011. Morphological diversity of lake trout: differentiation between deep and shallow forms. Project completion report prepared for the Great Lakes Fishery Commission, Ann Arbor, MI. 118 p.
10. Floress, K., T. Slack, J. Drygeese, and **A. Muir**. 2010. Merging traditional knowledge of the Yellowknives Dene and western science to learn about the shortjaw cisco (*Coregonus zenithicus*) in Yellowknife Bay (Weledeh-Cheh), Great Slave Lake (Tinde'e). Project completion report prepared for AFSAR, IRF, and Fisheries and Oceans Canada, Yellowknife, NT. 49 p.
9. **Muir, A.M.**, J.D. Reist, and P. Vecsei. 2009. An overview of research on ciscoes, *Coregonus* spp. with emphasis on shortjaw cisco, *C. zenithicus* in Canada - 2008-2010: goals, objectives, hypotheses, predictions, and analytical methods. Report prepared for Fisheries and Oceans Canada, Winnipeg, MB. 49 p.
8. **Muir, A.M.**, Vecsei, P., Machtans, H.M., K.M. Gerein, and J.D. Reist. 2008. Cisco diversity in Great Slave Lake, Northwest Territories, Canada: a database and data summary (Salmoniformes: Coregonidae). Report prepared for Fisheries and Oceans Canada, Winnipeg, MB. 83 p.

## PUBLICATIONS (technical reports continued)

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7. Sutton, T.M., M.A. Koops, M.T. Arts, **A.M. Muir**, E.A. Blukacz, R.M. Claramunt, M.P. Ebener, J.D. Fitzsimons, T.B. Johnson, and R.E. Kinnunen. 2007. Does adult body condition affect recruitment potential in lake whitefish (*Coregonus clupeaformis*)? Project completion report prepared for the Great Lakes Fishery Trust, Ann Arbor, MI. 66 p.
6. **Muir, A.M.** and T.C. den Haas. 2003. Manual of standard methods for the Chippewas of Nawash calcified structure analysis facility. Technical report prepared for the Chippewas of Nawash First Nation, Wiarton, ON. 51 p.
5. Crawford, S., **A. Muir**, and K. McCann. 2003. 2003 Saugeen Ojibway commercial harvest TACs for lake whitefish (*Coregonus clupeaformis*) in Lake Huron. Technical report prepared for the Chippewas of Nawash First Nation, Wiarton, ON. 109+p.
4. **Muir, A.M.**, and S.S. Crawford. 2001. Putting the experiment into experimental gillnets. Technical report prepared for the Chippewas of Nawash First Nation, Wiarton, ON. 46 p.
3. **Muir, A.M.**, and S.S Crawford. 2001. Standard operational procedures for the Chippewas of Nawash Commercial Fisheries Assessment Program. Technical report prepared for the Chippewas of Nawash First Nation, Wiarton, ON. 50 p.
2. Crawford, S., **A. Muir**, and K. McCann. 2001. Ecological basis for recommendation of 2001 Saugeen Ojibway commercial harvest TACs for lake whitefish (*Coregonus clupeaformis*) in Lake Huron. Technical report prepared for the Chippewas of Nawash First Nation, Wiarton, ON. 151 p.
1. Buchanan, S., H. McElderry, and **A.M. Muir**. 1999. Trawl selectivity in Canada's pacific thornyhead fishery. Prepared by Archipelago Marine Research Ltd. for the Department of Fisheries and Oceans, Groundfish Management Unit, Vancouver, BC. 41 p.

## PUBLICATIONS (popular)

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4. **Muir, A.M.** 2007. *The F-stop*. The Canadian FlyFisher 9 (3): 56-57.
3. **Muir, A.M.** 2002. *Steelhead in the snow: winter fishing on the lower Niagara*. The Canadian FlyFisher 4 : 20-23.
2. **Muir, A.M.** 2004-March. *Soft plastic browns*. Great Lakes Angler.
1. **Muir, A.M.** 2005. *The streamside entomologist*. Flyfishing and Tying Journal 28 (2): 38-39.

## INVITED PRESENTATIONS (+60 contributed presentations)

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**Muir, A.M.** J. Dettmers, J. Tyson. 2020. Great Lakes Fishery Commission perspectives on the role of genetics in the stewardship of Great Lakes aquatic resources. American Fisheries Society, Annual Meeting, Virtual.

**Muir, A.M.** 2019. Keynote: The Great Lakes Fishery Commission: Origins and Institutional Evolution. Canadian Society of Zoologists Annual Meeting. Windsor, ON.

## INVITED PRESENTATIONS (+60 contributed presentations continued)

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- Muir, A.M.** and D. Zielinski. 2017. FishPass – selective bi-directional fish passage. Panel Member, Great Lakes AOC Conference, U.S. Environmental Protection Agency, Grand Rapids, MI.
- Cott, P.A., **A.M. Muir**, C.C. Krueger, T.A. Johnston, M.M. Guzzo, P.J. Blanchfield, and J.M. Gunn. 2013. Buoyancy control mechanisms of fish in deepwater Nearctic lakes. Canadian Conference for Fisheries Research. Windsor, ON.
- Muir, A.M.** and C.C. Krueger. 2012. Patterns and processes in diversification of deep-water food webs. Brown-bag Seminar Series, United States Geological Survey, Great Lakes Science Center, Ann Arbor, MI.
- Muir, A.M.** and C.C. Krueger. 2012. Patterns and processes in diversification of deep-water food webs. Department of Fish and Wildlife GSO Seminar Series, Michigan State University, East Lansing, MI.
- Muir, A.M.**, J.D. Reist, P. Vecsei, and H. Machtans. 2008. Shortjaw cisco *Coregonus zenithicus*: taxonomy, diversity, and niche. Species at Risk – Recovery Team planning meeting, Winnipeg, MB.
- Arts, M.T., A. Blukacz, R. Claramunt, M. Ebener, M. Faisal, J. Fitzsimmons, D. Honeyfield, J. Hoyle, T. Johnson, M. Jones, R.E. Kinnunen, M.A. Koops, **A.M. Muir**, T.M. Sutton, T. Wagner, and G. Wright. 2007. Spatial and temporal patterns in fatty acid profiles of lake whitefish (*Coregonus clupeaformis*) in the Great Lakes in relation to fish condition and inferred diet. Plenary talk. Societas Internationalis Limnologia 30th Congress, Montreal, QC.
- Muir, A.M.**, S.S. Crawford, N.E. Mandrak, and S. Parker. 2005. Bloater (*Coregonus hoyi*) and shortjaw cisco (*Coregonus zenithicus*) habitat: a new perspective. Species at risk – shortjaw cisco recovery team meeting, Burlington, ON.

## AWARDS AND HONORS

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- Top downloaded article, Freshwater Biology 2019
- Huron Mountain Wildlife Foundation, Manierre Research Award 2017
- Norman James Aquatic Zoology Scholarship, University of Guelph, ON. 2004
- University of Guelph Research Grant 2004
- Arthur D. Latornell Graduate Travel Scholarship 2004
- University of Guelph Dean's Honour List 1998
- Alma Mater Entrance Scholarship to University of Guelph, ON. 1993

## PROFESSIONAL AFFILIATIONS

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- Captain Dick's Sourtoe Cocktail Club, Dawson City, YT. 2010-present
- American Fisheries Society
- National Chapter 2005-present
- Michigan Chapter 2011-present
- Purdue Sub-unit 2006-2009
- Indiana Chapter 2006-2009
- Canadian Society of Environmental Biologists 2009-present
- International Association for Great Lakes Research 2006-present

## SERVICE

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- End-user Committee – Genfish (Cooke, Docker, Heath) 2020-2023
- Steering Committee – Developing a Great Lakes Ecosystem Database (Ludsin et al.) 2021
- Faculty Search Committee – Michigan State University QFC Assistant Professor 2020
- Guest Editor Aquaculture and Fisheries (Special Issue: Global Fish Passage Issues) 2020
- International Joint Commission – Great Lakes Science Plan 2020-present
- U.S. Geological Survey – Tunison Biological Station Director 2020
- International Conference on Fish Telemetry – Planning Committee 2021
- Sea Lamprey International Symposium III – Planning Committee 2018-2019
- Departmental Chair Search Committee – Michigan State University 2018-2020
- Michigan State University Quantitative Fishery Center Advisory Board 2018-present
- 2018 International Charr Symposium (Host and Lead Planner) – Duluth, MN. 2015-2018
- Faculty Search Committee – Michigan State University QFC Assistant Professor 2015
- AFS national meeting – Student Presentation Judge Early Life History, Quebec City, QC. 2014
- Ecological and Evolutionary Ethology of Fishes (Session Chair), Corvallis, OR. 2014
- International Joint Commission – Science Advisory Board 2014-2016
- GLWQA Annex 10 Subcommittee 2013-2016
- Canadian Conference for Fisheries Research (Program Co-chair), Windsor, ON. 2013
- Canadian Conference for Fisheries Research (Session Chair), Windsor, ON. 2013
- Board of Technical Experts – Great Lakes Fishery Commission 2012-present
- GLFC Reintroduction of Native Fishes Workshop (Organizer and Chair), Ann Arbor, MI. 2012
- Canadian Cancer Society 2008-2011
- Huron River Days, Ann Arbor, MI. 2011-2013
- National Ocean Sciences Bowl, Ann Arbor, MI. 2011-2014
- Fisheries and Oceans Canada: Baker Creek Project, Yellowknife, NT. 2010
- Bruce County Museum: Lake Huron ecology and fisheries exhibit, Wiarton, ON. 2003
- DFO – SARA Shortjaw Cisco recovery team 2002-present
- Bruce County Childcare Centers, fish biology presentations, Wiarton, ON. 2002-2005
- Boys and Girls Club, Niagara Falls, ON. 1991-1993
- Stanford Collegiate Biology Club, Niagara Falls, ON. 1990-1993

## PEER AND GRANTING REVIEWS COMPLETED

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American Midland Naturalist; Aquaculture and Fisheries; Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative; Arctic Science; Biological Invasions; Canadian Journal of Fisheries and Aquatic Science; Ecology of Freshwater Fishes; Environmental Biology of Fishes; Fisheries and Oceans Canada; Fishery Bulletin; Freshwater Biology; Fundamental and Applied Limnology; Great Lakes Fishery Commission; Inland Fisheries (MSU Press); Hydrobiologia; Journal of Fish Biology; Journal of Great Lakes Research; Michigan State University Press; Nature; North American Journal of Fisheries Management; Reviews in Fish Biology and Fisheries; Science; Sea Grant (Illinois, Indiana, Michigan); Transactions of the American Fisheries Society; U.S. Fish and Wildlife Service; U.S. Geological Survey

## PROFESSIONAL DEVELOPMENT

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- Introduction to the GLATOS R package, Ann Arbor, MI. 2020
- First Aid and CPR, American Red Cross, Ann Arbor, MI. 2020
- Hunters Safety, Chelsea, MI. 2014
- Wilderness First Aid, SOLO, University of Michigan, Ann Arbor. 2012
- Workplace Hazardous Materials Information System, Yellowknife, NT. 2009
- Bearwise—Working in Bear Country, Rio-Tinto Mining, Yellowknife, NT. 2009
- Project Management, Golder Associates Ltd., Calgary, AB. 2009
- Health and Safety Hazard Assessment and Control, Golder Associates, Ltd., Calgary, AB. 2009
- Health and Safety Basics, Golder Associates Ltd., Calgary, AB. 2009
- Arctic Survival, Arctic Response, Yellowknife, NT. 2009
- Technical writing, Golder Associates Ltd., Calgary, AB. 2009
- Graduate Teaching Certificate, Purdue University, IN. 2008
- Preparing Future Faculty, Purdue University, IN. 2008
- Human Research Curriculum Training, Purdue University, IN. 2008
- Purdue Animal Care and Use Training, Purdue University, IN. 2007
- Introduction to AD Model Builder, Toronto, ON. 2005
- Marine Emergency Duties (A1), Transport Canada, taught by Georgian College, ON. 2002
- Animal Care Services Training, Guelph University, ON. 2002
- Basic Supervision, Rockhurst University Continuing Education Center, Toronto, ON. 2001
- Analysis, interpretation, and applications of fish otoliths and other hard parts: the state-of-the-art workshop, SUNY College of Environmental Science & Forestry, NY. 2001
- Ground school training Private Pilot License, Warton, ON. 2001
- Electrofishing Supervisor, University of Victoria, BC. 1998
- Boat Pro, Canadian Sail and Power Squadron, Guelph, ON. 1998
- VHF Marine Radio Operators Certificate, Victoria, BC. 1996
- Certified DFO Fisheries Observer, Victoria, BC. 1996
- PADI Open Water SCUBA certification, Tobermory, ON. 1991