Christine N. Polkinghorne

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CURRENT POSITION

July 2016 – Present **Researcher**

EDUCATION

M.S. **University of Minnesota, St. Paul, MN**. 1997. Fisheries. Cumulative GPA: 3.78
Thesis: Determining whether bile acids released by larval sea lamprey and other fishes may be functioning as species-specific migratory cues.

B.S. **University of Wisconsin-Superior, Superior, WI.** 1994. Double Major in Biology and Chemistry, Summa Cum Laude, Cumulative GPA: 3.93

EMPLOYMENT HISTORY

July 2016-Present **Researcher**
Lake Superior Research Institute, University of Wisconsin-Superior.

Manage students and staff working in the Wet Lab/Hatchery Unit. Oversee testing of bench scale ballast water treatment systems. Conduct dose effectiveness and residual toxicity tests. Manage whole effluent toxicity (WET) testing and development of SOPs in support of WET testing.

Manage GLIFWC, 1854 Treaty Authority, Fond du Lac, Lac du Flambeau and Grand Portage Mercury Analysis Accounts. Supervise students and staff on mercury analysis project which includes grinding of fish tissues, critically cleaning equipment, preparation of solutions and standards, digestion of fish tissue and analysis of mercury in fish tissue. Enter data into spreadsheets, verify data and write reports.

Perform general water chemistry characterizations (dissolved oxygen, temperature, pH, conductivity, alkalinity and hardness) for toxicity testing and culturing unit. Calibrate YSI sondes. Create, review and update standard operating procedures (SOPs). Enumerate algae for feeding and toxicity testing.

Assist the LSRI Director with development of grant proposals and budgets for new projects.

July 2013-Present **Associate Researcher**
Lake Superior Research Institute, University of Wisconsin-Superior.

Manage GLIFWC, 1854 Treaty Authority, Fond du Lac and Grand Portage Mercury Analysis Accounts. Supervise students and staff on mercury analysis project which includes grinding of fish tissues, critically cleaning equipment, preparation of solutions and standards, digestion of fish tissue and analysis of mercury in fish tissue. Enter data into spreadsheets, verify data and write reports.
Work with LSRI staff to design and plan bench scale testing. Conduct dose effectiveness, residual toxicity and whole effluent toxicity testing.
Perform general water chemistry characterizations (dissolved oxygen, temperature, pH, conductivity, alkalinity and hardness) for toxicity testing and culturing unit. Create, review and update standard operating procedures (SOPs). Enumerate algae for feeding and toxicity testing.
Manage students and staff working in Wet Lab/Hatchery Unit.

July 2010-2013 **Assistant Researcher**
Lake Superior Research Institute, University of Wisconsin-Superior.

Perform general water chemistry characterizations (dissolved oxygen, temperature, pH, conductivity,

alkalinity and hardness) for toxicity testing and culturing unit. Create, review and update standard operating procedures (SOPs). Work with LSRI staff to design and plan bench scale testing. Conduct dose effectiveness, residual toxicity and whole effluent toxicity testing. Enumerate algae for feeding and toxicity testing. Manage GLIFWC and Grand Portage Accounts. Supervise students and staff on mercury analysis project which includes grinding of fish tissues, critically cleaning equipment, preparation of solutions and standards, digestion of fish tissue and analysis of mercury in fish tissue. Enter data into spreadsheets, verify data and write reports.

1997-Present **Senior Lecturer**
Natural Sciences Department, University of Wisconsin-Superior.

Teach a variety of courses including: General Chemistry Laboratory, Water Chemistry Laboratory, Environmental Science, Human Biology Lecture and Laboratory, Introductory Biology Laboratory.

1997-July 2010 **Senior Research Specialist**
Lake Superior Research Institute, University of Wisconsin-Superior.

Chemist and toxicologist responsible for analyzing concentrations of overlying water of sediment toxicity tests. Assisted as biologist with sediment toxicity tests. Supervised students on mercury analysis project which included grinding of fish tissues, critically cleaning equipment, preparation of solutions and standards, digestion of fish tissue and analysis of mercury in fish tissue. Data entry, verification of data and report writing.

1994-1997 **Graduate Research Assistant**
Fisheries Department, University of Minnesota

Behavioral studies with sea lamprey, collection of tissue samples from sea lamprey and teleost fish for characterization of bile acid content which was accomplished by use of HPLC. Designed experiments, collected and analyzed data.

1991-1994 **Research Assistant**
Lake Superior Research Institute, University of Wisconsin-Superior.

Assisted in research on the effects of pesticides on a pond community. Performed field work, chlorophyll analysis and macroinvertebrate identification and enumeration, and data analysis.

QUALITY SYSTEM TRAINING

GSI Land-Based RDTE Facility Health and Safety Training. 17 June 2011.

GSI Quality Management Plan (QMP) and Quality Assurance Project Plan (QAPP) Training. 21 July 2010.

TECHNICAL REPORTS

Cangelosi A, Allinger L, Balcer M, Fanberg L, Fobbe D, Hagedorn S, Mangan T, Mays N, **Polkinghorne C**, Prihoda K, Reavie E, Regan D, Reid D, Ruzycki E, Saillard H, Schaefer H, Schwerdt T, Snetting T & TenEyck M (2012). Final Report of Land-Based Freshwater Testing of a Ballast Water Treatment Involving Sodium Hypochlorite (NaOCl). Great Ships Initiative, Northeast-Midwest Institute, Washington, D.C., USA. http://www.nemw.org/GSI/GSI-LB-F-A-5_NaOCl.pdf

Cangelosi A, Allinger L, Balcer M, Fanberg L, Hagedorn S, Markee T, Mays N, **Polkinghorne C**, Prihoda K, Reavie E, Regan D, Reid D, Ruzycki E, Saillard H, Schwerdt T, Schaefer H & TenEyck M (2011). Final Report of the Land-Based, Freshwater Testing of the Lye (NaOH) Ballast Water Treatment System. Great Ships Initiative, Northeast-Midwest Institute, Washington, D.C., USA. http://www.nemw.org/GSI/GSI-LB-F-A-3.pdf

Cangelosi A, Allinger L, Balcer M, Mays N, Markee T, **Polkinghorne C**, Prihoda K, Reavie E, Reid D, Saillard H, Schwerdt T, Schaefer H & TenEyck M (2011). Final Report of the Land-Based, Freshwater Testing of the AlfaWall AB PureBallast® Ballast Water Treatment System. Great Ships Initiative, Northeast-Midwest Institute, Washington, D.C., USA. http://www.nemw.org/GSI/GSI-LB-F-A-2.pdf

Cangelosi A, Allinger L, Balcer M, Mays N, Markee T, **Polkinghorne C**, Prihoda K, Reavie E, Reid D, Saillard H, Schwerdt T, Schaefer H & TenEyck M (2010). Report of the Land-Based Freshwater Testing by the Great Ships Initiative of the Siemens SiCURETM Ballast Water Management System for Type Approval According to Regulation D-2 and the Relevant IMO Guidelines. Great Ships Initiative, Northeast-Midwest Institute, Washington, D.C., USA. http://www.nemw.org/GSI/GSI-LB-F-A-1.pdf

REFEREED PUBLICATIONS

Levesque, H.M., D. Scaffidi, **C.N. Polkinghorne**, P.W. Sorensen. 2011. A Multi-Component Species Identifying Pheromone in the Goldfish. Journal of Chemical Ecology 37: 219-227.

Call, D.J., **C.N.Polkinghorne**, T.P. Markee, L.T. Brooke, D.L. Geiger, J.W. Gorsuch, and K.A. Robillard. 2006. Toxicity of silver in water and sediment to the freshwater amphipod *Hyalella azteca*. Environmental Toxicology and Chemistry 25: 1802-1808.

Call, D.J., D.A.Cox, D.L.Geiger, K.I.Genisot, T.P.Markee, L.T.Brooke, **C.N.Polkinghorne**, F.A.VandeVenter, J.W.Gorsuch, K.A.Robillard, T.F.Parkerton, M.C.Reiley, G.T.Ankley, and D.R. Mount. 2001. An assessment of the toxicity of phthalate esters to freshwater benthos. 2. Sediment exposures. Environmental Toxicology and Chemistry. 20: 1805-1815.

Moses, S.K., **C.N.Polkinghorne,** W.P.Mattes, K.M.Beesley. 2018. Spatial and Ontogenetic Variation in Mercury in Lake Superior Basin Sea Lamprey (*Petromyzon marinus*). Bulletin of Environmental Contamination and Toxicology. 100: 95-100.

Polkinghorne, C.N., J.M. Olson, D.D. Gallaher, and P.W. Sorensen. 2001. Larval sea lamprey release two unique bile acids to the water at a rate sufficient to produce detectable riverine pheromonal plumes. Fish Physiol. Biochem. 24: 15-30.

Bjerselius, R., W. Li, J.H. Teeter, J.G. Seelye, P.J. Maniak, G. Grant, **C.N. Polkinghorne**, and P.W. Sorensen. 2000. Direct behavioral evidence that unique bile acids released by larval sea lamprey function as a migratory pheromone. Can. J. Fish. Aquat. Sci. 57: 557-569.

Polkinghorne, C.N. 1997. To Catch a Thief. Imprint 14:1-7.