

## CURRICULUM VITAE

### CHRISTOPHER T. SOLOMON

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CARY INSTITUTE OF ECOSYSTEM STUDIES. Millbrook, NY, United States of America  
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### RESEARCH INTERESTS

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Ecosystem ecology. Ecology and management of lakes and other aquatic systems. Effects of terrestrial organic matter on lake ecosystems and food webs. Fish ecology and conservation. Social-ecological dynamics of recreational fishery landscapes. Ecosystem metabolism and lake carbon cycles. Statistics and modeling in ecology.

### EDUCATION

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UNIVERSITY OF WISCONSIN, Madison, Wisconsin.  
Zoology. Ph.D. 2008.

CORNELL UNIVERSITY, Ithaca, New York.  
Natural Resources. B.S. 2001, *magna cum laude* with distinction in research.

### ACADEMIC APPOINTMENTS

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CARY INSTITUTE OF ECOSYSTEM STUDIES. Millbrook, New York. <i>Senior Scientist</i>	2022-present
CARY INSTITUTE OF ECOSYSTEM STUDIES. Millbrook, New York. <i>Associate Scientist</i>	2016-2022
MCGILL UNIVERSITY, Department of Natural Resource Sciences. Montréal, Québec. <i>Adjunct Professor</i>	2016-2019 2020-2021
MCGILL UNIVERSITY, Department of Natural Resource Sciences. Montréal, Québec. <i>Associate Professor</i>	2016
MCGILL UNIVERSITY, Department of Natural Resource Sciences. Montréal, Québec. <i>Assistant Professor</i>	2010-2016
GLOBAL LAKES ECOLOGICAL OBSERVATORY NETWORK UNIVERSITY OF WISCONSIN, Center for Limnology. Madison, Wisconsin. <i>Postdoctoral Research Associate</i>	2008-2010
UNIVERSITY OF CALIFORNIA, Dept. of Earth and Planetary Sciences. Berkeley, California. <i>Staff Research Associate</i>	2002-2003

## PUBLICATIONS

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Up-to-date list [here](#).

### In press

- Solomon, C.T., H.A. Dugan, W.D. Hintz, and S.E. Jones. 2023. Upper limits for road salt pollution in lakes. *Limnology and Oceanography Letters*.
- Whittaker, E., M.A. Janssen, and C.T. Solomon. In press. Polycentric governance systems' perceived impact on learning in north-central United States lake and watershed organizations. *Regional Environmental Change*.

### Published

- Halpern, B. S., and others. 2023. Priorities for synthesis research in ecology and environmental science. *Ecosphere* 14:e4342.
- Oleksy, I.A., S.E. Jones, and C.T. Solomon. 2022. Hydrologic setting dictates the sensitivity of ecosystem metabolism to climate variability in lakes. *Ecosystems* 25:1328-1345.
- Mosley, C., C.J. Dassow, J. Caffarelli, A.J. Ross, G.G. Sass, C.T. Solomon, and S.E. Jones. 2022. Species differences, but not habitat, influence catch rate hyperstability across a recreational fishery landscape. *Fisheries Research* 255:106438.
- Hararuk, O., S.E. Jones, and C.T. Solomon. 2022. Hydrologic export of soil organic carbon: continental variation and implications. *Global Biogeochemical Cycles* 36:e2021GB007161.
- Nieman, C.L., and C.T. Solomon. 2022. Slow social change: implications for open access recreational fisheries. *Fish and Fisheries* 23:195–201.
- Bishop, C., K. Gahm, A.P. Hendry, S.E. Jones, M. Stange, and C.T. Solomon. 2022. Benthic-limnetic morphological variation in fishes: dissolved organic carbon concentration produces unexpected patterns. *Ecosphere* 13:e3965.
- Lottig, N.R., J.S. Phillips, R.D. Batt, F. Scordo, T.J. Williamson, S.R. Carpenter, S. Chandra, P.C. Hanson, C.T. Solomon, M.J. Vanni, and J. Zwart. 2022. Estimating pelagic primary production in lakes: Comparison of <sup>14</sup>C incubation and free-water O<sub>2</sub> approaches. *Limnology and Oceanography: Methods* 20:34–45.
- Nieman, C.L., R.M. Pendleton, G.H. Kenney, and C.T. Solomon. 2021. Evaluation and optimization of a long-term fish monitoring program in the Hudson River. *Ecological Indicators* 133:108344.
- Nieman, C.L., C. Iwicki, A.J. Lynch, G.G. Sass, C.T. Solomon, A. Trudeau, and B. van Poorten. 2021. Creel surveys for social-ecological systems focused fisheries management. *Reviews in Fisheries Science & Aquaculture* 29:739–752.
- Xenopoulos, M.A., R.T. Barnes, K.S. Boodoo, D. Butman, N. Catalán, S.C. D'Amario, C. Fasching, D.N. Kothawala, O. Pisani, C.T. Solomon, R.G.M. Spencer, C.J. Williams, and H.F. Wilson. 2021. How humans alter dissolved organic matter composition in freshwater: relevance for the Earth's biogeochemistry. *Biogeochemistry* 154:323-348.
- Hanna, D.E.L., B. Lehner, Z.E. Taranu, C.T. Solomon, and E.M. Bennett. 2021. The relationship between watershed protection and water quality: the case of Québec, Canada. *Freshwater Science* 40:382-396.
- Ziegler, J.P., S.L. Jardine, S.E. Jones, B.T. van Poorten, M.A. Janssen, and C.T. Solomon. 2021. Investing in the commons: transient welfare creates incentives despite open access. *Ecology and Society* 26:16.
- Trudeau, A., C.J. Dassow, C.M. Iwicki, S.E. Jones, G.G. Sass, C.T. Solomon, B.T. van Poorten, and O.P. Jensen. 2021. Estimating fishing effort across the landscape: a spatially extensive approach using models to integrate multiple data sources. *Fisheries Research* 233:105768.

- Olson, C.R., C.T. Solomon, and S.E. Jones. 2020. Shifting limitation of primary production: experimental support for a new model in lake ecosystems. *Ecology Letters* 23:1800-1808.
- Bertolet, B.L., C.R. Olson, D.K. Szydlowski, C.T. Solomon, and S.E. Jones. 2020. Methane and primary productivity in lakes: divergence of temporal and spatial relationships. *Journal of Geophysical Research: Biogeosciences* 125:e2020JG005864.  
(Winner of the Elizabeth Sulzman award from the Biogeosciences section of the Ecological Society of America.)
- Solomon, C.T., C.J. Dassow, C. Iwicki, O.P. Jensen, S.E. Jones, G.G. Sass, A. Trudeau, B.T. van Poorten, and D. Whittaker. 2020. Frontiers in modeling social-ecological dynamics of recreational fisheries: a review and synthesis. *Fish and Fisheries* 21:973-991.
- Fischhoff, I., T. Huang, S.K. Hamilton, B.A. Han, S.L. LaDeau, R.S. Ostfeld, E.J. Rosi, and C.T. Solomon. 2020. Parasite and pathogen effects on ecosystem processes: a quantitative review. *Ecosphere* 11: e03057.
- Strayer, D.L., D.T. Fischer, S.K. Hamilton, H.M. Malcom, M.L. Pace, and C.T. Solomon. 2020. Long-term variability and density dependence in Hudson River *Dreissena* populations. *Freshwater Biology* 65:474-489.
- Dassow, C.J., A.J. Ross, O.P. Jensen, G.G. Sass, B.T. van Poorten, C.T. Solomon, and S.E. Jones. 2020. Experimental demonstration of catch hyperstability from habitat aggregation, not effort sorting, in a recreational fishery. *Canadian Journal of Fisheries and Aquatic Sciences* 77:762-769.
- Ziegler, J.P., S.E. Jones, and C.T. Solomon. 2019. Local stakeholders understand recreational fisheries as social-ecological systems but do not view governance systems as influential for system dynamics. *International Journal of the Commons* 13:1035-1048.
- Ziegler, J.P., C. Dassow, S.E. Jones, A.J. Ross, and C.T. Solomon. 2019. Coarse woody habitat does not predict largemouth bass young of year mortality during the open water season. *Canadian Journal of Fisheries and Aquatic Sciences* 76:998-1005.
- Trottier, G., H. Embke, K. Turgeon, C. Solomon, C. Nozais, and I. Gregory-Eaves. 2019. Macroinvertebrate abundance is lower in temperate reservoirs with higher winter drawdown. *Hydrobiologia* 834:199-211.
- Zwart, J.A., O. Hararuk, Y.T. Prairie, S.E. Jones, and C.T. Solomon. 2019. Improving estimates of lake carbon pools and fluxes using data assimilation. *Limnology and Oceanography: Methods* 17:97-111.
- Strayer, D.L., C.T. Solomon, S.E.G. Findlay, and E.J. Rosi. 2019. Long-term research reveals multiple relationships between the abundance and impacts of a non-native species. *Limnology and Oceanography* 64:S105-S117.
- Hanson, Z.J., J.A. Zwart, J. Vanderwall, C.T. Solomon, S.E. Jones, A.F. Hamlet, and D. Bolster. 2019. Integrated, regional-scale hydrologic modeling of inland lakes. *Journal of the American Water Resources Association* 54:1302-1324.
- Kelly, P.T., C.T. Solomon, J.A. Zwart, and S.E. Jones. 2018. A framework for understanding variation in pelagic gross primary production of lake ecosystems. *Ecosystems* 21:1364-1376.
- Hararuk, O., J.A. Zwart, S.E. Jones, Y. Prairie, and C.T. Solomon. 2018. Model-data fusion to test hypothesized drivers of lake carbon cycling reveals importance of physical controls. *Journal of Geophysical Research: Biogeosciences* 123:1130-1142.
- Koizumi, S., N. Craig, J.A. Zwart, P.T. Kelly, J.P. Ziegler, B.C. Weidel, S.E. Jones, and C.T. Solomon. In press. Experimental whole-lake dissolved organic carbon increase alters fish diet and density but not growth or productivity. *Canadian Journal of Fisheries and Aquatic Sciences* 75:1859-1867.
- Jones, S.E., J.A. Zwart, P.T. Kelly, and C.T. Solomon. 2018. Hydrologic setting constrains lake heterotrophy and terrestrial carbon fate. *Limnology and Oceanography Letters* 3:256-254.
- Elchyshyn, L., J.-O. Goyette, É. Saulnier-Talbot, R. Maranger, C. Nozais, C.T. Solomon, and I. Gregory-Eaves. 2018. Quantifying the effects of hydrological changes on long-term water quality trends in temperate reservoirs: insights from a multi-scale, paleolimnological study. *Journal of Paleolimnology*:1-19.
- Ross, A.J., B.C. Weidel, M.A. Lenker, and C.T. Solomon. 2017. Evidence for migratory spawning

- behavior by morphologically distinct Cisco (*Coregonus artedii*) from a small inland lake. *American Midland Naturalist* 178:237-244.
- Craig, N., S.E. Jones, B.C. Weidel, and C.T. Solomon. 2017. Life history constraints explain negative relationship between fish productivity and dissolved organic carbon in lakes. *Ecology and Evolution* 7:6201-6209.
- Zwart, J.A., S.D. Sebestyen, C.T. Solomon, and S.E. Jones. 2017. The influence of hydrologic residence time on lake carbon cycling dynamics following extreme precipitation events. *Ecosystems* 20:1000-1014.
- Weidel, B.C., K. Baglini, S.E. Jones, P.T. Kelly, C.T. Solomon, and J.A. Zwart. 2017. Light climate and dissolved organic carbon concentration influence species-specific changes in fish zooplanktivory. *Inland Waters* 7:210-217.
- Ziegler, J.P., C.T. Solomon, and I. Gregory-Eaves. 2017. Refuge increases food chain length: modeled impacts of littoral structure in lake food webs. *Oikos* 126:1347-1356.
- Ziegler, J.P., E.J. Golebie, S.E. Jones, B.C. Weidel, and C.T. Solomon. 2017. Unexpected social-ecological outcomes in recreational fisheries: the interaction of lakeshore development and stocking. *Ecological Applications* 27:56-65.
- Vanni, M., and 71 others. 2017. A global database of nitrogen and phosphorus excretion rates of aquatic animals. *Ecology* doi:10.1002/ecy.1792.
- Tanentzap, A.J., B.W. Kielstra, G.M. Wilkinson, M. Berggren, N. Craig, J. Grey, J.M. Gunn, S.E. Jones, J. Karlsson, C.T. Solomon, P.A. del Giorgio, and M.L. Pace. 2017. Terrestrial support of lake food webs: synthesis reveals controls over cross-ecosystem resource use. *Science Advances* 3: e1601765.
- Solomon, C.T. 2017. Dissolved organic matter causes genetic damage in lake zooplankton via oxidative stress. *Functional Ecology* 31:806-807.
- Turgeon, K., C.T. Solomon, C. Nozais, and I. Gregory-Eaves. 2016. Do novel ecosystems follow predictable trajectories? Testing the trophic surge hypothesis in reservoirs using fish. *Ecosphere* 7: e01617.
- Vachon, D., C.T. Solomon, and P.A. del Giorgio. 2016. Reconstructing the seasonal dynamics and relative contribution of the major processes sustaining CO<sub>2</sub> emissions in northern lakes. *Limnology and Oceanography* 62:706-722.
- Kelly, P.T., N. Craig, C.T. Solomon, B.C. Weidel, J.A. Zwart, and S.E. Jones. 2016. Experimental whole-lake increase of dissolved organic carbon concentration produces unexpected increase in zooplankton biomass and production. *Global Change Biology*. 22:2766-2775
- Benoît, P.-O., B.E. Beisner, and C.T. Solomon. 2016. Growth rate and abundance of common fishes is negatively related to dissolved organic carbon concentration in lakes. *Canadian Journal of Fisheries and Aquatic Sciences* 73:1230-1236.
- Zwart, J.A., N. Craig, P.T. Kelly, C.T. Solomon, B.C. Weidel, and S.E. Jones. 2016. Metabolic and physiochemical responses to a whole-lake experimental increase in dissolved organic carbon in a north-temperate lake. *Limnology and Oceanography* 61:723-734.
- Lenker, M.A., Weidel, B.C., Jensen, O.P., and C.T. Solomon. 2016. Developing recreational harvest regulations for an unexploited lake trout population. *North American Journal of Fisheries Management* 36:385-397.
- Craig, N., S.E. Jones, B.C. Weidel, and C.T. Solomon. 2015. Habitat, not resource availability, limits consumer production in lake ecosystems. *Limnology and Oceanography* 60:2079-2089.
- Zwart, J.A., C.T. Solomon, and S.E. Jones. 2015. Phytoplankton traits predict ecosystem function in a global set of lakes. *Ecology* 96:2257-2264.
- Hanna, D.E.L., C.T. Solomon, A.E. Poste, D. Buck, and L.J. Chapman. 2015. A review of mercury concentrations in freshwater fishes of Africa: patterns and predictors. *Environmental Toxicology and Chemistry* 34:215-223.
- Vander Zanden, M.J., E.K. Moody, C.T. Solomon, and B.C. Weidel. 2015. Patterns of stable isotope turnover and half-life in animal tissues. *PLOS ONE* 10:e0116182.
- Solomon, C.T., S.E. Jones, B.C. Weidel, I. Buffam, M.L. Fork, J. Karlsson, S. Larsen, J.T. Lennon, J.S.

- Read, S. Sadro, and J.E. Saros. 2015. Ecosystem consequences of changing inputs of terrestrial dissolved organic matter to lakes: current knowledge and future challenges. *Ecosystems* 18:376-389.
- Ziegler, J.P., C.T. Solomon, B.P. Finney, and I. Gregory-Eaves. 2015. Macrophyte abundance predicts food chain length in shallow lakes. *Ecosphere* 6:art5.
- Godwin, S.C., S.E. Jones, B.C. Weidel, and C.T. Solomon. 2014. Dissolved organic carbon concentration controls benthic primary production: results from in situ chambers in north-temperate lakes. *Limnology and Oceanography* 59:2112-2120.
- Sadro, S., G.W. Holtgrieve, C.T. Solomon, and G.R. Koch. 2014. Dissolved organic matter and lake productivity affect overnight patterns of ecosystem respiration in a global set of lakes. *Limnology and Oceanography* 59:1666-1678.
- Rose, K.C., L. Winslow, J.S. Read, E.L. Kara, C.T. Solomon, R. Adrian, and P.C. Hanson. 2014. Understanding variability in ecosystem metabolism estimates: the important role of physics. *Limnology and Oceanography: Methods* 12:303-312.
- Kelly, P.T., C.T. Solomon, B.C. Weidel, and S.E. Jones. 2014. Terrestrial carbon is a resource, but not a subsidy, for lake zooplankton. *Ecology* 95:1236-1242.
- Solomon, C.T., D.A. Bruesewitz, D.C. Richardson, K.C. Rose, M.C. Van de Bogert, P.C. Hanson, T.K. Kratz, B. Larget, R. Adrian, B.L. Babin, C.-Y. Chiu, D.P. Hamilton, E.E. Gaiser, S. Hendricks, V. Istvánovics, A. Laas, D.M. O'Donnell, M.L. Pace, E. Ryder, P.A. Staehr, T. Torgersen, M.J. Vanni, K.C. Weathers, and G. Zhu. 2013. Ecosystem respiration: Drivers of daily variability and background respiration in lakes around the globe. *Limnology and Oceanography* 58:849-866.
- Cole, J.J. and C.T. Solomon. 2012. Terrestrial support of zebra mussels and the Hudson River food web: a multi-isotope, Bayesian analysis. *Limnology and Oceanography* 57:1802-1815.
- Jones, S.E., C.T. Solomon, and B.C. Weidel. 2012. Subsidy or subtraction: How do terrestrial inputs influence consumer production in lakes? *Freshwater Reviews* 5:37-49.
- Nilsson, E., C.T. Solomon, K.A. Wilson, T.V. Willis, B. Larget, and M.J. Vander Zanden. 2012. Effects of an invasive crayfish on trophic relationships in north-temperate lake food webs. *Freshwater Biology* 57:10-23.
- Solomon, C.T., B.M. Roth, T.R. Hrabik, and M.J. Vander Zanden. 2011. Comparing energetic and dynamic descriptions of a single food web linkage. *Oikos* 120:194-199.
- Solomon, C.T., S.R. Carpenter, M.K. Clayton, J.J. Cole, J.J. Coloso, M.L. Pace, M.J. Vander Zanden, and B.C. Weidel. 2011. Terrestrial, benthic, and pelagic resource use in lakes: results from a three-isotope Bayesian mixing model. *Ecology* 92:1115-1125.
- Cole, J.J., S.R. Carpenter, J.F. Kitchell, M.L. Pace, C.T. Solomon, and B.C. Weidel. 2011. Strong evidence for terrestrial support of zooplankton in small lakes based on stable isotopes of carbon, nitrogen, and hydrogen. *Proceedings of the National Academy of Sciences of the United States of America* 108:1975-1980.
- Solomon, C.T., J.D. Olden, P.T.J. Johnson, R.T. Dillon, Jr., and M.J. Vander Zanden. 2010. Distribution and community-level effects of the Chinese mystery snail (*Bellamya chinensis*) in northern Wisconsin lakes. *Biological Invasions* 12:1591-1605.
- Roth, B.M., T.R. Hrabik, C.T. Solomon, N. Mercado-Silva, and J.F. Kitchell. 2010. A simulation of food web interactions leading to rainbow smelt *Osmerus mordax* dominance in Sparkling Lake, Wisconsin. *Journal of Fish Biology* 77:1379-1405.
- Ball, B.A., J.S. Kominoski, H.E. Adams, S.E. Jones, E.S. Kane, T.D. Loecke, W.M. Mahaney, J.P. Martina, C.M. Prather, T.M.P. Robinson, and C.T. Solomon. 2010. Direct and terrestrial vegetation-mediated effects of environmental change on aquatic ecosystem processes. *BioScience* 60:590-601.
- Solomon, C.T., E.R. Hotchkiss, J.M. Moslemi, A.J. Ulseth, E.H. Stanley, R.O. Hall, and A.S. Flecker. 2009. Sediment size and nutrients regulate denitrification in a tropical stream. *Journal of the North American Benthological Society* 28:480-490.
- Solomon, C.T., J.J. Cole, R.R. Doucett, M.L. Pace, N.D. Preston, L.E. Smith, and B.C. Weidel. 2009. The influence of environmental water on the hydrogen stable isotope ratio in aquatic consumers. *Oecologia* 161:313-324.

- Johnson, P.T.J., J.D. Olden, C.T. Solomon, and M.J. Vander Zanden. 2009. Interactions among invaders: community and ecosystem effects of multiple invasive species in an experimental aquatic system. *Oecologia* 159:161-170.
- Weidel, B., S. Carpenter, J. Cole, J. Hodgson, J. Kitchell, M. Pace, and C. Solomon. 2008. Carbon sources supporting fish growth in a north temperate lake. *Aquatic Sciences* 70:446-458.
- Solomon, C.T., S.R. Carpenter, M.J. Vander Zanden, and J.A. Rusak. 2008. Long-term variation in isotopic baselines and implications for estimating consumer trophic niches. *Canadian Journal of Fisheries and Aquatic Sciences* 65:2191-2200.
- Solomon, C.T., S.R. Carpenter, J.J. Cole, and M.L. Pace. 2008. Support of benthic invertebrates by detrital resources and current autochthonous primary production: results from a whole-lake  $^{13}\text{C}$  addition. *Freshwater Biology* 53:42-54.
- Babler, A.L., C.T. Solomon, and P. Schilke. 2008. Depth-specific patterns of benthic secondary production in an oligotrophic lake. *Journal of the North American Benthological Society* 27:108-119.
- Schmidt, S.N., J.D. Olden, C.T. Solomon, and M.J. Vander Zanden. 2007. Quantitative approaches to the analysis of stable isotope food web data. *Ecology* 88:2793-2802.
- Pace, M.L., S.R. Carpenter, J.J. Cole, J.J. Coloso, J.F. Kitchell, J.R. Hodgson, J.J. Middelburg, N.P. Preston, C.T. Solomon, and B.C. Weidel. 2007. Does terrestrial organic carbon subsidize the planktonic food web in a clear-water lake? *Limnology and Oceanography* 52:2177-2189.
- Carpenter, S.R., B.J. Benson, R. Biggs, J.W. Chipman, J.A. Foley, S.A. Golding, R.B. Hammer, P.C. Hanson, P.T.J. Johnson, A.M. Kamarainen, T.K. Kratz, R.C. Lathrop, K.D. McMahon, B. Provencher, J.A. Rusak, C.T. Solomon, E.H. Stanley, M.G. Turner, M.J. Vander Zanden, C.-H. Wu, and H. Yuan. 2007. Understanding regional change: a comparison of two lake districts. *BioScience* 57:323-335.
- Solomon, C.T., P.K. Weber, J.J. Cech, Jr., B.L. Ingram, M.E. Conrad, M.V. Machavaram, A.R. Pogodina, and R.L. Franklin. 2006. Experimental determination of the sources of otolith carbon and associated isotopic fractionation. *Canadian Journal of Fisheries and Aquatic Sciences* 63:79-89.
- Solomon, C.T., A.S. Flecker, and B.W. Taylor. 2004. Testing the role of sediment-mediated interactions between tadpoles and armored catfish in a Neotropical stream. *Copeia* 2004:610-616.

### Commentary and correspondence

- Rosi, E.J., E.S. Bernhardt, C.T. Solomon, G.E. Likens, W.H. McDowell, and I.F. Creed. 2022. Give long-term datasets World Heritage status. *Science* 378:1180-1181.
- Solomon, C.T. 2017. Dissolved organic matter causes genetic damage in lake zooplankton via oxidative stress. *Functional Ecology* 31:806-807.

### Published data sets

- Solomon, C., S. Jones, B. Weidel, B. Bertolet, C. Bishop, J. Coloso, N. Craig, C. Dassow, S. Koizumi, C. Olson, A. Ross, K. Saunders, W. West, J. Ziegler, and J. Zwart. 2018. MFE database: Data from ecosystem ecology research by Jones, Solomon, and collaborators on the ecology and biogeochemistry of lakes and lake organisms in the Upper Midwest, USA. figshare. doi:10.25390/caryinstitute.7438598.

### Book chapters

- Oleksy, I.A., C.R. Olson, S.E. Jones, and C.T. Solomon. 2022. Hydrologic setting affects ecosystem processes. Pages 343-351 in T. Mehner and K. Tockner, editors. *Encyclopedia of Inland Waters (Second Edition)*. Elsevier, Oxford.
- Cole, J.J., O. Hararuk, and C.T. Solomon. 2021. The carbon cycle. In K.C. Weathers, D.L. Strayer, and G.E. Likens, editors. *Fundamentals of Ecosystem Science (Second Edition)*. Academic Press, London.

## Reports

Solomon, C.T., A. Breisch, M. Fargione, E. Kiviat, D.J. Lonsdale, and D.L. Strayer. 2018. Biological Communities Target Ecosystem Characteristic. *In* Partners Restoring the Hudson. Hudson River Comprehensive Restoration Plan: Recommendations for the New York–New Jersey Harbor & Estuary Program Action Agenda and the New York State Hudson River Estuary Action Agenda. The Nature Conservancy, New York.

## Society newsletters

Solomon, C.T., and S.E. Jones. 2020. Terrestrially derived dissolved organic matter - its influence on lake food webs. *LakeLine* 40(1):14-16. North American Lake Management Society.

Solomon, C.T. 2018. Why we turned a lake brown, and what we learned. *The Current: Newsletter of the Society of Canadian Limnologists* 13:3.

## FUNDING

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### Grants received

Midwest Glacial Lakes Partnership. 2020-2022  
*Systems-level perspectives on fish habitat: capacity building workshops with lake associations across the Midwest.* (\$56,044)

PIs: C. Solomon and C. Nieman

U.S. National Science Foundation. Division of Environmental Biology, Ecosystem Science. 2018-2023  
*Regulation of lake productivity by terrestrial dissolved organic matter.* (\$1,597,699)

PIs: S. Jones and C. Solomon.

U.S. National Science Foundation. Division of Environmental Biology. 2018-2023  
*LTREB: Will increases in dissolved organic matter accelerate a shift in trophic status through anoxia-driven positive feedbacks in an oligotrophic lake?* (\$449,332)

PIs: K. Rose and 4 others; C. Solomon is other senior personnel.

Cary Institute of Ecosystem Studies. Scientific Innovation Fund. 2017-2018  
*Exploring new frontiers in disease ecology.* (\$35,891)

PIs: C. Solomon and 4 others.

U.S. National Science Foundation. Coupled Natural-Human Systems. 2017-2021  
*CNH-L: Social-ecological dynamics of recreational fishery landscapes.* (\$1,500,000)

PIs: C. Solomon and 4 others.

U.S. National Science Foundation. Major Research Instrumentation. 2017-2021  
*Acquisition of an ion chromatograph-inductively coupled plasma mass spectrometer (IC-ICP-MS) for research and undergraduate education.* (\$207,690)

PIs: A. Keimowitz and 3 others.

Natural Sciences and Engineering Research Council of Canada. Strategic Network. 2016-2021  
*NSERC Canadian Lake Pulse Network.* (\$5,500,000)

PIs: Y. Huot and 18 others. Direct support to Solomon declined.

Natural Sciences and Engineering Research Council of Canada. Discovery. 2016-2021  
(\$150,000)

<i>Understanding the effects of terrestrially-derived dissolved organic matter on food web productivity and organismal life histories in lakes.</i>	
PI: C. Solomon. Years 2-5 declined.	
U.S. National Science Foundation. Division of Environmental Biology, Ecosystem Studies. <i>Long-term effects of a species invasion on an aquatic ecosystem.</i>	2016-2021 (\$450,000)
PIs: D. Strayer and 3 others.	
Fonds de Recherche du Québec: Nature et Technologies. Équipe <i>Cycles du carbone des lacs et émissions de gaz à effet de serre : fusion données-modèles pour comprendre les mécanismes et prévoir les tendances futures. (Lake carbon cycles and greenhouse gas emissions: model-data fusion to understand mechanisms and predict future trends)</i>	2015-2018 (\$213,372)
PIs: C. Solomon, P. del Giorgio, and Y. Prairie.	
The Nature Conservancy – Adirondack Chapter <i>Research to inform conservation and management of lake trout in Follensby Pond (Amendment to previous 2013-2015 contract, for new work).</i>	2015-2016 (\$46,288)
PIs: C. Solomon, B. Weidel, D. Fraser.	
Québec Center for Biodiversity Studies. Seed. <i>Effects of anthropogenic browning on arthropod biodiversity and ecosystem function of lake food webs.</i>	2015-2016 (\$5,000)
PIs: C. Solomon and 5 others.	
Natural Sciences and Engineering Research Council of Canada. CREATE <i>NSERC CREATE for Enhancing Canada's prosperity through innovative environmental assessment, monitoring and management.</i>	2014-2020 (\$1,650,000)
PIs: M. Humphries and 9 others.	
The Nature Conservancy – Adirondack Chapter <i>Research to inform conservation and management of lake trout in Follensby Pond.</i>	2013-2015 (\$129,283)
PIs: C. Solomon, O. Jensen, and B. Weidel	
MITACS Accelerate <i>Quantifying the effects of water level drawdowns on lake water quality and biodiversity: a case study of Grand Lac St. François, Québec.</i>	2013-2015 (\$166,000)
PIs: I. Gregory-Eaves, C. Solomon, and C. Nozais.	
Québec Center for Biodiversity Studies. Seed. <i>Anthropogenic impacts on biodiversity, fish habitat, and health of Grand Lac St. François and other winter-drawdown lakes and reservoirs.</i>	2013 (\$5,000)
PIs: I. Gregory-Eaves, C. Solomon, and C. Nozais.	
Canada Foundation for Innovation. Leaders Opportunity Fund <i>Automated sensors, high-performance computing laboratory, and other equipment for studying terrestrial-aquatic linkages in lake carbon cycles and food webs.</i>	2012-2015 (\$187,500)
PI: C. Solomon.	



Natural Sciences and Engineering Research Council of Canada. Research Tools and Infrastructure <i>Remote, real-time climate monitoring network.</i> PIs: S. Lougheed and 8 others.	2012-2014 (\$148,164)
Natural Sciences and Engineering Research Council of Canada. Discovery <i>Terrestrial inputs to aquatic ecosystems: effects on food webs and carbon cycling</i> PI: C. Solomon.	2011-2016 (\$135,000)
Fonds de Recherche du Québec: Nature et Technologies. Nouveaux Chercheurs <i>Liens inter-habitats dans les réseaux trophiques des lacs: quelle est l'influence des forces anthropiques et naturelles sur l'utilisation des ressources et la production des consommateurs? (Cross-habitat connections in lake food webs : what is the influence of natural and anthropogenic forces on resource use and consumer production?)</i> PI: C. Solomon.	2011-2013 (\$82,905)
Dr. Louis G. Johnson Foundation <i>How do terrestrial inputs affect fish populations? Equipment for determining fish growth rates.</i> PI: C. Solomon.	2011 (\$29,769)
U.S. National Science Foundation. Doctoral Dissertation Improvement Grant <i>Terrestrial subsidies to aquatic food webs: new insights from hydrogen isotopes</i> PIs: C. Solomon and M.J. Vander Zanden.	2007-2009 (\$12,000)
U.S. LTER Network Workshop Travel Grant <i>The influence of changes in terrestrial plant community structure on aquatic ecosystem function across the LTER network</i> PIs: J. Kominoski and 10 others.	2006 (\$7,500)

## **TEACHING AND MENTORING**

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### **Undergraduate and graduate courses taught**

- Cary Institute of Ecosystem Studies, Fundamentals of Ecosystem Ecology. Aquatic primary production module. 2017-2023.
- Cary Institute of Ecosystem Studies, Fundamentals of Ecosystem Ecology. Social-ecological systems module. 2018-2019.
- McGill University, Quantitative Methods in Ecology (ENVB 506). 2010-2016.
- McGill University, Fisheries and Wildlife Management (WILD 401). 2010-2015. With 1-2 co-instructors.
- McGill University, Fish Ecology (WILD 302). 2012 and 2014.
- Occasional guest lectures in undergraduate courses and graduate seminars, 2008-present.
- Recipient of the 2014 Award for Teaching Excellence in the Faculty of Agricultural and Environmental Sciences, McGill University. Award citation highlighted that students described my courses as extremely challenging yet gave me excellent course evaluations, and that students appreciated my focus on problem-based learning and my infectious enthusiasm for science and teaching.

### **Graduate supervision**

- Chelsea Bishop, MSc. 2018-2020 (co-supervised with A. Hendry)
- Shuntaro Koizumi, MSc. 2015-2017.
- Jacob Ziegler, PhD. 2014-2018.

- Melissa Lenker, MSc. 2013-2015.
- Raphaelle Thomas, MSc. 2013-2016.
- Pierre-Olivier Benoît. MSc. 2012-2014.
- Nicola Craig. PhD. 2012-2016.
- Jacob Ziegler. MSc. 2012-2014. (co-supervised with I. Gregory-Eaves).

#### **Postdoctoral supervision**

- Dr. Isabella Oleksy. 2019-2020.
- Dr. Chelsey Nieman. 2019-2020.
- Dr. Ilya Fischhoff. 2018.
- Dr. Oleksandra Hararuk. 2016-2017.
- Dr. Alex Latzka. 2015-2016.
- Dr. Katrine Turgeon. 2013-2015. (co-supervised with I. Gregory-Eaves).
- Dr. Heather Mariash. 2013-2014.

#### **Undergraduate supervision – honors theses and major independent studies**

- 15 honors theses and major independent studies between 2005 and 2016, including Babler et al. 2008 and Godwin et al. 2014 (see publications list).

#### **Graduate committees and thesis examinations**

Past three years:

- PhD committee, Kathy Stenehjem, Cornell University, 2023-present.
- MSc committee, Greyson Wolf, University of Notre Dame, 2023-present.
- PhD committee, Ashley Trudeau, University of Wisconsin. 2020-2022.
- PhD opponent, Renee van Dorst, Swedish University of Agricultural Sciences. 2020.
- PhD committee, Amir Reza Shahabina, Université du Québec à Montréal. 2020.
- PhD committee, Eve Whittaker, Arizona State University. 2019-present.

#### **INVITED PRESENTATIONS**

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- Social-ecological dynamics and the resilience of freshwater fisheries. 2019. UNIVERSITY OF CONNECTICUT, Storrs, CT.
- Terrestrial organic matter and the productivity of lake ecosystems. 2019. LEIBNIZ INSTITUTE FOR FRESHWATER ECOLOGY AND FISHERIES (IGB), Berlin, Germany.
- Social-ecological dynamics and the resilience of freshwater fisheries. 2018. QUEENS COLLEGE, CITY UNIVERSITY OF NEW YORK, Queens, NY.
- Social-ecological dynamics and the resilience of freshwater fisheries. 2018. CARY INSTITUTE OF ECOSYSTEM STUDIES, Millbrook, NY.
- A framework for understanding lake food web productivity: or, why we turned a lake brown and what we learned. 2018. RUTGERS UNIVERSITY, New Brunswick, NJ.
- FishScapes: Social-ecological dynamics of recreational fishery landscapes. 2018. GLOBAL BIOSOCIAL COMPLEXITY INITIATIVE, ARIZONA STATE UNIVERSITY, Tempe, AZ.
- Terrestrial organic carbon and the productivity of lake ecosystems: or, why we turned a lake brown and what we learned. 2018. UNIVERSITY OF MASSACHUSETTS, Amherst, MA.
- Terrestrial organic carbon and the productivity of lake ecosystems: or, why we turned a lake brown and what we learned. 2017. CORNELL UNIVERSITY, Ithaca, NY.
- Using big data and small models to understand aquatic carbon cycling. 2017. CORNELL UNIVERSITY, Ithaca, NY.
- What determines lake food web productivity? 2017. UMEÄ UNIVERSITY, Umeå, Sweden.
- Social-ecological dynamics of recreational fishery landscapes. 2017. STOCKHOLM RESILIENCE CENTER, Stockholm, Sweden.
- The ecological role of DOC in aquatic ecosystems. 2016. CATSKILL ENVIRONMENTAL RESEARCH AND

MONITORING CONFERENCE, Highmount, NY.

Why we turned a lake brown, and what we learned. 2016. BARD COLLEGE, Annandale-on-Hudson, NY.

Why we turned a lake brown, and what we learned. 2015. CARY INSTITUTE OF ECOSYSTEM STUDIES, Millbrook, NY.

Why we turned a lake brown, and what we learned. 2015. CONCORDIA UNIVERSITY, Montréal, QC.

Subsidy or subtraction: How do terrestrial organic matter inputs affect productivity of lake food webs? 2014. JOINT MEETING OF THE BRITISH ECOLOGICAL SOCIETY AND SOCIÉTÉ FRANÇAISE D'ÉCOLOGIE, Lille, France.

Food web and biogeochemical consequences of global browning of lakes. 2013. UNIVERSITÉ DE MONTRÉAL, Montréal, QC.

What I would do with \$10 million – a research agenda from a soapbox. 2013. FRONTIERS IN ECOSYSTEM SCIENCE, U.S. NSF, New Orleans, LA.

Identifying source spawning stocks of Lake Ontario cisco (*Coregonus artedii*) using otolith microchemistry. 2012. GREAT LAKES FISHERY COMMISSION, BOARD OF TECHNICAL EXPERTS, Ann Arbor, MI.

Global browning: effects of increased terrestrial organic matter loads on food webs and carbon cycles in lake ecosystems. 2012. QUEEN'S UNIVERSITY, Kingston, ON.

Cross-habitat connections: effects on food webs and carbon cycling in lakes. 2011. CORNELL BIOLOGICAL FIELD STATION, Bridgeport, NY.

Using Bayesian mixing models and stable isotope data to quantify cross-habitat connections in ecological food webs. 2011. STATISTICS 2011 CANADA / FORUM FOR INTERDISCIPLINARY MATHEMATICS, Montréal, QC.

Terrestrial inputs to lake ecosystems: Food web subsidy or subtraction? 2011. MCGILL BIOLOGY ORGANISMAL SEMINAR, Montréal, QC.

Cross-habitat linkages in lake food webs: are fish made of maple leaves, and so what? 2011. UNIVERSITÉ DU QUÉBEC À TROIS RIVIÈRES, Trois Rivières, QC.

When is a subsidy not a subsidy? 2010. MCGILL CEEB RETREAT, Mont St. Hilaire, QC.

Cross-habitat linkages in lake food webs: are fish made of maple leaves, and so what? 2010. UNIVERSITÉ DU QUÉBEC À MONTRÉAL, Montréal, QC.

Cross-habitat linkages fuel food webs and ecosystem respiration in lakes. 2009. CARY INSTITUTE OF ECOSYSTEM STUDIES, Millbrook, NY.

Are fish made of maple leaves or mud? Cross-habitat linkages fuel food webs and ecosystem respiration in lakes. 2009. Dept. of Natural Resource Sciences. MCGILL UNIVERSITY, Montréal, QC, Canada.

Food web linkages: understanding cross-habitat connections and allochthonous subsidies in lake ecosystems. 2008. Zoology Department Colloquium. UNIVERSITY OF WISCONSIN, Madison, WI.

Ecosystem change and its implications for Hudson River fishes: an overview. 2021. Invited opening plenary, HUDSON RIVER ENVIRONMENTAL SOCIETY. New York, NY.

Tools for building resilience in Midwest lake organizations. 2023. Invited seminar with E. Whittaker, MIDWEST GLACIAL LAKES PARTNERSHIP. Virtual.

## **CONTRIBUTED PRESENTATIONS**

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First authored only

Social-ecological dynamics in recreational fishery landscapes. 2018. ASSOCIATION FOR THE SCIENCES OF LIMNOLOGY AND OCEANOGRAPHY, Victoria, BC.

Opportunities and challenges in local management of recreational fishery landscapes. 2018. MIDWEST FISH AND WILDLIFE CONFERENCE, Milwaukee, WI.

Unexpected outcomes of local governance in recreational fishery social-ecological systems. 2017. WORLD RECREATIONAL FISHING CONFERENCE, Victoria, BC.

Using sensor data and models to understand lake carbon cycles. 2017. NEGLEON, Millbrook, NY.

Social-ecological dynamics in recreational fishery landscapes. 2017. SOCIETY OF CANADIAN LIMNOLOGISTS / CANADIAN CONFERENCE FOR FISHERIES RESEARCH, Montréal, QC.

Whole-lake browning experiment reveals DOC effects on consumer production and carbon cycling. 2015. SOCIETY OF CANADIAN LIMNOLOGISTS, Ottawa, ON.

Ecosystem experiment reveals effects of terrestrial DOC on lake food webs and carbon cycles. 2014. GENOMES TO BIOMES, Montréal, QC.

Constraining carbon cycle stocks and fluxes by fusing process models with multiple data streams: Should aquatic scientists follow the terrestrial lead? 2014. JOINT AQUATIC SCIENCES MEETING, Portland, OR.

Terrestrial DOC effects on aquatic food webs – subsidy or subtraction? Evidence from whole-lake experiments, surveys, and models. 2012. ASSOCIATION FOR THE SCIENCES OF LIMNOLOGY AND OCEANOGRAPHY, New Orleans, LA.

Subsidy or subtraction? Whole-lake experiments, surveys, and models to test the effects of terrestrial DOC on aquatic food webs. 2012. ECOLOGICAL SOCIETY OF AMERICA, Portland, OR.

How do terrestrial inputs influence lake food webs and carbon cycling? 2011. GROUPE DE RECHERCHE INTERUNIVERSITAIRE EN LIMNOLOGIE, St. Hippolyte, QC.

Do terrestrial inputs subsidize, substitute for, or subtract from consumer production in lake food webs? 2011. SOCIETY OF CANADIAN LIMNOLOGISTS, Toronto, ON.

Drivers of variation in pelagic community respiration. 2010. AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY, Santa Fe NM.

Estimating metabolism parameters and uncertainty. 2010. AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY, Santa Fe NM.

Terrestrial, benthic, and pelagic resource use: 3-isotope Bayesian mixing model. 2010. AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY, Santa Fe NM.

Drivers of temporal variation in pelagic community respiration. 2009. GLOBAL LAKES ECOLOGICAL OBSERVATORY NETWORK, Hamilton, New Zealand.

Leading indicators of cyanobacterial blooms in lakes. 2008. GLOBAL LAKES ECOLOGICAL OBSERVATORY NETWORK, Norrtälje, Sweden.

Deuterium stable isotopes indicate terrestrial subsidies to aquatic food webs. 2008. ECOLOGICAL SOCIETY OF AMERICA, Milwaukee, WI.

Reliance of benthic invertebrates on new primary production: results from a <sup>13</sup>C addition to a large, clear-water lake. 2007. AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY, Santa Fe, NM.

Long-term variation in food web structure in a north temperate lake. 2006. LONG TERM ECOLOGICAL RESEARCH NETWORK, Estes Park, CO.

Small energy flux, big effect: Comparing energetic and dynamic measures of interaction strength. 2006. ECOLOGICAL SOCIETY OF AMERICA, Memphis, TN.

Long-term variation in food web structure in a north temperate lake. 2005. ECOLOGICAL SOCIETY OF AMERICA, Montréal, QC.

Ecosystem-level effects of exotic and native snails in northern Wisconsin lakes? 2004. SCIENCE AND THE NORTHWOODS *Conference*, Boulder Junction, WI.

Littoral algivores of Lake Tanganyika: comparing the influence of fishes and snails on biomass of benthic algae. 2003. NORTH AMERICAN BENTHOLOGICAL SOCIETY, Athens, GA.

## PROFESSIONAL SERVICE

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### Institutional activities

- Member, strategic planning committee, Cary Institute of Ecosystem Studies, 2022-present
- Member, Retirement Fund Investment Committee, Cary Institute of Ecosystem Studies, 2021-present.
- Chair, Staff Retreat Committee, Cary Institute of Ecosystem Studies, 2018-2022.
- Member, staff scientist search committee, Cary Institute of Ecosystem Studies, 2017.
- Member, Staff Retreat Committee, Cary Institute of Ecosystem Studies, 2016-2018.
- Member, faculty search committee, Dept. of Natural Resource Sciences, McGill University, 2015

- Program director, Environmental Biology major, McGill University. 2014-2016.
- Chair, Information Technology Committee, McGill University, Faculty of Agricultural and Environmental Sciences. 2013-2015.
- Member, Information Technology Committee, McGill University, Faculty of Agricultural and Environmental Sciences. 2011-2013.
- Member, Animal Care Committee, McGill University, Faculty of Agricultural and Environmental Sciences. 2012-2016.
- Member, Vision Committee, McGill University, Dept. of Natural Resource Sciences. 2010-2013.
- Co-developed proposal for new graduate seminar structure, McGill University, Dept. of Natural Resource Sciences. 2012.
- Statistical consulting for departmental graduate students (10-20 hours per year), McGill University, Dept. of Natural Resource Sciences. 2010-2016.

### **External activities**

#### Professional societies

Association for the Sciences of Limnology and Oceanography, Ecological Society of America, Global Lake Ecological Observatory Network, Society of Canadian Limnologists

#### Committees

- Member, Hudson River Biological Monitoring Program Working Group, 2020-2022.
- Member, Award Committee, Ramón Margalef Excellence in Education Award, Association for the Sciences of Limnology and Oceanography. 2017-2020.
- Team leader, Native Biological Communities team, Hudson River Comprehensive Restoration Plan. 2016-2017.
- Co-chair, Local Organizing Committee, 2017 Joint Meeting of the Canadian Conference for Fisheries Research and the Society of Canadian Limnologists, Montreal. 2015-2017.
- Member, Collaborative Climate Committee, Global Lake Ecological Observatory Network. 2008-2012.

#### Reviews

- Subject Matter Editor, *Ecology*, 2023-present.
- Associate Editor, *Proceedings of the Royal Society B: Biological Sciences*. 2020-present.
- Reviewer for the following journals (most recent 3 years): *Canadian Journal of Fisheries and Aquatic Sciences*, *Ecography*, *Ecology*, *Ecosphere*, *Ecosystems*, *Environmental Research Letters*, *Freshwater Biology*, *Global Change Biology*, *Limnology and Oceanography Letters*.
- Reviewer for the following granting organizations (most recent 3 years): National Science Center of Poland, National Science Foundation, Natural Sciences and Engineering Research Council of Canada.

#### Technology development

- Estimating ecosystem metabolism from continuous free-water dissolved oxygen measurements: maximum likelihood method with bootstrapped uncertainties. 2012. Model code in R. Distributed upon request to >20 research groups.
- Bayesian stable isotope mixing model. 2011. Model code in R and OpenBUGS. Distributed upon request to >10 research groups.
- Data sharing policies and practices. 2011. Invited plenary speaker and workshop participant, Global Lake Ecological Observatory Network, Sunapee, NH.
- Data access, quality assurance, and metadata: development priorities for GLEON from the perspective of data users. 2009. Report to the Global Lakes Ecological Observatory Network.

#### Knowledge translation and dissemination to the public, policymakers, and resource managers

- Regular meetings with fisheries managers in New York and Wisconsin, 2017-present.
- Roundtable discussion with Rep. John Faso (NY-19). 2017.
- Regular meetings with Québec fisheries managers from the Ministère des Ressources Naturelles

(Québec, Gatineau, and Charny offices). 2011-2015.

- Background interview with Allan Johnson (CBC News Montréal) on fish kills, 2014.
- Background interview with Mathieu Perreault (*La Presse*) on fish production for popular press article on Claisse et al. 2014 *PNAS* paper.
- Liber Ero Fellow in Science Communication and Policy Engagement. 2013. Received training from science communication professionals and journalists.
- Meeting with Lake Champlain chapter of Trout Unlimited. 2011.
- Impacts of dams on aquatic ecosystems. 2010. Off-air interview, Vermont Public Radio.
- Sensor networks and environmental change. 2009. On-air interview, WSUM radio, Madison, WI.
- Rainbow smelt in Wisconsin: distribution, impacts, and management. 2009. Invited talk. Wisconsin Lakes Convention, Green Bay, WI.
- The Global Lake Ecological Observatory Network. 2009. National Science Foundation exhibit, American Association for the Advancement of Science Annual Meeting, Chicago, IL.

#### Media coverage

- *Wisconsin State Journal*, May 2020. [Study on Wisconsin lake finds fish catch can mask population decline](#). (Also run in *Kenosha News*, *Chippewa Herald*, *La Crosse Tribune*, *The Journal Times*, *Wisconsin News*, and covered later in separate stories on [WXPR Public Radio](#) and [In-Fisherman](#).)
- *Cool Green Science* blog. Dec. 2013. “[Conserving Lake Trout Among the Philosophers](#).”
- *Science*. Nov. 2013. “[Understanding lakes near and far](#).”
- *Parcs Québec* blog. Nov. 2013. “[La gestion du niveau d’eau au Grand lac Saint-François : y a-t-il un impact sur la biodiversité?](#)”

#### **HONORS AND AWARDS**

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Award for Teaching Excellence, Faculty of Agricultural and Environmental Sciences, McGill Univ. 2014.  
U.S. NSF Graduate Research Fellowship, 2004-2007  
Univ. of Wisconsin graduate fellowship, 2003  
U.S. Congress Goldwater Scholar, 1999-2001  
Cornell University National Scholar, 1997-2001