

Peter R. Leavitt FRSC: Professional Experience

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Education:

Ph.D. 1989, Aquatic Biology, University of Notre Dame, Notre Dame, Indiana, USA.
M.Sc. 1985, Limnology, Queen's University, Kingston, Ontario, Canada.
B.Sc. 1981, Biology, Honours, 1st class, Queen's University, Kingston, Ontario, Canada.

Research Experience:

Canada Research Chair in Environmental Change and Society (Tier I). University of Regina, Canada.
(2003-2010; renewed 2010-2017; 2nd renewal 2017-2024).
Professor. Institute for Global Food Security, School of Biological Sciences, Queen's University
Belfast, United Kingdom (2018-2021).
Director. Institute for Environmental Change and Society (IECS) (formerly Environmental Quality
Analysis Laboratory, EQAL), University of Regina, Canada. (2000-present).
Professor. Department of Biology, University of Regina, Canada. (2001-present).
Director. Canadian Institute of Ecology and Evolution (2012-2018; co-Director in 2017-18).
Fulbright Visiting Research Chair, University of California-Santa Barbara, USA (2015).
Center Fellow. National Center for Ecological Analysis and Synthesis, University of California-Santa
Barbara, USA (2007).
Visiting Scholar. Department of Zoology, University of Washington - Seattle, USA. (2000).
Associate Professor. Department of Biology, University of Regina, Canada. (1997-2001).
Assistant Professor. Department of Biology, University of Regina, Canada. (1993-1997).
NSERC Research Fellow. Department of Zoology, University of Alberta, Canada. Supervisor: D.W.
Schindler (Jan. 1991-July 1993).
Visiting Fellow. Freshwater Institute, Canada. Supervisor: R. Hesslein. (Jan-July 1990).
Postdoctoral Researcher. Center for Limnology, University of Wisconsin-Madison, USA. Supervisor:
S.R. Carpenter (1989-1991).

Research Interests:

Coupled Human-Natural Systems; Pathways of energy and mass transfer; Human impacts on
environment; Climate change and social response; Long-term ecological research (LTER); Regulation
of ecosystem structure and function; Variation as a system property; Social controls of biophysical
environments; Paleolimnology and Paleoecology; Global cycles of major elements (C, N, P); Pollution
ecology; Urbanization and the water cycle; Socio-economic trade-offs with ecosystem services;
Centennial-scale effects of agricultural development; Regulation of primary production; Limnology
and Aquatic Ecology; Environmental change; Disturbance; Regulation of food-web structure; Water.

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Teaching Experience:

- Lecturer: Biology 101 - General Biology (Regina) (1994-98, 2002)
Biology 276 – Environmental Biology (Regina) (2002-06, 2008-10, 2012, 2016-18)
Biology 335 - Limnology (Regina) (1994-98, 2001-06, 2008-14, 2016-18)
Biology 364 - Nonvascular Plants/Biology of Algae (Regina) (1995-98)
Biology 490BP - Undergraduate Research Project (Regina) (2012)
Biology 835 - Climate Change and Impacts (Regina) (2003)
Biology 837 - Food-web Ecology (Regina) (1996)
Biology 837 - Practical Analysis of Plant Pigments (Regina) (1995)
Botany 491 - Practical Analysis of Plant Pigments (Alberta) (1989)
- Co-lecturer: Biology 803 – Scientific Research Skills (Regina) (2008, 2010, 2012-14, 2016-19)
- Guest Lecturer: Biology 455 – Developmental Endocrinology (Regina)
Biology 375 - Systems Ecology (Regina)
Biology 476 - Quaternary Ecology and Palynology (Regina)
Biology 275 - Ecology (Regina)
Geography 326 – Environment and Resource Management (Regina)
Zoology 464 - Limnology (Alberta)
Zoology 322 - Community Ecology (Alberta)
Botany 333 - Aquatic and Wetland Plant Ecology (Alberta)
Archaeology/Palaeoecology 3089 - Critical Thinking (Queen’s University Belfast)

Publications: (*PRL trainees, see p. 49*) (Career total 193 papers)

- Haig, H.A., N.M. Hayes, G.L. Simpson, Y. Yi, B. Wissel, K.R. Hodder, and P.R. Leavitt. 2021. Effects of seasonal and interannual variability in water isotopes ($\delta^2\text{H}$, $\delta^{18}\text{O}$) on estimates of water balance in a chain of seven prairie lakes. *J. Hydrol.* X 10: 100069. doi.org/10.1016/j.hydroa.2020.100069
- Nanayakkara, L., E. Starks, R. Cooper, P.R. Leavitt and B. Wissel. 2021. Resource-use, body condition and parasite load metrics indicate contrasting health of stocked and native game fishes in Canadian prairie lakes. *Fisheries Manage Ecol.* 28: 18-27. doi.org/10.1111/fme.12447
- Gauthier, J., I. Gregory-Eaves, L. Bunting, P.R. Leavitt, T. Tran, L. Godbout, B.P. Finney, D.E. Schindler, G. Chen, G. Holtgrieve, M. Shapley, and D.T. Selbie. 2021. Ecological dynamics of a peri-urban lake: A multi-proxy paleolimnological study of Cultus Lake (British Columbia) over the past ~200 years. *J. Paleolimnol.* 65:33–51 doi.org/10.1007/s10933-020-00147-9
- Pilla, R.M., C.E. Williamson, and 56 others. 2020. Deeper waters are changing less consistently than surface waters or thermal stability in a global analysis of trends in lake thermal structure. *Sci. Rep.* 10: 20524. doi.org/10.1038/s41598-020-76873-x
- Anderson, N.J., D.R. Engstrom, A.J. Heathcote, and P.R. Leavitt. 2020. Changes in coupled carbon-nitrogen dynamics in a tundra ecosystem predate recent regional warming. *Comm. Earth Environ.* 1: 38. doi.org/10.1038/s43247-020-00036-z
- Hall, B.D., T. Cobb, M.D. Graham, R. H. Hesslein, K.A. Kidd, R. J. Vogt and P.R. Leavitt. 2020. Mercury elevator in lakes: A novel vector of methylmercury transfer to fish via migratory invertebrates. *Environ. Sci. Technol. Lett.* 7: 579–584. doi.org/10.1021/acs.estlett.0c00446
- Wurtsbaugh, W.A., P.R. Leavitt, and K. Moser. 2020. Effects of a century of mining and industrial production on metal contamination of a model saline ecosystem, Great Salt Lake, Utah. *Environ. Pollut.* 266: 115072. doi.org/10.1016/j.envpol.2020.115072

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- Oleksy, I.A., J.S. Baron, P.R. Leavitt, and S.A. Spaulding. 2020. Nutrients and warming interact to force mountain lakes into unprecedented ecological state. *Proc. Roy. Soc. B.* 287: 20200304. doi.org/10.1098/rspb.2020.0304
- Swarbrick, V.J., Z. Quiñones-Rivera, and P.R. Leavitt. 2020. Seasonal variability in effects of urea and phosphorous on phytoplankton abundance and composition in a hypereutrophic hardwater lake. *Freshwat. Biol.* 65: 1765-1781. doi.org/10.1111/fwb.13580
- Hayes, N.M., H.A. Haig, G.L. Simpson, and P.R. Leavitt. 2020. Local and regional effects of lake warming on risk of toxic algal exposure. *Limnol. Oceanogr. Lett.* 5: 393-402. doi.org/10.1002/lo2.10164
- Ewing, H.A., K.C. Weathers, K.L. Cottingham, P.R. Leavitt, M.L. Greer, C.C. Carey, B.G. Steele, A.U. Fiorillo, and J.P. Sowles. 2020. “New” cyanobacterial blooms are not new: Two centuries of lake production are related to ice cover and land use. *Ecosphere* 11: e03170. doi.org/10.1002/ecs2.3170
- Bogard, M.J., R.J. Vogt, N.M. Hayes, and P.R. Leavitt. 2020. Unabated nitrogen pollution favours growth of toxic cyanobacteria over chlorophytes in most hypereutrophic lakes. *Environ. Sci. Technol.* 54: 3219-3227. doi.org/10.1021/acs.est.9b06299
- Leiva-Dueñas, C., P.R. Leavitt, T. Buchaca, A. Martínez Cortizas, L. López-Merino, O. Serrano, P.S. Lavery, S. Schouten, and M.A. Mateo. 2020. Factors regulating primary producer assemblages in *Posidonia oceanica* ecosystems over the past 1800 years. *Sci. Total Environ.* 718: 137163. doi.org/10.1016/j.scitotenv.2020.137163
- Baustian, M.M., Y. Brooks, M. Baskaran, P.R. Leavitt, B. Liu, N. Ostrom, R.J. Stevenson, and J. Rose. 2020. Paleo-environmental evidence of ecosystem change in Lake St. Clair region of Laurentian Great Lakes basin: Contrasting responses to land-use change and invasive mussels. *J. Paleolimnol.* 63: 177–193. doi.org/10.1007/s10933-019-00108-x
- Haig, H.A., N.M. Hayes, G.L. Simpson, Y. Yi, B. Wissel, K.R. Hodder, and P.R. Leavitt. 2020. Comparison of isotopic mass balance and instrumental techniques as estimates of basin hydrology in seven connected lakes over 12 years. *J. Hydrol. X* 6: 100046. doi.org/10.1016/j.hydroa.2019.100046
- Mushet, G.R., K.R. Laird, P.R. Leavitt, S. Maricle, A. Klassen, A. Rahi, and B.F. Cumming. 2020. Bottom-up forces drive historical increases in the abundance of large daphniids in four small lakes stocked with rainbow trout (*Oncorhynchus mykiss*), interior British Columbia, Canada. *Ecosystems* 23: 873–890. doi.org/10.1007/s10021-019-00443-0
- Elmslie, B.G., C.A.C. Gushulak, M.P. Boreux, S.F. Lamoureux, P.R. Leavitt, and B.F. Cumming. 2020. Complex responses of phototrophic communities to climate warming during the Holocene of northeastern Ontario, Canada. *Holocene* 30: 272-288. doi.org/10.1177/0959683619883014
- McGowan, S., P.R. Leavitt, T. Barker, and B. Moss. 2020. Shallow water phytoplankton responses to nitrate and salinity enrichment may be modified by benthic processes. *Inland Wat.* 10: 137-151. doi.org/10.1080/20442041.2019.1634948
- Webb, J.R., P.R. Leavitt, G.L. Simpson, H.M. Baulch, H.A. Haig, K.R. Hodder, K. Finlay. 2019. Regulation of carbon dioxide and methane in small agricultural reservoirs: Optimizing potential for greenhouse gas uptake. *Biogeosciences* 16: 4211-4227. doi.org/10.5194/bg-16-4211-2019
- Plancq, J., J.M. Couto, U.Z. Ijaz, P.R. Leavitt and J.L. Toney. 2019. Next generation sequencing to identify lacustrine haptophytes in the Canadian Prairies: Significance for temperature proxy applications. *J. Geophys. Res.: Biogeosciences* 124: 2144–2158. doi.org/10.1029/2018JG004954

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- Webb, J.R., N.M. Hayes, G.L. Simpson, P.R. Leavitt, H.M. Baulch, and K. Finlay. 2019. Widespread nitrous oxide undersaturation in farm waterbodies creates an unexpected greenhouse gas sink. *Proc. Nat. Acad. Sci. USA* 116: 9814-9819. doi.org/10.1073/pnas.1820389116
- Mohamed, A.M.U., G.L. Simpson, P.R. Leavitt, B.F. Cumming, K.R. Laird, K.A. Scott, B. Das, J.D. Wolfe, B. Hesjedal, G.R. Musher, A. Walker, B.J. Meegahage, and B. Wissel. 2019. Taxon-specific variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of subfossil invertebrate remains: Insights into historical trophodynamics in lake food-webs. *Ecol. Indicators* 102: 834-847. doi.org/10.1016/j.ecolind.2019.03.026
- Hu, K., G. Chen, I. Gregory-Eaves, L. Huang, X. Chen, Y. Liu, and P.R. Leavitt. 2019. Hydrological fluctuations modulate phototrophic responses to nutrient fertilization in a large and shallow lake of Southwest China. *Aquat. Sci.* 81: 37. doi.org/10.1007/s00027-019-0633-4
- Karmakar, M., P.R. Leavitt, and A. Patoine. 2019. Effects of bridge construction and wastewater effluent on phytoplankton abundance and sediment geochemistry in an Atlantic temperate coastal bay since 1930. *Estuar. Coasts*. 42: 365–377. doi.org/10.1007/s12237-018-0483-7
- Finlay, K., R.J. Vogt, G.L. Simpson, and P.R. Leavitt. 2019. Seasonal interdependence of $p\text{CO}_2$ and CO_2 flux in a hardwater lake of the northern Great Plains: The legacy effect of climate and limnological conditions during 36 years. *Limnol. Oceanogr.* 64: S118–S129. doi.org/10.1002/lno.11113
- Swarbrick, V.J., G.L. Simpson, P.M. Glibert, and P.R. Leavitt. 2019. Differential stimulation and suppression of phytoplankton growth by ammonium enrichment in eutrophic hardwater lakes over 16 years. *Limnol. Oceanogr.* 64: S130-S149. doi.org/10.1002/lno.11093
- Hayes, N.M., A. Patoine, H.A. Haig, G.L. Simpson, V.J. Swarbrick, E. Wiik, and P.R. Leavitt. 2019. Spatial and temporal variation in nitrogen fixation and its importance to phytoplankton growth in phosphorus-rich lakes. *Freshwat. Biol.* 64: 269–283. doi.org/10.1111/fwb.13214
- Tiegs, S., and 151 others. 2019. Global patterns and drivers of ecosystem functioning in rivers and riparian zones. *Science Advances* 5: eaav0486. doi.org/10.1126/sciadv.aav0486
- Wiik, E., H.A. Haig, N.M. Hayes, K. Finlay, G.L. Simpson, R.J. Vogt, and P.R. Leavitt. 2018. Generalized additive models of climatic and metabolic controls of sub-annual variation in $p\text{CO}_2$ in productive hardwater lakes. *J. Geophys. Res.: Biogeosci.* 123: 1940-1959. doi.org/10.1029/2018JG004506
- Moorhouse, H. L., S. McGowan, M.D. Jones, Z.E. Taranu, I. Gregory-Eaves, P.R. Leavitt, M.D. Jones, P. Barker, and S.A. Brayshaw. 2018. Regional versus local drivers of water quality in the Windermere catchment: The dominant influence of wastewater pollution over the past 200 years. *Global Change Biol.* 24: 4009-4022. doi.org/10.1111/gcb.14299
- Hiroya, A., H. Nakamura, J.L. Toney, H.A. Haig, J. Plancq, T. Shiratori, P.R. Leavitt, O. Seki, K-I Ishida, K. Sawada, I. Suzuki, and Y. Shiraiwa. 2018. Novel alkenone-producing strains of genus *Isochrysis* (Haptophyta) isolated from Canadian saline lakes show temperature sensitivity of alkenones and alkenoates. *Org. Geochem.* 121: 89-103. doi.org/10.1016/j.orggeochem.2018.04.008
- Moir, K.E., M. B. Hickey, P.R. Leavitt, J.J. Ridal, and B.F. Cumming. 2018. Paleolimnological proxies reveal continued eutrophication issues in the St. Lawrence River Area of Concern. *J. Great Lakes Res.* 44: 357-366. doi.org/10.1016/j.jglr.2018.02.001
- Plancq, J., B. Cavazzin, S. Juggins, H.A. Haig, P.R. Leavitt and J.L. Toney. 2018. Environmental controls on the distribution of long-chain alkenones in the Canadian Prairies. *Org. Geochem.* 117: 43-55. doi.org/10.1016/j.orggeochem.2017.12.005
- Nanayakkara, L., R. Jurdi-Hage, P.R. Leavitt, and B. Wissel. 2018. In lakes but not in minds: Stakeholder knowledge of invasive species in prairie lakes. *Biol. Invasions* 20: 633-652.

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- doi.org/10.1007/s10530-017-1564-4
- Vogt, R.J., S. Sharma, and P.R. Leavitt. 2018. Direct and interactive effects of climate, meteorology, river hydrology, and lake characteristics on water quality in productive lakes of the Canadian Prairies. *Can. J. Fish. Aquat. Sci.* 75: 47-59. doi.org/10.1139/cjfas-2016-0520
- Bogard, M.J., K. Finlay, M.J. Waiser, V.P. Tumber, D.B. Donald, E. Wiik, G.L. Simpson, P.A. del Giorgio, and P.R. Leavitt. 2017. Effects of experimental nitrogen fertilization on planktonic metabolism and CO₂ flux in a hypereutrophic hardwater lake. *PLoS One* 12 (12): e0188652. doi.org/10.1371/journal.pone.0188652
- Edlund, M.B., S.P. Schottler, E.D. Reavie, D.R. Engstrom, N. Baratono, P.R. Leavitt, A.J. Heathcote, B. Wilson, and A.M. Paterson. 2017. Historical phosphorus dynamics in Lake of the Woods (USA-Canada): Does legacy phosphorus still affect the southern basin? *Lake Reserv. Manage.* 33: 386-402. doi.org/10.1080/10402381.2017.1373172. *Awarded North American Lake Management Society's 2018 Jim LaBounty Award for Best Paper in LRM.*
- Mushet, G.R., K.R. Laird, B. Das, B. Hesjedal, P.R. Leavitt, K.A. Scott, G.L. Simpson, B. Wissel, J.D. Wolfe and B.F. Cumming. 2017. Regional climate changes drive increased scaled chrysophyte abundance in lakes downwind of the Athabasca Oil Sands nitrogen emissions. *J. Paleolimnol.* 58: 419-435. doi.org/10.1007/s10933-017-9987-6
- Rogalski, M.A., D.K. Skelly, and P.R. Leavitt. 2017. Daphniid zooplankton assemblages shifts in response to eutrophication and metal contamination during the Anthropocene. *Proc. Roy. Soc. B.* 284: 20170865. doi.org/10.1098/rspb.2017.0865
- Laird, K.R., B. Das, B. Hesjedal, P.R. Leavitt, G.R. Mushet, K.A. Scott, G.L. Simpson, B. Wissel, J. Wolfe, and B.F. Cumming. 2017. Paleolimnological assessment of nutrient enrichment on diatom assemblages in *a priori* defined nitrogen- and phosphorus-limited lakes downwind of the Athabasca Oil Sands, Canada. *J. Limnol.* 76: 488-502. doi.org/10.4081/jlimnol.2017.1598.
- Reavie, E.D., M.B. Edlund, N.A. Andresen, D.R. Engstrom, P.R. Leavitt, S. Schotter, and N.G. Baratono. 2017. Paleolimnology of the Lake of the Woods southern basin: Continued water quality degradation despite lower nutrient influx. *Lake Reserv. Manage.* 33: 359-385. doi.org/10.1080/10402381.2017.1312648
- Baron, J.S., A. Specht, E. Garnier, P. Bishop, C. A. Campbell, F.W. Davis, B. Fady, D. Field, L.J. Gross, S. M. Guru, B.S. Halpern, S.E. Hampton, P.R. Leavitt, T.R. Meagher, J.N. Parker, P. Price, C.H., Rawson, A. Rodrigo, L.A. Sheble, and M. Winter. 2017. Synthesis centers as critical research infrastructure. *BioScience* 67: 750-759. doi.org/10.1093/biosci/bix053
- Steinman, A.D., G.A. Lamberti, P.R. Leavitt, and D.G. Uzarski. 2017. Biomass and pigments of benthic algae. In F.R. Hauer and G.A. Lamberti (eds.), *Methods in Stream Ecology*. 3rd edition. Academic Press. doi.org/10.1016/B978-0-12-416558-8.00012-3
- Bunting, L., P.R. Leavitt, G.L. Simpson, B. Wissel, K.R. Laird, B.F. Cumming, A. St. Amand, and D.R. Engstrom. 2016. Increased variability and sudden ecosystem state change in Lake Winnipeg, Canada, caused by 20th century agriculture. *Limnol. Oceanogr.* 61: 2090-2107. doi.org/10.1002/lno.10355
- Murray, D.L., D. Morris, C. Lavoie, P.R. Leavitt, H. MacIsaac, M. Masson, M-A Villard. 2016. Bias in research grant evaluation has dire consequences for small universities. *PLoS One* 11: e0155876. doi.org/10.1371/journal.pone.0155876
- Sayer, C.D., T.A. Davidson, R. Rawcliffe, P.G. Langdon, P.R. Leavitt, G. Cockerton, N.L. Rose and T. Croft. 2016. Consequences of fish kills for long-term trophic structure in shallow lakes: Implications for theory and restoration. *Ecosystems* 19: 1289-1309. doi.org/10.1007/s10021-016-0005-z

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- Vuillemin, A., D. Ariztegui, P.R. Leavitt, L. *Bunting*, and the PASADO Science Team. 2016. Recording of climate and diagenesis through sedimentary DNA and fossil pigments at Laguna Potrok Aike, Argentina. *Biogeosciences* 13: 2475-2492. doi.org/10.5194/bg-13-2475-2016
- Stevenson, M.A., S. *McGowan*, N.J. Anderson, R.H. Foy, P.R. Leavitt, Y.R. McElearney, D.R. Engstrom and S. Pla-Rabés. 2016. Impacts of forest plantation management on primary production in upland lakes from north-west Ireland. *Global Change Biol.* 22: 1490-1504. doi.org/10.1111/gcb.13194
- Glibert, P.M., F.P. Wilkerson, R.C. Dugdale, J.A. Raven, C. Dupont, P.R. Leavitt, A.E. Parker, J.M. Burkholder, and T.M. Kana. 2016. Pluses and minuses of ammonium and nitrate uptake and assimilation by phytoplankton and implications for productivity and community composition, with emphasis on nitrogen-enriched conditions. *Limnol. Oceanogr.* 61: 165-197. doi.org/10.1002/lno.10203
- Maheaux, H., P.R. Leavitt, and L.J. Jackson. 2016. Asynchronous onset of eutrophication among shallow prairie lakes of the northern Great Plains, Alberta, Canada. *Global Change Biol.* 22: 271–283. doi.org/10.1111/gcb.13076
- Einarsson, Á., U. Hauptfleisch, P.R. Leavitt, and A.R. Ives. 2016. Identifying consumer-resource population cycles using paleoecological data. *Ecology* 97: 361–371. doi 10.1890/15-0596.1
- Tse, T.J., L.E. Doig, P.R. Leavitt, Z.J. *Quiñones-Rivera*, G. Codling, B.T. Lucas, K. Liber, J.P. Giesy, H. Wheeler, and P.D. Jones. 2015. Long-term spatial trends in sedimentary algal pigments in a narrow river-valley reservoir, Lake Diefenbaker, Canada. *J. Great Lakes Res.* 41(Suppl. 2): 56-66. doi.org/10.1016/j.jglr.2015.08.002
- Karmakar, M., P.R. Leavitt, and B.F. Cumming. 2015. Enhanced algal abundance in Northwest Ontario (Canada) lakes during the warmer early- to mid-Holocene period. *Quat. Sci. Rev.* 123: 168-179. doi.org/10.1016/j.quascirev.2015.06.025
- Samways*, K.M., P.R. Leavitt, P. Magnan, M.A. Rodriguez, and P. Peres-Neto. 2015. Convergent polymorphism between stream and lake habitats: The case of brook charr. *Can. J. Fish. Aquat. Sci.*, 72: 1406-1414. doi.org/10.1139/cjfas-2015-0116
- Quiñones-Rivera*, Z.J., K. *Finlay*, R.J. *Vogt*, P.R. Leavitt, and B. Wissel. 2015. Hydrologic, metabolic and chemical regulation of water-column metabolism and atmospheric CO₂ exchange in a large continental reservoir during spring and summer. *J. Great Lakes Res.*, 41 (Suppl. 2): 144-154. doi.org/10.1016/j.jglr.2015.05.005
- Donald, D.B., B.R. Parker, J.-M. Davies, and P.R. Leavitt. 2015. Nutrient sequestration in the Lake Winnipeg watershed. *J. Great Lakes Res.* 41: 630-642. doi.org/10.1016/j.jglr.2015.03.007
- Lawrence, J.R., E. Topp, M.J. Waiser, V. Tumber, J. Roy, G.D.W. Swerhorne, P. Leavitt, A. Paule, and D.R. Korber. 2015. Resilience and recovery: The effect of triclosan exposure timing during development, on the structure and function of river biofilm communities. *Aquat. Toxicol.* 161: 253-266. doi.org/10.1016/j.aquatox.2015.02.012
- Taranu, Z.E., I. Gregory-Eaves, P.R. Leavitt, L. *Bunting*, T. Buchaca, J. Catalan, I. Domaizon, P. Guilizzoni, A. Lami, S. *McGowan*, H. Moorehouse, G. Morabito, F. Pick, M. A., Stevensen, P. L. Thompson, and R. D. *Vinebrooke*. 2015. Acceleration of cyanobacterial dominance in lakes in north temperate-subarctic lakes during the Anthropocene. *Ecol. Lett.* 18: 375-384. doi.org/10.1111/ele.12420
- Finlay*, K., R.J. *Vogt*, M.J. *Bogard*, B. Wissel, B.M. Tutolo, G.L. Simpson, and P.R. Leavitt. 2015. Decrease in CO₂ efflux from northern hardwater lakes with increasing atmospheric warming. *Nature* 519: 215-218. doi.org/10.1038/nature14172
- Brahney, J., A. Ballantyne, P. Kocielek, P.R. Leavitt, G.L. Farmer, and J.C. Neff. 2015. Ecological changes in alpine lake ecosystems associated with human activity and dust transport in western

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- Wyoming. *Limnol. Oceanogr.* 60: 678–695. doi.org/10.1002/lno.10050
- Samways, K.M., Z. J. *Quiñones-Rivera*, P.R. Leavitt, and R.A. Cunjak. 2015. Spatio-temporal responses of algae, fungal and bacterial biofilm communities in Atlantic rivers receiving marine-derived nutrient inputs. *Freshwat. Sci.* 34: 881–896. doi.org/10.1086/681723
- Vogt, R.J., S. Sharma, and P.R. Leavitt. 2015. Decadal regulation of phytoplankton abundance and water clarity in a large continental reservoir by climatic, hydrologic and trophic processes. *J. Great Lakes Res.*, 41 (Suppl. 2): 81-90. doi.org/10.1016/j.jglr.2014.11.007
- Moorhouse, H.L., S. *McGowan*, M.D. Jones, S.A. Brayshaw, P. Barker, E.Y. Haworth, and P.R. Leavitt. 2014. Contrasting effects of nutrients and climate on algal communities in lakes in the Windermere catchment since the late 19th century. *Freshwat. Biol.* 59: 2605–2620. doi.org/10.1111/fwb.12457
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Manuscripts under review: (PRL trainees)

- Gushulak, C.A.C., Haig, H.A., Kingsbury, M.V., B. Wissel, B.F. Cumming, and P.R. Leavitt.* Effects of spatial variation in benthic phototrophs along a depth gradient on assessments of whole-lake production and processes. Submitted to *Freshwat. Biol.*, April 2021. MS FWB-P-Apr-21-0224.
- Bergbusch, N.T., N.M. Hayes, G.L. Simpson, and P.R. Leavitt.* Unexpected shift from phytoplankton to periphyton in eutrophic streams due to wastewater influx. In revision for *Limnol.*

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- Oceanogr., April 2021. MS LO 20-0391R2.
- Dickey, J.W.E., N.E. Coughlan, J.T.A. Dick, V. Médoc, M. McCard, P.R. Leavitt, G. Lacroix, S. Fiorini, A. Millot and R.N. Cuthbert. Breathing space: Deoxygenation of aquatic environments can drive differential ecological impacts across biological invasion stages. In revision for Biol. Invasions, March 2021. MS BINV-D-20-00583R1.
- Tsugeki, N, A. Amano, T. Agusa, Y. Suzuki, J. Tsutsumi, P.R. Leavitt, K. Hirose, and M. Kuwae. Evidence of global human-induced marine ecosystem degradation at the beginning of the Anthropocene. Submitted to Anthropocene, March 2021. MS ANTHROPOCENE S-21-00055.
- Haig, H.A., N.M. Hayes, G.L. Simpson, Y. Yi, B. Wissel, K. Finlay, K.R. Hodder, and P.R. Leavitt. Application of isotope mass-balance models to assess spatial variability in lake hydrology on the Northern Great Plains, Canada. In revision for J. Hydrol. X, Feb 2021. MS HYDROL37478R1.
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- Pilla, R.M., C.E. Williamson, and XX others. Global data set of long-term summertime vertical temperature profiles in 153 lakes. Submitted to Scientific Data, Jan 2021.
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Manuscripts in preparation: (PRL trainees)

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- Wolfe, J.D., G.R. Mushet, K.R. Laird, B. Das, B.L. Hesjedal, K.A. Scott, G.L. Simpson, B.F. B.F. Cumming, and P.R. Leavitt. Oligotrophication of boreal lakes due to oilsands-derived atmospheric pollution. To be submitted to.... May 2021.
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Other Publications

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- Moser, K., D. Woodward, Leavitt, P.R., and W.A. Wurtsbaugh. Historical changes in aquatic invertebrates and plants of the Great Salt Lake of Utah, USA, based on analyses of sedimentary remains. Final report to Utah State Department of Environmental Quality, March 2012. 26 pp.
- Leavitt, P.R., L. Bunting, K. Moser, and C. Woodward. Effects of wastewater influx and hydrological modification on algal production in the Great Lake Lake of Utah, USA. Final report to Utah State Department of Environmental Quality, February 2012. 31 pp.
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- Leavitt, P.R. 1991. Practical methods for analysis of carotenoids. Department of Botany, University of Alberta. 133 pp.

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Published Abstracts (* = invited): (*PRL trainees p. 49*) (Career total, 316 conference presentations; 53 invited)

- Rimas, R., K. Finlay, S. Jensen, P.R. Leavitt, B.D. Hall, and G.L. Simons. Controls of carbon burial in agricultural reservoirs in the northern Great Plains. Society of Canadian Limnologists. Wolfville (virtual), Canada, 2021.
- Jensen, S., J.R. Webb, R. Rimas, P.R. Leavitt, G.L. Simpson, and K. Finlay. Controls of greenhouse gases in artificial reservoirs and natural wetland ponds in the northern Great Plains. Society of Canadian Limnologists. Wolfville (virtual), Canada, 2021.
- Bergbusch, N.T., N.M. Hayes, G.L. Simpson, and P.R. Leavitt. Unexpected shift from phytoplankton to periphyton in small eutrophic streams due to urban wastewater influx. British Phycological Society, Nottingham (virtual), UK, 2021.
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- *Harris, T.D., J. Yun, D. Baker, J. Kastens, B. Sturm, P.R. Leavitt, M. Ketterer, A. St. Amand. Harmful algal bloom KBS research update: Are HABs increasing? Kansas Water Authority annual meeting. Topeka, USA, 2020.
- Bogard*, M.J., K. *Finlay*, H.A. Haig, S.E. Johnston, and P.R. Leavitt. Exploring salinization trends and drivers in prairie aquatic ecosystems. Society of Canadian Limnologists. Halifax, Canada, 2020.
- Bergbusch*, N.T., Z.J. *Quiñones-Rivera*, H.A. *Haig*, V.J. *Swarbrick*, N.M. *Hayes*, and P.R. Leavitt. Urban wastewater induced shift from suspended to benthic primary production in small eutrophic streams of the Northern Great Plains. Society of Canadian Limnologists. Halifax, Canada, 2020.
- Emmons' S., P.R. Leavitt, G.L. Simpson, H.M. Baulch, J.R. *Webb*, and K. *Finlay*. Seasonal variation in CO₂, CH₄, and N₂O emissions from small farm reservoirs in the northern Great Plains. Society of Canadian Limnologists. Halifax, Canada, 2020.
- Leavitt, P.R. The Energy-mass flux framework: A novel paradigm for analyzing human and climate effects on lake ecosystems. British Ecological Society. Belfast, UK, 2019.
- Leavitt, P.R. Effects of climate and humans on lakes of continental interiors: Applications of the Energy-mass flux framework from seasons to millennia. 20th Congress of the International Union for Quaternary Research (INQUA). Dublin, Ireland, 2019.
- Leiva-Dueñas, C., P.R. Leavitt, T. Buchaca, A. Martínez Cortizas P.-J. Nerea, P.S. Lavery, and M.A. Mateo. 2000 years of changes in primary producers communities using *Posidonia oceanica* (L. Delile) mat sediments: chronology and driving factors. 20th Congress of the International Union for Quaternary Research (INQUA). Dublin, Ireland, 2019.
- *Leavitt, P.R., and *members of Limnology Laboratory*. Factors regulating the role of phytoplankton as vectors of carbon sequestration in lake sediments. PALS Quebec-Ontario Paleolimnology Symposium, Waterloo, Canada, 2019. *Plenary speaker*.
- Mushet, G.R., K.R. Laird, P.R. Leavitt and B.F. Cumming. Paleolimnological assessment of nutrient and predation controls on cladoceran abundance and composition in four small fisheries lakes, Interior British Columbia. PALS Quebec-Ontario Paleolimnology Symposium, Waterloo, Canada, 2019.
- Zwick, M., L. Mermer, J. Wendt, P.R. Leavitt, H. *Haig*, B. Cumming, K-U. Hinrichs and J. Toney.

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- Exploring alkenone calibration and micrometer scale molecular stratigraphy in the Northern Great Plains. British Organic Geochemical Society. Manchester, UK, 2019.
- *Glibert, P.M., F.P. Wilkerson, R.C. Dugdale, J.A. Raven, C. Dupont, P.R. Leavitt, A.E. Parker, J.M. Burkholder, and T.M. Kana. 2016. Pluses and minuses of ammonium and nitrate uptake and assimilation by phytoplankton and implications for productivity and community composition, with emphasis on nitrogen-enriched conditions. Association for the Sciences of Limnology and Oceanography, San Juan, USA, 2019.
- Bergbusch, N., Z. Quiñones-Rivera, H.A. Haig, V.M. Swarbrick, N.M. Hayes, and P.R. Leavitt. Unintended effects of nitrogen-rich discharges from a tertiary wastewater treatment plant on primary producers in phosphorus-rich streams of the Northern Great Plains. Association for the Sciences of Limnology and Oceanography, San Juan, USA, 2019.
- Wissel, B., Z. Quiñones-Rivera, L. Nanayakkara, P.R. Leavitt, and D. Bateson. Seasonal and interannual patterns across Canadian hardwater lakes: An isotope perspective. Association for the Sciences of Limnology and Oceanography, San Juan, USA, 2019.
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- Leavitt, P.R., M.D. *Graham*, and D. Wang. Landscape impacts of sewage pollution revealed by stable isotope analysis of lake sediments. American Society of Limnology and Oceanography. Albuquerque, NM, 2001.
- Rusak*, J.A., P.R. Leavitt, M.D. *Graham*, S. *Wunsam*, G. Chen, and B. Cumming. Climatic and agricultural influences on the relationship between richness and lake productivity on the Great Plains: A paleolimnological perspective. American Society of Limnology and Oceanography. Albuquerque, NM, 2001.
- Xenopoulos, M.A., P.R. Leavitt, and D.W. Schindler. The effect of water column mixing and ambient UVR on phytoplankton pigment concentrations in boreal lakes. American Society of Limnology and Oceanography. Albuquerque, NM, 2001.
- Leavitt, P.R., M.D. *Graham*, and D. Wang. Landscape impacts of sewage pollution revealed by stable isotope analysis of lake sediments. Society of Canadian Limnologists. Toronto, ON, 2001.
- **Rusak*, J.A., C.S. *Brock*, and P.R. Leavitt. Landscape-level patterns of zooplankton abundance in lakes of the Qu'Appelle Valley, Saskatchewan. Society of Canadian Limnologists. Toronto, ON, 2001.
- Leavitt, P.R., J.A. *Rusak*, O.G. *Olson*, S. *Wunsam*, G. Chen, M. Chen, J. You, L. Zhang, and B. Cumming. Crops, craps and canonical analyses: Ecological risk assessment using mud and math. 8th International Symposium on Paleolimnology. Kingston, ON, 2000.
- Hodgson, D.A., P.O. Montiel, W. Vyerman, P.R. Leavitt, and P.E. Noon. Past UV-R environments in

Peter R. Leavitt FRSC: Professional Experience

- Antarctic lakes. 8th International Symposium on Paleolimnology. Kingston, ON, 2000.
- Leavitt, P.R., J.A. *Rusak*, O.G. *Olson*, S. *Wunsam*, G. Chen, M. Chen, J. You, L. Zhang, and B. Cumming. Droughts, lakes and crop insurance: Ecological risk assessment using mud and math. Ecological Society of America. Snowbird, UT, 2000.
- Rusak*, J.A., P.R. Leavitt, G. Chen, M. Chen, J. You, and L. Zhang. Predicting the future and unravelling the past: Paleolimnological analyses of fluctuations in the climate and water quality of central Saskatchewan. American Society of Limnology and Oceanography. Copenhagen, Denmark, 2000.
- Hambright, K.D., W. Eckert, P.R. Leavitt, T. Zohary, and S.S. Schwartz. Hydrological controls of P accumulation in Lake Kinneret: Role of dams and diversions in regulating lake productivity. American Society of Limnology and Oceanography. Copenhagen, Denmark, 2000.
- Leavitt, P.R., M.D. *Graham*, and R. Hesslein. Landscape patterns of N₂-fixation in lakes of the North American Great Plains. Applications of Stable Isotope Techniques to Ecological Studies. Braunschweig, Germany, 2000.
- Leavitt, P.R., R. Knapp, and D.E. Schindler. Perturbations to nutrient cycles and primary production from trout stocking in fishless alpine lakes of western North America. North Pacific Chapter of American Fisheries Society. Mount Vernon, WA, 2000.
- Leavitt, P.R., M.D. *Graham*, B.F. Cumming, J.P. Smol, M. Reasoner, R. Pienitz, and D. Hodgson. Regulation of lake production by UV radiation and dissolved organic matter: Evidence from Holocene lake sediments. Society of Canadian Limnologists. Fredericton, NB, 2000.
- *Leavitt, P.R. Drought prediction using conditional probability analysis of paleoclimate records. Annual Crop Insurance Research Managers Conference. Guelph, ON, 1999.
- Leavitt, P.R., M.D. *Graham*, B.F. Cumming, J.P. Smol, M. Reasoner, R. Pienitz, and D. Hodgson. The evolution of boreal lake sensitivity to UV radiation and DOM. American Society of Limnology and Oceanography. Santa Fe, NM, 1999.
- Graham*, M.D., R.D. *Vinebrooke*, and P.R. Leavitt. Influence of herbivory and UV radiation on interactions between phytoplankton and periphyton in a prairie wetland. American Society of Limnology and Oceanography. Santa Fe, NM, 1999.
- Olson*, O.G., P.R. Leavitt, G. Chen, M. Chen, J. You, and K. Laird. Drought prediction using conditional probability analysis of paleoclimate records. Society of Limnology and Oceanography. Santa Fe, NM, 1999.
- *Leavitt, P.R., O.G. *Olson*, G. Chen, M. Chen, J. You, L. Zhang, and K.R. Laird. Forward into the past: Drought prediction using paleoclimate records. Society of Canadian Limnologists. Edmonton, AB, 1999.
- Leavitt, P.R., K. Kidd, M.D. *Graham*, and R.H. Hesslein. Spatial and temporal variation in MeHg transfer in lakes: Effects of diel vertical migration by invertebrate predators. Society of Canadian Limnologists. Edmonton, AB, 1999.
- Hovdebo*, J., and P.R. Leavitt. Indirect effects of ultraviolet light in a high dissolved organic carbon lake. Society of Canadian Limnologists. Edmonton, AB, 1999.
- Smol, J.P., P.R. Leavitt, R.I. *Hall*, A. Dixit, and R. Quinlan. Paleolimnological assessment of water quality changes in the Northern Great Plains: The effects of agriculture, urbanization, and climate on prairie lakes and reservoir ecosystems. North American Lake Management Society. Banff, AB, 1998.
- Leavitt, P.R. Pigments as biogeochemical fossils in lake sediments: Taphonomic studies and novel environmental applications. Geological Society of America. Toronto, ON, 1998.
- Chen, G., O.G. *Olson*, P.R. Leavitt, and K.R. Laird. Drought frequency in North America: Predicting the future using conditional probability analysis of paleoclimate records. Geological Society

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- *Leavitt, P.R., R.I. Hall, J.P. Smol, A. Dixit, and R. Quinlan. Effects of agriculture, urbanization and climate on water quality in northern Great Plains lakes: Evidence from paleoecology. Prairie Division of Canadian Association of Geographers. Watrous, SK, 1998.
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- *Smol, J.P., P.R. Leavitt, R.I. Hall, A. Dixit, and R. Quinlan. A landscape, paleolimnological assessment of the effects of agriculture, urbanization and climate on water quality changes in the northern Great Plains. 27th Congress of Societas Internationalis Limnologiae (SIL). Dublin, Ireland, 1998.
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- Cottingham, K.L., and P.R. Leavitt. Increased ecosystem variability and reduced predictability following nutrient enrichment: Implications for large scale manipulations. Ecological Society of America. Baltimore, MD, 1998.
- Leavitt, P.R., K.A. Kidd, M.D. Graham, and R.H. Hesslein. Spatial and temporal variation in MeHg transfer in lakes: Effects of diel vertical migration by invertebrate predators. International Meeting on Applications of Stable Isotope Techniques to Ecological Studies. Saskatoon, SK, 1998.
- Graham, M.D., P.R. Leavitt, and R.H. Hesslein. Complementary use of stable isotope and gut pigment analyses to determine zooplankton trophic positions in prairie lakes. International Meeting on Applications of Stable Isotope Techniques to Ecological Studies. Saskatoon, SK, 1998.
- *Leavitt, P.R. The revitalization of environmental monitoring: Unexpected uses of long-term data in aquatic sciences. Plenary speaker. Society of Canadian Limnologists. Kingston, ON, 1998.
- Hall, R.I., P.R. Leavitt, R. Quinlan, A.S. Dixit, and J.P. Smol. Limnological succession in reservoirs: Paleolimnological evidence from two prairie habitats. Society of Canadian Limnologists. Kingston, ON, 1998.
- Vinebrooke, R.D., and P.R. Leavitt. Donor-control of a littoral food web by allochthonous dissolved organic matter in an alpine lake. Society of Canadian Limnologists. Kingston, ON, 1998.
- Pienitz, R., J.P. Smol, W.M. Last, P.R. Leavitt, S.E. Wilson, and B.F. Cumming. Holocene palaeolimnology of Lake U60, an athalassic saline lake from the Canadian Subarctic: A multiproxy approach. Society of Canadian Limnologists. Kingston, ON, 1998.
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- Leavitt, P.R., T.P. Cobb, M.D. Graham, and C.J. Teichreb. Regulation of invertebrate migration and aquatic food-web structure by UV radiation and zooplanktivorous fish. Ecological Society of America. Albuquerque, NM, 1997.
- *Leavitt, P.R., and R.D. Vinebrooke. Habitat-specific responses of algae to UV radiation and herbivores in an alpine lake. American Society of Limnology and Oceanography. Santa Fe, NM, 1997.
- Hall, R.I., P.R. Leavitt, J.P. Smol, A. Dixit and R. Quinlan. New techniques to quantify landscape effects of multiple stressors on prairie lakes. American Society of Limnology and Oceanography. Santa Fe, NM, 1997.

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- Vinebrooke*, R.D., and P.R. Leavitt. The ecological significance of allochthonous DOM in an ultraoligotrophic clearwater lake. American Society of Limnology and Oceanography. Santa Fe, NM, 1997.
- Verschuren, D., C. Cocquyt, P.R. Leavitt, and N. Roberts. Geochemical and biological history of a fluctuating tropical soda lake: Lake Sonachi, Kenya. American Society of Limnology and Oceanography. Santa Fe, NM, 1997.
- Leavitt, P.R., D.W. Schindler, D.L. Findlay, and J.P. Smol. Algal responses to DOC loss during whole-lake acidification: Evidence from paleolimnology. Society of Canadian Limnologists. Ottawa, ON, 1997.
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- Hall, R.I., P.R. Leavitt, J.P. Smol, A. Dixit, and R. Quinlan. Use of long-term data to quantify cause and effect on paleolimnology: A case study from the Prairies. Society of Canadian Limnologists. Ottawa, ON, 1997.
- Graham, M.D., P.R. Leavitt, and R.H. Hesslein. Do omnivory and selective herbivory in zooplankton vary along a lake productivity gradient? Society of Canadian Limnologists. Ottawa, ON, 1997.
- Hall, R.I., P.R. Leavitt, J.P. Smol, A. Dixit, and R. Quinlan. Novel uses of century-long environmental monitoring data in water quality evaluation. Ecological Monitoring and Assessment Network National Science Meeting. Saskatoon, SK, 1997.
- Hall, R.I., P.R. Leavitt, J.P. Smol, A. Dixit, and R. Quinlan. Effects of agriculture and sewage treatment on lakes of the northern Great Plains: A paleoecological perspective. Canadian Society for Landscape Ecology and Management. Regina, SK, 1996.
- *Leavitt, P.R., R.I. Hall, J.P. Smol, A. Dixit, and R. Quinlan. Effects of agriculture and sewage treatment on lakes of the northern Great Plains: A paleoecological perspective. Ecological Society of America. Providence, RI, 1996.
- Leavitt, P.R., D.W. Schindler, D.L. Findlay, and J.P. Smol. Algal responses to DOC loss during whole-lake acidification: Evidence from paleolimnology. American Society of Limnology and Oceanography. Milwaukee, WI, 1996.
- Teichreb, C.J., M.D. Graham, and P.R. Leavitt. Role of dissolved organic carbon in regulating nutrient availability in prairie lakes and reservoirs. American Society of Limnology and Oceanography. Milwaukee, WI, 1996.
- Cobb, T.P., M.D. Graham, and P.R. Leavitt. Sex and size-dependent diel migration of *Leptodora* in an unstratified lake. American Society of Limnology and Oceanography. Milwaukee, WI, 1996.
- Graham, M.D., P.R. Leavitt, T.P. Cobb, and R.H. Hesslein. Omnivory and selective feeding by zooplankton in an eutrophic lake. American Society of Limnology and Oceanography. Milwaukee, WI, 1996.
- Hall, R.I., J.P. Smol, and P.R. Leavitt. Comparison of fossil algal pigments and diatoms as measures of lake eutrophication. American Society of Limnology and Oceanography. Milwaukee, WI, 1996.
- Vinebrooke*, R.D., and P.R. Leavitt. Epilithic and epipellic periphyton responses to ultraviolet radiation and zoobenthos in an alpine lake. North American Benthological Society. Flathead Lake, MO, 1996.
- Leavitt, P.R., R.D. *Vinebrooke*, M.A. Reasoner, M. Hickman, R. Pienitz, and J.P. Smol. Regulation of primary production in alpine lakes by climatic change, forest development, and UV radiation.

Peter R. Leavitt FRSC: Professional Experience

- Society of Canadian Limnologists. Montreal, PQ, 1996.
- Graham, M.D., P.R. Leavitt, and R.H. Hesslein. Omnivory and zooplankton trophic position: Testing the existence of a trophic continuum. Society of Canadian Limnologists. Montreal, PQ, 1996.
- Smol, J.P., A. Dixit, R. Quinlan, P.R. Leavitt, and K. Muir. Long-term water quality changes in the Qu'Appelle Valley (SK) lakes and reservoirs: The paleolimnology of Pasqua Lake. Society of Canadian Limnologists. Montreal, PQ, 1996.
- Vinebrooke, R.D., and P.R. Leavitt. Responses of phytoplankton and periphyton to ultraviolet radiation and invertebrates in an alpine lake. Society of Canadian Limnologists. Montreal, PQ, 1996.
- *Vinebrooke, R.D., and P.R. Leavitt. Impact of solar ultraviolet radiation on aquatic ecosystems. International Association of Great Lakes Research. Toronto, ON, 1996.
- Leavitt, P.R., and R.D. Vinebrooke. Effects of human activity and recent climatic variability on lakes of the Palliser triangle. 1996 Canadian Association of Geographers. Saskatoon, SK, 1996.
- *Hall, R.I., P.R. Leavitt, J.P. Smol, A. Dixit, and R. Quinlan. Effects of agriculture and sewage treatment on prairie lakes: A paleoecological perspective. Canadian Association of Geographers. Saskatoon, SK, 1996.
- Quinlan, R., J.P. Smol, and P.R. Leavitt. Chironomid (Diptera: Chironomidae) as indicators of past hypolimnetic oxygen changes in Qu'Appelle Valley Lakes. Canadian Association of Geographers. Saskatoon, SK, 1996.
- Wilson, S., B.F. Cumming, R. Pienitz, J.P. Smol, P.R. Leavitt, and M. Heinrichs. Tracking climatic and other environmental changes in closed-basin lakes from western Canada: The PISCES II project. Symposium on Climatic Variations and Biodiversity Change during the Last Millenium. Geological Survey of Canada. Ottawa, ON, 1996.
- Hall, R.I., P.R. Leavitt, J.P. Smol, A. Dixit, and R. Quinlan. Effects of agriculture and sewage treatment on the Qu'Appelle Valley lakes: A paleoecological perspective. Workshop on Lakeshore Management in Saskatchewan. Canadian Water Resources Association. Saskatoon, SK, 1996.
- Leavitt, P.R., D. Sherbot, A. Dixit, R. Quinlan, and J.P. Smol. Water quality changes in prairie lakes and reservoirs: Paleolimnological tools to assist lake managers. North American Lake Management Society. Toronto, ON, 1995.
- Leavitt, P.R., D. Sherbot, A. Dixit, R. Quinlan, and J.P. Smol. Water quality changes in prairie lakes and reservoirs: Paleolimnological tools to assist lake managers. Canadian Society of Environmental Biologists. Regina, SK, 1995.
- Stager, J.C., R.I. Hall, and P.R. Leavitt. Paleolimnology and the study of eutrophication in Upper Saranac Lake, New York. North American Lake Management Society. Toronto, ON, 1995.
- Leavitt, P.R., R.D. Vinebrooke, B.F. Cumming, and J.P. Smol. Evaluation of pigments as paleoclimatic indicators in saline lakes. Ecological Society of America. Snowbird, UT, 1995.
- Leavitt, P.R., R.D. Vinebrooke, M.A. Reasoner, M. Hickman, R. Pienitz, and J.P. Smol. Regulation of primary production in alpine lakes by climatic change and forest development. American Society of Limnology and Oceanography. Reno, NV, 1995.
- Graham, M.D., and P.R. Leavitt. Variation in trophic position of aquatic invertebrates across a lake productivity gradient: testing the trophic continuum hypothesis. American Society of Limnology and Oceanography. Reno, NV, 1995.
- Cumming, B., S.E. Wilson, J.P. Smol, P.R. Leavitt, I. Walker, and M. Heinrichs. Paleolimnological reconstructions of climatic and other environmental changes in closed-basin lakes from western Canada: The PISCES II Project. Canadian Quaternary Association (CANQUA). St. John's, NFLD, 1995.

Peter R. Leavitt FRSC: Professional Experience

- Vinebrooke*, R.D., and P.R. Leavitt. Effects of UV radiation and macrograzers on periphyton in an alpine lake. ASLO. Reno, NV, 1995.
- Verschuren, D., C. Cocquyt, and P.R. Leavitt. Patterns and mechanisms of biotic change in a fluctuating tropical soda lake: Lake Sonachi (Kenya), ca. 1815 to present. American Society of Limnology and Oceanography. Reno, NV, 1995.
- Vinebrooke*, R.D., and P.R. Leavitt. Can high ambient UV radiation levels directly affect phototrophs in alpine lakes? Society of Canadian Limnologists. Ottawa, ON, 1995.
- Cumming, B.F., S.E. Wilson, R. Pienitz, J.P. Smol, B.A. Zeeb, P.R. Leavitt, and M. Heinrichs. Tracking climatic and other environmental changes in closed-basin lakes from Western Canada: the PISCES-II project. American Society of Limnology and Oceanography (ASLO) / North American Benthological Society (NABS) joint symposium on climatic change. Leesburg, VA, 1994.
- Cumming, B.F., S.E. Wilson, R. Pienitz, J.P. Smol, B.A. Zeeb, P.R. Leavitt, and M. Heinrichs. Paleolimnological investigations of salinity, climatic, and environmental shifts - II (PISCES II): tracking environmental changes in closed-basin lakes from Western and Northern Canada. American Quaternary Association (AMQUA). Minneapolis, MN, 1994.
- Leavitt, P.R., D.E. Schindler, and D.W. Schindler. Effects of trout introduction on primary production in a fishless alpine lake. American Society of Limnology and Oceanography. Miami, FL, 1994.
- **Dibble*, K.M., and P.R. Leavitt. Regulation of pigment deposition by photo-oxidation and zooplankton grazing: an individual-based model. American Society of Limnology and Oceanography. Miami, FL, 1994.
- *Leavitt, P.R., B.F. Cumming, and J.P. Smol. Evaluation of pigments as paleoclimatic indicators in saline lakes. Society of Canadian Limnologists. Saskatoon, SK, 1994.
- Leavitt, P.R., B.J. Hann, B.L. Zeeb, D.L. Findlay, and D.W. Schindler. Calibration of fossil pigments, diatoms, and Cladocera with 20 years of plankton data from eutrophic Lake 227, Experimental Lakes Area, Ontario, Canada. Sixth International Palaeolimnology Symposium. Canberra, Australia, 1993.
- Smol, J.P., B.F. Cumming, S.E. Wilson, I.R. Walker, and P.R. Leavitt. Paleolimnological investigations of salinity, climatic and environmental shifts (the PISCES project): Reconstructing environmental trends from western Canada. Sixth International Palaeolimnology Symposium, Canberra, 1993.
- *Leavitt, P.R., A.J. Paul, A.K. *Hardie*, K. Kidd, and D.W. Schindler. Selective herbivory by zooplankton in two alpine lakes: Results from HPLC analysis of body pigments. ASLO. Edmonton, AB, 1993.
- Paul, A.J., P.R. Leavitt, D.W. Schindler, and A.K. *Hardie*. Trophic interactions in fishless alpine lakes: Direct and indirect effects of predation by copepods. American Society of Limnology and Oceanography. Edmonton, AB, 1993.
- Leavitt, P.R. Comparison of 20 years of whole-lake eutrophication and annual fossil pigment records as indicators of ecosystem variability. American Society of Limnology and Oceanography. Santa Fe, NM, 1992.
- *Leavitt, P.R. and S.R. Sanford. Multiple effects of piscivory on food-web structure: Evidence from paleolimnology. American Society of Limnology and Oceanography. Halifax, NS, 1991.
- *Leavitt, P.R. Use of fossil pigments for interpretation of whole-lake experiments. IV International Phycological Congress Workshop, Durham, NC, 1991.
- Leavitt, P.R. Herbivore and nutrient regulation of algal blooms in eutrophic Lake Mendota. American Society of Limnology and Oceanography. Williamsburg, VA, 1990.

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- Smol, J.P., I.R. Walker and P.R. Leavitt. Paleolimnology and hindcasting climatic trends. Soc. Internat. Limnol., Munich, 1989.
- Leavitt, P.R., P. Sanford and J.F. Kitchell. Road-building, hypolimnetic aeration, liming and food-web manipulation: The annual record of fossil pigments. Vth International Symposium on Paleolimnology, Ambleside, England, 1989.
- Leavitt, P.R. and S.R. Carpenter. Sedimentary pigment concentrations record changes in fish community composition. American Society of Limnology and Oceanography. Boulder, CO, 1988.
- Leavitt, P.R. and S.R. Carpenter. Whole-lake experiments: The sedimentary record of algal pigments. Ecological Society of America. Davis, CA, 1988.
- Leavitt, P.R. and S.R. Carpenter. Pigment budgets: Comparisons of select carotenoids. American Society of Limnology and Oceanography. Madison, WI, 1987.
- Leavitt, P.R. and S.R. Brown. Effects of *Daphnia* grazing on the carotenoids of *Oscillatoria utermöhl*. American Society of Limnology and Oceanography. Vancouver, B.C., 1984.

Other Invited Presentations:

- 2020 University of Nottingham.
- 2019 Regina Alumni Association, Queen's University Belfast (Geog), UK.
- 2018 Treaty 4 Gathering, Fort Qu'Appelle, SK; Queen's University Belfast, UK; Centre D'Estudis Avançats de Blanes, Spanish National Research Council.
- 2016 Prairie Provinces Water Board, University of Regina.
- 2015 University of California-Santa Barbara (3).
- 2012 File Hills Qu'Appelle Tribal Council, Sakimay First Nations Chief's Council, National Vice-Presidents Academic Association.
- 2011 Premier of Manitoba.
- 2010 University of Minnesota, University of Regina, Manitoba Water Stewardship.
- 2009 Last Mountain Lake Stewardship Association.
- 2008 Raincoast Conservation Foundation/Fisheries and Oceans Canada, Manitoba Clean Environment Commission.
- 2007 National Center for Ecological Analysis and Synthesis (NCEAS).
- 2006 NOAA (Seattle), McGill University, University of Lethbridge, Last Mountain Lake Watershed Advisory Committee.
- 2005 SK Watershed Authority.
- 2004 University of Victoria, Alberta Environment Prairie Drought Workshop, US Long Term Ecological Research (LTER) Network Variability-Disturbance Workshop, University of Regina.
- 2003 Danish National Environmental Research Institute (LIMPACS, 2), Norlakes Symposium, (1), University of Minnesota (4), University of Alberta (2). Semi-Arid Network Workshop (PARC).
- 2002 Cornell University (2), University of Saskatchewan (2), University of Stockholm, Lund University.
- 2001 SaskPower Corporation, University of Arizona, Institute for Ecosystems Studies, Great Lakes Environmental Research Lab., University of Montreal, US-Geological Survey.
- 2000 University of Washington (5), University of Umeå, Sweden (4), University of Stockholm.
- 1999 BIOCAP Canada, Duke University, National Aeronautics and Space Administration, North Dakota State University, University of Montreal (in french), US Environmental Protection Agency, Government of Saskatchewan.

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- 1998 University of Montana.
- 1997 British Antarctic Survey, Danish National Environmental Research Institute, University of Saskatchewan, University of Copenhagen-Hillerød.
- 1996 Loyola University of Chicago, Université Laval (in french), University of Minnesota (2), University of Wisconsin-Madison.

Grants Awarded: (Principal Investigator (PI) total - \$15,415,973 CAD; Co-PI total - \$16,918,387 CAD)

- 2020 Research Contract. “Fossil pigment analyses of cyanobacterial blooms in Kansas reservoirs”, Kansas Biological Survey. PI, \$17,500
- 2019 Research Contract. “Fossil pigment analyses of cyanobacterial blooms in Kansas reservoirs”, Kansas Biological Survey. PI, \$25,000
- 2019 Research Contract. “Fossil pigment analyses of lakes in Minnesota”, Science Museum of Minnesota. PI, \$25,000
- 2018 NSERC Discovery Grant. “Landscape Effects of Nitrogen on Aquatic Ecosystems: Achieving a New Paradigm for Freshwater Eutrophication”. NSERC. PI \$702,000.
- 2017 Canada Research Chair (Tier I third term). “Canada Research Chair in Environmental Change and Society”. Canada Research Chairs Program. PI, \$1,400,000.
- 2017 Canada Foundation for Innovation. “Limnology Laboratory to Study Climate and Human Effects on Lakes”. John R. Evans Leaders Fund. PI, \$99,996.
- 2017 Research Contract. “Core Collection and Analyses on Southern Indian Lake, Manitoba, Canada”. Manitoba Hydro. Co-PI with 5 others, \$70,172.
- 2016 Research Grant. “Tools for Carbon Neutral Farming: the Role of Dugouts in Greenhouse Gas Capture”. Saskatchewan Ministry of Agriculture. Agricultural Development Fund. Co-PI with 3 others, \$255,030.
- 2016 Research Contract. “Analysis of Sedimentary Pigments from Roche, Peter Hope, Blackwell, Bulman, and Heffley lakes, British Columbia”. British Columbia Ministry of Forests, Lands & Natural Resource Operations. PI \$24,000.
- 2016 NSERC Strategic Network Grant. “NSERC Canadian Lake Pulse Network”. NSERC Strategic Partnership Grants for Networks. Co-PI with 9 others, \$5,499,999.
- 2015 Fulbright Canada. “A New Scientific Framework to Quantify the Direct, Coupled, and Reciprocal Effects of Climate and Humans on Aquatic Ecosystems”. Visiting Research Chair at University of California, Santa Barbara. PI, \$31,250.
- 2014 Research Contract. “Investigating the Long-term Influence of the Bridge-River Diversion on Sockeye Salmon Nursery Ecosystem Productivity in Seton Lake, British Columbia”. Fisheries and Oceans Canada. PI, \$20,000.
- 2013 Research Sub-contract. “Pigment Analysis of Iowa Lake Plankton Communities”. Iowa State University. PI, \$15,100.
- 2013 Research Contract. “North Saskatchewan Regional Plan: Lake Paleolimnology Survey”. Alberta Environment and Sustainable Resource Development. Co-PI with 4 others, \$100,000.
- 2013 NSERC Strategic Grant. “Understanding Lake Metabolism and Nuisance Algal Metabolites: New Tools for Management of Potable Water Sources”. Strategic Partnership Grants for Projects. Co-PI with 4 others, \$618,614.
- 2013 NSERC Strategic Grant. “Assessment of the Importance of Nitrogen Deposition and Climate on Aquatic Production in Boreal Lakes Downwind of the Athabasca Oil Sands Region”. Strategic Partnership Grants for Projects. Co-PI with 2 others, \$217,740.
- 2013 NSERC Discovery Grant. “Landscape Effects of Nitrogen on Lake Ecosystems: Accelerating a New Paradigm for Freshwater Eutrophication”. NSERC. PI, \$300,000.

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- 2013 NSERC Discovery Accelerator. “Landscape Effects of Nitrogen on Lake Ecosystems: Accelerating a New Paradigm for Freshwater Eutrophication”. NSERC. PI, \$120,000.
- 2013 Research Grant. “Western Canada Integrated Environmental Simulation and Risk Assessment Associated with Climate Modelling”. Saskatchewan Advanced Education and Employment. Co-PI with 9 others, \$662,873.
- 2013 Canada Foundation for Innovation. “Western Canada Integrated Environmental Simulation and Risk Assessment Associated with Climate Modelling”. Leading Edge Fund. Co-PI with 9 others, \$662,873.
- 2012 Research Grant. “Paleolimnological Analysis of Lake Manitoba Sediments to Determine Historic Production Regimes”. Manitoba Ministry of Conservation and Water Stewardship. PI, \$50,000.
- 2012 NSERC Discovery Grant. “Degradation and Destabilization of Lake Ecosystems by Organic and Inorganic Nitrogen: Advancing a New Paradigm for Eutrophication”. NSERC. PI, \$165,000; yr 2-5 declined.
- 2012 Research Contract. “Analysis of Fossil Pigments and Isotopes in Lake Sediments from Lake Michigan”. Science Museum of Minnesota. PI, \$12,500.
- 2011 Canada Research Chair (Tier 1 second term). “Canada Research Chair in Environmental Change and Society”. Canada Research Chairs Program. PI, \$1,400,000.
- 2011 Canada Foundation for Innovation. “Laboratory of Environmental Change and Society”. John R. Evans Leaders Fund. PI, \$252,532.
- 2011 Research Grant. “Laboratory of Environmental Change and Society”. Saskatchewan Advanced Education and Employment. PI, \$252,532.
- 2010 Research Contract. “Paleolimnological Evaluation of Eutrophication and Metal Deposition in Bays of the Great Salt Lake Using Multi-proxy Sediment Records”. State of Utah. Co-PI with 4 others, \$198,637.
- 2010 Research Contract. “Linking Watershed Land Use and Surface Water Quality in Southern Saskatchewan”. Saskatchewan Environment. PI, \$9,000.
- 2010 Research Grant. “Paleolimnological Determination of Water-Quality Change in Lake Winnipeg for Use as Management and Remediation Goals”. Environment Canada, Lake Winnipeg Basin Stewardship Fund. PI, \$126,500.
- 2010 Research Grant. “Paleolimnological Analysis of Lake Winnipeg Sediments to Determine Historic Nutrient Regimes”. Manitoba Ministry of Water Stewardship. PI, \$100,000.
- 2010 Research Grant. “Planetary Pollution with Organic Nitrogen and other Biomolecules: The Emerging Threat to Sustainable Water Quality”. Province of Saskatchewan, Advanced Education and Employment, Innovation and Science Fund. PI, \$2,799,999.
- 2009 Canada Foundation for Innovation. “Planetary Pollution with Organic Nitrogen and other Biomolecules: The Emerging Threat to Sustainable Water Quality”. CFI Leading Edge Fund. PI, \$2,799,999.
- 2009 Research Grant. “Paleolimnology of Lake Winnipeg”. Manitoba Ministry of Water Stewardship. PI, \$75,000.
- 2008 NSERC Special Research Grant. “Canadian Participation in Potrok Aike Lake Sediment Archive Drilling Project”. NSERC Special Research Opportunity Program. Co-PI with 8 others, \$794,356.
- 2007 NSERC Discovery Grant. “Degradation and Destabilization of Lake Ecosystems by Anthropogenic Nitrogen: A New Paradigm for Future Lake Eutrophication. NSERC. PI, \$313,750.
- 2007 Sabbatical Fellowship Grant. “Ecological Variability of Lakes in Time: Integrated Insights

Peter R. Leavitt FRSC: Professional Experience

- from Paleolimnology and Long-Term Ecological Research”. National Center for Ecological Analysis and Synthesis, Sabbatical Fellowship Program. PI, \$49,167.
- 2005 Research Sub-contract. “Trophic Status of Lake Champlain over 400 years of Changing Land Use”. US Geological Survey and University of Vermont. PI, \$44,250.
- 2005 Research Grant. “A Long-term Perspective on Salmon Populations Throughout the North Pacific Ocean”. Betty and Gordon Moore Foundation. Co-PI with 3 others, \$2,983,500.
- 2004 Research Grant. “Sources and Sinks of Potentially Toxic Metals in Wascana Creek and the Qu'Appelle Valley”. Environment Canada, Science Horizons Youth Internship Program. PI, \$9,000.
- 2004 Canada Foundation for Innovation. “Trace Analytical Facility (TAF) for Environmental Process and Impact Research”. Innovation Fund. Co-PI with 5 others, \$750,601.
- 2004 Research Grant. “Trace Analytical Facility (TAF) for Environmental Process and Impact Research”. Saskatchewan Economic and Cooperative Development Strategic Initiative Fund. Co-PI with 5 others, \$750,601.
- 2004 Research Grant. “Multidecadal to Millennial-Scale Shifts in Extreme Drought on the Canadian Prairies over the Past 6 Millennia”. Canadian Foundation for Climate and Atmospheric Sciences. Co-PI with 3 others, \$301,650.
- 2003 Canada Research Chair. “Canada Research Chair in Environmental Change and Society”. Canada Research Chair Program. PI, \$1,400,000.
- 2003 Research Grant. “Past Climate Variability of the Canadian Prairies Saskatchewan Economic and Co-operative”. Province of Saskatchewan, Science and Innovation Fund. PI, \$400,000.
- 2003 Canada Foundation for Innovation. “Laboratory of Environmental Change and Society”. Canada Research Chairs Program. PI, \$228,111.
2003. Research Grant. “Laboratory of Environmental Change and Society”. Saskatchewan Economic and Cooperative Development Strategic Initiative. PI, \$228,111.
- 2003 Research Grant. “Transportation and Accumulation of Potentially Toxic Metals in Pasqua and Echo Lakes”. Environment Canada, Science Horizons Youth Internship Program. PI, \$12,000.
- 2003 Research Grant. “Identification of Pesticides in Aquatic Systems of Wascana Lake”. University of Regina, Centre for Sustainable Communities. Co-PI, \$9,000.
- 2002 Research Grant. “Variability of Alaskan Salmon During the Past 500 Years”. US National Science Foundation, Biological Oceanography. Co-PI with 4 others, \$817,950.
- 2002 NSERC Discovery Grant. “Impacts of Climate and Humans on Prairie Lakes”. NSERC. PI, \$307,500.
- 2001 Research Sub-contract. “Columbia River Estuary Core Analysis”. US Geological Survey and Portland State University. PI, \$28,319.
- 2001 Research Contract. “A Multi-century Flood Record of Northern Alberta”. BC Hydro. Co-PI with 5 others, \$1,914,791.
- 2001 Research Contract. “Historical Change in Cyanobacterial Abundance in Naltsby Lake, BC”. British Columbia Environment. PI, \$7,500.
- 2001 Research Sub-contract. “Reconstructing Salmonid Populations in Quinault Lake”. University of Washington. PI, \$29,600.
- 2001 Research Contract. “Historical Trends in Water Quality of Big Shell Lake”. Saskatchewan Environment. PI, \$9,900.
- 2000 Research Grant. “Agricultural Adaptation to Climatic Change: Carbon Storage in Prairie Lakes”. BIOCAP Canada. PI, \$49,000.
- 1999 Canada Foundation for Innovation. “Environmental Quality of the Canadian Prairies”.

Peter R. Leavitt FRSC: Professional Experience

- Research Development Fund. PI, \$307,588.
- 1999 Research Grant. "Environmental Quality of the Canadian Prairies". Saskatchewan Economic and Cooperative Development Strategic Initiative. PI, \$307,588.
- 1998 Research Contract. "Fossil Pigments in Coastal Estuaries of North Carolina". University of North Carolina. PI, \$3,900.
- 1998 NSERC (Discovery) Research Grant. "Past and Present Effects of UV Radiation on Lakes". NSERC. PI, \$140,077.
- 1998 NSERC Equipment Grant. "A Profiling Radiometer to Measure UV Radiation in Lakes and Experiments". NSERC. PI, \$33,943.
- 1997 Research Grant. "Lake Level Manipulation to Reduce Aquatic Plants in Urban Wascana Lake". Saskatchewan Water Corporation. PI, \$63,400.
- 1997 Research Grant. "Recent Environmental Change in Shallow Freshwater Lakes: Calibration of New Environmental Indicator Technology". Association of Universities and Colleges of Canada, STEP Program. PI, \$6,000.
- 1997 Research Contract. "Impacts of Forestry on British Columbia Lakes". British Columbia Ministry of Environment. PI, \$23,000.
- 1997 NSERC Strategic Grant. "Sustainable Agriculture in Western Canada: Planning for Droughts Using the Past". NSERC Strategic Grant Program. PI, \$278,104.
- 1997 Research Grant. "Sustainable Agriculture in Western Canada: Planning for Droughts Using the Past". Agriculture and Agri-food Canada, Agri-food Innovation Fund. PI, \$31,000.
- 1996 Research Contract. "Fossil Evidence of Macrophyte Loss in Shallow Danish Lakes". Danish Geological Survey Grant. PI, \$7,500.
- 1995 NSERC Strategic Grant. "Water Quality Changes in the Qu'Appelle Valley (Saskatchewan) Lakes and Reservoirs: Paleolimnological Tools to Assist Lake Managers". NSERC Strategic Grant Program. Co-PI with 1 other, \$310,000.
- 1995 NSERC Equipment Grant. "A Freeze-drier System for High-resolution Paleolimnology". NSERC Equipment Grant Program. PI, \$28,903.
- 1995 Research Grant. "Estimation of Metal Contamination of Aquatic Food Webs Following Reservoir Formation". University of Regina, Natural and Applied Sciences Grant. PI, \$1,500.
- 1995 Research Grant. "Effects of UV-radiation and Herbivores on Primary Producers in Alpine Lakes". University of Regina, President's Fund. PI, \$2,100.
- 1995 Research Grant. "Variability of Plant Pigments within Historic Period Lake Cores, Palliser Triangle Project". Department of Energy, Mines and Resources Research Grant Program. PI, \$11,000.
- 1995 Research Contract. "Past Algal Changes in Northern US Bog Lakes". University of Minnesota. PI, \$5,000.
- 1995 Research Contract. "Fossil Pigment Analysis of Mirror Lake". University of Louisville. PI, \$5,500.
- 1994 NSERC (Discovery) Research Grant. "Lake Ecosystems and Their Paleoecological Histories". NSERC. PI, \$108,000.
- 1994 NSERC Equipment Grant. "Photo-diode Array Detector, Software and Uninterruptible Power Supply for High Performance Liquid Chromatography". NSERC Equipment Grant Program. PI, \$28,903.
- 1994 Research Grant. "Pigments in Invertebrates: A New Method for Analysis of Trophic Position in Lakes". NSERC - DFO Collaborative Research and Development Grant. PI, \$20,000.
- 1994 Research Grant. "A Model of Lake Ecosystems for Paleoecological Studies". President's

Peter R. Leavitt FRSC: Professional Experience

- NSERC General Research Grant . PI, \$2,826.
- 1994 Research Grant. “Inverted Microscope”. University of Regina, Dean's Equipment Fund. PI, \$17,500.
- 1993 Research Grant. “HPLC Equipment for Lake Research”. University of Regina, Dean's Equipment Fund. PI, \$25,000.
- 1993 Research Grant. “A Fluorescence Detector for Measuring Pigments “. President's NSERC General Research Grant. PI, \$5,000.

Awards and Recognition:

- 2020 Fellow of the Royal Society of Biology (UK).
- 2018 Fellow of the Royal Society of Canada.
- 2017 Canada Research Chair in Environmental Change and Society (Tier I) (third term).
- 2016 Sustaining Fellow of the Association for the Sciences of Limnology and Oceanography.
- 2015 Fulbright Visiting Research Chair, University of California-Santa Barbara, Santa Barbara, California.
- 2010 Canada Research Chair in Environmental Change and Society (Tier I) (second term).
- 2009 Selected for inclusion into Who's Who Canada.
- 2008 Co-recipient Zayed International Prize for the Environment (2008) for the Millennium Ecosystem Assessment (chapter co-author).
- 2007 Frank H. Rigler Memorial Award, Society of Canadian Limnologists. (Highest society honour in recognition of importance and influence of contributions to Canadian limnology).
- 2004 University of Regina Alumni Association Award for Excellence in Research.
- 2003 Canada Research Chair in Environmental Change and Society (Tier I).
- 1995 Kalium Professor of Natural Science and Engineering.
- 1991-2 NSERC Postdoctoral Fellowship.
- 1989 Visiting Fellowship in Canadian Government Laboratory.
- 1985-9 Notre Dame Tuition Scholarship.
- 1983 Senator F. Carrel Scholarship.
- 1983 Ontario Graduate Scholarship.
- 1982 Ontario Graduate Scholarship.
- 1981 Senator F. Carrel Scholarship.

Professional Societies:

Association for the Sciences of Limnology and Oceanography (formerly American Society of Limnology and Oceanography)(ASLO), British Ecological Society (BES), British Phycological Society (BPS), Canadian Society of Ecology and Evolution (CSEE), Canadian Society of Environmental Biologists (CSEB), Ecological Society of America (ESA), Geological Society of America (GSA), International Association for Great Lakes Research (IAGLR), International Palaeolimnology Association (IPA), International Quaternary Association (INQUA), International Society of Limnology (SIL), Royal Society of Biology (RSB), Royal Society of Canada (RSC), Sigma Xi (SX), Society of Canadian Limnologists (SCL).

Professional Activities:

Leadership

- Co-Chair, Royal Society of Canada Prairies North Regional Network (RSC PN) (2019-present).
- Director, Canadian Institute of Ecology and Evolution (CIEE) (2012-2018).

Peter R. Leavitt FRSC: Professional Experience

- Founding Director, Institute of Environmental Change and Society (2011-present).
- Founding Director, Environmental Quality Analysis Laboratory (2000-2010).
- Board of Directors, Association for the Sciences of Limnology and Oceanography (ASLO) (formerly American Society of Limnology and Oceanography) (2012-2015).
- Past-President (2006), President (2003-2005), and Vice-President (1999-2002), Society of Canadian Limnologists (SCL).
- Director, Limnology Laboratory, University of Regina (1993-present).

Outreach

- Scientific consultant to Prime Minister of Canada (2005), Leader of Official Opposition (2007), Premier of Manitoba (2010-11), Secretary to Manitoba Cabinet (2010-11), Environment Canada (2010), Chinese Environmental Protection Agency (2008), MB Clean Environment Commission (2008-10), Manitoba Water Stewardship (2008-), SK Watershed Authority (2005), File Hills Qu'Appelle Tribal Council (2012), Sakimay First Nations Chief's Council (2012), Utah State Dept Environmental Quality (2011-12), Saskatchewan Environmental Resource Management (1999, 2002), Buffalo Pound Water Treatment Plant (2010), Alberta Minister of Environment (2001), Northern Alberta Development Council (2002), Last Mountain Lake Stewardship Association (2009), Mayor of Regina (2008), City of Regina (2003, 2008, 2012), Wascana Centre Authority (1997-98, 2002), Royal Saskatchewan Museum (2006), J.D. Mollard and Associates (2004), Clifton Associates (1999), Stantec Consulting (2003, 2011), Agricultural Producers Association (2001-03), National Crop Insurance Managers Association (2001), Vice-Presidents, Saskatchewan Water Corporation (1995), Zagime Anishinabek First Nation Council (2019), Cowessess First Nation (2020), Manitoba Agriculture and Resource Development (2020-21).
- Media Liaison, Society of Canadian Limnologists (2001, 2002).
- 192 media interviews since 2005, including CBC *The National*, CBC *As it Happens*, *National Post*, *Globe and Mail*, Canadian Press, *National Geographic*, *Canadian Geographic*, *Maclean's*, Radio Canada International, Radio Netherlands International, Reuters, Al Jazeera, *Science* and regional news outlets. Career total: 319 unique media interviews.
- Roundtable panellist, Bill C-69 discussion, Federal deputy minister of Environment Climate Change Canada (2019).
- Expert testimony to Saskatchewan Court in matter of aquatic resource use and environmental assessment (2017).
- Expert testimony to Canadian Federal Court in matter of potash mining and aquatic resource use (2012).
- Scientific Presentation on Saskatchewan water quality at Treaty 4 Gathering, Fort Qu'Appelle, Saskatchewan (2018).
- Scientific participant, "Prairie Water Summit", Regina Saskatchewan (2019), Prairie Land and Water Strategy workshop (2020), Canada Water Agency Prairie Freshwater Forum (2021).
- Scientific participant, Saskatchewan Environment Cumulative Effects Workshop (2020).
- Expert vetting of national monument citation, Parks Canada Agency (2020).

Scientific Service

- Division Committee for the Selection of New Fellows (DCSNF), Royal Society of Canada, Academy of Science, Earth Ocean and Atmospheric Science Division (2020-21).
- Conference Co-Chair, American Society of Limnology and Oceanography (2006).
- Conference Chair, Society of Canadian Limnologists (2001, 2002).

Peter R. Leavitt FRSC: Professional Experience

- National Organizing Committee, 2007 Congress of International Association of Theoretical and Applied Limnology (SIL).
- National Organizing Committee and Working Group Chair, 2008 Chapman Conference on Lakes and Reservoirs as Sentinels, Integrators, and Regulators of Climate Change, (ASLO, AGU).
- Editorial Board: *Ecology*, *Ecosphere* and *Ecological Monographs* (2002-2014); *Inland Waters* (2010-present); University of California Press, *Freshwater Ecology Series* (2007-2014), *Limnology and Oceanography: Letters* (2016-present).
- Guest Editor, *Proceedings of the National Academy of Science* (2011).
- US National Science Foundation (NSF) Committee of Visitors, Division of Environmental Biology (DEB) review (2015).
- US National Science Foundation (NSF) Grant Selection Panel, *Dynamics of Coupled Natural and Human Systems* (2009 and 2010).
- Committee Member, American Society of Limnology and Oceanography: Redfield Lifetime Award Committee (2007-2010; Chair 2010-2012); Nominating Committee (2008-2010); Awards Committee (2010-2012; Chair 2012-2015); Hutchinson Committee (Chair 2012-2015); Endowment Committee (1997-1999).
- Scientific Committee, NSERC Lake Pulse Strategic Network (2016-18).
- Society of Canadian Limnologists Visioning Committee (2012-2013).
- Invited Panellist, *The Future of Limnology in Canada*, Society of Canadian Limnologists.
- Canada Research Chair, College of Reviewers (2002-present).
- Manuscript reviewer: *Advances in Limnology*, *Alpine Research*, *Ambio*, *Anthropocene*, *Applied and Environmental Microbiology*, *Applied Geochemistry*, *Aquatic Microbial Ecology*, *Aquatic Sciences*, *Archiv für Limnologie*, *Arctic Antarctic and Biogeochemistry*, *Biogeosciences*, *Biology Letters*, *Canadian Journal of Fisheries and Aquatic Sciences*, *Canadian Journal of Microbiology*, *Canadian Water Resources Journal*, *Catena*, *Chemosphere*, *Ecology and Hydrobiology*, *Ecology*, *Ecology Letters*, *Ecological Applications*, *Ecological Monographs*, *Ecosystems*, *Environmental Management*, *Environmental Monitoring and Assessment*, *Environmental Research Letters*, *Environmental Science and Technology*, *Estuaries*, *Estuaries and Coasts*, *Estuarine, Coastal and Shelf Science*, *FACETS*, *Freshwater Biology*, *Fundamental and Applied Limnology*, *Geological Survey of Canada Bulletin*, *Geophysical Research Letters*, *Global Biogeochemical Cycles*, *Global Change Biology*, *Global Ecology and Conservation*, *Harmful Algae*, *Hydrobiologia*, *Inland Waters*, *Journal of Environmental Management*, *Journal of Environmental Monitoring and Assessment*, *Journal of Geophysical Research: Biogeosciences*, *Journal of Global Planetary Change*, *Journal of Global Planetary Change*, *Journal of Great Lakes Research*, *Journal of Hydrology*, *Journal of Limnology*, *Journal of the North American Benthological Society*, *Journal of Paleolimnology*, *Journal of Phycology*, *Lake and Reservoir Management*, *Lakes & Reservoirs: Research and Management*, *Land Degradation & Development*, *Limnologica*, *Limnology and Oceanography*, *Marine Ecology Progress Series*, *Mem. Ist. Ital. Idrobiol.*, *Nature*, *Nature Communications*, *Nature Ecology and Evolution*, *Nature Geosciences*, *Nature Sustainability*, *Oceanologia*, *Organic Geochemistry*, *Palaeogeography Palaeoclimatology Palaeoecology*, *Paleoceanography and Paleoclimatology*, *Proceedings of the National Academy of Science*, *Proceedings of the Royal Society B*, *Quaternary Science Reviews*, *Science of the Total Environment*, *NPG Scientific Reports*, *Theoretical and Applied Climatology*, *Transactions of the American Fisheries Society*, *Trends in Ecology and Evolution*, *Water Air and Soil Pollution*, *Water Research*, *Water Resources Research*, *Wetlands*.

Grant reviewer Alberta Challenge Grants in Biodiversity, American Chemical Society, Canada

Peter R. Leavitt FRSC: Professional Experience

Research Chairs, Canada Council for the Arts, European Research Council, Exxon Valdez Trustee Council, Fond de recherche sur la nature et les technologies (QC), Fonds sur Forderung (Austria), Geological Survey of Canada, Israel Ministry of Science Technology and Space, Israel Science Foundation, Maryland Seagrant Program, MITACS, National Geographic Society, UK Natural Environmental Research Council (NERC), Natural Science and Engineering Research Council of Canada (NSERC), Netherlands Organization for Scientific Research, US Geological Survey.

- Session Chair: Annual Meetings of American Society of Limnology and Oceanography; Ecological Society of America; Society of Canadian Limnologists, Canadian Society of Ecology and Evolution.
- Student Presentation Award Judge, Annual Meeting of Ecological Society of America.

Indices of Academic Achievement

- Web of Science H-index = 50 (56 in ResearchGate, 62 in Google Scholar) with more than 12,500 citations. In 2017, University of Regina was ranked in the top 1% of global “Environment and Ecology” academic institutions by Clarivate Analytics (ISI Web of Science). Clarivate also ranked Regina’s Biology Department in the top 1% of global institutions in “Plant and Animal Science” during 2006. As of 2019, my research career output was ranked within the top 1% of all scientists globally (<https://doi.org/10.1371/journal.pbio.3000384>)
- One of world’s most highly published limnologists in *Limnology and Oceanography* (35 papers; source ASLO Board of Directors). *Limnology and Oceanography* is historically the top-ranked journal in freshwater and marine sciences (source: Clarivate Analytics ISI).
- Drought risk assessments used by 20 Federal, Provincial and local organizations to evaluate their vulnerability to future droughts, including MB Hydro Corp, SK Crop Insurance Corp, and MB Crop Insurance Corp, and Agriculture and Agri-Food Canada (formerly, Prairie Farm Rehabilitation Administration).
- Water quality research used as the basis for the *Save Lake Winnipeg Act*, passed into law unanimously by Manitoba Legislature in June 2011. Legislative transcript is available on request.
- Certificate of Excellence in Reviewing, *Journal of Paleolimnology* (2016)
- Outstanding Reviewer Citation, *Limnology and Oceanography* (2003).

University Service:

Inter-University

- NSERC grant pre-submission reviewer (2013 McGill, UQAM, Trent), (2011 UNB-SJ), (2009 Moncton), (2004 Regina).
- Canada Research Chair pre-submission reviewer (2010 UQAM), (2009 UNB-SJ).
- National Science Foundation (NSF) pre-submission reviewer (2010 MSU).
- Reviewer Tenure packages: Auburn (2019), McGill (2015), UQAM (2014), Maine (2012), Michigan State (2011), Western Ontario (2006), Lancaster UK (2005), Franklin and Marshall College (2005), Michigan State (2001), Queen’s (1999, 2001).
- Professor review (Mississippi) (2011).
- Reviewer Kilham Fellowship (2011).
- PhD Examiner (U. Copenhagen) (2005).

University

- Executive of Council (1994-2005, 2009-13, 2014-).

Peter R. Leavitt FRSC: Professional Experience

- CRC evaluation panel (2021-)
- Review panel, Dean of Science (2021)
- Council Task Force on Executive Format and Operations (2010).
- Council Committee on Research (2011-13).
- Committee to Review Strategic Research Plan (2012).
- Internal reviewer for pre-submission grants to NSERC (2009-13), Canada Foundation for Innovation (2009, 2012), Canada Research Chair (2011, 2012) grant programs.
- Chair, Search Committee, Assistant Director of Canadian Institute of Ecology and Evolution.
- Chair, Search Committee, Canada 150 Research Chair program (2017-18).
- Chair, Search Committee, Canada Research Chair (2019-20)
- Presentation on behalf of University to NATVAC (2012), Canadian Senate Committee on Energy, the Environment and Natural Resources (2011), President Chengdu University, China (2011), Industry Canada (2011), U. Regina Senate (2009), NSERC Indirect Costs Committee (2009), Communities of Tomorrow (2006), Government of Saskatchewan Cabinet (2006, 2001), President Canada Foundation for Innovation (2004), NSERC Site Visit (2003), SK Minister of Learning (2003), Drainage Research Institute Egypt (2003), SK Environmental Protection Branch (2003), Provincial Laboratories (2002), Sask Minister of Finance (2001), Deputy Minister Post-Secondary Education (1999), Minister of Post-Secondary Education (1995), Vice-President, Saskatchewan Water Corporation (1995).
- Local Steering Committee, Pacific Institute of Mathematics Sciences (2009-10).
- Public Debater: *Unscripted: A Harvest of Cultural Ideas* (Regina Public Library Series) (2009).
- Nominator, Regina Alumni Award for of Excellence in Teaching (M. Brigham, 2006).
- Photography Judge, Canadian Water Resources.
- University Scholarship Committee (1997-98).
- Risk Assessment Program Committee (1995).

Faculty of Science

- Director (founding), Institute of Environmental Change and Society (IECS), formerly Environmental Quality Analysis Laboratory (EQAL) (2000-).
- Dean's Advisory Committee on Truth and Reconciliation (2018-).
- Faculty Review Committee (2003, 2011, 2012).
- Faculty Search Committees (2) for IECS staff scientists (2012).
- Canada Research Chair Search Committee (2003, 2006)
- Chair, Search Committee, Manager Environmental Quality Analysis Laboratory (1999, 2003, 2004).
- Faculty Scholarship Committee (1996-98).

Department of Biology

- Supervisory committees:
 - PhD - Ryan Rimas (2019-), Mohamed Anas (2013-18), Joe Poissant (2010- 14), Suzanne Lapp (2009-12), Heather Boyd (Calgary)(2010-12), Todd Rodenbaugh (1997-2003), Duane Peltzer (1997-2000), Martin Kőecky (1996-99), Xiaping Xue (1993-97), Ning Xie (1993-97), Narjes Dashti (1993-94).
 - MSc - Mohamed Anas (2010-13), Elizabeth Stark (2010-13), Lara Bates (2010-11), Ryan Cooper (2008-10), Ray Poulin (1994-97), Janice Christian (1994-96), Alistair Hardie (Alberta, 1993-94), Andrew Paul (Alberta, 1993-94).
- Acting Head (2011).
- Research Seminar Co-ordinator (2010, 2005, 2003, 1998).

Peter R. Leavitt FRSC: Professional Experience

- Faculty Search Committee; Plant Ecology (2014), Nursing Microbiology (2011), Microbiology (2009), Animal Physiology (2004), Environmental Microbiology (2003), Ecology (2003), Plant Biology (1999), Ecology (1998), Botany (1997), Molecular Biology (1996).
- NSERC University Research Fellow Search Committee (2005).
- Sessional Instructor Search Committee (1995, 1994).
- Biology Space Committee (2004-06).
- Public Relations Committee (2003).
- Computing Facilities Committee (1998-2003).
- First Year Laboratory Committee (1994-2003).
- Reviewer, Graduate Day of Seminars (1995-2003).
- Plant Growth Facilities Committee (1993-2002).
- Curriculum Committee (1997-2002).
- Equipment Committee (1994-97).
- Graduate Studies and Honours Committee (1996-97).

Highly Qualified Personnel trained:

Research Associates

- | | |
|-------------------------------------|------------------------------|
| Deirdre Bateson (2015-) | Stefano Mezzini (2020-) |
| Brittany Hesjedal (2018) | Jared Wolfe (2017) |
| Tyler Boa (2014-2015) | Amy Morrison-Hennessy (2015) |
| Zoraida Quiñones-Rivera (2006-2014) | Vincent Ignatiuk (2008-14) |
| Martin Callahan (2005-07) | Samantha Dietrich (2003-05) |
| Dunling Wang (2005-06) | Richard Hughes (2003-04) |
| Nicole Knezacek (2001-03) | Mark Graham (1999-02) |
| Curtis Brock (2000-01) | Jeff Hovdebo (1998-2001) |
| Chris Teichreb (1997) | Tyler Cobb (1996) |
| Laura Ambrose (1995) | Daren Sherbot (1995) |
| Kim Cuddington (1993-94) | Alistair Hardie (1993) |

Post-Doctoral Researchers

- | | |
|-----------------------------|-------------------------|
| Cale Gushulak (2020-) | Heather Haig (2018-20) |
| Nicole Hayes (2015-18) | Jackie Webb (2018-2019) |
| Emma Wiik (2015-2016) | Lynda Bunting (2004-15) |
| Richard Vogt (2010-14) | Kerri Finlay (2006-09) |
| Alain Patoine (2003-2008) | Blake Matthews (2006) |
| Suzanne McGowan (2001-2005) | James Rusak (1999-2002) |
| Sybille Wunsam (1999-2001) | Norman Scully (1999) |
| Olaf Olson (1998-99) | Roland Hall (1996-97) |

PhD students

- | | |
|-----------------------------|-------------------------------|
| David Hatton (2020-) | Lushani Nanayakkara (2011-18) |
| Heather Haig (2012-18) | Iris Droscher (2006-08) |
| Vanessa Swarbrick (2010-17) | Rolf Vinebrooke (1994-98) |
| Lynda Bunting (2001-04) | |

MSc students

- | | |
|------------------------------------|--------------------------|
| Nathanael Bergbusch (2017-2020) | Jared Wolfe (2014-16) |
| Derek Donald (2007-11) | Matthew Bogard (2008-11) |
| Samantha Pham (Dietrich) (2004-08) | Melanie Ness (2003-07) |

Peter R. Leavitt FRSC: Professional Experience

Kurt Samways (2006-08)
Mark Graham (1994-96)

Curtis Brock (2003-06)
Kari Muir (1996)

BSc students

Rachael Garratt (2021-)	Michelle Fischer (2021-)	Katharina Krams (2021-)
Alex Donald (2021-)	Breeann Phillips (2021-)	Ashley Sahulka (2020)
Heather Josephson (2019-)	Omoyeme (Sylvia) Okonofua (2019-20)	Daniel Wasylshyn (2019)
McKenzie Van Eton (Hons. 2018-19)	Xing Zi (Jackie) Zhou (2018, 2020)	Jess Lermينياux (2019-20)
Shyla Christie (2018-19)	Katie Allison (2018)	Allison Walker (2018)
McKenzie Metz (2017)	Ryan Rimas (2017)	Nathanael Bergbusch (2017)
Dudley Phillips (2017)	Michelle Lang (2014-17)	Justin Odynski (2015-19)
Terry Mattern (2015-2016)	Ethan Cobb (2016)	Grayson Wihlsdal (2016)
Brady O'Connor (Hons. 2014-16)	Kristen Grey (2015- 2016)	Derek Johnson (2016)
Tiera McLeod (2014)	Gregory Owens (2014-15)	Justine Kerr (2015)
Erin Hillis (Hons 2012-13)	Jared Wolfe (2013)	Eric Armit (2013)
Leanne Trembley (2013)	Kyleen Pangracs (2012-13)	Chase Morell (2012-13)
Julia Hart (2012)	Katherine Miller (2012-13)	Morgan Ollinger (2011-12)
Jacob Ziegler (Hons. 2011-12)	Jenna Toraruk (Hagen) (2008-11)	Ryan Schnell (2011)
Taylor Mason (2011)	Liam Donnelly (2011)	Garricks Elechi (2008-10)
Ashley Walchuk (2010)	Braden Schmidt (2010)	Cameron Hoggrath (2009)
Anthony Freywald (2008-09)	Jason Unruh (2009)	Vincent Ingatiuk (2006-08)
Shelley Wellman (2008)	Paul Humenchuk (2008)	Derek Donald (Hons. 2006-07)
Kelsie Dale (2006-07)	Jennifer Rumancik (2007)	Christian Rufolfo Lott (2007)
Adam Mitichuk (2006)	Rachel Magnus (2005-06)	Martin Callahan (2006)
Brianna Wyn (Dopson) (Hons. 2002-05)	Jonas Fenn (2005)	Nathan Hazell (2005)
Courtney Ebel (Hons. 2003-04)	Laura Pfeifer (Hons. 2003-05)	Twlya Jesse (2004)
Michael Christensen (2003)	Samantha Dietrich (2002)	Shannon Smith (2002)
Brian Gordon (2001)	Rebecca Jane Schuler (2002)	Curtis Brock (Hons. 1999-2000)
Jarret Romanow (1999)	Ryan Suri (1999)	Jeff Hovdebo (Hons. 1997-98)
Brent Smith (1998)	Chris Teichreb (Hons 1995-97)	Jon Sweetman (1996-97)
Mark Zurowski (1997)	Tyler Cobb (1995-96)	Kerry Hecker (1996)
Jon Nachtigall (1995)	Tara Ivanochko (1994)	

Peter R. Leavitt FRSC: Professional Experience

Teaching Evaluations

Year	Course Evaluation (out of 4.0)				mean	SD
	<i>Biol 101</i>	<i>Biol 276</i>	<i>Biol 335</i>	<i>Biol 364</i>		
1994	3.04, 3.33		3.09		3.15	
1995	3.43		3.31	3.38	3.37	0.06
1996	(72/166)		3.11	3.08		
1997	(19/150)		3.64			
1998	3.43		3.37	3.39	3.40	0.03
1999						
2000	<i>Sabbatical leave - University of Washington Seattle</i>					
2001	3.05		3.32		3.53	0.11
2002		3.61	3.45		3.30	0.01
2003		3.30	3.29		3.42	0.05
2004		3.38	3.45		3.57	0.09
2005		3.63	3.50		3.57	0.09
2006		3.63	3.50		3.61	0.01
2007	<i>Sabbatical leave- NCEAS</i>					
2008		3.62	3.60		3.61	0.01
2009		3.45	3.43		3.44	0.01
2010		3.31	3.57		3.44	0.18
2011			3.53		3.53	
2012*		3.40	3.10		3.25	0.21
2013*			3.70		3.70	
2014*			3.40		3.40	
2015	<i>Sabbatical leave - University of California Santa Barbara</i>					
2016*		3.50	3.50		3.50	0.00
2017*		3.60	3.90		3.75	0.20
2018*		3.60	3.40		3.50	0.10
2019	<i>Sabbatical leave - Queen's University Belfast</i>					
2020**			3.77			
2021**						
Mean	3.30	3.49	3.44	3.28		
SD	0.21	0.13	0.20	0.18		

* = voluntary electronic participation by students; prior participation mandatory

** = dipshit administrators changed questions on evaluation with no backwards compatibility. This is an average of Q1.1 to Q4.2 and Q6.1-Q6.2. Also voluntary participation by students, typically <20%.