

KERRY NEIL MCPHEDRAN

PhD MSc PEng

kerry.mcphedran@usask.ca

57 Campus Dr.

Saskatoon, SK S7N 5A9

(306) 341-1735

EDUCATION

PhD, Environmental Engineering , University of Windsor, Windsor, ON	2006-2012
BASc, Environmental Engineering , University of Windsor, Windsor, ON	2002-2005
MSc, Biology , University of Windsor, Windsor, ON	1999-2001
BSc, Biology (Honour's) , University of Windsor, Windsor, ON	1994-1999
BSc, Biology , University of Western Ontario, London, ON	1995-1996

EDUCATION AWARDS

Natural Sciences and Engineering Research Council – Visiting Fellowships Program (Invited; \$50K/yr; declined)	2014-2015
Natural Sciences and Engineering Research Council – Canadian Graduate Scholarship (\$70K)	2008-2010
Ontario Graduate Scholarship (\$15K; declined)	2008-2009
Ontario Graduate Scholarship in Science and Technology (\$15K)	2007-2008
University of Windsor Doctoral Tuition Scholarship (\$6K/yr)	2006-2010
Ontario Graduate Scholarship (\$15K)	2005-2006

RESEARCH EXPERIENCE

Assistant Professor, University of Saskatchewan	9/15-present
Environmental Engineering, Department of Civil, Geological & Environmental Engineering	
Program Manager, University of Alberta	1/15-8/15
Postdoctoral Fellow, University of Alberta	1/14-1/15
Helmholtz-Alberta Initiative, NSERC-Industrial Research Chair Program in Oil Sands Process-Affected Water Treatment	
Sessional Instructor, University of Alberta	1/14-1/15
Courses: Principles of Environmental Modeling and Risk (2014), Solid Waste Management (2014)	
Postdoctoral Fellow, GLIER/University of Windsor	4/13-12/13
Weight of Evidence Approach for Assessing Toxicity and Recovery of Priority Pollutants in Sediment of the Huron-Erie Corridor	
Postdoctoral Fellow, Environmental Engineering/UWindsor	4/13-9/13
Development and Testing of an Ames Fluctuation Test Kit for Determination of Genotoxicity in Water and Wastewater	

Postdoctoral Fellow, Environment Canada/UWindsor	8/12-3/13
Assessment of Degradation of Benthos Beneficial Use Impairment in the Detroit River and St. Clair River Areas of Concern	
Research Assistant, University of Windsor	5/12-11/12
Toxicity of Ozonated Municipal Wastewater Effluents	
Lab Coordinator, Essex Region Conservation Authority	6/10-11/10
Essex County Beach Study	
Sessional Instructor, University of Windsor	5/7-4/10
Courses: Introduction to Environmental Engineering (2010), Technical Communications (2007–2009), Solid Waste Management (2007)	
Water Module Coordinator, University of Windsor	1/8-4/10
Youth Science and Technology Outreach Program	
Project Coordinator, SENES Consultants Limited	1/7-10/07
DRIC Air Quality Monitoring Program	
Study Coordinator, Health Canada	6/6-09/6
Field Technician, Health Canada	1/6-04/6
Border Air Quality Study	

RESEARCH SUPERVISION – HIGHLY QUALIFIED PERSONNEL (HQP)

Name	HQP	Year (status)	Title of Project or Thesis
In Progress			
Ali Ekhlasinia	Master’s	2019-	Assessment of evaporative ponds during and after the upgrade of Melville Water Treatment Plant
Kehao Zeng	Master’s of Water Security	2019- (co-supervised)	Correlating algae nutrients in Edmonton stormwater ponds
Hayley Popick	Master’s	2019- (co-supervised)	Snowmelt and stormwater management and treatment in Saskatoon, SK
Mohsen Asadi	Doctoral	2019-	Gas and greenhouse gas emissions from wastewater treatment plant
Tim Vogel	Doctoral	2019- (co-supervised)	Indigenous water related research project – To be determined
Daniel Hamilton	Doctoral	2019- (co-supervised)	Gold extraction optimization

Shahab Minaei	Doctoral	2019- (co-supervised)	Municipal wastewater related research project – To be determined
Nathan Bettman	Master's	2018-	Evaluation of an AOS reactor treatment train for stormwater
Mohammad Elrahafi	Master's	2018-	First Nations drinking water treatment technologies
Saif Al Rafi	Master's	2018-	Arsenic bioremediation of mine waste rock
Nathan Bettman	Master's	2018-	Evaluation of an AOS reactor treatment train for stormwater
Harrison Bull	Master's	2018- (co-supervised)	Assessment of evaporative ponds during and after the upgrade of Melville Water Treatment Plant
Tyler Casavant	Master's	2018- (co-supervised)	Assessment of the in situ energy recovery potential from medium-size landfills in Canada
Khaled Benis	Doctoral	2018- (co-supervised)	Arsenic bioremediation of mine waste rock and other waters
Scott Read	Master's	2017-	Saskatoon Northeast Swale – Impacts of human development on the Swale
Connor Theoret	Master's	2017-	Clean water for Indigenous communities of Saskatchewan
Rebecca Zagozewski	Research Associate	2019-	Federation of Sovereign Indigenous Nations Drinking water regulation
Ali Dumachali	Postdoctoral	2018-	Lead for Orano and BioLargo funded research projects
Completed			
Aslan Lee	Postdoctoral	2018	Orano research project
Hayley Popick	Summer	2018	Stormwater management and treatment in Saskatoon, SK
Raquibul Alam	Postdoctoral	2017-2018	AREVA and BioLargo funded research projects
Tim Vogel	Master's	2016-2018	Clean water for Indigenous communities of Saskatchewan
Abdullah Al Masum	Master's (honorary)	2016-2019	Stormwater management and treatment in Saskatoon, SK
Scott Read	Research Engineer	2017	Stormwater management and treatment in Saskatoon, SK
Nathan Bettman	Summer	2017 and 2018	Assessing bioremediation for arsenic from mine waste rock
Liven Li	Undergraduate	2016-2017	Municipal wastewater treatment modelling

RESEARCH FUNDING***Funding as Assistant Professor at the University of Saskatchewan (2015-2019)***

Funding source	Award status	Project period	Total amount	KNM amount	KNM role
Mitacs Accelerate	In revision	2019-2020	\$60,000	\$60,000	PI
Muskoday Contract	Pending	2019-2021	\$200,000	\$180,000	Co-PI
Muskeg Lake Contract	Pending	2019-2021	\$200,000	\$180,000	Co-PI
FSIN Contract	Funded	2019	\$40,860	\$40,860	PI
Mitacs Accelerate	Funded	2019	\$63,000	\$63,000	PI
NSERC CRD	Funded	2018-2020	\$472,000	\$117,975	Co-I
Melville Water Contract	Funded	2018-2019	\$30,000	\$27,000	Co-PI
Centennial Enhancement Chair	Funded	2018	\$300,000	\$300,000	PI
NSERC Engage Plus	Funded	2018	\$24,941	\$24,941	PI
NSERC Engage	Funded	2018	\$24,556	\$24,556	PI
FSIN Contract	Funded	2018	\$90,665	\$90,665	PI
Mitacs Accelerate	Funded	2018	\$60,500	\$60,500	PI
Canadian Light Source	Funded	2017	\$5,040	\$5,040	PI
UofS Graduate Student Support	Funded	2017	\$16,000	\$16,000	PI
Mitacs Accelerate	Funded	2017	\$52,500	\$52,500	PI
NSERC Engage	Funded	2017	\$20,950	\$20,950	PI
Environment Canada	Funded	2016-2017	\$22,700	\$0	Co-PI
NSERC Connect	Funded	2016	\$1,000	\$1,000	PI
NSERC Discovery	Funded	2016-2021	\$180,000	\$180,000	PI
RBC Blue Water	Funded	2016-2018	\$85,000	\$42,500	Co-PI
Faculty Startup	Funded	2015-2020	\$50,000	\$50,000	PI
Total (funded)			\$1,539,712	\$1,157,487	
Total (pending)			\$460,000	\$380,000	
Total			\$1,999,712	\$1,537,487	

Mitacs Accelerate (PI) "MEPOWSS Wastestream Analysis" (\$60,000)	In revision
Muskeg Lake Cree Nation (co-PI) "Community Centred Design" (\$200,000; contract in revision)	Pending
Muskoday First Nation (co-PI) "Community Centred Design" (\$200,000; contract in revision)	Pending
Federation of Sovereign Indigenous Nations (FSIN) (Contract, PI) "FSIN Drinking water regulation" (\$40,860)	4/19-10/19
Mitacs Accelerate (PI) "Assessing bioremediation coupled with adsorption for treatment of arsenic released from mine waste rock" (\$63,000)	3/19-2/20
NSERC Collaborative and Research Development Grant (PI) "Energy potential from medium-sized landfills in Canada" (\$472,000)	10/18-9/21
Melville Water Contract (co-PI) "Assessment of evaporative ponds during and after the upgrade of Melville Water Treatment Plant " (\$30,000)	9/18-8/19
Centennial Enhancement Chair (PI) "Water Stewardship for Indigenous Communities" (\$300,000)	6/18-6/23
NSERC Engage Plus Grant (PI) "Evaluation of an AOS reactor treatment train for stormwater effluents"" (\$24,956)	9/18-5/19
Federation of Sovereign Indigenous Nations (FSIN) (Contract, PI) "Asset Condition Reporting System – Water and Wastewater" (\$90,665)	1/18-4/18
Mitacs Accelerate (PI) "Assessing bioremediation potential for arsenic released from mine waste rock" (\$60,500)	1/18-1/19
NSERC Engage Grant (PI) "Assessment of stormwater outfall on the South Saskatchewan River in Saskatoon, Saskatchewan" (\$24,556)	1/17-7/17
Mitacs Accelerate (PI) "Assessing bioremediation for arsenic released from mine waste rock" (\$52,500)	1/17-1/18
Canadian Light Source (CLS) Beamline Grant (PI) "CLS Call for Proposals" (\$5,040 – free beamtime)	2017
New Faculty Graduate Student Support Program (PI) "Masters or PhD scholarship support" (\$16,000)	2017
NSERC Engage Grant (PI) "Characterization of the production and depletion of iodinated and oxidative species inside the AOS reactor" (\$20,950)	1/17-7/17
Environment Canada (Contract; co-PI)	11/16-5/17

“Assessment of degradation of benthos beneficial use impairment for the Detroit River Area of Concern” (\$22,700)	
NSERC Connect Grant (PI)	8/16-11/16
“Characterization of the production and depletion of iodinated and oxidative species inside the AOS reactor” (\$1,000)	
NSERC Discovery Grant (PI)	5/16-4/21
“Investigation of the role of organic matter in partitioning of chemicals in the municipal wastewater treatment process” (\$180,000; \$36,000/year)	
RBC Blue Water Grant (co-PI)	5/16-4/21
“Clean water for Indigenous First Nations communities” (\$85,000)	
Faculty Recruitment and Retention Program (PI)	9/15-8/20
“Startup funding for new Faculty from College of Engineering and Department of Civil & Geological Engineering” (\$50,000)	
Helmholtz-Alberta Initiative Transition Funding Proposal (co-Author)	4/15-1/16
“Characterization of the electro-assisted adsorption of ionized weak acids on graphite” (\$30,000)	
Helmholtz-Alberta Initiative Transition Funding Proposal (co-Author)	4/15-1/16
“Study of electro-assisted degradation of wastewater contaminants by integration of adsorption and biological processes” (\$30,000)	
NSERC Collaborative Research and Development Grant (co-Author)	2015-2019
“Novel enhance primary treatment (EPT) of combined sewer overflow (CSO) using combinations of oxidants and coagulants” (\$480,000)	
Great Lakes Sustainability Fund (co-PI)	2013-2015
“Weight of evidence approach for assessing toxicity and recovery of priority pollutants in sediments of the Huron-Erie Corridor” (\$196,800)	
NSERC Engage Grant (co-Author)	4/13-9/13
“Development and testing of an Ames fluctuation test kit for determination of genotoxicity in water and wastewater” (\$25,000)	
Environment Canada (co-Author)	8/12-3/13
“Delisting criteria for benthic communities in the St. Clair and Detroit River” (\$20,100)	
Essex Region Conservation Authority (co-Author)	6/10-10/10
“Preliminary assessment of the dynamics of the beach water quality in Windsor Essex Region” (\$8,000)	
NSERC Health Canada Supplement (co-Author)	2010-2012
“Effect of physico-chemical properties on partitioning to organics of chemicals of concern during the sewage treatment process” (\$46,000)	

PUBLICATIONS

Note: My name is **bolded** and my HQP are underlined.

1. Al Masum, A., **McPhedran, K.N.** (2019) Impacts of City of Saskatoon's stormwater runoff into the South Saskatchewan River. *Proceedings of the Canadian Society of Civil Engineering 2019 Annual Conference*.
2. Read, S., **McPhedran, K.N.** (2019) The Meewasin Northeast Swale: Using Natural Capital Asset Valuation to value Saskatoon's natural resources. *Proceedings of the Canadian Society of Civil Engineering 2019 Annual Conference*.
3. Al Rafi, S., Dumachali, A., Alam, R., Lee, A., Chang, W., **McPhedran, K.N.** (2019) Arsenic bioremediation: Importance of sample preparation for environmental arsenic species identification. *Proceedings of the Canadian Society of Civil Engineering 2019 Annual Conference*.
4. Casavant, T., Fleming, I., **McPhedran, K.N.** (2019) Characterisation of landfilled waste using continuous core samples. *Proceedings of the Geo-Environmental Engineering 2019 Annual Conference*.
5. Alam, R., **McPhedran, K.** Application of biological sulfate reduction for remediation of arsenic – A review. *Chemosphere* 222:932-944.
6. Drouillard, K.G., Qian, Y., Lafontaine, J., Ismail, N., **McPhedran, K.**, Szalinska, E., Grgicak-Mannion, A. Polybrominated diphenyl ethers (PBDEs) in sediments of the Huron-Erie Corridor. *Bulletin of Environmental Contamination and Toxicology* 102(4):450-456
7. Li, J., **McPhedran, K.**, Szalinska van Overdijk, E., Mcleod, A., Bhavsar, S., Grgicak-Mannion, A., Drouillard, K. Characterizing PCB exposure pathways from sediment and water in benthic invertebrates using a food web bioaccumulation model. *Integrated Environmental Assessment and Management* 15(3):398-411
8. Vogel, T., Fonstad, T., **McPhedran, K.** (2018) Assessment of costs of centralized and decentralized water systems on First Nations communities. *Proceedings of the Canadian Society of Civil Engineering 2018 Annual Conference*, Fredericton, NB
9. Bradford, L., Vogel, T., Lindenschmidt, K.-E., **McPhedran, K.**, Bharadwaj, L., Strickert, G., Fonstad, T. Co-design of water services and infrastructure in Indigenous Canada: A scoping review. *FACETS* Accepted, February 23, 2018
10. Md. Islam, S., **McPhedran, K.**, Messele, S.A., Liu, Y., Gamal El-Din, M. Modeling of oil sands process-affected water organic compound adsorption isotherms and kinetics to granular activated carbon. *Chemosphere* Accepted, March 21, 2018
10.1016/j.chemosphere.2018.03.149
11. Zhang, Y., Md. Islam, S., **McPhedran, K.**, Dong, S., Rashed, E., El-Shafaei, M., Noureldin, A., Gamal El-Din, M. (2017) A comparative study of microbial dynamics and phosphorus removal for two side-stream wastewater treatment processes. *RSC Advances* 7:45938-45948
12. Md. Islam, S., Zhang, Y., Dong, S., **McPhedran, K.N.**, Rashad, E., El-Shafei, M., Noureldin, A., Gamal El-Din, M. Dynamics of microbial community structure and nutrients removal from an innovative side-stream enhanced biological phosphorus removal process. *Journal of Environmental Management* 198:300-307
13. Meshref, M., Klammerth, N., Md. Islam, S., **McPhedran, K.N.**, Gamal El-Din, M. Understanding the similarities and differences between ozone and peroxone in the

- degradation of naphthenic acids: Comparative performance for potential treatment. *Chemosphere* 180:149-159
14. Shafaei, S., Klammerth, N., Zhang, Y., **McPhedran, K.N.**, Bolton, J.R., Gamal El-Din, M. Impact of environmental conditions on bacterial photoreactivation in wastewater effluents. *Environmental Science: Processes & Impacts* 19(1):31-37
 15. **McPhedran, K.N.**, Grgicak-Mannion, A., Paterson, G., Briggs, T., Ciborowski, J., Haffner, G.D., Drouillard, K.G. (2016) Assessment of hazard metrics for predicting field benthic invertebrate toxicity in the Detroit River, Ontario, Canada. *Integrated Environmental Assessment and Management* 13(2):410-422
 16. Shu, Z., Singh, A., Klammerth, N., **McPhedran, K.N.**, Bolton, J.R., Belosevic, M., Gamal El-Din, M. (2016) Pilot-scale UV/H₂O₂ advanced oxidation process to municipal wastewater effluents: Assessing micropollutant degradation and estrogenic impacts on goldfish (*Carassius auratus L.*). *Water Research* 101:157-166
 17. **McPhedran, K.N.**, Seth, R. (2016) Wastewater derived colloidal organic carbon: Characterization of ultrafiltration fractions and implications of environmental loadings. *Water Environment Research* 88:308-317
 18. Shu, Z., Singh, A., Klammerth, N., **McPhedran, K.**, Chelme-Ayala, P., Bolton, J.R., Belosevic, M., Gamal El-Din, M. (2016). Application of the UV/H₂O₂ advanced oxidation process for municipal reuse water: bench- and pilot-scale studies. *Proceedings of the 13th International Conference on Modelling, Monitoring and Management of Water Pollution*
 19. Huang, R., **McPhedran, K.N.**, Yang, L., Gamal El-Din, M. (2016) Characterization and distribution of toxic metal and nonmetal elements in the Alberta oil sands region of Canada. *Chemosphere* 147: 218-229
 20. Huang, R., **McPhedran, K.N.**, Sun, N., Chelme-Ayala, P., Gamal El-Din, M. (2016) Investigation of the impact of organic solvent type and solution pH on the extraction efficiency of naphthenic acids from oil sands process-affected water. *Chemosphere* 146:472-477
 21. Md. Islam, S., Zhang, Y., **McPhedran, K.N.**, Liu, Y., Gamal El-Din, M. (2016) Mechanistic investigation of industrial wastewater naphthenic acids removal using granular activated carbon (GAC) biofilm based processes. *Science of the Total Environment* 541:238-246
 22. Drouillard, K., **McPhedran, K.**, Grgicak-Mannion, A., Lafontaine, J., Paterson, G., Briggs, T., Ciborowski, J., Haffner, G. (2016). A multi-chemical hazard metric predicts chironomid abundance in the Detroit River. *Proceedings from the Biennial State of the Strait Conference*.
 23. Huang, R., **McPhedran, K.N.**, Gamal El-Din, M (2015). Ultra performance liquid chromatography ion mobility time-of-flight mass spectrometry characterization of naphthenic acids species from oil sands process-affected water. *Environmental Science & Technology* 49:11737-11745
 24. Wang, C., Alpatova, A., **McPhedran, K.N.**, Gamal El-Din, M. (2015) Coagulation/Flocculation process with poly-aluminum chloride for the remediation of oil sands process-affected water: Performance and mechanism study. *Journal of Environmental Management* 160:254-262
 25. Alpatova, A., Meshref, M., **McPhedran, K.N.**, Gamal El-Din, M. (2015). Composite PVDF membrane impregnated with Fe₂O₃ particles and multiwalled carbon

- nanotubes for catalytic degradation of organic contaminants. *Journal of Membrane Science* 490:227-235
26. Md. Islam, S., Zhang, Y., **McPhedran, K.N.**, Liu, Y., Gamal El-Din, M. (2015). Analysis of oil sands microbial biofilm communities developed on granular activated carbon using next-generation pyrosequencing. *Applied and Environmental Microbiology* 81:4037-4048
 27. Zhang, Y., **McPhedran, K.N.**, Gamal El-Din, M. Pseudomonads biodegradation of aromatic compounds in oil sands process-affected water (2015). *Science of the Total Environment* 521-522: 59-67
 28. Moustafa, A.M.A., Huang, J., **McPhedran, K.N.**, Zeng, H., Gamal El-Din, M. (2015). Probing of the adsorption of decanoic acids on graphite using amplitude modulation – frequency modulation atomic force microscopy. *Langmuir* 31:3069-3075
 29. Huang, R., Sun, N., Chelme-Ayala, P., **McPhedran, K.N.**, Changelov, M., Gamal El-Din, M. (2015). Fractionation of oil sands process-affected water using pH-dependent extractions: A study of dissociation constants for naphthenic acids species. *Chemosphere* 127:291-296
 30. Reaume, M.J., Seth, R., **McPhedran, K.N.**, Da Silva, E.F., Porter, L. (2015). Effect of media on biofilter performance following ozonation of secondary treated municipal wastewater effluent: Sand vs. GAC. *Ozone Science & Engineering* 37:143-153
 31. Md. Islam, S., Zhang, Y., **McPhedran, K.N.**, Liu, Y., Gamal El-Din, M. (2015). Granular activated carbon for simultaneous adsorption and biodegradation treatments of oil sands process-affected water. *Journal of Environmental Management* 152:49-57
 32. Chen, Y., **McPhedran, K.N.**, Perez-Estrada, L., Gamal El-Din, M. (2015). An omic approach for the identification of advanced oxidation products of oil sands process-affected water using multivariate statistical analysis of ultrahigh resolution mass spectrometry datasets. *Science of the Total Environment* 511:230-237
 33. Klammerth, N., Moreira, J., Li, C., Singh, A., **McPhedran, K.N.**, Chelme-Ayala, P., Belosevic, M., Gamal El-Din, M. (2015). Effect of ozonation on the naphthenic acids speciation and toxicity of pH-dependent organic fractions of oil sands process-affected water. *Science of the Total Environment* 506-507:66-75
 34. Moustafa, A.M.A., **McPhedran, K.N.**, Moreira, J., Gamal El-Din, M. (2014). Investigation of mono/competitive adsorption of environmentally relevant ionized weak acids on graphite: The impact of molecular properties and thermodynamics. *Environmental Science & Technology* 48:14472-14480
 35. Sun, N., Chelme-Ayala, P., Klammerth, N., **McPhedran, K.N.**, Md. Islam, S., Perez-Estrada, L., Drzewicz, P., Blunt, B., Reichart, M., Hagen, M., Tierney, K., Belosevic, M., Gamal El-Din, M. (2014). Advanced analytical mass spectrometric techniques and bioassays to characterize untreated and ozonated oil sands process-affected water. *Environmental Science & Technology* 48:11090-11099
 36. Md. Islam, S., Dong, T., **McPhedran, K.N.**, Sheng, Z., Zhang, Y., Liu, Y. Gamal El-Din, M. (2014). Impact of ozonation pre-treatment of oil sands process-affected water on the operational performance of a GAC-fluidized bed biofilm reactor. *Biodegradation* 25(6):811-823

37. **McPhedran, K.N.**, Seth, R., Drouillard, K. (2013). Investigation of hydrophobic organic compound (HOC) partitioning behaviour to municipal wastewater colloidal organic carbon. *Water Research* 47(7):2222–2230
38. **McPhedran, K.N.**, Seth, R., Drouillard, K. (2013). Hydrophobic organic compound (HOC) partitioning to 1 kDa fractionated municipal wastewater colloids. *Environmental Science & Technology* 47(6):2548–2553
39. **McPhedran, K.N.**, Seth, R., Drouillard, K. (2013). Evaluation of the gas stripping technique for calculation of Henry's law constants using the initial slope method for 1,2,4,5-tetrachlorobenzene, pentachlorobenzene, and hexachlorobenzene. *Chemosphere* 91(11):1648–1652
40. **McPhedran, K.N.**, Seth, R., Bejankiwar, R. (2013). Occurrence and predictive correlations of *E. coli* and Enterococci at Sandpoint Beach (Lake St. Clair), Windsor, ON and Holiday Beach (Lake Erie), Amherstburg, ON. *Water Quality Research Journal of Canada* 48(1):99–110
41. **McPhedran, K.N.**, Song, M., Chu, S., Letcher, R.J., Seth, R. (2013). Fate, partitioning and mass loading of triclosan, tetrabromobisphenol A (TBBPA, and tri-bromobisphenol A (tri-BBPA) during the municipal sewage treatment process. *Water Quality Research Journal of Canada* 48(3):255–265
42. **McPhedran, K.N.**, Seth, R., Drouillard, K. (2012). Investigation of effects of the cosolvent methanol on the apparent solubility of a suite of chlorobenzenes using headspace solid-phase microextraction (HS-SPME). *Journal of Chemical & Engineering Data* 59:2373–2378
43. Reaume, M.J., Seth, R., **McPhedran, K.N.**, Da Silva, E.F. (2012). Biofiltration polishing of ozone treated secondary municipal wastewater treatment plant effluent. *Proceedings of the International Ozone Association Annual Conference*
44. **McPhedran, K.N.**, Seth, R., Drouillard, K. (2012). Impact of colloidal organic matter partitioning of hydrophobic organic compounds on fate and transport during the municipal sewage treatment plant primary treatment process. *Proceedings of the 41st Annual Water Environment Association of Ontario Technical Symposium*
45. **McPhedran, K.N.**, Seth, R. (2007). Modelling the fate of polybrominated diphenyl ethers (PBDES) during the municipal sewage treatment process. *Proceedings of the Third IASTED International Conference on Environmental Modelling and Simulation*
46. Wang, J., **McPhedran, K.N.**, Seth, R., Drouillard, K.G. (2007). Model evaluation using ten polycyclic aromatic hydrocarbons (PAHs) in the Little River Sewage Treatment Plant, Ontario. *Chemosphere* 69:1802–1806
47. Laxson, C.L., **McPhedran, K.N.**, Makarewicz, J.C., Telesh, I.V, Maclsaac, H.J. (2003). Effects of the non-indigenous cladoceran *Cercopagis pengoi* on the lower food web of Lake Ontario. *Freshwater Biology* 48:2094–2106

CONFERENCE PRESENTATIONS AND POSTERS

Note: My name is **bolded** and my HQP are underlined.

1. Al Masum, A., **McPhedran, K.N.** (2019) Impacts of City of Saskatoon's stormwater runoff into the South Saskatchewan River. Canadian Society of Civil Engineering 2019 Annual Conference, Montreal, QC (Presentation)
2. Read, S., **McPhedran, K.N.** (2019) The Meewasin Northeast Swale: Using Natural Capital Asset Valuation to value Saskatoon's natural resources. Canadian Society of Civil Engineering 2019 Annual Conference, Montreal, QC (Presentation)
3. Al Rafi, S., Dumachali, A., Alam, R., Lee, A., Chang, W., **McPhedran, K.N.** (2019) Arsenic bioremediation: Importance of sample preparation for environmental arsenic species identification. Canadian Society of Civil Engineering 2019 Annual Conference, Montreal, QC (Presentation)
4. Casavant, T., Fleming, I., **McPhedran, K.N.** (2019) Characterisation of landfilled waste using continuous core samples. Geo-Environmental Engineering 2019 Annual Conference, Montreal, QC (Presentation)
5. Vogel, T., Fonstad, T., **McPhedran, K.** (2018) Assessment of costs of centralized and decentralized water systems on First Nations communities. Canadian Society of Civil Engineering 2018 Annual Conference, Fredericton, NB (Presentation)
6. Alam, R., Bettman, N., **McPhedran, K.N.** (2017). Characterization of the production and depletion of iodinated and oxidative species in the AOS reactor. Third Annual BioLargo Water Industry Interaction Workshop, Edmonton, AB (Invited presentation)
7. Alam, R., Bettman, N., **McPhedran, K.N.** (2017). Characterization of the production and depletion of iodinated and oxidative species in the AOS reactor. Third Annual BioLargo Water Industry Interaction Workshop, Edmonton, AB (Poster)
8. Drouillard, K.G., LaFontaine, J., Grgicak-Mannion, A., **McPhedran, K.**, Szalinska, E., Haffner, G.D., (2017). Sediment contamination in the Huron-Erie Corridor and linkages to AOC beneficial use impairments. International Association for Great Lakes Research; From Cities to Farms: Shaping Great Lakes Ecosystems, Detroit, MI (Presentation)
9. Drouillard, K.G., **McPhedran, K.N.**, Grgicak-Mannion, A., Lafontaine, J., Paterson, G., Briggs, T., Ciborowski, J.J.H., Haffner, G.D. (2015). A multi-chemical hazard metric predicts chironomid abundance in the Detroit River. State of the Strait Conference – Coordinating Conservation in the St. Clair-Detroit River System, Eastern Michigan University, Michigan, USA (Invited presentation)
10. Md. Islam, S., **McPhedran, K.N.**, Liu, Y., Gamal El-Din, M. (2015) Microbial community structure characterization and evaluation of degradation mechanisms from GAC biofilm treatment of OSPW. Canadian Oil Sands Innovation Alliance, Innovation Summit, Banff, AB (Poster)
11. Moustafa, A., **McPhedran, K.N.**, Moreira, J., Gamal El-Din, M. (2014). Investigation of mono/competitive adsorption of naphthenic acids on graphite: Impact of molecular properties and thermodynamics. Helmholtz-Alberta Initiative Science Forum 2014, Edmonton, AB (Presentation)
12. Chen, Y., **McPhedran, K.N.**, Perez-Estrada, L., Gamal El-Din, M. (2014). Application of principal component analysis on the data mining of high resolution mass

- spectrometry datasets. Helmholtz-Alberta Initiative Science Forum, Edmonton, AB (Poster)
13. Ibrahim, M., Nasr, S., Moustafa, A., **McPhedran, K.N.**, Gamal El-Din, M. (2014). Investigation of iodine chemistry impact on the naphthenic acids (NAs) concentrations of the oil-sands process-affected water using the iodine chemistry. Helmholtz-Alberta Initiative Science Forum, Edmonton, AB (Poster)
 14. Md. Islam, S., Zhang, Y., **McPhedran, K.N.**, Liu, Y., Gamal El-Din, M. (2014). Evaluation of adsorption and biodegradation mechanisms of NAs in a simultaneous adsorption and biodegradation treatment of OSPW. Helmholtz-Alberta Initiative Science Forum, Edmonton, AB (Poster; Top 3 award)
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 17. **McPhedran, K.N.**, Wood, S., Grgicak-Mannion, A., Paterson, G., Briggs, T., Ciborowski, J., Haffner, G.D., Drouillard, K.G. (2013). A hazard scoring method for the prediction of benthic impacts in the Detroit River. SETAC North America 33rd Annual Meeting, Nashville, TN (Poster)
 18. Drouillard, K.G., **McPhedran, K.N.**, Szalinska, E., Grgicak-Mannion, A., Haffner, G.D. (2013). A Multi-chemical hazard score method to predict degraded benthos in the Detroit River. International Conference on Marine Pollution and Ecotoxicology, Hong Kong, CN (Invited presentation)
 19. Reaume, M., Seth, R., **McPhedran, K.N.**, Da Silva, E.F. (2012). Biofiltration polishing of ozone treated secondary municipal wastewater treatment plant effluent. International Ozone Association Pan American Group Conference, Milwaukee, WI (Presentation)
 20. **McPhedran, K.N.**, Seth, R., Drouillard, K. (2012). Evaluation of the gas stripping technique for calculation of Henry's law constants using the initial slope method for a suite of hydrophobic organic compounds. The 43rd Meeting of the Central Region ACS, Dearborn, MI (Presentation)
 21. **McPhedran, K.N.**, Seth, R., Drouillard, K. (2012). Impact of colloidal organic matter partitioning of hydrophobic organic compounds on fate and transport during the municipal sewage treatment plant primary treatment process. 41st Annual WEAO Technical Symposium, Ottawa, ON (Presentation)
 22. **McPhedran, K.N.**, Seth, R., Drouillard, K.G. (2012). Partitioning of a suite of chlorobenzenes (1,2,4,5-tetrachlorobenzene, pentachlorobenzene, and hexachlorobenzene) to Aldrich humic acids and municipal wastewater treatment plant colloids. 47th CENTRAL Canadian Symposium on Water Quality Research, Burlington, ON (Presentation)
 23. **McPhedran, K.N.**, Seth, R. (2012). Occurrence and predictive correlations of E. coli and Enterococci at Sandpoint Beach (Lake St. Clair), Windsor, ON and Holiday Beach (Lake Erie), Amherstburg, ON. 47th CENTRAL Canadian Symposium on Water Quality Research, Burlington, ON (Presentation)

24. **McPhedran, K.N.**, Seth, R., Drouillard, K. (2011). Partitioning of a suite of chlorobenzenes to Aldrich humic acids and primary effluent colloidal organic matter from a sewage treatment plant. SETAC North America 32nd Annual Meeting, Boston, MA (Poster)
25. **McPhedran, K.N.**, Seth, R. (2011). Occurrence and physicochemical monitoring of *E. coli* and Enterococci at Sandpoint Beach, Windsor, ON and Holiday Beach, Amherstburg, ON. 46th CENTRAL Canadian Symposium on Water Quality Research, Burlington, ON (Presentation)
26. **McPhedran, K.N.**, Seth, R., Drouillard, K.G. (2011). Hydrophobic organic chemical partitioning to colloidal organics in a municipal wastewater treatment plant. Health Canada Exposure Assessment Unit Information Sharing Symposium, Tunney's Pasture, Ottawa, ON (Presentation)
27. **McPhedran, K.N.** and Seth, R. (2007). Modelling the fate of polybrominated diphenyl ethers (PBDES) during the municipal sewage treatment process. Third IASTED International Conference on Environmental Modelling and Simulation, Honolulu, HI (Presentation)
28. **McPhedran, K.N.**, Seth, R., Webster, E., Bonnell, M., and Mackay, D. (2006). Expansion and testing of a mass balance model of chemical fate in a sewage treatment plant. SETAC 27th Annual Meeting, Montréal, QC (Presentation)
29. **McPhedran, K.N.**, Seth, R. (2006). Implication of chemical properties on their fate during various municipal treatment processes. 41st Central Canadian Symposium on Water Quality Research, Hamilton, ON (Presentation)

REPORTS

1. MacDougall, M.J., Drouillard, K.G., **McPhedran, K.N.** (2017). Assessment of the current state of degradation of benthos beneficial use impairment in Canadian waters of the Detroit River Area of Concern. Prepared for and Environment and Climate Change Canada by RiverLabs (River Institute), Cornwall, Ontario. 58 p.
2. MacDougall, M.J., Drouillard, K.G., McPhedran, K.N. (2017). Detroit River Area of Concern: Degradation of Benthos BUI Status Re-Designation Document. Prepared for Environment and Climate Change Canada (ECCC) by RiverLabs (River Institute), Cornwall, Ontario. 9 p. (Non-Technical Report)
3. Drouillard, K.G., Grgicak-Mannion, A., **McPhedran, K.N.**, Lafontaine, J. (2015). Weight of Evidence Approach for Assessing Toxicity and Recovery of Priority Pollutants in the Sediments of the Huron-Erie Corridor. Prepared for Environment Canada for the Great Lake Sustainability Fund Project, 37 p.
4. **McPhedran, K.N.**, Md. Islam, S., Gamal El-Din, M. (2014). Development of a Novel Engineered Bioprocess for Oil Sands Process-Affected Water and Tailings Fines/Bitumen/Water Separation. Oil Sands Research and Information Network, University of Alberta, School of Energy and the Environment, Edmonton, Alberta. OSRIN Report No. TR-63. 28 p. Available at <http://hdl.handle.net/10402/era.40190>
5. Moustafa, A., Ibrahim, M., Nasr, S., **McPhedran, K.N.**, Gamal El-Din, M. (2014). Study of the organic compound oxidation in the oil sands process-affected water using adsorbents, electrical current and iodine compounds. Prepared for BioLargo Inc., 14 p.
6. Chao, L., Singh, A., Klamerth, N., **McPhedran, K.N.**, Chelme-Ayala, P., Belosevic, M., Gamal El-Din, M. (2014). Synthesis of toxicological behavior of oil sands process-affected water constituents. OSRIN Report No. TR-50. Prepared for Oil Sands Research and Information Network (OSRIN), 101 p. Available at: <http://hdl.handle.net/10402/era.39659>
7. Drouillard, K., **McPhedran, K.N.**, Grgicak-Mannion, A., Haffner, G.D. (2013). Final Report: Weight of evidence approach for assessing toxicity and recovery of priority pollutants in sediments of the Detroit River. Prepared for the Ontario Ministry of Environment (OMOE), 41 p.
8. **McPhedran, K.N.**, Drouillard, K. (2013). 2013 Assessment of St. Clair River area of concern 'Yardsticks' guidelines. Prepared for the Science and Monitoring Work Group of the St. Clair River Area of Concern, 16 p.
9. **McPhedran, K.N.**, Drouillard, K. (2013). Review of the degradation of benthos beneficial use impairment in the Detroit River and St. Clair River Areas of Concern. Prepared for the Monitoring and Research Work Group of the Detroit River Canadian Cleanup (DRCC), 108 p.
10. **McPhedran, K.N.**, Seth, R., Bejankiwar, R. (2011). Investigation of variability in *E. coli* and *Enterococci* at Sandpoint Beach (Lake St. Clair), and Holiday Beach (Lake Erie), Ontario. Prepared for the Essex Region Conservation Authority. 12 p.
11. **McPhedran, K.N.**, Xu, I. (2007). DRIC Windsor air pollution monitoring project monthly status reports: January – October 2007. Prepared for SENES Consultants Limited, 15-22 p.

TEACHING EXPERIENCE

Course	Level	Year	Students	Institution
Water Chemistry	Graduate	2018-2019	3 (2018), 9 (2019)	University of Saskatchewan
Municipal Waste Management	4 th Year	2017-2018	13 (2017), 15 (2018)	
Capstone Design	4 th Year	2016-2019	8 (2016), 11 (2017), 8 (2018)	
Municipal Engineering	3 rd Year	2015-2018	96 (2016), 76 (2017), 97 (2018)	
Design Project	2 nd Year	2015	8	
Principles of Environmental Modeling and Risk	3 rd Year	2014	119	University of Alberta
Solid Waste Management	3 rd Year	2014	36	University of Windsor
Introduction to Environmental Engineering	2 nd Year	2010	23	
Technical Communications	2 nd Year	2007-2009	8 (2007), 14 (2008), 5 (2009)	
Solid Waste Management	4 th Year	2007	28	

MEDIA INTERVIEWS**Related to Stormwater research:**

- April 14, 2019: Online article on CJWW, “Analyzing the effects of storm water in the South Saskatchewan River”
- September 19, 2018: Online article on CJWW, “University looks at what the storm water system puts into the South Saskatchewan River”
- September 29, 2016: Television interview CTV News Saskatoon, “City river front and centre World Water Day”
- September 29, 2016: Online article on Sasknow.ca, “Students raising awareness on where storm water goes”. Accessed January 24, 2017; <http://www.sasknow.ca/local-news/76860-students-raising-awareness-on-where-storm-water-goes>

Related to McPhedran et al. (2013) beach study:

- August 7, 2013: Newspaper article in The Windsor Star, “Local researcher looks to wind, rainfall as clues in beach water testing models”
- August 7, 2013: Radio interview CBC Windsor, “Beach safety forecasting”
- August 13, 2013: Radio interview CBC Thunder Bay, “Beach safety forecasting”

REFEREES

Dr. Rajesh Seth
Professor
Civil and Environmental
Engineering
University of Windsor
401 Sunset Ave.
Windsor, ON
1.519.253.3000 x2553
rseth@uwindsor.ca

Dr. Ken G. Drouillard
Professor
Great Lakes Institute for
Environmental Research
University of Windsor
401 Sunset Ave.
Windsor, ON
1.519.253.3000 x4744
kgd@uwindsor.ca

Dr. Leon Wegner
Professor and Head
Civil, Geological & Environmental
Engineering
University of Saskatchewan
57 Campus Dr.
Saskatoon, SK
1.306.966.5349
leon.wegner@usask.ca

Dr. Lee Barbour
Professor (Emeritus)
Civil, Geological & Environmental
Engineering
University of Saskatchewan
57 Campus Dr.
Saskatoon, SK
1.306.966.5369
lee.barbour@usask.ca