

41st CENTRAL CANADIAN SYMPOSIUM ON WATER QUALITY RESEARCH

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Canadian Association on Water Quality
National Water Research Institute



Welcome To Our 41st Symposium

Program Schedule

February 13 and 14, 2006

Canada Centre for Inland Waters
Burlington, Ontario



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41st Central Canadian Symposium on Water Quality Research

Program Schedule and Presentations

Sunday, February 12, 2006

CCIW Boardroom (L205)	
14:00 to 19:00	CAWQ Board Meeting

Monday, February 13, 2006

7:45	Main Mall		
	<ul style="list-style-type: none"> • Registration • Poster Installation 		
	Auditorium		
8:30	Opening Remarks: Dr. Yves Comeau, President, Canadian Association on Water Quality		
8:35	Welcome to the National Water Research Institute and Introduction of NWRI Distinguished Speaker: Dr. John Carey, Director General, NWRI		
8:45	Second Annual NWRI Distinguished Speaker Series and CAWQ Plenary Lecture: Dr. Steve Hrudehy, Professor of Environmental Health Sciences Faculty of Medicine and Dentistry, University of Alberta "From Walkerton to Kashechewan - Is Safe Drinking Water Really So Difficult?"		
	Auditorium Biological Assessment of Water Quality Chairs Rob Kent and Sylvie St-Jean	South Seminar Recent Developments in Analytical Techniques Chairs Ed Sverko and Brian Smith	North Seminar Urban Water Management Chairs Kirsten Exall and Hongde Zhou
9:30	A.R. Goold and P.F. Lee Toxicity investigations on a pit-lake in Northwestern Ontario, Canada	S.J. Brown , C.J. Ptacek, G. Bickerton, and S. Backus Analysis of perchlorate, iodide, and nitrate in water using ion chromatography and electrospray triple quadrupole mass spectrometry	T.C. Tan , R.R. Farnood, B. Cairns, and T. Mao Effect of particle size on UV disinfection performance
9:50	O. Bykova , A. Laursen, V. Bostan, and L. McCarthy Do zebra mussels (<i>Dreissena polymorpha</i>) alter lake water chemistry in a way that favours <i>Microcystis</i>	S. Huhtala , J. Nuutinen, B. Baars, and M. Alaei Application of low-pressure gas chromatography MS/MS to the determination of PBDEs	H.N. Yong , T. Mao, W. Cairns, and R.R. Farnood Using ultrasound as a pretreatment in ultraviolet disinfection of municipal wastewater
10:10	E.T. Howell Fine-scale analysis of water quality on the SE shores of Lake Huron: relevance and approach	L. Bragg , G. Ouyang, W. Zhao, Z. Qin, C. Marvin , M. Alaei , and J. Pawliszyn Time-weighted average field sampling with SPME devices	K. Wei and H. Zhou Using ozone as a disinfectant for food processing water treatment

Note: Names appearing in red are presenters competing for the Philip H. Jones Award

10:30 Health Break - Main Mall			
	Auditorium Biological Assessment of Water Quality Chairs Rob Kent and Sylvie St-Jean	South Seminar Recent Developments in Analytical Techniques Chairs Ed Sverko and Brian Smith	North Seminar Urban Water Management Chairs Kirsten Exall and Hongde Zhou
10:45	<u>T. Kon</u> , H. Lee, and J. Trevors Investigating the sources of microbial pollution of a posted beach	<u>J. Arellano</u> and <u>J. Shao</u> Evaluation of the effectiveness of larviciding chemicals for West Nile virus control using the ELISA microbiology technique	<u>Y. de Lafontaine</u> and C. Wiley Ballast water treatment technologies to minimize aquatic species introduction: efficacy and environmental risk
11:05	<u>A.S. Crowe</u> , J.E. Milne, and T.A. Edge Sources of <i>E. coli</i> along the beaches of southern Georgian Bay, Ontario, Canada	<u>E.J. Reiner</u> , A.R. Boden, A. Mascalu, and G. Ladwig Analysis of persistent organic pollutants in environmental samples using two dimensional gas chromatography (2DGC)	<u>S. Larass</u> , J. Mouthon-Bello, H. Zhou, and H. Husain Combining membrane bioreactors with biological nutrient removal processes for removing the nutrients from municipal wastewater
11:25	<u>J.E. Milne</u> and M.N. Charlton <i>Escherichia coli</i> (<i>E. coli</i>) in pore water of beach sand and nearshore water at four beaches on Lake Ontario and Hamilton Harbour		<u>F. Fan</u> and H. Zhou Modelling of long-term irreversible fouling in submerged membrane bioreactors for municipal wastewater treatment
11:45	<u>S. Hill</u> , P. Seto, J. Marsalek, and T. Edge Determination of the sources of fecal pollution at Toronto beaches using rep-PCR DNA fingerprinting		J.-P. Nywening, <u>H. Zhou</u> , and H. Husain Influence of operating conditions on fouling behaviours in membrane bioreactor processes
12:05	Lunch - Main Mall		CAWQ Annual General Meeting - South Seminar Room
13:00	Poster Session - Main Mall		
	Auditorium Biological Assessment of Water Quality Chairs Rob Kent and Sylvie St-Jean	South Seminar	North Seminar Urban Water Management Chairs Kirsten Exall and Hongde Zhou
13:25	<u>I. Khan</u> , V. Gannon, R. Kent, D. Lapen, J. Miller, N. Neumann, R. Phillips, W. Robertson, E. Topp, E. van Bochove, and T. Edge The National Agri-Environmental Standards Initiative: occurrence of waterborne pathogens in agriculture watersheds across Canada		<u>B. Mondal</u> and M. Warith Shredded tire chips as packing media in trickling filter system for landfill leachate treatment
13:45	<u>J.L. Isaac-Renton</u> , H. Schreier, V. Gannon, T. Edge, C. Ong, and N. Neumann A comparison of the cumulative impact of wildlife, land use, and environment on three raw water sources		<u>Y.Y.J. Tan</u> , M.A. Hashim, K.B. Ramachandran Biomass acclimatisation to sequentially varying substrates in an upflow anaerobic sludge blanket (UASB) reactor

14:05			J. Kochany Dissolved oxygen measurements as a tool for optimization of SBR operation treating high strength wastewater
14:25	Health Break - Main Mall		
	Auditorium Pharmaceuticals and Personal Care Products Chair Joanne Parrott	South Seminar Linking Science and Policy Chair Karl Schaefer	North Seminar Urban Water Management Chairs Kirsten Exall and Hongde Zhou
14:40	J.J. Yang, S. Lemanik, E. Topp, P. Yang, T. Ho, and S. Kleywegt The determination of polycyclic and nitro musks in aqueous and solid matrices by gas chromatography-time of flight-mass spectrometry	E. Hanna, T. Koveshnikova, E. Kuruzc, E. Miller, and P. Victor BENSIM: a stakeholder-driven model of the benefits of environmental clean-up projects	Y. Weng, L.A. Robertson, L. Lishman, J. Wood, S. Kok, V. Pileggi, and S. Dickson Investigation of optimum operating conditions for recirculating sand filters
15:00	V.K. Balakrishnan, A. Thomas, B. Worfolk, J. Toito, K. Terry, and A. Crowe Developing solid phase microextraction (SPME) techniques for the determination of antibiotics in wastewater	J.A. Oleszkiewicz Trends and research in biosolids management in North America and in the European Union	R. Sherif, W. Parker, K. Kennedy, and P. Seto Microaerobic pre-treatment of extended air sewage sludge for the enhanced destruction of pathogenic bacteria in aerobic digestion
15:20	C. Carrara, C.J. Ptacek, W.D. Robertson, D.W. Blowes, M.C. Moncur, E. Sverko, J. Schachtschneider, S. Cagampan, H. Steer, and S. Backus Pharmaceutical compounds in septic systems and their mobility in groundwater	L. Clayton and L. Gatzke Credit Valley Conservation's watershed report card	I. Toreci, R.L. Droste, and K.J. Kennedy Preliminary work on the effect of high temperature microwave treatment on thickened waste activated sludge characterization
15:40	E.B. Dussault, V.K. Balakrishnan, E. Sverko, K.R. Solomon, and P.K. Sibley Can sediment-borne pharmaceuticals be toxic to benthic invertebrates?	M. Logan Engaging the Muskoka Lakes community in water quality management through an interactive scientific program and Internet-based common map information exchange application	J. Zheng and K. Kennedy Effect of mild microwave pretreatment on digestion of primary sludge
16:00	H. Cabana, C. Alexandre, S.N. Agathos, and J.P. Jones Laccase mediated elimination of the endocrine disrupting substance Bisphenol A in a packed bed bioreactor	A.M. Weselan and I. Smith A provincial framework for risk assessment - provincial guidance materials	
16:30	Poster Session - Main Mall		
17:30	AGILENT TECHNOLOGIES RECEPTION at Emma's Back Porch Pub 2084 Old Lakeshore Rd. (5 minute walk from Travelodge Hotel)		

Tuesday, February 14, 2006

07:30 Main Mall		• Registration	
CSD Boardroom (L231)		• Job Fair to 15:15	
Auditorium Emerging Contaminants Issues Chairs Mehran Alaei and Eric Reiner		South Seminar Environmental Biotechnology Chairs Jim Nicell and Wayne Parker	North Seminar Environmental Modelling Chairs Rajesh Seth and Raja Sengupta
8:00	R.J. Letcher An overview of brominated flame retardants and other organobromines in the environment: what has changed in recent years	M. Vancook Wetlands as a tool for the remediation of two proximal pit mine lakes in Northwestern Ontario	J. Dougherty, H. Breton, and R. Rithaler Water quality strategy for the Credit River Watershed
8:20		J. Higgins, M. Liner, A. Crolla, E. Brunet, and R. Wallin Off- and on-site engineered wetland pilot treatability testing of ammonia and cyanide-contaminated gold mine tailings pond water	P.D. Luciani, J.Y. Li, and D. Banting Distributed urban water stormwater modelling within GIS integrating analytical probabilistic hydrologic models and digital imagery
8:40	K. Fernie, L. Shutt, R. Letcher, G. Mayne, I. Ritchie, D. Bird, and K. Drouillard Changes in growth and thyroid function of American kestrels exposed to environmentally-relevant polybrominated diphenyl ethers	J. Higgins, C. Kingsley, A. Crolla, and A. Bachand Extremely efficient ammonia removals in an aerated VSSF engineered wetland	I. Iskra and R.L. Droste Parameter uncertainty of a watershed model
9:00	P.A. Martin, G.J. Mayne, S.J. Bursian, V.P. Palace, and G. Tomy Altered thyroid status and homeostasis of Vitamin A in mink (<i>Mustela vison</i>) exposed to a commercial PBDE mixture	A. Steevensz, K.E. Taylor, N. Biswas, and J.K. Bewtra Enzymatic treatment of cresols using Laccase SP504 with the aid of a hydrophilic synthetic polymer, polyethylene glycol (PEG)	B. Kilgour and L. Stanfield Defining reference conditions in streams by hindcasting along impairment gradients
9:20	G. MacInnis, M. Alaei, S. Huhtala, M. Hewitt, G. Tomy, K. Law, and C. Marvin Liquid chromatography-tandem mass spectrometry analysis of brominated flame retardants	K. Modaresi, K.E. Taylor, J.K. Bewtra, and N. Biswas Kinetic models of Laccase-mediated removal of Bisphenol-A from water	T. Dickinson and R. Rudra Implications of climate change for stream sediment loads
9:40	B. Gouteux, M. Alaei, S. Mabury, and D. Muir Identification of brominated aromatic compounds released by brominated flame retardant oligomers	U. Khan and J. Nicell Horseradish peroxidase-catalysed oxidation of natural and synthetic gonadal estrogens	B. Gharabaghi, A. Fata, T. Van Seters, and B.G. Krishnappan Evaluation of sediment control pond performance at construction sites in the Greater Toronto Area

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10:00	Health Break - Main Mall		Hydraulics Lab - Scale Model Demonstration: Impact of Wave-generated Current on Sediment Motion at Self-scouring Outfall	
	Auditorium Emerging Contaminants Issues Chairs Mehran Alaei and Eric Reiner	South Seminar Environmental Biotechnology Chairs Jim Nicell and Wayne Parker	North Seminar Environmental Modelling Chairs Rajesh Seth and Raja Sengupta	
10:20	<u>V.I. Furdui</u> , N. Stock, D.M. Whittle, P.W. Crozier, E.J. Reiner, D.C.G. Muir, and S.A. Mabury Perfluoroalkyl contaminants in lake trout from the Great Lakes	<u>J. Patapas</u> , K.E. Taylor, N. Biswas, and J.K. Bewtra Removal of dinitrotoluene from wastewater via enzymatic treatment with peroxidase and flocculation with sodium lauryl sulphate and alum	M. Mohammad, <u>S. Persaud</u> , G. Luk, J.-L. Daviau, M. Stirrup, S. Jacob Physical modelling of a self-scouring outfall on Lake Ontario (model demonstration immediately precedes in Hydraulics Lab)	
10:40	<u>B.F. Scott</u> , C. Spencer, and D.C.G. Muir Variability of perfluorocarboxylates in Lake Erie and its possible causes	<u>M. Verma</u> , S.K. Brar, R.D. Tyagi, R.Y. Surampalli, and J.R. Valéro Potential of fungi <i>Trichoderma</i> spp. grown on wastewater and wastewater sludge for simultaneous biocontrol and degradation of estrogenic compounds	<u>R. Seth</u> and K. McPhedran Implications of chemical properties on their fate during various municipal treatment processes	
11:00	<u>N.L. Stock</u> , D.C.G. Muir, C. Marvin, and S.A. Mabury Perfluorinated acids in Lake Ontario sediments: source or sink?	<u>A. Yeza</u> , D. Fournier, and J. Hawari Bioconversion of agro-industrial wastewater into biodegradable plastic by <i>Cupriavidus necator</i>	<u>D.M. O'Carroll</u> and B.E. Sleep Hot water flooding for enhanced NAPL displacement	
11:20	<u>R. Seth</u> , M. Song, S.G. Chu, and R.J. Letcher Fate of Triclosan and Tetrabromobisphenol A during the municipal sewage treatment process	<u>S.K. Brar</u> , M. Verma, R.D. Tyagi, J.R. Valéro, and R.Y. Surampalli Do wastewater and wastewater sludge possess natural features to sustain <i>Bacillus thuringiensis</i> biopesticide production and formulation?	<u>K.E. Masekoameng</u> , V. Bostan, A. Laursen, and L. McCarthy Modelling toxicity of polybrominated diphenyl ethers in the aquatic environment	
11:40	<u>M.M.G. Chartrand</u> , L.M.M. Jantunen, T.F. Bidleman, G. Lacrampe-Couloume, and B.S. Lollar Stable carbon isotope analysis of α -Hexachlorocyclohexane (α -HCH): potential for source fingerprinting		<u>T.W. Praamsma</u> and K. Novakowski Groundwater-surface interaction in a fractured bedrock environment, Perth, Ontario	
12:00	<u>S. Backus</u> , S. Brown, S.A. Smith, D. Muir, and M. Alaei Occurrence of volatile methyl siloxanes in the effluents of sewage treatment plants in Southwestern Ontario			
12:20	Lunch - Main Mall		WQRJC Editorial Board Luncheon - L601	
	Auditorium Emerging Contaminants Issues Chairs Mehran Alaei and Eric Reiner	South Seminar Drinking Water Treatment Chair Joe Salter	North Seminar Agricultural Impacts Chairs Tanya Mayer and Ed Topp	
13:30	<u>G. Bickerton</u> , C. Ptacek, S. Brown, and S. Backus A survey of perchlorate usage in Canada and its occurrence in Canadian groundwater and surface waters	<u>S. Gray</u> and S. Andrews A bench scale study for the treatment of taste and odour compounds using UV and UV/H ₂ O ₂	L.M. Hewitt, S. Batchelor, <u>L. Edwards</u> , H. Rees, L. Chow, A. Macrae, S. Brasfield, K. Munkittrick, C. Jardine, and K. Teather A multi-scale watershed evaluation of pesticide runoff impacts in Atlantic Canada	

13:50	M.V. Colavecchia , P.V. Hodson, and J.L. Parrott CYP1A Induction, toxicity, and eye pathology in early life stages of fish exposed to oil sands	B.S. Karnik , S.H. Davies, M.J. Baumann , and S.J. Masten Use of iron oxide coated ceramic membranes in ozonation-membrane filtration hybrid process for the control of disinfection by-products	L. Edwards and J.R. Burney Land use for potatoes (<i>Solanum tuberosum</i>) and nitrogen runoff in the Wilmot watershed in Prince Edward Island (P.E.I.), Canada
14:10	M.R. Gunsinger , C.J. Ptacek , and L.J. Smith Natural contamination of arsenic in groundwater: a review of the occurrence and sources in Canada	C. Graham and B. Gorczyca Application of particle analysis for iron removal in groundwater treatment	J.K. Levison , K. Novakowski , and K. Hall Agricultural impacts on groundwater in fractured bedrock - Tay River Valley watershed
14:30	C.W.Y. Tang , X.D. Li, and C.C.M. Ip Historical sources of trace metal contaminants in sediments from Victoria Harbour, Hong Kong	A. McClure Greensand replacement media - alternative solution for removal of iron and manganese - pilot and full scale data	L. Bekeris , B. Conant Jr. , D. Rudolph , and N. Thomson Quantifying groundwater recharge and nitrate mass flux beneath agricultural fields in a complex geologic environment
14:50	R. Vedom Water quality formation process in a stream: the Fletcher's Creek project	A. Lock , G. Spiers , F. Prevost , and T. Maki Multi-dimensional water quality assessment of an urban drinking water source	D.R. Barton and D. McGoldrick Monitoring the effects of urbanization, impoundments, and agriculture in a southwestern Ontario stream: benthic invertebrate results from the Laurel Creek Monitoring Program, 1996-2005
15:10	S.B. Watson , H. Kling , and B. Coedy Colomac remediation plan: Tailings Lake recovery and primary biological responses to enhanced biological remediation		
15:30	Health Break - Main Mall		
	Auditorium		
15:50	Presentation of Philip H. Jones Award		
15:55	Concluding Remarks		

This year's symposium will feature a pilot job fair. If you are seeking a new placement, or are hoping to fill a vacancy please bring a C.V. or a posting.

Many thanks to **Agilent Technologies** for their generous sponsorship of our Monday Evening Social at Emma's Back Porch (Map included on reverse of comment form)

Commercial Exhibitors

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Campbell Scientific
Hoskin Scientific
Mandel Scientific
Hanson Pipe and Products

POSTER PRESENTATIONS

Authors	Title
<u>F. Amiri</u> and S. Andrews	Analysis of chloramines in drinking water
<u>C. Cardinal-Watkins</u> , A. Williams, and J. Nicell	Laccase-catalyzed oxidation of 17- β estradiol
<u>J.P. Chenel</u> and R.D. Tyagi	Protease production in bioreactor by thermophilic bacterial strains isolated from wastewater sludge
<u>M. Elektorowicz</u> and Z. Muslat	Towards improvement of oil sludge quality for its further recycling
E. Georgiades and <u>D. Holdway</u>	Optimization of acetylcholinesterase activity in multiple fish species
<u>J.P. Ghosh</u> , N. Biswas, K.E. Taylor, and J.K. Bewtra	Optimization of the reaction conditions for enzymatic removal of 2,4-dimethylphenol from wastewater
<u>K. Hamelin</u> , G. Bruant, A. El-Shaarawi, S. Hill, T.A. Edge, S. Bekal, J.M. Fairbrother, J. Harel, C. Maynard, L. Masson, and R. Brousseau	High frequency of virulence genes in <i>Escherichia coli</i> from Great Lakes recreational waters
<u>B. Joy</u>	Near line automated analysis of water quality parameters: study completed by Environmental Protection Agency equipment verification program
S.E. Keeling, L.J. Praetorius, C.L. Burton, and <u>D.A. Holdway</u>	Antibiotic resistance and clonal lines identified in <i>Escherichia coli</i> in Lake Scugog in the Durham region, Ontario
<u>K. Modaressi</u> and M. Borghei	PACT pilot scale reactor for color removal of textile wastewater; upgrade the existing treatment plant
<u>M. Mousa</u> , K.E. Taylor, N. Biswas, and J.K. Bewtra	Enzymatic treatment of 2,4 and 2,6 Diaminotoluene (DAT) using soybean peroxidase and the removal of soluble products
<u>J. Nya</u> and O. Thomas	Towards a sustainable water quality monitoring: the Magog River monitoring station
<u>H.T.T. Pham</u> , M. Verma, R.D. Tyagi, S.K. Brar, and R.Y. Surampalli	Sludge pre-treatment processes and biodegradability: a review and research initiatives
<u>M.D.O. Pinheiro</u> , M.E. Power, B.J. Butler, V.R. Dayeh, R. Slawson, L.E.J. Lee, D.H. Lynn, and N.C. Bols	Using <i>Tetrahymena thermophila</i> to study the role of protozoa in inactivating viruses in water
<u>M.E. Power</u> , D. Sotornik, M.D.O. Pinheiro, V.R. Dayeh, B.J. Butler, R. Slawson, L.E.J. Lee, D.H. Lynn, and N.C. Bols	Development of a fluorescent multiwell assay for evaluating the capacity of the ciliated protozoan <i>Tetrahymena</i> for bacterivory in water samples
<u>Q. Rochfort</u> , K. Exall, J. Marsalek, and P. Seto	Effectiveness of street sweeping in stormwater pollution source control
<u>M.J. Sabourin</u> , C.J. Ptacek, S.J. Brown, and D.W. Blowes	A case study on the persistence of perchlorate following a firework display, Columbia Lake, Waterloo, Ontario, Canada
<u>B. Saha</u> , N. Biswas, J.K. Bewtra, and K.E. Taylor	Enzymatic treatment of diphenylamine using Laccase SP504
<u>M. Shin</u> , L. Svoboda, and P. Falletta	Microwave assisted extraction for the determination of polybrominated diphenylethers (PBDEs) in Canadian sewage sludge
<u>G. Soreanu</u> and M. Béland	Removal of hydrogen sulfide from biogas in a biotrickling filter
<u>H. Zhu</u> , A. Proracki, and M. Béland	Anaerobic co-digestion of organic fraction of municipal solid waste and sewage sludges to produce hydrogen

Index

Authors	Title	Session	Time	Location
F. Amiri and S. Andrews	Analysis of chloramines in drinking water	Poster	Monday 13:00 16:30	Main Mall
J. Arellano and J. Shao	Evaluation of the effectiveness of larviciding chemicals for West Nile virus control using the ELISA microbiology technique	Recent Developments in Analytical Techniques	Monday 10:45	South Seminar
S. Backus , S. Brown, S.A. Smith, D. Muir, and M. Alaei	Occurrence of volatile methyl siloxanes in the effluents of sewage treatment plants in Southwestern Ontario	Emerging Contaminants Issues	Tuesday 12:00	Auditorium
V.K. Balakrishnan , A. Thomas, B. Worfolk, J. Toito, K. Terry, and A. Crowe	Developing solid phase microextraction (SPME) techniques for the determination of antibiotics in wastewater	Pharmaceuticals and Personal Care Products	Monday 15:00	Auditorium
D.R. Barton and D. McGoldrick	Monitoring the effects of urbanization, impoundments, and agriculture in a Southwestern Ontario stream: benthic invertebrate results from the Laurel Creek Monitoring Program, 1996-2005	Agricultural Impacts	Tuesday 14:50	North Seminar
L. Bekeris , B. Conant Jr., D. Rudolph, and N. Thomson	Quantifying groundwater recharge and nitrate mass flux beneath agricultural fields in a complex geologic environment	Agricultural Impacts	Tuesday 14:30	North Seminar
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L. Bragg , G. Ouyang, W. Zhao, Z. Qin, C. Marvin, M. Alaei, and J. Pawliszyn	Time-weighted average field sampling with SPME devices	Recent Developments in Analytical Techniques	Monday 10:10	South Seminar
S.K. Brar , M. Verma, R.D. Tyagi, J.R. Valéro, and R.Y. Surampalli	Do wastewater and wastewater sludge possess natural features to sustain <i>Bacillus thuringiensis</i> biopesticide production and formulation?	Environmental Biotechnology	Tuesday 11:20	South Seminar
S.J. Brown , C.J. Ptacek, G. Bickerton, and S. Backus	Analysis of perchlorate, iodide, and nitrate in water using ion chromatography and electrospray triple quadrupole mass spectrometry	Recent Developments in Analytical Techniques	Monday 9:30	South Seminar
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H. Cabana, C. Alexandre, S.N. Agathos, and J.P. Jones	Laccase mediated elimination of the endocrine disrupting substance Bisphenol A in a packed bed bioreactor	Pharmaceuticals and Personal Care Products	Monday 16:00	Auditorium
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L. Clayton and L. Gatzke	Credit Valley Conservation's watershed report card	Linking Science and Policy	Monday 15:20	South Seminar
M.V. Colavecchia , P.V. Hodson, and J.L. Parrott	CYP1A induction, toxicity, and eye pathology in early life stages of fish exposed to oil sands	Emerging Contaminants Issues	Tuesday 13:50	Auditorium
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Y. de Lafontaine and C. Wiley	Ballast water treatment technologies to minimize aquatic species introduction: efficacy and environmental risk	Urban Water Management	Monday 10:45	North Seminar
T. Dickinson and R. Rudra	Implications of climate change for stream sediment loads	Environmental Modelling	Tuesday 9:20	North Seminar
J. Dougherty , H. Breton, and R. Rithaler	Water quality strategy for the Credit River Watershed	Environmental Modelling	Tuesday 8:00	North Seminar
E.B. Dussault , V.K. Balakrishnan, E. Sverko, K.R. Solomon, and P.K. Sibley	Can sediment-borne pharmaceuticals be toxic to benthic invertebrates?	Pharmaceuticals and Personal Care Products	Monday 15:40	Auditorium
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<u>K. Fernie</u> , L. Shutt, R. Letcher, G. Mayne, I. Ritchie, D. Bird, and K. Drouillard	Changes in growth and thyroid function of American kestrels exposes to environmentally-relevant polybrominated diphenyl ethers	Emerging Contaminants Issues	Tuesday 8:40	Auditorium
<u>V.J. Furdui</u> , N. Stock, D.M. Whittle, P.W. Crozier, E.J. Reiner, D.C.G. Muir, and S.A. Mabury	Perfluoroalkyl contaminants in lake trout from the Great Lakes	Emerging Contaminants Issues	Tuesday 10:20	Auditorium
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<u>B. Gouteux</u> , M. Alaei, S. Mabury, and D. Muir	Identification of brominated aromatic compounds released by brominated flame retardant oligomers	Emerging Contaminants Issues	Tuesday 9:40	Auditorium
<u>C. Graham</u> and B. Gorczyca	Application of particle analysis for Iron removal in groundwater treatment	Drinking Water Treatment	Tuesday 14:10	South Seminar
<u>S. Gray</u> and S. Andrews	A bench scale study for the treatment of taste and odour compounds using UV and UV/H ₂ O ₂	Drinking Water Treatment	Tuesday 13:30	South Seminar
<u>M.R. Gunsinger</u> , C.J. Ptacek, and L.J. Smith	Natural contamination of Arsenic in groundwater: a review of the occurrence and sources in Canada	Emerging Contaminants Issues	Tuesday 14:10	Auditorium
<u>K. Hamelin</u> , G. Bruant, A. El-Shaarawi, S. Hill, T.A. Edge, S. Bekal, J.M. Fairbrother, J. Harel, C. Maynard, L. Masson, and R. Brousseau	High frequency of virulence genes in <i>Escherichia coli</i> from Great Lakes recreational waters	Poster	Monday 13:00 16:30	Main Mall
<u>E. Hanna</u> , T. Koveshnikova, E. Kurucz, E. Miller, and P. Victor	BENSIM: a stakeholder-driven model of the benefits of environmental clean-up projects	Linking Science and Policy	Monday 14:40	South Seminar
L.M. Hewitt, S. Batchelor, <u>L. Edwards</u> , H. Rees, L. Chow, A. Macrae, S. Brasfield, K. Munkittrick, C. Jardine, and K. Teather	A multi-scale watershed evaluation of pesticide runoff impacts in Atlantic Canada	Agricultural Impacts	Tuesday 13:30	North Seminar
<u>J. Higgins</u> , M. Liner, A. Crolla, E. Brunet, and R. Wallin	Off- and on-site engineered wetland pilot treatability testing of ammonia and cyanide-contaminated gold mine tailings pond water	Environmental Biotechnology	Tuesday 8:20	South Seminar
<u>J. Higgins</u> , C. Kingsley, A. Crolla, and A. Bachand	Extremely efficient ammonia removals in an aerated VSSF engineered wetland	Environmental Biotechnology	Tuesday 8:40	South Seminar
<u>S. Hill</u> , P. Seto, J. Marsalek, and T. Edge	Determination of the sources of fecal pollution at Toronto beaches using rep-PCR DNA fingerprinting	Biological Assessment of Water Quality	Monday 11:45	Auditorium
<u>E.T. Howell</u>	Fine-scale analysis of water quality on the SE shores of Lake Huron: relevance and approach	Biological Assessment of Water Quality	Monday 10:10	Auditorium
<u>S. Hrudev</u>	From Walkerton to Keshechewan – Is safe drinking water really so difficult?	NWRI Distinguished Speaker	Monday 8:45	Auditorium
S. Huhtala, J. Nuutinen, B. Baars, and <u>M. Alaei</u>	Application of low-pressure gas chromatography MS/MS to the determination of PBDEs	Recent Developments in Analytical Techniques	Monday 9:50	South Seminar
<u>J.L. Isaac-Renton</u> , H. Schreier, V. Gannon, T. Edge, C. Ong, and N. Neumann	A comparison of the cumulative impact of wildlife, land use, and environment on three raw water sources	Biological Assessment of Water Quality	Monday 14:05	Auditorium
<u>I. Iskra</u> and R.L. Droste	Parameter uncertainty of a watershed model	Environmental Modelling	Tuesday 8:40	North Seminar
<u>B. Joy</u>	Near line automated analysis of water quality parameters: study completed by Environmental Protection Agency equipment verification program	Poster	Monday 13:00 16:30	Main Mall
<u>B.S. Karnik</u> , S.H. Davies, M.J. Baumann, and S.J. Masten	Use of iron oxide coated ceramic membranes in ozonation-membrane filtration hybrid process for the control of disinfection by-products	Drinking Water Treatment	Tuesday 13:50	South Seminar
S.E. Keeling, L.J. Praetorius, C.L. Burton, <u>D.A. Holdway</u>	Antibiotic resistance and clonal lines identified in <i>Escherichia coli</i> in Lake Scugog in the Durham region, Ontario	Poster	Monday 13:00 16:30	Main Mall
<u>I. Khan</u> , V. Gannon, R. Kent, D. Lapen, J. Miller, N. Neumann, R. Phillips, W. Robertson, E. Topp, E. van Bochove, and T. Edge	The National Agri-Environmental Standards Initiative: occurrence of waterborne pathogens in agriculture watersheds across Canada	Biological Assessment of Water Quality	Monday 13:45	Auditorium
<u>U. Khan</u> and J. Nicell	Horseradish peroxidase-catalysed oxidation of natural and synthetic gonadal estrogens	Environmental Biotechnology	Tuesday 9:40	South Seminar
<u>B. Kilgour</u> and L. Stanfield	Defining reference conditions in streams by hindcasting along impairment gradients	Environmental Modelling	Tuesday 9:00	North Seminar
<u>J. Kochany</u>	Dissolved oxygen measurements as a tool for optimization of SBR operation treating high strength wastewater	Urban Water Management	Monday 14:05	North Seminar

<u>T. Kon</u> , H. Lee, and J. Trevors	Investigating the sources of microbial pollution of a posted beach	Biological Assessment of Water Quality	Monday 10:45	Auditorium
<u>S. Larass</u> , J. Mouthon-Bello, H. Zhou, and H. Husain	Combining membrane bioreactors with biological nutrient removal processes for removing the nutrients from municipal wastewater	Urban Water Management	Monday 11:05	North Seminar
<u>R.J. Letcher</u>	An overview of brominated flame retardants and other organobromines in the environment: what has changed in recent years	Emerging Contaminants Issues	Tuesday 8:00	Auditorium
<u>J.K. Levison</u> , K. Novakowski, and K. Hall	Agricultural impacts on groundwater in fractured bedrock - Tay River Valley watershed	Agricultural Impacts	Tuesday 14:10	North Seminar
<u>A. Lock</u> , G. Spiers, F. Prevost, and T. Maki	Multi-dimensional water quality assessment of an urban drinking water source	Drinking Water Treatment	Tuesday 14:50	South Seminar
<u>M. Logan</u>	Engaging the Muskoka Lakes community in water quality management through an interactive scientific program and Internet-based common map information exchange application	Linking Science and Policy	Monday 15:40	South Seminar
<u>P.D. Luciani</u> , J.Y. Li, and D. Banting	Distributed urban water stormwater modelling within GIS integrating analytical probabilistic hydrologic models and digital imagery	Environmental Modelling	Tuesday 8:20	North Seminar
<u>G. MacInnis</u> , M. Alaei, S. Huhtala, M. Hewitt, G. Tomy, K. Law, and C. Marvin	Liquid chromatography-tandem mass spectrometry analysis of brominated flame retardants	Emerging Contaminants Issues	Tuesday 9:20	Auditorium
<u>P.A. Martin</u> , G.J. Mayne, S.J. Bursian, V.P. Palace, and G. Tomy	Altered thyroid status and homeostasis of Vitamin A in mink (<i>Mustela vison</i>) exposed to a commercial PBDE mixture	Emerging Contaminants Issues	Tuesday 9:00	Auditorium
<u>K.E. Masekoameng</u> , V. Bostan, A. Laursen, and L. McCarthy	Modelling toxicity of polybrominated diphenyl ethers in the aquatic environment	Environmental Modelling	Tuesday 11:20	North Seminar
<u>A. McClure</u>	Greensand replacement media - alternative solution for removal of iron and manganese - pilot and full scale data	Drinking Water Treatment	Tuesday 14:30	South Seminar
<u>J.E. Milne</u> and M.N. Charlton	<i>Escherichia coli</i> (<i>E. coli</i>) in pore water of beach sand and nearshore water at four beaches on Lake Ontario and Hamilton Harbour	Biological Assessment of Water Quality	Monday 11:25	Auditorium
<u>K. Modaresi</u> , K.E. Taylor, J.K. Bewtra, and N. Biswas	Kinetic models of Laccase-mediated removal of Bisphenol-A from water	Environmental Biotechnology	Tuesday 9:20	South Seminar
<u>K. Modaresi</u> and M. Borghei	PACT pilot scale reactor for color removal of textile wastewater; upgrade the existing treatment plant	Poster	Monday 13:00 16:30	Main Mall
<u>M. Mohammad</u> , <u>S. Persaud</u> , G. Luk, J.-L. Daviau, M. Stirrup, S. Jacob	Physical modelling of a self-scouring outfall on Lake Ontario	Environmental Modelling	Tuesday 10:20	North Seminar
<u>B. Mondal</u> and M. Warith	Shredded tire chips as packing media in trickling filter system for landfill leachate treatment	Urban Water Management	Monday 13:25	North Seminar
<u>M. Mousa</u> , K.E. Taylor, N. Biswas, and J.K. Bewtra	Enzymatic treatment of 2,4 and 2,6 Diaminotoluene (DAT) using soybean peroxidase and the removal of soluble products	Poster	Monday 13:00 16:30	Main Mall
<u>J. Nya</u> and O. Thomas	Towards a sustainable water quality monitoring: the Magog River monitoring station	Poster	Monday 13:00 16:30	Main Mall
J.-P. Nywening, <u>H. Zhou</u> , and H. Husain	Influence of operating conditions on fouling behaviours in membrane bioreactor processes	Urban Water Management	Monday 11:45	North Seminar
<u>D.M. O'Carroll</u> and B.E. Sleep	Hot water flooding for enhanced NAPL displacement	Environmental Modelling	Tuesday 11:00	North Seminar
<u>J.A. Oleszkiewicz</u>	Trends and research in biosolids management in North America and in the European Union	Linking Science and Policy	Monday 15:00	South Seminar
<u>J. Patapas</u> , K.E. Taylor, N. Biswas, and J.K. Bewtra	Removal of dinitrotoluene from wastewater via enzymatic treatment with peroxidase and flocculation with sodium lauryl sulphate and alum	Environmental Biotechnology	Tuesday 10:20	South Seminar
<u>H.T.T. Pham</u> , M. Verma, R.D. Tyagi, S.K. Brar, and R.Y. Surampalli	Sludge pre-treatment processes and biodegradability: a review and research initiatives	Poster	Monday 13:00 16:30	Main Mall
<u>M.D.O. Pinheiro</u> , M.E. Power, B.J. Butler, V.R. Dayeh, R. Slawson, L.E.J. Lee, D.H. Lynn, and N.C. Bols	Using <i>Tetrahymena thermophila</i> to study the role of protozoa in inactivating viruses in water	Poster	Monday 13:00 16:30	Main Mall
<u>M.E. Power</u> , D. Sotornik, M.D.O. Pinheiro, V.R. Dayeh, B.J. Butler, R. Slawson, L.E.J. Lee, D.H. Lynn, and N.C. Bols	Development of a fluorescent multiwell assay for evaluating the capacity of the ciliated protozoan <i>Tetrahymena</i> for bacterivory in water samples	Poster	Monday 13:00 16:30	Main Mall
<u>T.W. Praamsma</u> and K. Novakowski	Groundwater-surface interaction in a fractured bedrock environment, Perth, Ontario	Environmental Modelling	Tuesday 11:40	North Seminar
<u>E.J. Reiner</u> , A.R. Boden, A. Mascalu, and G. Ladwig	Analysis of persistent organic pollutants in environmental samples using two dimensional gas chromatography (2DGC)	Recent Developments in Analytical Techniques	Monday 11:05	South Seminar
<u>Q. Rochfort</u> , K. Exall, J. Marsalek, and P. Seto	Effectiveness of street sweeping in stormwater pollution source control	Poster	Monday 13:00 16:30	Main Mall

M.J. Sabourin , C.J. Ptacek, S.J. Brown, and D.W. Blowes	A case study on the persistence of perchlorate following a firework display, Columbia Lake, Waterloo, Ontario, Canada	Poster	Monday 13:00 16:30	Main Mall
B. Saha , N. Biswas, J.K. Bewtra, and K.E. Taylor	Enzymatic treatment of diphenylamine using Laccase SP504	Poster	Monday 13:00 16:30	Main Mall
B.F. Scott , C. Spencer, and D.C.G. Muir	Variability of perfluorocarboxylates in Lake Erie and its possible causes	Emerging Contaminants Issues	Tuesday 10:40	Auditorium
R. Seth , M. Song, S.G. Chu, and R.J. Letcher	Fate of Triclosan and Tetrabromobisphenol A during the municipal sewage treatment process	Emerging Contaminants Issues	Tuesday 11:20	Auditorium
R. Seth and K. McPhedran	Implications of chemical properties on their fate during various municipal treatment processes	Environmental Modelling	Tuesday 10:40	North Seminar
R. Sherif , W. Parker, K. Kennedy, and P. Seto	Microaerobic pre-treatment of extended air sewage sludge for the enhanced destruction of pathogenic bacteria in aerobic digestion	Urban Water Management	Monday 15:00	North Seminar
M. Shin , L. Svoboda, and P. Falletta	Microwave assisted extraction for the determination of polybrominated diphenylethers (PBDEs) in Canadian sewage sludge	Poster	Monday 13:00 16:30	Main Mall
G. Soreanu and M. Béland	Removal of hydrogen sulfide from biogas in a biotrickling filter	Poster	Monday 13:00 16:30	Main Mall
A. Steevensz , K.E. Taylor, N. Biswas, and J.K. Bewtra	Enzymatic treatment of cresols using Laccase SP504 with the aid of a hydrophilic synthetic polymer, Polyethylene glycol (PEG)	Environmental Biotechnology	Tuesday 9:00	South Seminar
N.L. Stock , D.C.G. Muir, C. Marvin, and S.A. Mabury	Perfluorinated acids in Lake Ontario sediments: source or sink?	Emerging Contaminants Issues	Tuesday 11:00	Auditorium
Y.Y.J. Tan , M.A. Hashim, K.B. Ramachandran	Biomass acclimatisation to sequentially varying substrates in an upflow anaerobic sludge blanket (UASB) reactor	Urban Water Management	Monday 13:45	North Seminar
T.C. Tan , R.R. Farnood, B. Cairns, and T. Mao	Effect of particle size on UV disinfection performance	Urban Water Management	Monday 9:30	North Seminar
C.W.Y. Tang , X.D. Li, and C.C.M. Ip	Historical sources of trace metal contaminants in sediments from Victoria Harbour, Hong Kong	Emerging Contaminants Issues	Tuesday 14:30	Auditorium
I. Toreci , R.L. Droste, and K.J. Kennedy	Preliminary work on the effect of high temperature microwave treatment on thickened waste activated sludge characterization	Urban Water Management	Monday 15:20	North Seminar
M. Vancook	Wetlands as a tool for the remediation of two proximal pit mine lakes in Northwestern Ontario	Environmental Biotechnology	Tuesday 8:00	South Seminar
R. Vedom	Water quality formation process in a stream: the Fletcher's Creek project	Emerging Contaminants Issues	Tuesday 14:50	Auditorium
M. Verma , S.K. Brar, R.D. Tyagi, R.Y. Surampalli, and J.R. Valéro	Potential of fungi <i>Trichoderma</i> spp. grown on wastewater and wastewater sludge for simultaneous biocontrol and degradation of estrogenic compounds	Environmental Biotechnology	Tuesday 10:40	South Seminar
S.B. Watson , H. Kling, and B. Coedy	Colomac remediation plan: Tailings Lake recovery and primary biological responses to enhanced biological remediation	Emerging Contaminants Issues	Tuesday 15:10	Auditorium
K. Wei and H. Zhou	Using ozone as a disinfectant for food processing water treatment	Urban Water Management	Monday 10:10	North Seminar
Y. Weng , L.A. Robertson, L. Lishman, J. Wood, S. Kok, V. Pileggi, and S. Dickson	Investigation of optimum operating conditions for recirculating sand filters	Urban Water Management	Monday 14:40	North Seminar
A.M. Weselan	A provincial framework for risk assessment - provincial guidance materials	Linking Science and Policy	Monday 16:00	South Seminar
J.J. Yang , S. Lemanik, E. Topp, P. Yang, T. Ho, and S. Kleywegt	The determination of polycyclic and nitro musks in aqueous and solid matrices by gas chromatography-time of flight-mass spectrometry	Pharmaceuticals and Personal Care Products	Monday 14:40	Auditorium
A. Yeza , D. Fournier, and J. Hawari	Bioconversion of agro-industrial wastewater into biodegradable plastic by <i>Cupriavidus necator</i>	Environmental Biotechnology	Tuesday 11:00	South Seminar
H.N. Yong , T. Mao, W. Cairns, and R.R. Farnood	Using ultrasound as a pretreatment in ultraviolet disinfection of municipal wastewater	Urban Water Management	Monday 9:50	North Seminar
J. Zheng and K. Kennedy	Effect of mild microwave pretreatment on digestion of primary sludge	Urban Water Management	Monday 15:40	North Seminar
H. Zhu , A. Proracki, and M. Béland	Anaerobic co-digestion of organic fraction of municipal solid waste and sewage sludges to produce hydrogen	Poster	Monday 13:00 16:30	Main Mall

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