

# 38<sup>th</sup> Central Canadian Symposium on Water Quality Research Program

February 10<sup>th</sup> and 11<sup>th</sup>, 2003

Canada Centre for Inland Waters, Burlington, Ontario

Monday, February 10<sup>th</sup>, 2003

| <b>Main Mall</b>                      |   |   |
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| <b>07:45</b>                          | <ul style="list-style-type: none"> <li>• Registration</li> <li>• Poster Installation</li> </ul>   |   |
| <b>Plenary Session: Auditorium</b>    |   |   |
| <b>08:30</b>                          | <b>Welcome to the National Water Research Institute</b><br><b>DR. JOHN CAREY, Director General, National Water Research Institute</b>   |   |
| <b>08:35</b>                          | <b>Opening Remarks: MIKE N. LYWOOD, President, Canadian Association on Water Quality</b>  |   |
| <b>08:45</b>                          | <b>Plenary: DR. JOHN LAWRENCE, Director, Aquatic Ecosystem Management Research Branch, National Water Research Institute</b><br><b>“The Scope of the Challenge: Threats to Water Quality”</b>                                 |   |
| <b>Room</b>                           | <b>Session 1 - Auditorium</b>   | <b>Session 2 - North/South Seminar Room</b>   |
| <b>Theme</b>                          | <b>SURFACE WATER:<br/>ENVIRONMENTAL EFFECTS</b><br>Chair: JOANNE L. PARROTT<br>Research Scientist<br>National Water Research Institute  | <b>GROUNDWATER:<br/>QUALITY, QUANTITY AND REMEDIATION</b><br>Chair: NATHALIE ROSS<br>Research Scientist<br>National Water Research Institute  |
| <b>09:30</b>                          | Overview of Fish and Wildlife Health Effects and Exposure Studies in Canadian AOCs<br><u>S.BROWN</u> , J. STRUGER AND G. FOX  | Regional Scale Assessment of Groundwater Conditions Within the Great Lakes Basin<br>A.R. PIGGOTT  |
| <b>09:55</b>                          | Assessment of the Estrogenic Potency of Effluents from Petrochemical Facilities and a Petroleum Refinery in Ontario<br><u>J. SHERRY</u> , T. TREPANIER, C. TINSON, T. MORAN, T. KIERSTEAD AND S. MUNRO                        | City of Guelph Response to Ontario Regulation 459/00 – Drinking Water Protection Regulation<br>P. BUSATTO, D. STENDAHL, <u>D. MUTTI</u> , E. EDWARDS AND C. KORN  |
| <b>10:20</b>                          | National Assessment of Pulp and Paper Mill Environmental Effects Monitoring: Presence of Large-scale Response Patterns<br>R.B. LOWELL, J.M. CULP, L.C. GRAPENTINE, <u>M.E. MCMASTER</u> , K.R. MUNKITTRICK AND S.C. RIBEY     | Establishing GUDI Status and Quantifying the Level of Natural In situ Filtration: Microscopic Particulate Analysis (MPA) Used in Conjunction with Hydrogeology Principles by the Greater Cincinnati Water Works<br><u>J.L. CLANCY</u> AND W.D. GOLLNITZ |
| <b>10:45 Health Break – Main Mall</b> |   |   |
| <b>11:00</b>                          | Physiological and Biochemical Responses of Small Fish Exposed to Athabasca Oil Sands Sediment<br><u>G.R. TETREULT</u> , M.E. MCMASTER, D.G. DIXON AND J.L. PARROTT  | Contamination of Groundwater by DDT at Point Pelee National Park, and Potential Risks to Ecosystem and Human Health<br><u>R. MILLS</u> ,* A. CROWE AND J.E. SMITH   |
| <b>11:25</b>                          | Changes in Growth, Secondary Sex Characteristics and Reproduction of Fathead Minnows Exposed for a Lifecycle to Bleached Sulphite Mill Effluent<br><u>J.L. PARROTT</u> , C.S. WOOD, P. BOUTOT, B. BLUNT, M. BAKER AND S. DUNN | Removal of Arsenic from Contaminated Water Using Coagulation Enhanced Microfiltration<br><u>K. VOLCHEK</u> , D. VELICOGNA, A. DUMOUCHEL, W.P. WONG AND C.E. BROWN   |

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| <b>11:50</b>   | TerraQSAR™ - FHM, a Probabilistic Neural Network-Based PC Program to Estimate the Acute Toxicity of Chemicals to Fish<br><u>K.L.E. KAISER</u>   | Ralgreen Restoration Project. A Brownfield Clean up in a Residential Neighbourhood<br><u>R. FEDY</u> , <u>P. GRAY</u> , R. BARNES AND J. WITMER          |
| <b>12:15 Lunch – Main Mall</b>                           |   |  |
| <b>Room</b>  | <b>Session 3 - Auditorium</b>   | <b>Session 4 - North/South Seminar Room</b>  |
| <b>Theme</b>   | <b>SURFACE WATER: MODELLING AND MICROBES</b><br>Chair: CHRIS MARVIN<br>Research Scientist<br>National Water Research Institute  | <b>SURFACE WATER: NUISANCE ALGAE</b><br>Chair: BIN ZHU<br>Research Scientist<br>National Water Research Institute  |
| <b>13:15</b>   | Techniques and Protocol for Watershed-Level Calibration of an AnnAGNPS Simulation<br><u>G. PARKER</u> ,* <u>R.L. DROSTE</u> AND <u>K.J. KENNEDY</u>   | <i>Cladophora</i> , an Alga Fouling Great Lakes Shorelines<br>T. HOWELL  |
| <b>13:40</b>   | Pollution Studies on Surface Water of the South West Coastal Plain of the Caspian Sea Area: A Case Study of the Syahrood Watershed in Central Gilan, North of Iran<br>A.H. CHARKHABI        | <i>Cladophora</i> , an Alga Fouling Great Lakes Shorelines<br>(continued)  |
| <b>14:05</b>   | Lake Sediment Structure and Evolution (LSSE) Research: Towards Predictive Reaction Transport Models<br><u>D.G. RANCOURT</u> , I. L'HEUREUX, S. KATSEV, B. GEORGE, C. McDONALD AND K. TELMER | Are Dreissenids Responsible for the Recent Increase of Potentially Toxic Cyanobacterial Species in Lake Erie?<br><u>A. GHADOUANI</u> AND R.E.H. SMITH    |
| <b>14:30 Health Break - Main Mall</b>                    |   |  |
| <b>14:45</b>   | Estimation of Atrazine Loss through the Surface Runoff in the Lake Erie Basin<br><u>B. CHEN</u> ,* Y.F. LI, G.H. HUANG, B.Y. ZHANG AND S.M. WU  | An Update on Analysis of Algal Toxins from Algae, Fish and Duck Species in and around Lake Winnipeg<br>C.R. HERBERT, <u>H.J. KLING</u> AND M.P. STAINTON |
| <b>15:10</b>   | Toxicity and Estrogenic Activity Reduction of Aqueous Solutions of Alkylphenols Using Peroxidase Enzyme<br>M. WAGNER AND <u>J.A. NICELL</u>   | Natural Transformation of <i>Pseudomonas</i> spp. Isolated from Water Samples<br>B. ZHU  |
| <b>15:35</b>   | The Microbial Degradation of Common Plasticizers<br><u>O.HORN</u> ,* S. NALLI, D.G. COOPER AND J.A. NICELL  | Method Development for Microcystins in Environmental Samples<br>S.W.D. JENKINS, P.W. CROZIER AND <u>V.Y. TAGUCHI</u>                                     |
| <b>16:00</b>   | Photolysis of Naphthenic Acids in Natural Waters<br><u>D.W. McMARTIN</u> ,* J.V. HEADLEY, D.A. FRIESEN, K.M. PERU AND J.A. GILLIES  |  |
| <b>16:25</b>   | Use of Dispersants for Oil Spills<br>C.N. MULLIGAN  |  |
| <b>16:30 Poster Social/Pre-meeting Break – Main Mall</b> |   |  |
| <b>17:00 CAWQ Annual General Meeting – Auditorium</b>    |   |  |

\* Competing for the Philip H. Jones Award.

Tuesday, February 11<sup>th</sup>, 2003

| <b>Main Mall</b> |  |   |
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| <b>07:30</b>     | <b>• Registration</b>  |   |
| <b>Room</b>      | <b>Session 1 - Auditorium</b>  | <b>Session 2 - North/South Seminar Room</b>   |
| <b>Theme</b>     | <b>WASTEWATER TREATMENT</b><br>Chair: MANO MANOHARAN<br>Senior Specialist, Wastewater<br>Standards Development Branch<br>Ontario Ministry of the Environment                       | <b>WET-WEATHER FLOW POLLUTION CONTROL</b><br>Chair: JIRI MARSALEK<br>Project Chief<br>National Water Research Institute   |
| <b>08:00</b>     | Extracellular ATP: A New Early Warning Tool to Detect Stress in Activated Sludge Microorganisms<br><u>J. CAIRNS</u> , P.A. WHALEN AND P.J. WHALEN                                  | Stormwater Control in a Flow Balancing and Wetland Treatment Facility<br><u>D.W. AVERILL</u> , T. VAN SETTERS, S. ORMONDE AND L. ARISHENKOFF                            |
| <b>08:25</b>     | Study on Cell Agglomeration in Mixed Acidogenic and Mixed Methanogenic Cultures at Different Loading and Mixing Conditions<br><u>M. VERMA</u> , T.R. SREEKRISHNAN AND R.D. TYAGI   | Pilot-Scale Investigations of High-Rate Stormwater Treatment<br><u>Q. ROCHFORT</u> , P. CHESSIE, M. YANG, S. ORMONDE, J. WOOD, J. MARSALEK AND P. SETO                  |
| <b>08:50</b>     | Poly(3-Polyhydroxybutyrate) (PHB) Production Using Waste Activated Sludge as a Source of Microorganisms and Wastewater as a Source of Carbon<br><u>S. YAN*</u> AND R.D. TYAGI      | Spill Management Planning in the Toronto AOC<br>J. LI   |
| <b>09:15</b>     | Performance of Overland Flow System for Advanced Treatment of Plant Effluents<br><u>A.T. HARANDI*</u> , R.L. DROSTE AND H. GHODOSI-SHAHREZAI                                       | Refinement of Hydraulic Operation of a Complex CSO Storage Facility by Numerical and Physical Modelling<br><u>C. HE</u> , J. MARSALEK, Q. ROCHFORT AND B.G. KRISHNAPPAN |
| <b>09:40</b>     | <b>Health Break – Main Mall</b>  |   |
| <b>10:00</b>     | New Treatment Scheme for Municipal Landfill Leachates<br><u>K. VOLCHEK</u> , B. WONG, D. VELICOGNA, A. ABENAUF, A. DUMOUCHEL, A. SOMERS, C.E. BROWN AND S.R. CATER                 | Coagulant Survey for Chemically Enhanced Settling of CSOs<br><u>K. EXALL</u> AND J. MARSALEK  |
| <b>10:25</b>     | Use of the Biosor™ Process to Treat Effluents from the Agri-Food Industry. Case Study: Wastewater from a Poultry Slaughtering Plant<br><u>R. DUBÉ</u> , G. BUELNA AND G. BELLEMARE | Development of a Numerical Simulation Model for High-Rate Retention Treatment Basins used in CSO Applications<br><u>O. SCHRAA</u> , B. GALL AND D.W. AVERILL            |
|                  |  | <b>Session 3 - North/South Seminar Room</b>   |
| <b>Theme</b>     |  | <b>DRINKING WATER QUALITY AND TREATMENT</b><br>Chair: SUSAN B. WATSON<br>Research Scientist<br>National Water Research Institute  |
| <b>10:50</b>     | Anaerobic Treatment of a Beer Wastewater<br><u>C.N. MULLIGAN</u> AND P. LI   | Inshore Areas: A Primary Source of Taste and Odour in the Upper Saint Lawrence River<br><u>J.J. RIDAL</u> , M. MAHABIR AND S.B. WATSON                                  |

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| <b>11:15</b>   | In situ Remediation of Hexavalent Chromium with Pyrite Fines in Simulated Field Conditions<br><u>S. CATHUM</u> , C.E. BROWN, A. SOMERS AND W.P. WONG  | Cyanobacteria and Drinking Water Odour: Within- and Among-Species Differences Re-Examined, Using Systematic Taxonomic, Experimental and Analytical Protocols<br><u>S.B. WATSON</u> , H. KLING AND G. IZAGUIRRE |
| <b>12:00 Lunch - Main Mall</b>   |   |  |
| <b>Room</b>  | <b>Session 3 - Auditorium</b>   | <b>Session 4 - Guest Lounge</b>  |
| <b>Theme</b>   | <b>DRINKING WATER QUALITY AND TREATMENT</b><br>Chair: SUSAN B. WATSON<br>Research Scientist<br>National Water Research Institute  | <b>WATERSHED AND WATER QUALITY ASSESSMENT</b><br>Chair: ALICE DOVE<br>Watershed Scientist<br>Ecosystem Health Division<br>Ontario Region, Environment Canada   |
| <b>13:00</b>   | Removal of Earthy/Musty Odour Compounds from Drinking Water by Biological Filtration<br><u>S. ELHADI</u> ,* P.M. HUCK AND R.M. SLAWSON  | Towards a National Water Quality Monitoring Strategy for Canada<br>J. MURRAY, A. BRADY, D. ANDERSEN, S. DE ROSEMOND AND <u>R. KENT</u>   |
| <b>13:25</b>   | N-Nitrosodimethylamine Formation from Amine-Based Polyelectrolytes used in Drinking Water Treatment<br><u>K.D. KOHUT</u> * AND S.A. ANDREWS   | Facilitating Climate Change Impacts and Adaptation Research for Canadian Water Resources<br><u>B.B. MEHDI</u> AND C.A. MADRAMOOTOO   |
| <b>13:50</b>   | UV Inactivation of Floc-Associated MS-2 Coliphage<br><u>M. TEMPLETON</u> ,* R. HOFMANN, R. ANDREWS AND E. WHITBY  | Application of the CCME CWQI for the Communication of Drinking Water Quality Data in Newfoundland and Labrador<br><u>A.A. KHAN</u> , R. PATERSON AND H. KHAN   |
| <b>14:15 Health Break - Main Mall</b>  |   |  |
|  | <b>Session 5 - Auditorium</b>   |  |
| <b>Theme</b>   | <b>Waterborne Pathogens</b><br>Chair: SUSAN B. WATSON<br>Research Scientist<br>National Water Research Institute  |  |
| <b>14:45</b>   | Microbial Source Tracking: Antibiotic Resistance Profiling and DNA Fingerprinting of <i>E. coli</i> Isolates for Determining Sources of Fecal Pollution<br><u>T. EDGE</u> AND S. HILL                                   | Water Quality Strategy for the Credit River Watershed<br><u>A. HUMPHRIES</u> , H. BRETON AND I. HEATHCOTE  |
| <b>15:10</b>   | Microbial Source Tracking Using <i>Bacteroides -Prevotella</i> 16S rRNA Gene Targets<br>T. MACMILLAN, T.A. GRAHAM AND <u>V.P.J. GANNON</u>  | Method Development for the Analysis of Waterborne Carbamates, Phenyl Ureas and Organophosphates Pesticides<br>C.Y. HAO, E. CHEN, M. AIELLO AND <u>P. YANG</u>  |
| <b>15:35</b>   | Development of a Dual Colour Flow Cytometric Method for the Simultaneous Detection of <i>Giardia</i> Cysts and <i>Cryptosporidium</i> Oocysts<br>M. PARENTEAU, L. PARRINGTON, D. LECLAIR, J. BUSSEY AND <u>B. DIXON</u> | Selection of Inflow Parameters in the Design of Best Management Practices for the Removal of Suspended Sediments and Oil from Urban Runoff<br><u>P. WISNER</u> AND L. GERVAIS                                  |
| <b>16:00</b>   | Environmental Effects on Drinking Water, Waterborne Pathogens and Human Serological Response, the British Columbia Experience<br><u>J. ISAAC-RENTON</u> , J. PRIEST, A. LI, S. SHAY, C. ONG, M. KHAN AND P. LAMMIE      |  |
| <b>16:15 Auditorium: Philip H. Jones Award and concluding remarks by M.N. Lywood</b> |   |  |

\* Competing for the Philip H. Jones Award.

**POSTER DISPLAYS  
(MAIN MALL)**

**Poster displays are available in the Main Mall on both Monday, February 10<sup>th</sup> and Tuesday, February 11<sup>th</sup>. The authors will be in attendance at their posters during the Poster Social on Monday, February 10<sup>th</sup> at 16:30.**

**Session Theme - GROUNDWATER: QUALITY, QUANTITY AND REMEDIATION**

Sustainable Water Well Initiative: Evaluation of Electrokinetics to Control Water Well Biofouling  
R. GLOBA AND H. ROHDE

Assessing the Impact of the Bioremediation of a Tetrachloroethylene-Contaminated Environment on Amphibian Larvae

T. MCDANIEL, P. MARTIN, N. ROSS, H. STEER, A.-M. IRWIN AND S. LESAGE

Evaluation of a Science-Based Alternative Management Practice for the Treatment of Farmyard Runoff and Milk House Washwater

T.L. MCMUNN, D.L. RUDOLPH, W.D. ROBERTSON AND C.J. PTACEK

Density Stratification of a Northern Manitoba Lake Induced by Acid Mine Drainage

M.C. MONCUR, C.J. PTACEK, D.W. BLOWES AND M. HAYASHI

**Session Theme - SURFACE WATER: ENVIRONMENTAL EFFECTS**

The Impact of Low-Moderate Anthropogenic Disturbance on Alpine Algal Communities

K. CHEEK AND S.B. WATSON

Advances in Genomics and the Environmental Fitness of Genetically Engineered Bacteria

T. EDGE

In-use Pesticide Concentrations in Canadian Tributaries of Lakes Ontario and Erie

J. STRUGER, P. MARTOS, B. RIPLEY, D. BOYD AND M. THORBURN

**Session Theme - WATERSHED AND WATER QUALITY ASSESSMENT**

Water Quality Hydrodynamic Modelling of Rideau River

S. ASIE, F. PICK AND R. FRENETTE

A Study for Integrated Water Resources Pollution Control in Central Area of Isfahan Province in Iran

A.T. HARANDI, M. KARAMOUZ AND R.L. DROSTE

The Watershed Report Card: A Functional Approach to Watershed Assessment

R.J. MILNE