

2nd Interdisciplinary Freshwater Algal Blooms Workshop

April 16th-18th, 2018 - Koffler House (University of Toronto), Toronto

Monday April 16th

8:30 Registration

9:00 **IFHAB 2018 Opening Remarks**

9:20 **Plenary talk: Muriel Gugger** (Institut Pasteur - Paris, France)

Beyond microcystins, aeruginoguanidines and microguanidines in Microcystis blooms.

10:00 **Gregory Ross** (Northern Ontario School of Medicine - Sudbury, Canada)

Research Program on Aerial Surveillance of HABs underway at the Northern Ontario School of Medicine.

10:20 **Arthur Zastepa** (Environment Canada and Climate Change – Burlington, Canada)

Distribution and flux of microcystin congeners in lake sediments.

10:40 -Coffee Break-

11:10 **Husein Almuhtaram** (University of Toronto – Toronto, Canada)

A comparison of cyanotoxins and cyanobacteria cell accumulations in high- and low-risk treatment plants in Ontario.

11:30 **Brigitte Simmatis** (Queen's University – Kingston, Canada)

Long-term context for recent algal blooms in Jackfish Lake (NT) using paleolimnological approaches.

11:50 **Oscar E. Senar** (Western University – London, Canada)

Is brownification of lakes triggering cyanobacteria blooms in northern lakes?

12:10 **Susan Murch** (University of British Columbia - Kelowna, Canada)

Detection and Quantification of Non-Protein Amino Acids in Ecosystems and Food Webs.

12:30 -Lunch Break-

13:20 **Plenary talk: Robert McKay** (Bowling Green State University, Bowling Green, USA)

Seasonal analysis of the Sandusky Bay Planktothrix bloom using a metatranscriptomic approach.

14:00 **Heather Fraser** (City of Moncton – Moncton, Canada)

City of Moncton BGA Research Programs.

14:20 **Brian Nguyen** (University of Toronto – Toronto, Canada)

Microplastics can Adsorb Microcystins.

14:40 **Denina Simmons** (University of Ontario Institute of Technology – Toronto, Canada)

Proteome responses of microcystin-exposed Daphnia magna.

15:00 **I-Shuo Huang** (Texas A&M University Corpus Christi – Corpus Christi, USA)

Impacts of hydrogen peroxide treatment on a dense toxic algal bloom, Padre Island, Texas

15:20 -Afternoon Break-

15:50 **Erika Freeman** (Western University – London, Canada)

Shuffling the deck: How atmospheric change promotes increasing cyanobacteria dominance in Swedish lakes.

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- 16:10 **Jeffrey Wright** (University of North Carolina – Wilmington, USA)
¹⁵N labeled surrogate standards of microcystins.
- 16:30 **Signe Haakonsson** (Universidad de la República – Montevideo, Uruguay)
Predicting cyanobacterial biovolume in a subtropical estuary through a Bayesian compound Poisson-Gamma approach.
- 16:50 **Christine Dulal-Whiteway** (University of Guelph – Guelph, Canada)
Agricultural Impacts on Stream Metabolism and Biogeochemistry.
- 17:10 **Frances Buerkens** (Fluid Imaging Technologies – Scarborough, USA)
Semi-automated method for detecting and counting cells of cyanobacterial colonies and filaments.

Tuesday April 17th

8:30 Registration

- 9:00 **Plenary talk: Christopher O. Miles** (National research Council Canada – Halifax, Canada)
Are there microcystins in my sample and, if so, which ones?
- 9:40 **Graham Gagnon** (Dalhousie University – Halifax, Canada)
Lake Recovery: Understanding the Impacts of Lower Sulphate Deposition on Nova Scotia Lakes.
- 10:00 **Ingunn A. Samdal** (Norwegian Veterinary Institute – Oslo, Norway)
Detection of microcystins and nodularins based on a multihapten antibody – ELISA and immunoaffinity columns.
- 10:20 **Paul MacKeigan** (McGill University – Montreal, Canada)
Cyanobacteria Distribution and Dynamics from the Canadian Lake Pulse Network (lakepulse.ca).

10:40 -Coffee Break-

- 11:10 **Daniel Beach** (National research Council Canada – Halifax, Canada)
Analytical Methods and Reference Materials for Cyanobacterial Toxins.
- 11:30 **Whitney L. Stutts** (United States Food and Drug Administration – College Park, USA)
Occurrence of Microcystin Contamination in Blue-Green Algal Dietary Supplements Purchased in the United States.
- 11:50 **Zakaria Tazart** (University of Marrakesh – Marrakech, Morocco)
Bioassessing of Antialgal Activity of Moroccan Macrophytes Against Microcystis Toxic Bloom Forming.
- 12:10 **Moustapha Oke** (Ontario Ministry of the Environment and Climate Change – Toronto, Canada)
Performance Evaluation Program at MOECC: Determination of microcystins in drinking water by ELISA from 2013 to 2017.

12:30 -Lunch Break-

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- 13:20 **Plenary talk: Frances Pick** (University of Ottawa – Ottawa, Canada)
Cyanobacterial blooms in high latitude lakes: portent of climate change?
- 14:00 **Alice Dove** (Environment Canada and Climate Change – Burlington, Canada)
Lake St. Clair – Thames River Water Quality and Harmful Algal Bloom Assessment.
- 14:20 **Sylvia Bonilla** (Universidad de la República - Montevideo, Uruguay)
Towards large-scale cyanobacteria monitoring programs using multiple low cost fluorometers.
- 14:40 **Stuart Oehrlé** (Waters Field Lab, Northern Kentucky University – Highland Heights, USA)
Expanding the Horizon! Analysis of Cyanobacterial Toxins Using a UniSpray Ion Source and UPLC/MS/MS Detection.

3:00 Shuttle bus transportation to social event venue

4:00 **Social Event & Speed talks session** **@Rorschach Brewing Co. (1001 Easter Ave., Toronto)**

- **Terry Keep** (Trojan Technologies – London, Canada)
The use of UV / Peroxide for Treating Algal Derived Contaminants.
- **Jaspal Parmar** (Ontario Ministry of the Environment and Climate Change - Toronto, Canada)
Enzyme-linked Immunosorbent Assays (ELISA) for Total Microcystins and Anatoxin-a in Drinking Water.
- **Hebah Mejbél** (University of Ottawa – Ottawa, Canada)
Analyzing sedimentary DNA as a proxy for cyanobacterial dynamics
- **Kevin Erratt** (Western University – London, Canada)
Exploring the urea-cyanoHAB link.
- **Aleksey Paltsev** (Western University – London, Canada)
Are northern temperate lakes shifting from oligotrophic to eutrophic stable states?
- **Robyn Jones** (Nipissing University – North Bay, Canada)
Meteorological factors controlling hypolimnetic hypoxia in Callander Bay, Lake Nipissing.
- **Aaron Witham** (Environmental Bio-detection Products Inc.)
Developing Affordable Platforms for Field Detection of Environmental Pollutants.
- **Clare Nelligan** (Queen's University – Kingston, Canada)
Reconstructing water quality trends in a eutrophic Ontario Lake Trout lake with algal blooms.
- **Veerta Singh** (Western University – London, Canada)
*Growth and toxicity of geographically-distinct isolates of the fish-killing Raphidophyte, *Heterosigma akashiwo*.*
- **Carmen Pereira** (Queen's University – Kingston, Canada)
Assessing long-term changes in phytoplankton in Ontario lakes in response to multiple stressors.
- **Camille Chemali** (Western University – London, Canada)
*Ecophysiological responses of *Pseudanabaena* to increased amounts of dissolved organic carbon in freshwater lakes.*
- **Eric Enanga** (Western University – London, Canada)
Exponential increase in cyanobacteria in Lake Naivasha, Kenya

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- **Miao Chen** (Nipissing University – North Bay, Canada)
Assessing the implementation of Ontario’s 12-point action plan and efforts to minimize the risk of human exposure to cyanotoxins.
- **Sofia Kokkinakis** (Queen’s University – Kingston, Canada)
Assessing the potential bioremediation of Microcystis by the use of Viviparus gwoegianus
- **Ali Ameli** (Western University – London, Canada)
Prioritizing geographically isolated wetland management strategies to reduce the risk of the eutrophication of Lake Winnipeg.
- **Rick Dong** (Western University – London, Canada)
Stream biogeochemical resilience in the age of Anthropocene.
- **Purnank Shah** (Wilfrid Laurier University – Waterloo, Canada)
Phytoplankton Fractionation of Iron.
- **William Dodsworth** (University of Ottawa – Ottawa, Canada)
Temporal trends in cyanobacteria through paleo-limnological DNA analyses.

Wednesday April 18th

8:30 Registration

9:00 **Plenary talk: Irena Creed** (University of Saskatchewan – Saskatoon, Canada)
Global change is creating the “perfect storm” for the proliferation of cyanobacteria in northern lakes.

9:40 **Judy Westrick** (Wayne State University – Detroit, USA)
Using Mass Spectrometry to vet Microcystin Concentrations by Enzyme-Linked Immunosorbent Assay.

10:00 **Michael Dallosch** (Western University – London, Canada)
Monitoring the frequency and magnitude of algal blooms via spaceborne sensors.

10:20 **Gertrud Nurnberg** (Freshwater Research – Baysville, Canada)
Investigating the Effect of Internal Phosphorus Loading on Cyanobacteria: Hypotheses and Case Studies.

10:40 -Coffee Break-

11:10 **Tri Nguyen-Quang** (Dalhousie University – Truro, Canada)
Using mathematical approaches to simulate harmful algal bloom (HAB) development.

11:30 **Tim Leshuk** (University of Waterloo – Waterloo, Canada)
Recyclable buoyant photocatalysts for cyanotoxin treatment evaluated with high-throughput screening.

11:50 **Mark Van Asten** (Phytoxigene Inc. – Akron, USA)
The use of Phytoxigene cyanotec multi-plex QPCR for the detection of specific toxin genes as a harmful algal screening tool for monitoring inland water systems.

12:10 **Malihe Mehdizadeh Allaf** (Western University – London, Canada)
The anticipated effect of climate change and global warming on the growth and toxicity of harmful alga, Heterosigma akashiwo, using design of experiments (DOE) approach.

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-Lunch Break-

- 13:00 **Plenary talk: Lewis A. Molot** (York University – Toronto, Canada)
Guiding Principles for cyanobacteria management: Integrating Nutrient Limitation and Sediment Redox Science.
- 13:40 **Todd Miller** (University of Wisconsin-Milwaukee – Milwaukee, USA)
Cyanobacterial toxins and bioactive peptides of Green Bay, Lake Michigan.
- 14:00 **Justin Renaud** (Agriculture and Agri-Food Canada – London, Canada)
Diagnostic fragmentation filtering of LC-MS datasets of the identification of new toxins.
- 14:20 **Kateryna Hushchyna** (Dalhousie University – Truro, Canada)
Research and monitoring directions for Harmful Algal Blooms (HAB) in the Nova Scotia (NS) and New Brunswick (NB) freshwater.
- 14:40 **Elizabeth Favot** (Queen's University – Kingston, Canada)
A paleolimnological assessment of changes in water quality in a remote lake affected by cyanobacterial blooms.
- 15:00 **Mark J. Verschoor** (York University – Toronto, Canada)
Trends in sediment AVS and extractable Fe from two Ontario lakes indicate increasing availability of Fe to cyanobacteria.
- 15:20 **IFHAB 2018 Closing Remarks & End of Workshop**

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