



A water and wastewater conference for students and young professionals in the Pacific Northwest.



WEST

WATER & ENVIRONMENT STUDENT TALKS

JUNE 8-10 2014 UBC VANCOUVER #WESTconf2014



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Welcome to Water & Environment Student Talks 2014!

The idea for this conference was developed by a group of graduate students who recognized a need for more opportunities for graduate students and young professionals to present their work. Our hope is that you will take away skills in presenting your work to an audience and create connections with your peers. Our team also wants to provide a space for asking tough, thoughtful questions of your presenters, so please seize that opportunity.

Over the next couple of days, you'll see presentations from students and young professionals covering a broad range of topics from water policy and governance to advances in wastewater treatment technology. We're excited about the interdisciplinary nature of this conference because we don't often remember to take off our blinders and look around. Take this opportunity to consider new points of view and meet practitioners from various departments at UBC, Simon Fraser University, University of Washington and firms in the lower mainland.

A warm welcome to all the delegates, thank you for joining us for the first installment of Water & Environment Student Talks! Enjoy these next couple days, have fun, and ask lots of questions.

On behalf of the conference team,

Aline Bennett
Chair

Water & Environment Student Talks 2014

Sunday, June 8th

Location: Vancouver Aquarium

2:00pm - 4:30pm Science Communication Workshop

Arrival at the Vancouver Aquarium for the workshop. Science communication expert, Martin Krzywinski will lead a workshop on how to give a great presentation and create a great slide.

4:30pm - 6:00pm Explore Vancouver Aquarium

Conference attendees may visit Vancouver Aquarium's regular exhibits between the workshop and the evening program. Appetizers will be available in the Canaccord Gallery as of about 5:30 pm.

6:30pm - 7:30pm World Oceans' Day Public Lecture

The Aquarium's Dr. Peter Ross and UBC's Dr Hans Schreier will discuss how we can protect marine life from urban water pollution.

7:30pm - 8:30pm Reception

Mix and mingle following the public lecture in the Canaccord Gallery. Appetizers and cash bar will be available.





Monday, June 9th

Location: Thea Koerner House
(UBC Graduate Students' Centre)

8:00am - 9:00 am: Breakfast & Registration

9:00am - 9:50 am: Opening Remarks & Keynote

First Nations Welcome and opening keynote by David Anderson.

9:50am - 10:20 am: Coffee Break

10:20am - 12:00pm: Drinking Water I

Session Chair: Kelly Graves

Mehdi Bagheri, Madjid Mohseni Applications of computational fluid dynamics (CFD) modeling for improving the design and operation of water treatment processes	10:20- 10:40
Ashlee Jollymore Risk factors for disinfection byproduct formation in drinking water sources: human and biophysical controls on organic matter dynamics	10:40- 11:00
Jörg Winter Nanofiltration in drinking water treatment – potentials and recent developments	11:00- 11:20
Patricia Oka, Pierre Bérubé Passive membrane systems for small communities	11:20- 11:40
Shona Robinson, Pierre Bérubé Membrane ageing: probing a 15-year process while graduating in 3	11:40- 12:00



12:00pm - 1:00pm: Lunch & Posters in the Penthouse

1:00pm - 2:00pm: Panel: If I knew then what I know now

Panellists: David Anderson, Dr. John Grace, Dr. Kathryn Harrison, Jana McLean

Moderator: Laith Furatian

The spirit of the panel is to discuss how the “real world” actually treats scientific evidence. This includes how scientific evidence is used, misused, ignored, hidden, exaggerated in decision making, and how it compares in importance to economic, political and moral considerations. How can young researchers view their own research given such realities and how can it be used to increase the impact and relevance of their work?

2:00pm - 3:00pm: Environmental Science

Session Chair: Jeff MacSween

Kelly Graves, A L Forrest, B E Laval, G Kirillin Under-ice, basin-scale motion in an Arctic Lake	2:00- 2:20
Duo Sun, Peter Englezos Hydrate technology on CO ₂ storage	2:20- 2:30
Thea Van Rossum, MA Peabody, MI Uyaguari Diaz, X Tian Metagenomics and its potential for water quality monitoring	2:30- 2:50
Mehdi Bagheri Analysis of the liquefied natural gas (LNG) spills over water using numerical simulation	2:50- 3:00

3:00pm - 3:30pm: Coffee Break

3:30pm - 5:10pm: Wastewater I

Session Chair: Patricia Oka

Sarah Partanen Water and nutrient recycling in agri-tourism destinations	3:30- 3:50
Chaoyang Yue Phosphorus Recovery From A Membrane Enhanced Biological Phosphorus Removal (MEBPR) Process: A New Conceptual Model	3:50- 4:10
Chuning Wang, Rich Pawlowicz High spatial and temporal oxygen measurements in the Strait of Georgia and its relation to phytoplankton bloom	4:10- 4:20
Christopher Lawson, Donald Mavinic, William Ramey, Steven Hallam Opening the black-box of enhanced biological phosphorus removal systems using metagenomic sequencing	4:20- 4:40
Sifat Kalam Optimization of Combined Struvite Precipitation and UniBAR-Annamox process as a Sustainable Unified solution for Nutrients management	4:40- 5:00
Aline Bennett, Sergey Lobanov, Fred Koch, Donald Mavinic K-struvite: Potential for Recovery of Potassium from Agricultural Waste	5:00- 5:10

8:00pm: Blue Drinks at The Wolf & Hound

Location: The Wolf & Hound, 3617 West Broadway (at Alma)

Grab yourself a drink and chat water with your fellow conference attendees and other young professionals in the water industry at Blue Drinks.



Tuesday, June 10th

Location: Thea Koerner House
(UBC Graduate Students' Centre)

8:00am - 9:00 am: Breakfast & Registration

9:00am - 9:50am: Policy and Public Perspectives

Session Chair: Aline Bennett

Brett Dimond Laying claim in the political watershed: Rights regimes as instigators of institutional change	9:00- 9:20
Syed Zaki Abdullah Water issues in Bangladesh: Inspiration & perspective	9:20- 9:30
Kaitlynn Livingstone, Madjid Mohseni Engaging with First Nations communities to improve drinking water access	9:30- 9:50

9:50am - 10:20am: Coffee Break

10:20am - 12:00pm: Wastewater II

Session Chair: Chris Lawson

Parssa Hassan, Wayne Wong Evaluation of Sewage Heat Recovery from Wastewater by Implementing Energy Balance Models	10:20- 10:40
Sam Bailey Continuous-Process Microwave Treatment of Wastewater	10:40- 11:00



Rony Das Co-digestion of sewage sludge and syngas: a novel technology for simultaneous sewage sludge treatment and syngas biomethanation in anaerobic digester	11:00-11:10
Bryce Figdore Aerobic Granular Sludge for Wastewater Treatment	11:10-11:30
Christina Starke, Pierre Bérubé Reducing operational costs in Membrane Bioreactors with slug bubbles	11:30-11:50
Brody Granger Mycofiltration of non-point source pollution	11:50-12:00

12:00pm - 1:00 pm: Lunch & Posters in the Penthouse

1:00pm - 1:40pm: Herring, Hub of the Ocean Food Chain

Jack Cooley of the Squamish Streamkeeper Society will tell us about his organization's role in helping revive Howe Sound's marine life.

1:40pm - 2:40pm: Stormwater

Session Chair: Sam Bailey

Karin Bjorklund Inadequate sampling and chemical analysis of stormwater – an easy way to pour money down the drain!	1:40-2:00
Angela Mawdsley Integrated stormwater management plans: Confronting the challenges of implementing local knowledge in the development of criteria and indicators	2:00-2:20
Sam Stime God's other plan for your life: Honouring big mistakes in stormwater research	2:20-2:40



2:40pm - 3:10pm: Coffee Break

3:10pm - 4:30pm: Drinking Water II

Session Chair: Shona Robinson

Ataollah Kheyrandish, Madjid Mohseni, Fabiborz Taghipour Study of the interactivation of microorganisms using UV-LEDs	3:10- 3:30
Kyle Shimabuku, Peiran Zhou, Michael C Dodd Deactivation of antibiotic resistance genes with ozone and hydrogen peroxide	3:30- 3:50
Peiran Zhou, John S Meschke, Michael C Dodd Sunlight-driven photolysis of chlorine to reactive oxygen species for enhanced inactivation of chlorine-resistant microbial pathogens	3:50- 4:10
Reza Rezaei, Madjid Mohseni Study of the co-adsorption of natural organic matter (NOM) and target micropollutants on photocatalytic TiO ₂ spheres	4:10- 4:30

4:30pm - 4:40pm: People's Choice Ballot Submissions

Attendees should submit their ballots to determine the winner of the People's Choice Award!

4:40pm - 5:00pm: Closing Remarks

6:30pm - 8:30pm: Dinner and Awards at CRAFT

Location: Craft Beer Market, 85 West 1st Avenue

Closing dinner will be held at Craft Beer Market. Talk and poster prizes will be presented. (\$10 ticket if you haven't already purchased one)

Directions: Take the #84 bus from the UBC North bus loop to 2nd and Ontario, then walk 150m to the restaurant.



Poster Session

Gholamreza Asadollahfardi, Elnaz Danesh, Mehdi Medinajad Application of artificial neural network to predict TDS of Karaj Dam	Drinking Water
Mehdi Bagheri, Madjid Mohseni Study of the treatability of micropollutants in contaminated water using VUV/UV photoreactor	Drinking Water
Neshat Basiri Combination of MBBR and micro-algae technology for treatment of industrial wastewater containing heavy metals	Wastewater
John Bergese, Jennie Rand, Graham Gagnon- By-products of electrochemically treating ammonia in municipal wastewater	Wastewater
Lawrence Bird Thermal regime of a large proglacial lake fed by a calving glacier	Environmental Science
Karin Bjorklund Evaluation of low-cost media for sorption of organic pollutants in stormwater	Stormwater
Jeff MacSween Dielectric heating and wastewater treatment	Wastewater
Nargiz Raaimova Impact of MBIs on users rights in water scarce regions (Southern Alberta case study)	Water Policy
Shona Robinson, Pierre Bérubé, Benoit Barbeau Hybrid or discrete ozone/filtration systems? - Implications for performance and permeate quality	Drinking Water



<p>Adrian Seranno Mora, Madjid Mohseni</p> <p>The effect of water temperature on the efficiency and power consumption of a continuous flow-through UV/VUV photoreactor for drinking water treatment</p>	Drinking Water
<p>Tony Teng Li, Roland Lang, Shan Xiao, Chris Chen, Bilal Riaz</p> <p>Development of an information & communication technology (ICT) platform for water quality monitoring</p>	Environmental Science
<p>Rasha Maal-Bared, Ian Van Beers, Danny La, Landon Kymson, Debra Long</p> <p>Applied microbiology at its best: overview of routine activities and research projects at the EPCOR Microbiology Laboratories</p>	Environmental Science
<p>Kiara Allen</p> <p>Drinking water assessment in small and rural communities: an example of a remote First Nations community</p>	Drinking Water



Speakers



David Anderson

Former Federal Environment Minister

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Jack Cooley

Co-chair, Squamish Streamkeepers Society

Jack was born in 1940 in Vancouver, Washington and emigrated to Canada in 1950. In 1965, obtained a BSc Physics from UBC and married his wife Julia. (They raised two kids and now have two grandchildren!) He began teaching High School in

Squamish in 1969. Retired in 2001 and joined Streamkeepers. In 2005 he became Squamish Streamkeepers Society co-chair with Dr. Jonn Matsen, the Herring Coordinator.

Jack's presentation is titled "Herring: Hub of Ocean Food Chain" and will discuss our Herring history and how the Squamish Streamkeeper Society helped revive Howe Sound's marine life.



Dr. John Grace

Professor, Department of Chemical and Biological Engineering, University of British Columbia

John Grace has served as Head of the Department of Chemical Engineering, Dean of Graduate Studies and Director of the Clean Energy Research Centre.

He has more than 560 publications, mostly on fluidization, related fluid-particle systems and environmentally friendly energy processes. He has worked on a wide range of research topics, both fundamental and applied, including hydrodynamics, heat transfer and mass transfer in fluidized beds, reactor modeling, scale-up, combustion and gasification, capture of CO₂ and SO₂, biomass processing, steam reforming, spouted beds and removal of particulates from gas streams. He is an officer of the Order of Canada and a Fellow of the Royal Society of Canada, the Canadian Academy of Engineering, the Engineering Institute of Canada, and the Chemical Institute of Canada. He has held a Canada Research Chair since 2001.



Dr. Kathryn Harrison

Professor, Department of Political Science, University of British Columbia

Dr. Harrison pursues two strands of research. The first employs comparative analysis to understand why governments adopt the policies they do. The second evaluates the efficacy of alternative policy instruments.

Dr. Harrison is the author of the book *Passing the Buck: Federalism and Canadian Environmental Policy* and co-author (with George Hoberg) of *Risk, Science, and Politics*. In addition, she has edited three volumes, the most recent of which is *Global Commons, Domestic Decisions: The Comparative Politics of Climate Change*. She has published over 50 journal articles and chapters in edited volumes. She has a Bachelor's degree in Chemical Engineering from the University of Western Ontario, Master's degrees in Chemical Engineering and Political Science from MIT, and a PhD in Political Science from UBC.



Martin Krzywinski

Staff Scientist, BC Cancer Agency & Visual Communications Expert

As scientists, it is our responsibility not only to present our work clearly, but to connect broadly by sparking imagination and enthusiasm for inquiry and understanding. To do this, science communication must engage both cognitively and emotionally.

I try to make people think and feel good by creating visualization tools and information graphics that combine analytical clarity with an artistic dimension. Real science should look just like it does in movies.

My information graphics have appeared in the New York Times, Wired, Conde Nast Portfolio, and on covers of books and scientific journals, like PNAS, EMBO Journal and American Scientist.

I have a weakness for espresso, fashion and abstract photography, and the intersection of spam and poetry. I am a former owner of the world's most popular rat.



Jana McLean

Associate, Aboriginal and Environmental Law, Bull Houser

Jana practices environmental and aboriginal law in the dispute resolution group at Bull Houser.

Jana has represented and advised Crown, First Nations and private clients on a range of subject

areas, including contaminated sites, environmental assessments, land and water rights, Band and traditional Aboriginal governance and Aboriginal rights and title. Her recent work includes acting as counsel to the federal Review Panel established to conduct the environmental assessment of the proposed New Prosperity Mine.

Prior to joining Bull Houser, Jana worked for a year and a half in South Africa, on environmental law and policies issues in that country, including the regulation of mining and the environmental implications of post-apartheid land redistribution. She holds a Masters in Law from the University of Cambridge, where her thesis considered the use of human rights mechanisms to obtain redress for environmental harm.

Presenters



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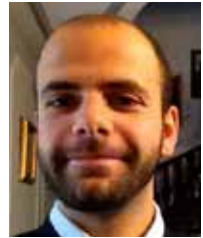
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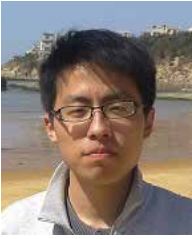
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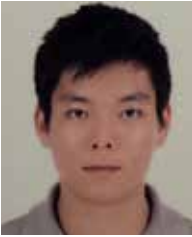
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Awards

Phillip H. Jones Award presented by the CAWQ

1st prize (\$300)

2nd prize (\$200)

Judges:

Michael Celli, AECOM

Rasha Maal-Bared, EPCOR

Clayton Tiedmann, CAWQ President

Paula Parkinson, UBC Civil Engineering



People's Choice Award (\$300)

Ballots will be distributed and decided by conference delegates.

Poster Prize (\$200)

Judges:

Pierre Bérubé, Professor of Civil Engineering

Jim Atwater Professor of Civil Engineering

Chris Lawson, MASc Candidate, Civil Engineering

Conference Team

Aline Bennett, Chair

Shona Robinson, Content co-director

Patti Shen, Content co-director

Jeff MacSween, Logistics co-director

Sam Bailey, Logistics co-director

Soledad Ronco, Communications director

Neshat Basiri, Communications team

Chris Lawson, Sponsorship co-director

Laith Furatian, Sponsorship co-director

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STREET BLOCK #'s E-W →

6500

6400

6300

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2200

2300

PACIFIC SPIRIT REGIONAL PARK

Nitobe Memorial Garden

VANIER RESIDENCE

MARINE DRIVE RESIDENCE

PACIFIC AGRONOMY ROAD

Norman MacKenzie House

Liu Institute

Asian Centre

First Nations Longhouse

Ponderosa Annexes

Ponderosa Commons

University Services Building (USB)

Museum of Anthropology

International House

C.K. Choi

West Mall Annex

Office Annexes

Continuing Studies / ELI

University Services Building (USB)

Horticulture Annex

Cecil Green Park Coach House

Cecil Green Park House

Peter Wall Inst.

Thea Koerner House (Grad. Studies)

Sing Sing Sing

Music

Auditorium Annex Offices

Geography

L.S. Klinck Bldg

Old Fire Hall

Power House

Jack Bell Social Work

Bio.St. Rd.

Campus Planning

Stores Rd Annex

Orchard House

Green College

Anthropology & Sociology

Rose Garden

Belkin Art Gallery

Belkin Art Gallery

Lasserre

Old Auditorium Admin.

Math

Math Annex

David Lam

Henry Angus (Business)

Scarfe (Education)

Earth Sciences Building (ESB)

Museum

Fairview Grove

Forward

The Barn

Mary Bollert Hall

Chan Centre

Flag Pole Plaza

Buchanan (Arts)

Buchanan Tower

Millennium Pavilion

Irving K. Barber Learning Centre

Clock Tower

Hennings

Volkoff Lane

Chemistry

A Chemistry Physics

Biological Sciences

AERL

Beatty Biodiversity Centre

CEME Labs ("Rusty Hut")

Civil & Mechanical Engineering (CEME)

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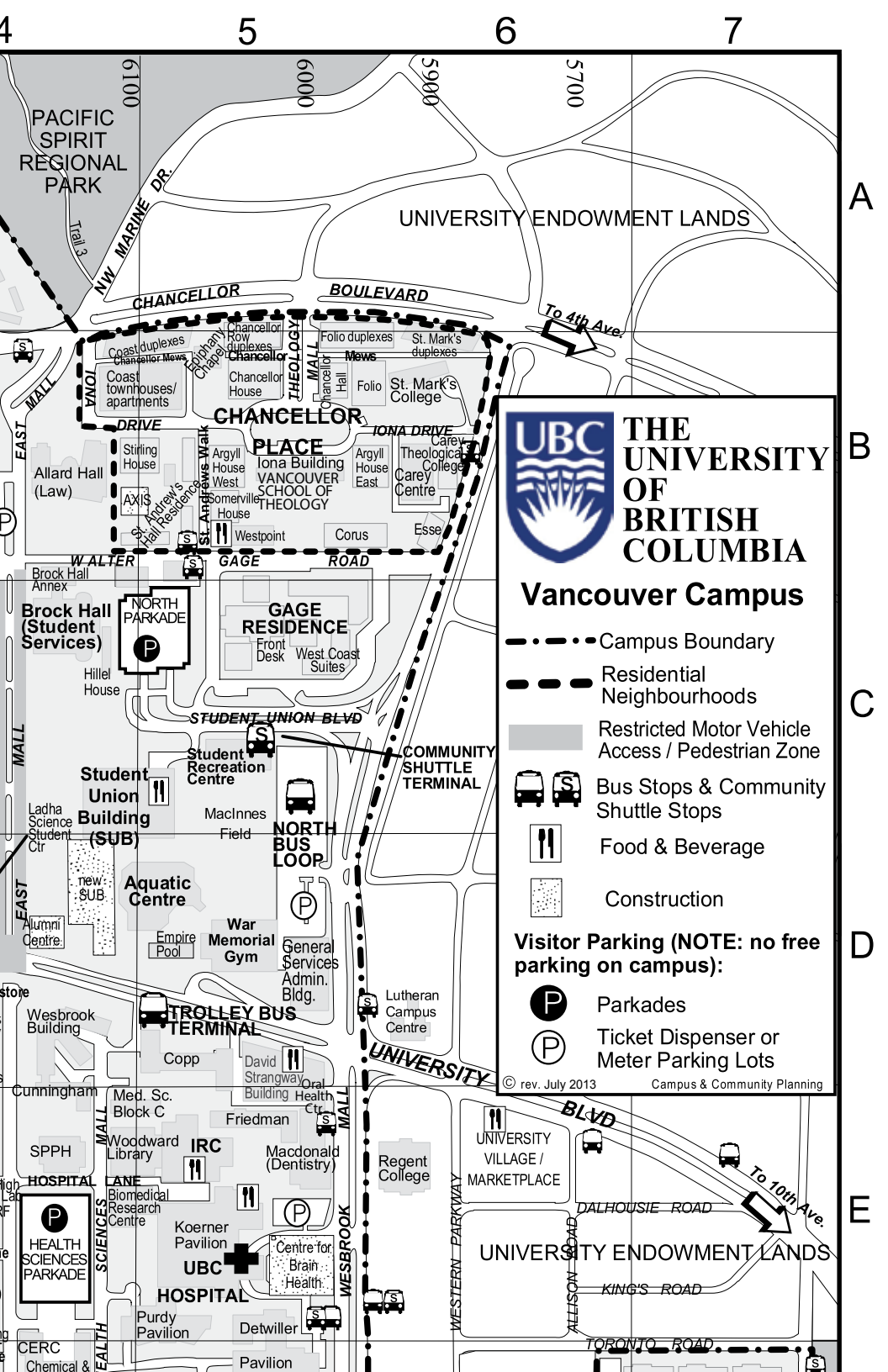
Museum

Fairview Grove

Forward

The Barn

MacMillan (Land & MacLeod Engineering Lab



THE UNIVERSITY OF BRITISH COLUMBIA

Vancouver Campus

-  Campus Boundary
-  Residential Neighbourhoods
-  Restricted Motor Vehicle Access / Pedestrian Zone
-  Bus Stops & Community Shuttle Stops
-  Food & Beverage
-  Construction
- Visitor Parking (NOTE: no free parking on campus):**
 -  Parkades
 -  Ticket Dispenser or Meter Parking Lots

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Graduate and Postdoctoral Studies

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