

THE CURRENT



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Newsletter of the Society of Canadian Limnologists

This issue:

President's Message.....	1
Keith Somers Retires.....	2
Research Highlight.....	3
Limnology on Stage.....	4
25 Years of GRIL.....	5
2016 Award Winners.....	6
SCL/CCFFR 2016.....	6
Member Recognition.....	6
FACETS.....	7
Student Spotlight.....	7
"Premier" Field Course.....	8
Upcoming Meetings.....	9
Recent Citings.....	9

Right: Another day at the office: student Julianne Robinson of St Mary's University venturing through a stream to get to field sites, Halifax, Nova Scotia. Photo courtesy Linda Campbell.



A New Hope

Jérôme Marty, President



It is my pleasure to contribute to our eighth issue of the Current, our second SCL newsletter with me as your President. It's great to be back on the SCL Board, after being a student representative almost 15 years ago. The SCL is still a vibrant community, poised to increase its reach within the freshwater community in Canada. Over the last few years, we have observed many changes that affected our field of research, including cuts to

funding to research programs, the announcement of the closure (and ultimate rebirth!) of the Experimental Lakes Area (ELA) and changes to federal environmental regulations. Last spring, the SCL joined other science based organizations to comment on the 2015 budget via PAGSE, where we shared our support for increased funding in science. I have great hope that we are now at the start of a period of new change that will include the restoration of funding to the sciences and the

ability of scientists to pursue and share knowledge that can be integrated into evidence-based policies aimed at protecting our freshwater ecosystems. The Liberal platform promised renewed commitments to protect freshwater in Canada, and we, as limnologists, have to work together to make sure that we are part of this renewal.

With increased engagement, I see the SCL as an organization that can help promote understanding and contribute to the conservation of freshwater. Over the last few months, the board of the SCL had several calls to pursue discussion on the legal status of the society. The Society is currently not a registered organization and as such, faces challenges when seeking certain sources of revenue and participation in meetings with partner societies. A review of the requirements needed to become registered was conducted to evaluate our ability to maintain a registered status over the long-term. Though the membership of SCL has grown over the past 5 years, we feel it is time to further increase our investment in attracting and retaining more members and exploring other avenues of revenue generation. With the support of our member volunteers on the Visioning

Continued on page 2

Continued from page 1

Committee, our future By-Laws are being drafted and will be submitted to the membership for a vote, hopefully at the next meeting in January.

I look forward to our upcoming meeting this in January in St. John, NF where we will have the pleasure of hearing the Frank Rigler lecture by Dr. Bill Taylor and a presentation from Matt Bogard, who is receiving the Robert Peters award for his publication on methane in boreal lakes. I would also like to bring to your attention to the Society of International

Limnologists conference that will be held in Milano, Italy this year (call for sessions currently open, see SIL website) and the International Association of Great Lakes Research conference will be held in June 2016 in Guelph (call for sessions also currently open, see IAGLR website).

I look forward to meeting you in St. John. Please don't hesitate to reach us if you have comments or suggestions on what the SCL should do to be more visible and to better represent you. ☺

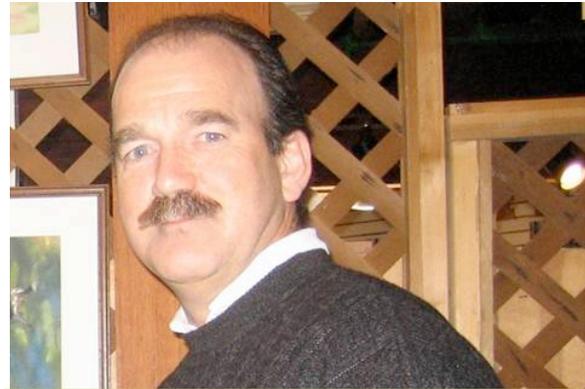
Keith Somers, Take A Bow

Andrew Paterson, Chris Jones and Jim Rusak

After 27 years with the Ontario Ministry of the Environment and Climate Change, Dr. Keith Somers is retiring from his role as Biostatistician and Site Manager at the Dorset Environmental Science Centre. Keith completed his MSc in Zoology at U of T in 1980 with Harold Harvey, and his PhD at UWO in 1986 under the supervision of Roger Green. He joined the Ontario MOE in 1988 as a Senior Scientist in the Great Lakes Section, subsequently moving to the Dorset Research Centre (aka Dorset Environmental Science Centre) in 1991 as a Biostatistician, and taking on the role of Site Manager in 2000.

Within the Ontario government, Keith has been honoured with both an Emerald Award for Quality Service and Leadership (in 2009) and, most recently, an Amethyst Award for Lifetime Achievement, the government's highest honour.

Throughout his career, Keith has held an unwavering belief that scientific knowledge and data should be created and shared for the public good. By 7 or 8 pm, when the workday for most OPS employees has long ago ended, one usually finds Keith hunched over his keyboard, surrounded by his mounds of scientific articles, making time for the science that is difficult to fit into a Supervisor's daytime schedule. He may be reading articles for the latest statistical applications, reviewing a thesis from one of the 37 graduate students he has supervised over his career, reviewing a manuscript for a scientific journal, analyzing a complex dataset, or preparing for an upcoming conference presentation. As a result of his dedication, Keith has authored more than 75 scientific papers, and is thanked in the acknowledgements sections of innumerable articles written by his peers. Importantly, his work has been keenly focused on questions in applied limnology, providing the scientific foundations of effective water management. For example, Keith's studies of the effects of acid rain on lakes, and the recovery of lakes following the reduction of sulphur dioxide emissions in Sudbury (and elsewhere), have both informed mitigative strategies and evaluated the performance of those strategies. His long-term studies in a series of Muskoka lakes have shown that the cumulative effects of multiple stressors are impacting biological communities (e.g., crayfish), and his continuing work has linked these effects to a legacy of acid rain and related reductions of calcium levels in lakes. Water managers may now exploit this information to develop sound management



Keith Somers, very nearly retired Senior Scientist at the Dorset Environmental Science Centre. Photo courtesy Andrew Paterson.

strategies for protecting the biology of Ontario's most sensitive lakes.

Among his peers, Keith is also acknowledged for his tireless efforts in the defense of science within public institutions. For example, he was part of the Ontario government's team that helped to save the Experimental Lakes Area from extinction. He has also been instrumental in designing and launching many of the government's flagship environmental monitoring programs, including the Lake Partner Program (a citizen-scientist program that monitors the clarity and nutrient status of hundreds of lakes across the province) and the Ontario Benthos Biomonitoring Network (a multi-agency collaboration in which benthic invertebrates are used to indicate the biological condition of hundreds of southern Ontario's lakes and streams) — both of these programs were recognized in 2004 by Ontario's Environmental Commissioner as important contributions to "ambient environmental monitoring", with the former also receiving (in 2011) a Technical Excellence Award from the North American Lake Management Society. Over the past two years, Keith has worked with colleagues to develop a biomonitoring program for the Ring of Fire region, an area that has received considerable media attention, and that holds mineral wealth and potential impacts that far overshadow anything ever witnessed in the Far North of Ontario.

We wish Keith well in his retirement, where he will continue to contribute as an Adjunct Professor at Trent and Nipissing universities, and the University of Toronto. ☺

Research Highlight The Mactaquac Aquatic Ecosystem Study: the World's Largest Dam Renewal or Removal

Allen Curry

Canadian Rivers Institute, UNB

In 2030, the Mactaquac Hydro-Electric Generating Station (NB Power, Corp.) will come to the end of its service life. Located just outside Fredericton, New Brunswick, this 672 MW facility on the Saint John River has a dam that is >1 km wide, 55 m high and creates a headpond that is 84 km², extending 100 km upstream. NB Power is preparing to make a decision to rebuild or remove this facility which will be the largest dam renewal project ever undertaken. The Canadian Rivers Institute (CRI) at the University of New Brunswick is tasked with providing the science advice related to the aquatic environment in support of the decision making process. CRI initiated the Mactaquac Aquatic Ecosystem Study (MAES - <http://canadianriversinstitute.com/research/mactaquac-aquatic-ecosystem-study/>). The programme of study is a multi-phased, 20+ year assessment of the structure and function of a large river ecosystem and the predictive analyses of the proposed manipulations, i.e., what are



The Mactaquac Hydro-Electricity Generating Facility, 2014. Photo credit: NB Power.

the environmental challenges and opportunities for either replacing or removing the dam. The principle investigator is Allen Curry (CRI/UNB) who along with his core team of Tommi Linnansaari, Wendy Monk, and Gordon Yamazaki, is working with eight additional investigators at UNB Fredericton, UNB Saint John and Institut national de la recherche scientifique (INRS, Quebec City). The first phase of MAES is preparing NB Power to make a decision to either: 1) repower (new generating station); 2) retain the headpond (no power); or 3) restore the river. The current research has three themes: 1) a whole ecosystem study with an experiment (baselines, model building, and the manipulation); 2) fish passage in a new facility scenario; and 3) planning for appropriate environmental flows. The whole ecosystem project includes studies of river and reservoir biological conditions, bathymetry and sediment deposition mapping, and 3D modeling of sediment transport (Delft) and thermal regimes (CEQUEAU). Fish passage studies are initially focusing on movements and habitats of species of concern: the Atlantic Salmon, Striped Bass, Atlantic and Shortnose sturgeon, American Eel, and Muskellunge. The future environmental flow is an examination of the aquatic and riparian communities, wetland complex evolution, and developing an ELOHA-type framework for the river. Beyond the science, MAES will create a

template of approaches and methods that will facilitate the incorporation of aquatic ecosystem science into informed decision making and management for future hydropower and river resources projects, i.e., setting new standards for the future of EIAs in Canada. A comprehensive study and planned manipulation of an ecosystem of this scale is one of the largest freshwater studies and experiments attempted worldwide.

For more information contact racurry@unb.ca. 

FAST FACTS:

WHO? The Canadian Rivers Institute.

WHERE? University of New Brunswick, Fredericton.

WHAT? A 20+ year study to evaluate hydro impacts on the Mactaquac River to evaluate dam replacement or removal.

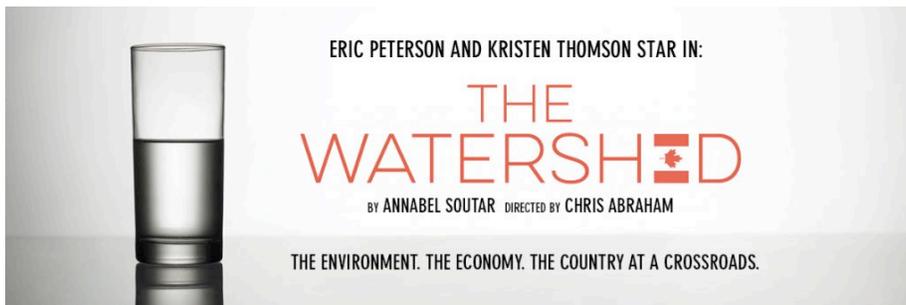
WHY? To provide scientific evidence-based advice that will ultimately inform the future of the dam and of the Mactaquac River.

WEB: <http://canadianriversinstitute.com/research/mactaquac-aquatic-ecosystem-study/>



MAES summer intern Adam Archibald sampling sediment in the Saint John River, 2014.
Photo credit: M. Gautreau

Do YOU have a story to share in the next issue of The Current? Have an idea for a blog? Send ideas, photos or contributions to:
comms@socanlimnol.ca



Limnology on Stage

Marguerite A. Xenopoulos
Department of Biology, Trent University

Science communication and public engagement have never been more important for the field of limnology, especially in light of the current funding and political atmosphere. Training in limnology does not usually explicitly prepare us for communicating outside of academia. Indeed, informing the public about what we do doesn't always come easily to us. For the past 12 years, I have been teaching an upper level undergraduate course, "Global Change of Aquatic Ecosystems", where students spend a considerable time learning to be effective communicators. Some of this is through various teaching methods but also includes special workshops, such as debates, jigsaw learning techniques, writing letters to politicians and citizen engagement. In one popular workshop, I split the class into groups of 12-15 students and have them design a play on eutrophication that would be appropriate for a high school audience. Students are

assigned one of a few roles in the play (e.g., fertilizer, light, oxygen, chironomid, *Anabaena*). Although initially met with much reluctance and eye-rolling, I am always amazed at how quickly student improvise and produce a polished piece of performance art. The creativity, team-work and laughter that ensues (yes, someone is assigned "diarrhea" and we do also have "odor and taste") make this a most memorable workshop exercise. A few proud "Professor" moments include hearing the students debate translating limnological jargon (e.g., no one is going to know what a "thermocline" is) and watching them turn relatively complicated science (e.g., phosphorus thresholds) into something a teenager would understand.

I never imagined that the tables would turn and that I would be the one explaining my research to a real playwright. In early 2013, I met with Playwright Annabel Soutar and Artistic Director Chris Abraham shortly after they had been commissioned to produce a play on water. This encounter coincided with the announcement to close—and the ensuing movement to save—the

Experimental Lakes Area (ELA). Several SCL members were interviewed for this play, including our group at Trent University, after our NSERC-funded whole lake experiment was temporarily placed on hold. The final product, *The Watershed*, chronicles the Playwright's adventures with

"The Watershed" is touring Canada beginning in September 2016 with stops in Toronto, Calgary, Winnipeg and Vancouver and will be premiering in French (*Le Partage des Eaux*) in Montreal in November of 2015.

For more information, visit: <http://porteparole.org/en/plays/the-watershed/>

her family as she tries to understand the science, economy and politics of water. It premiered in Toronto in July 2015 during the Pan Am games and received a number of exceptional reviews. The *Watershed* presents many of the hurdles we face with publicly-funded science and its communication: the shy and reserved limnologist; the media that is focused more on entertaining news and flashy headlines; the scientist that needs to learn to communicate to the public ("don't call it atmospheric deposition, call it ACID rain"); the anonymous government scientist; and a political cadre that ultimately controls science funding. But that aside, *The Watershed* is a play that includes limnology. Whether it is the Playwright's kids trying to define what a watershed is or the scientist who takes the Playwright to ELA to explain the value of long-term monitoring, limnology is center stage. This is a play about Canadian limnologists and our future. It is exciting to see limnology in a medium that reaches such a broad audience. Moreover, this play illustrates well that we should continue educating and engaging the public about water by taking advantage of every opportunity that presents itself. Canadians, today and for generations to come, should know three things: what limnology is, what limnologists do and the importance of limnology (e.g., whole-lake experiments at the ELA) for scientific policy. By doing so, the importance of our work is clearer to the electorate that is engaged in forming our government. ☺



Scene from "The Watershed", where the Playwright is flying over the Alberta oil sands with her family. Photo courtesy of Porte Parole. © All rights reserved by Porte Parole Documentary Theatre.

The GRIL: 25 Years of Aquatic Ecology

Beatrix Beisner¹, Bernadette Pinel-Alloul² and Claudette Blanchard²

¹GRIL, Department of Biological Sciences, Université du Québec à Montréal

²GRIL, Département de sciences biologiques, Université de Montréal

This year, 2015 marked the 25th anniversary of the GRIL – the Groupe de recherche interuniversitaire en limnologie et en environnement aquatique – or perhaps you know it as that Québec limnology group. The GRIL is financed by the Fonds de Recherche du Québec – Nature et Technologie (FRQNT) as a strategic research network since 1993.

The real birth of the GRIL however, was in 1989 when it was formed by enthusiastic limnologists from four universities: Université de Montréal (UdeM), Université du Québec à Montréal (UQAM), McGill University and Université du Québec à Trois-Rivières (UQTR). Since the 1970's Montréal had been a hot-bed of limnological research with two main competing groups: one associated with Prof. Étienne Magnin at UdeM and the other at McGill with Prof. Frank Rigler, soon joined by Profs. Jacob Kalff and Rob Peters. After spending a sabbatical at McGill in 1984 and working more closely with Kalff, Prof. Bernadette Pinel-Alloul of UdeM was inspired to create a new limnology research network. She procured \$50 000 in seed funds from her administration, and found a strong ally in Rob Peters, to create the GRIL. Jacob Kalff, Pierre Legendre and Dolors Planas quickly became involved, as did several dynamic young researchers: John Downing, Antonella Cattaneo, David Bird, Yves Prairie and Pierre Magnan. Funding came from all four founding universities. The group put together their first proposal, largely synthesized from a set of very bilingual discussions by the talented Rob Peters. The first grant of \$150 000 was awarded by FCAR (now FRQNT) in 1993, firmly establishing the GRIL on the Canadian research scene.

Since those early days, the GRIL has grown and blossomed, through the guidance of three directors: Bernadette Pinel-Alloul from UdeM (1989-1999), Yves Prairie from UQAM (2000-2008), and Pierre Magnan from UQTR (2008-2015). Currently we are hoping for the best from our fourth director: Beatrix Beisner from UQAM. Since the early days, Claudette Blanchard has kept the group in line administratively, and the GRIL is now also greatly aided by two scientific liaison officers: Dr. Marie-Andrée Fallu (since

GRIL By the Numbers

Peer-reviewed publications: 1663

Books published: 14

M.Sc. students trained: 549

PhD students trained: 244

Postdocs trained: 128

2006) and Pierre-Olivier Benoit (since 2014). The GRIL has an active student committee and several analytical labs for aquatic sample analyses run by highly qualified research associates. There are four newer member institutions (INRS-ETE, Université de Sherbrooke, Concordia University, Université du Québec à Chicoutimi), in addition to the founding four.

These days, the GRIL network engages in long-term collaborative ecological research projects (on instrumented Sentinel lakes and on the fluvial Lac St. Pierre), activities closely aligned with GLEON (including co-hosting the GLEON16 meeting). To facilitate training, the GRIL offers collaborative research grants for students co-supervised by our members. The GRIL also now manages ÉcoLac, an NSERC-CREATE program (with the Coop Unit at Laurentian University and the Canadian Rivers Institute at UNB), which further enables limnological training. Our members and personnel serve in advisory roles to Québec government ministries (Environment and Natural Resources), as well as to several networks dedicated to water management in Québec (e.g. ROBVQ, ABQ). In addition to facilitating research and training across our network, outreach represents a large part of GRIL activities. We participate in citizen science events such as 24 Heures de Sciences (pan-QC), the Eureka! Festival and the Forum national sur les lacs, among others. We also have a lively annual GRIL Symposium that brings together our researchers, all our students and two internationally-renowned limnologists to present and discuss our research in a fully bilingual environment. An annual tradition since March 1991! Vive le GRIL! 🌱



A wrinkle in the plans to do fieldwork

Canoe Lake, Algonquin Park, Ontario.

Photo Credit: Roberto Quinlan

2016 Award Winners

Helen Baulch

The Frank Rigler Award is SCL's highest honour, recognizing major achievements in limnology. At the 2016 SCL/CCFFR meeting in St John's, **Dr. Bill Taylor** from the University of Waterloo will be recognized for his leadership and influential contributions to Canadian limnology.

Bill's focus on microbial ecology, and on nutrient dynamics, a passion of Rigler, makes this award particularly fitting. Bill's work has informed our understanding of nutrient dynamics, and associated eutrophication concerns on 4 continents. More broadly, his work has included both the fundamental and applied, on topics ranging from microbes to zooplankton, plants, fish, invasive species and watersheds. Bill has published more than 100 papers, and is noted for his extensive contribution to university service, and student training. He has also served as a member of the International Joint Commission, addressing issues of eutrophication, invasive species, and ecosystem health.

Some of Bill's most influential work demonstrated that our most commonly used spectrophotometric methods for measuring phosphate concentrations yield vast overestimates of phosphate concentration, and that planktonic phosphorus regeneration is a key to planktonic supplies. We look forward to Bill's plenary in St John's.

We are also pleased to recognize **Matt Bogard** as this year's Peters Award winner. A PhD candidate at Université du Québec à Montréal will be awarded the Robert Peters Award for best student paper. Matt's 2014 paper "Oxic water column methanogenesis as a major component of aquatic CH₄ fluxes", published in *Nature Communications* (5: 5350 [DOI 10.1038/ncomms6350](https://doi.org/10.1038/ncomms6350)) demonstrates that oxic lake waters can produce methane at high rates, and indeed, oxic production can be a large proportion of lake emissions. This runs contrary to



Left: 2016 Rigler Award recipient Bill Taylor, Professor, University of Waterloo.

Right: 2016 Peters Award recipient, Matt Bogard, Université du Québec à Montréal.

the classical understanding of methanogenesis as an anaerobic process. Matt's work shows that methane production is related to algal productivity, and as such, methane emissions are increased as a result of eutrophication. His paper integrated large scale mesocosm experiments, whole lake budgets, stable isotopes, and a metaanalysis. 



Upcoming SCL Meetings

Alain Patoine

The annual SCL/CCFFR meeting will take place January 8-10, 2016 at the Sheraton Hotel in St. John's, Newfoundland. We are pleased to announce Dr. Bill Taylor will present the Rigler lecture as part of the plenary session, and Matt Bogard, our Peters Award winner will also present at the conference. Craig Purchase of CCFFR is on the local arrangements. Ian Bradbury and Martha Robertson of DFO's offices in St. John's are leading the science program. Alain Patoine is the SCL liaison on the science program for the St. John's 2016 CCFFR-SCL meeting. Make sure to follow the web site for all the developments on the

meeting as they arise [on our website](#), which also has links to the [conference website](#).

Note the Hotel special rates deadline of December 15.

Session themes include:

- Environmental and anthropogenic impacts on aquatic ecosystems
- Evolutionary and ecological genetics of aquatic species
 - Ecosystem-based management
 - Spatial ecology and conservation of aquatic ecosystems
 - Understanding recruitment dynamics of fishes and their consequences to stock productivity
 - Aquaculture and its impacts on aquatic ecosystems
 - Habitat science and restoration of aquatic ecosystems
 - Ocean regime change and its impact on aquatic species
 - Aquatic invasive species
 - Species at risk
 - Evolutionary ecology of reproduction
 - General session

Hope to see you there! 

Member Recognition

Lots of recognitions recently for our postdoctoral members at the University of Ottawa; Congratulations to **Diane Orihel** and **Jenny Korosi** for being selected as Banting Fellows, and to Diane for also being awarded a Liber Ero fellowship.

John Smol was named the 2015 winner of the [International Ecology Institute Prize](#).

He was also awarded the [McNeil Medal for the Public Awareness of Science](#) by the Royal Society of Canada. 

New open access journal FACETS launches

Past SCL President Jules Blais, Senior Editor

Rebecca Ross, Canadian Science Publishing

FACETS

Canadian Science Publishing, publisher of the NRC Research Press suite of journals, will soon be launching FACETS, a new multidisciplinary open access science journal, led by Senior Editor, and Past SCL President, Dr. Jules Blais.

Dr. Blais has been instrumental in the development of the journal, its scope and Editorial Board. Submissions will be open in October, 2015 with an official launch in early 2016. Dr. Blais and the entire FACETS team look forward to receiving submissions from SCL members.

FACETS is the first Canadian multidisciplinary open access science journal. As an international journal, FACETS will showcase Canadian research, in English or French, to a global audience. FACETS leverages the Canadian tradition of the highest quality of scientific publishing with an international reach and reputation for excellence.

FACETS also provides a much needed choice for researchers in their publication options. FACETS publishes a broad range of article types and will consider both positive and negative results. This variety yields a greater diversity of published research and ultimately increases the dissemination of critical research.

What's more is that FACETS is a community-support initiative that responds to the growing need for open access options in Canada and abroad. FACETS strictly adheres to the requirements of Canadian and international funders, including the Tri-Agency (CIHR, NSERC, SSHRC) Open Access Policy on Publications.

FACETS will initially focus on six research areas: Biomedical and Health Sciences; Biological and Life Sciences; Earth and Environmental Sciences; Physical Sciences; Engineering, Technology, and Mathematics; and Integrative Sciences.

For more information, visit the FACETS website www.facetsjournal.com and sign-up for the FACETS email newsletter. Follow FACETS on Twitter (@FACETSjournal) and like FACETS on Facebook (www.facebook.com/facetsj) for up-to-date information, call for submissions, and publications. 

Student Spotlight:

Liz Ashby, MSc student with Dr. Danielle Fortin, University of Ottawa

Dan Gregoire and Nicolas Fortin St-Gelais

In a sentence or two, please describe your current research project:

My current research examines the role naturally occurring bacteriogenic iron oxides play in the adsorption of rare earth elements within a variety of natural and disturbed freshwater environments.



When and why did you become interested in limnology?

I became interested in limnology after taking a limnology field course at the Mont St. Hilaire Biosphere Reserve in Quebec as part of my undergraduate degree. Getting the opportunity to design my own experiment and then complete the field work, taking Van

Dorn water samples from a small row boat, was enough to get me hooked.

What is one of your fondest memories performing research in limnology?

Some of my fondest memories of performing limnology and environmental field work have hatched out of the most dreary circumstances. I remember a particularly challenging winter trip where we were characterizing under-ice water chemistry at a

variety of lakes and rivers in Northern BC. Temperatures dropped to around -20C, and required instream work. Our boots froze to our socks and the door to our cabin froze to its hinges, all over the course of one day. We devised a number of warm-up tricks, had mandatory tea breaks and a wise helicopter pilot. Although challenging, the stories from that trip are some of my favorite.

What are your most favorite and least favorite things about graduate research?

I returned to graduate school as a mature student after working as an environmental consultant for 5 years. As a result, I really appreciate the ability to pursue my own research. Having the freedom to investigate an interesting data trend is not something I take for granted! With freedom comes responsibility, and while the self-motivation required for graduate school is a welcome change from externally imposed deadlines, this aspect can prove challenging at times. 

Do YOU want to be in the next student spotlight? Let us know!

comms@socanlimnol.ca



Left: Premier Kathleen Wynne gets in on the action with Lakehead Limnology students, ELA staff and some family helpers, releasing fish captured in a beach seine at the IISD-Experimental Lakes Area. Photo credit: Lauren Hayurst.

Right: Students taking water samples from lake 227. Photo credit: Kerri Finlay.



A “Premier” Limnology Field Course

Michael Rennie

Department of Biology, Lakehead University, IISD-ELA Research Fellow

The boat rocked steadily to the rhythm of Robyn pulling the starter on the motor repeatedly as the wind pushed the small vessel along the waves on Lake 240. The rain was more of a mist, but blew in sideways from the north with a cold wind. I couldn't help but wonder if this was the course that these eager students from Lakehead had thought they signed up for.

“Try a couple more times.”

Pull. Pull. Pull. Finally, the motor gasps and springs to life. “Great! Throw it in drive and off to the next sampling site!”

The thing about field work is that it's like show business—unless you're facing exceptional circumstances, “the show must go on”. From that perspective, the inaugural class of Lakehead undergraduate students taking Aquatic and Experimental Limnology at the IISD-Experimental Lakes Area (IISD-ELA) definitely got the full range of field experience. And, with exceptional circumstances come exceptional teaching opportunities; while the weather became much more pleasant in the second week, the poor weather at the beginning of the course provided something that can be difficult to demonstrate effectively in the lab or in lecture. On this cold and blowy August day, we took thermal profiles at three stations on our two lakes near camp; one upwind, one at centre buoy, and one downwind.

So, after a few warm cups of coffee to remove the chill of being on the lake all morning, we put all our data from the field together, and, just like we discussed in lecture earlier that day, we observed in our own data the internal seiche on the lakes we were sampling; the epilimnion was deeper downwind, and more shallow up wind. Minds, blown.

The great thing about this exercise was that the students didn't just look at a figure from a textbook to learn this concept, or leave it to their professor (however engaging) to tell them about it. They used the instruments themselves to collect the data, record the values in their fieldbooks, then entered and analyzed the data to make the discovery on their own. It's this learning by hands-on discovery that you can't do in lectures, and is challenging to simulate in a lab (though it is possible, with some practice).

The students on the course were surprised after their first week with the arrival of a special visitor. One thing about the

IISD-ELA is you never know who's going to show up. Quite unexpectedly, Ontario Premier Kathleen Wynne arrived in camp with some friends as they canoed through the area, and spoke one-on-one with many of the students about the projects they would be working on the next week (ideas which were conceived in the hours before she arrived).

ELA scientists (Mike Paterson, Scott Higgins and recent IISD-ELA Postdoc Craig Emmerton) all gave their time for lectures in the course, as did Kerri Finlay from the University of Regina. The students rounded out the second week of the field course by carrying out a wide variety of interesting and creative research projects, ranging from a mark-recapture study of fish from a lake where their prey have disappeared, to studying the effects of nanosilver on sediment bacterial communities and leaf-pack colonization; another student investigated changes in the soil horizons at sites where upland reservoirs once existed. Many students were also able to use the wealth of historic data and publications from these same lakes as part of their studies. The students presented their preliminary results on the final day of the course, and submitted their final reports a few weeks ago. But the level of dedication that the students poured into these projects was truly astounding; getting up at 4:30 am to retrieve leech traps, or up till 3 am plating agar, all in the name of scientific discovery. This level of investment and immersion in the scientific process is challenging to reproduce in traditional settings, which is what makes field courses like the one Lakehead University now offers at the IISD-ELA, and all the other Limnology field courses we offer in Canada so incredibly valuable.

I can't wait till we do it all again next year. 🌊

The course “Experimental Limnology and Aquatic Ecology” is offered through the Ontario Universities Program in Field Biology and is open to all Ontario Biology students. For additional details, please visit <http://www.oupfb.ca/>.

Upcoming meetings

(meeting websites hyperlinked where available)

SCL meetings

- [2016 with CCFFR, St. John's, NL](#)
(Jan 7-9) #CCFFR

SIL meetings

- [2016 SIL Congress](#), 31 July-5 Aug, Torino, Italy

Other meetings

2015

- [2015 Society for Environmental Toxicology and Chemistry, North America](#) (36th Annual Meeting) Nov 1-5, Salt Lake City, UT
- [2015 North American Lake Management Society, 35th International Symposium](#), Nov 17-20, 2015, Saratoga Springs, NY
- [2015 AGU Fall Meeting](#), 14-18 December, San Francisco, CA

2016

- [2016 Canadian Society for Zoology](#), 8-13 May, London, ON
- [2016 Association for the Sciences of Limnology and Oceanography](#), June 5-10, Santa Fe, New Mexico
- [2016 International Association for Great Lakes Research](#), June 6-10, Guelph, ON #IAGLR2016
- [2016 International Statistical Ecology Conference](#), 28 June - 1 July 2016, Seattle, WA
- [2016 ASIH meeting](#), 6-10 July, New Orleans, LA
- [2016 Canadian Society for Ecology and Evolution](#), 7-11 July St. John's NL
- [2016 Ecological Society of America](#), 7-12 August, Ft Lauderdale, FL

- [2016 American Fisheries Society](#), 21-25 August, Kansas City 

Recent Citings

Do you have recent publications from the last 6 to 12 months that you'd like highlighted in the next issue? Send it to comms@socanlimnol.ca.

Arcagni M, Rizzo A, Campbell LM, Arribere MA, Juncos R, Reissig M, Kyser K, Barriga JP, Battini M & Guevara SR. 2015. **Stable isotope analyses of trophic structure, energy flow and spatial variability in a large ultraoligotrophic lake in Northwest Patagonia**. *Journal of Great Lakes Research* 41: 916–925. <http://www.sciencedirect.com/science/article/pii/S0380133015001173>

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Dubourg P, North RL, Hunter K, Vandergucht D, Abirhire O, Silsbe G, Guildford, SJ, Hudson JJ. 2015. **Light and nutrient co-limitation of phytoplankton communities in a large reservoir: Lake Diefenbaker, Saskatchewan, Canada**. Accepted: *Journal of Great Lakes Research* (in press).

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Kissinger BC, Gantner N, Anderson WG, Gillis DM, Halden NH, Harwood LA and Reist JD. 2015. **Brackish water residency and semi-anadromy in Arctic Lake Trout (*Salvelinus namaycush*) inferred from otolith microchemistry**. *Journal of Great Lakes Research* (in press). <http://onlinelibrary.wiley.com/doi/10.1002/2015GL063345/full>

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Dispatches from the Field:

Left: Wetlands sampling in Halifax, Nova Scotia. Photo courtesy Linda Campbell.

Right: Waiting for the morning fog to clear, before conducting lake sampling via floatplane, Smoke Lake, Algonquin Park, Ontario. Phot credit: Roberto Quinlan.



discontinuous permafrost zone related to peat subsidence. *Limnology and Oceanography*. doi: 10.1002/lno.10116 <http://onlinelibrary.wiley.com/doi/10.1002/lno.10116/abstract>

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Lecture in the great outdoors: Aquatic and Experimental Limnology students learn about the proper use of a Van Dorn bottle from Instructor Mike Rennie. See story on page 8. Photo credit: Kerri Finlay.

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