

THE CURRENT

Society
of Canadian
Limnologists



Société
canadienne de
Limnologie

Newsletter of the Society of Canadian
Limnologists

Zooplankton diversity in Prairie Lakes
Photo credit: Erin Hillis



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Message from the president

Björn Wissel, President



Dear Colleagues,
Many things can be said about the difficult, challenging and tragic times many of you have experienced in 2020. For the first time, the *Oxford Dictionary* designated more than

one *Word of the Year* (largely related to COVID-19 and its impacts on social interactions). Instead, *Guardian* readers were more direct and overwhelmingly described 2020 as “shit”, and 2021 as “better”. Unfortunately, “better” will also have to refocus on the challenges that were identified by the 2019 and 2018 Words of the Year, “climate emergency” and “toxic”, respectively.

As a scientific organization, SCL cannot impact vaccine developments and delivery or provide financial support for suffering individuals and organizations. Instead we have been dedicated to alleviating not only pandemic-related but also systemic challenges to vulnerable groups in Canada. To provide professional support, access to colleagues, and information in general, we provided free memberships to students and Early Career Researchers (ECR) for 2020. This offer resulted in over 80 new members, and we hope that our reduced 2021-2022 membership rates will encourage many of our new members to re-join SCL in the New Year. Other initiatives, such as statements in support of our BIPOC (Black, Indigenous, People Of Colour) colleagues and the Mi’kmaq Lobster Fishers and Treaty Rights have been spearheaded by the joint SCL-CCFFR JEDI (Justice, Equity, Diversity, Inclusion) committee that was created in late 2019 (more information below by our co-chair Cécilia Barouillet). The dedication to create change from this committee and eagerness of

all SCL-CCFFR Board members is also directly responsible for the JEDI conference theme of our upcoming CCFFR-SCL 2021 conference (week of February 15th 2021). The meeting is co-chaired by Margaret Docker, Eva Enders and I, and we have been enjoying the strong support of an experienced CCFFR crew. A mix of live sessions and social events will be complemented by pre-recorded talks and posters with Q&A sessions. We are excited that many of you decided to submit an Abstract to one of the many sessions to highlight the quality and diversity of aquatic research in Canada and our dedication to social justice.

Working with our colleagues at CCFFR at the various levels and committees has been a rewarding experience and our stronger-growing bonds may eventually result in the creation of a joint Canadian aquatic society. So far, SCL has conducted two membership surveys and there is an overall desire to join forces, while maintaining our identity as Limnologists. Thank you to the SCL members of the merger committee (Kerri Finlay, Jérôme Marty and Kristen Coleman) for carefully designing and analyzing the surveys to represent the interests and preferences of our members at the merger discussions!


I am getting more optimistic that 2021 will bring an end to the pandemic. Not having to worry about your family and friend’s health and well-being, meeting colleagues in person, and conducting field-based research seems unattainable right now, but will be absolute joy when it actually happens! Once we have reached a “new, new” (or old) normal, we will be able to refocus on addressing the water quality and quantity crisis in Canada. I hope that the experiences and resulting initiatives due the current pandemic will make our efforts more just and inclusive, and thereby more successful and rewarding. 🌱



SCL Response to the COVID-19

By Andrea Kirkwood, Cécilia Barouillet and François Guillemette

On top of coping with the very real health concerns posed by the SARS-CoV-2 virus, the COVID-19 pandemic has altered our ability to conduct our lab and field work, as well as engage with one another face to face. In response to these challenges, SCL has created a webpage that is devoted to resources and opportunities for our members during the

COVID-19 pandemic. Information includes links to research opportunities, online educational resources, professional development and training webinars and websites. For links to these resources, please visit our website: <http://socanlimnol.ca/covid-19/> 




Society Updates



2021 Membership Renewal Now Open, and Back Online!

By Joshua Thienpont

Thanks to all our members for your patience as we transitioned to a new online membership renewal method for 2021. You can now sign up as a member, or renew your membership, via credit card, at the appropriate links below. We continue to accept paper renewals, contact Josh via email to Joshua.thienpont@gmail.com for details.

Because of the continuing impact of the pandemic, we have decreased the cost of a 2-year student membership from \$35 to \$25, and the cost of a 2-year early career (within 10 years of terminal degree) membership from \$70 to \$50. These lowered rates will be in effect until April 1, 2021. If you are interested in signing up multiple members, for example you're a PI paying membership for your trainees as a generous holiday gift, send Josh an email and he can generate an electronic itemized invoice, so it can be paid all at once. 

Join now!

- 2-Year Regular Membership - \$120
 - 1-Year Regular Membership - \$70
 - 2-Year Early Career Membership - \$50*
 - 2-Year Student Membership - \$25*
 - 1-Year Student Membership - \$20
- *Until April 1, 2021*

Donation


We are also accepting donations for the [Peters Award Donation](#)

LimnoSeminar series

By Andrea Kirkwood, Kristen Coleman and François Guillemette

We have revived our LimnoSeminar series with a new format, making it a bit unique compared to other science webinars. In a nutshell, each LimnoSeminar has a featured limnology topic. During the first half of the webinar, an invited early-career researcher (ECR) gives a presentation that includes a topic overview, followed by their own related research. In the second half of the LimnoSeminar, the ECR speaker joins a panel with 2 other limnologists that have expertise in the topic area. An SCL moderator facilitates the discussion by directing questions posed by the audience to the panel.

LimnoSeminars are scheduled on the same day/time each month from October 2020 - May 2021. We have earmarked the second Tuesday of each month at **12:30-13:30 Eastern**. Please complete the [Winter 2021 LimnoSeminar registration form here](#). All registered participants will receive an email with the Zoom webinar link before the scheduled LimnoSeminar event.

With the permission of each speaker, recorded LimnoSeminars will be posted to our [SCL Youtube Channel](#). 

Speakers and panelists for Winter 2021

| Date | Topic | Speaker | Panelists |
|------------|---|-------------------------|---|
| 12- Jan | Greenhouse Gas Dynamics in the Arctic | Dr. Kyra St. Pierre | Dr. Isabelle Laurion, Dr. Dave Olefeldt Dr. Jennifer Korosi |
| 9- Feb | Contaminants in Northern Lakes in a Warming World | Dr. Branaavan Sivarajah | Dr. Joshua Thienpont |
| 9- Mar | Zooplankton as Proxies of Environmental Change | Dr. Anas Mohamed | Dr. Beatrix Beisner Dr. Björn Wissel |

Update on EDI (Equity, Diversity and Inclusion)

By Cécilia Barouillet and Andrea Kirkwood

Over the last few months, the JEDI committee has been very active:

1) **Canadian Aquatic Societies' Joint-Statement in Support of Mi'kmaw Lobster Fishers and Treaty Rights:**

SCL worked with CARS and CCFFR to write a joint-statement written in support for the Lobster Fishers and Treaty Rights. The


statement, published on Dec. 11th 2020 is accessible on the SCL website: <http://socanlimnol.ca/canadian-aquatic-societies-joint-statement-in-support-of-mikmaw-lobster-fishers-and-treaty-rights/>

2) **Virtual Conference 2021 Justice, equity, diversity and inclusion in aquatic sciences:**

The JEDI committee is working along with the conference organizers to put in place JEDI initiatives:

- a) Creation of a code of conduct
- b) Creation of guidelines for presenters to improve the accessibility of their posters and presentations
- c) Creation of a demographic survey
- d) Organisation of a JEDI panel discussion

where speakers will talk about what they believe to be the pressing issues in their field today including JEDI insight

- 3) **New SCL JEDI co-chair: Andrea Kirkwood:** Andrea Kirkwood is our new SCL co-chair for the JEDI joint-committee, she will be sharing with you about the JEDI updates in our future newsletter. 

SCL business meeting

Friday, Feb. 19th from 11:00 am to 12:30 pm CST. We will circulate the Zoom link to all members once it becomes available via email. Members will not have to registered for the conference to participate.

Research Highlight: Using lake sediments to track sources of nutrient inputs to Nova Scotia lakes near mink farms

By Nell Libera (Queen's University) and Jennifer Kissinger (University of Ottawa)

Freshwaters in southwest Nova Scotia have been the subject of a polarized pollution debate, where community members have attributed poor water quality and algal blooms to the presence of mink fur farms situated nearby and on the shorelines of local lakes. The fur industry has existed in NS since the early 20th century. Production escalated in the 1990s, and by 2013 mink pelts became the province's second highest agricultural export. The waste products (faeces and carcasses) are nutrient-rich and may contain biomagnified contaminants (heavy metals or persistent organic pollutants; POPs) because captive mink are typically fed a marine-derived fishmeal diet. Monitoring conducted by the local watershed organization (TREPA.com) from 2008-2017 has shown that even lakes ~40 km downstream from fur ranches have



A sediment core taken by Dr. Josh Kurek and Jennifer Kissinger. Credit: Nell Libera.



Hot, still days are ideal conditions for many bloom-forming algae. Credit: Nell Libera.

reported algal blooms and water quality declines (Stantec Consulting Ltd. 2017).

However, other local, regional and global stressors also threaten water quality in SW-Nova Scotia (Korosi et al. 2013). On an individual catchment-scale, changes in land-use (e.g., logging, development, conventional agriculture, and road construction) and introductions of invasive species (e.g. chain pickerel) may impact lake ecosystems. The region was also particularly affected by acid rain during its peak 1970-1990, due to the poor buffering capacity offered by the regional geology. Finally, climate change is an important consideration because changes in thermal stratification and mixing dynamics can promote dominance of nuisance algae without external nutrient subsidies. To understand how these multiple stressors may


be affecting water quality declines, we are using paleolimnological techniques to extend the monitoring window to pre-disturbance conditions and examine how these sites have changed (Smol 2008). We are also using a study design based on a gradient of mink impact, including sites with fur farms on their shorelines, sites downstream from farms, and reference sites with no identifiable influence from farms, in an attempt to disentangle the possible effects of the mink farms from other stressors.

Eutrophication causes changes in lake ecosystem dynamics that are reflected in sedimentary microfossil assemblages. For example, we can indirectly reconstruct changes in nutrient levels (e.g. total phosphorus) and pH using statistical transfer functions based on diatom assemblage composition. Diatom assemblages can also track impacts of climate change (e.g. length of ice cover, thermal stratification and mixing dynamics). The midge (Chironomidae) assemblages preserved in lake sediments can be used to infer the availability of hypolimnetic dissolved oxygen. Microfossils of the Cladocera, who have an intermediate position in the food-web and occupy a variety of niches, can also be indicative of changes in productivity, habitat, and predation.

These biotic indicators will be paired with chemical indicators to further evaluate cause-and-effect relationships. For example, the isotopic signature of nitrogen in lake sediments can be used to help identify the sources of nutrient inputs. The heavier stable nitrogen isotope (^{15}N) is typically enriched in material derived from organisms positioned at higher trophic levels, such as the carnivorous mink. To distinguish between the types of nutrient inputs, we will also examine the makeup of sterol and faecal sterol

compounds preserved in the sediments. Sterols are present in all plants and animals, but their composition is unique to different groups. For example, faecal sterol composition varies according to diet and may be used as indicators of sewage pollution. They can distinguish inputs between, for example, carnivores such as mink and human waste from septic systems. Finally, we will directly track biogenic metals and POPs in the sediment records to investigate if biomagnification of contaminants has been occurring in these ecosystems

While ecosystem responses to multiple stressors are complex, we are pairing reconstructions of putative wastes from fur farms (isotopes, sterols, POPs and metals) with reconstructions of the impact on the ecosystem (nutrient levels, dissolved oxygen and food-web changes). This weight-of-evidence approach will hopefully provide regulators and managers with the context that

is needed to generate priorities for management and realistic water quality targets. 

Literature Cited


Korosi, J. B., B. K. Ginn, B. F. Cumming, and J. P. Smol. 2013. Establishing past environmental conditions and tracking long-term environmental change in the Canadian Maritime provinces using lake sediments. *Environ. Rev.* 21:15–27.

Smol, J. P. 2008. *Pollution of Lakes and Rivers: A Paleoenvironmental Perspective*. 2nd edition. Blackwell Publishing, Oxford.

Stantec Consulting Ltd. 2017. Results of the 2017 water quality survey of eleven lakes in Yarmouth and Digby counties. https://nsf-fane.ca/wp-content/uploads/2018/03/007_Results2017waterCaretonRiver.pdf. Accessed 11 October 2018.

Members Update

John Smol (Queen's university) was presented with **The Polar Medal** by the Governor General of Canada for "extraordinary services in the polar regions and Canada's North". In addition, John was named a **Distinguished University Professor**, a new category of professorship to Queen's restricted to about 1% of the

faculty. John has also taken up his 3-year term as elected **President of the Academy of Science, Royal Society of Canada**. Finally, **Massey Medal** - the senior medal of the *Royal Canadian Geographical Society*, to "recognize outstanding career achievement in the exploration, development or description of the geography of Canada" 



Award Winners

Robert Peters Award

By Kerry Finlay

This year, the Peters award committee was pleased to offer two awards to students who were first authors on outstanding papers in the field of limnology: Madison Bell (University of Ottawa), and Matthew Duda (Queen's University). Both studies are pushing the boundaries of limnology and paleolimnology and helping to prove the breadth of applications across diverse disciplines.

In her paper, Madison Bell developed a new line in inquiry for lake sediment studies by using accurate mass quadrupole time-of-flight mass spectrometry coupled to ultra-performance liquid chromatography to characterize the molecular composition of organic matter in sediments across northern Canada. These results indicate that organic composition in lake sediment cores are useful to track changes in ecoregions through time, including shifting treeline, as well as other climate-induced changes to the northern Canadian landscape.

Matthew Duda published his influential paper that uses limnology and paleolimnology to explore the long-term population trends in the world's largest Leach's Storm-petrel colony. The results of these analyses provide ornithologists and wildlife managers the much-needed long-term context to understand natural population variability prior to human industrialization.

Full references are available below!

Frank Rigler Award

By Jérôme Comte

The 2021 Rigler award has been awarded to Dr. Karen Kidd (McMaster University, ON) for her outstanding contributions to aquatic sciences and her excellence in high qualified personnel training. Beyond her scientific accomplishments, Dr. Kidd has represented Canadian research excellence on a variety of international committees and events and was actively involved in the successful effort to preserve the Experimental Lakes Area, which had a lasting impact on aquatic science in Canada.

We want to heartily congratulate all winners this year, and look forward to hearing them speak about their work as invited talks at SCL/CCFFR in 2021!

For details on how to apply,
visit our website at
<http://socanlimnol.ca/awards/>

**Deadline:
May 31st 2021**




Justice, equity, diversity and inclusion in aquatic sciences • Justice, équité, diversité et inclusion dans les sciences aquatiques

The theme of the 2021 CCFFR-SCL conference is "Justice, Equity, Diversity, and Inclusion in Aquatic Sciences and Management".

This year, we're adapting to a virtual format that will include ample opportunities for real-time connection and convenience of on-demand content. Registration fees will be kept low to encourage broad participation.

Each day, our virtual program will feature plenaries including the J.C. Stevenson Memorial Lecture and the F.H. Rigler Memorial Lecture and other large gatherings (i.e., CCFFR and SCL Business Meetings and Student Socials). A featured panel discussion will critically assess Aquatic Research in Canada in the face of Justice, Equity,

Diversity & Inclusion. CCFFR-SCL 2021 will also offer an online gallery of pre-recorded technical talks and posters as well as topical hangouts hosted online by session chairs and others. Live events will be recorded, and all recordings will be accessible to CCFFR-SCL 2021 registrants through 31 March 2021. Consequently, registrants will have plenty of time to listen to all the great research at their leisure and won't miss out on any talk. 

Visit [CCFFR-SCL2021 - CCFFR-SCL 2021 \(acadiau.ca\)](https://www.acadiau.ca/CCFFR-SCL2021) for more information.

From the Conference Chairs,
Margaret Docker, Eva Enders & Björn Wissel

List of 2021 conferences

SCL/CCFFR annual meeting • Feb. 15-19 • Virtual

Ontario Chapter of the American Fisheries Society • Mar 19-20 • Virtual

Canadian Geophysical Union • May 2-5 • Banff, AB

Canadian Society for Zoologists • May 17-21 • Virtual

International Association for Great Lakes Research • May 17-21 • Virtual

ASLO-Aquatic Science Meeting • June 22-27 • Virtual

American Society for Ichthyology and Herpetology • Dates to be announced

ESA 2021 • Aug 2-7 • Long Beach, CA, USA

Student Spotlight

Interview by Kristen Coleman and Cécilia Barouillet

We interviewed members of the Toronto Science Policy network, who recently released a report on findings from a survey aimed at understanding the impacts of COVID-19 on graduate students across Canada. Toronto Science Policy Network (TSPN) is a student-led science policy group at the University of Toronto. They are all graduate students and post-doctoral fellows who are carrying out research in various fields, including Chemistry, Molecular Genetics, Physics, Medical Biophysics, Environmental Science, Psychology, Engineering and more. While many of the members are studying at the University of Toronto, they also have volunteers and contributors from multiple institutions across Canada. TSPN provides an opportunity to explore the intersection of science and policy, and is also an opportunity to engage in science for policy, and policy for science.

How and when was TSPN established? Is there a story behind this?

In the summer of 2018, five University of Toronto graduate students (Ellen Gute, Sivani Baskaran, Molly Sung, Vasa Lukich and Farah Qaiser) met at a coffee shop to discuss the idea of a science policy group. Each had different interests, and had heard about this idea through a different avenue, including word-of-mouth, email and Twitter. What they did share in common was addressing a clear gap at the University of Toronto: that there was no student-run science policy group. And so, in July 2018, they founded the Toronto Science Policy

Network.

What are the main goals that TSPN would like to achieve?

TSPN is a student-run science policy group which provides a platform to learn about and engage in science policy for all interested trainees, researchers and members of the local community through events, including practical workshops and talks. We also work within the community on science advocacy initiatives (such as our past Vote Science campaign, and a COVID-19 Graduate Student survey) and promote public dialogue on the science behind key policy topics through panels.

In your recent report: The Early Impacts of COVID-19 on Graduate Students across Canada (1), you were able to highlight difficulties that the graduate students were facing early on during the pandemic (e.g. finance, wellness, work). Do you have any plans to send out another survey to assess if these difficulties have evolved over the past few months and evaluate if the strategies established by the government and institutions have improved the conditions of graduate students (for teaching, for conducting research, or to improve financial stability)?

At this time, we are not intending to conduct another survey. But this question brings up a very important issue that we as a group and with others have been discussing. Our



THE EARLY IMPACTS OF COVID-19 ON GRADUATE STUDENTS ACROSS CANADA

Learn more about about how COVID-19 has impacted various aspects of graduate studies, based on a survey of 1,431 students across Canada.

toscipolicynet.ca/covid19-report

to.scipolicynetwork@gmail.com | [@TOSciPolicyNet](https://twitter.com/TOSciPolicyNet) | toscipolicynet.ca

survey, and other similar efforts to understand the impact of COVID-19 on the next generation of scientists have all been carried out on a volunteer basis. This model for understanding the pandemic’s impact on graduate student experiences is not sustainable. We’re calling on decision-makers within the government and academic institutions to continue this effort in monitoring the long-term impacts of COVID-19. We need to establish better standards and clearer guidelines to help ensure graduate students have the proper support systems they need to become the next leaders of science and innovation in Canada.

You list a number of recommendations at several levels (governmental, institutional, and departmental). Have you implemented any strategies, or have plans to implement strategies to address issues identified in your report at your local scale? If so, how?

We’ve been taking some time to reach out to various deans and institutional leaders across

Canada to see how institutions are responding to the situation. Some universities have implemented tuition waivers for graduate students who were impacted by COVID-19, while others have introduced new grants to support students to pay for internet access and other costs associated with working from home.

Did you face any difficulties in continuing your activities during this pandemic? If so, how did you go about addressing them? Any recommendations for student-run organizations?

Even before the pandemic, TSPN did a lot of our event planning online, using collaboration tools like Slack, so things haven’t changed so much. But we have switched from in-person events to virtual events. This has really changed how we engage with attendees, and how we run collaborative and engaging events. One thing that we’ve really noticed is the difficulty associated with scheduling team meetings. Given COVID-19 restrictions, many graduate

students are working on shifts and have varying schedules, and so finding times when the whole team is available to meet virtually is quite challenging.


Are you working on any other projects or have any future projects planned?

Right now TSPN is focused on running virtual workshops, panels and talks that move towards both increasing awareness of the science policy interface and helping prepare graduate students for a career in science policy.

How can students join TSPN?

Despite our group being called the Toronto Science Policy Network, we’re always happy to welcome in new students from across Canada! If you’re interested in exploring the science-policy interface, whether it’s through event planning or spearheading an initiative, check out our [Get Involved](#) page to learn more about volunteering opportunities and available executive positions. We do all of our event planning via Slack. You can request access to our Slack group by [sending an email](#) to or by [signing up here](#) to follow TSPN and receive notifications for other

Would you like to share any links to reports or projects?

Feel free to check out [our website](#) to learn more about the Toronto Science Policy Network. You can learn more about our [COVID-19 Graduate Survey](#) report here. You can also find additional science policy resources, including fellowships, training opportunities and journals, on [our Resources page](#). We would also like to share two recent reports which are relevant to graduate students and post-doctoral fellows: the [Science Policy Exchange](#) released a report on [Rethinking Federal Research Funding](#), and Suart et al. published a preprint on [how lab shutdowns have impacted graduate students](#). 

Do you want to be our next student spotlight?

If you want to share your research project, send us an email at comms@socanlimnol.ca

- • - Recent Citings - • -

relevant science policy news and events happening around the world.

This section highlights some of the current work of our members. If you have a recent (past 6-12 months) contribution to the peer-reviewed literature that you’d like to share with the society, please e-mail it to comms@socanlimnol.ca!

1. Bell, MA, DP Overy, and JM Blais. 2020. “A continental scale spatial investigation of lake sediment organic compositions using sedimentomics” *Science of the Total Environment*. 719: 137746.

2. Duda, M, GJ Robertson, JE Lim, JA Kissinger, DC Eickmeyer, C Grooms, LE Kimpe, WA Montevicchi, N Micheluitt, JM Blais, and JP Smol. 2020 “Striking cenntennial-scale changes in the population size of the threatened seabird” Proceedings of the Royal Society London B: 20192234.
3. Garner, R. E., I. Gregory-Eaves, D. A. Walsh. 2020. Sediment metagenomes as time capsules of lake microbiomes. mSphere 5:e00512-20. <https://doi.org/10.1128/mSphere.00512-20>ice-jam flood. Environmental Reviews (er-2019-0047.R2). Published as Just-IN article. <https://doi.org/10.1139/er-2019-0047>.

Thank you to all our members who contributed to this newsletter!

If you would like to contribute to our next newsletter, share your stories,
and cool research project, please contact

comms@socanlimnol.ca

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