

# School of Environment, Resources and Sustainability

## Annual Report 2023-24

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### SERS mission



To foster the transdisciplinary research, teaching and outreach to protect, restore, reform and transform the social and ecological systems upon which we all depend.

Our School is guided by a collective desire to work towards a sustainable future. We do so by focusing on ecologically and socially significant issues at scales ranging from the community to the globe; working within, between and across disciplines and ways of knowing; and engaging with the people and organizations affected by the issues that concern us to make sure our research, teaching and outreach is relevant and effective.



## Highlights and accomplishments

Derek Armitage	I took on the role of Director, SERS in January 2024 and have very much appreciated the opportunity to work more closely with students, staff and faculty colleagues across ENV. My co-edited book on Canada's oceans and coasts was published by UBC Press ( <i>Sea Change: Charting a Sustainable Future for Oceans in Canada</i> ), and I have taken on a coordinating author role for the 3 <sup>rd</sup> World Ocean Assessment.
Christy Barbeau	In my role as Associate Dean, Teaching, I have actively engaged in university-wide initiatives, focusing on holistic education approaches such as promoting wellness integration, enhancing teaching effectiveness, and championing accessibility initiatives aligned with new AODA recommendations. Moreover, my involvement as the Champion of the Outline.uwaterloo.ca project has aimed to increase adoption of Outline across the University. I have facilitated peer review of teaching implementation and initiated the Teaching Conversations Series aimed at fostering knowledge exchange and community building among instructors. Furthermore, organizing and running the Grand River Envirothon, with faculty support, has provided valuable experiential learning opportunities for high school students from our region.
Jennifer Clapp	This year, I finished the book I've been working on for the past few years, <i>Titans of Industrial Agriculture: How a Few Giant Corporations Came to Dominate the Farm Sector and Why it Matters</i> , which will be published by MIT Press in early 2025. I also finished up my term as Vice-Chair of the High Level Panel of Experts on Food Security and Nutrition and have continued in my role as a panel member with the International Panel of Experts on Sustainable Food Systems.
Andrea Collins	I became Associate Director, Graduate Studies for SERS in January 2024. I have been collaborating on new research about gender, land governance, and environmental peacebuilding. My sole-authored book, <i>Gender and the Global Land Grab</i> , was accepted for publication at McGill-Queen's University Press and will be published later this year.
Simon Courtenay	Simon's 5 years as Director of SERS ended December 31, 2023. In January 2024 he began a sabbatical which he is now enjoying in Saint Andrews, New Brunswick.
Rob de Loë	
Felicitas Egunyu	This year I continued to engage in collaborative research about resource extraction and completed the first round of field data collection. I also started working with my first graduate student.
Graham Epstein	I have contributed to 6 manuscripts on a range of topics, including assessment of conservation governance, the landscape ecology of community-based forest management, marine conservation and ocean equity and was elected as a council member for the International Association of the Commons. I am currently serving on the committees of 3 PhD and 2 Masters students and led an informal seminar on methods in evidence synthesis for graduate students in SERS.
Brad Fedy	My research group published 6 manuscripts in high-impact journals with one of the articles receiving an Editor's Choice Award. My research group also gave 17 conference presentations with one of the presentations being a keynote presentation I gave at the Annual Ontario Wildlife Society Meeting. I developed a new graduate course in Applied Statistics in Ecology and Environment that was well-received by the inaugural class. Also, I am developing a textbook to support that course.
Dustin Garrick	<a href="#">Blue Range Labs</a> completed its first year with highlights in research, teaching, and impact. Research highlights included two papers in <i>Science</i> and grants from the New Frontiers Research Fund International Development Research Centre for a collaborative research project with COHESU in Western Kenya focused on women and water entrepreneurs in the informal sector (with Drs. Graham Epstein and Susan Elliott at UW). Teaching highlights include mentorship and support of PhD students, highlighted by the PEO Award

	for Isabel Jorgensen and recruitment of Elisha Ochieng, as well as master's students Ishani Dasgupta and Melanie Michaud; I started a two-year term as director of the Collaborative Water Program. Our path to impact included local and global reach. I served as lead author of a chapter of the UN World Water Development Report (with Dr. Jones-Crank) and advised the World Bank on water allocation reform. Local engagement and impacts occurred through Water Cycles which seeks to reconnect communities and water through cycling, hosting a major event in the Upper Grand and scoping research and community learning partnerships featured in the LA Times and CBC.
Bob Gibson	
Leah Jones-Crank	I completed my first year as an Assistant Professor in SERS. I was also received the 2024 Olen Paul Matthews and Kathleen A. Dwyer Award from the Water Resources Specialty Group in the American Association of Geographers (AAG).
Brendon Larson	Brendon Larson's major accomplishment during the period was an advance contract for a cross-over book to be published by McGill-Queen's University Press.
Kelsey Leonard	
Chantel Markle	This year, I welcomed my first cohort of graduate students. We have multiple collaborative research projects, including lots of incredible field research throughout the province. I also joined the Board of a non-profit, American Turtle Observatory.
Dan McCarthy	
Stephen Murphy	I am a co-recipient of Bradshaw Medal (best restoration ecology paper), am appointed as senior advisor to the new UK Restoration Futures project, and am appointed as a lead on the North American Biodiversity & Climate Change Assessment Project.
James Nugent	I am working on a new CEL graduate course, The Socially Just City, and have enjoyed supervising master's and thesis students. I organized a panel at the Teaching and Learning Conference, "Pedagogies of Care in Uncomfortable Spaces." I was heavily involved in Policy 76/77 advocacy for lecturers and currently serve on Senate and several other committees.
Maren Oelbermann	A new project (BioSoil North) funded by NSERC-Alliance was started in Goose-Bay, Labrador <a href="#">BioSoil North   Boreal &amp; Arctic Agriculture Research Network (baarn.ca)</a> . This project supports a Masters and a PhD student. I also hosted visiting scholar from Brazil from May to July. This work received international attention including the front page of the UW website and a newspaper article in Spain. My research group published 4 manuscripts in high impact factor journals. Of note is a paper in the Journal of Environmental Management <a href="https://doi.org/10.1016/j.jenvman.2024.120739">https://doi.org/10.1016/j.jenvman.2024.120739</a> (IF 8.91). I also attended 2 international conferences. I continue to serve as a PhD Defense Chair and reviewed multiple grant proposals for NSERC, CFI and OMAFRA. I continued to serve as an Associate Editor for Journal of Environmental Quality and for Agroforestry Systems and I am the Managing Guest Editor for a special issue in Geoderma Regional.
Stephen Quilley	I have been awarded IEMA certificates on Pathways to NetZero and Sustainable Procurement and completed the coursework (with distinction) to become a practitioner/fellow of the UK-based Institute for Environmental Management and Assessment. I have had a long essay published in the European Journal of Social Theory. Quilley S. (2024) Schumacher against Globalism and Ecomodernism: Ecology, subsidiarity and the politics of scale.
Ian Rowlands	In December 2023, I completed my second and final term as the University's Associate Vice-President, International. I am excited to return to SERS and ENV for learning, research, and community activities. I am refreshing my research programme during a sabbatical at present with foci including sustainable energy transitions, multi-level governance and decision-making, internationalisation, and higher education prospects.

Helena Shilomboleni	This year, I received a couple of internal and external grants (as PI and co-PI) to support my fieldwork research in East Africa that will examine the scaling new agricultural innovations for smallholder farmers.
Trevor Swerdfager	My fifth year as a member of the Faculty was an eventful and enjoyable one. With my close colleague Simon Courtenay, I co-led our second annual oceans sustainability course featuring a week in New Brunswick and a week in Nova Scotia. It was a nice segue into my Oceans Sustainability course which now has become a permanent course, ERS 221. Again working with Simon, it was a huge pleasure to coordinate the 26-student Honours Thesis course and to supervise an Honours student of my own as well. My GEOG 456/696 two-day field trip to Ottawa was a highlight as we met several Ministers, MPs and the Speaker of the House of Commons among others. The newly released 5 <sup>th</sup> edition of the Canadian Environmental Policy and Politics textbook includes a chapter I wrote. Working with Derek I am fully engaged in writing a new online biodiversity course. And perhaps most importantly, I was able to connect several graduating students to permanent jobs in the organizations I used to work in. A fulfilling year, all in all!
Andrew Trant	This year, I started my new role as the Associate Director, Undergraduate Studies and was appointed as a Research Fellow of the Cold Regions Research Centre at Wilfrid Laurier University. A book, <i>Canadian Mountain Assessment: Walking Together to Enhance Understanding of Mountains in Canada</i> , of which I am a co-author, was published in late 2023.
Patti Bester	We are grateful for our new hire Stephanie Mohl, as Graduate Advisor, as she is very skilled and personable. And, also, that our School continues to be ripe with great people who are all super colleagues.
Mary Anne Hardy	SERS earned Gold level certification in the Sustainability Office's Green Office program for the second year in a row. I marked by first full year in SERS and we were fortunate to hire Stephanie Mohl to fill our Graduate Coordinator role in January.
Stephanie Mohl	I was hired as the Grad Advisor in January 2024. Coming from an organization outside of the University of Waterloo, there are many new systems/processes to navigate; I am thankful for the patience and kindness extended to me from my colleagues as I learn the various components of my role. SERS/ENV has the best staff! 2024 will continue to be a year of growth as I maintain my PMP and take courses related to EDI.

## People, places and activities

Andrew Trant organized Canoeing the Grand on June 10, 2023. More than 15 SERS and family members paddled the Grand River taking in a lovely afternoon.

Derek Armitage led the third annual grad orientation trail walk in Schneider's Woods on September 23, 2023.

SERS renovated one of our meeting rooms, converting it into three offices to accommodate our growing community in EV2. We also closed off a small hallway to create a wonderful small sunny office.

SERS Salons continued this year with presentations by Graham Epstein, Hilde Bjørkhaug (a visiting scholar from NTNU in Norway), Anders Wästfelt (a visiting scholar from Stockholm University in Sweden), Christine Barbeau and Julia Burke, and Tim Alamenciak.

Thanks to Mary Anne Hardy's focus, SERS marked a second year at the Gold level of certification in the Sustainability Office's Green Office program.



We held an afternoon of bowling in December as our faculty and staff event. A great time was had by all (no comment on the scores).

SERS held our first Town Hall on September 18, 2023. This event allowed students to put a face to the names of SERS faculty and staff as SERS members provided brief overviews of their roles and research interests. Questions asked by the undergraduate and graduate students present resulted in insightful discussions. A social followed in SERS.



## Comings and goings

Prof. Simon Courtenay wrapped up his five-year term as Director, transitioning into a sabbatical and a renewed focus on all things estuarine and aquatic in New Brunswick. Prof. Derek Armitage took on the role of Director in January 2023 having served as Associate Director, Graduate for five years.

We officially welcomed two new faculty members to SERS in 2023: Dr. Chantel Markle (cross-appointed with Geography and Environmental Management), and Dr. Leah Jones-Crank. They add to our growing complement of [outstanding new faculty members](#).

We were pleased to have Dr. James Nugent officially join SERS as a 100% faculty member, transitioning from his role within the Faculty of Environment.

Dr. Dustin Garrick was appointed Director of the University of Waterloo's [Collaborative Water Program](#) for a two-year term, effective January 1, 2024.

After a decade at the Perimeter Institute, we were pleased to welcome Stephanie Mohl who joined SERS as our Graduate Program Administrator, and we said farewell to Amanda Campbell who took on new opportunities in the Faculty of Arts.

Dr. Christy Barbeau took on the role of Associate Dean, Teaching in the Faculty of Environment, championing teaching effectiveness and the new teaching peer review process.

Dr. Andrea Collins took on the role of Associate Director, Graduate in SERS, while Dr. Andrew Trant took on role of Associate Director, Undergraduate.

Dr. Graham Epstein was appointed Research Assistant Professor in SERS, working with Dr. Dustin Garrick on a range of projects, while also making valuable contributions to teaching and supervision.

Dr. Brendon Larson returned from sabbatical and several years as Associate Dean, Undergraduate in the Faculty of Environment, while Dr. Ian Rowlands returns to SERS after serving as Associate Vice-President, International for eight years and begins a well-deserved sabbatical.

Several post-doctoral fellows joined SERS this year, including Dr. Christine Daly (SSHRC Postdoctoral Fellow with Dan McCarthy), Dr. Kira Cooper (Mitacs Elevate / Musagetes Foundation Postdoctoral Fellow with Dan McCarthy), and Dr. Deborah Prado (V2V Global Partnership / Brazilian Government Postdoctoral Fellow with Derek Armitage and Prateep Nayak).

SERS had several visitors including Dr. Jolimar Schiavo, State University of Mato Grosso do Sul, Brazil (visitor of Maren Oelbermann), as well as Dr. Hilde Bjørkhaug, NTNU, Norway and Dr. Anders Wästfelt, Stockholm University, Sweden (both visitors of Jennifer Clapp)

## Awards, partnerships and other good news

SERS signed a letter of intent with The Long Point Biosphere Region Foundation which sets out a framework to pursue new projects together, exploring collaboration in education, public outreach, and research on sustainability, conservation, and the protection of biodiversity.

<https://uwaterloo.ca/environment-resources-and-sustainability/news/sers-signs-letter-intent-long-point-biosphere-region>. This agreement has already led to collaboration between SERS faculty and LPBF staff and the development of student projects with more activities to come.

With the support of the Associate Dean, Equity, Diversity, Inclusion and Justice, the School of Environment, Resources and Sustainability, and the Department of Geography and Environmental Management, Dr. Chantel Markle established a partnership with FREED: Field Research in Ecology and Evolution Diversified. FREED is a grassroots organization that increases access to field research, outdoor and naturalist experience, community building, and career mentorship for Indigenous, Black, and/or Racialized (BIPOC) students.

Dr. Brad Fedy, Dr. Chantel Markle and Dr. Andrew Trant were recipients of NSERC Discovery grants to support their ongoing research activities.

Dr. Stephen Murphy was a co-recipient of the Bradshaw Medal for best restoration paper (2023 award for 2022 paper) titled “Restoration, reclamation, and rehabilitation: on the need for, and positing a definition of, ecological reclamation” in *Restoration Ecology* 30(7). doi: 10.1111/rec.13461.

Dr. Leah Jones-Crank was the recipient of the 2024 Olen Paul Matthews and Kathleen A. Dwyer Award from the Water Resources Specialty Group in the American Association of Geographers (AAG)

Dr. Kelsey Leonard led the successful application for the University of Waterloo Urban Forest to be recognized with the national healing forest designation. The urban forest area has been designated a national healing forest by the David Suzuki Foundation in partnership with the National Healing Forests Initiative. <https://uwaterloo.ca/news/environment/waterloos-urban-forest-receives-national-healing-forest>

PhD student Jim Jones was awarded funding from the Sustainability Office for the project, Land Skills for Wellness and Sustainability. Students, staff and faculty were invited to a series of workshops over the spring term to learn the benefits of green woodworking, basket weaving, scything, nature weaving, herbal tea making and nature walks. <https://uwaterloo.ca/environment-resources-and-sustainability/news/new-land-skills-wellness-and-sustainability-project-launches>

PhD student candidate Isabel Jorgensen was awarded a prestigious P.E.O. Scholar Award for her high level of academic achievement and potential to have a positive impact on society.

<https://uwaterloo.ca/environment-resources-and-sustainability/news/isabel-jorgensen-awarded-prestigious-peo-scholarship>

Dr. Dustin Garrick led an international team that was awarded \$500,000 in funding in May 2023 through a New Frontiers in Research Fund (NFRF) special call for research for post-pandemic recovery. Working alongside partners in Kenya, the team’s *Beyond the Informal Water Paradox* project focuses on harnessing solutions to water insecurity in the informal sector, particularly the role of mobile water vendors (hand carts, tanker trucks) that fill gaps in water provision but also come with risks, creating a

paradox for water utilities who often struggle to keep pace with growing needs.

<https://uwaterloo.ca/environment-resources-and-sustainability/news/dustin-garrick-leads-nfrf-project-beyond-informal-water>

Dr. Kelsey Leonard, along with an international group of Indigenous researchers, offered a definition of Water Back for Water research. Water Back means the return of Water and kin to Indigenous governance in a way that empowers the resurgent Indigenous Water relationships that are integral to Indigenous cultural, biological, spiritual and political sovereignty; this includes cosmogony, ceremony, access, law and policies. The review, [Water Back: A review centering repatriation and Indigenous Water research sovereignty](https://uwaterloo.ca/environment-resources-and-sustainability/news/kelsey-leonard-contributes-first-definition-water-back), is published in the journal Water Alternatives. <https://uwaterloo.ca/environment-resources-and-sustainability/news/kelsey-leonard-contributes-first-definition-water-back>

Dr. Kelsey Leonard's WAMPUM Lab partnered with the Collaboratory for Indigenous Data Governance to co-develop a report to the UN to prioritize Indigenous Peoples in the digital ecosystem. Their submission indicates principles and actions that can be taken to achieve the goal of an open, free and secure digital future for all. It employs the CARE principles, which are well-established in the open data movement. <https://uwaterloo.ca/environment-resources-and-sustainability/news/wampum-lab-co-develops-report-indigenous-data-sovereignty>

Dr. Maren Oelbermann began a new research project in collaboration with Memorial University to test ways to sustainably convert areas of Boreal Forest to permit agriculture use as a response to changing climatic conditions. The project, *BioSoil North: Local solutions for soil health resilience and mitigation of greenhouse gases*, was launched in April 2023 and includes three sites in Happy Valley-Goose Bay in Labrador — a subarctic region where the impact of climate change has already occurred, making it an ideal candidate for testing farming in the north. <https://uwaterloo.ca/news/environment/agricultural-innovations-age-climate-change>

Dr. Dustin Garrick co-led an article with Dr. Soumya Balasubramanya of the World Bank that was published in [Science](https://doi.org/10.1038/s41586-023-04000-0). Along with an international team, they examined the trend toward solar pumps as a clear opportunity for boosting agricultural yields and alleviating poverty and noted that the opportunity comes with risks. <https://uwaterloo.ca/environment-resources-and-sustainability/news/dustin-garrick-co-leads-study-potential-and-pitfalls-solar>



## SERS by the numbers

- Seven SERS doctoral students completed their degrees and graduated, moving onto a range of exciting new adventures. See here <https://uwaterloo.ca/environment-resources-and-sustainability/news/sers-celebrates-our-newest-doctoral-graduates> and here <https://uwaterloo.ca/environment-resources-and-sustainability/news/sers-celebrates-our-newest-phd-cohort>



- 42 undergraduate courses taught, including numerous field -based and experiential courses



- Approximately 1,908 undergraduate students enrolled across all SERS courses
- 80 graduate students enrolled across all courses (MES and PhD)
- Total number of graduate students currently in the program (MES, PhD): 79
- Number of first year undergraduate students in Fall 2023: 55
- Number of graduate students entering program in Fall 2023: 19
- Number of graduate defences: 19 (12 MES, 7 PhD)
- Number of students that convocated in Spring and Fall convocations: 75
- PhD students receiving external awards (e.g., SSHRC, NSERC, OGS) in 2023: 7
- MES students receiving external awards (e.g., SSHRC, NSERC, OGS) in 2023: 3