

**SARAH ELIZABETH WOLFE, Associate Professor**  
**School of Environment, Resources and Sustainability**  
**University of Waterloo (Canada)**

**Rationale:** Water is essential to our existence—ecological, biological, and cultural—and our ability to address water problems is a litmus test of our society’s capacity to address other environmental challenges.

**Focus:** I explore the social-psychological variables underpinning multi-scaled water decisions within a context of climate change. With established SSHRC funding, I mentor a team of emerging student scholars through my [Society, Environment and Emotions Lab](#). Our team examines the ways that citizens, policymakers and researchers make decisions outside of formal institutional rules, processes, and policies. We use mixed methods to test individuals’ values, beliefs, and emotions (e.g., fear, awe, and disgust) that are socio-culturally derived, often implicit, and rarely easily quantifiable by standard metrics. Our research helps to reveal the assumptions – of rationality and emotions – at the foundation of conventional water decision explanations.

## 1. EMPLOYMENT & EDUCATION

- 2022 - Pending: Full Professor, School of Environment and Sustainability (SES), Royal Roads University.
- 2020–21 Visiting Professor, School of Environment and Sustainability, Royal Roads University (*Leave-of-Absence, University of Waterloo*)
- 2019 Associate Director of Undergraduate Studies, School of Environment, Resources and Sustainability (SERS), University of Waterloo
- 2017 - Associate Professor: School of Environment, Resources and Sustainability (SERS), UWaterloo
- 2012–17 Assistant Professor (Tenure-track Appointment): School of Environment, Resources and Sustainability (SERS, formerly ERS as below), UWaterloo. *Note: My tenure clock started in 2012; tenure decision in April 2017.*
- 2009–11 Assistant Professor (Contractually Limited Term Appointment): Department of Environment and Resource Studies, UWaterloo
- 2006–9 Post-doctoral Researcher: Department of Environment and Resource Studies, UWaterloo.
- 2002–6 Doctor of Philosophy – degree conferred in 2007, Department of Geography, University of Guelph. *Dissertation: Commitment and Collaboration: Social networks and tacit knowledge in southern African and Canadian water demand management.*
- 2004 Visiting Researcher: International Development Research Centre - The Middle East Regional Office. Cairo, Egypt.
- 2004 Visiting Researcher: International Union for the Conservation of Nature - South Africa Office. Pretoria, South Africa.
- 2001–2 Consultant, Food and Agriculture Organization (United Nations), Water Policy, Development and Management Service. Rome, Italy.
- 2001 Rapporteur, Walkerton Inquiry – Part II. Toronto, Canada.
- 2001 Research Intern, People, Land and Water Program, International Development Research Centre. Ottawa, Canada
- 2000–1 Junior Professional, Food and Agriculture Organization (U.N.) – Water Policy, Development and Management Service. Rome, Italy.
- 2000 MA - Collaborative program in Political Science and Environmental Studies, University of Toronto
- 1995–9 BA – Collaborative Program in International Development in ‘Biophysical Environment’ stream, University of Guelph

## 2. RESEARCH ACTIVITIES

### 2.1. PUBLICATIONS

#### 2.1.1. Under Review:

- Devon M. Jones\* and Sarah E. **Wolfe**. “Awe and pro-environmental behaviour: A scoping review of the interdisciplinary literature” Submitted August 2021 to *Emotion Review*.
- Smith, L.\*\*, Ross, H., Shouldice, S\*\* and **Wolfe**, S. “Mortality management and climate action: A review and reference for using Terror Management Theory methods in interdisciplinary environmental research.” Submitted August 2021 at Editors’ invitation to *WIREs Climate Change* (IF:7.385)

#### 2.1.2. Articles in refereed journals (\*undergraduate; \*\*graduate)

- Ross\*\*, H.C. and S.E. **Wolfe** (2021). “Mortality awareness and lawn watering: Using terror management theory to understand residential water consumption.” *The International Journal of Social Sustainability in Economic, Social, and Cultural Context*. DOI: <https://doi.org/10.18848/2325-1115/CGP/v17i02/29-53>
- Andrews, Evan, Sarah **Wolfe**, Prateep Kumar Nayak, Derek Armitage (2021). Coastal Fishers Livelihood Behaviours and their Psychosocial Explanations: Implications for Fisheries Governance in a Changing World. *Frontiers in Marine Science (Marine Affairs and Policy)*. (IF: 4.912)  
<https://www.frontiersin.org/articles/10.3389/fmars.2021.634484/full>
- Smith\*\*, Lauren K. M., Jennifer K. Lynes, and S. E. **Wolfe** (2019). Community-Based Social Marketing—Creating Lasting, Sustainable, Environmental Change: Case Study of a Household Stormwater Management Program in the Region of Waterloo, Ontario. *Social Marketing Quarterly*, 25(4), 308–326.  
<https://doi.org/10.1177/1524500419883288>
- Wolfe**, S.E. and A. Tubi (2018). "Terror Management Theory and Mortality Awareness: A Missing Link in Climate Response Studies?" *WIREs Climate Change*. (IF:7.385) <https://doi-org.proxy.lib.uwaterloo.ca/10.1002/wcc.566>
- Cote\*\*, S. A., H. C. Ross\*\*, K. David\*\*, and S. E. **Wolfe** (2017). “Walkerton revisited: how our psychological defenses may influence responses to water crises.” *Ecology and Society* 22(3):32.  
<https://www.ecologyandsociety.org/vol22/iss3/art32/>
- Cote\*\*, S.A. and S.E. **Wolfe** (2017). “Evidence of mortality salience and psychological defenses in bottled water campaigns.” *Applied Environmental Education & Communication*,  
[doi.org/10.1080/1533015X.2017.1399836](https://doi.org/10.1080/1533015X.2017.1399836)
- Wolfe**, S.E. (2017). “Fear, Anger and Responsibility: Using emotions and Terror Management Theory to assess historic speeches about water and policy.” *Water History*. DOI 10.1007/s12685-016-0189-3
- Wolfe**, S.E. and D. Brooks (2016). “Mortality awareness and water decisions: A social psychological analysis of supply management, demand management and soft path paradigms.” *Water International*.  
<https://doi.org/10.1080/02508060.2016.1248093>
- Mann\*, C. and S.E. **Wolfe** (2016). “Risk perceptions and Terror Management Theory: assessing public responses to urban flooding in Toronto, Canada.” *Water Resources Management*. 30(8): 2651-2670
- Ross\*, H. and S.E. **Wolfe** (2016). ‘Life after death: evidence of the Hoover Dam as a hero project that defends against mortality reminders’. *Water History*, 1-19
- Wolfe**, S.E. (2014). “Women’s choices and Canadian water research and policy: a study of professionals’ careers, mentorship and experiential knowledge.” *Environmental Practice*. 16: 37–51
- Cote\*, S. and **Wolfe**, S.E. (2014). “Assessing the Social and Economic Barriers to Permeable Surface Utilization for Residential Driveways in Kitchener” *Environmental Practice*.16: 6–18

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2.1.2. *Articles in refereed journals continued (\*undergraduate; \*\*graduate)*

- Wolfe, S.E., S. Davidson\*\* and T. Reid\*** (2013). “Mentorship, knowledge transmission and female professionals in Canadian water research and policy.” *Water Policy*. 15:610-627
- Wolfe, S.E.** (2012) “Water cognition and cognitive affective mapping: identifying priority clusters within a Canadian water efficiency community.” *Water Resources Management*. 26(10): 2991-3004
- Elton\*, K. and S.E. **Wolfe** (2011). “Water Efficiency and the Professional Plumbing Sector: How capacity and capability influence knowledge acquisition and innovation.” *Water Resources Management*. 26(2): 595-608
- Wolfe, S.E and E. Hendriks\*\*** (2011). “Building Towards Water Efficiency: The influence of capacity and capability on innovation adoption in the Canadian home-building and resale industries.” *Journal of Housing and Built Environment*. 26(1): 47-72
- Wolfe, S.E.** (2010). “Beyond a Pipe Dream – The role of social capital in the development of a community’s water efficiency strategy.” *Environmental Practice*. 12 (3): 214-226
- Wolfe, S.E.** (2009). “What’s your story? Practitioners’ tacit knowledge and water demand management policies in Southern Africa and Canada.” *Water Policy*. 11: 489-503.
- Wolfe, S.E.** (2009). “A Social Innovation Framework for Water Demand Management Policy: Practitioners’ capabilities, capacity, collaboration and commitment.” *Society and Natural Resources*. 22(5): 474-483
- Wolfe, S.E.** (2008). “Capacity, capability, collaboration and commitment: How social networks influence practitioners of municipal water demand management policy in Ontario, Canada.” *Environmental Practice*. 10(2): 42-52
- Wolfe, S.E. and D.B. Brooks** (2003). “Water Scarcity: an alternative view and its implications for policy and for capacity building.” *Natural Resources Forum*. 27(1): 99-107

2.1.3. *Book Chapters (\*\*graduate)*

- Brooks, David and S.E. **Wolfe** (2011). “Gains, Gaps and Institutional Change.” Chapter in: Hammou Laamrani, Joshua Paglia and Lamia El-Fattal (Eds.). *Water Demand Management in the Middle East and North Africa: Policy, Practice and Power*. International Development Research Centre. Cairo, Egypt and Ottawa, Canada. pp. 15-34
- Wolfe, S.E. and K. Elton\*\*** (2009). “Pushing the boundaries: shifting water soft paths philosophy toward hard policy in municipal water management.” Chapter in: Brooks, David, Oliver Brandes, and Stephen Gurman (Eds.). *Making the Most of the Water We Have: The Soft Path Approach to Water Management*. EarthScan, London, UK. pp. 165-181
- Brooks, D. and S. **Wolfe** (2007). “Water Demand Management as Governance: Lessons from the Middle East and South Africa.” Chapter in: Shuval, Hillel and Hassan Dweik (Eds.). *Water Resources in the Middle East: Israel-Palestinian Water Issues – From Conflict to Cooperation*. Hexagon Series on Human and Environmental Security and Peace, Vol. 2. Springer-Verlag. pp. 311-324

2.1.4. *Other publications: News Articles, Trade, and New Media (\*undergraduate; \*\*graduate)*

- Smith, Lauren and S.E. **Wolfe** (In Press Jan/Feb 2022 issue). “Leaks in the Professional Water Pipeline: representation and decision-making power in Canada’s water sectors”. [Water Canada Magazine](#)
- S.E. (2020). “To understand coronavirus transmission, we have to understand our wastewater.” *Globe and Mail*. March 21, 2020. Opinion: print and <https://www.theglobeandmail.com/opinion/article-to-understand-covid-19-transmission-we-have-to-understand-our/>
- Hodson, J. and S.E. **Wolfe** (2020). “Stockpiling Bottled Water? Maybe Social Media is To Blame” Opinion post to <https://one.aom.org/covid-19-insights-from-business-sustainability-scholars> and others

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- 2.1.4. *Other publications: News Articles, Trade, and New Media continued (\*undergraduate; \*\*graduate)*
- Wolfe, S.E.** (2019). "Flush your disgust. We can't let emotions dampen our water policies." *Globe and Mail*. March 22, 2019 (World Water Day) Opinion: print and <https://www.theglobeandmail.com/opinion/article-flush-your-disgust-we-cant-let-emotions-dampen-our-water-policies/>
- Hammond, R., Lewis, G. and **Wolfe, S.E.** (Summer 2019). "Feature: Green Versus Blue Roofs" *High Performing Buildings*. <http://www.hpbmagazine.org/>
- Wolfe, S.E.** (2018). How to change the way we value, use and manage water. *Invited Commentary for OpenCanada.org*. <https://www.opencanada.org/features/how-change-way-we-value-use-and-manage-water/>
- Lynes, J. and S.E. **Wolfe** (2017). "It's time to rethink our messaging about environmental change" *Globe and Mail*. Report on Business. May 7, 2017 <https://www.theglobeandmail.com/report-on-business/rob-commentary/its-time-to-rethink-our-messaging-about-environmental-change/article34914924/>
- Wolfe, S.E.** (2016). "Sounding the water alarm will backfire thanks to human nature." *Globe and Mail*. March 22, 2016 (World Water Day) Opinion online. <https://www.theglobeandmail.com/opinion/sounding-the-water-alarm-will-backfire-thanks-to-human-nature/article29315519/>
- Wolfe, S.E., S. Cote\*\*** and H. Ross\* (2015). "It came from the water." *Alternatives Journal*. 41(4): 44-47
- Wolfe, S.E.** and S. Wismer (2010). "Gender and Careers in the Canadian Water Policy Community." *Women and Environments International Magazine*. Special Issue, 82-83
- Wolfe, S.E.** and E. Hendriks\*\* (2010). "Building Toward Water Efficiency in Canada – Policy Innovation and Education in New and Existing Homes." *Water Efficiency*. Jan/Feb 2010
- Wolfe, S.E.** and A. Craig (2010). "What are you doing today? Mentoring, gendered work, and an academic career." Invited submission to the *Canadian Federation of Social Sciences and Humanities – Equity Matters* <https://www.ideas-idees.ca/blog/mentoring-gendered-work-and-academic-career>
- Wolfe, S.E.** (2009). "How to keep women on the career ladder." *Globe and Mail*. December 23<sup>rd</sup>: Opinion: print and on online. <https://www.theglobeandmail.com/opinion/how-to-keep-women-on-the-career-ladder/article1206161/>
- Homer-Dixon, T. and S.E. **Wolfe** (2008). "Everything is not Peachy." *Globe and Mail*. Opinion: print and online August 18<sup>th</sup>, 2008 <https://www.theglobeandmail.com/opinion/everything-is-not-peachy/article794050/>
- Wolfe, S.E.** (2007). "Reforming and Rebuilding: Water Efficiency Initiatives in Hermanus, South Africa." *Water Efficiency: The journal for water resource management*. Nov/Dec - 2(6)
- Wolfe, S.E.** and T. Homer-Dixon (2003). "The matrix of our troubles." *Globe and Mail*. August 16<sup>th</sup>: Opinion: print and online <https://www.theglobeandmail.com/opinion/the-matrix-of-our-troubles/article794051/>
- Wolfe, S.E.** (2003). "Networks." Invited paper for the *UN Chronicle Magazine* (Water Resources Special Issue). XL (1): 33-35
- 2.1.5. *Other publications: Technical Reports*
- Maas, C. and S.E. **Wolfe** (2012). "Building Professional Capacity for a Water-Sensitive Future in Ontario." *Water Sustainability Project - POLIS Project on Ecological Governance*
- Wolfe, S.E.** (2007). "Introduction." *Water Demand Management Research Report Series*. International Development Research Centre (IDRC) – Middle East Regional Office
- Brooks, David and Sarah **Wolfe** (2007). Institutional Challenges for Effective Implementation of Water Demand Management and Institutional Assessment for Capacity Development. *Water Demand Management Research Series*. IDRC – Middle East Regional Office.
- Wolfe, Sarah** (ed.) (2000). *Proceedings from the Regional Training Workshop on Policy and Implementation of Water Demand Management (Western Asia)*. Beirut, Lebanon. Food and Agriculture Organization, Middle East Office (Internal)

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**2.2. RECORD OF PENDING and SUCCESSFUL FUNDING APPLICATIONS**

(All CAD unless otherwise indicated; all grants as PI unless otherwise indicated)

*2.2.1. Proposals Under Evaluation or Development:*

Submitted June 16<sup>th</sup>, 2021. The Spencer Foundation – Large Grants Program. The Affective Load of Sustainability Education: The implications of emotion for students' engagement and knowledge retention. \$311 943.79 USD.

Submitted October 1, 2021. SSHRC Insight Grant (as Co-applicant with Drescher at UW). *Using the Power of Stories for Conservation Action*. \$265 922.

Submitted Friday October 29<sup>th</sup>, 2021. Waterloo Environment Students Endowment Fund. *Funding to support students' participation in an international workshop on Terror Management Theory and climate change*. \$10 000.

To be submitted November 2021. New Frontiers in Research Fund – Transformation NOI. (Co-applicant with Emelko as PI-UW and Dickson as PI-McMaster). *Ensuring Drinking Water Security for All: Transforming Technology and Governance by Prioritizing System Resilience, Health & Wellbeing in a Changing Climate*

To be submitted February 2022. SSHRC Connection Grant. *Funding to support international workshop on Terror Management Theory and climate change*. \$25 000.

*2.2.2. Funded Associate Professor Research – 2017 ongoing*

2021 “*The Affective Load of Sustainability Education: The implications of emotion for students' engagement and knowledge retention*” \$197 200. **SSHRC Partnership Development Grant** (PI; 100% funded).

**Summary:** we'll answer four questions: 1) What is the affective load, including the implicit and explicit emotional components and characteristics, of Interdisciplinary Environmental Studies and Science (IESS) education in an era of rapid climate change and deep uncertainty about the future? 2) What are the implications of this affective load for students' willingness to undertake IESSc post-secondary education? 3) Given this affective load, how do different learning spaces—for example, classroom, lab, field, and/or online—influence students' knowledge retention? 4) How might IESSc education be adapted to account for the affective load at the secondary and post-secondary levels to encourage student-citizens' ongoing engagement? Our comparative research will link three universities (Waterloo, Victoria, and Royal Roads) and include two curriculum cases: ecology and water.

2020 “Global Classrooms – Virtual Exchange Program”, \$4 000 USD applicant team; **University of California**, Santa Cruz (Co-PI; 100% awarded).

2019 “Stronger than fear: awe, ritual, identity and water decisions”, \$72 274; **SSHRC Insight Development Grant** (PI; 98% funded).

**Summary:** my proposed research challenges the conventional explanation that more information will be sufficient to change people's water use behaviours. My earlier mortality fear research has shown why the conventional water approaches (regulations, incentives, education) aren't working as well as they must. To change our entrenched water behaviours we need something more powerful than fear. I propose four sub-hypotheses: (1) a ‘powerful something’ could be awe; (2) a sense of awe could be sparked by ritual; (3)



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accepted and sustained ritual would need to be contextualized and supported by environmental identities; and (4) robust identities could be generated through aspects of a conversion processes.

2019 “Dead in the Entrepreneurial Water: Is gender bias activated by mortality messages in water CleanTech pitches?”, \$10 000; HeforShe Gender Equity Research Grants (PI; 100% funded).

2018 “Do mortality reminders influence our water decisions? A new variable for the era of climate change, drought and uncertainty”, \$125 650; **SSHRC Insight Grant** (PI; 100% funded).

**Note: I ranked 4<sup>th</sup> of 49 Established Scholar applicants in the ‘Geography’ committee.**

**Summary:** Departing from conventional social science water research, I use TMT to examine the relationship between mortality awareness and water decision-making. I propose that mortality awareness, arising from exposure to conscious and unconscious death reminders, including climate change, helps explain why individuals and societies make particular water decisions. Specifically, three decades of TMT evidence indicates that efforts to repress mortality awareness results in predictable responses. These defense responses motivate humans to, for example, control nature, over-extract or consume resources and be less willing to share scarce resources. These defenses also allow people to deny their connection to nature and to limit awareness of their own physical vulnerability, protecting them from the discomfort of mortality awareness but perpetuating environmental degradation.

2.2.3. *Funded CLTA & TT Assistant Professor Research – Total Successful grants \$232 704 (2009-2016)*

2014 “Cognition and Terror Management Theory in water decision-making on policy and infrastructure development”, \$22 000; **SSHRC Connection Grant** (PI; 100% funded).

2014 “Something in the water: using TMT to explore and explain the decisions we make about water”,

- \$8 000, Waterloo International: UW International Research Partnership Grant (PI; 100% funded);
- \$3 000, Halbert Centre for Canadian Studies, Hebrew University, Israel (PI; 100% funded);
- \$1 000, Faculty of Environment – UW: Faculty support (PI; 100% funded)

2013 “Thinking about Water: what, why and how we teach to engage the next generation of interdisciplinary water leaders”, \$15 000; Water Institute - UW: Interdisciplinary Water Workshops or Symposia Grant (PI; 100% funded).

2012 “Cognition and Terror Management Theory in water decision-making on policy and infrastructure development”, \$74 884, **SSHRC Insight Development Grant** (PI; 100% funded).

**Note: I ranked 3<sup>rd</sup> of 61 Emerging Scholar applicants in the ‘Geography’ committee.**

“Research Seed/Start Up Grant”, \$15 000, Faculty of Environment, University of Waterloo

“Graduate Student Support by New Faculty Members Award”, \$5 500, Faculty of Environment, University of Waterloo

“Governing water in the face of uncertainty, proposal for a Canada-Israel Workshop”, including \$11 550; University of Waterloo: International Research Partnership Grant, (Co-applicant with P. Kay; 100% funded; 40% proposal contribution by Wolfe); \$12 000, Halbert Centre for Canadian Studies, Hebrew University, Israel (Co-applicant with P. Kay; 100% funded; 40% proposal contribution by Wolfe)

2011 “Song my paddle sings: gender, work and practices in the Canadian water policy community”, \$41 770, **SSHRC Standard Research Grant** (PI; 28.5% funded)

“University of Haifa Research Stipend”, \$10 000, University of Waterloo (PI; 100% funded)

2009 “Social capital assessment of the Water Master Plan process in the Township of Centre Wellington”, \$13 000; Grand River Conservation Authority: Grant (PI; 100% funded)

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### 2.2.4. *Funded Post-doctoral Research - Total Successful grants \$234 010 (2006-2008)*

- 2008-2006 “Building toward water efficiency: policy innovations and education in new and existing home builders” (total: \$194 010; consisting of \$24 505, British Columbia Real Estate Foundation: Research Grant (PI; 100% funded; 2008); \$24 505, Alberta Real Estate Foundation: Research Grant (PI; 100% funded; 2008); \$100 000, Walter and Duncan Gordon Foundation: Research Grant (PI; 100% funded; 2007); \$ 20 000, Canadian Water and Wastewater Association: Grant for Post-Doctorate (PI; 100% funded; 2006); \$ 25 000, Canada Mortgage and Housing Corporation: Grant for Post-Doctorate (PI; 100% funded; 2006)
- 2007 Thinking about the soft path for water: from idea to implementation (workshop), \$25 000, Walter and Duncan Gordon Foundation: Research Grant (PI; 100% funded)
- 2006 “Post-Doctoral Fellowship”, \$15 000, Walter and Duncan Gordon Foundation

### 2.2.5. *Funded Young Professional & Graduate Research – Total Successful grants \$124 581 (2001-2004)*

- 2004 “Canadian Window on International Development Award: Renewal”, \$9 581, International Development Research Centre (IDRC) (100% funded)
- 2003 “Doctoral Research Award”, \$59 000, **Social Sciences and Humanities Research Council**  
“Canadian Window on International Development Award”, \$20 000, IDRC
- 2002 “Ontario Graduate Scholarship in Science and Technology”, \$5 000, University of Guelph
- 2001 “Centre Internship - Water”, \$31 000, International Development Research Centre

## 2.3. PRESENTATIONS \*speaker

My travel options since 2008 were constrained by childcare, eldercare, relocation, and pandemic. During these years, I prioritized various guest lectures and allocating available research funds to students’ conference presentations.

- 2013 Craig, AK\* and S.E. **Wolfe**. “Are you my mentor? Daily strategies for symbiotic mentorship between academic mothers”. Motherhood Initiative for Research and Community Involvement Conference. Toronto, ON
- 2010 **Wolfe**, S.E. “The cognitive-affective sciences and water governance” Invited Lecture to the International Development Research Centre, Ottawa.
- 2010 **Wolfe**, S.E. and E. Hendriks\*. “Chasing the Dream: the myth of work-life balance in the water sector”. Invited Keynote to the 2010 Young Professionals Summit, Water Environment Federation and the American Water Works Association. San Juan, Puerto Rico.
- 2009 **Wolfe**, S.E. and E. Hendriks\*. “Building towards Water Efficiency: Policy Innovation and Education in New and Existing Homes.” WaterSmart Innovations Conference, Las Vegas, Nevada.
- 2009 **Wolfe**, S.E. and E. Hendriks\*. “Building towards Water Efficiency - Research Findings”. National Conference on Water Efficiency and Conservation, Canadian Water & Wastewater Association.
- 2008 **Wolfe**, S.E. “Social Capital in Community-Level Water Efficiency Programs: Reports from South Africa and Canada.” 2<sup>nd</sup> National Conference and Policy Forum on Water Efficiency and Conservation. Canadian Water & Wastewater Association, Waterloo, ON.

### 3. TEACHING ACTIVITIES

#### 3.1. GRADUATE TEACHING & ADVISOR

*3.1.1. Graduate Courses:* As service to the university's Water Institute, I co-taught WATER 601 – Integrated Water Management. This course is the first of two core, campus-wide courses in the Collaborative Water Program for masters and doctoral students (67 students in 2019). By co-teaching across faculties – my colleague is in civil/environmental engineering – we successfully model the challenges and victories of collaborative water problem-solving. A highly interactive, three-hour teaching block, we introduce students from civil and chemical engineering, biology, chemistry, geography, architecture, public health etc to concepts of inter/transdisciplinary water research and practice, complexity, and global/local water ethics. I am deeply committed to the training of interdisciplinary water researchers and practitioners.

At Royal Roads University, I rebuilt the existing ENVR655 *Innovations in Governance for Sustainability* graduate course in the Masters of Environment and Management program. In Fall 2020 and 2021, I taught the blended course via Zoom with a Residency period (15 days) of daily synchronous classes, tutorial sessions, office hours and Slack-based community building.

#### *3.1.2 Current Graduate Students (as Advisor)*

1. Deboer–Smith, Avery. RRU MEM thesis student. Fall 2019 – ongoing
2. Oliver, Gillian. RRU MEM thesis student. Fall 2020 – ongoing
3. Shouldice, Stephanie. RRU doctoral student. Winter 2020 – ongoing. **SSHRC Doctoral award, three years (2020-2023), \$105 000**; Royal Roads University entrance awards, \$22 000.
4. Rudestam, Kirsten. Two-year **SSHRC Post-Doctoral Fellow** at Royal Roads. Starts December 2021, \$90 000.
5. Smith, Lauren. SERS doctoral student. Fall 2018 – ongoing. **Vanier Canada Graduate Scholarship, three years (2020-2023), \$150 000**; President's Graduate Scholarship, three years, \$30 000; 2020-2021 Ontario Graduate Scholarship (OGS) and Queen Elizabeth II Graduate Scholarship in Science & Technology (declined); Deans Doctoral Initiative \$112K, 2018-2022; SERS Entrance Scholarship, \$2K; Exceptional Doctoral Award, \$10K
6. **I'm currently recruiting four new masters and one doctoral/PhD students in 2022 to staff the SSHRC Partnership Development grant; one new masters student for my Insight grant and one new masters student for the Insight Development grant.**

#### *3.1.3 Current Doctoral and Masters Graduate Students (as Committee Member)*

1. Battaglia, Maria B. (Armitage, SERS): Comp exam and dissertation committee 2019 – ongoing
2. Jatel, Nelson (Pittman, RRU): Dissertation committee 2020 – ongoing
3. Splichalova, Dacota-Victoria (Harris, UBC): Comp exam and dissertation committee 2020 – ongoing

#### *3.1.4 Completed Masters Graduate Students (as Advisor)*

1. Anderson, Sarah. “Remembering Water: Immigrant water narratives in Waterloo Region”. MES thesis in the Department of Environment and Resource Studies (ERS). 2009 – 2015. **SSHRC: Joseph-Armand Bombardier Canada Graduate Scholarship (\$17 500; 2011)**; University of Waterloo: President's Graduate Scholarship (\$4 998; 2011)
2. Cote, Stephanie. “Applying Terror Management Theory to Understand Canadians Water Consumption Decisions and Improve Environmental Campaigns that Aim to Motivate Sustainable Behaviours” MES major research project in ERS. 2013 – 2015. University of Waterloo Awards: Environmental Studies Graduate Experience Award (\$2 000; 2014); University of Waterloo Graduate Scholarship (\$1 000; 2014); UW Special Graduate Student Entrance Award (\$2 750; 2013)



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3. Fortier, Julia (co-supervisor with Kay). “Social, technical and economic assessment of residential cistern use in the Region of Waterloo.” MES thesis in ERS. 2007 –2010.
4. Kerr, Meghann. Society be Dammed! A Terror Management Analysis of Water Infrastructure as a Conduit to Immortality. MES thesis in ERS. 2013–2016.
5. Kimantas, Janet (co-supervisor with McAllister). “Sustainable buildings and equity in Waterloo” MES major research project in ERS. 2014 – 2016
6. Patch, William (co-supervisor with Kay). “Examining the institutional structures for implementation of water soft paths in Canada.” MES thesis in ERS. 2008 –2010.
7. Ross, Hanna. M.E.S. major research project in the School of Environment, Resource and Sustainability (SERS). 2015 – 2017. University of Waterloo Graduate Scholarship, \$2 000, 2016
8. Wilkes, Taylor. “Hydro-psychology in Water Governance: how knowledge and identity influence professional behaviours in Israel” MES thesis in ERS. 2011 – 2016. University of Waterloo Awards: David Johnson International Experience Award (\$2 500; 2012); The Water Institute: ARCADIS Graduate Scholarship (\$5 000; 2012)
9. Yessie, Steven. “Policy and Performance of Public Water Agencies: How current demographic transitions are affecting workplace knowledge and skill.” MES thesis in ERS. 2010 – 2012.

*3.1.5 Completed Masters Graduate Theses (as Committee Member)*

1. Carter, Blair (Armitage). “Water and Social Well-Being in the Northwest Territories” MES thesis, ERS. 2013 –2014.
2. Coore, Danielle (Dresher, SEED): MES thesis, School of Planning. 2017 – 2019.
3. Cotcheire, Heather (Larson). “The efficacy of voluntary initiatives for reducing horticultural introductions of invasive species” MES thesis, Department of Geography, UW. 2010–2012.
4. Creelman, Kyle (Larson). “The effect of education about invasive species on adolescent’s relationship with nature” MES thesis, ERS. 2010 –2011.
5. Davis, Heather (Murphy). “Testing the application of a community resilience assessment: a case study of the Town of Huntsville, Ontario” MES thesis, ERS. 2010 –2011.
6. Fries, Sarah Lynn (Lynes). “From Paper to Practice: Exploring Five Canadian Case Studies of Water Efficiency Programs using Community-Based Social Marketing” MES Thesis, SEED. 2018-2019
7. Hendriks, Elizabeth (Kay). “Water Soft-path Application in Industrial Systems: A Pulp and Paper Case Study” MES thesis, ERS. 2007-2008
8. Leighton, Catherine (Wismer). “Bottled Water and Packaging Waste: Policy Options and Instruments for Ontario.” MES thesis, ERS. 2009.
9. Roth, Alyssa (deLoe). MES thesis, ERS. 2013 –2014.

*3.1.6 Completed Doctoral Graduate Comprehensive Exam and/or Theses (as Committee Member)*

2. Andrews, Evan (Armitage, SERS): Comprehensive exam and dissertation committee 2016 – 2020
3. Aponte, Alessandra (deLoe, SERS): Comprehensive exam 2019 – 2020
4. Davy, Barbara (Quilley, SERS): Comprehensive exam and dissertation committee 2016 – 2020
5. Emami, Parastoo (deLoe, SERS). Comprehensive exam committee 2016-2017
6. Hooykaas, Amanda (McAllister, SERS). “Enduring Gardens: Woven by Friends into the Fabric of the Canadian Community” Doctoral dissertation in the Department of Geography. 2010 –2012.
7. Philpot, Simone (Johnson, GEOG): Comprehensive exam and dissertation committee 2014 – 2019.
8. Rathwell, Kaitlyn (Armitage). “Inuit art and environmental change: Examining the significance of artworks and artistic process to bridge knowledge systems”. Doctoral dissertation in ERS 2015 – 2016.
9. Revilla, Fabiola Alvarado (deLoe, SERS): Dissertation committee 2019- 2021
10. Whitney, Stephanie (Lynes, SEED); Rowlands, ERS): Comprehensive exam committee. 2014–2015.

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### *3.1.7 Completed Graduate Masters Theses or Doctoral Dissertations (as External Examiner/Reader)*

1. Dawson, Elizabeth. MES. Geography and Environmental Management, Waterloo. 2010.
2. Folifac, Fidelis. Ph.D. School of Urban Planning, McGill University. 2013.
3. Kingsbury, Janet. MES. Geography and Environmental Management, Waterloo. 2014.
4. Shannon, Alexandrina. MES. SERS, Waterloo 2015
5. Spurgeon, Joslyn. MES (paper). Geography and Environmental Management., Waterloo. 2012.
6. Turner, Scott (M. Arch). School of Architecture, Waterloo. 2016.

### **3.2. UNDERGRADUATE TEACHING**

ERS 101 (new build in 2018): Conceptual and Practical Approaches to Decision Making for the Environment, Resources and Sustainability (120 students).

Instructor median scores: 4.6/5 (2018 first offering); Course median scores: 4.5/5 (2018 first offering)

ERS 111: Interdisciplinary Analysis and Problem Solving for Environmental Studies: Water (80+ students)

Instructor median scores: 5/5 (2016; 2014; 2013); sabbatical 2015; 4/5 (2012; 2011)

Course median scores: 5/5 (2016); sabbatical 2015; 4/5 (2014; 2013; 2012; 2011)

ERS 265 - Environmental and Social History of Water (25-30 students)

Instructor median scores: 4.5/5 (2017); 5/5 (2016; 2014; 2013; 2011); sabbatical 2015; release (2012)

Course median scores: 4.4/5 (2017); 5/5 (2016; 2014); sabbatical 2015; 4/5 (2013; 2011); release (2012)

ERS 316 - Integrated Urban Water and Wastewater Systems (50-75+ students; cross listed for 1) campus-wide Urban Studies minor & 2) Environmental Sciences, Water specialization)

Instructor median scores: 4.7/5 (2017); release (2016); 4.5/5 (2015); 5/5 (2014; 2013); release (2012)

Course median scores: 4.6/5 (2017); release (2016); 4/5 (2015; 2014; 2011); 5/5 (2013); release (2012)

### **3.4. UNDERGRADUATE ADVISOR**

My philosophy is to ‘invest early and often’ in my undergraduate researchers. I have completed over 42 UG thesis (two semesters) students since 2011. I have experimented with various approaches to advising senior theses – optional one-on-one meetings, class-based ‘working sessions’, required set one-on-one consultation times. What I’ve found most effective is to meet with my students weekly, provide mini-lectures and working sessions, and use a marking scheme that includes both graded assignments and required milestones to support the thesis process. This approach is effective because that majority of students submit high quality theses on time, do well in their final presentations and self-report much less “stress” toward the end of the writing process.

Three undergraduate theses have now been published (Cote and Wolfe 2014; Mann and Wolfe 2016; Ross and Wolfe 2016). One of my UG thesis students was awarded an Academic Achievement Award (2014). Undergraduate students I’ve mentored have also received scholarships for their graduate studies at institutions such as UBC, Concordia (Joseph-Armand Bombardier CGS Master's Scholarship, \$17 500), Dalhousie (\$6 000 scholarships), McMaster (\$16 000 funding) York and Western.

In addition to undergraduate thesis supervision, I have funded 24 different undergraduate research assistant positions since 2009. These positions have included co-op positions, fieldwork and data collection, research searches and workshop organization.

### **3.5. TEACHING DEVELOPMENT**

- Slack for Teaching (self-directed learning Summer 2021)
- Transform your teaching with Perusall (April 5, 2021)
- Key Features in Virtual Meeting Platforms for Effective Synchronous Class Delivery (March 2, 2021)
- Bongo 1: Video Assignment and Group Project (March 3, 2021)
- Bongo 2: Video Assignment: Q&A and Interactive Video (March 3, 2021)
- Engaged Reading with Perusall's Online Annotation Software (March 4, 2021)
- Screen Recording Basics – Mac (UW: May 6, 2020)
- How to Record Audio Podcasts (UW: May 4, 2020)
- How to Create Narrated PowerPoint Presentations for Mac OS (April 21, 2020)
- Simple and Effective Online Teaching (UW: April 8, 2020)
- Moodle: Getting Around (April 2, 2020)
- Getting Started with Collaborate Ultra (Feb 27, 2020)
- Writing Cases (~ 4 hours, 2016)
- Workplace Violence Awareness (~1 hour, 2014)
- Teaching Excellence Academy (~ 4+ days; 2013)
- LEARN (multiple sessions, multiple years)
- Teaching First Year Students (~2 hours, 2010)

## **4. SERVICE ACTIVITIES**

### **4.1. COMMITTEES**

#### *4.1.1. University level*

- Representative: Collaborative Water Program Committee + Pedagogy Review sub-committee, University of Waterloo Water Institute, 2018 – 2019
- Reviewer: Water Institute, Graduate scholarships adjudication, 2011 - 2014
- Reviewer: UW/SSHRC, Small Grants Committee Reviewer, 2014

#### *4.1.2. Faculty level*

- Representative: ENV committee to develop a new MES in Sustainable Cities, 2019
- Representative: Knowledge Integration Director hiring committee, 2018
- Representative: Faculty Tenure and Promotion Committee, 2017
- Representative: ENV Communications Group (UG curriculum review) 2014 – 2016
- Representative: Collaborative Water Management Program Sub-Committee, 2013 – 2014; 2018
- Representative: Arts Faculty Council. University of Waterloo, 2011 – 2014
- Representative: Academic Board of the Independent Studies Undergraduate Program. University of Waterloo, 2010 –2014
- Representative: Status of Women and Equity Committee. University of Waterloo, 2011- 2013

#### *4.1.3. Department/School level*

- SERS Faculty Annual Performance Review Committee – 2018; 2019
- SERS Associate Director – Undergraduate, 2019 (cross-listed under employment)
- SERS Search and Hiring Committees x 2: Lecturer Position, 2017; Director, 2017
- SERS Communications Committee, 2017 – 2019
- Program development – Accelerated Bachelors-to-Masters program option, 2015
- ERS Administrative Manager Hiring Committee, 2014

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- ERS-WISER Hiring Committee, 2014
- Comprehensive Exam and Thesis Defense Chair: School of Environment, Resources and Sustainability, University of Waterloo, 2011 - ongoing
- Member: Undergraduate Curriculum Committee, School of Environment, Resources and Sustainability, University of Waterloo, 2010 - 2013
- Recruitment Open Houses, new student Welcome Weekends, Meet-the-Prof events, convocations

### 4.2. REVIEWS

- *Book Review Editor: Water International* of the International Water Resources Association.
- *Editorial Boards: Editorial Board for the Water International*, International Water Resources Association. <https://www.tandfonline.com/toc/rwin20/current>. 2019 - ongoing
- *Scholarly Article Reviewer: Water International; Journal of Business Research; Journal of Environmental Planning and Management; Journal of Business Research; Journal of Sustainable Tourism; International Journal of Water; Society and Natural Resources; Journal of Urban Sustainable Development; Alternatives (water issue); Journal of Environmental Planning Education and Research; International Journal of Water; Journal of Environmental Management; Environmental Management*
- *Research Funding and Scholarship applications: External Grant Reviewer: SSHRC Connection Grant, 2012; External Scholarship Reviewer: Shastri Indo-Canadian Institute, 2009; 2010; Walter and Duncan Gordon Foundation “Water Fellowship” application proposals, 2007; 2008*

### 4.3. COMMUNITY SERVICE

#### 4.3.1. Community Representative

- Community representative (academic) to the Region of Waterloo’s Urban Biosolids Master Plan Committee, 2016 – 2018.
- Community representative (academic) to the Region of Waterloo’s Water Efficiency Advisory Committee (WEAC), 2016 – 2019 (committee disbanded).

#### 4.3.2. Research Advisory

- “Save our Water” campaign in Fergus-Elora organizing against Nestle water taking permit in the community, 2015
- “Friends of Elora Water” on research perspective based on community activism against bottled water company and water extraction, 2015
- Grand River Conservation Authority (Etienne): perspectives on bottled water extraction and community activism, 2015
- High River Community Group (Fowler): perspective based on ‘water efficient residential builders’ research, 2014
- CGIAR Research program on climate change, agriculture and food security, Kenya office (water efficiency and irrigation issues), 2012
- Great Lakes United – knowledge management in water sector, 2012
- Policy and Priorities Directorate, Infrastructure Canada, 2011
- World Wildlife Foundation, water program, 2011
- UN Foundation (Washington, DC) gender, water-sanitation, developing world context, 2011
- Ministry of Environment on Water Opportunities Act speech, 2010

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4.3.3. *Media Commentary*

- August 2019: “Life Without Plastic - Rethinking Bottled Water” Suzanne Forcese. *Water Today* <https://www.watertoday.ca/ts-bottled-water-life-without-plastic-rethinking-bottled-water.asp>
- July 2019: “\$90 for a bottle of melted iceberg? Inside the world of luxury water” Adrienne Matei. *The Guardian*. <https://www.theguardian.com/lifeandstyle/2019/jul/16/luxury-bottled-water-is-absurd-so-why-is-it-so-popular>
- April 29<sup>th</sup>, 2019: coverage by John Ibbitson, *Globe and Mail* re flooding, climate change and behavior <https://www.theglobeandmail.com/politics/article-floods-push-conservatives-to-agree-on-need-to-fight-global-warming/> TMT and bottled water. One-week impact numbers: <https://impact.meltwater.com/reports/v35TEIL8TakP>  
and coverage online, print, radio for example, CBC Marketplace (radio); CTV (video); *Kitchener-Waterloo Record* (print) <https://www.therecord.com/news-story/8105847-bottled-water-ads-tap-into-human-desire-for-immortality-uw-study/>; and various online sites such as
  - Motherboard: [https://motherboard.vice.com/en\\_us/article/xw58dd/how-advertising-convinces-us-to-buy-bottled-water-nestle-evian](https://motherboard.vice.com/en_us/article/xw58dd/how-advertising-convinces-us-to-buy-bottled-water-nestle-evian);
  - Science Daily: [https://www.sciencedaily.com/releases/2018/02/180201085749.htm?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A+sciencedaily%2Fearth+climate%2Fwater+%28Water+Conservation+News+--+ScienceDaily%29](https://www.sciencedaily.com/releases/2018/02/180201085749.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily%2Fearth+climate%2Fwater+%28Water+Conservation+News+--+ScienceDaily%29) and
  - Research2Reality: <https://research2reality.com/science-society/the-fountain-of-youth-in-a-plastic-bottle/?hilite=Sarah+Wolfe>
- Canadian Broadcasting Corporation, Sept and Oct 2015 x 2 interviews