CASEY REMMER, PHD

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EDUCATION

University of Waterloo **2021**
Ph.D., Biology *Waterloo, Ontario, Canada*

University of Waterloo **2015**
B.Sc., Biology *Waterloo, Ontario, Canada*

EMPLOYMENT

Data Scientist, University of Waterloo | **April 2023 - Current**

- Led study and sampling design, coordinated with other scientists and stakeholders to address concerns
- Developed an R function to extract data from online GIS layers, perform mixing models in a Bayesian framework and generate data visuals for each site the study with cloud-based version control through GitHub
- First year results published and being used to inform advocacy for conservation of water resources.

Senior Environmental Programs Specialist, Water First Education and Training Inc | **May 2021 - March 2023**

- Developed data collection, compilation and management practices for First Nations governments including generating R shiny dashboards, procuring data from online sources, and data privacy and security protocols
- Completed a gap analysis and facilitated strategic planning for the development of a new Aquatic Resources Department for the Innu Nation. This project secured multi-year, 210K/yr federal funding
- Co-developed research proposals and secured $160,000 in project funding
- Actively engaged in outreach and consensus-building efforts, fostering strong relationships with community members and partners to ensure the success of the projects.

Research Scientist, Gaea Conservation Network | **January 2019 - January 2022**

- Developed a research program using isotope tracers including scope, budgeting and project management
- Managed and organized data and laboratory analyses, generated visualizations and technical reports for Government Agencies

Doctoral Research, University of Waterloo | **December 2015 - December 2021**

- Created and maintained relational databases for laboratory chemical analysis of environmental data from multiple projects spanning 20 years
- Generated statistical and spatial analyses in ArcGIS and R and designed functions to increase automation of analyses and visualizations
- Published 10 manuscripts in high-impact journals and awarded $270,000 in competitive scholarships over 4 yrs

PEER-REVIEWED PUBLICATIONS

1. Remmer, C, Meyers, N, Wolfe, B, Rooney, R. *Submitted*. Use of Water Isotope Tracers to Characterize the Hydrology of Prairie Wetlands in Alberta, Canada. *Canadian Water Resources Journal*
2. **Remmer**, C, Rooney R, Bayley S, Leven C. 2023. The importance of groundwater to the upper Columbia River Floodplain Wetlands. *Canadian Water Resources Journal*. DOI: 10.1080/07011784.2023.2234869
3. Neary, LK, **Remmer** C, Krist, J, Wolfe, BB, & Hall RI. 2021. A new lake classification scheme for the Peace-Athabasca Delta (Canada) characterizes hydrological processes that cause lake-level variation. Journal of Hydrology: Regional Studies, 38, 100948. doi:https://doi.org/10.1016/j.ejrh.2021.100948
4. Kay ML, HK Swanson, J Burbank, TJ Owca, LA MacDonald, CAM Savage, **CR Remmer**, LK Neary, JA Wiklund, BB Wolfe, RI Hall. 2021. A Bayesian mixing model framework for quantifying temporal variation in source of sediment to lakes across broad hydrological gradients of floodplains. Limnology and Oceanography: Methods. DOI: 10.1002/lom3.10443
5. Savage C, **C Remmer**, J Telford, ML Kay, E Mehler, BB Wolfe, RI Hall. 2021. Field testing cellulose-water oxygen isotope relations in periphyton for paleohydrological reconstructions. Journal of Paleolimnology. DOI: 10.1007/s10933-021-00207-8
6. **Remmer C**, L Neary, M Kay, BB Wolfe, RI Hall. 2020. Multi-year isoscapes of lake water balances across a dynamic northern freshwater delta. Environmental Research Letters. DOI:10.1088/1748-9326/abb267
7. **Remmer C,** T Owca, L Neary, JA Wiklund, M Kay, BB Wolfe, RI Hall. 2020. Delineating extent and magnitude of river flooding to lakes across a northern delta using water isotope tracers. Hydrological Processes. DOI: 10.1002/hyp.13585
8. Owca T, ML Kay, J Faber, **C Remmer**, N Zabel, JA Wiklund, BB Wolfe, RI Hall. 2020. Use of pre-industrial baselines to monitor sources and pathways of metals in recently deposited surface sediment of floodplain lakes in the Peace-Athabasca Delta (Alberta, Canada). Environmental Monitoring and Assessment. DOI: 10.1007/s10661-020-8067-y
9. Kay ML, JA Wiklund, **C Remmer**, TJ Owca, WH Klemt, LK Neary, K Brown, E MacDonald, K Thomson, JM Vucic, K Wesenberg, RI Hall, BB Wolfe. 2020. Evaluating temporal patterns of metals concentrations in floodplain lakes of the Athabasca Delta (Canada) relative to pre-industrial baselines. Science of the Total Environment. DOI: 10.1016/j.scitotenv.2019.135309
10. **Remmer C,** CD Robichard, H Polowyk, R Rooney. 2019. The role of ecological drift in structuring periphytic diatom communities. Journal of Freshwater Ecology. DOI: 10.1080/02705060.2019.1614104
11. Kay, M, JA, Wiklund, **C Remmer**, L Neary, K Brown, A Ghosh, E MacDonald, K Thomson, J Vucic, K Wesenberg, RI Hall, BB Wolfe. 2019. Bi-directional hydrological changes in perched basins of the Athabasca Delta (Canada) in recent decades caused by natural processes. Environmental Research Communications.
12. **Remmer C,** WH Klemt, BB Wolfe, RI Hall. 2018**.** Inconsequential effects of flooding in 2014 on lakes in the Peace-Athabasca Delta (Canada) due to long-term drying. Limnology and Oceanography. DOI: 10.1002/lno.10787

REPORTS

1. **Remmer C,** L Neary, M Kay, BB Wolfe, RI Hall. 2020**.** Technical Report for Monitoring Lakes in the Peace-Athabasca Delta, Alberta. Prepared for Parks Canada.

SCHOLARSHIPS AND AWARDS

2018 - 2020	W. Garfield Weston Award for Northern Research (Doctoral)	*$50,000*
2018 - 2021	Natural Sciences and Engineering Research Council Alexander Graham Bell Scholarship – Doctoral	*$105,000*
2016 - 2021	University of Waterloo Presidents Graduate Scholarship	*$50,000*
2018	UWaterloo Biology Graduate Symposium Presentation Award	*$1,000*
2017 - 2018	Davis Memorial Scholarship in Ecology	*$5,000*
2017 - 2018	Queen Elizabeth II Graduate Scholarships in Science & Technology	*$15,000*
2016 - 2017	W. Garfield Weston Award for Northern Research (Masters)	*$15,000*
2016 - 2017	Natural Sciences and Engineering Research Council Alexander Graham Bell Canada Graduate Scholarship – Masters	*$17,500*
2015	Natural Sciences and Engineering Research Council Undergraduate Student Research Awards	*$4,500*

RESEARCH GRANTS

2021	Indigenous Centre for Cumulative Effects *"Developing a baseline and framework for evaluating cumulative effects of multiple stressors on Innu fish harvest"* co-Principle Investigator	*$160,000*
2016 - 2017	W. Garfield Weston Award for Northern Research *Extended Stay Grant* Direct recipient	*$2,000*
2015 - 2019	Canadian Polar Commission *Northern Scientific Training Program* Direct Recipient	*$12,846*
2015	Phycological Society of America *Grant-in-Aid of Research* Principle Investigator	*$1,500*

CONFERENCES AND PRESENTATIONS

1. **Remmer C**, T Owca, L Neary, JA Wiklund, M Kay, BB Wolfe, RI Hall. 2019. Water isotope tracers in a multi-year landscape-scale assessment of hydrological processes controlling lake water balances. *American Geophysical Union annual meeting*, San Francisco, U.S.A.
2. **Remmer C**, T Owca, L Neary, JA Wiklund, M Kay, BB Wolfe, RI Hall. 2019. Delineating extent and magnitude of river flooding in a northern floodplain landscape using water isotope tracers. *Association of the Sciences of Limnology and Oceanography*, San Juan, Puerto Rico.
3. **Remmer C**, L Neary, T Owca, BB Wolfe, RI Hall. 2019. Isoscapes and limnoscapes of the Peace-Athabasca Delta: A foundation for hydrolimnological monitoring. *Society of Canadian Limnologist annual conference*, London, Ontario, Canada.

4. **Remmer C,** T Owca, L Neary, JA Wiklund, M Kay, BB Wolfe, RI Hall. 2018. Tracking the extent and magnitude of the 2018 spring flood in the Peace-Athabasca Delta (Canada) using water isotope tracers. *ArcticNet Annual Scientific Meeting*, Ottawa, Ontario, Canada.
5. **Remmer C,** CAM Savage, J Telford, BB Wolfe, RI Hall. 2018. Field testing cellulose-water $\delta^{18}O$ relations in periphytic algae for paleohydrological reconstructions. *Joint meeting of the International Paleolimnology Association and the International Association of Limnogeology*, Stockholm, Sweden.
6. **Remmer C,** WH Klemt, BB Wolfe, RI Hall. 2018. Integrating modern and paleolimnological data to assess hydroecological conditions in a high-latitude floodplain landscape. *Joint meeting of the International Paleolimnology Association and the International Association of Limnogeology*, Stockholm, Sweden.
7. **Remmer C,** WH Klemt, BB Wolfe, RI Hall. 2017**.** Spatial and temporal approaches to monitoring impacts of climate change and flooding on low water levels in a northern, freshwater delta. *Arctic Change Conference***,** Quebec City, Quebec**.**
8. **Remmer C,** WH Klemt, BB Wolfe, RI Hall. 2017**.** Using water isotope tracers in paleolimnology and monitoring to contextualize low water levels in the Peace-Athabasca Delta, Canada. *Advances in Stable Isotope Techniques and Applications*, Waterloo, Ontario.
9. **Remmer C,** WH Klemt, BB Wolfe, RI Hall. 2017**.** Widespread drying of the Peace-Athabasca Delta, Alberta, Canada. *Ontario-Quebec Paleolimnology Symposium*, Waterloo, Ontario.
10. **Remmer C**, WH Klemt, BB Wolfe, RI Hall. 2017. Widespread drying of the Peace Athabasca Delta, northern Alberta. *Society of Canadian Limnologist Annual Conference*, Montreal, Quebec.
11. **Remmer C**, WH Klemt, BB Wolfe, RI Hall. 2016. Widespread drying of the Peace Athabasca Delta, northern Alberta. *Canadian Association of Geographers - Ontario Division*, University of Waterloo, Waterloo.
12. **Remmer C**, BB Wolfe, RI Hall. 2016. Hydrologic Monitoring of the Peace-Athabasca Delta. *Industrial Partners Meeting for Peace-Athabasca Delta Collaborative Research and Development Projec*t, Calgary, Alberta.
13. **Remmer C**, BB Wolfe, RI Hall, KW Turner and Wood Buffalo National Park. 2016. Developing a hydrological monitoring program for the Peace-Athabasca Delta (Alberta, Canada) using water isotope tracers. *Annual Eastern Student Meeting of the Canadian Geophysical Union*, University of Waterloo, Waterloo.
14. **Remmer C**, BB Wolfe, RI Hall, KW Turner and Wood Buffalo National Park. 2016. Using water isotope tracers to detect inter-annual variability of lakes in a northern, remote, hydrologically-dynamic, deltaic landscape, the Peace Athabasca Delta, northern Alberta. *Canadian Association of Geographers - Ontario Division*, Carleton University, Ottawa.
15. **Remmer C**, BB Wolfe, RI Hall, KW Turner and Wood Buffalo National Park. 2015. Developing a hydrological monitoring program for the Peace-Athabasca Delta (Alberta, Canada) using water isotope tracers. *11th ArcticNet Annual Scientific Meeting*, Vancouver.
16. **Remmer, C,** L.A. MacDonald, J.V. Telford, R.I. Hall and B.B. Wolfe. 2015. Recovery Prospects of Arctic Ponds Severely Affected by Waterfowl Population Expansion in Wapusk National Park, Northern Manitoba. *8th Annual Paleolimnology Symposium*, Wilfrid Laurier University, Waterloo.

INVITED TALKS

2020	Guest lecture: Spatial analysis of isotopes
2019	Faculty Scholarship Workshop.
2018	Plenary, Ontario-Quebec Paleolimnology Symposium.
2016	GRADtalks speaker series, inaugural event.

TRAINING

2023	Data Science Fellowship	*Correlation One, USA*
2017	Science Outside the Lab North	*Ottawa and Montreal*
2016	Isotopes in Spatial Ecology and Biogeochemistry	*University of Utah*

SERVICE

2017-2018	Outreach Co-ordinator	*ArcticNet Student Association*
2016-2018	President	*Women in Science society, University of Waterloo*
2016-2018	Working Group Member	*United Nations HeforShe*
2015-2017	Board Member	*Bright Starts Early Learning Center*
2016-2018	Graduate Representative	*Biology Department Health and Safety Committee*
2016-2017	Executive	*Biology Graduate Student Association*
2016-present	Volunteer	*Let's Talk Science*
2016	Leadership Retreat Coordinator	*Water Institute, University of Waterloo*