**Catherine M. Febria, Ph.D.**

Great Lakes Institute for Environmental Research (GLIER) & Department of Integrative Biology

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*Citizenship*: Canadian *Pronouns*: she/her/siya *Languages*: English, French, Tagalog (Filipino)

RESEARCH INTERESTS & KEYWORDS

freshwater ecology in the Anthropocene, restoration/rehabilitation, headwater streams, socio-ecological systems, carbon cycling, biodiversity, ecosystem science, translation ecology, transformative change, justice equity, diversity, inclusion, decolonization

DEGREES

PhD 2010 Ecology & Evolutionary Biology, University of Toronto

Certificates in Environmental Studies, and, Teaching and Learning in Higher Education

MSc 2005 Geography, Simon Fraser University

BSc(Hon) 2002 Environmental Science, University of Toronto

ACADEMIC POSITIONS

2019-2024: Canada Research Chair in Freshwater Restoration Ecology

Great Lakes Institute for Environmental Research. University of Windsor, Canada

2019-present: Assistant Professor, Dept. of Integrative Biology. University of Windsor, Canada

 Co-Director, Organic Analysis & Nutrient Laboratory, GLIER, University of Windsor

 Director, Healthy Headwaters Lab, GLIER & Integrative Biology, University of Windsor

2013-2018: Director & Scientist - Canterbury Waterway Rehabilitation Experiment (CAREX). Freshwater Ecology Research Group, University of Canterbury – Te Whare Wānanga o Waitaha, Aotearoa New Zealand

2010 - 2013: Assistant Research Scientist, University of Maryland, College Park & Chesapeake Biological Laboratory, USA

RECENT DISTINCTIONS, AWARDS & LEADERSHIP APPOINTMENTS

1. Essex Region Conservation Award in Education, 2021.
2. Associate Director, FishCAST – a NSERC Canada CREATE program, 2020-2027.
3. Co-Chair, International Science Advisory Panel, New Zealand’s Biological Heritage National Science Challenge. 2020-2025.
4. Nominated Expert, Nexus Scoping Assessment. Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES). 2020-2021.
5. Collaborative & Interdisciplinary Research Award - Faculty of Science Awards Program, University of Windsor. 2020.
6. Canada Research Chair (Tier 2) in Freshwater Restoration Ecology. University of Windsor. 2019-2024.
7. CAREX Team. 2017. Canterbury Aoraki Conservation Board Award.
8. CAREX Team. 2017. University of Canterbury Sustainability Award – Gold Award for Research.
9. Inaugural IPBES Fellow, Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES). Asia-Pacific Regional Assessment. 2015-2018.

PUBLICATIONS

*In Review/In Revision (\*=HQP/graduate student author)*

(47) Febria, C.M.†, Warburton, H.J.†, Barrett, I., Graham, S.E., Hogsden, K.L., Harding,J.S. & McIntosh, A.R. Resilience isn’t always healthy: a framework for addressing negative resistance and resilience in stream restoration. †=Joint first author.

(46) \*Van Goethem, K., \*Damphousse, L., Stammler, K., Carroll, E. and Febria, C.M. In review. Ecological Impacts of Management Practices in Agricultural Drain Networks: A Literature Synthesis. Journal of Canadian Water Resources.

(45) \*Eveleens, R.A., Morris, T.J., Woolnough, D.A. and Febria, C.M. Submitted. Unionid species at risk and benthic macroinvertebrate community biomonitoring reveal complementarity in support of watershed-scale restoration. Facets.

(44) Heger, T., Jeschke, J.M., Febria, C., Kollmann, J.., Murphy, S., Rochefort, L., Shackelford, N., Temperton, V.M., Higgs, E. Resubmitted. Mapping and assessing the knowledge base of ecological restoration.

*Published/In Press (\*=HQP/graduate or undergraduate student)*

(43) Febria, C.M., Donaldson, C., Ives, J. and Keeshig, K. Minor revisions. Pluralistic approaches in research advance farming and freshwater sustainability efforts in the Great Lakes basin. Advances in Ecological Research. Special Issue on Pluralism in Environmental Governance.

(42) Febria, C.†, Kashian, D.† et al. Minor revisions. Early career researchers benefit from inclusive, diverse and international collaborations: Changing how academic institutions utilize the seminar series. JGLR. †=Joint first author.

(41) \*Shahmohamadloo, R. Febria, C., Fraser,E and Sibley, P. 2022. The Sustainable Agriculture Imperative: A Perspective on the need for an Agrosystem Approach to Meet the United Nations Sustainable Development Goals by 2030. Integrated Environmental Assessment and Management. <https://setac.onlinelibrary.wiley.com/doi/10.1002/ieam.4558>

(40) Hogsden, K., \*O’Brien, S., \*Bartlett, S., Warburton, H., Devlin, H., \*Collins, K., Febria, C., \*Goeller, B., McIntosh, A. and Harding, J. 2021. Riparian plant species offer range of organic resources to stream invertebrate communities through varied leaf breakdown rates. New Zealand J Marine and Freshwater Research. <https://doi.org/10.1080/00288330.2021.2005637>

(39) \*Eveleens, R. and Febria, C. 2021. A systematic review of the global freshwater mussel restoration toolbox. Aquatic Conservation: Marine and Freshwater Ecosystems. <https://doi-org/10.1002/aqc.3750>

(38) Jacobs, C., Donaldson, C., Ives, J., Keeshig, K., Day, T., Febria, C. 2021. Bridging understanding in ways of knowing nature through a land-based field course at Bkejwanong Territory. Case studies in the environment. 5 (1): 1422042. <https://doi.org/10.1525/cse.2021.1422042>

(37) \*Moore, T.P., Febria, C.M., McIntosh, A.R., Warburton, H.J., Harding, J.S., 2021. Benthic Invertebrate Indices Show No Response to High Nitrate-Nitrogen in Lowland Agricultural Streams. Water Air Soil Pollut 232, 263. <https://doi.org/10.1007/s11270-021-05169-1>

(36) \*Barrett, I.C., McIntosh, A.R., Febria, C.M., Warburton, H.J. 2021. Negative resistance and resilience: biotic mechanisms underpin delayed biotic recovery in restoration. Proc Roy Soc B <https://royalsocietypublishing.org/doi/pdf/10.1098/rspb.2021.0354>

(35) \*White, B.E., Febria, C.M., McIntosh, A.R., Warburton, H. 2021. The potential role of biotic interactions in stream restoration. Restoration Ecology. doi: <https://doi.org/10.1111/rec.13396>

(34) Achieng, A.O., Masese, F.O., Coffey, T.J., Raburu, P.O., Agembe, S.W., Febria, C.M., Kaunda-Arara, B., 2021. Physico-chemical assessment of the health of Afrotropical rivers using fish assemblages: A case of key rivers in the Lake Victoria Basin, Kenya. Front. Water 2. <https://doi.org/10.3389/frwa.2020.620704>

(33) Febria, C.M., Bayfield, M., Collins, K.E., Devlin, H.S., Goeller, B.C., Hogsden, K.L., Warburton, H.J., Harding, J.S., McIntosh, A.R., 2020. Partnerships Generate Co-Benefits in Agricultural Stream Restoration (Canterbury, New Zealand). Case Studies in the Environment 4. <https://doi.org/10.1525/cse.2020.1229632>

(32) \*Collins, K., Febria, C.M., Devlin, H., Warburton, H., Hogsden, K., Goeller, B., McIntosh, A. and Harding, J. 2020. Trialling tools using hand-weeding, weed mat and artificial shading to control nuisance macrophyte growth at multiple scales in small agricultural waterways. NZ J Marine Freshwater Research. <https://doi.org/10.1080/00288330.2020.1722185>

(31) \*Goeller, B., Febria,C., McKergow,L., Harding,J., Matheson,F., Tanner,C. and McIntosh,A. 2020. Combining tools from edge-of-field to in-stream to attenuate reactive nitrogen along small agricultural waterways. Water 12: 383. <https://doi.org/10.3390/w12020383>

(30) Coscieme, L., da Silva Hyldmo, H., Fernández-Llamazares, Á., Palomo, I., Mwampamba, T.H., Selomane, O., Sitas, N., Jaureguiberry, P., Takahashi, Y., Lim, M., Barral, M.P., Farinaci, J.S., Diaz-José, J., Ghosh, S., Ojino, J., Alassaf, A., Baatuuwie, B.N., Balint, L., Basher, Z., Boeraeve, F., Budiharta, S., Chen, R., Desrousseaux, M., Dowo, G., Febria, C., Ghazi, H., Harmáčková, Z.V., Jaffe, R., Kalemba, M.M., Lambini, C.K., Lasmana, F.P.S., Mohamed, A.A.A., Niamir, A., Pliscoff, P., Sabyrbekov, R., Shrestha, U.B., Samakov, A., Sidorovich, A.A., Thompson, L., and Valle, M. 2020. Multiple conceptualizations of nature are key to inclusivity and legitimacy in global environmental governance. Environmental Science & Policy 104: 36–42. doi: <https://doi.org/10.1016/j.envsci.2019.10.018>

(29) von Schiller, D., et al. 2019. Sediment respiration pulses in intermittent rivers and ephemeral streams. Global Biogeochemical Cycles. <https://doi.org/10.1029/2019GB006276>

(28) \*Goeller, B. C., L. F. Burberry, C. M. Febria, K. E. Collins, N. J. Burrows, K. S. Simon, J. S. Harding, and A. R. McIntosh. 2019. Capacity for bioreactors and riparian rehabilitation to enhance nitrate attenuation in agricultural streams. Ecological Engineering 134:65–77. doi: <https://doi.org/10.1016/j.ecoleng.2019.03.014>

(27) \*Goeller, B.C., Febria, C.M., Warburton, H.J., Hogsden, K.L., Collins, K.E., Devlin, H.S., Harding, J.S., and McIntosh, A.R. 2019. Springs drive downstream nitrate export from artificially-drained agricultural headwater catchments. Science of The Total Environment 671: 119–128. <https://doi.org/10.1016/j.scitotenv.2019.03.308>

(26) Shumilova, O. et al. 2019. Simulating rewetting events in intermittent rivers and ephemeral streams: a global analysis of leached nutrients and organic matter. Global Change Biology. <https://doi.org/10.1111/gcb.14537>

(25) \*Collins, K.E., Febria, C.M., Warburton, H.J., Devlin, H.S., Hogsden, K.L., Goeller, B.C., McIntosth, A.R. and J.S. Harding. 2018. Evaluating practical macrophyte control tools on small agricultural waterways in Canterbury, New Zealand. New Zealand Journal of Freshwater and Marine Research. <https://doi.org/10.1080/00288330.2018.1487454>

(24) Datry, T., A. et al. 2018. A global analysis of terrestrial plant litter dynamics in non-perennial waterways. Nature Geoscience 11:497–503. <https://doi.org/10.1038/s41561-018-0134-4>

(23) O’Brien, J., Warburton, H.J., Graham, S.E., Franklin, H. Febria, C.M., Hogsden, K.L., Harding, J.S. and McIntosh, A.R. 2017. Leaf litter additions enhance stream metabolism, denitrification and restoration prospects for agricultural catchments. Ecosphere. <https://doi.org/10.1002/ecs2.2018>

(22) \*Hosen, J.D., Febria, C.M., Crump, B., Palmer, M.A. 2017. Watershed urbanization linked to differences in stream bacterial community composition. Frontiers in Microbiology. <https://doi.org/10.3389/fmicb.2017.01452>

(21) \*Goeller, B.C., Febria, C.M., Harding, J.S. and McIntosh, A.R. 2016. Thinking beyond the bioreactor box: incorporating stream ecology into edge-of-field nitrate management. Journal of Environmental Quality. 45(3): 866-872. <https://doi.org/10.2134/jeq2015.06.0325>

(20) Saunders, M., Brown, C.J., Foley, M.M., Febria, C.M., Albright, R., Mehling, M.G., Kavanaugh, M.T., Burfiend, D.D. 2016. Human impacts on connectivity in marine and freshwater ecosystems assessed using network measures. Marine and Freshwater Research. 67(3): 277-290. <https://doi.org/10.1071/MF14358>

(19) Koch, B.J., Febria, C.M., Cooke, R.M., Hosen, J.D., Baker, M.E., Colson, A.R., Filoso, S., Hayhoe, K., Loperfido, J.V., Stoner, A.M.K., Palmer, M.A. 2015. Using structured expert judgment to estimate variability in nitrogen retention by urban stormwater control structures. Elementa: Science of the Anthropocene. 3: 000063. <https://doi.org/10.12952/journal.elementa.000063>

(18) Febria, C.M.†, Hosen, J.D.†, Crump, B., Palmer, M.A., Williams, D.D. 2015. Microbial responses to changes in flow status in temporary headwater streams: a cross-system comparison. Frontiers in Microbiology. <https://doi.org/10.3389/fmicb.2015.00522> (†Equal contribution)

(17) \*Hosen, J.D., McDonough, O.T., Febria, C.M. and Palmer, M.A. 2014. Land cover and nutrient loads explain changes in rates of enzymatic processing of dissolved organic matter by stream microbes. Environmental Science & Technology. 48(14): 7817-7824. <https://doi.org/10.1007/s00248-019-01330-w>

(16) Koch, B.J., Febria, C.M., Gevrey, M., Wainger, L.A., Palmer, M.A. 2014. Nitrogen removal by stormwater management structures: a data synthesis. Journal of the North American Water Resources Association. 50(6): 1594-1607 <https://doi.org/10.1111/jawr.12223>

(15) Palmer, M.A. and Febria, C.M. 2012. The heartbeat of ecosystems. Science. 336(6087):1393-1394. <https://doi.org/10.1126/science.1223250>

(14) Febria, C.M., Beddoes, P., Fulthorpe, R.R. and Williams, D.D. 2012. Bacterial community dynamics in the hyporheic zone of an intermittent stream. International Society of Microbial Ecology (ISME) Journal. 6: 1078-1088. [https://doi.org/10.1038%2Fismej.2011.173](https://doi.org/10.1038/ismej.2011.173)

(13) Febria, C.M., Fulthorpe, R.R., and D.D. Williams. 2010. Characterizing seasonal changes in physicochemistry and bacterial community structure in hyporheic sediments of the Speed River, southern Ontario, Canada. Hydrobiologia. 647: 113-126. <https://doi.org/10.1007/s10750-009-9882-x>

(12) Williams, D.D., Febria, C.M., Wong, J.C.Y. 2010. Ecotonal and other properties of the hyporheic zone. Special Issue on the Hyporheic Zone: 50th anniversary of T. Orghidian’s Paper. Fundamental and Applied Limnology. 176: 349-364. <https://doi.org/10.1127/1863-9135/2010/0176-0349>

(11) \*Verdonschot, R.C.M., Febria, C.M., Williams, D.D. 2008. Fluxes of dissolved organic carbon, other nutrients and microbial communities in a water-filled treehole ecosystem. Hydrobiologia. 596(1): 17-30. <https://doi.org/10.1007/s10750-007-9054-9>

(10) Febria, C.M., Lesack, L.F.W., Gareis, J.A.L. and Bothwell, M.L. 2006. Patterns of hydrogen peroxide among lakes of the Mackenzie Delta, western Canadian Arctic. Canadian J. Fisheries Aquatic Science. 63(9): 2107-2118. <https://doi.org/10.1139/f06-106>

(9) Febria, C.M., Magnusson, A.K. and Williams, D.D. 2005. Population dynamics and prey selection of the larvae of three sympatric species of Sympetrum (Odonata: Libelluidae) in an intermittent pond. Canadian Entomologist. 137: 723-727. <https://doi.org/10.4039/N04-088>

BOOK CHAPTERS

(8) Febria, C. and Krantzberg, G. 2022. The Societal Values of Inland Waters. Encyclopedia of Inland Waters, 2nd Edition.

(7) McIntosh, A.R. Leigh, C., Boersma, K.S., McHugh, P.A., Febria, C.M., and García-Berthou, E. 2017. Food webs and trophic interactions in intermittent rivers. In: Intermittent River Ecology and Management, Datry, T., Bonanda, N., and Boulton, A.J. (Eds.). Elsevier Publishing.

(6) Romaní, A.M., Chauvet, E., Febria, C.M., Mora, J., Risse-Buhl, U., Timoner, X., Zeglin, L. 2017. The biota of intermittent rivers: bacteria, fungi and protozoans. In: Intermittent River Ecology and Management, Datry, T., Bonanda, N., and Boulton, A.J. (Eds.). Elsevier Publishing.

(5) Febria, C.M., Koch, B.J., Palmer, M.A. 2015. Operationalizing an Ecosystem Services framework for reducing freshwater biodiversity loss. In: How can an Ecosystem Services approach help address Global Water Challenges? J. Martin-Ortega (Ed.), UNESCO Global Water Dialogue Series on Water Ecosystem Services.

(4) Williams, D.D., Febria, C.M., Schriever, T. 2009. Structure and mechanics of intermittent wetland communities: from bacteria to anacondas. In: International Wetlands - Conservation, Ecology & Restoration. Herrera, J. (Ed.), Nova Publishers.

TECHNICAL REPORTS

1. Van Goethem, K., Damphousse, L. and Febria. C. 2021. Ecological Impacts of Management Practices in Agricultural Drain Networks: A Literature Synthesis. White paper submitted to OMAFRA.
2. Febria,C.M. and Harding, J.S. 2018. Two-stage channel - Channelling the right tools for flood management and runoff in New Zealand. DairyNZ Technical Series - Science in Action. Issue 40: 1-4. December 2018. URL: <http://tinyurl.com/twostagechannelNZ>
3. Faridah-Hanum, I., Rawat, G. S., Yahara, T., Abi-Said, M., Corlett, R. T., Courchamp, F., Dai, R., Freitag, H., Haryoko, T., Hewitt, C. L., Hussain, T., Kadoya, T., Maheswaran, G., Miyashita, T., Mohan Kumar, B., Mohapatra, A., Nakashizuka, T., Piggott, J. J., Raghunathan, C., Rawal, R., Sheppard, A., Shirayama, Y., Son, Y., Takamura, N., Thwin, S., Yamakita, T., Febria, C. M., Niamir, A. Chapter 3: Status, trends and future dynamics of biodiversity and ecosystems underpinning nature's contributions to people. In IPBES (2018): The IPBES regional assessment report on biodiversity and ecosystem services for Asia and the Pacific. Karki, M., Senaratna Sellamuttu, S., Okayasu, S., Suzuki, W. (eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem services, Bonn, Germany. URL: <https://www.ipbes.net/deliverables/2b-asia-pacific>
4. Craig, L., Febria, C., Hosen, J. and Politano, 2012. Promoting successful restoration through effective monitoring in the Chesapeake Bay Watershed – Non-Tidal Wetlands. In: Sellner, K.G. M. Palmer, L. Wainger, A.P. Davis, B. Benham, E.J. Ling, and G. Yagow. 2012. Metrics and protocols for progress assessment in Chesapeake Bay Stewardship Fund Grants. Final Report to the National Fish and Wildlife Foundation. CRC Publ. No. 12-174, Edgewater, MD. | UMCES Report No. TS-638-12 & UMCES-CBL 11-061. 474 pp.

BOOK – SECTION EDITOR

Febria,C.M. & Krantzberg, G. Societal values section, Encyclopaedia of Inland Waters, 2nd Edition. Publish date: April 2022.

RESEARCH GRANTS

*Pending*

1. Large-Scale CoPe: Great Lakes Hazards, Equity and Resilience Hub for Studying Climate Adaptation, Lake Ecosystems and Society (SCALES). Lead PI: E. Irwin + 11 Co-PIs. 09/2022-08/2027, $19,623,296 USD.
2. Febria, C. The Agricultural Stream Syndrome: Re-igniting healthy resilience through stream restoration.NSERC Discovery. 04/2022-03/2027, $464,000 CAD.

*Funded*

1. Pitcher, T., Chapman, L., Febria, C., Jacobs,C., Mandrak, M. Canada Nature Fund for Aquatic Species at Risk 2. Fisheries and Oceans Canada, 06/2022-05/2026, $775,700 CAD.
2. Febria, C., Gareis, J. Rahbari, M. Characterization of humic substances to enhance resilience in crop production. Mitacs Accelerate, 01/2022-12/2023, $120,000 CAD.
3. Febria, C. Pluralism in Environmental Governance – Grants for Women, Office of Research and Innovation Services, University of Windsor, 7/2021-2/2022, $5,000 CAD.
4. Barrette-Ng., I.,Proctor, C., Febria, C., Clare, A., Jacobs, C., Kelly, T., McKay, M., Pitcher, T., Williams, M. and Chittle, L. myWATERSHED: A sandbox game for connecting and accelerating sustainability stewards for the future. eCampus Ontario grant. 04/2021-03/2022, $86,000 CAD
5. Febria, C.M. Assessment of freshwater mussel species at risk translocations due to river infrastructure works: A case study of the Argyll Bridge and the Grand River. Mitacs Accelerate, 03/2021-03/2023, $270,000 CAD.
6. Semeniuk,C.A.D., B.D.T. Neff, N.E. Mandrak, S.J. Cooke, D.D. Heath, T.E. Pitcher, B. Dixon, C. Audet, M. Docker, C. Febria, and B. Zielinski. Fisheries management and conservation careers in science and technology, NSERC CREATE Program, 09/2020 – 08/2027, $1,720,000 CAD
7. Mandrak, N. + 9 P.I.s including C.Febria. 2019. Canada Nature Fund for Aquatic Species at Risk. Dept. of Fisheries and Oceans Canada. Implementation and Evaluation of Recovery Actions for Aquatic Species at Risk in the Lower Great Lakes Watershed. 06/2019-05/2023. $1,700,000 CAD ($66K to C.Febria & $140K to C.Jacobs & C.Febria)
8. Febria, C. 2019. Canada Research Chair (Tier 2) in Freshwater Restoration Ecology. NSERC Canada. 04/2019-04/2023. $600,000 CAD
9. Febria, C. 2019. Research start-up grant, University of Windsor. 01/2019-12/2023. $575,300 CAD
10. Febria, C., Harding, J., McIntosh, A (Co-PIs). CAREX Ararira-L2 on-farm tool-scoping & catchment monitoring study. Living Water Partnership – Dept of Conservation & Fonterra. 04/2018-12/2018. $23,000 NZD
11. Febria, C., McIntosh, A., Harding, J. (Co-PIs) Living Water Partnership for NZ stream restoration. Living Water Partnership – Dept of Conservation & Fonterra. 11/2017-12/2019. $543,000 NZD
12. Febria, C., McIntosh, A., Harding, J (Co-PIs). Floodplain restoration as a tool in agricultural waterway management. DairyNZ. 12/2017-05/2018. $30,000 NZD.
13. Febria, C.M., Harding, J., McIntosh, A., Simpson, R. Silverstream Riparian Management and Wetland Demonstrate site development. Living Water Programme – Dept of Conservation & Fonterra. 01/2014 – 12/2018. $100,000+ NZD.
14. Febria, C. Ministry for Environment – Linking Science into Policy Fund. 01/2015 – 01/2018. $8,000 NZD
15. Febria, C.†, Warburton, H. †, Harding, J., Hogsden, K., Graham, E., McIntosh, A.M. Reigniting healthy resilience: Using functional traits to achieve stream restoration\*\*. New Zealand National Science Challenge – New Zealand’s Biological Heritage Grant. 1/2017-1/2019. $475,000 NZD (†=Project co-leaders; \*\*=Top ranked proposal in the contestable round)
16. Febria, C.M., Harding, J., McIntosh, A + 5 private landowners/farmers. The Canterbury Waterway Rehabilitation Experiment (CAREX). Immediate Steps Community fund for Biodiversity Improvement. 01/2014 – 01/2018. 5 individual grants between $8,000 and $35,000 NZD each; Total funding: $93,000 NZD
17. Febria, C.M., McDonald, M., Harding, J., McIntosh, A. Two-Stage Ditch demonstration site - Canterbury Waterway Rehabilitation Experiment. Community fund, IPENZ Rivers Group. 01/2015-01/2016. $3,000 NZD
18. Febria, C., Dantas, G., Palmer, M., Beman, M., de los Reyes III, F.. Microbial ecosystem services. US National Academies Keck Futures Initiative. 01/2011 – 01/2013. $50,000 USD

RESEARCH CONTRACTS & PARTNER-LED SUB-CONTRACTS

*These are grants that I have contributed as a mentor, co-writer of grants, and/or provide in-kind research funds, personnel or mentorship support to local communities and practitioners. Also included are research contracts with our lab for Benthic Macroinvertebrate Biomonitoring services.*

1. Walpole Island Land Trust. Resilient Communities Fund. Ontario Trillium Foundation. $95,3000 CAD *(I provided mentorship and in-kind support from my lab to help co-write the grant; my team will provide in-kind support in training in ecological monitoring)*
2. St. Clair Region Conservation Authority. Transfer payment agreement under the Canada-Ontario Agreement. Funding from OMAFRA (1 November 2020 – 10 March 2022); Sub-contract & in-kind contribution of Green Infrastructure literature review for agricultural drain management in Southwestern Ontario.
3. Shang, J., et al. Adopting smart-agriculture technology to improve field-crop productivity with reduced environment footprint & Increasing the prosperity of Indigenous community through circle of learning and agriculture. 2020. Agriculture & Agri-Food Canada. $60,000 CAD. (June 2020-2021); In-kind support via the Indigenous Knowledge Circle / CRC program.
4. Mandrak, N. + 9 P.I.s including C.Febria. 2019. Canada Nature Fund for Aquatic Species at Risk. Dept. of Fisheries and Oceans Canada. Implementation and Evaluation of Recovery Actions for Aquatic Species at Risk in the Lower Great Lakes Watershed. 06/2019-05/2023. $1,700,000 CAD ($140K to C.Jacobs/Walpole Island Land Trust; *I provide in-kind administrative support in the hiring, training and program support supplemented by $20K annually for staffing and resources)*.
5. Benthic biomonitoring contracts (n=5 since 2021; $30K total revenue to the Univ of Windsor)

TEACHING GRANTS

1. Febria, C., Willet, J., Donaldson, C. and Jacobs, C. 2020. University of Windsor Centre for Teaching & Learning - Nandagikenim – Seek to Know grant. “Sense of place & Exploring perspectives: The role of art in growing the traditional ecological knowledge (TEK) and the environment field course”. $2,000 CAD.
2. Febria, C. & Donaldson, C. 2019. University of Windsor Teaching Leadership Chair Award. “Reflections: Weaving and sharing multiple ways of knowing through a traditional ecological knowledge field course and web-based resources”. $2,000 CAD.

INVITED SEMINARS & PANELS (last five years)

1. Febria, C. 2022. Invited Panelist. UN World Water Day, York University.
2. Febria, C. 2022. Invited Plenary. Communities and Change. Joint Aquatic Societies Meeting. Grand Rapids, MI, USA. May 2022.
3. Febria, C. 2022. Seminar on Freshwater Restoration Ecology in the Great Lakes. SEAS U Michigan. Apr 2022.
4. Expert panel on Community partnership in Aquatic Habitat Restoration. Aquatic Habitats Canada. Jan 2022.
5. Febria, C. 2021. Invited Seminar: The heartbeat of ecosystems & the UN Decade of Ecosystem Restoration. Dept of Integrative Biology Seminar Series. 4 November 2021.
6. Febria, C. 2021. Invited Seminar: Centering communities in freshwater restoration science. FishCAST Seminar Series. 24 June 2021.
7. Febria, C. 2021. Invited Plenary: Let’s Talk Environment – Water! 14 May 2021.
8. Febria, C. 2021. Invited Panelist: Bridging the Gap - Expanding aquatic research with community co-production. Society for Canadian Limnologists. 11 May 2021.
9. Febria, C. 2021. Invited lecture: Freshwater ecosystem health and human well-being. University of West Indies. 12 April 2021.
10. Febria, C. 2021. Invited speaker: Fostering an Indigenous Knowledge Circle to guide freshwater restoration science. International Joint Commission Indigenous Knowledge Workshop. 9 April 2021.
11. Febria,C. 2021. Invited Panelist – Trajectories, challenges and solutions for biodiversity. The Royal Society 2021 Virtual Commonwealth Science Conference. 24 February 2021.
12. Febria, C. 2021. Invited keynote: Accelerating nature-based solutions for the Great Lakes Basin. Essex County Field Naturalists Annual Meeting. 10 February 2021.
13. Febria, C. 2020. Invited Plenary: Partnership & co-production in agricultural stream restoration: Lessons learned from Chesapeake Bay, the Laurentian Great Lakes and Canterbury, Aotearoa New Zealand. Csilag Seminar Series, Dept. of Geography, Geomatics and Environment. University of Toronto Mississauga. 18 November 2020.
14. Febria, C. Invited panelist – Justice, Equity, Diversity & Inclusion (JEDI) in the Great Lakes research community. IAGLR 2020 Virtual meeting. 10 June 2020.
15. Febria,C. Co-producing farm & freshwater solutions from Aotearoa New Zealand to the Great Lakes Basin. Purdue University, Dept. of Forestry and Natural Resources Seminar. 21 February 2020.
16. Lake Futures Workshop. University of Waterloo. October 5 2020.
17. Febria,C. Partnership & co-production of farming and freshwater solutions: A holistic approach. Water@Wayne Seminar Series, 24 January 2020.
18. Febria, C. Future-proofing freshwater and farming in Great Lakes watersheds: A holistic approach. GLIER Seminar Series, University of Windsor. 13 September 2019.
19. Febria,C. School of Biological Sciences, University of Canterbury. November 2018.
20. Febria,C. GLIER, University of Windsor. May 2018.
21. Febria, C. Brock University. February 2018.
22. Febria,C. University of British Columbia, January 2016.
23. Febria,C. Oregon State University, February 2015.

TEACHING APPOINTMENTS

*University of Windsor (2019-present):*

* BIOL4280 Limnology (2019, 2021; odd years); enrollment =50
* BIOL4241 Stream Ecology (2020, 2022; even years); enrollment = 25
* GLIE8500 GLIER Graduate Seminar Series (every year; GLIE8500); enrollment =10
* Traditional Ecological Knowledge and the Environment Field course (ESCI4808); enrollment=7

*University of Canterbury (2013 – 2018):*

* Lecturer (co-teach as part of team in each of the following courses): Ecology (BIOL270), \*Freshwater Ecosystems (BIOL375), Freshwater Ecology (BIOL 472/425), Conservation Genetics (BIOL425), Water Resources (WATR201); \* = Dean’s citation for high student evaluations

*University of Toronto (2005 – 2010):*

* Sole Course Instructor: Biodiversity and Biogeography (2007)
* Guest Lecturer: Population Ecology (2010)
* Teaching Assistant Trainer (2008 – 2010): Physical & Life Science Depts, Office of Teaching Advancement
* Teaching Assistant (2005 – 2010): Environmental Science, Biodiversity and Biogeography, Ecology, Marine Biology Field Course in Barbados

PROFESSIONAL DEVELOPMENT IN TEACHING

*Course & Certificate Completion*

* Post-Graduate Supervisor Training, 2016, University of Canterbury
* Course completion, Teaching & Learning in Higher Education, 2010, University of Toronto
* Certificate in University Teaching & Learning, 2005, Simon Fraser University
* Publications:
	+ Febria, Kashian et al. In Review. In Review. Early career researchers benefit from inclusive, diverse and international collaborations: Changing how academic institutions utilize the seminar series. JGLR.
	+ Jacobs, C., Donaldson, C., Ives, J., Keeshig, K., Day, T., Febria, C. 2021. Bridging understanding in ways of knowing nature through a land-based field course at Bkejwanong Territory. Case studies in the environment. 5 (1): 1422042. <https://doi.org/10.1525/cse.2021.1422042>
	+ Eng, E. and Febria, C.M. 2011. Transferrable skills from science outreach for graduate students through Let’s Talk Science Partnership Program. Collected Essays on Learning & Teaching. 4: 58-67. <https://doi.org/10.22329/celt.v4i0.3274>

ACADEMIC SERVICE (last five years)

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| *Nominated Science Expert** IPBES Expert – Nexus Scoping Assessment (2020-present)
* IPBES Expert (Fellow) – Asia-Pacific Regional Assessment (2015-2018)

*Reviewer* * Coordinating Editor, Restoration Ecology Journal (<https://onlinelibrary.wiley.com/journal/1526100x>)
* Journal Reviews: Aquatic Sciences, Biodiversity and Conservation, Canadian Journal of Microbiology, Ecosystem Services, Freshwater Science, Frontiers in Ecology and the Environment, Frontiers in Microbiology, International Journal of Soils and Sediments Journal of the American Water Resources Association, Journal of Applied Ecology, Journal of Environmental Management, Science of the Total Environment
* Invited grant reviewer for: EU BiodivERsA program (2016), US AID programs (2013)
* Graduate thesis examiner: University of Canterbury - MSc theses (2018, 2019), University of Waikato – MSc Thesis (2019)

*Academic Service** Conference Co-Chair – Ecosystem Approach (August 2022)
* International Joint Commission – Planning Committee for Indigenous Knowledge Working group (2021)
* University service:
	+ University Strategic Planning Committee (2021-2022)
	+ Search committees, Canada Research Chair in Engineering (2020-2021)
	+ Search committee, Head of Integrative Biology (2019-2020)
* Faculty of Science service:
	+ EDI Working Group (2019-present)
* Dept of Integrative Biology service
	+ Appointments (2019 - ongoing)
* GLIER service:
	+ Women in Science, Justice Equity Diversity & Inclusion (2019-present)
* Conference Panels
	+ JEDI Panel, IAGLR 2020; Diversity Panel – Canadian Society of Zoology Annual Meeting (2019)
* Session organizer at international conferences:
	+ CCFFR (2022), IAGLR (2020), NZ Freshwater Society Annual meeting (2014, 2017, 2018), Joint Aquatic Science Meeting (2014), American Geophysical Union (2013), EcoSummit (2012)

*Professional Associations** Professional membership (current): Society for Ecological Restoration (SER), International Association for Great Lakes Research (IAGLR)
* Professional membership (last five years): American Society of Limnology & Oceanography (ASLO), Society for Freshwater Science (SFS), Ecological Society of America (ESA), New Zealand Freshwater Society (NZFSS)

*Outreach/Extension** Healthy Headwaters Lab outreach with Bkejwanong Youth Eco-Keeper Program (2019-present)
* High school & Primary school engagement including through He Pūtaiao Māori science programme & the Canterbury Waterway Rehabilitation Experiment (2013-present); University of Toronto Scarborough Let’s Talk Science Partnership Program; Graduate Student Coordinator (2008 – 2010).
* 25+ total presentations at academic conferences as lead/presenting author; 20+ total presentations as co-author.
* 100+ stakeholder / community presentations on freshwater restoration and management, including government agencies (local, regional and federal), schools, farming groups, iwi (tribal) groups and public

SCIENCE COMMUNICATION & TRANSLATION ECOLOGY EXAMPLES* Public Figshare page for translation materials
	+ Healthy Headwaters Lab (2019-present): <http://tinyurl.com/healthyheadwaterslab>
	+ CAREX (2013-2018): <http://tinyurl.com/carextips>
* International Joint Commission Newsletter – Great Lakes Connection Newsletter.
	+ “The JEDI Order: Promoting inclusivity in Great Lakes science and decision-making”. 2020. URL: <https://www.ijc.org/en/jedi-order-promoting-inclusivity-great-lakes-science-and-decision-making>
	+ “Water is Life: Reframing Indigenous partnerships in water stewardship and research in the Great Lakes”. 2020. URL: <https://ijc.org/en/water-life-reframing-indigenous-partnerships-water-stewardship-and-research-great-lakes>
* “Small streams can help solve big problems”, Science on Tap, Field to Faucet. 4 April 2019.
* Video: Traditional Ecological Knowledge and the Environment at Bkejwanong Territory, University of Windsor field course. Here I am interviewed as the course co-instructor for the inaugural field course. URL: <https://tinyurl.com/tek-fieldcourse-2019>
* Magazine Feature: “Cleaning up our waterways” June/July 2018. Latitudes Magazine. Feature article in special issue on freshwater in Canterbury. URL: <https://tinyurl.com/carex-latitudes>
* Newspaper (online & print): “Dry rivers drive climate change” 23 May 2018. The Press, Stuff.co.nz, NZ Herald
* Web media: Living Water Partnership between Dept of Conservation and Fonterra - CAREX transforming agricultural drains into healthy waterways. Here I feature as the CAREX Director and Scientist to explain on-the-ground research on agricultural waterway restoration. This video features nationally on the Living Water website and related content on their website and social media is publicly available. Launched January 2018. URL: <https://www.youtube.com/watch?v=NqYdGG5G5dk> Individually profiled at: https://www.livingwater.net.nz/our-progress/im:1432/scientists-working-with-living-water-dr-catherine/
* YouTube practitioner video: Snake Creek catchment restoration – I have been building capacity and capability with stream restoration practitioners at Snake Creek & this video is shared widely among the public and local stakeholders. Launched October 2017. URL: <https://www.youtube.com/watch?v=y_GvOqSwf8E>
* Podcast:

Teach Me About the Great Lakes – “What allyship looks like in action” – I was interviewed alongside Katrina Keeshig to talk about the Healthy Headwaters Lab efforts to centre and promote Indigenous-led science. URL: <https://www.teachmeaboutthegreatlakes.com/23> * Radio:

Radio New Zealand – Nine to Noon Radio Program “Re-building healthy rivers”. I was interviewed to discuss new project focused on boosting biodiversity restoration in rivers. Originally aired 26 January 2017. <http://www.radionz.co.nz/national/programmes/ninetonoon/audio/201830860/re-building-healthy-rivers>Radio New Zealand – Country Life Radio Program “A Stream Runs through it – the Canterbury Waterway Rehabilitation Experiment”. I was interviewed to discuss partnership between science, industry, government and farmers to achieve stream restoration (with Prof Jon Harding, Dr. Meg Devane, Robin Smith, Libby Sutherland, Richard & Jill Simpson). Originally aired 20 May 2016: <http://www.radionz.co.nz/national/programmes/countrylife/audio/201801480/a-stream-runs-through-it> |
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LEAVES

Parental leaves taken in 2011 & 2015/2016

Laboratory and research program have been in flux between being fully shut down to partially open due to COVID-19 pandemic (March 2020 to present). At present, the lab has not returned to full capacity or function and we continue to work primarily in a remote, virtual setting.