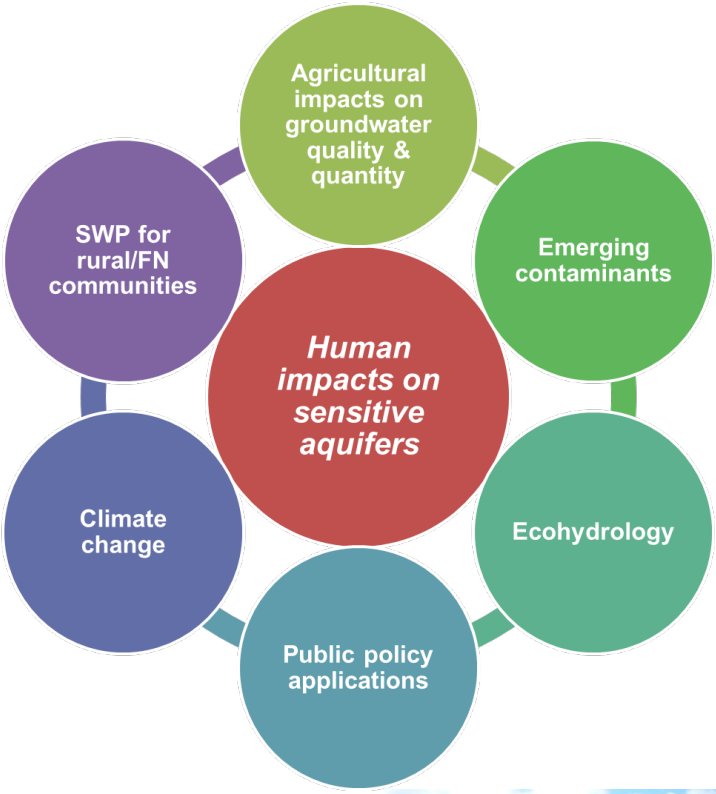
The UNIVERSITY CONSORTIUM

Dr. Jana Levison

- Associate Professor, Engineering Hydrogeology, School of Engineering, University of Guelph
- jlevison@uoguelph.ca

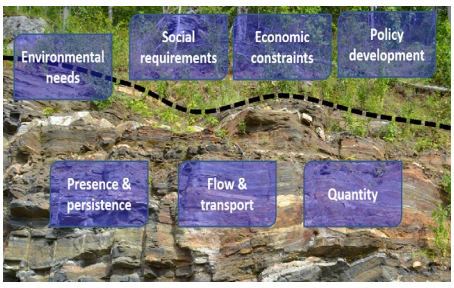
Dr. Jana K. Levison has a bachelor's degree in Civil Engineering (environmental option) and a Ph.D. in Civil Engineering (focus: anthropogenic impacts on fractured bedrock aquifers) from Queen's University, as well as a P.Eng. Designation. Dr. Levison completed her postdoctoral fellowship at the Université du Québec à Montréal, working on multidisciplinary ecohydrological modeling related to climate change. In 2009-2010 she led engineering and public policy initiatives as the Junior Fellow and Acting Executive Director of the Ontario Centre for Engineering and Public Policy at Professional Engineers Ontario. She has also worked at the Cataraqui Region Conservation Authority on the Drinking Water Source Protection team. Dr. Levison was an Associate Editor for Hydrogeology Journal from 2015 to 2019.

At the University of Guelph Dr. Levison is conducting novel research related to agricultural and climate change impacts on groundwater quality and quantity, with a focus on sensitive aquifers. Other areas of research interest include: source water protection; appropriate potable water approaches for marginalized communities; and fostering engineering and technological input into public discourse.



Research Interests

How our activities impact groundwater



Selected Papers

Bishop, P., Persaud, E., Levison, J., Parker, B. and Novakowski K. (2020) Inferring flow pathways between bedrock boreholes using the hydraulic response to borehole liner installation. Journal of Hydrology, https://doi.org/10.1016/j.jhydrol.2019.124267

Browne, D., Limay-Rios, V., Schaafsma, A. and Novakowski, K. (2020) Neonicotinoids in groundwater: presence and fate in two distinct hydrogeologic settings in Ontario, Canada, Hydrogeology Journal (in press).

Gardner, S., Levison, J., Parker, B. and Martin, R. (2020) Groundwater nitrate in three distinct hydrogeologic and land use settings in southwestern Ontario, Canada. Hydrogeology Journal (in press).

Rixon, S., Levison, J., Binns, A. and Persaud, E. (2020) Spatiotemporal variations of nitrogen and phosphorus in a clay plain hydrological system in the Great Lakes Basin. Science of the Total Environment, https://doi.org/10.1016/j.scitotenv.2019.136328

Persaud, E., Levison, J., MacRitchie, S., Berg, S., Erler, A., Parker, B. and Sudicky, E. (2020) Integrated modelling to assess climate change impacts on groundwater and surface water in the Great Lakes Basin using diverse climate forcing. Journal of Hydrology, https://doi.org/10.1016/j.jhydrol.2020.124682.

Saleem, S., Levison, J., Parker, B., Martin, R. and Persaud, E. (2020) Impacts of climate change and different crop rotation scenarios on groundwater nitrate concentrations in a sandy aquifer. Sustainability Journal, https://doi.org/10.3390/su12031153.

Walls, S., Binns, A., Levison, J. and MacRitchie, S. (2020) Prediction of actual evapotranspiration by artificial neural network models using data from a Bowen ratio energy balance station. Neural Computing and Applications, https://doi.org/10.1007/s00521-020-04800-2.

Marshall, R.E., Levison, J., McBean, E.A. and Parker, B. (2019) Wastewater impacts on groundwater at a fractured sedimentary bedrock site in Ontario, Canada: implications for First Nations' source-water protection. Hydrogeology Journal, https://doi.org/10.1007/s10040-019-02019-7

Larocque, M., Martin, A., Levison, J., Chaumont, D. (2019) A review of simulated climate change impacts on groundwater resources in eastern Canada. Canadian Water Resources Journal, https://doi.org/10.1080/07011784.2018.1503066

Marshall, R., Levison, J., McBean, E., Brown, E., Harper, SL. (2018) Source water protection programs and Indigenous communities in Canada and the United States: a scoping review. Submitted to Journal of Hydrology, https://doi.org/10.1016/j.jhydrol.2018.04.070

Larocque, M., Cloutier, V., Levison, J. and Rosa, E. (2018) Preface to the Special Issue "Results from the Quebec Groundwater Knowledge Acquisition Program. Canadian Water Resources Journal, 43(2): 69-74, https://doi.org/10.1080/07011784.2018.1472040

Salek, M., Levison, J., Parker, B. and Gharabaghi, B. (2018) CAD-DRASTIC: chloride application density combined with DRASTIC for assessing groundwater vulnerability to road salt application. Hydrogeology Journal, https://doi.org/10.1007/s10040-018-1801-7

Persaud, E., Levison, J., Pehme, P., Novakowski, K. and Parker, B. (2018) Cross-hole fracture connectivity assessed using hydraulic responses during liner installations in crystalline bedrock boreholes. Journal of Hydrology, https://doi.org/10.1016/j.jhydrol.2017.11.008

MacDonald, G., Levison, J. and Parker, B. (2017) On methods for in-well nitrate monitoring using optical sensors. Groundwater Monitoring & Remediation, DOI: 10.1111/gwmr.12248, doi/10.1111/gwmr.12248/full

Hachborn, E., Berg, A., Levison, J. and Ambadan, J. (2017) Sensitivity of GRACE-derived groundwater level changes in southern Ontario, Canada. Hydrogeology Journal, DOI: 10.1007/s10040-017-1612-2, http://rdcu.be/tLXt

Levison, J., Larocque, M., Ouellet, M.A., Ferland, O. and Poirier, C. (2016) Long-term trends in groundwater recharge and discharge in a fractured bedrock aquifer – past and future conditions. Canadian Water Resources Journal, DOI: 10.1080/07011784.2015.1037795, http://dx.doi.org/10.1080/07011784.2015.1037795

Betts, A., Gharabaghi, B., McBean, E., Levison, J., Parker, B. (2015) Salt vulnerability assessment methodology for municipal supply wells. Journal of Hydrology, 531(3): 523-533, https://doi.org/10.1016/j.jhydrol.2015.11.004

Girard, P., Levison, J., Parrott, L., Larocque, M., Ouellet, M.A., Green, D. (2015) Modelling cross-scale relationships between climate, hydrology, and individual animals: Generating scenarios for stream salamanders. Frontiers in Environmental Science, 3: 51, DOI: 10.3389/fenvs.2015.00051, http://journal.frontiersin.org/article/10.3389/fenvs.2015.00051/abstract

Starr, G. and Levison, J. (2014) Identification of crop groundwater and surface water consumption using blue and green virtual water contents at a subwatershed scale. Environmental Processes, 1(4): 497-515, DOI: 10.1007/s40710-014-0040-8, http://link.springer.com/article/10.1007/s40710-014-0040-8

Levison, J., Larocque, M. and Ouellet, M.A. (2014) Modeling low-flow bedrock springs providing ecological habitats with climate change scenarios. Journal of Hydrology, 515: 16-28, DOI: dx.doi.org/10.1016/j.jhydrol.2014.04.042

Levison, J., Larocque, M., Fournier, V., Gagné, S., Pellerin, S. and Ouellet, M.A. (2013) Dynamics of a headwater system and peatland under current conditions and with climate change. Hydrological Processes, DOI: 10.1002/hyp.9978. http://onlinelibrary.wiley.com/doi/10.1002/hyp.9978/abstract

Levison, J. and Novakowski, K. (2012) Rapid transport from the surface to wells in fractured rock: a unique infiltration tracer experiment. Journal of Contaminant Hydrology, 131: 29–38, DOI: 10.1016/j.jconhyd.2012.01.001. http://www.sciencedirect.com/science/article/pii/S0169772212000022