



NEWSLETTER

Issue 21 September 10, 2022

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The next 14 Mile Watershed Alliance meeting will be held Monday, September 12th at 6:00 pm at Sherwood Lodge

Our speaker for the evening will be Michael Parsen. Michael is a hydrogeologist with the Wisconsin Geological and Natural History Survey, UW-Madison, Division of Extension. He will be discussing neonicotinoids (insecticides chemically similar to nicotine) in the Central Sands region of Wisconsin, with particular emphasis on the 14 Mile Creek Watershed.

Neonicotinoid Concentrations Within the Central Sands Region

Land use and water quality are inextricably linked, but the precise relationships between the two are often challenging to disentangle without a well-calibrated groundwater model and robust long-term water-quality datasets. Here we investigate relationships between agricultural land use and neonicotinoid detections in streams in the Central Sands from 2015-2021.

This study leveraged an existing regional groundwater model (MODFLOW), forward particle tracking (MODPATH), and an endpoint-analysis approach to delineate groundwater contributing

areas for each stream sampling location. For each site, several contributing areas were generated corresponding to progressively longer groundwater travel times, providing a framework for evaluating the effect of varying land use within watersheds over time. Land-use datasets for each contributing area were then joined to the in-stream neonicotinoid concentrations to develop statistical relationships.

Results indicate strong positive relationships between increased agricultural land use in contributing areas and higher neonicotinoid detections in streams, and negative relationships between natural (forest, wetland) landscapes and lower neonicotinoid concentrations in streams.

Outcomes of this research may lead to improved designs for surface and groundwater sampling (i.e., locations within the watershed and along the stream) as well as a means to evaluate the improvement, stabilization, or degradation of water quality at the watershed scale.

**Please join us Monday, September 12th at 6:00 pm.
at Sherwood Lodge, or remotely via [Zoom](#)**

See you there!

The 14 Mile Watershed Alliance is a nonprofit organization dedicated to the improvement of surface and groundwater in the 14 Mile Creek Watershed. See us at 14milewatershed.org and <https://www.facebook.com/14MileWatershed>

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