

# North Dakota Water Resources Research Institute (NDWRRRI) Seminar Series

American rivers are shifting toward younger streamflow

Presenter: Dr. Admin Husic, Occoquan Watershed Monitoring Laboratory

Date: Monday, May 4th, 2026  
Time: 3:30–4:30 PM (CST)  
Meeting ID: 995 0056 5246  
Passcode: 920171  
[ndsu.zoom.us/j/99500565246](https://ndsu.zoom.us/j/99500565246)



## Abstract

The fraction of streamflow derived from recent precipitation—'event water'—profoundly impacts water quality and flood risk. We show that over the past three decades, this fraction has significantly increased in 35% of 616 U.S. catchments. We achieved the first continental-scale reconstruction by applying a deep learning model to a novel tracer dataset spanning nearly 15,000 storm events. Using explainability methods, we identify intensifying precipitation, urbanization, and deforestation as the primary drivers. Urban catchments are the most sensitive and exhibit an increasing event water fraction trend at a median rate three times greater than other landscapes. Our results reveal a widespread shift towards the rapid conversion of precipitation to streamflow by watersheds, signaling an urgent need to adapt water management strategies for a future of accelerating climate and land-use pressures.

## Speaker biography

Admin Husic is an associate professor of Civil and Environmental Engineering at Virginia Tech and the Occoquan Watershed Monitoring Laboratory. His team works to advance our understanding of the connectivity and transport of sediment and nutrients in human-disturbed landscapes. His approach to science is that if something exists in a river, he ought to know about it. His team uses tools such as aquatic sensors, explainable AI, geochemical tracers, and numerical models to solve vexing problems in water resources. The team's overall lab goal is to ensure the equitable access and security of water for all people.