Abstract Title:
Improving Urban Stormwater Policy through Citizen Science and Community Engagement

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Abstract:
Flooding disproportionately affects marginalized populations due to a historic lack of investment in stormwater infrastructure, and there are particular disparities in water equity within urban areas such as Chicago. New policies and innovative stormwater management approaches are needed to prepare for future climate change and ensure equitable water management. This presentation will discuss a new project funded by the U.S. National Science Foundation's Strengthening American Infrastructure Program, which focuses on urban stormwater management and environmental justice. This project brings together an interdisciplinary team of researchers from the Illinois Institute of Technology (IIT) with expertise in hydrological modeling, political science, geography, and landscape architecture and a group of stakeholders from across the Chicagoland area to generate strategies for infrastructure adaptation, improve water equity, and prepare for climate change. This presentation will specifically discuss a citizen science training program designed to expand community members' understanding of basic water quality testing. The operational hypothesis is that such a training program functions as a vehicle for improved public science literacy, greater public engagement, and more equitable stormwater policies. Citizen scientists collect water samples from locations in their neighborhoods and then bring them to IIT for testing. The testing includes turbidity analysis, pH, conductivity, dissolved oxygen, and coliforms, all of which are key components when assessing stormwater-related hazards. Citizen scientists will ultimately be able to link human activities in urban areas to increased nonpoint source pollution and decreased water quality, and surveys are administered before and after the training process as a means of assessing learning outcomes. Individual interviews with members of community-based organizations will also help contextualize our results, as skepticism and politicization of science can impact one's willingness to accept and practice the scientific method. In short, a citizen science-based approach is expected to surmount political obstacles to public understanding of stormwater systems and nonpoint source pollution.