

SEMINAR & WORKSHOP

Behavior Matters: Modeling Human Dynamics in Water Quality Policy

SPRING 2026

MARCH 31, 2026 WSLR 116 & ZOOM

SEMINAR 1: 00 P.M.

ROUNDTABLE DISCUSSION 2: 10 - 2: 40 P.M.

Zoom link: <https://purdue-edu.zoom.us/j/95020012720?pwd=HYaHaUJB2b7SSnWoVaKJCy1to2e5cc.1&from=addon>



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An Agent-based evaluation framework for water quality management incentive policies

Human behavior shapes and responds to environmental dynamics in coupled human–natural systems, influencing the effectiveness of management strategies. This study presents two modeling approaches for water quality management that incorporate behavioral dynamics into policy evaluation. The first develops a coupled human–natural framework to simulate farmers’ adoption of best management practices under different incentive structures in the Susquehanna River Basin, highlighting the roles of learning, social influence, and policy design. The second extends this framework by introducing a water quality trading mechanism for nitrogen reduction, demonstrating that hybrid policies combining social influence and market incentives achieve the greatest improvements. Sensitivity analysis reveals distinct behavioral responses across policies.

Key words: Water quality management; Chesapeake bay watershed; Sediment and nitrogen modeling; Behavioral sensitivity analysis



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