Postdoctoral Associate
Iowa State University

Position Focus: Development of scenarios for reaching Iowa Nutrient Reduction Strategy Goals across Iowa as well as data input validation for the Daily Erosion Project

Appointment: 12-month, full-time; appointment beyond first year dependent on continued funding. Position available immediately.

Project Description: The is a shared position between the Iowa Nutrient Research Center and the Daily Erosion Project, a research project housed at the Iowa Water Center. The associate will divide their time between projects, as needed, to complete the objectives listed below.

The Iowa Nutrient Reduction Strategy Nonpoint Source Science Assessment estimated nutrient load reduction at a Major Land Resources Area scale, with estimates then aggregated to the state level. However, this effort did not specifically account for nutrient reduction practice applicability in different landform regions of the state. With this project, we will expand on previous Iowa Nutrient Reduction Strategy efforts by examining different landform regions and specifically accounting for the maximum level of practice implementation that could be expected to be achieved. This is important for assessing alternative scenarios for nutrient reduction in various landform regions, and prioritizing practices that have the greatest opportunity for implementation and nutrient load reduction.

The Daily Erosion Project (dailyerosion.org) is composed of a team of researchers who estimate sheet and rill erosion on a real time basis across Iowa and sections of other Midwestern states. The project is focused on the development of hydrologic models and the validation of these models throughout the state of Iowa. The key focus areas of this project is to evaluate remotely sensed inputs required for this project and also disseminate information to stakeholders through programs, websites, and social media in-step with other partners throughout the state.

Position Responsibilities: The Postdoctoral Associate will incorporate best management practice information into the development of nutrient reduction scenarios for various watersheds across Iowa accounting for the maximum level of implementation that could be achieved with the various practices. This scenario development will also assess the cost effectiveness of various options. This work will utilize the Agricultural Conservation Planning Framework (ACPF) tool for assessing practice implementation. As part of this work there would be a review of tools or approaches that can be used in evaluating potential load reductions.

This position will compare remotely sensed inputs for the Daily Erosion Project to field-observed data to verify input data and validate the model, and identify and update remote sensing data in Landsat images.

Qualifications: An earned PhD in soil science, agronomy, natural resources, agricultural or civil engineering, environmental science, or similar program. The candidate should have knowledge and/or experience in soil and water quality assessment including monitoring and modeling, a background in utilizing GIS, and knowledge in programming with experience in Python or R. A familiarity with nutrient related issues in row-crop agriculture is preferred. A record of scholarly publications, including author/coauthor of peer-reviewed publications as well as the ability to write publications for wide audiences is strongly preferred. The candidate must be self-motivated and have a demonstrated record of working in multi-disciplinary teams.

Salary: Competitive and commensurate with experience.

Effective: Applications accepted until the position is filled.
Application Process: Submit a letter of application, curriculum vitae, and contact information for three references to Hanna Bates, Program Coordinator for the Iowa Water Center. Email: hbates@iastate.edu. Questions can be directed to 515-294-5650.

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