Opportunity Title: EPA Postdoctoral Fellowship in Wetland Nutrient Modeling
Opportunity Reference Code: EPA-ORD-CEMM-WECD-2021-09

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. All transcripts must be in English or include an official English translation. Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations. Click here for detailed information about recommendations.

All documents must be in English or include an official English translation.

Application Deadline 12/30/2021 3:00:00 PM Eastern Time Zone

Description ***Applications may be reviewed on a rolling-basis and this posting could close before the deadline.** Click **here** for information about the selection process.

EPA Office/Lab and Location: A research opportunity is available at the U.S. Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Environmental Measurements and Modeling Division (CEMM). The appointment is with the Watershed and Ecosystem Characterization Division (WECD), Ecosystem Condition Branch (ECB) in Cincinnati, Ohio.

Research Project: Nutrient-driven harmful algal blooms and hypoxia events in lakes, estuaries, and other downgradient receiving waters (e.g., the Gulf of Mexico, Lake Erie) are increasing in their frequency, magnitude, and duration, with excess nutrients as a primary cause. Wetland restoration and creation, as part of a suite of conservation practices, have been advanced to mitigate excess nutrient (nitrogen, phosphorus) effects on downstream water quality. However, discerning the effects or “signal” of nutrient-mitigating wetland-based conservation practices (alone and coupled with “best management practices” or BMPs) at the watershed outlet from the “noise” inherent in landscape biogeochemical processing, downgradient transport, and source- and sink-dynamics in receiving waters has been challenging.

This research project aims to better understand and characterize these wetland-mitigation effects on downstream nutrient levels via process-based watershed modeling. The project focuses on coupling wetland spatial locations and potential local, landscape-, and watershed-scale processes influencing the efficacy of wetlands as nutrient mitigation strategies.

Specifically, the research participant may be involved with the following activities:

- Applying and modifying process-based watershed models (e.g., SWAT) to answer key research questions
- Analyzing and interpreting model outputs in the context of current literature
- Developing research manuscripts and presentations at professional society conferences
- Collaborating with research scientists in other federal agencies and academia
- Developing new research questions and directions related to the project's goals

Learning Objectives: The research participant will have the opportunity to achieve research objectives by developing and applying process-based watershed modeling approaches (e.g., APEX, APEX + SWAT, or similar models) coupled with state-of-the-science big data (i.e., monitored gage, geospatial, and remote sensing data). The research participant will collaborate with our productive and enthusiastic research team of watershed hydrologists, biogeochemists, and systems ecologists for an up to two-year postdoctoral research appointment. The research participant will gain experience with cross-agency collaboration (e.g., with US Department of Agriculture (USDA), Natural Resources Conservation Service). The research participant may collaborate on multiple publications of the study outcomes in leading scientific journals, as well as present research findings at multiple professional conferences.

Mentor(s): The mentors for this opportunity are Drs. Heather Golden (golden.heather@epa.gov), Jay Christensen (Christensen.jay@epa.gov), and Charles Lane (lane.charles@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Winter 2022. All start dates are flexible and vary depending on numerous factors. Click **here** for detailed information about start dates.

Appointment Length: The appointment will initially be for one year and may be renewed up to four additional years upon EPA recommendation and subject to availability of funding.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. Click **here** for detailed information about full-time stipends.

EPA Security Clearance: Completion of a successful background investigation by the Office of Personnel Management (OPM) is required for an applicant to be on-boarded at EPA.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak

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Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and EPA. Participants do not become employees of EPA, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please see the FAQ section of our website. After reading, if you have additional questions about the application process please email ORISE.EPA.ORD@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields, or be currently pursuing the degree and will reach completion by the appointment start date. Degree must have been received within five years of the appointment start date.

Preferred skills/experience:

- Hydrology, environmental engineering, environmental science, geography, geology, or a related discipline
- Process-based watershed hydrological and fate/transport models (e.g., SWAT, APEX, APEX/SWAT, or other similar models)
- GIS/remote-sensing software and applications
- Watershed hydrology and nutrient biogeochemistry
- Scripting (e.g., R, Python, MATLAB) languages

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 5/31/2022 11:59:00 PM.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (1)
  - **Communications and Graphics Design** (1)
  - **Earth and Geosciences** (21)
  - **Engineering** (27)
  - **Environmental and Marine Sciences** (14)
  - **Life Health and Medical Sciences** (2)
  - **Mathematics and Statistics** (10)
  - **Physics** (3)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).