

**Opportunity Title:** Characterizing Watershed-Scale Surface Water Storage Effects on Water Quality and Quantity

**Opportunity Reference Code:** EPA-ORD-NERL-SED-2019-07

**Organization** U.S. Environmental Protection Agency (EPA)

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**How to Apply** A complete application consists of:

- An application
- Transcripts – [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

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

If you have questions, send an email to [EPArpp@ora.org](mailto:EPArpp@ora.org). Please include the reference code for this opportunity in your email.

**Application Deadline** 7/31/2019 3:00:00 PM Eastern Time Zone

**Description** A research opportunity is available at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), National Exposure Research Laboratory (NERL), Systems Exposure Division (SED) in Cincinnati, Ohio.

The U.S EPA Office of Research and Development (ORD) announces a postdoctoral research opportunity collaborating with a team of EPA/ORD research scientists to characterize and quantify (via statistical, geospatial, and/or process-based models) the role of landscape surface water storage features (e.g., wetlands, floodplains) and their associated hydrological and biogeochemical functions on downstream water quality and quantity.

Many of the nation's waterways remain affected by excess nutrients, which leads to harmful algal blooms, hypoxia, and poor ecological condition and drinking water quality. Surface water storage features such as wetlands can mitigate downstream nutrient effects as well as attenuate stage height and flow through watershed-scale retention and assimilation functions. However, quantifying the role of surface water features in performing these functions, as well as characterizing the relative importance of landscape position and other factors (e.g., depth, flooding frequency, perimeter:area ratio), is challenging at the watershed scale.

The research participant will contribute to the development of approaches quantifying the effects of landscape surface water features (e.g., natural, restored, and constructed wetlands and floodplain systems) in removing nutrients and attenuating flooding at large watershed scales. The research will be implemented using state-of-the-science "big data" (monitored gage data analysis and synthesis, geospatial and remote-sensing applications) coupled with advanced statistical, geostatistical, and/or process-based watershed modeling approaches. The research will concentrate on watersheds vulnerable to harmful algal blooms and used for surface water supplies and recreational activities.

The research participant will join our productive and driven research team of watershed hydrologists, biogeochemists, and systems ecologists. The research participant will lead multiple publications of the study outcomes in leading scientific journals, as well as present research findings at multiple international conferences.

The mentors for this opportunity will be Charles Lane ([lane.charles@epa.gov](mailto:lane.charles@epa.gov)), Jay Christensen ([Christensen.jay@epa.gov](mailto:Christensen.jay@epa.gov)), and Heather Golden ([golden.heather@epa.gov](mailto:golden.heather@epa.gov)).

**Anticipated Appointment Start Date: September 2019**

This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and EPA. The initial appointment is for one year, but may be renewed upon recommendation of EPA and is contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time at EPA in the Cincinnati, Ohio, area. Participants do not become employees of EPA, DOE or the program administrator, and there are no employment-related benefits.

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### 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 start date of the appointment. Degree must have been received within five years of the appointment start date.

Preferred skills:

- Experience and knowledge in watershed hydrology and biogeochemistry applicable for watershed, landscape-scale, and/or surface water analyses
- Demonstrated skill in one or more of the following focal research areas:
  - Advanced statistical methods
  - Geostatistical modeling
  - Process-based modeling experience (e.g., Soil and Water assessment Tool)
- Experience with GIS/remote-sensing software and applications
- Proficiency with scripting (e.g., Python, R, SAS) languages

### Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 9/30/2019 11:59:00 PM.
- **Discipline(s):**
  - **Earth and Geosciences** (2 )
  - **Engineering** (3 )
  - **Environmental and Marine Sciences** (3 )
  - **Life Health and Medical Sciences** (2 )
  - **Other Physical Sciences** (1 )
  - **Social and Behavioral Sciences** (1 )