

Opportunity Title: EPA Fellowship on Identifying Drivers of Nutrients and Algal Blooms in Rivers, Streams, and Lakes

Opportunity Reference Code: EPA-ORD-CPHEA-PESD-2023-07

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 App Store](#) 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 5/24/2024 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 training opportunity is available at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Public Health and Environmental Assessment (CPHEA), Pacific Ecological Systems Division (PESD) in Corvallis, Oregon.

Research Project: The research participant will collaborate on projects within the Pacific Ecological Systems Division (PESD) that examine the relationships between watershed, climate and human drivers of nutrients and harmful algal blooms in freshwater ecosystems. Human activities can release nutrients to landscapes, watersheds and waterways in excess of the capacity to use and retain these nutrients, altering leaching, groundwater quality, drinking water sources and aquatic ecosystem composition and productivity, including harmful algal blooms. In particular, harmful algal blooms caused by cyanobacteria have the potential to produce toxins that are dangerous to people, pets, and wildlife through drinking water and recreational uses. As a result, there is increasing need to understand the drivers and predict where harmful algal blooms may occur.

Learning Objectives: The goal of this research project is to build understanding of the factors that drive nutrient excess and harmful algal blooms to better predict which water bodies are at



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risk. This research project will explore how water chemistry, watershed land use and land cover characteristics, lake morphology, and climate interact and relate to nutrient concentrations, cyanobacteria and cyanotoxins in lakes across the US. Providing estimated risk of cyanobacteria blooms in lakes across the country as facilitated by this research would allow the agency and agency partners to better identify which waterbodies are in need of monitoring and potential protection or remediation activities. The risk of blooms may also help to identify which communities are at greater risk of exposure to toxic blooms and can be targeted for risk communication. One goal of this research project is to provide a model that can predict the risk of high nutrient concentrations and cyanobacteria blooms in lakes across the US. The research participant will collaborate with EPA staff to model bloom risk across the US by combining data from the multiple national datasets on climate, land use, and water.

Under the guidance of the mentor, learning opportunities may include:

- Learning about and compiling data from EPA water-related datasets such as the National Aquatic Resource Surveys, National Nutrient Inventory, StreamCat, LakeCat and other datasets such as the National Land Cover Database and National Hydrography Dataset, among others
- Using programming for data compilation, including using Application Programming Interfaces (APIs) to query and access data
- Running statistical analyses to evaluate the effects of watershed, climate and human drivers on nutrients and harmful algal blooms in waterbodies
- Visualizing results in the form of maps and figures produced through programming
- Assisting with scientific synthesis and preparation of one or more manuscripts

Mentor(s): The mentors for this project are Amalia Handler (handler.amalia@epa.gov) and Jana Compton (compton.jana@epa.gov). If you have questions about the nature of the research, please contact the mentors.

Anticipated Appointment Start Date: Spring/Summer 2024.

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 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.

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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 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.

ORISE offers all ORISE EPA graduate students and Postdocs a free 5-year membership to the National Postdoctoral Association (NPA).

The successful applicant(s) will be required to comply with Environmental, Safety and Health (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial covering, physical distancing, testing, vaccination).

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@ornl.gov and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a master's degree in one of the relevant fields, or be currently pursuing the degree with completion before the appointment start date. Degree must have been received within five years of the appointment start date.

The preferred skills listed below are intended to be a guide for the types of interests and skills candidates may have for this opportunity. These are structured as "or" statements to give examples of the different types of experiences that would indicate a given skill. The US EPA and ORISE program strive to foster a supportive and inclusive work environment. Candidates from diverse backgrounds and experiences are encouraged to apply. The best candidate for the job may not have experience with all of the preferred qualifications listed. If you are excited about this opportunity, please apply. If you are excited about this opportunity but unsure if you have the experience to be successful in this role, please contact us to discuss your application.

Primary preferred skills:

- Experience interpreting any of the following types of data: Water chemistry, watershed science, nutrient cycling, landscape ecology, or geospatial analysis;
- Experience with using a programming language (R, Python) for data analysis such as compiling data, conducting statistical analyses, or visualizing data in the form of graphs or maps;








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Secondary preferred skills:

- Experience with contributing to written products such as a thesis, peer-reviewed publication, or report;
- Experience working as part of a group such as communicating among team-members, creating action items based on team goals, or and meeting team expectations.

**Eligibility
Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree received within the last 60 months or currently pursuing.
- **Academic Level(s):** Graduate Students or Post-Master's.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (6 )
 - **Communications and Graphics Design** (1 )
 - **Earth and Geosciences** (3 )
 - **Engineering** (2 )
 - **Environmental and Marine Sciences** (12 )
 - **Life Health and Medical Sciences** (15 )
 - **Mathematics and Statistics** (3 )