Opportunity Title: EPA Fellowship in Spatial Analyses for StreamCat Watershed and National Nutrient Data
Opportunity Reference Code: EPA-ORD-CPHEA-PESD-2024-01

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CPHEA-PESD-2024-01

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.

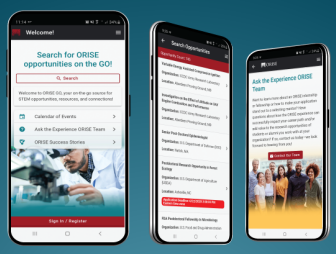
All documents must be in English or include an official English translation.

Application Deadline 8/2/2024 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 U.S. EPA provides geospatial watershed data on 2.6 million stream segments and nearly 40,000 lakes through the StreamCat and LakeCat datasets, respectively. These data experience broad usage by numerous academic, federal, and state researchers and practitioners. Within EPA, they serve as a primary resource to conduct research on stream and lake ecosystems across the conterminous U.S. This research training opportunity will seek to improve the access, usability, and quality of StreamCat and LakeCat data to expand their use within and outside of the EPA. This opportunity, housed at the Pacific Ecological Systems Division (PESD) in Corvallis, OR will examine approaches to incorporate the existing application programming interface (API) for StreamCat/LakeCat into an online ArcGIS web application(s) or other web-based applications. Further, the research participant will have the opportunity to participate in research to expand the list of metrics currently included in StreamCat/LakeCat. Specifically, these metrics will include EPA's National Nutrient Inventory which will improve management of these critical resources and help to achieve EPA's goal of protecting the physical, chemical, and biological integrity of the Nation's waters. Under the guidance of a mentor, the research participant may also research methods

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for translating the algorithms used to generate StreamCat and LakeCat data to higher resolution hydrologic spatial frameworks, such as the high-resolution National Hydrography Dataset. Anticipated outcomes of participation in this opportunity include a deeper understanding of research conducted by federal scientists, significant programming and geospatial analysis experience, and an excellent understanding of national-level datasets relevant to aquatic resource management.

Learning Objectives: Under the guidance of a mentor, research activities may include:

- Assembling National Nutrient and other data in the StreamCat/LakeCat framework.
- Using Python and/or R programming languages to enhance the methodology for assembling StreamCat/LakeCat data.
- Developing methods for incorporating the StreamCat application programming interface (API) into EPA Geoplatform web maps, applications, dashboards or other web based applications.
- Meeting and collaborating on related national geospatial analysis activities with scientists at PESD and across EPA.
- Conducting data analysis, literature searches, and presentations to technical and non-technical audiences.

Mentor(s): The mentor for this project is Marc Weber (weber.marc@epa.gov) with Ryan Hill (hill.ryan@epa.gov) to serve as a co-mentor at the EPA's Pacific Ecological Systems Division. If you have questions about the nature of the research, please contact the mentor.

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: This 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 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

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(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@orau.org and include the reference code for this opportunity.

Qualifications

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

Preferred skills and/or experience:

- Experience with spatial, hydrologic and watershed analyses at broad spatial scales.
- Use of both R and Python in GIS analyses.
- Strong background in GIS and spatial programming.
- Strong background in environmental science (preferably with a focus in hydrology or watershed science).
- Experience with ArcGIS software, Python, R statistical software, and application programming interfaces (APIS).
- Experience working with large national datasets.
- Experience working with watershed data and the National Hydrography Dataset (specifically the National Hydrography Dataset Plus).
- Skills or experience with databases, SQL, and Javascript would enhance the research experience.
- Exceptional communication skills, writing skills, verbal skills, and public speaking experience.
- Candidates will have demonstrated skills working as a part of a group.

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (3)
  - **Communications and Graphics Design** (1)
  - **Computer, Information, and Data Sciences** (17)
  - **Earth and Geosciences** (21)
  - **Engineering** (10)
  - **Environmental and Marine Sciences** (14)
  - **Life Health and Medical Sciences** (20)
  - **Mathematics and Statistics** (8)
  - **Physics** (2)
  - **Social and Behavioral Sciences** (9)

Affirmation

I have lived in the United States for at least 36 out of the past 60 months. (36 months do not have to be consecutive.)