

Opportunity Title: EPA Fellowship for Applications of National Nutrient Inventories

Opportunity Reference Code: EPA-ORD-CPHEA-HEEAD-2022-05

Organization U.S. Environmental Protection Agency (EPA)

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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 1/13/2023 3:00:00 PM Eastern Time Zone

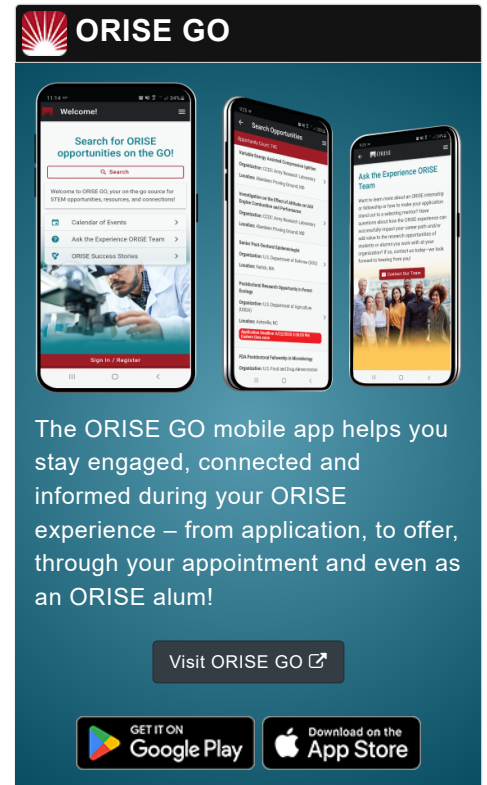
Description ***Applications may be reviewed on a rolling-basis and this posting could close before the deadline.** Click [here](#) for information about the selection process.

EPA Office/Lab and Location: A research opportunity is available at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Public Health Environmental Assessment (CPHEA), Health & Environmental Effects Assessment Division (HEEAD) located in Washington, D.C.

The EPA Office of Research and Development (ORD) provides scientific leadership for evaluating human health and ecological risks associated with exposure to physical, chemical, and biological stressors, including environmental pollutants and climate change. ORD's Center for Public Health and Environmental Assessment (CPHEA) is responsible for environmental assessments that inform regulatory offices of the EPA, regions, states, and authorized tribes.

Research Project: The research participant will have the opportunity to engage in the analysis and evaluation of nutrient inventories. Nutrient inventories consist of the standardized accounting of nutrient inputs and outputs as well as internal fluxes to help track sources of water, soil, and air pollution evolving across space and time. Research activities may include:

- 1) using nutrient inventories to predict aquatic ecosystem



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- condition,
- 2) assessing current, past, or future drivers of nutrient pollution in groundwater and surface water, including drinking water, across the contiguous United States.

The research participant will engage in data analysis and visualization efforts to enhance watershed planning and restoration efforts to ensure the protection of human health and ecosystem services.

Outside of synthesizing and batch processing large environmental datasets to communicate nitrogen and phosphorus inventories to the research community, decision makers, and the general public, the research participant will benefit by learning and carrying out various statistical data analyses and modeling approaches relating shifts in nutrient inventories to environmental endpoints of interest (e.g., drinking water nitrate concentration, nitrogen loads to the Gulf of Mexico). This will involve utilizing datasets over both large temporal and spatial scales. The research participant will have the opportunity to be involved in quantitative analyses of scientific data and the visualization and presentation of highly influential datasets. The research participant will gain an understanding of how various land and water datasets are used to inform EPA decision-making processes, particularly the art of crafting papers, datasets, fact sheets, and other products to meet partner and stakeholder needs. The participant will collaborate with scientific staff in CPHEA, EPA Regions, Chesapeake Bay Program, states, and communities.

Learning Objectives: Under the guidance of a mentor, specific research training activities may include learning about:

- How nutrient inventory datasets are developed
- Partner and stakeholder engagement
- Temporal and spatial data analysis techniques
- Clean water act (CWA) and Safe Drinking Water Act (SDWA) regulations
- Climate change impacts
- Data modeling and web tool development
- Preparing peer-reviewed manuscripts, reports, and presentations

Mentor(s): The mentor for this opportunity is **Robert Daniel Sabo** (sabo.robert@epa.gov) and **Michael Pennino** (pennino.michael@epa.gov) . If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: January 16, 2023. 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 three or four additional years

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

Qualifications

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

Background in nutrient and carbon biogeochemistry, catchment science, hydrology ecosystem science, and/or aquatic chemistry can be highly beneficial to enhancing the educational experience of selected participants.

Preferred skills:

- Experience running basic linear regression or machine learning models (e.g., random forest).
- Strong scientific writing skills evidenced by publications in






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peer-reviewed journals, as well as good communication skills such as giving oral presentations at scientific conferences

- Knowledge of the EPA's mission and awareness of the breadth of EPA's programs

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (1 )
 - **Earth and Geosciences** (2 )
 - **Environmental and Marine Sciences** (5 )
 - **Life Health and Medical Sciences** (4 )
 - **Mathematics and Statistics** (1 )