Opportunity Title: EPA Postdoctoral Fellowship in Applied Molecular Ecology
Opportunity Reference Code: EPA-ORD-CEMM-ACESD-2021-03

Organization	U.S. Environmental Protection Agency (EPA)
Reference Code	EPA-ORD-CEMM-ACESD-2021-03
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	2/14/2022 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 postdoctoral research project training opportunity is available at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Environmental Measurement and Modeling (CEMM), Atlantic Coastal Environmental Sciences Division (ACESD) located in Narragansett, Rhode Island.

ACESD conducts research to enhance the understanding of the effects of human activity on land and waters of the Atlantic seaboard. Researchers collect and analyze data to provide tools for diagnosing and predicting the effects of this activity on aquatic resources and wildlife. ACESD provides research support to EPA Program & Regional Offices and state & local governments. For additional information regarding the Atlantic Coastal Environmental Sciences Division, visit the home page at https://www.epa.gov/aboutepa/about-atlantic-coastal-environmental-sciences-division.

Research Project: The focus of this research project is to develop and apply molecular information within an ecological context, to advance EPA's ability to quantitatively predict the ecological risks of human-mediated stressors.

The research participant will have the opportunity to collaborate with a mentor and group of EPA scientists conducting applied research within this broad goal. Crossing the boundaries of traditional ecological sub-disciplines, our research takes advantage of rapidly advancing molecular

tools and knowledge to address in novel ways our understanding of how stressors, especially persistent toxic chemicals like per- and polyfluoroalkyl substances (PFAS), affect the fitness of individual organisms and their populations in the environment. Specifically, the goal of this research project is to develop approaches that integrate information about the molecular impacts of stressors (including transcriptomic, proteomic, and lipidomic changes) into mechanistic pathways that can be used in predictive ecology (modeling) to support ecological risk assessment (ERA). Furthermore, to test these predictions in lab and field experiments that take advantage of ACESD's state-of-the-art wet lab and aquaculture facilities and location on the shore of Narragansett Bay. The related research is part of EPA's Chemical Safety and Sustainability (CSS) Research Program.

The research participant may participate in the following learning activities:

- Developing and testing of quantitative, mechanistically-based approaches to predict ecological effects across stressors and beyond testable species, including those considered threatened and endangered;
- Utilizing and/or being trained in the application of molecular knowledge and skills to identify mechanistic pathways directly linking stressor effects across levels of biological organization.

While non-mammalian species, such as zebrafish, have become useful surrogates to understand human health risks, the emerging application of molecular approaches to understand and predict adverse effects on 'ecological species', i.e., beyond model laboratory species, will be advanced through this research. In addition, the research participant will gain exposure to quantitative ecological modeling approaches that can be used to translate information on molecular alterations into quantitative predictions of ecological risk.

Learning Objectives: This research training opportunity will provide the research participant with experience in generating and analyzing multi-omic data sets through manipulative laboratory experiments and field studies, adult and early-life-stage model organism maintenance and testing for effects of stressors (including high-priority environmental contaminants), and integration of these methods into a framework for predicting individual and population level effects within the context of the larger goal of protecting human health and the environment. The research participant will be encouraged to participate in manuscripts and presentations based on their experience and comfort level.

Mentor(s): The mentor for this opportunity is Bryan Clark (clark.bryan@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

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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 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:

- Training and experience in sub-disciplines that focus on stress responses at the molecular, individual, and population levels
- Skills in molecular ecological theory and analysis, especially familiarity or strength in bioinformatics and computational methods and/or specific bench skills such as DNA/RNA extraction, library prep, and next generation sequencing
- Strong ecological background and experience in laboratory or field experiments assessing non-human toxicology/stress response

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 1/31/2022 11:59:00 PM.
- **Discipline(s):**
  - **Earth and Geosciences** (1 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (46 👁)
  - **Mathematics and Statistics** (3 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).