

**Opportunity Title:** EPA Postdoctoral Fellowship on Developing Food Web Models of Per- and Poly-fluorinated Alkyl Substances (PFAS) Relevant for Insectivorous Birds

**Opportunity Reference Code:** EPA-ORD-CCTE-GLTED-2022-13

**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** 2/28/2023 4:02:52 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 Computational Toxicology and Exposure (CCTE), Great Lakes Toxicology & Ecology Division (GLTED) located in Duluth, Minnesota.

**Research Project:** Per- and polyfluoroalkyl substances (PFAS) are a complex class of thousands of chemicals of potential concern in terms of ecological effects. Some PFAS have proven to be both very persistent and widely distributed in the environment; however, only a select few PFAS (e.g., perfluorooctanesulfonate [PFOS]; perfluorooctanoic acid [PFOA]) have been well-studied. Monitoring studies indicate that a wide variety of avian species are exposed to PFAS, including gulls, wading birds, piscivorous and insectivorous birds, and terrestrial raptors. Some PFAS are known to bioaccumulate and biomagnify, though the distribution and movement of PFAS in avian food webs are poorly understood.

This research project aims to identify the food web pathways by which insectivorous birds are exposed to PFAS at the aquatic/terrestrial interface. This research project will involve collection and analysis of environmental and biological data to evaluate the structure of invertebrate food webs on which small songbirds typically feed. Stable isotope analysis and DNA metabarcoding will be used for food web reconstruction. PFAS concentration data will be collected on relevant environmental compartments and biota. Reproductive success of birds nesting at

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contaminated and reference sites will be collected for exposure and effects analysis.

Research activities may include:

- Collecting and analyzing environmental samples (soil, sediment, water)
- Collecting and analyzing environmental DNA samples from water
- Collecting and analyzing avian fecal samples for DNA metabarcoding
- Collecting and analyzing avian feather samples for Carbon and Nitrogen stable isotope analysis
- Collecting and analyzing invertebrate samples using aquatic sweep nets and passive sampling techniques
- Developing static and dynamic bioaccumulation models
- Conducting statistical analyses on experimental data.
- Presenting research results at regional, national, and/or international conferences and workshops.
- Contributing to the preparation of peer-reviewed journal articles and disseminating research results to project partners and stakeholders.

**Learning Objectives:** The research participant can expect to learn skills in applied ecotoxicology, entomology, ornithology, food web characterization, toxicology, and biology and will learn how methods in toxicology can be applied to support environmental decision making. The research participant will gain experience in multiple aspects of research project planning, communication, coordination, implementation and analysis.

The research participant will collaborate with a transdisciplinary research team and engage in multiple aspects of project planning, communication and coordination, research implementation, and analysis. The research participant will be afforded an opportunity to interact with internationally recognized leaders, both within and outside EPA, in the area of toxicology and regulatory environmental science. The research participant will have the opportunity to contribute to and/or publish original research, attend and present at local and national scientific meetings, and develop collaborations with other investigators as appropriate to addressing the research problem.

It is expected that this training opportunity will provide an early career scientist with knowledge, skills, and abilities needed to apply new technologies and associated data to regulatory decision-making at the local, national, and/or international scale and to pursue a professional career in life sciences research.

**Mentor(s):** The mentor for this opportunity is Matt Etterson ([etterson.matthew@epa.gov](mailto:etterson.matthew@epa.gov)). If you have questions about the nature of the research please contact the mentor(s).

**Anticipated Appointment Start Date:** January 15, 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 additional years upon EPA recommendation

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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 [EPArpp@ornau.org](mailto:EPArpp@ornau.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 (e.g., Biology, Ecology, Entomology, Ornithology, (Eco)toxicology, Toxicology), or be currently pursuing the degree with completion before the appointment start date. Degree must have been received within five years of the anticipated appointment start date.

Preferred skills:






- One or more (but not necessarily all) of the topical areas described below:
  - Academic background in ornithology, entomology, food web modeling, and/or toxicology, along with an interest in applied research in ecotoxicology.
  - Familiarity with literature search tools and strategies
  - Field research experience with avian reproductive success study design, data collection, statistical analyses, and a general knowledge of field research.
  - Experience working with stable isotopes in feathers, particularly Carbon and Nitrogen

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- Experience with DNA metabarcoding methods and interpretation of data resulting therefrom
- Computer skills relating to data collection, analysis, and graphical presentation
- Coursework and/or experience with statistical analysis
- Course work in mathematical modeling
- Computational skills (e.g., programming, R-based statistics)
- Skills in oral and written communication
- Skills in appropriate research data documentation and recordkeeping
- Familiarity with routine quality assurance/quality control procedures for field research

- Eligibility**

**Requirements**
- **Citizenship:** U.S. Citizen Only
  - **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
  - **Discipline(s):**
    - **Chemistry and Materials Sciences** ([1](#) )
    - **Computer, Information, and Data Sciences** ([4](#) )
    - **Environmental and Marine Sciences** ([2](#) )
    - **Life Health and Medical Sciences** ([12](#) )
    - **Mathematics and Statistics** ([3](#) )