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Opportunity Title: EPA Fellowship on Characterization of Dietary Transfer of Per- and Poly-fluorinated Alkyl Substances (PFAS) Through Avian Food Webs
Opportunity Reference Code: EPA-ORD-CCTE-GLTED-2022-16

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 3/1/2023 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 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 select 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.

The larger research project aims to identify the food web pathways by which insectivorous birds are exposed to PFAS at the aquatic/terrestrial interface. This specific research effort is aimed at characterizing both the taxonomic composition of insectivorous bird diets and the relative quantities of each taxonomic group represented within a sample. Further, those dietary components will be analyzed for PFAS residues and contribute to environmental fate/transport modeling efforts. The participant will also investigate dosimetry considerations at each trophic level and construct

models to predict PFAS partitioning and movement through local avian food webs.

The research participant may be involved in any or all of the following activities with guidance from the mentor:

- Compiling information from the literature and from on-line data sources relevant to hazard assessment of PFAS.
- Developing or implementing data mining, machine-learning, and other computational methodologies to expedite organization and synthesis of existing knowledge.
- Designing, planning, and implementing field-based studies to evaluate and support development of PFAS-relevant food web fate/transport and/or dosimetry models including:
  - Collection, processing, and analysis of various taxonomic groups of insects for PFAS and/or legacy contaminant residue analysis.
  - Collection, processing, and analysis of avian diets and/or fecal sacs for DNA and genomic analyses and applying statistical and bioinformatic tools to analyze omics data.
  - 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 biochemistry, toxicology, and biology and will learn how methods in toxicology can be applied to support environmental decision making. The 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 engaged 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 Jonathan Haselman (haselman.jon@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: February 13, 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 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@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a masters degree in one of the relevant fields (e.g., Biology, (Eco)toxicology, Toxicology, Biochemistry, Molecular Biology, Genetics, Bioinformatics, Computational Biology, Computational Chemistry, Chemistry). Degree must have been received within five years of the anticipated appointment start date.

Preferred skills:

- Academic background in biosciences, toxicology, computational biology, and/or molecular biology along with an interest in applied research in toxicology.
- Familiarity with literature search tools and strategies
- Ecotoxicology research experience with study design, data collection, statistical analyses, and a general knowledge of good laboratory practices.
- Experience working with and/or handling avian species

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- Experience with dissection/collection of tissues and/or biofluids for biochemical toxicology/molecular biology analysis (e.g., for measuring tissue/fluid chemical residues and/or biomolecule concentrations, gene or protein expression, etc.)
- Computer skills relating to data collection, analysis, and graphical presentation
- Coursework and/or experience with statistical analysis
- Coursework and/or experience with biostatistics and/or bioinformatics
- Computational skills (e.g., programming, R-based statistics)
- Skills in oral and written communication
- Skills in appropriate research data documentation and record keeping
- Familiarity with routine quality assurance/quality control procedures for laboratory research

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree received within the last 60 month(s).
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Environmental and Marine Sciences** (2 👁)
  - **Life Health and Medical Sciences** (17 👁)
  - **Mathematics and Statistics** (1 👁)