

Opportunity Title: USDA-ARS Postdoctoral Research Associate in Legacy Phosphorus Fellowship
Opportunity Reference Code: USDA-ARS-2022-0184

Organization U.S. Department of Agriculture (USDA)

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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

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

Application Deadline 6/27/2022 3:00:00 PM Eastern Time Zone

Description *Applications may be reviewed on a rolling-basis.

ARS Office/Lab and Location: A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), within the Water Quality and Ecology Research Unit at the National Sedimentation Laboratory located in Oxford, Mississippi. The research mission of the USDA-ARS Water Quality and Ecology Research Unit is to study impacts of agricultural practices and conservation measures on water and soil quality, as well as ecosystem services.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: This research is expected to advance knowledge of soil and water management by assessing phosphorus pools in soils and sediments and studying the dynamics of phosphorus transport in watersheds within the Mississippi Alluvial Plain. Research will improve knowledge of legacy phosphorus sources



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Phosphorus Fellowship

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and dynamics, as well as the effectiveness of conservation practices to reduce phosphorus transport into local water bodies and downstream to mitigate hypoxia.

Under the guidance of a mentor, the selected participant will be involved with the following research activities:

- 1. The participant will conduct reach-scale tracer and nutrient uptake experiments to estimate rates of phosphorus uptake and release in agricultural stream networks representing a wide range of reach types including modified streams and ditches with differing vegetation and residence times.
- 2. The participant will collaborate on a study sampling and analyzing soils and sediments along a landscape gradient in watersheds with stacked conservation practices and watersheds without conservation practices to evaluate the role of conservation practices in trapping and saturating phosphorus within agricultural watersheds.
- 3. The participant will contribute to the national scale Conservation Effects Assessment Program Legacy P project in order to develop high impact research products intended to improve knowledge on effects of Legacy P on conservation outcomes.

Learning Objectives:

- 1. The participant will gain valuable experience collaborating with an interdisciplinary research team addressing the sustainability and environmental aspects of agriculture.
- 2. The participant will develop skills in experimental design, data collection, and data management in soil science, biogeochemistry, and hydrology.
- 3. The participant will improve written and oral communication skills through contributing to the development of scientific manuscripts and technical presentations.

Mentor(s): The mentor for this opportunity is Lindsey Witthaus (lindsey.witthaus@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: 2022. Start date is flexible and will depend upon a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be extended upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S.

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citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens](#) Details page of the program website for information about the valid immigration statuses that are acceptable for program participation.

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 ARS. Participants do not become employees of USDA, ARS, 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 visit our [Program Website](#). After reading, if you have additional questions about the application process please email USDA-ARS@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 (e.g. Environmental Sciences, Engineering, Biology, Chemistry, Agricultural Sciences), or be currently pursuing the degree with completion by August 1, 2022. Degree must have been received within the past five years.

Preferred skills:

- Planning and execution of soil and hydrologic data collection using a variety of field methodologies
- Use of R Programming Language, Python or other statistical analysis software/language
- Laboratory experience - chemistry, physical properties of soils and sediments
- Operation and utilization of GPS systems for navigation
- Use of Geographic Information Systems, geostatistical techniques

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 8/1/2022 11:59:00 PM.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (12 )
 - **Earth and Geosciences** (4 )
 - **Engineering** (5 )
 - **Environmental and Marine Sciences** (5 )
 - **Life Health and Medical Sciences** (6 )
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).