Opportunity Title: The Conservation Fund Freshwater Institute Research Fellow (Precision Aquaculture)
Opportunity Reference Code: USDA-ARS-NEA-2026-0273

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-NEA-2026-0273

How to Apply ***To submit your application, scroll to the bottom of this opportunity and click APPLY.***

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. 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.

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Application Deadline 10/23/2026 3:00:00 PM Eastern Time Zone

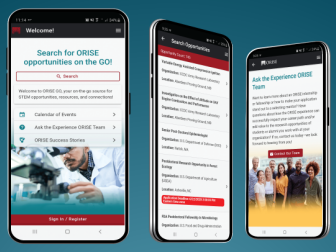
Description ***Applications are reviewed on a rolling-basis.**

ARS Office/Lab and Location: A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), located in Shepherdstown, West Virginia.

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.

The TCF Freshwater Institute has led research and innovation in land-based recirculating aquaculture systems (RAS) for four decades, with the goal of improving RAS sustainability and economic viability. Our team of scientists, biologists, and engineers continues to refine RAS technologies, develop and test novel solutions, and publish findings as open-access articles to benefit the growing RAS industry. To learn more about the Freshwater Institute, visit https://www.conservationfund.org/our-programs/freshwater-institute/. To learn more about The Conservation Fund, visit https://www.conservationfund.org.

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Research Project: Under the guidance of a mentor, you will contribute to the USDA Agricultural Research Service (ARS) cooperative research project, “Innovating New Technologies that Improve Efficiencies of Recirculating Aquaculture Systems.” This fellowship will focus on investigating the use of multispectral and hyperspectral imaging, olfactory sensing, and artificial intelligence (AI) to monitor fish health and welfare in recirculating aquaculture systems (RAS). You will have the opportunity to participate in the Precision Aquaculture initiative to gain skills and experiences assigned by the lead Research Scientist. Learning activities will include integrating sensors and developing prototypes to collect multispectral, hyperspectral, and volatile compound data in challenging aquaculture environments; helping to develop AI-driven data processing pipelines for fish health and welfare monitoring; and supporting the development of decision-support tools and robotic solutions for RAS.

Learning Objectives: During this fellowship, you will

- Gain experience participating in multidisciplinary research activities supporting the Precision Aquaculture initiative.
- Learn to develop, integrate, and validate sensor systems and prototype devices for imaging and chemical sensing applications in aquaculture.
- Build skills in artificial intelligence, machine learning, and computer vision by contributing to tools that monitor fish health and welfare.
- Strengthen research skills through experimental design, data collection, analysis, and interpretation of results.
- Enhance scientific communication abilities with technical reports, peer-reviewed publications, conference presentations, and collaborations with industry partners.

Mentor(s): The mentor for this opportunity is to Dr. Rakesh Ranjan (rranjan@conservationfund.org). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: 2026. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year but may be renewed 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. **The anticipated stipend range is $75,000 to $82,000 annually, plus an additional supplement toward the cost of health insurance.**

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

ORISE Information: This program, administered by ORAU through its

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

Qualifications The qualified candidate should have received a master's or doctoral degree in the one of the relevant fields (Agricultural and Biological Engineering, Computer Science, Data Science, Electrical Engineering, or a closely related field). Degree must have been received within the past five years.

Preferred skills:

- Experience in sensor integration and system development for imaging and chemical-sensing applications, preferably in agriculture, aquaculture, or related environmental systems.
- Strong background in computer vision and machine learning, including the development of AI-based data-processing pipelines for image and chemical-sensor data.
- Proficiency in scientific programming and data analytics with Python, OpenCV, and MATLAB, along with experience in deep learning frameworks such as TensorFlow, PyTorch, and Keras.
- Experience in statistical analysis and data interpretation using tools such as R or SAS.
- Strong communication and collaboration skills, with the ability to research effectively in multidisciplinary research environments alongside engineers, biologists, and industry partners.
- Hands-on experience with robotics, automation systems, or decision-support tools in real-world settings is preferred.
- Experience with multispectral and hyperspectral image analysis for agricultural or aquacultural applications.
- Familiarity with land-based recirculating aquaculture systems.

Stipend $75,000.00 – $82,000.00 Yearly

Point of Contact Janeen

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)

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- **Computer, Information, and Data Sciences** (17 👁)
- **Earth and Geosciences** (21 👁)
- **Engineering** (29 👁)
- **Environmental and Marine Sciences** (14 👁)
- **Life Health and Medical Sciences** (51 👁)
- **Mathematics and Statistics** (11 👁)
- **Physics** (16 👁)
- **Science & Engineering-related** (2 👁)
- **Social and Behavioral Sciences** (29 👁)