Opportunity Title: USGS Development of 6PPDQ (Tire Wear Particle) Heat Map for the Puget Sound Region
Opportunity Reference Code: DOI-USGS-2026-52

Organization U.S. Department of the Interior (DOI)

Reference Code DOI-USGS-2026-52

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

USGS Office/Lab and Location: A research opportunity is currently available with the U.S. Geological Survey (USGS) located in Tacoma, Washington.

The USGS mission is to monitor, analyze, and predict current and evolving dynamics of complex human and natural Earth-system interactions and to deliver actionable intelligence at scales and timeframes relevant to decision makers. As the Nation's largest water, earth, and biological science and civilian mapping agency, USGS collects, monitors, analyzes, and provides science about natural resource conditions, issues, and problems.

Research Project: Tires contain the preservative chemical 6PPD, which slows their degradation. As tires wear down, tiny particles are generated that react with oxygen to form 6PPD quinone (6PPDQ). During rainfall, this compound can be transported from road surfaces into nearby waterways, where it has been shown to harm sensitive fish species. USGS is collaborating with the Washington State Department of Ecology to investigate the occurrence and concentration of 6PPDQ streams that drain to Puget Sound to better understand potential risks to sensitive species such as coho salmon. To better understand potential sources of 6PPDQ on the landscape the USGS developed a national-scale “heat” index mapper (https://geonarrative.usgs.gov/6ppdqsourcedashboard/) using nationally available datasets. The goal of this project is to build upon this national effort using local high-resolution geospatial datasets to develop a refined “heat” index specific to Puget Sound.

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You will gain experience across a number of activities including data organization, data visualization, and geospatial mapping. You will train on the compilation of raster and vector datasets that represent:

1. Potential sources of 6PPDQ, such as roads, runways, truck stops, and traffic density
2. Factors impacting the transport of 6PPDQ such as, precipitation, average dry days, basin slope, and stormwater infrastructure, and;
3. Sensitive fish species presence.

You will then gain experience with developing a preliminary weighting scheme for the development of a Puget Sound specific “heat” index with higher values representing a higher likelihood of high concentrations of 6PPDQ.

Learning Objectives: The objective of this internship is to provide you with experience organizing and visualizing vector and raster datasets to answer questions and tell a cohesive scientific story. You will have opportunities to improve skills related to science communication through the development of an interactive mapping resource as a tool for scientists and the public. This may result in the publication of an ArcGIS Online web application or StoryMap. You will also have the opportunity to collaborate directly with USGS scientists at other Centers working with the Environmental Health Program in the Ecosystems Mission Area.

You and the mentor will meet weekly to assess progress and troubleshoot project issues. At the start of the internship, you will establish communication expectations, outline skills you would like to enhance (short- and long-term goals) and develop a plan for summer research. You will also participate in monthly team meetings with the larger research group.

Mentor: The mentor for this opportunity is Kristina Hopkins (khopkins@usgs.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: June 15, 2026. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for 10 weeks, but may be renewed upon recommendation of DOI and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

Participant Stipend: Stipend rates may vary based on numerous factors, including opportunity, location, education, and experience. If you are interviewed, you can inquire about the exact stipend rate at that time and if selected, your appointment offer will include the monthly stipend rate.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen

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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 USGS. Participants do not become employees of USGS, 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: If you have questions about the application process please email USGS@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received a bachelor's or master's degree in the one of the relevant fields. Degree must have been received within the past four years, or anticipated to be received by 6/1/2029.

Point of Contact

Rachel

Eligibility Requirements

- **Degree:** Bachelor's Degree or Master's Degree received within the last 48 months or anticipated to be received by 6/1/2029 12:00:00 AM.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12)
  - **Communications and Graphics Design** (2)
  - **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)