



Pacific Northwest
NATIONAL LABORATORY

Chief Ecosystem Scientist

2018

Introduction

The Earth and Biological Sciences Directorate at [Pacific Northwest National Laboratory \(PNNL\)](#) is seeking a senior scientist to lead the growing research portfolio in multiscale ecosystems science, with a focus on hydro-biogeochemical processes and interactions, from molecular to local and regional scales. Reporting to the Associate Laboratory Director (ALD), the incoming Chief Ecosystem Scientist will lead an enterprise advancing scientific discovery with a focus on integrating molecular level understanding of microbe-plant-soil-atmosphere interactions and related mechanistic understanding into predictive process models at a variety of scales. This position will also be part of the leadership team developing and executing the broader PNNL research strategy for integrated Earth systems science.

Pacific Northwest National Laboratory

For more than 50 years, PNNL has pushed the boundaries of science. Its discoveries and innovations have strengthened the nation's scientific foundations and have provided solutions to some of the nation's most complex problems in energy, the environment, and national security. PNNL researchers are recognized worldwide for making fundamental discoveries in the atmospheric, biological, chemical, computational, and materials sciences. They are international leaders in environmental and earth sciences and are developing new measurement and modeling approaches to understand the multiscale interactions among elements of the earth system, as well as the dynamics of complex molecular scale processes that result in ecosystem scale outcomes. PNNL scientists and engineers are also helping create a more reliable electric grid, and advancements they've made in catalysts are enabling industry to create engines that run cleaner and more efficiently. Along with its partners in academia, industry, and government, PNNL will no doubt continue to enable the world to live prosperously, safely, and securely.

PNNL is comprised of 4,486 scientists, engineers, and professionals and did \$987 Million in R&D expenditures for FY2017. Sponsors include the [U.S. Department of Energy](#), U.S. Department of Homeland Security, and other federal, state, and local agencies. Key partnerships include scientists, engineers, and other professionals within academia, other national laboratories, and industry.

Ecosystem Science

Ecosystem Science at PNNL advances scientific understanding of integrated Earth system processes, from the atmosphere to terrestrial systems and subsurface biogeochemical cycles, to improve the predictive capability and utility of earth system models. It accomplishes this by understanding the multiscale interactions among elements of the earth system, as well as the dynamics of complex molecular-scale processes that result in ecosystem-scale outcomes.

PNNL has unique capabilities and an integrated approach that links laboratory- and field-based measurements, from molecular to regional and global scales, developing multiscale models through deep learning and advanced data analytics. Its vision is to *extend its leadership in earth sciences to understanding the key atmospheric, biogeochemical, plant-microbe-soil, and hydrologic processes affecting coastal, wetland, and riverine systems and their feedback to the earth system*. Ecosystem Science at PNNL leads the development of an integrated, experimentally-based multi-institutional research program, linked with modeling and simulation across scales, focused on understanding hydro-biogeochemical interactions across the atmosphere-land-water continuum to enable more accurate prediction of carbon and nutrient cycling in earth system models.

Ecosystem science builds on PNNL's leadership in atmospheric science, soil science and biogeochemistry, microbial ecology, subsurface science, hydrology and the integrated water cycle, regional and global earth system modeling, and integrated assessment for BER missions. It draws upon and supports our core capabilities in earth and biological sciences, chemical and material sciences, and computational and mathematical sciences. PNNL stewards the only marine laboratory in the DOE complex, which is expected to serve as a useful testbed for measurement systems addressing terrestrial-aquatic systems. PNNL anticipates advancing high-throughput multi-omics and computational platforms for metabolite identification, linking these platforms with advanced data analytics and continuing to be a leader in the community. More information about PNNL and its science agenda can be found [here](#).

Richland, WA

PNNL is located in the City of Richland, which is found at the confluence of the Columbia and Yakima Rivers in southeastern Washington. Sitting on the "desert" side of Washington, Richland enjoys more than 300 days of sunshine a year. Together with the nearby cities of Pasco and Kennewick, it is often referred to as part of the "Tri-Cities", where the Columbia, Snake, and Yakima Rivers meet before heading to the Pacific Ocean. It is roughly a 45-minute flight from Seattle or 4-hour drive from Seattle or Portland.

About the Associate Laboratory Director

[Allison Campbell](#) is the Associate Laboratory Director (ALD) for Earth and Biological Sciences at PNNL. In this role, she sets the vision and strategy for PNNL's research in support of DOE's Office of Biological and Environmental Research (BER) and National Institutes of Health. Allison leads a research directorate of more than 530 staff members.

Prior to this role, she served for more than 10 years as Director of EMSL, the Environmental Molecular Sciences Laboratory, a DOE Office of Science User Facility sponsored by BER and located at PNNL. Managing an annual budget of over \$40M, she led significant scientific progress that was demonstrated through publications of users and EMSL's experts and evidenced by more than 3,555 peer-reviewed journals with an h-index of 41. Allison also managed the rapid deployment of more than 30 new instruments funded with \$60 million from the American Recovery and Reinvestment

Act, and she oversaw construction of a Quiet Wing that houses a unique suite of high-resolution, advanced microscopes in EMSL. Under her leadership, innovative solutions and enhanced understanding of problems related to atmospheric aerosols, feedstocks, global carbon cycling, biogeochemistry, subsurface science, and energy materials emerged from EMSL.

In 2013, the American Association for the Advancement of Science elected Allison a Fellow for her work in the "synthesis of thin films for ceramics and biomaterial development." She also has testified before the House of Representatives Committee on Science and Technology regarding the value of research at DOE labs.

In 2016, Allison was elected by the American Chemical Society's membership to serve as the president-elect. She served as president of the society in 2017 and is now serving as immediate past-president; she has also served on the board of directors during that time.

Allison earned her Ph.D. in physical chemistry from State University of New York at Buffalo and a B.A. in chemistry from Gettysburg College in Pennsylvania.

Opportunities for the next Chief Ecosystem Scientist

Building upon PNNL's national and international reputation, the Chief Ecosystem Scientist will be well-positioned to expand PNNL's work in the interdisciplinary fields of ecosystem and environmental science. S/he will build upon the momentum of ongoing initiatives and help to generate new, innovative ideas as well as secure the necessary resources to ensure success. Specifically, the Chief Ecosystem Scientist will be capitalizing on and executing responses to the following opportunities and challenges:

- **Creating a bold vision for the future and devising and implementing a plan for scientific discovery:** The next Chief Ecosystem Scientist will be in a unique position to engage PNNL staff and the broader scientific community in the shaping of a strategic vision for the multiscale ecosystems area, charting new directions for research and leading the kind of big science that can only happen in an environment like PNNL. This area of PNNL is poised to gain momentum and breadth, connecting its research and outcomes to broader conversations around Earth system processes.
- **Leveraging the world-class scientific equipment and talented staff at PNNL to unlock new scientific understandings:** PNNL offers a unique combination of unparalleled instrumentation, staff expertise, and proprietary technology that allows it to explore and examine multiscale phenomena in a number of different environmental areas. The next Chief Ecosystem Scientist will have the opportunity to wield these resources to proactively advance research, experimentation, and prediction. S/he will be charged with aligning the lab's many resources with the strategic goals and priorities set forth in the new vision.
- **Recruiting scientific leaders and supporting collaboration to promote near-term objectives and an array of long-term opportunities:** As a Chief Ecosystem Scientist at PNNL, this person will both draw upon the national reputation of the lab and its expert scientists and activate their own networks to recruit new scientists already demonstrating excellence in the field. Additionally, s/he will serve as a spokesperson for multiscale

ecosystem research at PNNL. The next Chief Ecosystem Scientist will have significant opportunities to build relationships and promote the goals of the lab.

- **Developing strategic partnerships to strengthen national scientific impact and sponsorship:** The Chief Ecosystem Scientist will be well-positioned to build partnerships with other scientific and non-scientific organizations to strategically advance the lab's goals. With ready access to a national network of distinguished scientists, PNNL's EMSL and ARM user facilities, the Sequim Marine Science Lab, and the Joint Global Change Research Institute, the Chief Ecosystem Scientist will be poised to develop partnerships on a scale that few other scientific leaders can access.
- **Building collaboration and interdisciplinary communication across research teams:** PNNL is a large organization with the highest caliber of scientists and technicians. Fully harnessing the contributions of the individuals will require that the Chief Ecosystem Scientist foster opportunities for regular collaboration and open communication at all levels. To get the most out of its resources and people, the next Chief Ecosystem Scientist will ensure that all areas and scientists are engaged and collaborative. S/he will promote communication first and foremost, modeling an open and accessible leadership style that focuses on bringing excellence and interdisciplinary strengths to address the nation's most pressing environmental challenges.

Qualifications and Personal Characteristics

Strong candidates for this role will have demonstrated ability leading teams in laboratory and/or field observations in multiscale ecosystems science. Experience working with interdisciplinary teams, including process and Earth system modelers, is desired. The successful candidate will understand local and regional hydrologic and biogeochemical cycles and their interactions with broader Earth system processes. Of particular interest is an understanding of the dynamics of interactions at the terrestrial-aquatic interface, including watersheds and/or coastal systems, in the context of environmental change.

As a scientist who engages with individuals and groups across the ecosystems and environmental sciences, the next Chief Ecosystem Scientist must possess an unwavering commitment to these interrelated fields, a thorough understanding of the evolving landscape of ecosystems and environmental sciences, an appreciation for the differentiated missions among funding agencies, and a keen awareness in regard to the current and potential challenges for scientific programs. Additionally, the ideal candidate will possess many of the following qualities and experiences:

- Vision to lead and inspire a growing scientific enterprise;
- A strong entrepreneurial spirit and interest in taking advantage of opportunities to advance multiscale ecosystems science as they emerge;
- A distinguished record of scientific achievement, publications, and research funding that garners the respect of multiscale ecosystems scientists internationally;
- An awareness of and interest in the computational tools and technologies relevant to multiscale ecosystems science, as well as more traditional physical sciences;
- Inclination toward a collaborative and collegial leadership style and an ability to work across constituencies and institutions;

- Emotional intelligence, superb intellect, flexibility, high energy and self-confidence to enable successful navigation of a complex environment;
- Experience in mentoring and supporting the development of researchers and staff;
- Outstanding diplomatic and negotiation skills and the ability to articulate complex and nuanced topics accurately in multiple contexts;
- An appreciation of the need to strategically align and harmoniously balance the mission of multiple research programs;
- The ability to manage and provide oversight for budgeting, accounting, internal controls, and financial reporting for research and sponsored program activities;
- Understanding and ability to develop positive scientific collaborations that invite robust conversation around recognized and emerging topics in multiscale ecosystems science;
- Experience working productively with funding agencies and groups of influence;
- The capability to lead in a naturally collaborative and effective manner with humility, integrity, and genuine warmth; and
- A personal commitment to maintaining an environment that welcomes and supports all forms of diversity and inclusivity.

For best consideration, please send all nominations and expressions of interest electronically and in confidence to:

Jim Sirianni, Partner
Julia Patton, Senior Associate
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PNNL is an Equal Opportunity/Affirmative Action Employer that is committed to hiring a diverse, talented workforce. EOE Disability/Vet/M/F/Sexual Orientation/Gender Identity. Staff at PNNL must be able to demonstrate the legal right to work in the United States.