

Hydrologist (GS-9)

Major Duties

A Hydrologist gathers and looks at information about water resources located in specific areas of land. These areas are called watersheds because they contain river systems or large bodies' of water. Watersheds are vital natural resources that must be protected. It is the largest hydrologist's job to do environmental reports on how watersheds behave and how they can be protected and improved. Specific duties include

- Working with other Forest Service professionals to plan how the land should be used, to decide how to restore natural resources that have been damaged, and to write reports and make suggestions for safeguarding the watershed
- Surveying areas which are planned for management or are needing to be restored after they been damaged by man or nature
- Making recommendations on how to protect or enhance the watershed. Their recommendations often include a report on the impact to the environment of possible improvement projects.
- Creating programs for checking water quality. Such programs include planning how, where, and when the water will be checked. After collecting the water samples, the hydrologist is responsible for inspecting the samples and determining what the samples mean. What chemicals are in the water? Is the water quality good or does it need improvement? The Hydrologist looks for answers to these types of questions. The answers help Hydrologists determine whether or not something needs to be done to improve water quality in the watershed.

A person at this level may also supervise other employees. This involves monitoring employee performance, conducting performance appraisals, developing budgets, coordinating staff efforts, etc.

A Typical Day

Jerome is a Hydrologist in a large watershed in the Cascade Mountains of Central Washington. He normally works an eight hour day from 8a.m. to 5p.m. with an hour off for lunch. About 50 percent of the time Jerome spends in the laboratory and at his desk investigating and make decisions about water samples and water quality.

Jerome got to work early today (5a.m. to be exact), because he planned to walk 10 miles into a watershed to gather water samples from an area that had been recently logged. He was glad that he got an early start because by the time he'd hiked into the site and gathered the water samples it was already 1:30. He took a 30 m in break for lunch and was off down the steep trail carrying 45 pounds of equipment and samples he'd collected in his backpack. By 4p.m. Jerome was back at the office, hurriedly setting up tests in the laboratory to measure water quality samples.

By the time he'd tested all the samples it was dark outside, and the dinner bell had been silent for quite some time. It had been a long day, but Jerome felt good about his efforts. He got plenty of fresh air and exercise in the great outdoors. He'd sleep like a baby that night and start his water quality report in the morning.

Knowledge and Education

A college degree is required to be a Forest Service Hydrologist. Formal education in the following subjects is required.

- Physics
- Calculus
- Chemistry
- Biology

Professional knowledge of Hydrology is required in order to investigate and evaluate a watershed. Hydrology knowledge is necessary when planning and deciding how to best protect and improve watershed. Skills a Hydrologist needs include;

- Measuring and investigating water characteristics
- Measuring and investigating soil characteristics
- Measuring and investigating vegetation characteristics
- Understanding how the weather (sun, rainfall, temperatures, etc.) affect the watershed area
- Predicting how changes in water, soil, vegetation will affect watershed
- Planning for improving and protecting an area's water and other natural resources
- Using aerial photographs, maps, and hydrologic instruments to gather information about an area.

Career Path

Some jobs that lead to a career as a Forest Service Hydrologist include

- **Student Trainee in Hydrology** - A person in this job is usually a student from a college or university, who is gaining experience by working with Forest Service Hydrologists. This person assists in completing water resource studies by collecting and analyzing water samples.
- **Hydrologic Aid (GS-3)** - This person is a technical assistant to the Hydrologist. They help collect water, soil, and other samples and assist in tabulating information about these samples. They help prepare charts, graphs, and figures for reports.
- **Hydrologist Trainee (GS-5)** – This is a trainee position designed to prepare the person to become a hydrologist. A person in this position does most of the duties performed by a fully fledged Hydrologist