



## CAREER PROFILE

# Water Quality Engineer

### JOB OUTLOOK

Over the next 10 years, overall employment of environmental engineers is projected to grow slower than the average rate for all occupations. However, much growth in this field is expected to take place in areas dealing with water treatment, distribution, and access. Water scarcity in the United States and abroad is contributing to increased efforts by state and local governments to design and install more efficient water distribution systems. In addition, the demand for wastewater treatment experts may grow in areas where drilling of shale gas takes place. This activity requires use of large volumes of water.

### SALARY RANGE

\$82,990 – \$110,250

### WHO ARE THEY? <sup>1,2,3</sup>

Water quality engineers are creative, problem-solving, leadership-oriented professionals who improve wastewater treatment, pollution control, and water distribution systems to solve environmental problems involving human access to clean, usable water. They are knowledgeable in multiple fields of science and mathematics, including chemistry, biology, physics, algebra, trigonometry, and calculus. They understand how industrial and residential water treatment and irrigation systems interact with natural processes. Water quality engineers are comfortable in both office and outdoor work sites. They can not only present information effectively, but also listen carefully. Successful water quality engineers play an important role in ensuring that industry and residences have access to water needed for human consumption, agriculture, mining, energy production, and transportation.

### WHAT DO THEY DO? <sup>1,2,3</sup>

Water quality engineers use specialized understanding of science and mathematics to address environmental problems related to water such as pollution, water treatment, and access. They plan and conduct investigations of water quality issues and draft reports on their findings. They design improvements to water treatment and distribution systems, and closely monitor these systems for signs of trouble. Water quality engineers help businesses adhere to government regulations and obtain permits. Some attend and testify at municipal water authority or public works meetings. Finally, water quality engineers give corporations and government agencies advice on how to clean up bodies of water and water systems that have been contaminated with pollutants.



# Water Quality Engineer

## EDUCATION/ TRAINING<sup>1,2</sup>

- At least a bachelor's degree in engineering or a closely related field, with an advanced degree in environmental engineering preferred
- Practical experience working on environmental issues in the field

## HOW DO I BECOME ONE?<sup>1</sup>

Water quality engineers will need at least a bachelor's degree in environmental or civil engineering. They also will need practical experience in the field, such as working with public and private sector clients on water distribution or treatment processes. A master's degree in environmental engineering makes candidates more desirable, and some universities offer 5-year programs that provide both undergraduate and master's degrees.

Water quality engineers also need strong interpersonal skills for collaborating with colleagues representing different areas of expertise; creativity and problem-solving skills for identifying and correcting issues; decision-making skills for balancing conflicting information and data; and communication skills for drafting well-written reports and presenting information, possibly at public meetings.

---

<sup>1</sup> "Environmental Engineers," Occupational Outlook Handbook, U.S. Bureau of Labor Statistics, <https://www.bls.gov/ooh/architecture-and-engineering/environmental-engineers.htm>.

<sup>2</sup> "Water Quality Engineering," Purdue University Department of Environmental and Ecological Engineering, <https://engineering.purdue.edu/EEE/Research/WaterQualityEngineering>.

<sup>3</sup> "Water and Wastewater Engineering," KCI, <https://www.kci.com/services/environmental-engineering/water-and-wastewater/>.