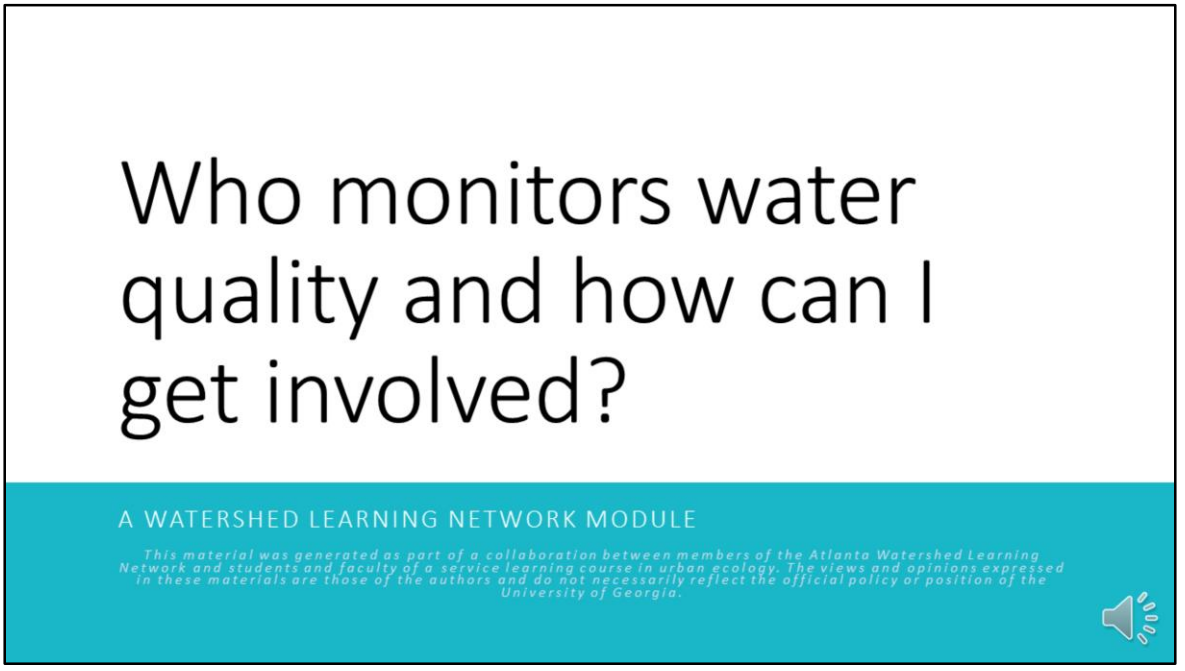

In this presentation, you will learn about the people and organizations who monitor water quality and how you can get involved with monitoring efforts in your community.

This material was based on a curriculum developed by members of the Atlanta Watershed Learning Network, led by Dr. Yomi Noibi of Eco-Action.

The views and opinions expressed in these materials are those of the authors and do not necessarily reflect the official policy or position of the University of Georgia.

Many groups monitor water quality

Photo credit: West Atlanta Watershed Alliance

All over the world, organizations are dedicated to monitoring water quality. Waters in the United States are monitored by state, federal, and local agencies and non-governmental organizations, universities, and volunteers.

Effective monitoring programs help characterize waterways, identify trends and problems with freshwater resources, document the impacts of management activities, and can help local communities respond to emergencies such as floods or chemical spills (EPA, https://archive.epa.gov/water/archive/web/html/index-19.html)

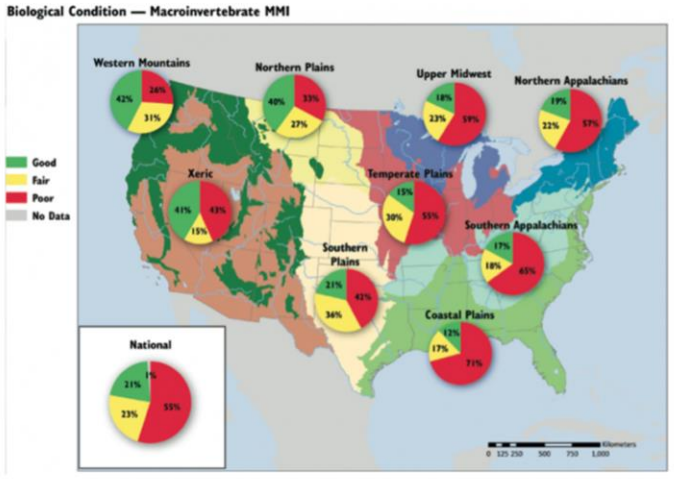

Photo credit: US EPA

Federal

In the US, water quality monitoring is carried out at the federal level by the U.S. Environmental Protection Agency. Other organizations, such as the US Fish and Wildlife Service, the US Geological Survey, and the Army Corps of Engineers monitor other aspects of freshwater ecosystems including, but not limited to biodiversity, water flow, and flood risk.

The map pictured in this slide is an example of one of the many water quality assessments of the EPA. Here, the EPA uses metrics such as the abundance (how many individual animals), diversity (how many different species of animals), and tolerance (the ability of animals to withstand certain kinds of pollution) to estimate regional water quality in rivers and streams.

The EPA monitors water quality using this and many other methods to assess water quality in streams, lakes, and oceans, and uses this data to inform management practices.

All states in the U.S. are required to follow the water quality standards set by the EPA, but each state also has their own agency designed to set more specific standards to fit the needs of the state.

In Georgia, water quality is monitored by the Georgia Environmental Protection Division (EPD), a subdivision of the Georgia Department of Natural Resources (DNR). The EPD sets and monitors state-specific water quality standards, regulates and permits water withdrawals and other projects affecting Georgia waterways, and employs community outreach efforts to protect the quality of Georgia waterways. (GA DNR, https://epd.georgia.gov/georgia-water-quality-standards) To learn more about Georgia-specific water quality standards, you can visit the link at the bottom of this slide.

If you are not from Georgia, your state should have a similar governing body and similar internet resources for you to find state-specific information.

Local

Photo credit: Dekalb County DMW

Local governments (e.g., cities, counties, etc.) have agencies designated to monitor water quality.

For example, the Dekalb County Department of Watershed Management (DMW) in Atlanta, Georgia services over 5,000 miles of water and watershed pipes within the county of Dekalb. They contribute to monitoring and maintaining water quality of the Chattahoochee River and other waterways in the county, and they publish annual reports on water quality.

Often local governments will work with community members to address water quality concerns. One such outreach program within the DMW is the Every Drop Counts program, which helps people in Dekalb county learn how to conserve water and improve water quality in Dekalb county. (Dekalb County DMW, https://www.dekalbcountyga.gov/watershed-management/your-water-source)

Non-governmental organizations (NGOs) work independently of the government to affect social, environmental, and other issues within communities. Many urban areas across the U.S. and the world have NGOs whose purpose it is to monitor and improve water quality with the help of community members.

For example, the Chattahoochee River Keeper (CRK) is an NGO that advocates for and takes action to protect the health of the Chattahoochee River, a source of drinking water, recreation, and wildlife habitat in Atlanta, Georgia.

CRK has several projects to protect the water quality of the Chattahoochee. The Neighborhood Water Watch, for one, works with community volunteers and groups to collect water samples for laboratory evaluation, and to use that data in cooperation with local governments and other groups to address issues the find.

CRK's River Patrol program involves trained CRK employees and volunteers regularly patrolling the river by boat to look for any suspicious spills, debris, smells, or other indicators of water quality problems.

Communities all across the nation have come together, often with the help of local governments and/or NGOs, to understand, protect, and improve the quality of their waterways. Tools and resources exist to help put you in touch with people and organization near you that you can work with to monitor and improve water quality in your community. This webpage has a map tool created by the River Network organization that can help you find such organizations near you.

Photo credit: West Atlanta Watershed Alliance

What is community science?

Community science, simply put, is the involvement of the public in scientific research. This can take many forms and can contribute to many different fields of science. (EPA, https://www.epa.gov/citizen-science/what-citizen-science)

In water quality research, this often involves data collection by community volunteers. Through the help of these community volunteers, scientists have access to larger amounts of data, which can give them a better understanding of changes water quality in targeted regions.

How are community science data used?

Photo credit: National Audubon Society

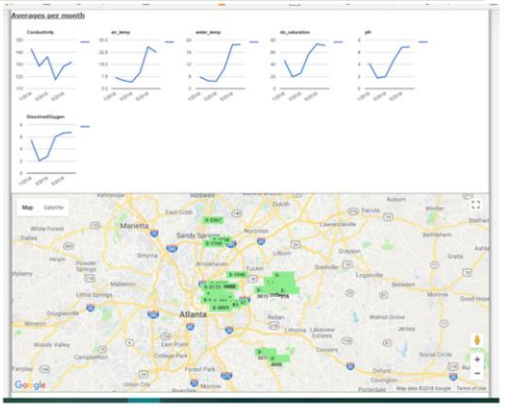

Photo credit: Georgia Adopt-A-Stream

When collected in carefully using similar methods, data generated by community scientists can be used by environmental managers and scientists.

For example, over 100 years ago, the National Audubon Society, an organization dedicated to the conservation of birds in the U.S., asked their community supporters and bird-lovers across the country to get out there and listen and watch for birds using standard, or the same, methods in the same place every year. Community scientists have generated thousands of data points, which scientists have used to estimate changes in the populations of hundreds of species of birds over the years. (National Audubon Society, https://www.audubon.org/conservation/science)

There are also wonderful examples of community-generated data being used to inform water quality monitoring efforts. For instance, the Georgia Adopt-A-Stream program uses volunteers who “adopt” a stream and collect water and macroinvertebrate samples using methods and guidelines provided by the Georgia DNR. These data are submitted to the Georgia DNR and are used to inform local managers and maintain long-term datasets on water quality (https://adoptastream.georgia.gov/monitoring-resources)