

Triangle ULTRA – Project Summary

Triangle ULTRA (Urban Long-Term Research Area) is a project funded by the National Science Foundation. It brings together researchers and planners from NC State University, UNC-Chapel Hill, Duke University, and Triangle J Council of Governments to analyze the connections between people and the environment in the Triangle. During the first two years, water will be our main focus. After the initial two-year phase we will seek further funding to expand to other environmental resources, including air, wildlife habitat, and outdoor recreation.

Streams, rivers, and the land areas that drain them – called watersheds – flow from many parts of the Triangle into reservoirs such as Falls and Jordan Lakes. These reservoirs provide water for drinking, sanitation, recreation, and other uses. If the water becomes polluted, more expensive chemical treatments are needed to make our water safe to drink, the fish we catch may become unsafe to eat, or beaches may be closed because of bacteria that can make swimmers sick.

Our project's focus is on two challenges in managing water for human uses. First, the boundaries of city and county governments often do not coincide with natural boundaries, such as watersheds. Water flows across jurisdictional boundaries, which means that local governments must cooperate to keep water from getting polluted.

Second, natural systems operate on different timeframes and across different land areas than governments, businesses, and people. The consequences of government, business, and individual decisions tend to be shifted to other communities or to future generations. For example, when people in one community build on land, the new rooftops, roads, sidewalks, and driveways create stormwater run-off that can affect water quality in other communities downstream for many years. Conversely, a decision to restrict building to protect water quality may impose a cost on local landowners whose property becomes less valuable, while the environmental benefits of this restriction goes to people who live downstream.

As one of the fastest-growing regions of the country, the Triangle provides an opportunity to investigate effective ways to manage environmental resources. Specifically, we can develop new models and tools to understand how water movement, land use patterns, the built environment, and society's values and actions interact to affect water quality. Key questions include:

- 1) Where is most of the pollution coming from?
- 2) What are the most effective approaches to reducing pollution?
- 3) How can the most effective approaches be implemented in a fair and sustainable way?

To answer these questions, the project team will draw upon technical data and the knowledge of individuals, governments, and businesses to create a clear picture of how to protect the water communities need for drinking, swimming, fishing, and boating.

In the long term, Triangle ULTRA can become a portal to data and analyses that can help Triangle communities make decisions that maintain and enhance our quality of life.