

SECTION 1. INTRODUCTION

As North Carolina's population and economy continue to grow, so does our need for good quality, reliable water supplies. Will we have enough water for our future needs if our desired growth continues? The future of our economy depends on the answer to this question.

North Carolina is fortunate in having a generous natural supply of water. We receive an average of 48 inches of rain per year in North Carolina, much more than many other states. Our geologic history has given us a pattern of river valleys that provide surface water to most of our major population centers and also productive regional aquifers in the coastal plain.

Even so, North Carolina is beginning to see some water supply shortages and competition among water users in areas where the natural availability of surface or ground water is somewhat limited. The headwaters of our Piedmont river basins, where stream flows are greatly reduced during dry weather; the Cretaceous aquifers of the Coastal Plain, which have a relatively slow recharge rate; and areas along the coast and on the Outer Banks, where the natural availability of fresh water is limited, are all currently experiencing critical water supply problems. As North Carolina continues to grow, we will encounter water supply problems more frequently.

Having an adequate water supply is usually thought of as being able to meet "offstream" water uses, such as municipal, industrial, and agricultural uses. However, we also need to maintain a healthy flow of water in our rivers and streams for the "instream" uses, such as protecting aquatic habitat, maintaining water quality, and providing recreation. Meeting future water supply needs, including instream flow needs, will require a determined effort by local governments, water users, and state government working in partnership. This effort will consist of three major elements—monitoring, planning and regulation.

As our water supplies experience heavier demands, it will be increasingly important to closely monitor the availability of our water supplies. Our primary monitoring tools are a statewide network of stream gages to measure surface water flow and a network of ground water observation wells to monitor ground water levels. These monitoring networks tell us the amount of water available in surface and ground water sources and the rate at which these sources are increasing or decreasing. We also need good data on all types of water use. Having a good data record for a long period of time is essential to understanding the full range of natural variability in streamflows and ground water levels and the long-term effects of increasing water withdrawals on our water resources. Taken together, the data on water availability and water use give us a good foundation for planning for our future water needs.

Planning is necessary to work out specific solutions to our future water supply needs. The North Carolina General Assembly has provided a good basis for water supply planning by requiring all local governments that provide water service to prepare local water supply plans. These plans, which cover a 20-year period and are updated every five years, assess the availability of water supply, the projected future needs for water, and the sources that will be used to meet any deficit that is

identified over the planning period. These local water supply plans have become an essential resource for local and regional water supply planning and are the building blocks for this State Water Supply Plan. As each local government defines its future needs and its alternative sources of supply, regional planning is necessary to fit the pieces together into a cost-effective and reliable water supply solution.

In some cases, regulation is needed to avoid depletion of our water supplies or to create a fair allocation of water among competing needs. The General Assembly has provided three primary laws for this purpose. The Dam Safety Act establishes requirements for minimum streamflows below dams and provides a way of assuring adequate instream flows as our water withdrawals increase. The Regulation of Surface Water Transfers Act creates a permitting system for large transfers of water from one river basin to another, assuring the protection of the economic and environmental welfare of each of the 38 defined basins. The third and most important of these statutes is the Water Use Act of 1967, which allows the Environmental Management Commission to declare a Capacity Use Area in parts of the state where the rate of water use is threatening to deplete resources or cause damaging conflicts among water users. Within these Capacity Use Areas, water use above 100,000 gallons per day is regulated by permit.

The best solution to our water supply problems will be found by having the right orchestration of monitoring, planning, and regulation.