



“Rapid population growth in Metropolitan Atlanta is transforming large areas of forest and pasture land to suburban and urban land. This transformation is occurring in watersheds that supply drinking water and provide water-contact recreation opportunities for much of Metropolitan Atlanta. Without proper management, a combination of point-source discharges to streams and nonpoint source stormwater runoff will severely degrade these water resources” (Frick and Buell, 1999).

The above quotation refers to the current environmental state of the Chattahoochee River in the Atlanta metropolitan area. This report has reviewed the specific environmental variables affecting the Chattahoochee River as it passes through three physiographic provinces between Helen and Columbus, Georgia. In the Blue Ridge Province, significant amounts of nitrogen and phosphorus are contributed to the stream environment from fertilizer; large quantities of sediment also are deposited in the Chattahoochee River from this province, but pesticide use is relatively low. In the Piedmont Province, nitrogen and phosphorus are discharged into the Chattahoochee River primarily from point source discharges; large quantities of pesticides and other pollutants also are deposited in the river from stormwater runoff, but sedimentation is not a significant problem in this area. At Columbus, the southern terminus of this study, little net gain in pollutants is evidenced. However, between the Atlanta Region and Columbus, the increase in pollutant load on the Chattahoochee River is quite significant.

The first overall conclusion that can be reached from this document is that multiple threats continue to degrade the environmental quality of the Chattahoochee River. The second conclusion is that the Atlanta Region and the segment of the

Chattahoochee River upstream of Lake Lanier are the most significant polluters of the river. The third conclusion is that the type of pollutants being contributed varies by the geographical area within the Chattahoochee River Basin, and most importantly the land use within that geographical area.

The current state of the Chattahoochee River presents a societal paradox. While the Chattahoochee River represents one of the single most important natural resources for the Atlanta Region, the Atlanta metropolitan area is one of the greatest polluters of this resource. Unfortunately, if the existing and historical land-use patterns evident in the Atlanta Region are continued into the future, the degradation of the Chattahoochee River by nonpoint source pollution from urban runoff is not only likely to continue, but to worsen. Table 35 provides projected land-use values for the Chattahoochee River Basin.

According to the data in Table 35, urban land use will increase by 1 percent in the next 20 years and by 3 percent in the next 50 years (based on 1995 values). While these percentages appear relatively insignificant, when translated into area, these changes represent an additional 196 and 784 square miles of urban land for the respective time periods. The majority of this growth will be concentrated in the Atlanta metropolitan area along the Chat-

tahoochee River, increasing the amount of impervious surface area by significant amounts. According to these estimates, nonpoint source pollution of the Chattahoochee River by the Atlanta region will increase.

Potential for Minimization of Harm

“In order to reduce nutrient and suspended-sediment concentrations, loads, and yields in the upper Chattahoochee River basin, reductions in nonpoint sources of contamination – primarily transported by stormwater runoff – are needed . . . Based on predominant land uses evaluated, efforts to control nutrient and sediment runoff should be of highest priority in predominantly poultry and livestock production watersheds followed by urban and suburban watersheds.” (Frick and Buell, 1999).

The main pollutant sources identified along the Chattahoochee River Corridor are the poultry and livestock production areas located in the Chattahoochee River watershed upstream of Lake Lanier, and the urban areas along the river in the Atlanta region. These pollutant sources combine to significantly degrade the water quality of the Chattahoochee River downstream of the Atlanta metropolitan area.

Nonpoint source pollution is most effectively controlled at the source. Therefore, the mitigation strategies should be source-specific. In the Atlanta Region, controlling the development along the

Table 35
Historical and Projected Land Use in the Chattahoochee River Basin.

	1972-1976		1995		2020 (projected)		2050 (projected)	
	Area (mi ²)	Land Use (%)	Area (mi ²)	Land Use (%)	Area (mi ²)	Land Use (%)	Area (mi ²)	Land Use (%)
Urban	784	4	1,568	8	1,764	9	2,352	12
Forest	12,544	64	12,936	66	12,544	64	11,956	61
Agriculture	5,684	29	4,704	24	4,704	24	4,900	25
Water and Barren Land	588	3	392	2	392	2	392	2

Source (1972-1976): Couch, Carol A. "National Water Quality Assessment Program: Environmental Setting of the Apalachicola-Chattahoochee-Flint River Basin." *Proceedings of the 1993 Georgia Water Resources Conference*. The University of Georgia. Athens, Georgia: April 20-21, 1993.

Source (1995-2050): *Draft Environmental Impact Statement: Water Allocation for the Apalachicola-Chattahoochee-Flint (ACF) River Basin*. US Army Corps of Engineers. September 1998.

Chattahoochee River Corridor is imperative. Urban developments with impervious surface areas, such as parking lots and building areas, will need to employ effective best management practices to contribute to a reduction in nonpoint source pollution of the Chattahoochee River. Preserving natural areas along the banks of the river would provide an additional means of reducing this pollution. By allowing stormwater to be absorbed into the ground prior to reaching the Chattahoochee River, nonpoint source pollution would be reduced. To this end, it may be necessary to retrofit existing stormwater conveyances to meet state and federal water quality standards.

In the headwaters area of the Chattahoochee River and upstream of Lake Lanier, it also is important to control runoff from agricultural areas. The use of animal waste and commercial fertilizers, especially in close proximity to the Chattahoochee River or its tributaries, encourages the runoff of these pollutants directly into the river in an area that currently has a naturally high propensity for runoff. Best management practices in this area would be beneficial to the health of the Chattahoochee River. Controlling development along low-order streams, especially in the headwaters of the Chattahoochee River, is equally important in protecting the river's health.

The Chattahoochee River supports a wealth of ecological diversity and a significant human population. With continued degradation of this natural resource, the continued welfare of its dependents is called into question. Ultimately, the fate of the Chattahoochee River is dependent upon the actions of interested individuals and agencies.