Watershed Insights Report No. 3

Water: Essential Resource for the Upstate's Economy & Quality of Life

The Upstate region of South Carolina is blessed with exceptional beauty and abundant natural resources. Such an attractive environment makes this a very desirable place to live, work, and play. Our unique setting in the Upstate, combined with these natural resources, is helping fuel a substantial population and economic boom in the region. The resulting development increases concerns about the quality, abundance, and health of one of the resources most critical to that growth – water.

Population: We define the Saluda-Reedy Watershed (SRW) as the land area draining to Lake Greenwood. This area includes the drainages of the Saluda and Reedy Rivers, and contains 1,167 square miles (~ 746,857 acres) of the Upper Piedmont of South Carolina. In 2005, approximately 338,000 persons lived within the SRW. The population density in this area is about 290 persons per square mile, over two times the statewide average. The watershed population is projected to grow by over 33 percent by 2030. This growth will result in substantially increased demands on our water resources.

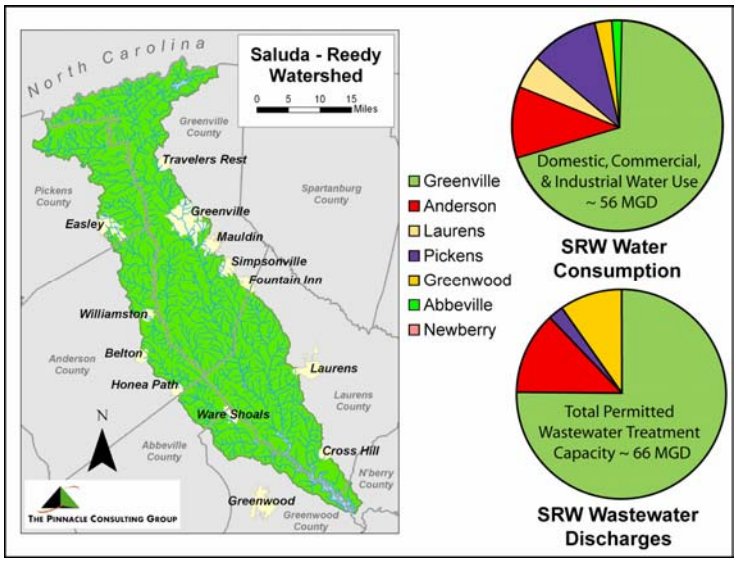
Water Suppliers: A vital role of the SRW's water resources is to supply water for potable, domestic, industrial, commercial, agricultural, and landscape irrigation purposes. About 90 % of the SRW population receives water from public water supply agencies; the remaining 10 % depends on private or community wells tapping groundwater aquifers. The largest public water utility is Greenville Water System (GWS), which serves most of metropolitan Greenville, and sells water to wholesale customers, including several water suppliers with customers inside and outside the SRW. Other major water suppliers within the SRW include Greenwood Commission of Public Works and Easley Combined Utilities. Several smaller water utilities also withdraw water from the basin.

Water Consumption: Typical patterns of water use in areas served by public supplies indicate our SRW population consumes on the order of 24 million gallons per day (MGD) of water for domestic purposes, or about 75 gallons per day per person (gpd/person). Including water that goes to commercial and industrial uses, and to non-metered uses such as firefighting, we use roughly 56 MGD, or about 175 gpd/person. Data from our water utilities indicate non-industrial water use in the Upstate region is growing at least as fast as our population.

WATER USE TRENDS *	2000 Usage (MGD)	Increase 1990-2000	2030 Estimated Usage (MGD)	Estimated Increase 2000-2030
Greenville County	66	18.5 %	98	48.5 %
Seven SRW Counties	149	16.4 %	212	42.3 %

** Based on population growth, and typical total use levels of 175 gpd/person.*

Wastewater Discharges: Another critical function of the water resources of the SRW is to provide for discharge and assimilation of treated wastewater from our communities. Approximately 70 percent of the SRW's population is served by wastewater treatment plants (WWTPs), which discharge to surface waters. Nineteen major "centralized" municipal WWTPs are in the SRW, the largest being Western Carolina Regional Sewer Authority's (WCRSA) Mauldin Road WWTP. This plant services most of Greenville, and processes about 22 MGD, which is discharged to the Reedy River. Altogether, the total capacity of these centralized municipal WWTPs in the watershed is about 58 MGD. The remainder of the watershed is served by on-site wastewater systems (typically septic systems). These "decentralized" systems play a key role in rural areas, and when properly maintained, are very effective in treating wastewater and recharging it to the natural hydrologic system.



Natural Flows: The SRW receives an average of 2,870 MGD of precipitation (52 in/yr). Roughly 60 % of this evaporates or is transpired by plants. About 40 % results in runoff or recharges to ground water, much of which then becomes stream baseflow. Average daily flow of the Saluda River below Lake Greenwood is 1,050 MGD (1,628 cubic feet per second).

Interbasin Transfers: The pumping of water resources from one natural watershed to another constitutes an "interbasin transfer" (IBT). Such transfers can have legal consequences in terms of the availability of water to riparian users, as well as potential environmental impacts. As a result, IBTs are regulated by the South Carolina Department of Health and Environmental Control. The largest IBT within the SRW (and incidentally the largest "true" IBT in the state) is the pumpage by GWS of potable water from Lake Keowee, which is in the Savannah River Watershed, to supplement water supplies to metropolitan Greenville. GWS presently has the capacity to utilize about 45 MGD from its Lake Keowee pump station, but its permit allows expansion to 150 MGD as Greenville grows. Because most of the water presently delivered from Lake Keowee to Greenville area customers is discharged to the Saluda or Reedy, this flow supplements the natural flow of these rivers.

Synthesis: The natural hydrologic cycle of the SRW has been substantially altered by many man-made influences. The dynamics of streamflows, droughts, and man's impacts on the SRW "water budget" will be addressed in future Watershed Insights Reports.

This project was sponsored by the Saluda-Reedy Watershed Consortium and has involved technical work by Pinnacle Consulting Group.
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The SRWC is a broad-based group of public agencies, non-profit organizations, universities and private consultants focused on assuring "Clean, Healthy and Abundant Water for a Sustainable Economy and Environment Throughout the Saluda-Reedy Watershed".