ESTIMATING SELECTED LOW-FLOW FREQUENCY STATISTICS AND MEAN ANNUAL FLOW FOR UNGAGED LOCATIONS ON STREAMS IN NORTH GEORGIA

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The USGS (USGS), in cooperation with the Georgia Department of Natural Resources, Environmental Protection Division, developed regional regression equations for estimating selected low-flow frequency and mean annual flow statistics for ungaged streams in north Georgia that are not substantially affected by regulation, diversions, or urbanization. Selected low-flow frequency statistics and basin characteristics for 56 streamgage locations within north Georgia and 75 miles beyond the State's borders in Alabama, Tennessee, North Carolina, and South Carolina were combined to form the final dataset used in the regional regression analysis. Because some of the streamgages in the study recorded zero flow, the final regression equations were developed using weighted left-censored regression analysis to analyze the flow data in an unbiased manner, with weights based on the number of years of record. The set of equations includes the annual minimum 1- and 7-day average streamflow with the 10-year recurrence interval (referred to as 1Q10 and 7Q10), monthly 7Q10, and mean annual flow. The final regional regression equations are functions of drainage area, mean annual precipitation, and relief ratio for the selected low-flow frequency statistics and drainage area and mean annual precipitation for mean annual flow. The final regression equations developed from this study are planned to be incorporated into the USGS StreamStats program. StreamStats is a Web-based geographic information system that provides users with access to an assortment of analytical tools useful for water-resources planning and management, and for engineering design applications, such as the design of bridges. The StreamStats program provides streamflow statistics and basin characteristics for USGS streamgage sites and ungaged locations. StreamStats also allows the user to compute estimates of streamflow statistics for ungaged sites for a location at any stream in Georgia

Program reference: 4.5.4