



**CESU Final Report Summary for Graphical Comparisons of Observed and Unimpaired Flows
Prior to and Following Implementation of 2003 Ecosystem Flow Guidance
and Trends in Channel Depths - W912HZ1120041**

Purpose: Compare observed and unimpaired flows and channel depths prior to and following 2003 ecosystem flow guidance on Savannah River.

Location: Savannah River at August and at Clio.

Methods: Compared flows in the Savannah River with simulated unimpaired flows to describe and quantify how the operation of the Savannah River dams has altered hydrograph behavior in the river. Comparisons were done for two periods: 1) 1950-2003, the period from the completion of the first dam to the inception of the ecological flow guidelines, and 2) 2004-2009, the period since the implementation of the ecological flow guidelines. Looked at flows in two locations – USGS gage at Augusta (gage #02197000), and the USGS gage at Clio (gage #02198500). Compare the cumulative flow duration curves, and seasonal flow duration curves for the observed and unimpaired flow for each period. Also present representative hydrographs for dry, near-average and wet years. A channel depth analysis was also performed to identify and quantify trends in bed elevations and cross sections. Three to four cross-sections were recorded at each selected landmark. Plane of reference for the 1935 study was 4000 cfs; 6300 cfs for 1984 and 1990. Assumed 6300 cfs for 1965, 1972, and 1978.

Results: Note: Numerous charts of flow duration and hydrographs are presented showing the comparisons. Charts and graphs are presented with limited interpretation since they were prepared for a Savannah River ecosystem flow workshop. Do not expect that the ecosystem flow recommendations of 2003 have altered the behavior of annual peaks. The water depths show no trends since 1965. Related workshop information may be found online at: [http://www.arwaterplan.arkansas.gov/fish%20&%20Wildlife%20Flows/awp_fish & wildlife flows 3-27-2013 meeting presentations.pdf](http://www.arwaterplan.arkansas.gov/fish%20&%20Wildlife%20Flows/awp_fish_%20wildlife_flows_3-27-2013_meeting_presentations.pdf).

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