

RESERVOIR BATHYMETRIC DATA ANALYSIS FOR DETERMINING SEDIMENTATION AND EROSION RATES OF SOUTH EASTERN LAKES

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REFERENCE: *Proceedings of the 2013 Georgia Water Resources Conference*, held April 10–11, 2013, at the University of Georgia

Abstract. Reservoir sedimentation and shoreline erosion are ongoing processes within U.S. Army Corps of Engineer (USACE) managed projects. To understand these processes, approximately once a decade, the USACE Mobile District resurveys the sedimentation ranges (designated cross-sections) of the impoundments under their jurisdiction. During the winter and spring of 2009/2010 a resurvey of 27 of these impoundments located in Georgia, Alabama, and Mississippi was conducted. Due to the large quantities of data, up to 116 ranges per impoundment, a Visual Basic program was written to process the recently collected data and to make comparisons with historical sedimentation and shoreline erosion data. The Visual Basic outputs included tabular comparisons and cross-section plots. These outputs were used, in conjunction with aerial imagery, topographic maps, surveyors' field notes, and site visits to evaluate quantitatively and qualitatively the sedimentation and erosion conditions by range and by region within each lake. Shoreline erosion/sedimentation was evaluated by calculating the average horizontal shift of each bank at each range line. Shorelines were classified by percentiles based on shoreline retreat or advance in feet for all the sedimentation ranges, whereas the degree of range of sedimentation was evaluated as a straight percent change in cross-section area.