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A Reconnaissance of the Hydrology of the Edisto and Ashepoo Estuaries, South Carolina

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ABSTRACT

A reconnaissance study has been made to provide background information on some of the physical and chemical characteristics of the Edisto and Ashepoo estuaries in South Carolina. Data were collected from the estuaries on the physical dimensions, tidal stages, saltwater intrusion at high and low tides, and water-quality above the saltwater intrusion. Observation of flow in Fenwick Cut, a short segment of the intercoastal waterway that connects the Ashepoo and Edisto estuaries, shows that during ebb tide flow is from the Edisto to the Ashepoo. Flow is from the Ashepoo to the Edisto during flood tide.

As would be expected, the times of the high and low tides at the upper ends of the estuaries (as recorded near U.S. Highway 17) lag those at the lower end (as recorded at Fenwick Cut) by several hours. Tidal range is reduced at the upper ends by about 70 percent.

During average freshwater inflow conditions, the interface between freshwater and saltwater penetrates the Edisto estuary to mile 19.5 and the Ashepoo estuary to mile 24 at high tide. During periods of very low freshwater inflow, such as the 7-day 10-year low flow, the interface at high tide might penetrate to mile 32 (near Jacksonboro) on the Edisto River. During a similar low-flow period, the Ashepoo River would be brackish or salty to about mile 38.

Above the saltwater interface, the water of both estuaries is of good quality and suitable for most uses if treated for iron and color. The bed sediments throughout the study area, with the exception of iron, have little or no indications of heavy metals, herbicides or pesticides and, as such, probably are an indication of good water quality.

Copies of this report are available in the SCDNR's Columbia office.