evidence emerged concerning the rapid cycle of peat development in the Southeast, and was supported by paleoecological reconstruction of vegetation history based on pollen/macrofossil analyses, glacial and climatic history, radiocarbon dating, and sea level changes (see Fair-Page and Cohen 1990; Stack 1985; Fearn 1981; Rich 1979; Spackman et al. 1976; Bond 1970).

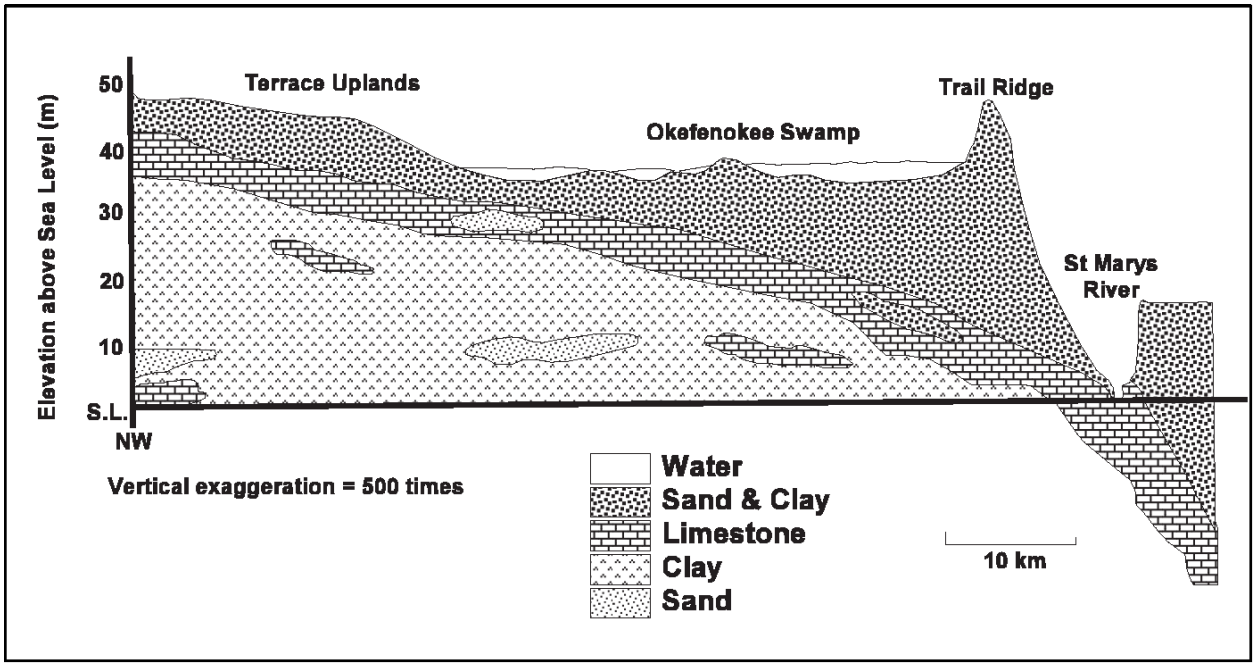

Figure 5. West to east profile of the sediments under the Okefenokee Swamp and surrounding Region of Hydrologic Influence (RHI). [Source: USFWS 2006, Figure 7].

The swamp is located on the marsh and lagoonal facies of the Wicomico Terrace, a marine feature left by a receding sea level, dating to the Pliocene or Pleistocene and extending 100 to 120 feet above sea level. Stratigraphy of the Wicomico Terrace includes surficial sand and clay deposits associated with marine terrace formation as well as erosion and chemical weathering of pre-existing strata. The barrier island facies at the eastern margin of the terrace is Trail Ridge (USFWS 2006). The Wicomico Terrace is underlain by a 200-foot thick impermeable layer of interbedded clay, sand and carbonate strata called the Hawthorn Group, which dates to the Miocene and acts as a confining unit which holds water in the basin (Thom et al. 2015 – see Figure 6; Water Resources Associates, Inc. 2005). The strata below the Hawthorn Group are composed of carbonate rock (limestone [calcium carbonate] and/or dolomite [calcium-magnesium carbonate]) up to 2,500 feet thick (Hornsby and Ceryak 1998; Weary and Doctor 2014). These strata include, in descending order: Oligocene-age Suwannee Limestone, Eocene-age Ocala Limestone, middle Eocene-age Avon Park and Lake City Limestone Formations, and Lower Eocene-age Oldsmar Limestone Formation (Stringfield 1966; SRWMD 2010).

In the lower coastal plain of Georgia, the principal water-bearing geologic units are the surficial aquifer system, the Intermediate (Brunswick) aquifer system, and Floridan aquifer system (Clarke et al. 1990; Water Resources Inc., 2005). Low-permeability, clayey confining units separate these water-bearing units (Clarke et al. 1990; Priest 2004). The surficial aquifer is found in some areas of Georgia and Florida where the Hawthorn Group serves as a confining unit and minimizes recharge to the underlying Floridan Aquifer. The surficial aquifer, which is found throughout the RHI, is up to 230 feet thick and consists of interlayered