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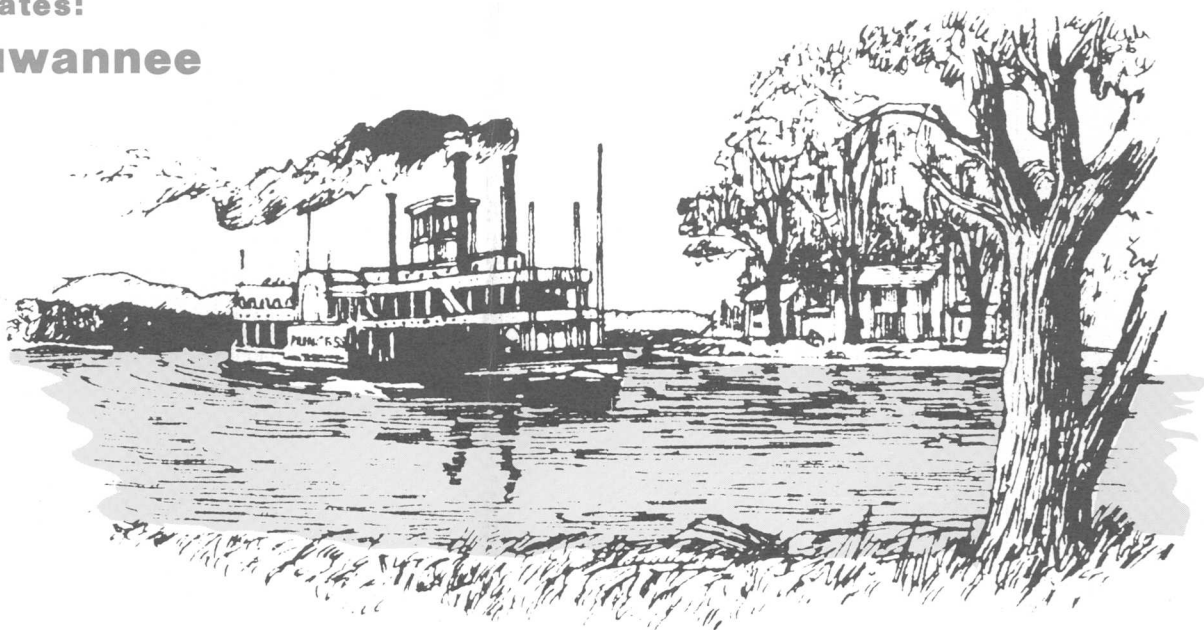
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River Basins of the United States:

The Suwannee



River Basins of the United States: The Suwannee



by A. A. Garrett and C. S. Conover

This leaflet, one of a series on the river basins of the United States, contains information on the Suwannee River basin, including a brief early history, a description of the physical characteristics, and other statistical data. At present, other river basins included in the series are The Colorado, The Columbia, The Delaware, The Hudson, The Potomac, and The Wabash.

Early Exploration and Settlement

There is no indication that pre-Columbian inhabitants developed more than a rudimentary culture in the basin. At the time of contact with outside exploration, the basin was inhabited by the Timucuan Indians. In 1528 (1526?), Panfilo de Narvaez, in traveling northward along the west coast of Florida from what is now Tampa to St. Marks, crossed

the coastal, very swampy part of the Suwannee River basin. In 1539, De Soto probed the interior part of the basin along a route ultimately known as the "Spanish Trail" and crossed the Suwannee River about 5 miles downstream from the site of Dowling Park. About 1600, construction of a series of missions was started and linked by an east-west route, the Spanish Trail, which in Florida ultimately extended from St. Augustine to Pensacola. All the missions, about 30, were destroyed during the persistent conflict between the Spaniards and the Indians that extended well into the 18th century and little trace of the missions remains.

From the time of Spanish exploration into the early 1800's, the Suwannee River basin was essentially an unexplored wilderness. The Spanish Trail was virtually the only evidence of outside influence. Only after the lands in Florida were given over to civilian control and were made available for settlement did a population influx occur, chiefly from the north. The first civilian settlement

Cover Photo: Suwannee River looking downriver from Swift Creek (Photo by Mrs. Carl E. Shifflette).



Run from Hart Springs flowing into the Suwannee River (Photo by Mrs. Carl E. Shifflette).

relevant to the development of the basin started in 1842 at Cedar Key. Although Cedar Key is outside the basin, its position on the Gulf was strategic and the settlement became a transshipment point for sailing ships entering the Suwannee and a trading center for the entire Gulf Coast—for many years as many as 200 vessels engaged in coastwise traffic. The first recorded steamer traffic on the Suwannee began in 1836. During high water, the river could be navigated as far upstream as Ellaville, at other times as far as Branford, a trip of 110 miles. The Santa Fe was navigable to Fort White, 8 miles upstream from its confluence with the Suwannee. In 1845, mail service was established from Cedar Key to Ellaville; the steamers entered the river by way of East Pass. River traffic was greatest during the period 1880-90. Flat-bottomed paddlewheel boats, 200 feet long and wood fired, were common. Steamer traffic began to

dwindle by 1905 and disappeared by the early 1920's.

The Suwannee River has been immortalized by Stephen Foster through his song "Old Folks at Home," written in 1851. The song, better known as "Swanee River" (Foster's spelling), is Florida's state song. Although Foster never lived in or visited Florida, his song over the years has conjured up a romanticism of plantation life in north Florida prior to the War Between the States.

Headwaters

Big Alligator Creek, a tributary to the Suwannee, heads about 13 miles west-southwest of Waycross, Ga. The Suwannee River proper begins in the Okefenokee Swamp, a vast wetland wilderness in southeast Georgia and northeast Florida. Most of the swamp's 666 square miles drain to the Gulf of Mexico by way of the Suwannee River;

the remainder of the swamp drains to the Atlantic Ocean by way of the St. Marys River. The entire swamp area, approximately 115 to 120 feet above sea level, is an expanse of emergent vegetation and slowly moving water interrupted by numerous islands rising only a few feet above the water level in the swamp.

Mouth

The Suwannee River enters the Gulf of Mexico about 12 miles north of Cedar Key, approximately at latitude 29°16' north, longitude 83°08' west. The two main channels to tidewater are East Pass and West Pass. Mean tidal range at the mouth is about 2.4 feet; extreme range is about 3.4 feet.

Major Tributaries

In Georgia, the major tributaries in the basin are the Withlacoochee and Alapaha Rivers which join the Suwannee River in Florida. In Florida, the major tributary is the Santa Fe River.

Course

From the Okefenokee Swamp, the river flows generally southward nearly to White Springs, Fla., then westward where its valley crosses a bed of hard, calcareous clay. About 25 miles farther downstream, the river returns to its generally southward course to the Gulf. Because of its low gradient—about 0.5 foot per mile—the river flows through large meanders, deeply entrenched in the central part of its reach, and through extensive wetlands near its mouth. Oxbow lakes, representing segments of former courses, are common.

Length

The Suwannee River is 280 miles long, including Big Alligator Creek in Georgia. The

Suwannee River proper is 235 miles long, of which 207 miles are in Florida. The first 7 miles of the Suwannee are ill defined and barely distinguishable from the Okefenokee Swamp through which it flows. It ranks 89th in length of 135 rivers in the United States that are more than 100 miles long.

Width

From the mouth upstream to about Ellaville, Fla., the river ranges in width from nearly 1,000 to 250 feet. Beyond Ellaville, the width gradually decreases to only a few tens of feet at Fargo, Ga.

Depth

The river depth is generally more than 7 feet from tidewater upstream to Ellaville, except for scattered shoals. The channel at the mouth is dredged to prevent shoaling. Upstream from Ellaville, the depth may be as great as 6 feet, but 1 foot or less over shoals during dry periods.

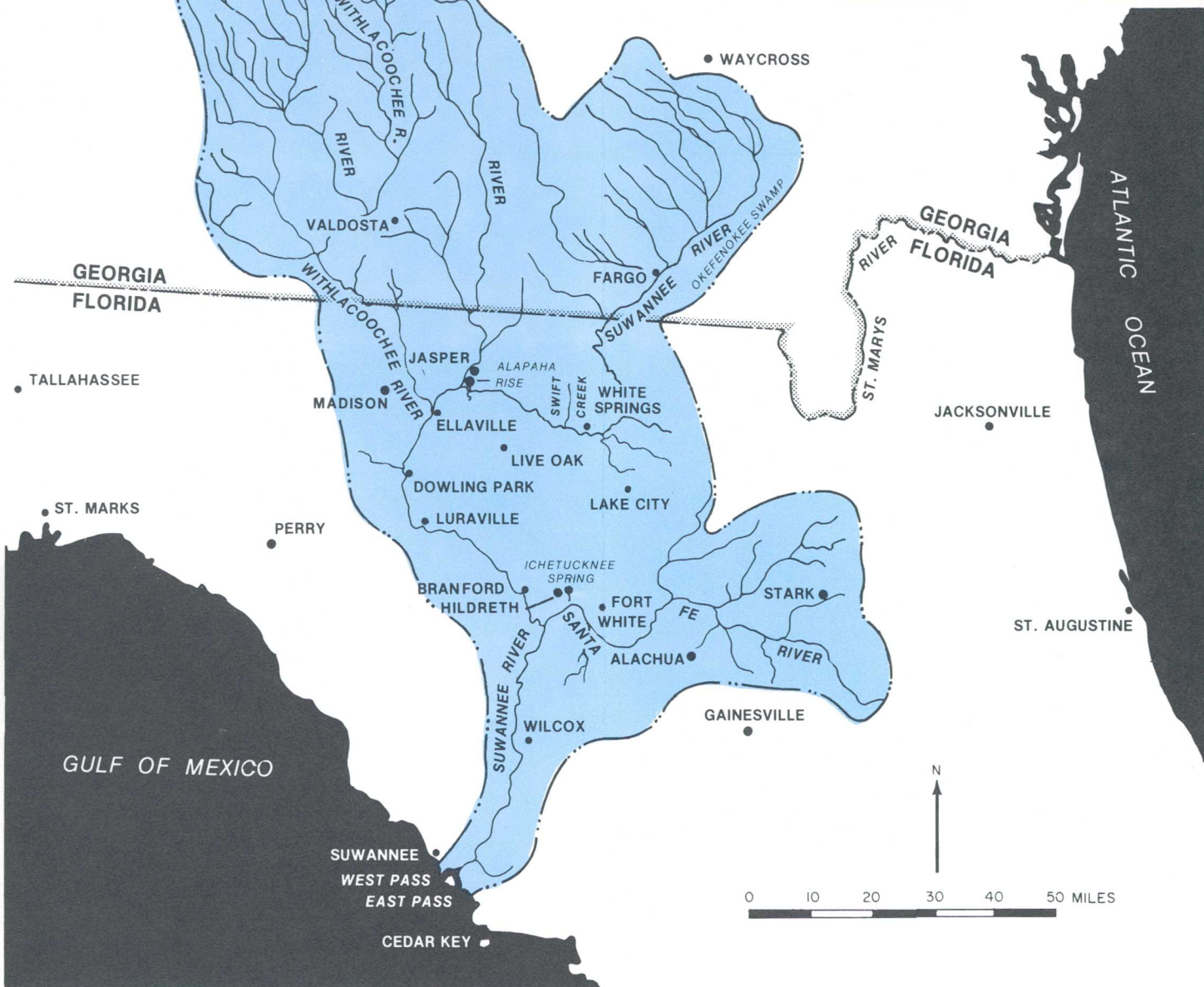
Rate of Flow

Near Wilcox, Fla., 33 miles upstream from the mouth, the long-term average flow is about 4.7 million gallons per minute. At Fargo, Ga., just downstream from the Okefenokee Swamp, the average flow is about 0.5 million gallons per minute.

Highest and Lowest Flows

At the gaging station near Wilcox, the highest recorded flow was 38.0 million gallons per minute on April 14, 1948. Minimum flow was 1.5 million gallons per minute on February 24, 1957. Upstream from White Springs, minimum flows of less than 9,000 gallons per minute occur occasionally. Below White Springs, base flow is maintained at high levels because of some 80 individual springs that discharge to the Suwannee or to

Suwannee River Basin



its tributaries. Nine of the springs are of first magnitude (flow greater than 44,900 gallons per minute) and 25 are of second magnitude (flow 4,490 to 44,900 gallons per minute). About one-fourth of the better known springs in Florida emerge in the Suwannee River basin. Alapaha Rise, the largest spring in the Suwannee River basin and fifth largest in Florida, discharges 273,000 gallons per minute to the river about 12 miles northwest of Live Oak. Ichetucknee Spring, in Ichetucknee Springs State Park, is the second largest spring in the Suwannee River basin and ninth largest in Florida. It discharges 161,700 gallons per minute to the river near Hildreth from a group of nine named and many unnamed springs along both sides of the upper 2.5-mile reach of the Ichetucknee River.

Dams, Reservoirs, and Canals

At some places, the river bank has been built up to form dikes which protect adjacent lands from inundation during high river stages. Essentially natural flow conditions, however, prevail through the river's course.

Geologic Setting

The Suwannee River flows across the physiographic provinces of the Central Highlands and the Coastal Lowlands. The Okefenokee Swamp, a depression in the Central Highlands, is a remnant of the ancestral Okefenokee Sound. Sand bars or dunes that rim the swamp may be parts of the shoreline of that water body. From the swamp, the Suwannee River flows across clayey, unconsolidated deposits. Near White Springs, the river starts to flow across the Coastal Lowlands to the Gulf. In this reach, the river crosses the Ocala uplift. From White Springs to about Ellaville, the river is entrenched in limestone that forms vertical banks several feet high. In its lowermost

reach, the river crosses extensive marsh lands.

Drainage Area

The basin drainage area is 9,950 square miles, of which 5,720 square miles are in southern Georgia. The basin area of the Withlacoochee River, the largest tributary, is 2,360 square miles, of which 2,090 square miles are in Georgia. The basin area of the Alapaha River is 1,840 square miles, of which 1,726 are in Georgia.

Average Rainfall

Rainfall varies substantially from place to place during individual storms. It is generally about 48 inches per year in the north part of the basin and 47 inches at the mouth; however, average for the entire basin is about 54 inches per year. The average runoff from the basin is about 15 inches per year.

Quality

In its upper reaches, river water is low in dissolved inorganic solids but is high in dissolved or colloidal organic material, and the water is acidic because it drains a swamp. Progressively downstream, the concentration of dissolved inorganic solids increases and the color intensity lessens as spring discharge becomes a greater part of total flow. Swift Creek intermittently discharges turbid water containing significant concentrations of phosphate and fluoride to the Suwannee, the only tributary to do so. The average concentration of dissolved solids at Branford is 161 milligrams per liter. The total load of dissolved solids at Branford is 980,000 tons per year, about half that of the Apalachicola River in northwest Florida. Ichetucknee Springs contributes 140,00 tons per year of dissolved solids with an average concentration of 175 milligrams per liter.



Troy Springs, Lafayette County, Florida (Photo by J. C. Rosenau).

Major Cities (1980)

In Florida, Lake City has a population of 9,300; Perry 8,300; Live Oak 6,700; Starke 5,300; Alachua 3,600; Madison 3,500; Jasper 2,100; White Springs 800; and Branford 600. In Georgia, Valdosta has a population of 37,600, and Fargo 700. The largest town bordering the river is White Springs.

Municipal and Industrial Water Use

In Florida, public supply systems in the basin furnish about 11 million gallons of water per day, all from wells, to about 67,000 people. A rural population of 106,000 is furnished 20 million gallons a day, essentially all from wells. Industrial use of water is about 128 million gallons per day, 73 percent

from wells, and is used mostly by the forest products and phosphate mining industries. At Ellaville, a steam-electric generating plant obtains water from the Suwannee River for cooling purposes; the water is returned to the river. About 22 million gallons a day, 82 percent from wells, is used to irrigate 56,000 acres, 31 percent of which is in corn. In Georgia, about 160,000 people in the basin are supplied with ground water from public supply systems at a rate of about 28 million gallons per day. About 11 million gallons of water is used for industrial purposes each day.

Commercial Water Use

Commercial water use is chiefly for recreational boating and fishing.



Old railroad drawbridge on Suwannee River. Track ran to Sawmill abandoned in 1916. Lafayette County, Florida (Photo by Mrs. Carl E. Shifflette).

Agriculture

The principal field crops are melons, tobacco, peanuts, and corn. Livestock provides the second highest source of agricultural income. Minor agricultural production includes vegetables, fruits, and nuts.

Industry

Forest cultivation and forest products, including lumber, plywood, and pulp, are the chief industry. Perry, Fla., calls itself the "tree capital of the world."

Minerals

Phosphate is mined locally in the basin. Limestone containing significant quantities of phosphorus occurs extensively in the basin.

Water Data

The Hydrologic Data Network, maintained by the U.S. Geological Survey in cooperation with the individual States, is the chief source of basic data on water in this country. In cooperation with other agencies, the U.S. Geological Survey maintains 16,500 gaging stations that measure high and low flow of rivers, lakes, and streams; 27,500 observation wells that collect data on levels and pumpage of ground water; and 8,200 stations that measure water quality.

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