

# The Suwannee River

The Suwannee River begins at the outflow of the Okefenokee Swamp. It starts out as a fairly small stream full of coffee-colored water. It is one of many dark-brown streams of the United States. The Suwannee River is unique because it contains this highly colored water along its entire length from its source in the Okefenokee Swamp to its estuary in the Gulf of Mexico. The water is dark due to the presence of dissolved organic carbon in the form of humic substances, tannins and terpenoids rather than suspended sediments versus the sediments that color the waters of more northerly rivers.

The Suwannee River also has a western Georgia headwater that is quite different from the rural Okefenokee. The western upper Suwannee River Basin drains to the Alapaha, Withlacoochee, and Little Rivers. The western tributaries have less swampland, much more agriculture, and more small cities. The entire length of the Suwannee River is blessed with an abundance of crystal clear springs.

Transitions in geology create four sections or “reaches” in the Suwannee that are used for Florida’s Water Management purposes.

## Upper Suwannee River



The upper river is characterized by high limestone banks, swift flow and shoals. The water is very dark brown and contains very little pollution. Federally protected Gulf Sturgeon, make their way almost 200 miles from the Gulf of Mexico to the Upper Suwannee. They make the trip each year to spawn in unique areas of the river near White Springs and in the lower portions of the Withlacoochee River. Sturgeon require a very exacting habitat of brisk flow and a rocky bottom with gravel in order for their fertilized eggs to be viable. The Suwannee River has the healthiest population of sturgeon in the Gulf of Mexico.

In Florida, the Upper Suwannee is the divide between the counties on its banks. It flows between Columbia and Hamilton Counties then into Suwannee County. The towns of Jasper and White Springs are located in the Upper Suwannee watershed. The southern boundary of the Upper Suwannee is just downstream from the confluence of the Withlacoochee and Suwannee Rivers.

Some favorite spring on the Upper reach are: Holton Spring, Stevenson Spring, Alapaha Rise Spring, Little Gem Spring, Lime Sink Run Spring, Suwannee Springs, Natural Bridge Springs and White Spring are all located on the banks of the Upper Suwannee. Portions of the upper Suwannee have been known to go dry during long droughts.

## Middle Suwannee River

The middle river has a combination of picturesque rocky banks and floodplains. The middle Suwannee begins at the Highway 90 bridge at Ellaville. As the river passes the springs, clear water dilutes the dark water to the color of strong tea. This reach of the river has 62 mapped springs. Manatees are often spotted in Middle Suwannee springs in the winter months. They need the 72 degree water to survive freezing winter temperatures in North Central Florida.

The towns located in the Middle Suwannee River portion of the basin are Ellaville, Live Oak, Dowling Park, Mayo, Branford, Trenton and Wilcox. It flows through parts of Suwannee, Madison, Lafayette, Gilchrist and Dixie Counties.

Some of the springs in the Middle Suwannee are Troy Spring, Lafayette Blue Spring, Ruth Spring, Bonnet Spring, Peacock Springs, Allen Mill Pond Spring, Pothole Spring, Rock Sink Spring, Branford Spring, Charles Spring, Royal Spring, Guaranto Spring, Bell Spring, Hart Spring and Little River Spring.

Thanks to serious ground water pollution issues in the middle Suwannee basin, some of the springs pump very polluted water into the river. The pollution is mainly in the form of nitrates. Nitrates are produced by every living thing. Farming row crops, dairies and large chicken farms can create excess nutrient problems. As more people move in to the area, urban landscapes, septic tanks and municipal waste water treatment are also contributing to the nitrate problem. The nutrient level rises considerably in the middle Suwannee. High nutrient ground water from the middle Suwannee makes its way to the river through groundwater tributaries also known as springs. Problems with the high nutrient levels arise during low flow conditions. An undesirable filamentous algae grows explosively and stinking mats of this algae can choke out all other good vegetation in the river. It can get so thick that it fouls propellers and makes boating on the river a frustrating exercise

### **Lower Suwannee River**



The Lower Suwannee River reach begins at the Wilcox Bridge on US 19/98 in Fanning Springs. It runs between Dixie and Levy Counties until it empties into the Gulf of Mexico a few miles north of Cedar Key. Towns in the Lower Suwannee are Old Town, Fanning Spring, Chiefland, Fowlers Bluff and Suwannee. In the Lower reaches, the river broadens into extensive floodplains. As the river gets closer to the Gulf of Mexico, it gets broad and shallow just before it splits into the main “passes” in the estuary. The lower Suwannee has fewer springs than the upper and middle river. Manatee Springs and Fanning Springs are the only major springs in the lower Suwannee River. Both Manatee and Fanning have high nutrient levels which contribute to the higher-than-healthy nutrient level in the Lower River.

The Suwannee is tidally affected all the way from the Gulf to the Wilcox bridge. Because of this the river flow slows down twice a day at high tide. When there has been little rain, much of the water in the Suwannee River comes from the springs. Because of this the water gets more clear and moves more slowly which causes problems to arise with life in the river. The combination of clear, slow moving, high-nutrient water causes algae to bloom explosively. This can create deadly low oxygen conditions for the fish and invertebrates that live in the river.

The forested wetlands and islands in the last 20 miles of the Suwannee are part of the Lower Suwannee National Wildlife Refuge with the exception of a few parcels and the town of Suwannee. The refuge comprises 53,000 acres of wetlands and forested uplands on both sides of the river and is one of the few truly wild places remaining in Florida.

### **Suwannee River Estuary**

The Estuary begins near the Gulf of Mexico where the fresh and salt water interface. The Suwannee estuary consists of the end of the lower reach of the river, two major branches (East and West Passes), the Suwannee Sound, and the adjacent coastal waters stretching from Horseshoe Beach to the Cedar Keys.

The river braids out into two streams—the East and West Passes. These two passes divide the flow from the Basin with about 64 percent discharging through West Pass and 36 percent through East Pass. East Pass is deep and biologically rich; West Pass is important habitat for manatees and young Gulf Sturgeon and branches into McGriff Pass.

Flow in the passes is dominated by tidal effects that are influenced by the fresh water discharge. The approximate upstream boundary of the estuary extends about 10 miles upstream from the river mouth. The estuary is bounded by the “Great Suwannee Reef” which consists of a ring of oyster bars. .

There is a large, successful clam and oyster industry in the Suwannee Sound and its surrounding waters. The estuary is affected strongly by low flows in the river due to the saline intrusion from the Gulf of Mexico. Less fresh water can permanently change the ecosystems in the tidal creeks and islands. It is here that the effects of high nitrate levels become apparent. When the water slows as it mixes with salt water, the slow flow allows plankton and other algae a chance to grow. In some places, the algae can be four feet thick due to excess nutrients in the river water.

Science Links:

Suwannee River Water Management District

<http://mysuwanneeriver.com/default.htm>

EPA Page on the Suwannee River

<http://www.epa.gov/owow/showcase/suwanneeriver/location.html>

Flood Gages NOAA Upper Suwannee

<http://ahps.srh.noaa.gov/index.php?wfo=jax>

Flood Gages NOAA Lower Suwannee

<http://ahps.srh.noaa.gov/index.php?wfo=tae>

USGS Real Time Gauges on the Suwannee River

[http://waterdata.usgs.gov/fl/nwis/current/?type=flow&group\\_key=basin\\_cd&search\\_site\\_no\\_station\\_nm=suwannee%20river](http://waterdata.usgs.gov/fl/nwis/current/?type=flow&group_key=basin_cd&search_site_no_station_nm=suwannee%20river)

Other related links:

Lower Suwannee National Wildlife Refuge

<http://www.fws.gov/lowersuwannee/reg.html>

Friends and Volunteers of the Lower Suwannee Refuges

<http://www.friendsofrefuges.org/>

Stephen Foster State Park

<http://www.floridastateparks.org/stephenfoster/>

Suwannee River State Park

<http://www.floridastateparks.org/suwanneeriver/default.cfm>

Big Shoals State Park

<http://www.floridastateparks.org/bigshoals/default.cfm>