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AN INDEX TO SPRINGS OF FLORIDA

by
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INTRODUCTION

Florida is a State of beautiful waters—the Atlantic Ocean, the Gulf of Mexico, the Suwannee River, and innumerable streams, lakes, and sinks of all sizes; and of special beauty and interest are the many springs. The total number of springs in Florida is not known, but there are more than 200.

Florida's springs represent natural overflow from the State's vast ground-water storage and circulation system. Their combined flow is about 11,000 cubic feet per second (ft^3/s) or about 7 billion gallons a day. As a comparison, in 1971, public-water systems delivered 800 mgd (million gallons per day) which is equivalent to only about one-ninth of the water discharged each day from springs in Florida.

Springs vary in flow daily, seasonally, and from year to year. Basically the flow is related to variations in rainfall, though man's use of ground water affects the flow of some springs. During periods of little rainfall, spring flow, streamflow, and ground-water levels all decline, just as they increase during wet periods.

The springs of Florida are used to a limited degree as a source of water supply by agriculture and industry; however, their primary use is recreational. For this they are well suited because of the natural beauty of their surroundings, their normal clarity and consistently moderate temperature, and the seemingly subtle mystery of water upwelling from the earth.

This map report is an index to the location and magnitude of flow of 179 of the better known natural springs and 7 pseudo-springs in Florida (tables 1-A and 1-B). The eight counties bordering the Suwannee River have at least 48 springs, or more than a quarter of the total, and most are near the river. Conjunctive use of the map and table 1 provides approximate locations, names and magnitude categories of these springs. In table 2, Florida's 25 first-magnitude springs, those having an average flow of more than 100 ft^3/s are listed giving discharge data and some information on the quality of the water.

Nationwide, Florida has more first-magnitude springs than any other state. Their total average flow is 8,700 ft^3/s, or 79 percent of the average flow of all springs in Florida. Silver Springs, with an average flow of 823 ft^3/s, is the largest non-coastal spring although Wakulla Springs has the greatest instantaneous measured flow (1,870 ft^3/s) and also the greatest range of flow. Coastal springs at Crystal River and Spring Creek have higher average flows than the non-coastal springs.

WHY SPRINGS?

Florida is underlain by a thick sequence of limestone and dolomite. These sedimentary rocks were deposited in shallow seas that, at various times in the geologic past, inundate the State. In many places these rocks contain numerous small and large interconnected cavities or caverns that have resulted from solution and removal of limestone by circulating fresh ground water. The fresh water derived from rainfall infiltrated the rocks after the sea level declined and left the surface of Florida above sea level. The majority of Florida's springs emerge from cavities where the rocks open at the land surface. A few springs seep from permeable sands or shell beds that have been deposited over the limestone. These springs are generally small compared with the ones that flow from limestone, and they also are more likely to go dry during long periods of little or no rainfall.

A spring is overflow or leakage from an underground reservoir (aquifer). The source of Florida ground water is rainfall that seeps into the ground and recharges aquifers in northern and central Florida and southern Alabama and Georgia, where rocks of the aquifers are at or near land surface. Most springs in Florida are permanent, that is they flow the year round.

The water of most Florida springs is of excellent quality. It is low in salinity and of moderate hardness depending, at least in part, on how long the water has been in storage in the aquifer. Dissolved solids are generally less than 250 milligrams per liter (mg/l). Spring temperatures range between 68° and 77° Fahrenheit (20° to 25° Celsius). Springs located in the southern part of the State tend to be the warmest.

INFORMATION SHOWN ON THE MAP

Springs may be classified by the average quantity of water they discharge and in this report the following three-magnitude classification of discharge is used. First magnitude, 100 ft^3/s or more; second magnitude, 10 to 100 ft^3/s; and third magnitude, less than 10 ft^3/s.

Most of the better known springs in Florida are indicated by symbol and identified by number on the map. The spring names are tabulated by counties alphabetically and by number. Where several named springs are close together they are grouped under one symbol and identified with two or more numbers on the map; the location symbol is also larger than for a single spring. For example, the large blue circle in the southwestern part of Jackson County indicates there are five springs in the area and that all are second-magnitude springs. Others, such as Blue Springs and Ichatuckner Springs (Jackson and Columbia Counties, respectively) are groups of springs not individually identified. Wacissa Springs in Jefferson County is the most notable of these, with a dozen named and unnamed springs known to exist in the upper mile and a half of the Wacissa River.

Seven pseudo-springs are indicated. Located in southern Florida and included because they are locally known or referred to as springs, all of these pseudo-springs but Shangri La, in Lee County, flow from artesian wells that are more than a thousand feet deep. There is unconfirmed evidence that Shangri La also may be a well.

All the springs listed were visited. Information on the springs also was compiled from published and unpublished Survey records. Field work revealed the existence of 72 springs not described in 1947, the addition of 9 first magnitude springs, and Morrison Spring was reclassified to second magnitude. Spring names used are consistent with previously published reports and maps; local names were used for springs not so identified. Whether "spring" or "springs" appears in the spring-name, bears no relation to whether the spring has a single or a multiple orifice. Other information on each spring will be listed in a book report in preparation.

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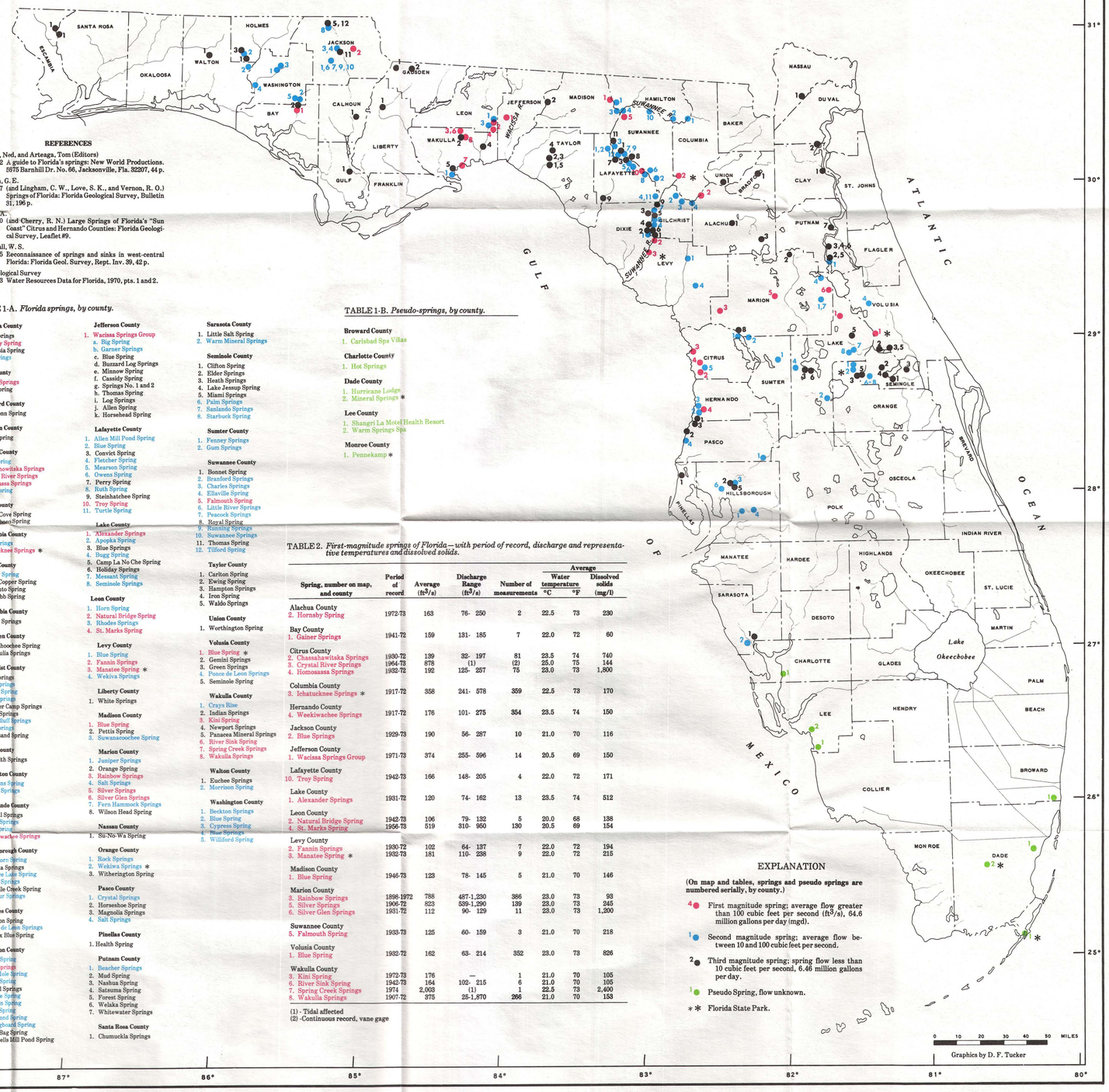

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TABLE 1-A. *Florida springs, by county.*

Alachua County
1. Glen Springs
2. Hornsby Spring
3. Magnesia Spring
4. Poe Springs

Bay County
1. Gainer Springs
2. Pitts Spring

Bradford County
1. Hollbronn Spring

Calhoun County
1. Abes Spring

Citrus County
1. Blue Spring
2. Chassahowitzka Springs
3. Crystal River Springs
4. Homosassa Springs
5. Ruth Spring

Clay County
1. Green Cove Spring
2. Wadesboro Spring

Columbia County
1. Bell Springs
2. Ichatuckner Springs *

Dixie County
1. Copper Spring
2. Little Copper Spring
3. Guaranto Spring
4. McCrabb Spring

Escambia County
1. Mystic Springs

Gadsden County
1. Chattahoochee Spring
2. Glen Julia Springs

Gilchrist County
1. Bell Springs
2. Blue Springs
3. Ginnie Spring
4. Hart Springs
5. Lumber Camp Springs
6. Otter Springs
7. Rock Bluff Springs
8. Sun Springs
9. Townsand Spring

Gulf County
1. Dalkeith Springs

Hamilton County
1. Morgans Spring
2. White Springs

Hernando County
1. Bobhill Springs
2. Little Springs
3. Salt Springs
4. Weekiwachee Springs

Hillsborough County
1. Buckhorn Spring
2. Eureka Springs
3. Lettuce Lake Spring
4. Lithia Springs
5. Six Mile Creek Spring
6. Sulphur Springs

Holmes County
1. Jackson Spring
2. Ponce de Leon Springs
3. Vortex Blue Spring

Jackson County
1. Black Spring
2. Blue Springs
3. Blue Hole Spring
4. Bosel Spring
5. Daniel Springs
6. Double Spring
7. Gadsen Spring
8. Hays Spring
9. Mill Pond Spring
10. Springboard Spring
11. Sand Bag Spring
12. Waddells Mill Pond Spring

Jefferson County
1. Wacissa Springs Group
   a. Big Spring
   b. Garner Springs
   c. Blue Spring
   d. Buzzard Log Springs
   e. Minnow Spring
   f. Cassidy Spring
   g. Springs No. 1 and 2
   h. Thomas Spring
   i. Log Springs
   j. Allen Spring
   k. Horsehead Spring

Lafayette County
1. Allen Mill Pond Spring
2. Blue Spring
3. Convict Spring
4. Fletcher Spring
5. Mearson Spring
6. Owens Spring
7. Perry Spring
8. Ruth Spring
9. Steinhatchee Spring
10. Troy Spring
11. Turtle Spring

Lake County
1. Alexander Springs
2. Apopka Spring
3. Blue Springs
4. Bugg Spring
5. Camp La No Che Spring
6. Holiday Springs
7. Messant Spring
8. Seminole Springs

Leon County
1. Horn Spring
2. Natural Bridge Spring
3. Rhodes Springs
4. St. Marks Spring

Levy County
1. Blue Spring
2. Fannin Springs
3. Manatee Spring *
4. Wekiva Springs

Liberty County
1. White Springs

Madison County
1. Blue Spring
2. Pettis Spring
3. Suwanacoochee Spring

Marion County
1. Juniper Springs
2. Orange Spring
3. Rainbow Springs
4. Salt Springs
5. Silver Springs
6. Silver Glen Springs
7. Fern Hammock Springs
8. Wilson Head Spring

Nassau County
1. Su-No-Wa Spring

Orange County
1. Rock Springs
2. Wekiwa Springs *
3. Witherington Spring

Pasco County
1. Crystal Springs
2. Horseshoe Spring
3. Magnolia Springs
4. Salt Springs

Pinellas County
1. Health Spring

Putnam County
1. Beacher Springs
2. Mud Spring
3. Nashua Spring
4. Satsuma Spring
5. Forest Spring
6. Welaka Spring
7. Whitewater Springs

Santa Rosa County
1. Chumuckla Springs

Sarasota County
1. Little Salt Spring
2. Warm Mineral Springs

Seminole County
1. Clifton Spring
2. Elder Springs
3. Heath Springs
4. Lake Jessup Spring
5. Miami Springs
6. Palm Springs
7. Sanlando Springs
8. Starbuck Spring

Sumter County
1. Fenney Springs
2. Gum Springs

Suwannee County
1. Bonnet Spring
2. Branford Springs
3. Charles Springs
4. Ellaville Spring
5. Falmouth Spring
6. Little River Springs
7. Peacock Springs
8. Royal Spring
9. Running Springs
10. Suwannee Springs
11. Thomas Spring
12. Tilford Spring

Taylor County
1. Carlton Spring
2. Ewing Springs
3. Hampton Springs
4. Iron Spring
5. Waldo Springs

Union County
1. Worthington Spring

Volusia County
1. Blue Spring *
2. Gemini Springs
3. Green Springs
4. Ponce de Leon Springs
5. Seminole Spring

Wakulla County
1. Crays Rise
2. Indian Springs
3. Kini Spring
4. Newport Springs
5. Panacea Mineral Springs
6. River Sink Spring
7. Spring Creek Springs
8. Wakulla Springs

Walton County
1. Euchee Springs
2. Morrison Spring

Washington County
1. Beckton Springs
2. Blue Spring
3. Cypress Spring
4. Blue Springs
5. Williford Spring

TABLE 1-B. *Pseudo-springs, by county.*

Broward County
1. Carlsbad Spa Villas

Charlotte County
1. Hot Springs

Dade County
1. Hurricane Lodge
2. Mineral Springs *

Lee County
1. Shangri La Motel Health Resort
2. Warm Springs Spa

Monroe County
1. Pennekamp *

TABLE 2. *First-magnitude springs of Florida—with period of record, discharge and representative temperatures and dissolved solids.*

Spring, number on map, and county	Period of record	Average (ft^3/s)	Discharge Range (ft^3/s)	Number of measurements	Average water temperature °C	Average water temperature °F	Average dissolved solids (mg/l)
Alachua County							
2. Hornsby Spring	1972-73	163	76- 250	2	22.5	73	230
Bay County							
1. Gainer Springs	1941-72	159	131- 185	7	22.0	72	60
Citrus County							
2. Chassahawitska Springs	1930-72	139	32- 197	81	23.5	74	740
3. Crystal River Springs	1954-73	878	(1)	(2)	25.0	75	144
4. Homosassa Springs	1932-72	192	125- 257	75	23.0	73	1,800
Columbia County							
3. Ichatucknee Springs *	1917-72	358	241- 578	359	22.5	73	170
Hernando County							
4. Weekiwachee Springs	1917-72	176	101- 275	354	23.5	74	150
Jackson County							
2. Blue Springs	1929-73	190	56- 287	10	21.0	70	116
Jefferson County							
1. Wacissa Springs Group	1971-73	374	255- 596	14	20.5	69	150
Lafayette County							
10. Troy Spring	1942-73	166	148- 205	4	22.0	72	171
Lake County							
1. Alexander Springs	1931-72	120	74- 162	13	23.5	74	512
Leon County							
2. Natural Bridge Spring	1942-73	106	79- 132	5	20.0	68	138
4. St. Marks Spring	1956-73	519	310- 950	130	20.5	69	154
Levy County							
2. Fannin Springs	1930-72	102	64- 137	7	22.0	72	194
3. Manatee Spring *	1932-73	181	110- 238	9	22.0	72	215
Madison County							
1. Blue Spring	1946-73	123	78- 145	5	21.0	70	146
Marion County							
3. Rainbow Springs	1898-1972	788	487-1,230	386	23.0	73	93
5. Silver Springs	1906-72	823	539-1,290	139	23.0	73	245
6. Silver Glen Springs	1931-72	112	90- 129	11	23.0	73	1,200
Suwannee County							
5. Falmouth Spring	1933-73	125	60- 159	3	21.0	70	218
Volusia County							
1. Blue Spring	1932-72	162	63- 214	352	23.0	73	826
Wakulla County							
3. Kini Spring	1972-73	176	—	1	21.0	70	105
6. River Sink Spring	1942-73	164	102- 215	6	21.0	70	105
7. Spring Creek Springs	1974	2,003	(1)	1	22.5	73	2,400
8. Wakulla Springs	1907-72	375	28-1,870	266	21.0	70	153

(1) - Tidal affected
(2) -Continuous record, vane gage

EXPLANATION

(On map and tables, springs and pseudo springs are numbered serially, by county.)

4● First magnitude spring; average flow greater than 100 cubic feet per second (ft^3/s), 64.6 million gallons per day (mgd).

1● Second magnitude spring; average flow between 10 and 100 cubic feet per second.

2● Third magnitude spring; spring flow less than 10 cubic feet per second, 6.46 million gallons per day.

1● Pseudo Spring, flow unknown.

** Florida State Park.