

## **NATURAL RESOURCES OF REGIONAL SIGNIFICANCE**

### **AN ASSESSMENT OF REGIONAL INDICATORS**

A need exists for new regional indicators, particularly indicators of groundwater and surfacewater quality and quantity, the health of listed species, and land cover within selected Natural Resources of Regional Significance. In some cases, specific regional indicators are proposed. In others, the review merely suggests the need for the development of indicators. Although currently addressed in the regional plan, additional emphasis should be given to systematic monitoring of groundwater and surfacewaters. Current monitoring efforts are often sporadic. While a core monitoring network is in place, consideration should be given to expanding the network to include all waterbodies identified as natural resources of regional significance. Just as importantly, consideration should be given to improving the frequency of monitoring in order to assure the provision of historical data for defensible trend analysis. In addition to water monitoring, the review recommends monitoring land cover within selected Natural Resources of Regional Significance to evaluate change over time.

Local government comprehensive plans are generally consistent with the regional plan with regards to identifying and protecting Natural Resources of Regional Significance. This conclusion is based on a staff assessment of local government comprehensive plan, plan amendment, and EAR reviews made by the Council since adoption of the regional plan. It is not based on a detailed compatibility study. Such a study is beyond the resources of the Council at this time.

A number of new natural resource protection policies are recommended to strengthen the relationship between the regional plan and Developments of Regional Impact (DRI), local government comprehensive plans, and applications reviewed by the Council for federal funding. Currently, the regional plan provides policy direction calling for the protection of some, but not all, Natural Resources of Regional Significance during Council review of local plans, DRIs, and federal funding applications. The EAR recommends expanding the plan's policy direction to address all Natural Resources of Regional Significance. While recommending additional protection policies, the EAR also emphasizes the need for local government discretion in establishing minimum levels of protection.

**REGIONAL GOAL 4.1. PRESERVE BIG BEND COASTAL AND MARINE  
RESOURCES IDENTIFIED AS NATURAL RESOURCES OF REGIONAL  
SIGNIFICANCE FOR FUTURE GENERATIONS OF RESIDENTS IN RECOGNITION  
OF THEIR ECONOMIC AND ECOLOGICAL IMPORTANCE TO THE REGION.**

**REGIONAL INDICATORS**

1. In 1996, the Big Bend Salt Marsh comprised 46,189 acres.

No new information is available regarding the areal extent of the Big Bend Salt Marsh.

2. In 1983, the Big Bend Seagrass Beds, extending to the jurisdictional limits of the State of Florida off Dixie and Taylor counties, were comprised of 1,781,670 acres of Dense Seagrass, 92,320 acres of Patchy Seagrass, and 208,980 acres of Sparse Seagrass.

In December, 1991, for that portion of the Big Bend Seagrass Beds extending four miles seaward of the Dixie and Taylor County coastline, were comprised of 37,775.6 acres of continuous seagrass, 95,342.9 acres of open water, 150.1 acres of mollusk/oyster reefs/beds, 28,447.0 acres which were not mapped, 28,446.1 acres of very sparse patchy seagrass, 2,348.2 acres of sparse patchy seagrass, 10,424.1 acres of moderate patchy seagrass, and 20,906.3 acres of dense patchy seagrass.<sup>1</sup>

3. In 1996, the Florida Middle Ground comprised 132,000 acres.

No new information is available regarding the areal extent of the Florida Middle Ground.

In order to implement the regional goal, accurate information, compiled on a regular basis, on the health and areal extent of coastal natural resources of regional significance is necessary for trend analysis. As can be seen, updated information is either unavailable for these regional indicators or is incompatible with older information due to differing methodologies used in its creation. No new information is available on the extent of either the Florida Middle Ground or the Big Bend Salt Marsh. The Suwannee River Water Management District is in the process of purchasing satellite imagery which may be used at a future date to provide an updated acreage estimate for the salt marsh. No new information is available regarding the health or extent of the Florida Middle Ground. The Florida Marine Research Institute has a new map of the Big Bend Seagrass Beds. Unfortunately, the new map uses a different seagrass classification system than their previous study, which served as the information source for Regional Indicator 4.1.2. The differing classification systems and methodologies of the two studies do not allow for meaningful trend analysis. Furthermore, the new seagrass map is limited to an area extending no farther than four miles seaward of Dixie and Taylor counties (The seagrass beds extend up to 35 miles seaward of the coastline). Therefore, it is recommended that a policy be added to this regional goal which calls for

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<sup>1</sup>Florida Marine Research Institute, January, 2000.

the regular monitoring of the areal extent and the health of the Big Bend Seagrass Beds and the Florida Middle Ground. Possible wording of the policy follows:

**Policy 4.1.10. Monitor the Big Bend Salt Marsh, the Big Bend Seagrass Beds, and the Florida Middle Ground on a regular basis using a consistent methodology which provides meaningful trend analysis of their health and areal extent.**

The Florida Department of Environmental Protection (FDEP) 305(b) Water-Quality Assessment Report provides water quality data for rivers which flow directly into the Gulf of Mexico from Dixie and Taylor counties. While the report's water quality data does not identify degrading influences from sources outside the region or from the Gulf, they are important indicators of the quality of Gulf coastal waters. It is recommended that water quality data from the 305(b) report for coastal rivers and watersheds be included as regional indicators for this regional goal.

At the time of adoption of the regional plan, the Fenholloway River, a Natural Resource of Regional Significance, was the only Class V (industrial) river in the state.<sup>2</sup> The state reclassified the river in the 1940s to secure the development of a paper mill in the City of Perry. The Fenholloway was reclassified by FDEP to Class III status on December 31, 1997.

As a result of the river's reclassification, it must now meet the minimum FDEP Class III water quality standards. The paper mill has discharged its effluent into the Fenholloway River for many years and is the primary source of the river's pollution, consisting primarily of ammonia, chlorine, and dioxins, cancer-causing agents which can persist in the environment for generations. A No-fish-consumption advisory has been in effect since September, 1990, for the Fenholloway due to elevated dioxin levels found in the river's fish.<sup>3</sup> The paper mill is currently permitted to discharge up to 50 million gallons per day of effluent into the Fenholloway River. The advisory is an important indicator of the health of the Fenholloway and its estuary. Therefore, it is recommended that the following regional indicator be added:

**Regional Indicator 4.1.4. As of January, 2000, a Florida Department of Health No-Fish-Consumption Advisory is in effect for the Fenholloway River due to elevated dioxin levels in the river's fish.**

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<sup>2</sup>All surfacewaters within the region are designated as Class III waters except most tidal creeks and coastal waters, which are designated as Class II. Class III provides for recreation and propagation and management of fish and wildlife; Class II, for shellfish propagation or harvesting.

<sup>3</sup>Florida Department of Health, Bureau of Environmental Toxicology, February, 2000.

In order to meet Class III water quality standards, the paper mill has proposed eliminating the discharge of effluent to the Fenholloway by piping it directly to the Gulf of Mexico at the Fenholloway River estuary, reducing the amount of chlorine in its waste, and restoring the river's headwater wetlands. In May of 1995, the U.S. Environmental Protection Agency (EPA) and FDEP granted authorization allowing FDEP to issue an National Pollution Discharge Elimination Source (NPDES) permit for the project while continuing requirements for EPA oversight. Through the oversight process, EPA, in 1997, objected to the draft NPDES permit proposal citing concerns that the effluent wouldn't meet water quality standards near the Gulf. The issuance of an NPDES permit for the pipeline is on hold while technical experts assess whether alternative methods for cleaning up the plant's effluents are feasible. While not a direct measure of water quality, the number of NPDES permits is an indicator of the number of point-pollution sources which have the potential to adversely affect the health of coastal waters. Therefore, it is recommended that the following regional indicator be added:

Regional Indicator 4.1.5. As of January, 2000, there were four NPDES discharge permits within the Econfina-Fenholloway River watershed.

Regional Policy 4.1.9 calls for the establishment of a secondary wastewater treatment plant in the unincorporated community of Suwannee. A secondary wastewater treatment plant to serve the community was constructed and became operational in 1998. The plant uses an 81-acre sprayfield for effluent disposal located on the outskirts of the community. Every residence and business in the unincorporated community was taken off septic tanks and placed on the new sewer system. As a result of the construction of the plant, the FDEP reopened the Suwannee River Estuary to shellfish harvesting (shellfish harvesting had been closed since 1991). Given the successful implementation of this policy, it is recommended that it be replaced with a new policy calling for future residences, as well as other activities generating wastewater within the plant's service area, to hook up to the plant. Possible wording of the new policy is as follows:

**Policy 4.1.9.** ~~Establish a secondary wastewater treatment plant to service the unincorporated Dixie County community of Suwannee.~~ Future development located within the service area of the unincorporated Town of Suwannee's wastewater treatment plant should hook up to the plant.

The City of Fanning Springs and the unincorporated community of Old Town are located adjacent to, and separated by, the Suwannee River. both communities are located approximately 30 miles upstream of the estuary. Unlike the community of Suwannee, neither Fanning Springs nor Old Town have centralized wastewater service. Given their distance from the estuary, it is unclear what impacts the wastewaters generated by these communities have on the estuary and the Gulf. Nevertheless, a 1998 study commissioned by the Suwannee River Water Management District which surveyed the needs of north central Florida communities for water, wastewater, and

stormwater services identified a need for centralized wastewater service in these two communities.<sup>4</sup> The two communities are currently working to develop a jointly owned and operated centralized wastewater system. As an indicator of the health of riverine waters affecting the estuary and the Gulf, it is recommended that the following regional indicator be added to Regional Goal 4.1:

Regional Indicator 4.1.6. As of January, 2000, Fanning Springs and the unincorporated community of Old Town were not serviced by a centralized wastewater treatment system.

Shortly after the adoption of the regional plan, the Council reviewed and commented on the U.S. Department of Interior's new Outer Continental Shelf 5-Year Oil and Gas Leasing Program for the period July, 1997, through June, 2002. The proposed leasing program identified five possible options for the eastern Gulf of Mexico, none of which proposed the leasing of areas within 100 miles of the Dixie and Taylor counties coastline or within the Florida Middle Ground. As of January, 2000, no off-shore oil or gas wells were located within 100 miles of the Dixie-Taylor counties coast or the Florida Middle Ground. It is unlikely that oil or gas wells will be drilled off the region's coastline beyond 2002 since earlier exploratory wells failed to yield commercially-viable quantities of oil. Nevertheless, given the possibility, admittedly low, of future oil and gas drilling off the region's coast and the Florida Middle Ground, it is recommended that two new regional indicators be added which identify the number of oil and gas wells located within these areas. Possible wording of the new regional indicators are as follows:

Regional Indicator 4.1.7. As of January, 2000, no offshore oil or natural gas wells are located within 100 miles of the Dixie and Taylor counties coastline.

Regional Indicator 4.1.8. As of January, 2000, no offshore oil or natural gas wells are located within the Florida Middle Ground.

**REGIONAL GOAL 4.2. MAINTAIN AN ADEQUATE SUPPLY OF HIGH-QUALITY GROUNDWATER TO MEET THE NEEDS OF NORTH CENTRAL FLORIDA RESIDENTS, IN RECOGNITION OF ITS IMPORTANCE TO THE CONTINUED GROWTH AND DEVELOPMENT OF THE REGION.**

**REGIONAL INDICATORS**

1. In 1996, the quantity of potable water contained in the Floridan aquifer underlying the north central Florida region, its average daily recharge and discharge, were unknown. As of January, 2000, the quantity of potable water contained in the Floridan aquifer underlying the north central Florida region, its average daily recharge and discharge, were unknown.

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<sup>4</sup>Suwannee River Water Management District Quality Communities Needs Report, Suwannee River Water Management District, Live Oak, Florida. June, 1998.

2. In 1990, 242.1 million gallons per day (mgd) of water were withdrawn from north central Florida groundwater sources.

In 1995, an estimated 205.7 mgd of water were withdrawn from north central Florida groundwater sources.

As can be seen by the list of regional indicators, the regional plan currently contains no indicators of groundwater quality. It is recommended that the Council seek the input of the Suwannee River Water Management District in identifying groundwater quality indicators for this goal as the District has recently been involved in developing a number of performance measures for its plans and programs and regularly monitors groundwater quality.

While the amount of water flowing through the Floridan aquifer is still unknown, the July 15, 1999, draft Water Management Plan for the Suwannee River Water Management District projects a 20 percent increase in total water use within its district by the year 2020.<sup>5</sup> The draft plan notes that significant regional hydrogeological impacts as a result of water withdrawals are not expected due largely to the relatively low absolute increase in overall water use. The draft plan concludes that the Floridan aquifer system is considered adequate for existing and future water needs within the District.

Tables IV-1 and IV-2, below, report change in north central Florida estimated water withdrawal by withdrawal type. The tables report a 9.0 percent decline in total estimated north central Florida water withdrawal between 1990 and 1995 (the latest available data). Statewide, despite significant population growth during this period, estimated statewide total withdrawals increased by only 1.6 percent during this period. Regional withdrawals for residential use decreased by 10.0 percent while institutional and commercial withdrawals increased by 37.7 percent. Statewide, estimated residential withdrawals were flat, increasing by 0.9 percent, while institutional and commercial withdrawals increased by 36.8 percent during this period.

It is difficult to reconcile the decline in estimated water withdrawal with the region's estimated 9.3 percent population increase during this period.<sup>6</sup> The consumption numbers may reflect inherent limitations in the way water withdrawal estimates are reported. Industrial and utility consumption can vary widely, depending on market forces. Agricultural withdrawals can vary widely from year to year, depending on rainfall and annual variations in types of crops.

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<sup>5</sup>Water Management Plan 2000 , Review Draft, Suwannee River Water Management District, July 15, 1999, Live Oak, Florida, page 35. Note: The District includes all north central Florida counties with the exception of southeastern Alachua County. The District also includes Jefferson and Levy counties.

<sup>6</sup>1996 Florida Statistical Abstract, Bureau of Economic and Business Research, University of Florida, Gainesville, Florida, 1997, Table 1.67.

**TABLE IV-1****CHANGE IN ESTIMATED WATER CONSUMPTION, 1990-1995  
(millions of gallons per day)**

Area	Total Withdrawal	Withdrawal Source		Withdrawal Type					
		Ground Water	Surface Water	Residen tial Domestic	Institutional Commercial	Industrial	Utility	Other	Remainder
Alachua	(4.2)	(4.6)	0.4	(1.4)	2.5	(1.0)	0.9	0.1	(5.3)
Bradford	(1.6)	(9.0)	0.0	(0.9)	(0.4)	(0.2)	(0.2)	(0.1)	6.1
Columbia	4.8	(10.6)	0.0	0.1	0.4	(0.8)	0.2	0.0	4.8
Dixie	(2.5)	(2.5)	0.0	(0.1)	0.0	0.0	0.1	0.0	(2.4)
Gilchrist	(1.7)	(1.8)	0.1	(0.1)	0.0	0.0	0.0	0.0	(1.7)
Hamilton	(4.4)	(4.4)	0.0	(0.2)	0.0	0.0	0.1	0.0	(4.3)
Lafayette	(2.2)	(2.0)	(0.2)	0.0	0.0	(0.1)	0.0	0.0	(2.2)
Madison	1.8	1.6	0.2	0.2	0.0	(0.2)	0.1	0.0	1.7
Suwannee	0.7	(3.2)	3.9	0.0	0.1	(0.1)	0.1	0.0	0.7
Taylor	2.4	1.7	0.7	0.3	0.2	(0.1)	0.2	0.0	1.9
Union	(2.4)	(1.8)	(0.6)	0.0	(0.2)	0.0	0.0	0.0	(2.1)
Region	(31.8)	(36.4)	4.6	(2.1)	2.6	(2.4)	1.4	0.1	(31.4)
Florida	282.7	(373.8)	656.5	11.5	103.7	(79.4)	112.0	(7.7)	142.6

Source: 1994 & 1998 Florida Statistical Abstract, Tables 8.41 & 8.42.

**TABLE IV-2**

**PERCENTAGE CHANGE IN ESTIMATED WATER CONSUMPTION, 1990-1995**

Area	Total Withdrawal	Withdrawal Source		Withdrawal Type					
		Ground Water	Surface Water	Residential Domestic	Institutional Commercial	Industrial	Utility	Other	Remainder
Alachua	(7.9)	(8.7)	108.3	(9.7)	60.7	(58.9)	40.4	63.6	(18.0)
Bradford <sup>1</sup>	(17.3)	(99.9)	0.0	(57.1)	(52.4)	(76.0)	(52.6)	(91.7)	15,225.0
Columbia	41.9	(94.7)	0.0	8.6	67.7	(83.9)	72.7	0.0	57.2
Dixie	(41.9)	(41.9)	0.0	(19.2)	50.0	0.0	125.0	0.0	(46.8)
Gilchrist	(15.4)	(16.3)	0.0	(41.2)	100.0	0.0	50.0	0.0	(15.3)
Hamilton	(8.7)	(8.7)	0.0	(25.8)	13.6	(33.3)	71.4	0.0	(8.7)
Lafayette	(22.7)	(21.9)	(37.0)	42.9	33.3	(71.4)	100.0	0.0	(23.2)
Madison	24.4	22.1	0.0	39.1	7.7	(28.3)	90.9	0.0	27.7
Suwannee	0.5	(9.9)	3.6	(4.8)	28.6	(53.3)	90.0	0.0	0.5
Taylor	4.8	3.5	54.7	41.1	68.2	(30.6)	136.4	0.0	3.9
Union	(46.5)	(41.2)	0.0	(4.8)	(70.0)	(42.9)	0.0	0.0	(47.5)
Region	(9.0)	(15.1)	4.1	(10.0)	37.7	(57.5)	39.6	31.4	(9.8)
Florida	1.6	(7.9)	5.0	0.9	36.8	(43.5)	64.8	(19.9)	0.9

<sup>1</sup>Although the Bradford County Remainder category percentage increase is unusually large, it is nevertheless mathematically correct.

Source: 1994 & 1998 Florida Statistical Abstract, Tables 8.41 & 8.42.

While Tables IV-1 and IV-2 address groundwater demand, neither the tables nor the existing regional indicators address groundwater quantity. One possible indicator which may be useful as a proxy for groundwater quantity are the discharge rates of the region's first magnitude springs. Since springs primarily derive their flows from the Floridan aquifer, a decline in spring discharge rates would suggest a decline in groundwater quantity. Spring flows can be difficult to interpret as they fluctuate over time. Therefore, it is recommended that a broader measure be used, the number of north central Florida first, second, and third magnitude springs. The spring classification system is based on volume of water discharged. Changes in spring classification are determined by the water management districts and by FDEP based on their interpretation of changes in spring flow over time. The water management districts and FDEP are expert in interpreting spring flow changes. Therefore, it is recommended that the following regional indicator be added to this regional goal:

Regional Indicator 4.2.4. As of January, 2000, north central Florida contained 19 first magnitude springs, 101 second magnitude springs, and 70 third magnitude springs.

The springs can also provide a useful measure of groundwater quality. It is recommended that a regional indicator be added to this regional goal which measures the nitrate nitrogen value of all first magnitude springs. Nitrate nitrogen is recommended as it is a human-induced pollutant. High concentrations of nitrates may create an imbalance in a natural surfacewater system, causing algal blooms or other adverse effects. Nitrate nitrogen concentrations in excess of the state drinking water standard of 10 mg per liter of water can result in Methemoglobinemia (blue baby syndrome) in infants. The proposed regional indicator would likely take the form of a table similar to the following:

**TABLE IV-3****WATER QUALITY OF FIRST MAGNITUDE SPRINGS OF NORTH CENTRAL FLORIDA**

<b>Spring Name</b>	<b>County</b>	<b>Nitrate Nitrogen (Milligrams per Liter)</b>	<b>Date of Measure</b>
ALA 112971	Alachua	0.80	5/26/98
Alapaha Rise	Hamilton	0.24	9/25/97
Blue	Lafayette	1.87	7/16/97
Blue Hole	Columbia	0.04	6/17/98
Blue Spring	Madison	1.72	6/15/98
COL61981	Columbia	0.45	6/1/98
Columbia	Columbia	0.76	5/26/98
Devil's Ear	Gilchrist	1.47	11/4/97
Falmouth Spring	Suwannee	0.78	6/17/98
GIL1012973	Gilchrist	1.38	10/12/97
Holton Spring	Hamilton	0.40	9/25/97
Hornsby Spring	Alachua	1.07	4/27/98
Ichetucknee Group	Columbia	n/a	n/a
July	Columbia	1.55	11/4/97
Lime Run Sink	Suwannee	0.70	5/14/98
Nutall Rise	Taylor	0.08	7/6/99
Santa Fe Rise	Columbia	0.78	5/26/98
Steinhatchee Rise	Taylor	0.03	7/6/99
Troy Spring	Lafayette	2.68	7/7/99

<sup>n</sup>/a = not available.

Source: Springs of the Suwannee River Basin in Florida and Springs of the Aucilla, Coastal, and Waccasassa Basins in Florida, Suwannee River Water Management District, Live Oak, Florida. February, 2000.

The regional plan currently identifies 50 springs as Natural Resources of Regional Significance. The springs were derived from Springs of Florida, which was published in 1977 by the Florida Bureau of Geology. According to the recently published Suwannee River Water Management District publications entitled, Springs of the Suwannee River Basin in Florida and Springs of the Aucilla, Coastal, and Waccasassa Basins in Florida, nine are classified as first magnitude springs, 32 are second magnitude springs, and eight are third magnitude.<sup>7</sup>

When first selected as Natural Resources of Regional Significance, the regional plan included all first magnitude springs as Natural Resources of Regional Significance based on the worldwide rarity of such springs. The plan also included all second magnitude springs associated with rivers identified in the plan as Natural Resources of Regional Significance. Finally, the plan included a number of third magnitude springs which were either found in association with a first or second magnitude springs proposed for inclusion in the plan or had some other unique feature, such as an extensive cave system, which warranted classification as a Natural Resource of Regional Significance. The water management district’s publications identify an additional 66 first and second magnitude springs which, based upon the above criteria, qualify for classification as Natural Resources of Regional Significance. These springs are listed in Table IV-4, below.

**TABLE IV-4**

**NORTH CENTRAL FLORIDA FIRST AND SECOND MAGNITUDE SPRINGS NOT CURRENTLY LISTED AS NATURAL RESOURCES OF REGIONAL SIGNIFICANCE**

<b>County</b>	<b>Spring Name</b>	<b>SRWMD Map #</b>	<b>Magnitude</b>	<b>River Association</b>
Alachua	ALA112971	9	1	Santa Fe
Alachua	ALA930971	17	2	Santa Fe
Alachua	ALA930972	18	2	Santa Fe
Alachua	Darby	26	2	Santa Fe
Columbia	Blue Hole	2	1	Ichetucknee
Columbia	Cedar Head	6	2	Ichetucknee
Columbia	COL1012971	20	2	Santa Fe
Columbia	COL101974	22	2	Santa Fe
Columbia	COL61981	11	1	Santa Fe
Columbia	COL928972	24	2	Santa Fe
Columbia	COL930971	25	2	Santa Fe
Columbia	Grassy Hole	7	2	Ichetucknee
Columbia	Mill Pond	5	2	Ichetucknee
Columbia	Mission	3	2	Ichetucknee

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<sup>7</sup> First magnitude springs discharge at least 100 cubic feet per second (CFS). Second magnitude springs discharge between 10 to 100 CFS. Third magnitude springs discharge between 1 to 10 CFS. Fourth magnitude springs discharge less than one CFS. Monitoring changes in spring classification should provide a reasonable proxy measure for the quantity of the Floridan aquifer.

<b>County</b>	<b>Spring Name</b>	<b>SRWMD Map #</b>	<b>Magnitude</b>	<b>River Association</b>
Columbia	Rum Island	38	2	Santa Fe
Columbia	Santa Fe Rise	16	1	Santa Fe
Columbia	Sunbeam	39	2	Santa Fe
Columbia	Wilson	41	2	Santa Fe
Dixie	DIX625993	25	2	Steinhatchee
Dixie	Pothole	106	2	Suwannee
Dixie	Rock Sink	108	2	Suwannee
Gilchrist	Devil's Ear	12	1	Santa Fe
Gilchrist	Dogwood	27	2	Santa Fe
Gilchrist	GIL1012971	29	2	Santa Fe
Gilchrist	GIL1012973	13	1	Santa Fe
Gilchrist	GIL1012974	30	2	Santa Fe
Gilchrist	GIL107971	31	2	Santa Fe
Gilchrist	GIL107972	32	2	Santa Fe
Gilchrist	GIL729971	33	2	Santa Fe
Gilchrist	GIL84971	87	2	Suwannee
Gilchrist	GIL84972	88	2	Suwannee
Gilchrist	Pickard	36	2	Santa Fe
Gilchrist	Twin	40	2	Santa Fe
Hamilton	HAM1023971	91	2	Suwannee
Hamilton	HAM1023974	90	2	Suwannee
Hamilton	HAM610981	185	2	Withlacoochee
Hamilton	HAM610982	186	2	Withlacoochee
Hamilton	HAM610983	187	2	Withlacoochee
Hamilton	HAM610984	188	2	Withlacoochee
Hamilton	HAM612981	189	2	Withlacoochee
Hamilton	Pot	196	2	Withlacoochee
Lafayette	LAF718971	93	2	Suwannee
Lafayette	LAF718972	94	2	Suwannee
Lafayette	LAF924971	96	2	Suwannee
Lafayette	LAF929973	97	2	Suwannee
Lafayette	Perry	105	2	Suwannee
Madison	MAD610981	191	2	Withlacoochee
Madison	MAD610982	192	2	Withlacoochee
Madison	MAD612981	193	2	Withlacoochee
Madison	MAD612982	194	2	Withlacoochee
Madison	MAD922977	95	2	Suwannee
Suwannee	Bathtub	82	2	Suwannee
Suwannee	Blue Sink	81	2	Suwannee
Suwannee	Bonnet	79	2	Suwannee
Suwannee	Lime	99	2	Suwannee
Suwannee	Lime Rock Sink	74	1	Suwannee

County	Spring Name	SRWMD Map #	Magnitude	River Association
Suwannee	Orange Grove	102	2	Suwannee
Suwannee	Shingle	112	2	Suwannee
Suwannee	SUW1017972	115	2	Suwannee
Suwannee	SUW107971	59	2	Santa Fe
Suwannee	SUW923973	116	2	Suwannee
Suwannee	SUW925971	117	2	Suwannee
Taylor	Nutall Rise	1	1	Aucilla
Taylor	TAY625992	33	2	Steinhatchee
Taylor	TAY6992	32	2	Steinhatchee
Taylor	TAY730991	15	2	Econfina

Source: Springs of the Suwannee River Basin in Florida and Springs of the Aucilla, Coastal, and Waccasassa Basins in Florida, Suwannee River Water Management District, Live Oak, Florida. February, 2000.

The District's recent spring survey notes that Lumbercamp Spring has not flowed since the adoption of the regional plan in 1996. Dynamiting activity near the spring is thought to have closed the vent hole. Therefore, it is recommended that this spring be removed from the plan's list of Natural Resources of Regional Significance.

It is recommended that all first and second magnitude springs listed in Table IV-4, above, be identified and mapped in the regional plan as Natural Resources of Regional Significance. Finally, it is recommended that the following springs currently identified as Natural Resources of Regional Significance be deleted as they do not appear to meet the selection criteria noted above: Lumbercamp Spring (no longer flows), Sun Spring, Jamison Spring, Little Copper Spring, Northbank Spring, and Waldo Spring. Fletcher Spring is mislabeled and should be renamed Turtle Spring. Pleasant Grove Spring is similarly mislabeled and should be renamed Trail Spring.

Finally, a review of the water quality and quantity data included in the District's recent springs survey reveals that monitoring is performed on an irregular basis. In order to develop defensible and reliable data for trend analysis, water quality and quantity monitoring of the region's springs should occur on a regular basis at consistent intervals. It is therefore recommended that Policy 4.2.2 be revised to emphasize improved monitoring of the region's springs. Possible wording for the amended policy is as follows:

**Policy 4.2.2.** Continue to develop information on the ground water resources of the region. Water management districts should monitor at regular intervals spring water quality and flows of springs identified as Natural Resources of Regional Significance.

**REGIONAL GOAL 4.3. PROTECT ALL SOURCES OF RECHARGE TO THE FLORIDAN AQUIFER FROM ALL ACTIVITIES WHICH WOULD IMPAIR THESE FUNCTIONS OR CAUSE A DEGRADATION IN THE QUALITY OF THE WATER BEING RECHARGED IN RECOGNITION OF THE IMPORTANCE OF MAINTAINING ADEQUATE SUPPLIES OF HIGH-QUALITY GROUNDWATER FOR THE REGION.**

**REGIONAL INDICATORS**

1. In 1996, Areas of High Recharge Potential to the Floridan aquifer identified as a Natural Resource of Regional Significance in the North Central Florida Strategic Regional Policy Plan comprised 1,066,051 acres.

As of January, 2000, the St. Johns River and Suwannee River Water Management Districts had identified and mapped 1,141,028 acres of areas of high recharge potential to the Floridan aquifer within north central Florida.

2. In fiscal year 1993-94, there were 167,135 visitors to Ichetucknee Springs State Park.

In fiscal year 1995-96, there were 189,025 visitors to Ichetucknee Springs State Park. In fiscal year 1996-97, there were 170,890 visitors.<sup>8</sup>

4. In 1996, 209,056 acres of stream-to-sink recharge areas were designated as Natural Resources of Regional Significance in the North Central Florida Strategic Regional Policy Plan.

As of January, 2000, the Suwannee River Water Management District had identified and mapped 158,585 acres of stream-to-sink watersheds located within both its jurisdictional boundaries and within north central Florida.

5. In 1996, five sinks were designated as Natural Resources of Regional Significance in the North Central Florida Strategic Regional Policy Plan.

In 1997, dye tracing studies conducted by FDEP found a direct connection between waters entering Clay Hole, Rose, and Saylor Sinks in Columbia County with the Floridan aquifer and the outflows from Ichetucknee Springs. In 1999, FDEP allocated funds for the purchase of the sinks and the lands surrounding them through the CARL program. Therefore, it is recommended that these sinks be included in the regional plan as Natural Resources of Regional Significance.

The regional plan incorporates maps of high aquifer recharge areas and stream-to-sink watersheds prepared by the water management districts. The District maps are subject to change as they

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<sup>8</sup>1998 Florida Statistical Abstract, Table 19.52.

receive updated information or are otherwise better able to define these areas. As indicated by the regional measures, the districts have identified additional stream-to-sink watershed acreage and additional areas of high aquifer recharge potential to the Floridan aquifer. Therefore, it is recommended that the regional plan maps of high aquifer recharge areas and stream-to-sink recharge areas be updated to reflect the latest areas so identified by the water management districts. Additionally, since the Districts refer to stream-to-sink recharge areas as stream-to-sink watersheds, it is recommended that the regional plan adopt the water management districts' nomenclature in describing such areas in the regional plan.

The regional plan's areas of high aquifer recharge potential map is based on areas identified as having high aquifer recharge potential by the Suwannee River Water Management District and areas identified as contributing 12 inches or more of recharge annually within the St. Johns River Water Management District. For sake of clarity, the regional plan should be amended to clearly state which categories of the respective district's recharge map is considered to represent areas of high aquifer recharge on the regional plan's high aquifer recharge map.

#### **REGIONAL GOAL 4.4. PROTECT ALL LISTED SPECIES LOCATED IN NORTH CENTRAL FLORIDA.**

##### **REGIONAL INDICATORS**

1. As of January, 1997, the Florida Natural Areas Inventory Element Occurrence Database contains 539 locations within the region of sightings of listed plant and animal species.

As of February, 2000, the Florida Natural Areas Inventory Element Occurrence Database contains 769 locations within the region of sightings of listed plant and animal species.

2. As of January, 1997, 52 listed species exist in north central Florida.

As of February, 2000, 78 listed species exist in north central Florida.

Since January, 1997, an additional 26 listed species have been identified in north central Florida. It is recommended that regional plan Table IV-4, State and Federally Listed Species Known to Occur in the North Central Florida Region Identified in the FNAI Element Occurrence Database, be updated to reflect the additional species. It is also recommended that Appendix D of the regional plan be updated to identify the additional species and to provide a description of their habitats.

As pointed out in discussions between Council staff and the staff of the Florida Natural Areas Inventory (FNAI), good regional indicators for this regional goal are elusive. The number of species sightings listed in the FNAI Element Occurrence Database is less than an ideal indicator. FNAI does not monitor species observation locations. Many of the older sighting records may no longer be valid. Additionally, the federal and state governments regularly add and remove species from

their lists of threatened and endangered species. Finally, the number of occurrences in the FNAI database says nothing about the quantity or quality of the supporting habitats essential to their long-term survival.

The Council staff should continue consulting with the water management districts, the Florida Fish and Wildlife Conservation Commission, FNAI, and other organizations to develop more appropriate indicators for this regional goal.

**REGIONAL GOAL 4.5. PROTECT NATURAL RESOURCES OF REGIONAL SIGNIFICANCE IDENTIFIED IN THIS PLAN AS “PLANNING AND RESOURCE MANAGEMENT AREAS.”**

**REGIONAL INDICATORS**

1. In 1996, north central Florida contained 3,993 acres of private conservation lands recognized as Natural Resources of Regional Significance in the North Central Florida Strategic Regional Policy Plan.

As of January, 2000, north central Florida contained approximately 10,300 acres of private conservation lands

2. In 1996, north central Florida contained 119,442 acres of federally-owned conservation lands.

As of January, 2000, north central Florida contained approximately 125,834 acres of federally-owned conservation lands.

3. In 1996, north central Florida contained 120,405 acres of state-owned conservation lands.

As of January, 2000, north central Florida contained 130,052 acres of state-owned conservation and recreation lands.

4. In 1996, north central Florida contained 68,085 acres of water management district-owned conservation lands.

As of January, 2000, the north central Florida contained approximately 124,644 acres of water management District-owned conservation lands (including less than fee simple ownership).

5. In 1996, 18 north central Florida waterbodies were identified as SWIM waterbodies.

As of January, 1, 2000, north central Florida has 18 waterbodies identified as SWIM waterbodies.

Since the adoption of the regional plan in 1996, additional conservation lands have been acquired in the region. Acquisitions have been made by all levels of government as well as by the private sector. In total, conservation lands (including state parks) increased from 312,000 acres in 1996 to 391,000 acres, or by 25.3 percent, by January, 2000. Federal government landholdings increased by 5.4 percent, state lands by 8.0 percent, and water management district lands by 83.1 percent. Privately-owned conservation lands increased 158.0 percent during this period.

The Suwannee River Water Management District has continued to acquire lands within the 100-year floodplain of the Suwannee River system. During the last five years, the District has emphasized the purchase of conservation easements in order to keep private lands in their current use, and to assure that such lands will not be developed as residential subdivisions, commercial operations, or industrial uses. In 1999, the District purchased a 29,500-acre conservation easement located in a portion of Lafayette County's Mallory Swamp. Also, in 1999 a joint effort involving the St. Johns and the Suwannee River Water Management Districts resulted in the purchase of approximately 7,920-acre wellfield and wellfield protection area for Gainesville Regional Utilities. Finally, in 1996, the St. Johns River Water Management District purchased a 31,352-acre conservation easement from the Georgia-Pacific Corporation for the protection of Lochloosa Forest, a (mostly) privately-held Natural Resource of Regional Significance located in southeastern Alachua County.

A large privately-owned conservation area has also been created in a portion of Mallory Swamp. In 1996, a private party purchased approximately 9,400 acres of Mallory Swamp for a habitat restoration project. The owner is also restoring natural surfacewater flows. The property contains a significant ditch/canal system which was originally installed to promote tree farming.

It is recommended that the regional indicators for Regional Goal 4.5 be updated to reflect the January, 2000, conservation acreage numbers. It is also recommended that the Natural Resources of Regional Significance map be revised to reflect the conservation land holdings added to the region since 1996.

**REGIONAL GOAL 4.6. MAINTAIN THE QUANTITY AND QUALITY OF THE  
REGION'S SURFACEWATER SYSTEMS IN RECOGNITION OF THEIR  
IMPORTANCE TO THE CONTINUED GROWTH AND DEVELOPMENT OF THE  
REGION.**

**REGIONAL INDICATORS**

1. In 1996, 1,103,391 acres of fresh water wetland were identified as a Natural Resource of Regional Significance in the North Central Florida Strategic Regional Policy Plan.

As of January, 2000, the water management districts had identified 1,109,868 acres of fresh water wetlands within the region.

2. In 1996, 10 north central Florida lakes were identified as Natural Resources of Regional Significance in the North Central Florida Strategic Regional Policy Plan.

In January, 2000, north central Florida had ten lakes greater than 1,000 acres in size, all of which are identified as Natural Resources of Regional Significance. Four other lakes (Hampton, Rowell, Cosby, and Altho) are recognized and mapped as Natural Resources of Regional Significance due to their designation as SWIM water bodies.

One lake which could be considered for inclusion as a Natural Resource of Regional Significance is Watermelon Pond. The pond comprises approximately 600 acres adjacent to Levy County in southwestern Alachua County. The pond is on FDEPs Conservation and Recreational Lands (CARL) list, ranking 14 out of 32. The 1999 CARL report identifies Phase I of the Watermelon Pond site as consisting of 16,600 acres of land. In 1997, FDEP purchased approximately 4,800 of the 16,600 acres. Approximately 1,200 acres of the acquisition are within Alachua County with the remaining acreage located in Levy County. It is recommended that Watermelon Pond be included as a lake Natural Resource of Regional Significance.

3. In 1996, 11 river corridors were designated as Natural Resources of Regional Significance in the North Central Florida Strategic Regional Policy Plan.

As of January, 2000, two watercourses which serve as borders between north central Florida local governments were not designated as Natural Resources of Regional Significance. One criteria for the identification of regionally significant rivers in the regional plan was whether more than one local government had jurisdiction of the waterbody or lands adjacent to the waterbody. Both the New River and Olustee Creek serve as county boundaries. Both of these waterbodies were omitted from the regional plan due to their small flows. Nevertheless, both watercourses are currently classified as Natural Resources of Regional Significance due to their status as SWIM water bodies. The Council may wish to consider adding the corridors of these two watercourses to its list and map of river corridor Natural Resources of Regional Significance.

4. In 1996, 210,290 acres of river corridor were designated as Natural Resources of Regional Significance in the North Central Florida Strategic Regional Policy Plan.

The river corridors of the Aucilla, Econfina, and Steinhatchee rivers consists of a 1/4-mile buffer extending outward from the centerline of the stream channel. Since the adoption of the regional plan in 1996, the Suwannee River Water Management District has digitized the 100-year floodplain of the Aucilla River. It is recommended that the 1/4-mile buffer used to define the Aucilla River Corridor in the regional plan be replaced with its 100-year floodplain.

5. In 1996, 50 springs were designated as Natural Resources of Regional Significance in the North Central Florida Strategic Regional Policy Plan.

As of January, 2000, 66 first and second magnitude springs are located within the region which are eligible for listing as Natural Resources of Regional Significance.

The current regional indicators do not address the quality of surfacewaters identified as Natural Resources of Regional Significance. It is therefore recommended that they be replaced with indicators of water quality from the Florida Department of Environmental Protection 305(b) Water Quality Report or from the Florida Department of Environmental Protection 303(d) Impaired Waters list. Furthermore, it is recommended that a new policy be added to Regional Goal 4.6 calling for the regular monitoring of surfacewater quality and quantity. Possible wording for the new policy is as follows:

**Policy 4.6.16. Water management districts should monitor at regular intervals the quality and quantity of surfacewaters identified as Natural Resources of Regional Significance.**

The Florida Fish and Wildlife Conservation Commission regularly tests the state's fresh water fish for pesticides, mercury, and other toxins. The Commission has three levels of advisory: Unrestricted Consumption; Limited Consumption; and No Consumption. A Limited Consumption advisory indicates that adults should limit their consumption to ½ lb. of fish per week from identified water bodies. The advisory also notes that nursing or pregnant women and children should limit consumption to ½ lb. of fish per month. As of January, 2000, north central Florida Natural Resources of Regional Significance classified for unrestricted consumption are Lake Lochloosa, Newnans Lake, Lake Sampson, Orange Lake, and the Aucilla River. Natural Resources of Regional Significance on a Limited Consumption Advisory include Alligator Lake, the Santa Fe River, the Suwannee River, the Alapaha River, and the Withlacoochee River. No Natural Resources of Regional Significance are under a No Consumption advisory. The region's advisories are in effect due to elevated levels of Mercury found in large-mouth bass, Bowfin, and Gar. It is recommended that the following regional indicators be added to this regional goal:

**Regional Indicator 4.6.6. In January, 2000, five north central Florida Natural Resources of Regional Significance were under an Unrestricted Consumption advisory for Large-mouth bass, Bowfin, and Gar.**

**Regional indicator 4.6.7. In January, 2000, five north central Florida Natural Resources of Regional Significance were under a Limited Consumption advisory for Large-mouth bass, Bowfin, and Gar.**

**Regional indicator 4.6.8. In January, 2000, no north central Florida Natural Resources of Regional Significance were under a No Consumption advisory for Large-mouth bass, Bowfin, and Gar.**

Required by the federal Clean Water Act (CWA), the 305(b) report is a biennial assessment of the quality of Florida's waters. The report provides a summary of water quality by water body type and

identifies sources and causes of pollution. The 1996 report notes that the state's major surfacewater quality problems fall into five general categories: urban stormwater, agricultural runoff, domestic wastewater, industrial wastewater, and hydrologic modifications. It further notes that pollution from domestic wastewater has significantly lessened statewide, mostly due to upgraded wastewater treatment plants. Economic Development Element Regional Indicator 2.6.1 identifies 19 of the region's 33 incorporated municipalities with centralized sewer system. While the unincorporated community of Suwannee has added a centralized wastewater system, no incorporated north central Florida municipality has converted to a centralized wastewater treatment system since 1996. The Suwannee River Water Management District commissioned a 1998 study entitled Quality Communities Needs Report to identify the needs of north central Florida communities for improvements to their wastewater treatment, systems, potable water systems, stormwater management systems. The study notes that Fanning Springs, Archer, Lee, Steinhatchee, and the Dekle Beach - Keaton Beach area of Taylor County are in need of either a centralized wastewater treatment system or feasibility studies to determine the cost-effectiveness of the installation of a centralized wastewater treatment system. Therefore, it is recommended that the following regional indicator be added to Regional Goal 4.6:

Regional Indicator 4.6.9. As of January, 2000, neither Fanning Springs - Old Town, Archer, Lee, Steinhatchee, or the Dekle Beach - Keaton Beach area were serviced by centralized wastewater treatment systems.

The 305(b) report notes that Florida established its stormwater rules in 1979 and its first stormwater permitting program in 1982. Stormwater management is an effective way of reducing nonpoint source pollution to north central Florida surfacewaters as 80 percent of surfacewater pollutants can be removed through stormwater management systems. Most north central Florida's urban areas were constructed prior to requirements for stormwater management, creating a need for after-the-fact stormwater management retrofit projects. The Suwannee River Water Management District's Communities Needs Report identifies 23 north central Florida communities in need of stormwater management retrofit projects and/or a stormwater management plan. Therefore, it is recommended that the following regional indicator be added to Regional Goal 4.6:

Regional Indicator 4.6.10. As of January, 2000, 23 north central Florida communities were in need of stormwater management retrofit projects and/or a stormwater management plan.

Section 303(d) of the CWA requires states to submit lists of surfacewaters that do not meet applicable water quality standards (impaired waters) after implementation of technology-based effluent limitations, and establish Total Maximum Daily Loads (TMDL) for these waters on a prioritized schedule. TMDLs establish the maximum amount of a pollutant that a water body can assimilate without causing violations of water quality standards. The U.S. Environmental Protection Agency, Region 4, approved the Florida 303(d) List on November 24, 1998. The list was prepared by the Florida Department of Environmental Protection with input from the water management districts. Implementation of TMDLs can be achieved through a combination of regulatory, non-regulatory, or incentive-based actions that attain the necessary reduction in pollutant loading. Florida, when establishing a TMDL, must provide reasonable assurance to EPA that all 303(d) listed waterbodies will be able to meet their allocated load reductions for the applicable pollutant. Table

IV-5 identifies 303(d)-listed waters in north central Florida, the water quality parameters in question, and the year by which TMDLs are to be established.

While Section 303(d) of the CWA calls for the development of TMDLs for listed waters, TMDLs are not required if proposed pollution control mechanisms provide reasonable assurance that water quality standards will be met in the future. TMDLs have yet to be established for north central Florida waterbodies. The state and the water management districts have so far avoided the establishment of TMDLs by relying on voluntary programs such as BMPs, funding assistance for stormwater retrofit programs, and permitting programs.

The efforts of voluntary water quality working groups may also play an important role in avoiding the establishment of TMDLs. Four voluntary water quality working groups have been established within the region. The oldest, the Orange Creek Basin Advisory Council was formed in 1994. The Ichetucknee Springs Water Quality Working Group was formed in 1995. The Suwannee River Basin Nutrient Management Working Group and the Santa Fe Springs Water Quality Working Group were formed since the adoption of the regional plan.

The Suwannee River Basin Nutrient Management Working Group was formed in response to increasing trends in nitrate-nitrogen concentration in the groundwater, springs, and surfacewaters of the Middle Suwannee River Basin. The working group is comprised of representatives of various state and regional agencies, local governments, state universities, and the agriculture industry. The group produced a work plan for implementing strategies and tasks needed to reduce nutrient loading to surface and groundwaters, and evaluating the success of those efforts.

The work plan is also Florida's proposal for implementing requirements of the CWA related to impaired waters in the Middle Suwannee River and its downstream estuary. The plan relies on the voluntary, cooperative development of Best Management Practices (BMPs) to address the major sources of nitrate, incentives for farmers that implement applicable BMPs, and the tracking of BMP implementation and maintenance. Working Group members acknowledge that many non-point pollution sources in the basin are outside of government regulatory authority. Therefore, voluntary participation by area stakeholders may achieve results more quickly and effectively than traditional regulatory approaches.

The Orange Creek Basin Advisory Council was established in 1994. The basin contains the drainage area of Newnans, Lochloosa and Orange Lakes as well as Paynes Prairie in southern Alachua County. Similar to the middle Suwannee group, the Orange Creek Basin Advisory Council is composed of representatives of state and local agencies, business interests, environmental groups, and property owners. The advisory council provides a forum through which the Orange Creek Basin community can define and provide informed recommendations to the St. Johns River Water Management District; educate the public concerning the water resource needs of the basin; facilitate consensus building within the Orange Creek Basin communities; and review technical studies and data gathering activities proposed to support a basin-wide management plan.

The purpose of the Ichetucknee Springs Water Quality Working Group is to help insure the long-term protection of the quantity and quality of water flowing from the springs located in Ichetucknee Springs State Park. The group was formed by FDEP as part of their place-based Ecosystem Management Initiative for the Greater Suwannee Ecosystem Management Area. The working group is comprised of geologists, hydrologists, cave divers, water quality specialists, and land-use planners from state, federal and local agencies. The purpose of the working group is to enhance interagency communications, coordination, and cooperation in order to increase the protection of water flowing to the springs of Ichetucknee Springs State Park.

Perhaps the most important contribution of the working group has been to highlight the relationship between waters flowing from Alligator Lake, Rose Creek, and Clay Hole Creek to the Ichetucknee spring group and to highlight the economic importance of Ichetucknee Springs State Park to Columbia and Suwannee counties. The group has also brought attention to a potential threat posed by a limestone mining operation located near the springs, which may result in its purchase by the state. As a result of their efforts, Columbia County has sought state funds to purchase sinks which are hydrogeologically connected to the springs. Additionally, Columbia County is considering down-zoning its portion of the Ichetucknee Trace to reduce the potential for stormwater runoff to degrade the water quality of the springs.

The accomplishments of the working groups may suggest approaches for handling water quality problems and prevent the imposition of more restrictive state and federal regulations. Through the use of voluntary working groups, the state may also be successful in keeping north central Florida waterbodies off the 303(d) list and/or prevent the establishment of TMDLs and accompanying regulations, while, at the same time, meet the minimum water quality standards for these listed waterbodies.

It is therefore recommended that a new regional indicator be added to Regional Goal 4.6 which monitors the number of water quality working groups in the region. Possible wording for the new indicator is as follows:

Regional Indicator 4.6.11. As of January, 2000, four water quality working groups were active in north central Florida.

It is also recommended that a policy be added to the regional plan calling for the Council to assist water quality working groups. Possible wording for the new policy is as follows:

Policy 4.6.17. Assist water quality working groups formed to meet the water quality standards of waterbodies included in the State of Florida 303(d) list.

**TABLE IV-5****1998 SECTION 303(D) LIST, NORTH CENTRAL FLORIDA REGION**

<b>HUC Name</b>	<b>Water Segment</b>	<b>WBID</b>	<b>Parameter of Concern</b>	<b>Priority</b>	<b>Projected Year of TMDL Development</b>
Econfina/Fenholloway	Rocky Creek	3489	Dissolved Oxygen, Coliforms, Nutrients, Biochemical Oxygen Demand	Low	2007
Econfina/Fenholloway	Bevins (Boggy) Creek	3603	Dissolved Oxygen, Coliforms	Low	2002
Econfina/Fenholloway	Steinhatchee River	3573B	Dissolved Oxygen	Low	2002
Econfina/Fenholloway	Fenholloway at Mouth	3473A	Dissolved Oxygen, Coliforms, Nutrients, Biochemical Oxygen Demand, Un-ionized Ammonia, Dioxin (Based on Fish Consumption Advisory)	High	2002
Econfina/Fenholloway	Fenholloway Below Pulp	3473B	Dissolved Oxygen, Nutrients, Total Suspended Solids, Un-ionized Ammonia, Biochemical Oxygen Demand, Mercury (Based on Fish Consumption Advisory)	High	2002
Econfina/Fenholloway	Fenholloway Above Pulp	3473C	Dissolved Oxygen, Nutrients	High	2002
Econfina/Fenholloway	Econfina River	3402	Dissolved Oxygen, Coliforms, Cadmium	Low	2002
Santa Fe River	Rocky Creek	3641	Dissolved Oxygen, Coliforms, Nutrients, Biochemical Oxygen Demand	Low	2007
Santa Fe River	Lake Rowell	3598B	Nutrients	Low	2007
Santa Fe River	Hampton Lake	3635A	Dissolved Oxygen	Low	2007
Santa Fe River	Santa Fe River	3605A	Dissolved Oxygen, Nutrients, Mercury, (Based on Fish Consumption Advisory)	Low	2007

<b>HUC Name</b>	<b>Water Segment</b>	<b>WBID</b>	<b>Parameter of Concern</b>	<b>Priority</b>	<b>Projected Year of TMDL Development</b>
Santa Fe River	Santa Fe River	3605B	Dissolved Oxygen, Nutrients	Low	2007
Santa Fe River	Santa Fe River	3605C	Dissolved Oxygen, Nutrients	Low	2007
Santa Fe River	Altho Drainage	3605F	Dissolved Oxygen, Mercury (Based on fish Consumption Advisory)	Low	2007
Santa Fe River	Five Mile Creek	3578	Dissolved Oxygen, Coliforms, Nutrients	Low	2007
Santa Fe River	Ichetucknee Spring	3519Z	Dissolved Oxygen, Nutrients	Low	2007
Santa Fe River	New River	3506	Dissolved Oxygen, Coliforms, Nutrients	Low	2007
Santa Fe River	Alligator Lake	3516	Dissolved Oxygen, Nutrients, Lead, Cadmium, Copper, Zinc	Low	2008
Suwannee River, Lower	Suwannee River, Lower	3422B	Dissolved Oxygen, Nutrients	Low	2002
Suwannee River, Lower	Allen Mill Pond	3525	Dissolved Oxygen, Nutrients	Low	2002
Suwannee River, Upper	Lake Jeffrey Outlet	3499	(Note: Listing of this segment is based on biological sampling. District office sampled last fall and will update information for possible delisting).	Low	2002
Suwannee River, Upper	Falling Creek	3477	Dissolved Oxygen, Nutrients	Low	2002
Suwannee River, Upper	Roaring Creek	3392	Dissolved Oxygen, Nutrients, total Suspended Solids, Turbidity	Low	2002
Suwannee River, Upper	Deep Creek	3388	Dissolved Oxygen, Coliforms, Nutrients	Low	2002

<b>HUC Name</b>	<b>Water Segment</b>	<b>WBID</b>	<b>Parameter of Concern</b>	<b>Priority</b>	<b>Projected Year of TMDL Development</b>
Suwannee River, Upper	Suwannee River (Upper)	3341	Dissolved Oxygen, Nutrients	Low	2002
Suwannee River, Upper	Camp Branch	3401	Dissolved Oxygen, Nutrients, Coliforms	Low	2002
Suwannee River, Upper	Swift Creek	3375	Dissolved Oxygen, Nutrients, Total Suspended Solids	Low	2002
Withlacoochee River, North	Jumping Gully Creek	3318	Dissolved Oxygen, Nutrients, Turbidity	Low	2007
Withlacoochee River, North	Withlacoochee River	3315	Dissolved Oxygen, Nutrients, Turbidity, Mercury (Based on Fish Consumption Advisory)	Low	2007

<sup>1</sup>Water Body Identification.

Source: 1998 303(d) List, Florida Department of Environmental Protection.

## IMPACT ON LOCAL GOVERNMENT COMPREHENSIVE PLANS

Of the regional plan's five elements, the Natural Resources of Regional Significance Element has had the greatest impact on local government comprehensive plans. The predecessor of the current regional plan, the North Central Florida Comprehensive Regional Policy Plan, identified by name, but did not map, all of the current regional plan's identified Natural Resources of Regional Significance. The comprehensive regional plan served as the Council's original review document for local government comprehensive plans adopted under Chapter 163, F.S.

The current strategic regional policy plan differs from the comprehensive regional plan as it includes maps of the region's Natural Resources of Regional Significance. In its review of local government comprehensive plan Evaluation and Appraisal Reports and comprehensive plan amendments since 1996, the Council has seen substantial agreement between mapped Natural Resources of Regional Significance contained in the regional plan and mapped resource protection areas contained in local government comprehensive plans. Almost all local government comprehensive plans provide adequate policy direction for the protection of Natural Resources of Regional Significance. Of the 129 local government comprehensive plan amendments reviewed since adoption of the regional plan in 1996, the Council has made only two findings of adverse impacts to a Natural Resource of Regional Significance.

North central Florida local governments are concerned about the creation of policies in state and regional plans which must then be addressed in local plans. In such cases, it is the local government, not the regional planning council or the state agency, which must defend the resulting local government plan policy and regulations in court. It is the local government which must bear the associated legal costs and court-awarded damages as a result of an unsuccessful defense of a local government regulation which exists solely to assure consistency with state and regional plans. The regional planning council is sensitive to this issue. As a result, the regional plan identifies and maps Natural Resources of Regional Significance, but it does not contain minimum protection standards or prescribe how local government should protect the natural resource. Instead, the regional plan calls for their protection and leaves it up to local government to determine the method and degree of protection.

The regional plan's approach of calling for protection without elaboration of minimum protection requirements has led to a wide variety of local government comprehensive plan resource protection policies. The Natural Resource of Regional Significance Element contains two policies which seek a regulatory environment consisting of the minimum regulatory burden necessary for the protection of Natural Resources of Regional Significance. These two policies are as follows:

**Policy 4.3.3.** Pursue a regulatory environment consisting of the minimum regulatory burden necessary for the maintenance of the quantity and quality of groundwater recharge in Areas of High Recharge Potential to the Floridan aquifer, Ichetucknee Trace, Stream-to-Sink Watersheds and Sinks identified as Natural Resources of Regional Significance.

**Policy 4.6.1.** Pursue a regulatory environment consisting of the minimum regulatory burden necessary for the maintenance of the quantity and high quality of the region's surfacewater systems.

Given the wide variation in local government comprehensive plan natural resource protection policies, these two regional policies may create potential conflicts for those local government comprehensive plans seeking more than minimum protection. Local governments with more restrictive Natural Resource of Regional Significance protection policies may well argue that their approach represents the minimum level of protection and that the approach of the other local governments with less restrictive policy direction is inadequate. Perhaps more importantly, the Council is not authorized by statute to review or comment on local government land development regulations. Therefore, it is recommended that Policies 4.3.3 and 4.6.1 be deleted.

Regional Policies 4.3.6 and 4.6.13 call for local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council to include adequate provisions for the protection of the Floridan aquifer, the coastal marsh, and the Big Bend Seagrass Beds. These policies read as follows:

**Policy 4.3.6.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for stormwater management and aquifer recharge protection in order to protect the quality and quantity of water contained in the Floridan aquifer.

**Policy 4.6.13.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for stormwater management, including retrofit programs for known surfacewater runoff problem areas, and aquifer recharge protection in order to protect the quality and quantity of water contained in the Floridan aquifer and surfacewater systems identified as natural resources of regional significance.

Similar policies are not included for Regional Goals 4.1, 4.2, 4.4, and 4.5. It is recommended that policies similar to Policies 4.3.6 and 4.6.13 be added to these regional goals in order to assure that the regional plan provides adequate policy guidance to local government comprehensive plans. Possible wording of the new policies is as follows:

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**Policy 4.1.10.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for the protection of the Big Bend salt Marsh and the Big Bend Seagrass Beds.

**Policy 4.2.9.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for the protection of the Floridan aquifer, Areas of High Recharge Potential to the Floridan aquifer, the Ichetucknee Trace, as well as Stream-to-Sink Watersheds and Sinks which have been identified and mapped in the regional plan as Natural Resources of Regional Significance.

**Policy 4.4.11.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for the protection of listed species.

**Policy 4.5.4.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for the protection of Planning and Resource Management Areas identified and mapped in the regional plan as Natural Resources of Regional Significance.

### **SUCSESSES AND SHORT COMINGS**

The most significant achievement has been the high level of consistency between mapped Natural Resources of Regional Significance and their recognition in local government comprehensive plans. Almost every Natural Resource of Regional Significance identified and mapped in the regional plan is identified and protected in local government comprehensive plans. The most significant shortcoming has been the ability to measure goal achievement based on the regional plan's regional indicators. More meaningful indicators are needed. While new regional indicators are proposed in prior sections of this document, a new series of regional indicators is hereby proposed which describe the land cover of each Natural Resource or Regional Significance. The indicators will report the number of acres, by land cover, contained within selected Natural Resource of Regional Significance. In this way, the quality and nature of these areas may be better monitored over time and goal achievement better determined. Applicable Natural Resources of Regional Significance include freshwater wetlands, stream-to-sink watersheds, areas of high recharge potential to the Floridan aquifer, and river corridors.

While local governments generally recognize and protect the regional plan's Natural Resources of Regional Significance, its high aquifer recharge map is perhaps the one Natural Resource of Regional Significance which is least recognized in local government comprehensive plans. All of the region's local government comprehensive plans contain policies to protect high aquifer recharge areas. However, many of the plans use policy language calling for the protection of **prime** aquifer recharge areas. Some rely on a high aquifer recharge map developed by the now defunct Florida Sinkhole Research Institute at the University of Central Florida. Most of the region's local governments were required to adopt comprehensive plans prior to the creation of the water management districts' current high aquifer recharge and recharge potential maps.

Although F.S. 373.0395 calls for water management districts to develop maps of **prime** groundwater recharge areas, neither the Suwannee River or the St. Johns River Water Management Districts have developed such maps, nor do the Districts plan to develop such maps in the foreseeable future. However, the Districts have developed maps which portray areas of **high** aquifer recharge potential to the Floridan aquifer. These maps are incorporated into the regional plan's map of Areas of High Recharge Potential to the Floridan aquifer.

In its review of local government comprehensive plan amendments since 1996, and in its review of local government comprehensive plan evaluation and appraisal reports, the Council has consistently recommended the replacement of policy language referencing prime aquifer recharge areas with language referencing high aquifer recharge areas as determined by the respective water management districts. The Council has not reviewed the EARs of all local government comprehensive plans; however, for those it has reviewed, the trend has been for county governments to switch to District maps and to replace policies calling for the protection of prime aquifer recharge areas with the protection of high aquifer recharge areas as identified by the respective water management district. However, many incorporated communities continue to rely on either the Florida Sinkhole Research Institute maps or prime aquifer recharge maps (which, as previously noted, are unlikely to be developed within the foreseeable future). The Florida Sinkhole Research Institute map is a "dead document." That is, the Institute no longer exists and the personnel employed by the Institute are no longer employed by the University of Central Florida. Local governments relying on the Florida Sinkhole Research Institute map may be vulnerable should the validity of the map be challenged in court as it is unlikely that anyone who prepared the map is available to defend it. Similarly, local governments relying on prime aquifer recharge maps which are unlikely to be developed within the next five years may be similarly vulnerable to a legal challenge.

Another notable shortcoming has been the failure to implement Regional Policy 4.3.1, which calls for coordination between water management districts in the mapping of high aquifer recharge areas to prevent map inconsistencies near District boundaries. Alachua County is bisected by the St. Johns River and the Suwannee River Water Management Districts. Each District has prepared maps of high aquifer recharge areas using different methodologies and assumptions. As a result, the two maps do not agree near their common boundary. The St. Johns River Water Management District, which covers the majority of Alachua County, has prepared an aquifer recharge map of the entire county. In 1999, the Alachua County Environmental Protection Department recommended that the St. Johns map be applied countywide. Staffs at both water management districts think their map is the superior product. At least one incorporated Alachua County community located within the Suwannee River Water Management District is hesitant to use the St. Johns map due to the threat of a lawsuit as a result of reliance on a map beyond the jurisdictional limits of the St. Johns River Water Management District.

Finally, the regional planning council, in cooperation with the Suwannee River Water Management District, has been active in assisting local governments prepare applications for the purchase of conservation lands through the Florida Communities Trust. Since 1994, the Council has successfully assisted in the preparation of five applications for a total of \$5.8 million. These

applications have allowed local governments to make offers for the purchase of Alligator Lake in Columbia County, Little River Springs in Suwannee County, Blue Springs in Madison County, and conservation lands within the Town of Fanning Springs.<sup>9</sup>

### **IMPACT OF CHANGES IN STATE STATUTES AND RULES AS WELL AS THE STATE COMPREHENSIVE PLAN**

No significant changes have occurred to state statutes, rules, or the State Comprehensive Plan which affect the regional plan's Natural Resources of Regional Significance since adoption of the regional plan in 1996.

### **NEED FOR PLAN AMENDMENTS AND NEW ACTIONS TO ADDRESS PLANNING ISSUES IDENTIFIED IN THE EAR**

Various recommendations have been included in earlier sections of this review regarding possible changes to the plan's Natural Resources of Regional Significance Element. This section recaps the recommended changes.

1. Add a policy similar to the following to Regional Goal 4.1:

**Policy 4.1.10. Monitor the entire Big Bend Seagrass Beds and the Florida Middle Ground on a regular basis using a consistent methodology which provides meaningful trend analysis of their health and areal extent.**

2. Add regional indicators to Regional Goal 4.1 based on water quality data from the 305(b) report for coastal rivers and watersheds.

3. Add the following regional indicator to Regional Goal 4.1:

**Regional Indicator 4.1.4. As of January, 2000, a Florida Department of Health No-Fish-Consumption Advisory is in effect for the Fenholloway River due to elevated dioxin levels in the river's fish.**

4. Add the following regional indicator to Regional Goal 4.1:

**Regional Indicator 4.1.5. As of January, 2000, there was one NPDES discharge permit within the Econfina-Fenholloway River watershed.**

5. Amend Regional Policy 4.1.9 similar to the following:

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<sup>9</sup>Some of these projects were unsuccessful due to disagreements between the buyer and seller regarding land prices.

**Policy 4.1.9.** ~~Establish a secondary wastewater treatment plant to service the unincorporated Dixie County community of Suwannee.~~ Future development located within the service area of the unincorporated Town of Suwannee's wastewater treatment plant should hook up to the plant.

6. Add the following regional indicator to Regional Goal 4.1:

Regional Indicator 4.1.6. As of January, 2000, Fanning Springs and the unincorporated community of Old Town were not serviced by a centralized wastewater treatment system.

7. Add the following regional indicators to regional Goal 4.1:

Regional Indicator 4.1.7. As of January, 2000, no offshore oil or natural gas wells are located within 100 miles of the Dixie and Taylor counties coastline.

Regional Indicator 4.1.8. As of January, 2000, no offshore oil or natural gas wells are located within the Florida Middle Ground.

8. Seek the input of the Suwannee River Water Management District in identifying regional indicators based on groundwater quality for Regional Goal 4.2.

9. Add the following regional indicator to Regional Goal 4.2:

Regional Indicator 4.2.4. As of January, 2000, north central Florida contained 19 first magnitude springs, 101 second magnitude springs, and 70 third magnitude springs.

10. Add a new Regional indicator 4.2.5 which identifies the nitrate nitrogen value of all first magnitude springs.

11. All new first and second magnitude springs and all second magnitude springs associated with rivers identified as Natural Resources of Regional Significance should be identified and mapped in the regional plan as Natural Resources of Regional Significance.

12. Rename Fletcher Spring to Turtle Spring and rename Pleasant Grove Spring to Trail Spring in the regional plan's list of Natural Resources of Regional Significance.

13. Delete the following springs from the regional plan's list of Natural Resources of Regional Significance: Lumbercamp Spring, Sun Spring, Jamison Spring, Little Copper Spring, Northbank Spring, and Waldo Spring.

14. Amend Policy 4.2.2 as follows:

**Policy 4.2.2.** ~~Continue to develop information on the ground water resources of the region~~  
Water management districts should monitor at regular intervals spring water quality and flows of springs identified as Natural Resources of Regional Significance.

15. Update the regional plan's plan maps of high aquifer recharge areas and stream-to-sink recharge areas be updated to reflect the latest available maps from the water management districts.
16. Update Table IV-4, State and Federally Listed Species Known to Occur in the North Central Florida Region Identified in the Florida Natural Areas Inventory Element Occurrence Database, to reflect additional species found in the region. Update Appendix D of the regional plan to describe their habitat.
17. Amend the regional plan to clearly state which categories of the respective District's recharge map represents areas of high aquifer recharge in the regional plan's high aquifer recharge map.
18. Include Clay, Rose, and Saylor Sink as sink Natural Resources of Regional Significance.
19. Substitute the term Stream-to-sink watershed for stream-to-sink recharge areas in the regional plan.
20. Consult with the water management districts, the Florida Fish and Wildlife Conservation Commission, Florida Natural Areas Inventory, and other organizations to develop more appropriate indicators for Regional Goal 4.4.
21. Update the regional indicators for Regional Goal 4.5 to reflect the January, 2000 conservation acreage as per the most recent public and private conservation lands map produced by Florida Natural Areas Inventory.
22. Include Watermelon Pond as a lake Natural Resource of Regional Significance.
23. Replace the 1/4-mile buffer used to define the Aucilla River Corridor in the regional map series with its 100-year floodplain.
24. Update the regional map series to reflect the additional conservation land holdings which have been added in the region since 1996.

25. Replace the regional indicators for Regional Goal 4.6 be with water quality indicators derived from the Florida Department of Environmental Protection 305(b) Water Quality Report, the Florida Department of Environmental Protection 303(d) Impaired Waters list, or other sources of water quality indicators.

26. Add the following regional indicators to Regional Goal 4.6:

Regional Indicator 4.6.6. In January, 2000, five north central Florida Natural Resources of Regional Significance were under an Unrestricted Consumption advisory for Large-mouth bass, Bowfin, and Gar.

Regional indicator 4.6.7. In January, 2000, five north central Florida Natural Resources of Regional Significance were under a Limited Consumption advisory for Large-mouth bass, Bowfin, and Gar.

Regional indicator 4.6.8. In January, 2000, no north central Florida Natural Resources of Regional Significance were under a No Consumption advisory for Large-mouth bass, Bowfin, and Gar.

27. Add a new regional indicator to Regional Goal 4.6 similar to the following:

Regional Indicator 4.6.9. As of January, 2000, neither Fanning Springs- Old Town, Archer, Lee, Steinhatchee, or the Dekle Beach - Keaton Beach area were serviced by centralized wastewater treatment systems.

28. Add a new regional indicator to Regional Goal 4.6 similar to the following:

Regional Indicator 4.6.10. As of January, 2000, 23 north central Florida communities were in need of stormwater management retrofit projects and/or a stormwater management plan.

29. Add a new regional indicator to Regional Goal 4.6 similar to the following:

Regional Indicator 4.6.11. As of January, 2000, four water quality working groups were active in north central Florida.

30. Add a new policy to Regional Goal 4.6 similar to the following:

**Policy 4.6.16. Water management districts should monitor at regular intervals the quality and quantity of surfacewaters identified as Natural Resources of Regional Significance.**

31. Add a new policy to Regional Goal 4.6 similar to the following:

**Policy 4.6.17.** Assist water quality working groups formed to meet the water quality standards of waterbodies included in the State of Florida 303(d) list.

32. Delete regional policies 4.3.3 and 4.6.1.

~~**Policy 4.3.3.** Pursue a regulatory environment consisting of the minimum regulatory burden necessary for the maintenance of the quantity and quality of groundwater recharge in Areas of High Recharge Potential to the Floridan aquifer, Ichetucknee Trace, Stream-to-Sink Watersheds and Sinks identified as Natural Resources of Regional Significance.~~

~~**Policy 4.6.1.** Pursue a regulatory environment consisting of the minimum regulatory burden necessary for the maintenance of the quantity and high quality of the region's surface water systems.~~

33. Add policies similar to the following:

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**Policy 4.1.10.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for the protection of the Beg Bend salt Marsh and the Big Bend Seagrass Beds.

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**Policy 4.2.9.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for the protection of the Floridan aquifer, Areas of High Recharge Potential to the Floridan aquifer, the Ichetucknee Trace, as well as Stream-to-Sink Watersheds and Sinks which have been identified and mapped in the regional plan as Natural Resources of Regional Significance.

**Policy 4.4.11.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for the protection of listed species.

**Policy 4.5.4.** Ensure that local government comprehensive plans, DRIs, and requests for federal and state funds for development activities reviewed by the Council include adequate provisions for the protection of Planning and Resource Management Areas identified and mapped in the regional plan as Natural Resources of Regional Significance.

34. Develop a new series of regional indicators which report the number of acres, by land cover, contained within the following Natural Resource of Regional Significance: freshwater wetlands, stream-to-sink watersheds, areas of high recharge potential to the Floridan aquifer, and river corridors.