Economic Impact of Selected Florida Springs on Surrounding Local Areas

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Mark A. Bonn received his Doctorate in Tourism Marketing and Research with an emphasis on Resource Development, from Texas A&M University in 1982. He is a tenured Full Professor in the College of Business, Dedman School of Hospitality, at Florida State University. He is a member of the Graduate Faculty, Department of Marketing and also holds a distinguished chair position entitled "The Robert Dedman Professor of Services Management". He established, and directs the Resort & Condominium Management summer program at Florida State University.

Dr. Bonn serves on three editorial review boards for leading tourism journals, and has published over 40 articles in the area of hospitality and tourism as they relate to marketing, service quality, and sustainable tourism. They appear in such scholarly journals as The International Journal of Hospitality Management, The Journal of Travel Research, The Journal of Travel and Tourism Marketing, and The Journal of Hospitality & Tourism Research.

Some of his recent clients include **Tourism Development Councils for Bay, Broward, Dade, Escambia, Hillsborough, Leon, Monroe, Okaloosa, Orange, Palm Beach, Pinellas, Santa Rosa, St. Johns, and Walton Counties (Florida).** Other clients include the American Hotel Foundation, Small Business Administration, Amelia Island Chamber of Commerce, Abbott Resorts, Tampa Bay Convention and Visitors Association, the United States Army, the United Nations, the Governments of Argentina, Aruba, Barbados, Bermuda, Costa Rica, Jamaica, St. Lucia, St. Martin, U.S. Virgin Islands, and Venezuela, and the Suwannee River Water Management District.

Dr. Bonn's most recently completed projects entailed a four county study of the economic costs and benefits associated with the State of Florida's Artificial Reefs program in Dade, Broward, Palm Beach, and Monroe counties, and an eight county study of eco-tourism potential for rural economic development in the Suwannee River.

Dr. Bonn has worked in management positions with ski resorts in North Carolina as well as with lodging properties in Florida. He was the past President of the South Carolina Hotel Sales and Marketing Association. Currently, he is a member of the American Marketing Association, the Travel Research Association, and the Academy of Marketing Science. He is a past member of the Board of Directors for the Society of Tourism and Travel Educators. He completed a book entitled "Sustainable Tourism and the Florida Environment: Marketing, Management and Operations", designed for secondary and college level audiences as well as public and private sector tourism related business.

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Dr. Bell has authored numerous Sea Grant publications ranging from the use of saltwater beaches to boating in the State of Florida. More recently, Dr. Bell has worked on the Northwest and Southeast Florida economic importance of artificial reefs, focusing upon the costs and benefits of the State of Florida's program. He also teaches business economics at FSU where the emphasis is upon running private enterprises, including attractions, lodging, food service, and travel businesses in an efficient manner.

EXECUTIVE SUMMARY

Springs are one of the most valuable natural resources in the State of Florida. Even though Florida Springs have been providing Floridians and tourists with tremendous natural, recreational and economic values and benefits, little has been done to assess the economic importance springs have to their surrounding areas or to identify and analyze the visitors' characteristics and behavior.

This study was set forth to assess the economic value springs contribute to their surrounding areas, and to document behavioral and demographic characteristics of visitors to Florida's four largest springs. They are: Ichetucknee Springs, Wakulla Springs, Homosassa Springs, and Volusia Blue Spring.

The study is divided into six chapters. Chapters Two through Chapter Five address direct regional economic impact of each spring respectively. Each spring group was approached utilizing the four steps as follows:

1. Provide general information about each spring;
2. Analyze the annual trends and seasonal use of each spring state park;
3. Describe the economic profile of the areas surrounding each spring;
4. Estimate the direct economic impact of each spring.

Springs Characteristics

- Ichetucknee Springs is well known for tubing, kayaking, scuba diving and other recreational activities. The water is still in relatively good condition, but contaminants are beginning to appear. Consequently, it is restricted to only day use, and a maximum per day user capacity has been administered.

- Wakulla Springs is one of the largest natural springs in the world. It is known for glass bottom boat tours through the natural spring area where the movies Tarzan and Creature from the Black Lagoon were filmed. It is also a popular place for swimming, snorkeling and observing wildlife. The spring suffers from an invasion of hydrilla, a floating plant that clog boat propellers and cause congestion of waterways. In addition, there are increasing levels of nitrate, phosphorous and other contaminants in the water.
- Homosassa Springs is the only natural area in the world that one can observe manatees 365 days a year. It is also a place for other wildlife and marine fishes in the spring. Homosassa Springs has the best water quality among the four springs in this study's group.
- Blue Spring is well known as a winter home for Florida's endangered manatees. The spring also provides recreationalists areas for swimming, canoeing, hiking and birding. The spring water contains the highest level of nitrates among the four springs and has led to ecological decline.

Annual Trends and Seasonal Use

- From 1992-2002, the Ichetucknee Springs State Park visitors has increased from 134 thousand people to nearly 189 thousand people, nearly a 41% increase over the last 10 years. It is found that the peak season at Ichetucknee Springs State Park is between May and August of each year since the tubing is more enjoyable during the warm weather. This park has a carrying capacity that balances recreation with preservation.
- The Wakulla Springs visitor attendance has increased from 163 thousand in 1992 to 184 thousand in 2002, an 11% increase over the last 11 years. By Florida standards,

this is a very slow growth in attendance at only 1% yearly. The peak season at the Wakulla Springs State Park is from April to August when the weather is warm.

- For Homosassa Springs State Park, there were over 200 thousand visitors in 1992 and nearly 266 thousand visitors in 2002, a 33% increase over the last 11 years. The seasonality of attendance is at its peak from February through April. This coincides with the typical tourist season for Florida when the typical snowbirds visit Florida.
- The Blue Spring State Park attendance has decreased from 360 thousand in 1992 to 337 thousand in 2002, a 6.4% decline over the last 11 years. The decrease is consistent with the economic model, which asserts that increasing environmental problems are related to a decline in economic activity as measured by park attendance. The peak seasonal attendance at Blue Spring is December through March of each year. After that period, one other seasonal peak was identified in July.

Economic Profiles

- Ichetucknee Springs is in Suwannee and Columbia Counties in North Central Florida. In 2000, the per capita income for both Columbia and Suwannee Counties was well below the State of Florida average. This is due to the fact that the Ichetucknee Springs area is not relatively affluent when compared to the State of Florida. Both counties specialize in low paying industries such as farming, forestry, paper and wood manufacturing and service industries. On the other hand, the Ichetucknee Springs economic area is growing at a faster rate as measured by wages and employment than that of the State of Florida.
- Wakulla Springs is near the center of Wakulla County in the Northeast Florida panhandle region. From 1990 to 2000, the per capita income for Wakulla County was

growing faster than the State of Florida (i.e., 58% vs. 40%). Even though the per capita income was still below the state average (i.e., $22,556 vs. $27,765) in 2000, Wakulla County is growing more toward higher paying jobs that are accelerating its rate of growth with respect to population, income, wages and employment.

- Homosassa Springs is in Citrus County in the Central West area of Florida. From 1990 to 2000, the population growth in Citrus County was entirely due to in-migration from outside the county. The median age in Citrus County is nearly 53 years compared to only 39 years in the entire State of Florida. Citrus County's economy is heavily dependent on retirement and tourism that generally produce an industrial base of part-time and low-skilled jobs. The per capita income in Citrus County was below the State of Florida average both in 1990 and 2000.
- Blue Spring is located in Volusia County in the Central East region of Florida. Since 1990 the level of affluence or per capita income has risen in Volusia County. However, the level of per capita income in this county still remained below that of the State of Florida. As the state has grown through the advent of many high tech industries, Volusia County has relied on retirement and tourism for its growth.

Direct Economic Impacts

- For 2002, estimated spending by visitors at the four springs-related state parks varied from nearly $23 million at Ichetucknee Springs to only $10 million at Blue Spring.
- The Ichetucknee Springs and Wakulla Springs have approximately the same level of spending at about $22 million and have about the same total attendance. However, Ichetucknee Springs has about one-third more estimated visitors from outside the area than Wakulla Springs as shown in the bottom of Table ES-1.

Table ES-1
A Summary of the Direct Economic Impact of
Ichetucknee; Wakulla; Homosassa and Blue
Spring State Parks on the Local Economy, 2002

Springs	Ichetucknee	Wakulla	Homosassa	Blue	Average Per Spring
Spending Expenditures (Mil $)	22.7	22.2	13.6	10.0	17.13
Spend Per Party Day ($)	215	409	90	61	193.75
Spend Per Person Day ($)	34	89	25	19	45.50
Spending (Mil $)					
Hotel & Motel	4.1	15.3	5.5	5.6	7.63
Condos	1.5	1.8	0.1	0.9	1.08
Friends/Family	12.3	4.3	4.3	1.2	5.53
Campers	3.2	0.1	2.6	1.5	1.85
Day	1.6	0.7	1.1	0.8	1.05
Spending by Category (Mil $)					
Lodging	1.44	4.01	3.43	5.67	3.64
Restaurants	3.86	3.42	1.87	0.94	2.52
Groceries	1.76	2.11	0.13	0	1.00
Fees	4.34	1.21	4.22	0.69	2.62
Evening Enter	2.31	2.51	2.36	1.26	2.11
Transportation	2.95	1.47	0.32	0.34	1.27
Shopping	3.75	3.56	1.08	0.95	2.34
All other	2.27	3.99	0.11	0.15	1.63
Wages & Salaries (Mil $)	5.09	4.33	3.13	2.38	3.73
Employment	311	347	206	174	259.50
Other Characteristics					
Party Size	6.4	4.6	3.6	3.3	4.48
Length of Stay	2.7	2.1	3.3	2.6	2.68
Attendance	188,845	180,793	265,977	337,356	243,243
Visitors	169,962	126,555	169,962	219,282	171,441
Residents	18,883	54,238	96,015	118,074	71,802
Percent Visitors (%)	90	70	64	65	70.48

- Wakulla Springs visitors spend much more than those visiting Ichetucknee Springs, which accounted for the parity in overall spending between the two parks (e.g., spending per person day is $89 in Wakulla Springs compared to only $34 in Ichetucknee Springs). Wakulla Springs has a regionally acclaimed "low country" restaurant and a lodge that offers overnight accommodations for visitors.
- Homosassa Springs and Blue Spring are at the low end of the total spending estimates with $13.6 million and $10 million respectively in 2002. These parks are more heavily attended by visitors from outside the area (county). The spending per visitor party and per person day is relatively low for these two parks.
- Most of the visitors to natural springs use friends and family and hotel/motel as modes of accommodation.
- In terms of wages and salaries, Ichetucknee Springs generated the most wages ($5.09 million) and Wakulla Springs generated most employment (347).
- In general, springs exhibited visitors that have a party size of between 4-5 individuals whom spend about 2-3 days in the area as shown in the Table ES-1.

CHAPTER 1

Scope and Purpose of the Economic Impact of Selected Springs/Parks in Florida

Introduction

Springs are one of the most valuable natural resources in the State of Florida. Each year, Florida's system of natural springs attract thousands of visitors from all over the world to various sites for leisure activities such as swimming, camping, tubing, canoeing, kayaking, snorkeling, scuba diving, archeological studies and nature studies. Even though Florida springs have been providing us with tremendous natural, recreational and economic values and benefits, little has been done to identify the visitors' characteristics, their behavior or quantify the economic importance springs have to their surrounding areas.

Among the more than 700 recognized springs in Florida (Scott et al., 2002), there are 33 first magnitude springs (>100 cubic feet per second – 64.6 million gallons of water per day), more than any other state or country (Rosenau et al., 1977). In this report, we will focus on the four largest spring groups in the State of Florida. In 2001 alone, these natural springs accounted for nearly one million visitors or over 50 percent of the total visitors to Florida's twelve spring state parks[1] (http://www.dep.state.fl.us/springs/index.htm). These pristine, natural springs parks are known for their unique ecosystem throughout the world. The springs not only provide a unique habitat for endangered species like the manatee but also provide Floridians and tourists a

[1] The 12 state parks that are named for springs are: 1. (Volusia) Blue Springs State Park; 2. DeLeon Springs State Park; 3. Fanning Springs State Park; 4. Homosassa Springs Wildlife State Park; 5. Ichetcuknee Springs State Pak; 6. Manatee Springs State Park; 7. Peacock Springs State Park; 8. Rainbow Springs State Park; 9. Ponce de Leon Springs State Park; 10. Silver (Springs) River State Park; 11. Wakulla Springs State Park; 12. Wekiwa Springs State Park

unique opportunity to view these animals in their natural surroundings not known to exist anywhere else. They are:

1. Wakulla Springs in the Northeast Florida
2. Ichetucknee Springs in the North Central of Florida
3. Homosassa Springs in the Central West of Florida
4. Volusia Blue Spring in the Central East of Florida

Scope of This Report

The scope of this report is to 1.) Assess the economic value natural springs contribute to their surrounding areas, and 2.) Document behavioral and demographic characteristics of visitors to Florida's four largest natural springs. This will allow us to promote, advertise, and manage these unique natural resources to their fullest potential. Seasonality, economic impact, and marketing strategies will be explored in-depth to better Florida's most valuable natural resources.

This study is divided into six chapters. Chapter One (this chapter) reviews the scope and purpose of the economic impact of the four selected springs. Chapter One also explains the methodology used for the entire study. Chapters Two through Five address direct regional economic impacts of Ichetucknee Springs, Homosassa Springs, Wakulla Springs and Blue Spring respectively. Chapter Six provides a summary of all four springs and offers generalization to other springs in Florida.

Study Methodology

During 2002-2003, professionally trained surveyors were assigned to collect information from visitors (non-county residents) at four Florida springs. Surveyors personally interviewed a minimum of 400 visitors at each spring during this time period. Visitors were asked to respond to 31 items related to their springs visit (See Appendix 1). Information was obtained related to such dimensions including but not limited to: visitor socio-demographics, travel patterns, party size,

length of stay, trip purpose, satisfaction with the on-site experience, willingness to return, type of accommodation used, and expenditures specific to eight categories.

Information was then edited, coded and entered onto a statistical program (S.P.S.S.). Summary tables were then created for all survey items and visitor profiles were formulated for each spring. Results of the Ichetucknee Springs Visitor Study; Wakulla Springs Visitor Study; Homosassa Springs Visitor Study; and Blue Spring Visitor Study can be found in Appendices B, C, D, and E. Finally, a comparison of visitors from all four sites was developed (Appendix F).

Economic data was generated for each spring in order to determine characteristics of commercial overnight visitors, visitors staying with friends/relatives, visitors staying at campgrounds, visitors staying in condominiums, and day visitors (no overnights). This information was then used to provide the economic model with necessary averages to estimate the economic impact.

CHAPTER 2

Direct Regional Economic Impact of Ichetucknee Springs State Park on Surrounding Areas

Description of the Ichetucknee Springs

Ichetucknee Springs State Park is located in Columbia and Suwannee Counties in North Central Florida off Florida 238 north of Fort White. This park consists of 2,600 acres and a shoreline of 37,400 feet along the Ichetucknee River and Springs. This recreational area was acquired by the State of Florida in 1970 to protect and preserve one of the state's outstanding wonders and still be accessible to the public. An astounding daily average of 233 million gallons of water flows, from the seven springs to form the Ichetucknee River. The 72-degree, crystal-clear river travels five miles at one mile per hour before emptying into the Santa Fe River.

Recreational users can immerse themselves in the ever-flowing, clear water; viewing the river bottom's fish and plants that make the park a "natural wonder". One can canoe or kayak in the autumn, winter or spring or swim at Ichetucknee Head Springs where the edges are shallow, or scuba dive at Blue Hole Springs to depths of 40 feet. The park offers many tubing options from 45 minutes to 3.5 hours. Tubes and snorkel gear may be rented from private vendors just outside each park's entrance. Of significance, the Ichetucknee is restricted to one-day use only. Therefore, there is no camping within the park. Food and soft drinks may be obtained from the state-run concession stand.

Natural Resource Protection

The Ichetucknee Springs and River is probably the most pristine spring and river system remaining in Florida. It is the premier tubing river in the United States. It is important to look at

the threats to the springs from increased human activities in and around the area when assessing the direct economic impact of the natural springs resources afforded to local communities surrounding the Ichetucknee Springs. The social value of the springs critically depends upon the clear, clean waters that flow from the seven named springs in the park.

In 1995, concerns about the future quality of the spring water led to the formation of the Ichetucknee Springs Water Quality Working Group. Government agencies, stakeholders and local citizens are included in the group to protect the resources in these springs. The main resource to be protected is the water flowing from the seven named springs. The Ichetucknee Basin includes Lake City and reaches as far north as the Osceola National Forest. The working group believes that the water of Alligator Lake, Cannon Creek Clayhole Creek, and Rose Creak flows through a cave system that connects with the Ichetucknee. Of critical importance, these creeks receive contaminated stormwater run-off from urban and agricultural areas in the basin. This is known as non-point source pollution since individual entities as sources of the pollution are difficult to identify. These pollutants can originate from a vast spectrum of sources including agricultural lands, mining operations and septic tanks. Storm water run-off is often contaminated with fertilizer, pesticides, coliform, gasoline, turbidity, and other pollution. The springs and river water sediments and fish tissue are regularly monitored to detect the level of pollution that threatens the quality of the natural springs resource. Recent monitoring of waters of the springs indicate that this resource is still in relatively good condition according to Protecting the Ichetucknee (2000); however, contaminants are already showing up, including nitrates in the spring water, pesticides in the fish in the river, hydrocarbons in sediments in sinkholes, and coliform bacteria in the creeks. Such pollution not only diminishes the quality of recreation, but is not attractive to visitors to the area. Without resource protection, the visitors will be deterred

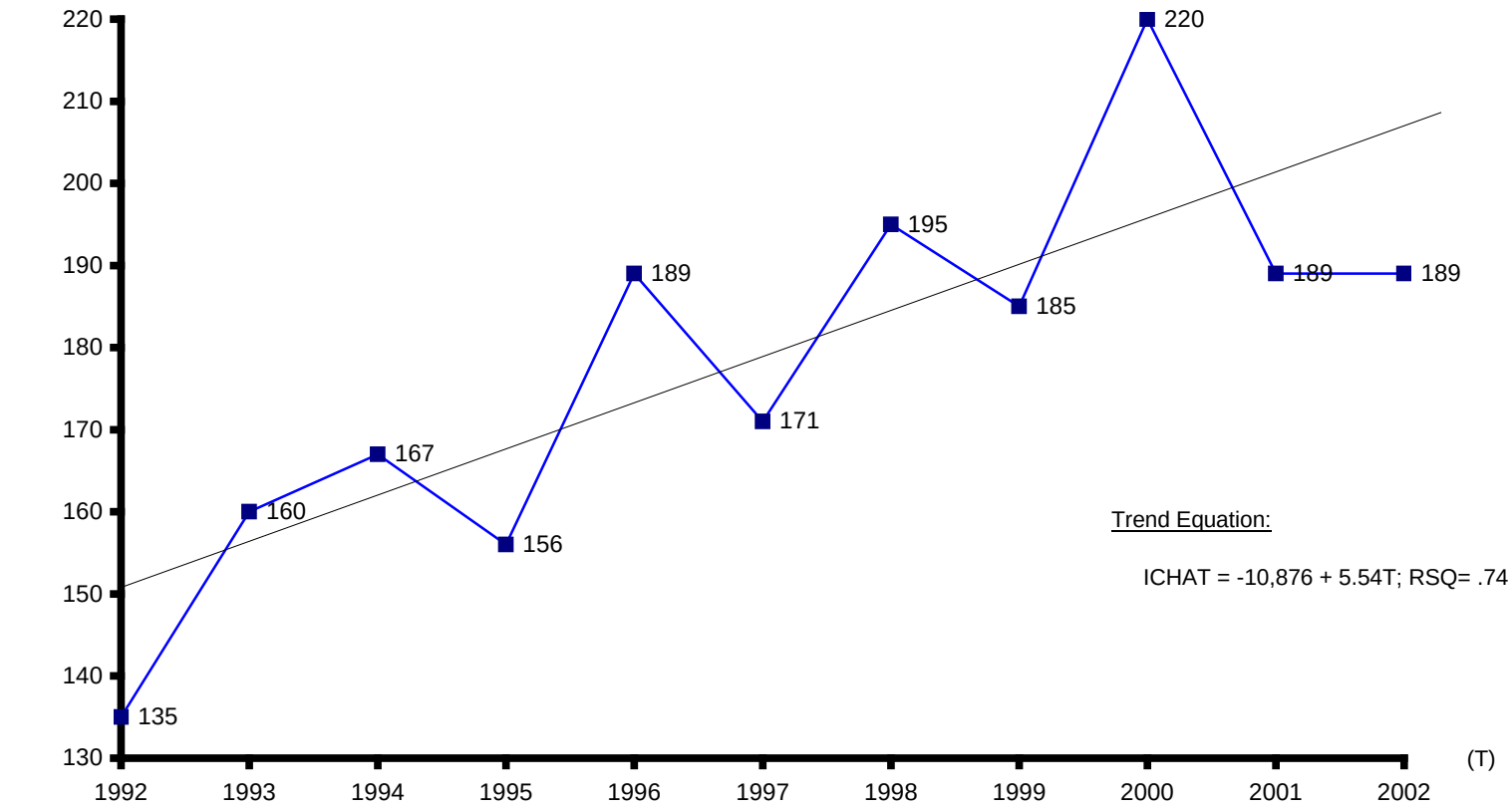
from the area, and consequently spend less money on local areas surrounding the Ichetucknee Springs State Park. The main thrust of this report is to quantify the level of Ichetucknee visitor spending in the springs and the local communities surrounding the springs. This will establish a baseline by which to measure the potential economic effects of pollution on visitor spending in and around Ichetucknee Springs.

Protection activities for the Ichetucknee Springs include (1) building storm water retention ponds; (2) establishing vegetative buffers along the streams; (3) protecting sinkholes from refuse dumping; (4) limiting the use of pesticides and fertilizers; (5) reducing septic tank impacts; (6) eliminating leaking gasoline tanks; (7) purchasing sensitive lands for water quality protection and (8) removing trash from the creeks. All of these measures will involve either direct government expenditures and/or higher cost to polluters (e.g., better septic tanks in residential developments). Such measures will allow us to balance the economic benefits associated with the protection of the entire water resource with the actual cost of pollution control and water quality management.

Annual Trends and Seasonal Use of Ichetucknee Springs State Park

In fiscal year 1992, a little over 134 thousand people visited Ichetucknee Springs State Park. By fiscal year 2002 this number reached nearly 189 thousand people, nearly a 41% increase over the last 11 years. In Figure 2.1, annual park attendance data is plotted over this time period to calculate the annual trend in people attending the park combined with the year-to-year fluctuations in park attendance. The straight line through the attendance data indicates the annual trend in park attendance where the trend equation (i.e., ICHAT) is given in the lower right of Figure 2.1. All attendance data were obtained from the Division of Recreation and Parks, Florida Department of Environmental Protection (unpublished) (2002).

Figure 2.1
Trend in Attendance at Ichetucknee Springs, Florida, 1992-2002



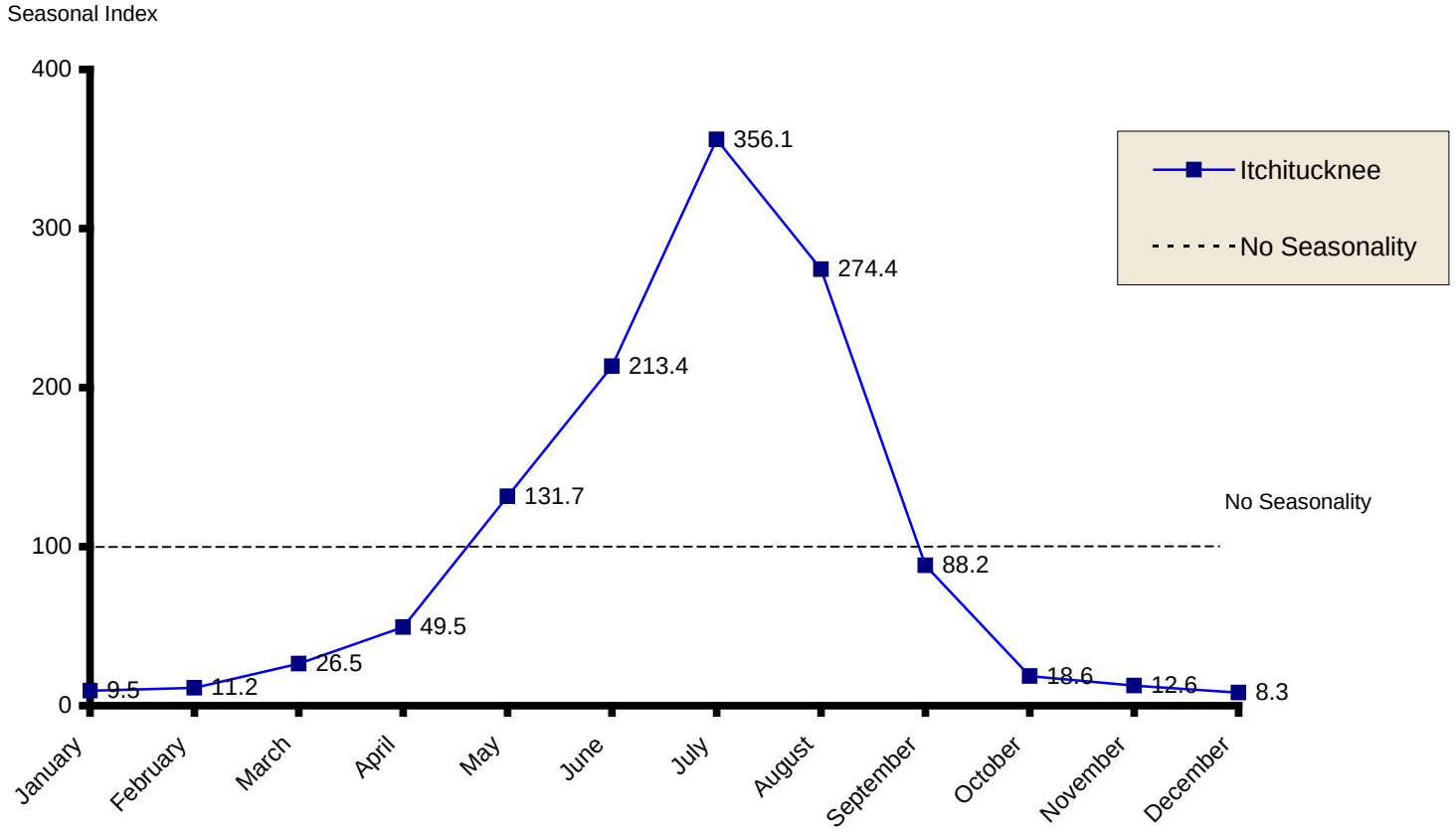
Source: Division of Recreation and Parks, Florida Department of Environmental Protection, Unpublished Data.

The trend equation for Ichetucknee Springs State Park attendance shown in Figure 2.1 indicates an annual growth in people attending this park by 5.54 thousand per year. From the graph, it appears that the park attendance growth was linear or, a constant number of attendees per year rather than exponential where growth is maintained at a constant percent yearly. The reader should also note the considerable fluctuation of attendance from year to year around the annual trend. Using the RSQ following the trend equation in Figure 2.1, it indicates that the annual linear trend discussed above explains about 74% of Ichetucknee Springs State Park over the 1992-2002 period while the balance (26%) is attributed to annual cycles. The RSQ is a statistical measure that identifies how much the linear trend "explains" attendance at the springs over the period of analysis. Subtracting RSQ from unity, or one, yields annual cycles or what is not explained by the annual trend. Such cycles may be due to visitation trends in tourism to Florida, which are determined by such forces as the national economic condition, the weather and possibly changes in environmental conditions at the springs themselves. It is beyond the scope of this report to investigate the reasons for these observed cycles. However, it is important to recognize that there are considerable cyclical fluctuations in Ichetucknee Springs attendance from year-to-year which at their peak may strain the carrying capacity of the resource. In Figure 2.1, it appears that annual attendance peaked in the year 2000 at about 220 thousand or about 22% of full permitted utilization. Ichetucknee Springs are subject to considerable seasonality that might figure in the permitted number of attendees at the springs per day.

Seasonal use of a park refers to the month-to-month variation in attendance. Seasonal variation may be due to the nature of the resource and/or man-made events that influence demand for goods and services such as a pristine water resource. We obtained monthly data on Ichetucknee Springs attendance from the Division of Recreation and Parks, Florida Department

of Environmental Protection. This was analyzed from 1992-2002 for these springs. The analysis was done by asking the question first of what attendance would be per month assuming there was no seasonal influence. This can easily be computed by dividing annual attendance by the 12 months in the year. In the case of no seasonality, the monthly attendance for any year would be constant. For example, annual attendance for Ichetucknee Springs was 189 million persons for the 2002 fiscal year as discussed above. If we assume even demand over the year, then monthly attendance would be 189 thousand divided by 12 or nearly 16 thousand visitors per month. Assume that we wish to find the degree of seasonality (if any) for a given month (e.g., July 2002). Attendance actually recorded in July 2002 was actually 54.6 thousand or about 3.4 times (54.6 divided by 16 thousand) the demand for July 2002. It is quite apparent from the rather extreme case that seasonality for July 2002 is immense. One other adjustment to the measure of seasonality is that we cannot base its measure on just one year (i.e. 2002). Any one year may have a number of irregular events as a recession, labor strike, extremely volatile weather such as hurricanes, or terrorist events similar to those during September 11, 2001. Thus, we used all eleven years (1992-2002) for each month to form our monthly demand without seasonal events. In using eleven years, we average out any irregular events to calculate the seasonal index. Returning to our example above, we obtained 3.4 for July meaning that demand for the Ichetucknee Springs in July for the year 2002 was 348% of demand without a seasonal influence. Using all eleven years, we obtain 356.1% as shown in Figure 2.2. This would mean that seasonality is fairly regular from year-to-year (i.e., 348% for 2002 is nearly the same as 356.1% averaged over 11 years). The measurement of seasonality is rather straight forward, but the reason(s) for seasonality and economic meaning of seasonality must be discussed to see how, and if, the recreational demand for the springs influence its use.

Figure 2.2
Seasonal Attendance Index for Ichetucknee Springs, Florida, 1992-2002*



*All Seasonal Figures: % above or below no seasonality or 1/12 of annual attentance for each month.

Source: Division of Recreation and Parks, Florida Department of Environmental Protection, Unpublished Data.

According to Figure 2.2, the peak seasonal index of demand for the resources at Ichetucknee Springs State Park is decidedly between May and August of each year reaching a peak of 350.1 in July. Without any seasonal influence, demand was estimated at 16 thousand people per month with an additional seasonal demand of 38.6 thousand people for a total demand of 54.6 thousand persons. On average this would mean that for the month of July, there would be 1,761 individuals per day in July. This could vary from day to day and especially on weekends.

The diverse assemblage of native aquatic plants forms the base of the river's entire ecosystem. The plants are particularly vulnerable to physical damage. The many thousands of visitors each season have a significant impact on plants, creating barren sandy troughs that are void of aquatic live. When the State of Florida acquired the park, virtually the entire river bottom was bare. Today, aquatic plants have recovered.

Ichetucknee Springs has long been famed for tubing. This is the most important factor in attracting people to this area. According to Florida County Maps and Recreation Guides, natural spring water is always chilly. Because of this, tubing would be enjoyed more during the hot weather. Thus, we believe in the extreme seasonality peaking during the May-August period. Because seasonal visits decline precipitously during the September-April period, it would appear that the relatively cold weather in North Central Florida compared to Central and South Florida makes tubing and general water recreation very sensitive to temperatures.

Economic Profile of the Areas Surrounding Ichetucknee Springs

The thrust of this report is to identify the direct economic impact of the springs in a particular area. So, it is important to look at the economic setting in which the springs exist. Ichetucknee Springs is in two counties in North Central Florida consisting of Suwannee and

Columbia Counties. Table 2.1 shows some relevant economic statistics pertaining to these two counties. Two approaches may be taken. First, the reader may wish to compare just one county with the economic impact of the springs, which will be discussed below. This may especially be true of Suwannee County, which contains so much of the Ichetucknee Springs area. This county is relatively small and would make the Springs look larger than if it were compared to Columbia County, and especially both counties together. Second, since the Springs exist in two counties, we may wish to compare the economic impact of the springs with both counties which we have added together in Table 2.1.

Both Suwannee and Columbia Counties are not densely settled compared to Florida. Columbia and Suwannee Counties have 71 and 50 persons per square mile respectively compared to 303 persons per square mile for Florida as a whole according to the Bureau of Economic and Business Research, University of Florida (2001). This area includes a relative abundance of land compared to people that is reasonably conducive to park expansion. However, springs are not readily expandable as a natural resource and we can see that park authorities are already limiting the number of tubers per day.

In terms of temporal changes in economic variables in the Ichetucknee Springs area, let us first deal with resident population which has expanded from just under 70 thousand people in 1990 to nearly 92 thousand at the turn of the century representing a 31.6% increase, a much faster increase in growth than the State of Florida as a whole (23.2%) which is shown in Table 2.1. The open space coupled with relatively inexpensive land has not only attracted new resident to the states, but even people from Southern Florida, which has become increasingly congested. See Bonn and Bell (2002) for a discussion of these factors.

Table 2.1
Population, Income, Per Capita Income, Jobs and Earnings Per Job
In and Around the Ichetucknee Springs Area, 1990 & 2000

	1990	2000	%Change	Rank Among 67 Counties in 2000
Population Growth				
Columbia	42,861	56,801	32.5	38
Suwannee	26,918	35,054	30.2	45
Two Counties Total	69,779	91,855	31.6	N/A
Florida	13,033,307	16,054,328	23.2	
Aggregate Income Growth (Thous $)				
Columbia	581,698	1,086,464	86.8	39
Suwannee	385,737	646,102	67.5	45
Two Counties Total	967,435	1,732,566	79.1	N/A
Florida	258,479,049	445,739,968	72.4	
Per Capita Income Growth ($)				
Columbia	13,572	19,128	40.9	43
Suwannee	14,331	18,432	28.6	45
Two Counties Total	13,865	18,862	36.1	N/A
Florida	19,832	27,765	40.1	
Employment / Job Growth				
Columbia	14,650	20,221	38.1	36
Suwannee	7,970	9,988	25.3	46
Two Counties Total	22,620	30,209	33.6	N/A
Florida	5,802,287	7,566,198	30.4	
Average Wages / Earnings Per Job ($)				
Columbia	17,145	25,324	47.7	32
Suwannee	15,746	20,606	30.9	55
Two Counties Total	16,652	23,764	42.7	N/A
Florida	21,244	30,226	42.3	

Source: Regional Economic Information System, U.S. Bureau of Economic Analysis, CD ROM, 2002

The two counties containing the Ichetucknee Springs had a more rapid economic expansion as measured by aggregate personal income shown in Table 2.1 than the State of Florida. This should be clarified by calling the reader's attention to the fact that Columbia County containing Lake City at the intersection of I-10 and I-75 was primarily responsible for this faster economic expansion than that experienced by the State. In terms of growth, Suwannee County is not growing as fast as the State and a more rapid development of such attractions as Ichetucknee Springs may serve to expand visitor growth over the next decade. This can be seen by consulting Table 2.1. We have placed the ranking of the economic variable on the right side of Table 2.1, which indicates for the year 2000 how the county ranks when compared to the 67 other counties throughout Florida. For example, Suwannee County is ranked 45th in both population and aggregate personal income among all 67 counties in Florida with the number one county having the largest number for whatever variable is considered. Notice that the sum of the two counties which we have called "Ichetucknee Springs" in Table 2.1 cannot be ranked since the number of counties will vary by the springs were are analyzing.

More than growth or many other economic variables, the level of per capita income is the most important general measure of economic welfare. Income comes from a variety of sources of which some may not be that obvious. Of course, the largest and most obvious source of income comes from earning from work by individuals in the county of residence or adjoining counties. However, income also includes transfer payments such as income maintenance (e.g., food stamps, etc); unemployment insurance and retirement income. Finally, many individuals have been successful in accumulating capital, which pays dividends, interest and rents. Thus, relatively wealthy people as measured by the holding of income earning assets will tend to elevate per capita income for a particular income. Most of this capital producing income is

counted on for retirement, which characterizes many communities in Florida. Table 2.1 shows that in the year 2000, the per capita income in both Columbia and Suwannee Counties was well below the State of Florida. For example, Columbia county's per capita income for the year 2000 was $19,128 compared to $27,765 for the State or about 69% of the state level. These data indicate that the Ichetucknee Springs area is not relatively affluent when compared to the State of Florida. Bonn and Bell (2002) have examined this area and concluded that unless efforts are made to develop these and other counties along the Suwannee River it would not appear that this area will make much progress in achieving economic parity in per capita income with the State of Florida by the year 2015.

At the bottom of Table 2.1, we see one component of per capita income or average earnings per job both from full and part time employment. As we can see, earnings from the industrial structure of the area are almost 17% below that obtained by all Floridians combined for Columbia County and only nearly one-third for Suwannee County. Both counties specialize in low paying industries such as farming, forestry, paper and wood manufacturing and service industries. As previously documented, Columbia County lies at the intersection of I-10 and I-75 enticing visitors traveling to warmer destinations in Florida (e.g., Orlando) to stop and spend money on hotels/motels and restaurants. Columbia County has 2,040 hotel and motel rooms compared to just 309 rooms in Suwannee County. Below, we shall look at the importance of visitor spending associated with Ichetucknee Springs that supports many of the industries in the two-county region. Notice that the number of jobs in both Columbia and Suwannee Counties as shown near the bottom of Table 2.1 have grown more rapidly (33.6%) than those statewide (30.4%) over the 1990-2000 period. As pointed out by Bonn and Bell (2002), most of this employment growth has come from service industries such as those catering to visitors. Such

visitors are primarily pleasure travelers, campers; sightseers and general ecotourists. Table 2.1 shows that in terms of earnings per job Columbia County is in the mid-range of counties (i.e., 32nd out of 67) while Suwannee County has a relatively low wage structure (i.e., 55th out of 67).

Table 2.2 shows some other important economic dimensions of the two counties that contain Ichetucknee Springs. First, the measured unemployment rate in the year 2000 in Columbia County is somewhat higher than that for the State of Florida while Suwannee County is exactly at the State average unemployment rate. Thus, we do not believe that measured unemployment in these counties is a significant factor in contributing to a lower level of economic welfare (i.e., per capita income only 68% of state average). In fact, the Ichetucknee economic area is growing at a faster rate as measured by income and employment than that of the State of Florida, which helps moderate the level of measured unemployment.

A lesser-known measure of economic conditions in an area is the "participation rate". This is the ratio of those employed to the area's resident population between the ages of 15 and 65. The reason for restricting the population to those between 15 and 65 years is to isolate those that could be "potential workers" if there were enough jobs. Of course, not all individuals in this population age bracket would work under normal conditions since some in this group must be available for caring for children and others are not able to work because of health considerations. However, many rural areas just do not have enough jobs to go around. Economics have labeled this insufficiency "disguised unemployment" since it is not directly measured. As the participation rate falls, it is more likely that disguised unemployment will be present. Such unemployment is not measured as those either on the unemployment roles or looking for work. This statistic is shown in Table 2.2. For example, the participation rate for Suwannee County in the year 2000 is 63.8%.

Table 2.2: Socioeconomic Characteristics of Counties in Florida
Containing the Ichetucknee Springs State Park, 2000

Recorded Unemployment Rate	%	Rank Among 67 Counties in Florida
Columbia	4.35	25
Suwannee	3.75	30
Two Counties Average	4.05	N/A
Florida	3.75	N/A
Labor Force Participation Rate*	%	
Columbia	68.1	39
Suwannee	63.8	45
Two Counties Average	66.5	N/A
Florida	78.5	N/A
Poverty Rate (% of Population)	%	
Columbia	20.4	22
Suwannee	19.1	26
Two Counties Average	20.0	N/A
Florida	15.2	N/A

	Income	Income From ($)		
	Per Capita ($)	Earnings	Cap Inc	Trans Pay
Columbia	19,128	11,636	4,193	3,299
Suwannee	18,432	10,254	3,222	4,956
Two Counties Average	18,780	10,945	3,708	4,127
Florida	27,764	16,560	7,005	4,199

* Percent of population in the county between the ages of 15-64 who are employed.

SOURCE: FLORIDA STATISTICAL ABSTRACT 2001, BEBR, UNIVERSITY OF FLORIDA (2001)

However, for the State of Florida the participation rate is 78.5% or nearly 15 percentage points above that for Suwannee County. A similar pattern is true for Columbia County, but disguised unemployment may be less severe in this county. Obviously, if a high segment of the population is not gainfully employed, this tends to lower the level of economic welfare or per capita income as we have discussed above. We believe that much of the lower level of per capita income in the eight counties surrounding the Suwannee River is a result of disguised unemployment. This was discussed recently by Bonn and Bell (2002). A more rapid rate of job creation in the area would help to expand the job base. Bonn and Bell (2002) concluded that employment related to visitors and the location of retirement communities in the Suwannee River area might have a comparative advantage over other areas such as those in Central and South Florida. Thus, the valuable natural springs in North Florida might be important for attracting visitors to the area.

The poverty rate is another indicator of the economic welfare of a region. This rate measures the number of "poor people" as a percent of the population. A poor person is one earning less than $9,000 per year. In Table 2.2, 20% of the Ichetucknee counties fall into the poverty category. In the entire State of Florida, only slightly more than 15% lie below the poverty line. This finding is consistent with our hypothesis of disguised unemployment.

Finally, for those people receiving income, we might look into the components of per capita income. This is shown at the bottom of Table 2.2. In essence, there are three large components of per capita income: (1) earning from work; (2) income from investments such as bank deposits, bonds and stocks and (3) transfer payments to individuals such as income maintenance (e.g., unemployment compensation). For example, Suwannee County residents received, on average, $18,432 in per capita income, which consisted of $10,254 in earned

income (i.e., 56%). Transfer payments were $4,956 while income from capital investment was $3,222 per year. Except for transfer payments, all components of per capita income are considerably smaller than the State of Florida. This is consistent with our economic analysis of Suwannee County. Residents earned a relatively low income from work and investments. The industrial structure of Suwannee County has relatively low-paying jobs and their per capita income makes it difficult to save much to invest. Thus, their flow of interest, dividends and rents per capita (i.e., Cap. Inc in Table 2.2) is less than one-half of that received by other Floridians.

Direct Economic Impact of Ichetucknee Springs: The Model

In this section, we shall first discuss the rudiments of the economic model used to estimate spending, wages and job creating power of the visitor sector for Ichetucknee Springs, Florida. As we have seen in earlier sections, very good data are available on the universe (numbers) of persons visiting a springs during any particular year, yet we know very little about their actual behaviors such as the types of accommodation modes they use, their spending patterns and the numbers of jobs and wages they create by visiting the Springs and sending money in the immediate area. Every time a person visits a natural spring, we can call this a person visits (PVIS) which is composed of both visitors from outside the economic area (e.g., Columbia; Suwannee or a combinations of these counties) and residents from within the economic area. In this report, we shall concentrate on visitors or eco-tourists from outside the economic area in which the springs are located. Spending by visitors is especially important since they have a multiplier effect throughout the region. Small economic areas in which these natural springs are located usually have low multiplier effects since their initial spending is rapidly "leaked" out of the area. Because of this, we have only included the direct economic effect of visitors. Also, resident spending was not included since they are a result of the growth

of the region and not the prime stimulus such as tourism or physical exports from the region. If we define "k" as the percent of persons attending the springs whom are from outside the economic area or visitors (i.e., eco-tourists), then visitor person visits may be defined as follows:

(1) VIS = k PVIS

where VIS = Number of visitors from outside the springs area;

k = Percent of all visitors from outside the springs area

PVIS = Total number of people attending the springs area

We have already looked at the trend in PVIS in Figure 2.1 above. Some fraction of PVIS or "k" is from outside the economic area. To estimate the total expenditures by VIS (i.e., non-residents), we can use the following formula:

(2) $EVIS = VIS*LS* ($EPPD/ SP)

where $EVIS = Total expenditures by visitors outside the springs area

VIS = Person visits from outside the area (Equation 1)

LS = Length of stay in the springs area

$EPPD = Expenditures by VIS

SP = Size of party

These total expenditures by visitors range from items such as camping fees, costs of motel rooms, and dollars spent in local restaurants. They will be discussed in detail below when we arrive at the empirical implementation of this direct economic impact analyses. On the right hand side of equation (2), we first multiply VIS by LS. LS is the average number of days stayed in the springs area by the visitor. Note that **we are attributing all days spent in the area to the springs since this was the primary motivation for the visit according to the survey responses**. This yields the total number of days spent in the springs area. The last term or

($EPPD/SP) is the expenditures per person day. The reason we express expenditures in per person days is because when sampling visitors (i.e., covered below) the head of the party is asked what is spent for the entire group. This is especially important in families where the father or mother can speak for the entire group including children. Equation (2) above is for all expenditures. Individual items from $EPPS can also be isolated so that we may estimate total expenditures on restaurants or gas stations, for example.

Finally, we can derive the direct employment created by expenditures using the following formula:

(3) E = $ELVIS / (SPEND/ EMP)

E = Employment created by visitors from outside the Springs area;

$ELVIS = Total expenditures by visitors from outside the Springs area;

(SPEND/EMP) = Ratio of sales or spending to employment for those categories such as motels, restaurants and camp fees by those from outside the Springs area.

The sales or spending to employment ratio is obtained from Census data collected by the Federal government within the region under consideration. Finally, the same source yields the ratio of wages generated to sales or

(4) WAGES = g $ELVIS

Again, both employment and wages can be estimated for aggregate spending and spending on individual items by obtaining the sales to employment ratio and percent wages of sales or spending from outside sources. Thus, the economic impact of the Springs can be obtained by using the combination of published data supported by data collected on-site during the sampling of visitors actually using the natural springs. In addition, visitors may also be categorized into groups based upon the type of accommodation mode they used which includes (l) hotels/motels;

(2) condominiums; (3) family/friends; (4) campsites and (5) day visitors. In the latter case, there is no real accommodation mode since visitors spend the day and then return to home or elsewhere. Day visitors might come from surrounding counties since the travel distance to Ichetucknee Springs is not far, allowing visitors to return to their home at night. This is probably more prevalent in Ichetucknee Springs since there are no campsites in the Springs/Park.

The above model may be illustrated by an example. Assume that 1,000,000 visitors attend the springs during a given year and 90% (k) are from outside the springs area yielding 900,000 VIS. According to sampling, it is determined that the average length of stay in the springs area (LS) is 2 days and the size of the average party (SP) visiting the springs is 4 individuals. These parties collectively spend $400 per day (i.e., $EPPD). Using equation (2), spending by the VIS would be estimated as follows:

(5) $ELVIS = $180 Million = 900,000*2 ($400/4)

Thus, visitors from outside the springs area are estimated to spend $180 million in this example. For the combination of goods and services bought by visitors to the springs, assume that each employee sells $250,000 per year. These sales would support 720 employees per year ($180 Million / $ .25 Million). Lastly, assume that wages are about 15% of sales ("g"). This would mean that wages generated are $27 million (.15*$180 Million) or $37,500 per employee as annual wages. This is just an example; all numbers are hypothetical and may not reflect actual ones in the case of this report's natural springs.

Estimation of the Direct Economic Impact of Ichetucknee Springs

Table 2.3 contains the result of implementing the model discussed above to ascertain the direct economic impact of visitors from the area surrounding the Ichetucknee Springs. During the 2002 fiscal year, 188,845 people visited the park of which 90% were from outside the region

(i.e., Columbia, Suwannee Counties). Thus, there are an estimated 169,962 person visits from outside the region of impact. These individuals are from Florida and outside of Florida. From the sample discussed above, we obtained the distribution of those person-visits from outside the region of impact. Notice that day visitors make nearly half of all person-visits. Ichetucknee Springs is a short drive from such population centers as Jacksonville, Tallahassee, Tampa and Orlando, Florida for example. In addition, the Springs offers no overnight camping so it is not surprising that most of the visitors are classified as day visitors. Day visitors are of interest since they spend less because they have no lodging expenses. $EPPED or daily spending per person was estimated from our sample at only $19 per person day as shown in Table 2.3. Near the top of this table, we find non-resident visitors segmented by their accommodation mode, their party size and their length of stay in the area, which are all needed to calculated expenditures.

We found that party size is largest for condominium use and smallest for those staying in hotels and motels. Those staying with friends and family stayed the longest in the Ichetucknee Springs area (i.e., 7 days) while day visitors were, of course, limited to one day.

Equation (5) was used to illustrate just how expenditures by visitors are estimated. Such expenditures can be estimated for each category of accommodation as shown in Table 2.3. Consider Friends and Family as an illustration as follows:

(6) $ELVIS (Friends/Family) = 31,953 * 7 ($247 / 4.5) = $12.3 Million

Those staying with friends and family while being drawn to Ichetucknee Springs for its amenities spent an estimated $12.3 million in fiscal year 2002. This accommodation mode spending is shown at the bottom of Table 2.3. There are 10 spending categories in the survey instrument. The pattern of expenditures varies depending, in part, upon the accommodation mode.

Table 2.3
Estimation of the Direct Economic Impact of Visitors
Associated with Ichetucknee Springs, Fiscal Year 2002

	All People Attending Springs	X	Percent of Attendance Visitors	=	Estimated Outside Area Visitors
Non-Resident Visitors to the Springs	188,845		0.9		169,962

Percent of Visitors from Outside the Springs by Accommodation Mode & Other Statistics	Sample Size N	Percent (k)	Visitors (VIS)	Party Size (SP)	Length of Stay (LS)
Hotels and Motels	42	0.118	20,056	4	2
Condominiums	7	0.020	3,399	6.5	5.6
Friends and Family	67	0.188	31,953	4.5	7
Camping	66	0.185	31,443	8	3
Day Visitors	174	0.489	83,111	7	1
Total	**356**	**1**	**169,962**	**6.4**	**2.7**

Estimated Spending per Party and Individuals by Accommodation Mode	$EPPD (Daily Spending Per Party)	$EPPED (Daily Spending Per Person)
Hotel and Motels	$410	$102
Condominiums	$451	$81
Friends and Family	$247	$55
Camping	$275	$35
Day Visitors	$134	$19
All	**$215**	**$34**

Estimated Spending, Wages and Employment	Spending (Mil $)	Wages (Mil $)	Employment
Hotel and Motels	4.1	0.99	59
Condominiums	1.5	0.37	21
Friends and Family	12.3	2.63	160
Camping	3.2	0.78	48
Day Visitors	1.6	0.32	23
Total	**22.7**	**5.09**	**311**

For example, as pointed out above, day visitors will not have any expenditures on hotels and motels. As pointed out in the last section, the wages and employment derived from this spending are treated by the kind of expenditure. For example, out of $12.3 million of spending by those visiting friends and families, $1.99 million was spent on restaurants. From the U.S. Census of Business (1997) and an update to current or 2002 dollars for restaurants, this yields $37,939 in revenue (i.e. customer spending) generated per employee annually for the restaurant industry. Thus,

$1.99 million will employ about 53 individuals (i.e., $1.99 Million divided by $37,939). Wages generated by visitors staying with friends and family was estimated at 26.94% from the U.S. Census of Business (1997) or $.536 million by spending at restaurants, for example. On an annual basis, full and part-time restaurant workers would earn about $10,113 per year.

Visitors staying with friends and family spent a total of $12.3 million on goods and services related to Ichetucknee Springs of which $2.63 million were generated as wages and salaries employing an estimated 160 full and part-time individuals. This would mean that annual earning would be about $16,438. This reflects many low wage industries such as motels, restaurants, entertainment and shopping to mention a few. Also, many of these jobs are part-time in nature yielding less income per year.

Looking at the bottom of Table 2.3, we see the direct economic impact of visitors to the area in which the Ichetucknee Springs is located summed across all accommodation modes. In terms of spending, the friends and family category contributed the most spending while attending the Springs (i.e., $12.3 million) while those using condominiums contributed the least spending while attending the Springs (i.e., $1.5 million). Eco-tourism that depends on visitors staying in hotels and motels would contribute the most per party day to the area (i.e., $410). There are

camping facilities near the Ichetucknee Springs and these are apparently used by those visiting the Springs. Campers visiting the Springs contribute $3.2 million in spending while visiting the Springs. This impact assumes that the Ichetucknee Springs was the main and fundamental attraction to the area and that campsites were supportive of this visit.

In summary, visitors from out of the area to Ichetucknee Springs contributed about $22.7 million in spending in Columbia and Suwannee Counties. This direct spending created an estimate $5.09 million in wages and salaries supporting 311 jobs in the area. Workers in this visitor industry make $16,367 per year. Most of the spending and employment is created in restaurants ($3.86 million); shopping ($3.75) and ground transportation/gasoline ($2.95) or over 47% of all spending in Table 2.4. More specifically, the distribution of spending and related employment and wages is shown in detail for our ten categories of spending by visitors in Table 2.4. These industries are rather labor intensive. For example, the average wages per job in the two-county area was $23,764 or 45% higher than that estimated for spending categories related to the springs. Finally, if we combined the two counties of Columbia and Suwannee as discussed above, Ichetucknee Springs accounted for only 1% of employment and .7% of wages in the area. Of course, these percentages would be higher if we compared the springs created employment and wages to just Suwannee County where most of Ichetucknee is located. If we did this, the springs direct employment would be 3.1% of employment and 2.4% of wages when the Ichetucknee Springs created employment and wages is compared to just Suwannee alone. Since most of the industries are labor intensive compared to the entire county employment, we would expect that the expansion in the industries servicing the springs would add more jobs than a general expansion of employment in the counties, but, of course, less wages.

Table 2.4
Estimation of Categories of Spending by Those Visitors Outside
the Ichetucknee Springs Area, Florida, 2002

Spending Category	Spending (Mil $)	Related Employment	Related Wages (Mil $)
Lodging	1.44	29	0.35
Food & Beverages(Restaurants)	3.86	102	1.04
Food & Beverages(Groceries)	1.78	13	0.18
Sport Fees	1.04	12	0.48
Event Admission Fees	1.67	18	0.29
Admissions to Attractions	1.63	18	0.37
Evening Entertainment	2.31	26	0.83
Ground Transportation	2.95	14	0.94
Shopping	3.75	31	0.39
All Other	2.27	48	0.22
All	22.7	311	5.09

Note: Aggregate Expenditures for All Categories Including Hotel/Motel; Family/Friends; Camping and Day Visitors to Ichetucknee Springs State Park.

CHAPTER 3

Direct Regional Economic Impact of Wakulla Springs State Park, Florida on Surrounding Areas

Description of Wakulla Springs

The Edward Ball Wakulla Springs State Park is located in Wakulla County, Florida. This county is located on the Gulf of Mexico in the northwestern part of Florida. More specifically, the park is located 14 miles south of Tallahassee on S.R. 267 at the intersection with S.R. 61. Wakulla Springs is heralded as one of the largest natural spring basins in the world. The spring, some four acres in size, boils from a limestone foundation to form the head of the Wakulla River. The main spring boil is very deep (about 200 feet) and so clear that the bottom can be seen in detail. The central point of public areas includes a grand lodge complete with 27 guest rooms. The building is listed on the National Registry of Historic Places. Structured from local cypress timbers, the main entrance to the lodge's front desk creates a spectacular ambiance with 30 foot high ceilings, a huge 20 foot hearth fireplace constructed with lime rock boulders, a solarium, gift shop, snack bar, and a regionally acclaimed restaurant capable of seating several hundred guests for banquet-style events such as weddings. Visitors are eventually lured to the dock, where informative Florida Park Service rangers guide small groups of nature lovers through the waterways in glass bottom tour boats. The boat tour meanders through areas where Tarzan and Creature From the Black Lagoon were filmed decades ago. Industrialist and Financier Edward Ball, built the massive hotel and developed the property for public use. Picnicking and swimming are popular park activities. Visitors are also commonly seen fishing and snorkeling in the Wakulla River just below U.S. 319, outside the park boundary. This natural area is known for abundant wildlife, especially deer, turkey, wild boar, bald eagles, alligators, manatees and abundant species of fresh and saltwater fish.

Located within a pristine ecosystem, Wakulla Springs State Park is surrounded by 4,741 acres of protected forest. This area has been managed as a public state park since 1986. The

actual natural spring is semi-circular with a diameter of 400 feet. This natural spring generates 252 million gallons of water per day. This flow forms the Wakulla River, which proceeds on a nine-mile journey where it merges with another spring-fed water source named the St. Marks River. The confluence of these two rivers then empty into Appalachee Bay where many marine species of fish and shellfish thrive as a result of an optimal habitat produced by the proper salinity which represents a balance of fresh and salt water.

In 2001-2002, 12,662 individual used the lodge at Wakulla Springs State Park for "night use" while 167,811 visitors came for just a day visit. Over 3,500 individuals engaged in boat tours during the year. The primary mission of Wakulla Springs is to ensure that guests have a quality experience when visiting for dining, lodging, enjoying nature, education, swimming, picnicking, or any other form of recreation. Management of these precious natural and cultural resources for future generations is also a key mission. The park slogan is "We Make Memories".

Natural Resource Protection

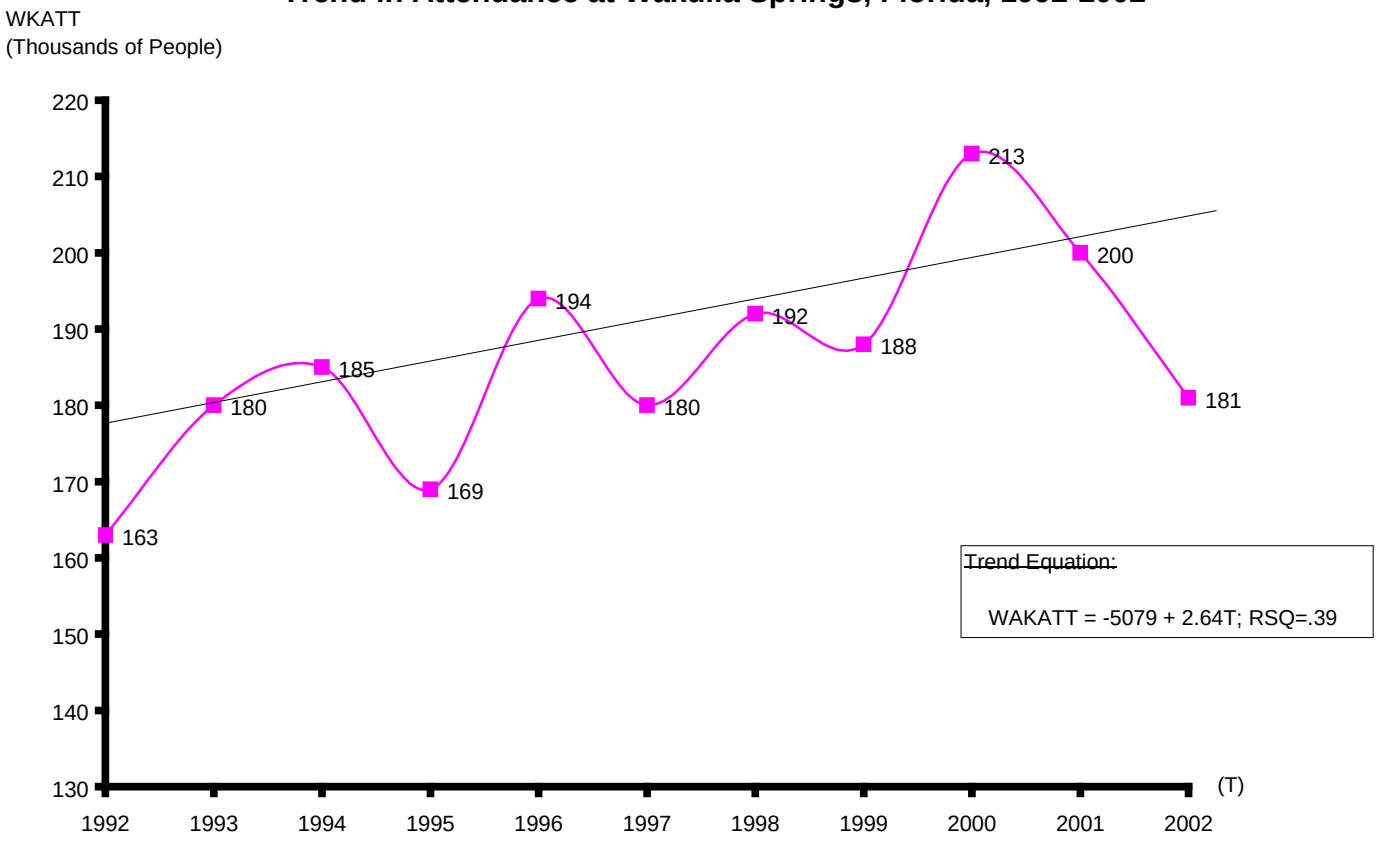
Wakulla Springs has special environmental factors that must be considered when protecting the spring and its diversity of natural resources. There is an established program to reduce the invasion of hydrilla, a non-native plant in Florida. This floating plant crowds out native vegetation and makes navigation with a boat more difficult due to clogging of boat propellers with mats of hydrilla. In addition, development in Wakulla County has increased the level of nitrate, phosphorous and other contaminants, which have decreased the water quality. Decreased water quality can seriously affect the river ecosystem, its drinking water and eventually the visitations at the park. It has been established by Leeworthy and Bowker (1997) that decreased environmental quality is a leading indicator of decline in economic activity. This is especially true where the local economy depends heavily on eco-tourism that is based on natural resources. They further state that the decline in the environmental quality or ecosystem

has had a negative effect on the market economy. The market economy consists of sales, wages and employment that are directly dependent on the maintenance of a high degree of environmental quality. This is especially prevalent in Florida where one of the main attractions is the quality of saltwater beaches. Beach erosion and appearance will act to deter not only visitors, but also the visitor spending on hotels, restaurants and other expenditures. This is no different for natural springs that attract visitors due to their pristine nature now being threatened by external forces such as exotic weeds and land development. One way of documenting this effect is to survey visitors and ask them over a period of time how many visits they have made to the area. If an area has a situation of deteriorating springs, one might postulate that attendance would be dominated by "first time visitors". After a few visits, tourists would decide to go elsewhere or pass up a particular spring once the environment starts to decline. This is why we look at the trend in attendance to the springs over time so we can identify such effects. The environmental and economic attributes of parks based upon springs should be subject to a periodic monitoring to ascertain how such declines, if present, impacts the market economy of jobs, wages and employment. We would encourage those with the responsibility of managing natural springs throughout the state to make periodic assessments of how attendance is impacted by changing environmental quality. This will enable planners to estimate how the market benefits at a point in time depend on the present environmental quality and how upward or downward trends in this quality are impacting attendance and consequently sales, jobs and wages in the local area.

Annual Trends and Seasonal Use of Wakulla Springs State Park

In fiscal year 1992, about 163 thousand people visited Wakulla Springs State Park. By fiscal year 2002, over 181 thousand persons visited the springs, representing an 11% increase over the last 11 years.

Figure 3.1
Trend in Attendance at Wakulla Springs, Florida, 1992-2002



Source: Division of Recreation and Parks, Florida Department of Environmental Protection, Unpublished Data.

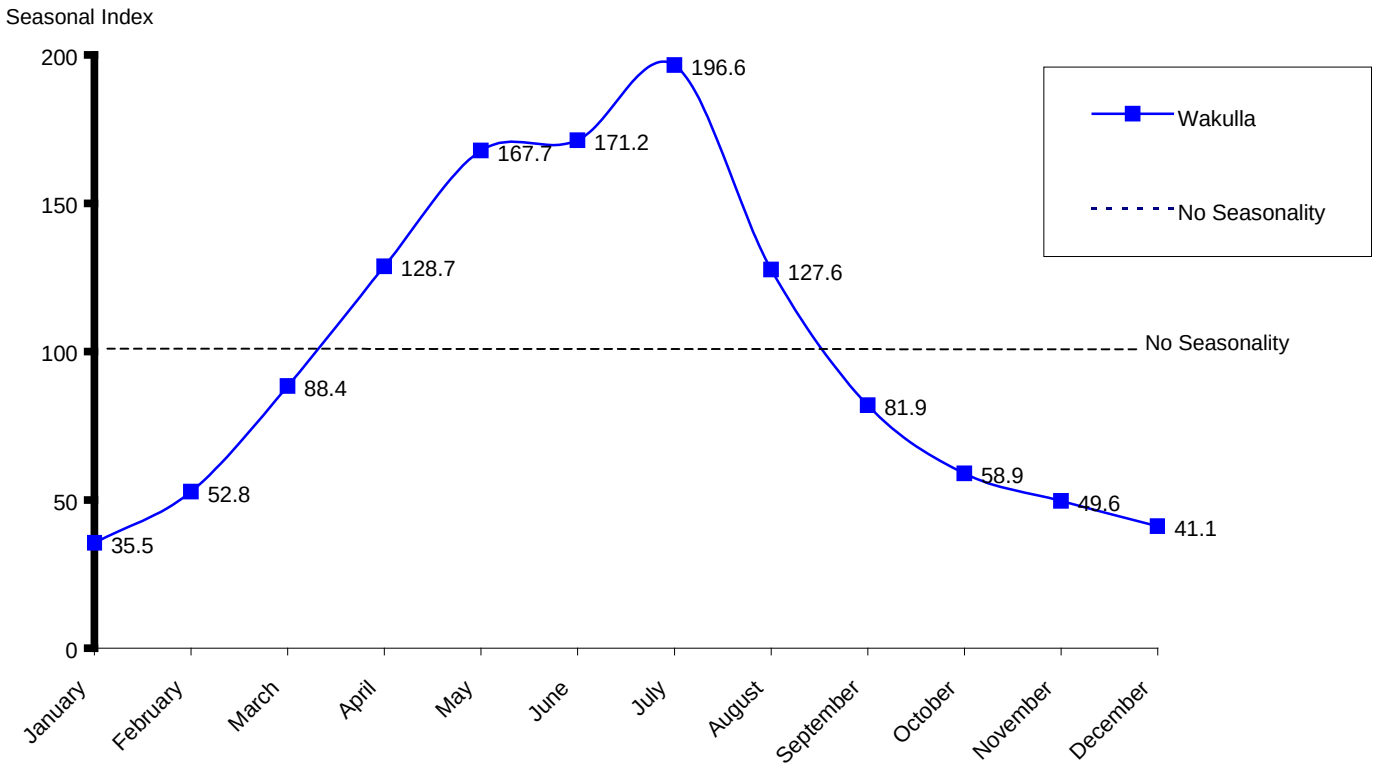
By Florida standards, the growth in attendance is slow at only 1% per year. In Figure 3.1, annual park attendance data are plotted over this time period to calculate the annual trend in people attending the park combined with an idea of the year-to-year fluctuations in park attendance. The straight line plotted through the attendance data indicates the annual trend in Wakulla Springs State Park attendance where the computed trend (WAKATT) is given in the lower right hand corner of Figure 3.1. All attendance data were obtained from the Division of Recreation and Parks, Florida Department of Environmental Protection (unpublished)(2002).

The trend equation for Wakulla Springs State Park indicates an annual growth in people attending this park by 2.64 thousand per year. From the Figure 3.1, it would appear that the growth in park attendance was linear, on average, or a constant number of additional attendees per year rather than exponential where the growth is maintained at a constant percent per year with a rising number each year. Of great interest, the reader should note a great fluctuation in attendance from year-to-year where peaks occur about every two years over the 1992-2002 period. Compared to Ichetucknee Springs State Park reviewed in Chapter 2, Wakulla Springs State Park attracts only about half of the increase in attendance per year (i.e., 5.54 compared to 2.64 thousand visitors per year). In both absolute and percentage terms, it appears that Wakulla Springs State Park is growing slower than Ichetucknee Springs State Park as measured by attendance. Using the RSQ (i.e., the coefficient of determination that indicates the percent of time trend explained by the secular time trend) in Figure 3.1, it indicates that the annual linear trend explains about 39% of Wakulla Springs State Park over the 1992-2002 time period that is attributed to annual cycles or what is not explained by the annual trend. Thus, cyclical behavior in park attendance for Wakulla State Park nearly doubles what was observed in Ichetucknee State Park as discussed in Chapter 2. High cyclical behavior creates many economic problems

for a park. For example, the planning of a labor force to manage the park may need to involve significant numbers of part-time employees. Over-utilization of facilities during annual peaks involves crowding for attendees. Greater fluctuations in revenue generated by the park makes it difficult to fund infrastructure expansion in an orderly manner. Therefore, this analysis of park attendance and the recurring cyclical pattern shown in Figure 3.1 may be very valuable to park managers and planners, especially if they know the source of the fluctuation such as the national or regional economy; shifts in demographic patterns or highway construction. The source of such apparent recurrent cycles is beyond the scope of this analysis and would be limited to just four park springs in Florida. Of particular note, the trend is important since it will tell us how fast the economic impact of this natural springs park might expand in the future and thereby have a job creating effect on the surrounding rural economy. This will be discussed below.

Seasonal use of a park refers to the month-to-month variations in attendance. Seasonal variation may be due to the nature of the resource (e.g., change in water temperature) and/or man-made events that influence demand for goods and services. Knowledge about park seasonality will help park planners in assembling resources at the proper intervals during the year to accommodate demand. We obtained monthly data on Wakulla Springs State Park attendance from the Division of Recreation and Parks, Florida Department of Environmental Protection. This was analyzed from 1992 to 2002 for this spring. The analysis was done, as in Chapter 2, by asking the question first of what attendance would be per month assuming there was no seasonal influence. This can easily be computed by dividing annual attendance for any year by the 12 months of the year.

Figure 3.2
Seasonal Attendance Index for Wakulla Springs, Florida, 1992-2002*



*All Seasonal Figures: % above or below no seasonality or 1/12 of annual attentance for each month.

Source: Division of Recreation and Parks, Florida Department of Environmental Protection, Unpublished Data.

For example, annual attendance for Wakulla Springs State Park in 2002 was about 181 thousand people. If we assumed even (steady or constant) demand over the year, then monthly attendance would be 181 thousand divided by 12 or about 15 thousand persons per month. Assume that we wish to find the degree of seasonality for the month of January 2002. Attendance actually recorded in the month of January was a little over 5 thousand persons or about one third. If we look at Figure 3.2, we see that seasonality was 35.5 for 11 months of January over the 1992-2002 period or one third of 100 which indicates "no seasonality". Seasonality was discussed in some detail in Chapter 2. In our example for Wakulla Springs State Park, January has the lowest seasonal indicator at 35.5 in Figure 3.2 indicating that this month fails to attract many visitors relative to other months during the year. From Figure 3.2, we can see an obvious pattern to seasonality at Wakulla Springs State Park. From April through August, there is a peak in seasonal attendance while the winter and fall tend to be the period in which the occupancy or use rate of this park falls considerably. We consulted Wakulla Springs State Park manager Sandy Cook (2003) to explore reasons for our seasonal findings. The period during the year where seasonality begins (i.e., number or index is greater than 100) is in late March and early April and peaks in July. According to Cook, school groups plan field trips to the park around this time. Between June and August, there is a strong positive seasonal effect (i.e., Seasonal Index above 100) due to children being out of school and families using the park to swim and picnic. In addition, the colder weather and lower water temperatures during fall and spring months deter people from using the park as they do during hot summer months. Of particular note, it is instructive to examine those influences that apparently are not at work to create seasonality of attendance. It would appear that Wakulla Springs is not exactly a haven for winter visitors (ie. snowbirds). If it were, we would expect periods of high seasonal demand would be in the

January through May period of the year, which occurs in North Florida as traffic flows toward Orlando, Tampa and Miami for the peak of the year. It would appear that Wakulla Springs State Park and Ichetucknee Springs State Park both have quite similar seasonal patterns (i.e., compare Figure 2.2 with Figure 3.2). The distance between Columbia/Suwannee Counties and Wakulla County is less than 100 miles so we might expect that these two springs (i.e., Ichetucknee and Wakulla) are subject to the same seasonal influences such as weather, animal habitat, changing seasons of the year, etc. It would appear that the seasonality curves are somewhat different among the two springs. Wakulla Springs State Park's seasonality curve seems much flatter than the one generated in Chapter 2 for Ichetucknee meaning that the seasonal attendance pattern is much less pronounced for the former than the latter. We think this can be explained since Wakulla Springs State Park is much more diverse in potential activities at the park due to it's facilities and services (lodge, restaurant, glass bottom boats, etc., etc) while Ichetucknee Springs is known primarily for its tubing which is much more prevalent in warm as compared to cold weather. Thus, we see how facilities, services and products offered by Wakulla Springs State Park can have a large influence on the seasonal demand experienced by the area. Of great importance, we must now look at the economy of Wakulla County to see how Wakulla Springs impacts sales, jobs and wages in this community.

Economic Profile of the Area Surrounding Wakulla Springs

The thrust of this report is to identify the direct economic impact visitation to natural springs has upon those specific counties associated with natural springs. In this chapter, we examine the impact Wakulla Springs has upon Wakulla County, Florida. It is important to look at the economic setting in which the spring exists. Table 3.1 shows some relevant economic statistics pertaining to Wakulla County.

Table 3.1
Population, Income, Per Capita Income, Jobs and Earnings Per Job in Wakulla County, Florida Relating to Wakulla Springs State Park, 1990 & 2000

	1990	2000	%Change	Rank Among 67 Counties in 2000
Population Growth				
Wakulla County	14,437	22,979	59.5	56
Florida	13,033,307	16,054,328	23.2	
Aggregate Income Growth (Thous $)				
Wakulla County	206,494	518,309	151.0	49
Florida	258,479,049	445,739,968	72.4	
Per Capita Income Growth ($)				
Wakulla County	14,303	22,556	57.7	20
Florida	19,832	27,765	40.1	
Wage & Salary Job Growth				
Wakulla County	2,747	4,649	69.2	55
Florida	5,802,287	7,566,198	30.4	
Average Earnings Per Job ($)				
Wakulla County	17,349	27,033	55.8	25
Florida	21,244	30,226	42.3	

SOURCE: REGIONAL ECONOMIC INFORMATION SYSTEM, U.S. BUREAU OF ECONOMIC ANALYSIS (CD ROM, 2002)

Wakulla County is not densely settled compared to Florida. This county has 39 persons per square mile compared to 303 for Florida as a whole according to the Bureau of Economic and Business Research, University of Florida (2001). Thus, this area includes a relative abundance of land compared to people which is very conducive to park expansion. Wakulla County contains not only the developed and undeveloped areas of Wakulla Springs State Park, but also the Apalachicola National Forest.

In terms of temporal changes in economic variables in Wakulla County, the resident population has expanded from a little over 14.4 thousand in 1990 to a somewhat shy of 23 thousand at the turn of the century (i.e., 2000), a 59.5% increase as shown in Figure 3.1. As with many Florida counties, 90% of the population growth is due to in-migration to Wakulla County rather than the natural increase (i.e., births minus deaths of the resident population). Also, being on the Gulf of Mexico, this county has witnessed a great deal of residential development on the coast. This is especially true near Crawfordville, the largest city in Wakulla County. The median age of Wakulla County is 36.7 years compared to 38.8 years for the State of Florida which indicates that this county so far, has not attracted just retirees, but young workers as an ingredient of its industrial structure which will be discussed below. Of special note, population in Wakulla County has grown at a rate of over 2.5 times that of the State of Florida (i.e., 59% versus 23.2%). Although part of this growth may be explained by starting at a low base in 1990, most of the growth is based on open space coupled with relatively inexpensive land which has not only attracted new residents to the State of Florida, but people from Southern Florida which has become increasingly congested. See Bell and Bonn (2002) for a discussion of these factors. In Table 3.1, notice that we have also placed the ranking of Wakulla County economic variables relative to the other 66 counties in the State of Florida on the right hand side of this table. For

example, Wakulla County's population is 56th out of 67 counties meaning its relative population is very small.

Aggregate personal income in Wakulla County has increased by 151% over the 1990 through 2000 period compared to a much slower growth for the State of Florida as a whole of only 72.4%. Compared to the State of Florida, Wakulla County has been growing at a faster rate of growth in population and also in income per capita. The growth in income per capita for Wakulla County rose from $14,303 in 1990 to $22,556 in 2000, a nearly 58% increase compared to only about 40% increase for the State of Florida which is shown in Table 3.1. In 1990, Wakulla County's per capita income was only 72% of the state average; however, by the year 2000, it had grown to a little over 81% of the state average. Thus, the industrial base of Wakulla County is growing more and more toward higher paying jobs relative to the State of Florida. The faster rate of growth of this county will also raise wages. Therefore the rate of growth in the demand for labor in this county exceeds the demand by the state. As was true of population, wage and salary employment increased by nearly 70% over the last decade reflecting this rapid rate of growth as shown in Table 3.1. Although somewhat lower than the State of Florida average earnings per job, Wakulla County has narrowed the differential from 20% to about 10% over the 1990-2000 period reflecting a more rapid rate of growth in this county than experienced by the State of Florida. This can been seen at the bottom of Table 3.1. The more rapid rate of growth in population, income and wage and salary jobs and wages per job in Wakulla County is reflected in the nature of the industrial structure in the county.

The industrial structure of Wakulla County is dominated by Leon County to the north which is the Capital of Florida. Over 43% of the personal income generated in Wakulla comes from commuters using this county as a so-called "bedroom community". Although leveling in

recent years, State of Florida government employment has grown from 1990 to 2000. Such state employment contains a number of high paid jobs such as those working at FSU, FAMU and Tallahassee Community College. In addition, Wakulla County had over 23% of its employment in manufacturing compared to only 8.3% in Florida as a whole. This manufacturing employment is concentrated in food and kindred products; paper and allied products as well as chemical and petroleum commodities. In Florida as a whole, manufacturing jobs paid in 2000 were about $41,920 per year while non-manufacturing paid were about only $30,900, or 35.7% less. The largest private manufacturing employer in Wakulla County is General Dynamics (Saint Marks Powder Division) with 275 employees (Florida Chamber of Commerce, 2002), which manufactures large caliber ammunition and propellants under government contracts. However, the wage structure in Wakulla is pulled down by employment in commercial fishing, forestry and tourism.(e.g., Wakulla State Park Lodge and Springs) which typically are low wage industries due to low skill levels demanded and, in the case of tourism, the part-time nature of employment.

Table 3.2 illustrates some of the other socioeconomic aspect of Wakulla County that is important in ultimately evaluating the economic importance of Wakulla Springs State Park. Because of the more rapid rate of growth in employment, the unemployment rate has been well below that of the State of Florida as shown in Table 3.2. Note that the participation rate in this county is nearly 3 percentage points above that of the entire state indicating that the labor market in Wakulla County is especially tight and has induced more people to work. This is in stark contrast to Columbia and Suwannee Counties discussed in Chapter Two. For the Ichetucknee Springs State Park, we argued that "disguised unemployment" or a slack labor market is very indicative of this area. If we are examining a county in terms of adding jobs through the location of state parks to the tourist sector, then it would appear that the area surrounding Wakulla Springs would benefit more in terms of "job needs" than the

Wakulla Springs area. Of course, the location of a springs state park is dictated more by the location and characteristics of natural resources than by rural economic development needs. That is, the rural economic development needs of an area through the addition of jobs via the creation of parks would be heavily qualified by the location of the natural resources and whether such resources provide a significant attractant to visitors to Florida and its regions. The per capita income and growth in Wakulla County has helped to reduce the poverty rate in the county. Such a rate is much lower in Wakulla County than the State of Florida.

Finally, the general welfare of a county can be measured in terms of unemployment and poverty rates, but the bottom line is to be found in the relative level of per capita income. Being at or above the state average with respect to per capita income will reflect a somewhat higher "quality of life." Individuals can debate what factors determine the quality of life, but our emphasis is upon being employed with a relatively high level of income flowing to individuals in an area. More narrowly, we may be defining the economic quality of life, but at least we have defined what we mean by the concept as used in this report. At the bottom of Table 3.2, we see per capita income broken down into its important components. It should be noted that many counties throughout Florida have a high quality of economic life by working less than the State of Florida average participation rate. Such residents do not live off their labor, but their possession of capital such as bonds, stocks and rental housing. Collier and Palm Beach Counties in South Florida have such a high amount of capital per individual, that this elevates their per capita income even with an average level of earnings from labor. For example, individuals may choose not to work (even though they have skills in the medical or engineering fields) due to their relatively large ownership of capital assets. In Table 3.2, per capita income is broken down into all labor earnings, capital income (i.e., Cap Inc) and transfer payments.

Table 3.2
Socioeconomic Characteristics of Wakulla County, Florida
Containing the Wakulla Springs State Park, 2000

		Rank Among 67 Counties in Florida
Recorded Unemployment Rate	%	
Wakulla County	3.01	50
Florida	3.75	N/A
Labor Force Participation Rate*	%	
Wakulla County	81.2	13
Florida	78.5	N/A
Poverty Rate (% of Population)	%	
Wakulla County	13.9	45
Florida	15.2	N/A

Components of Per Capita Income ($)

	Income	Income From ($)		
	Per Capita ($)	Earnings	Cap Inc	Trans Pay
Wakulla County	22,556	16,900	2,763	2,893
Florida	27,764	16,560	7,005	4,199

* Percent of population in the county between the ages of 15-64 who are employed.

SOURCE: FLORIDA STATISTICAL ABSTRACT 2001, BEBR, UNIVERSITY OF FLORIDA (2001)

This exhausts the flow of income to an individual. All labor earnings (i.e., income from work to all that work including sole proprietors) per capita in Wakulla County are about 2% higher than that for the State of Florida. However, income from capital is much lower in Wakulla County than that statewide. People tend to be younger in Wakulla County as discussed above and also have a higher percentage of the population between 15-64 who works (i.e., participation rate). Residents of Wakulla County fall less into the retirement category and more into the category where individuals are at the beginning phase of their work/life cycle. Per capita "capital income" is only about 40% (i.e., $2,763/$7,005) of the statewide average in Wakulla County. Finally, transfer payments comprise the third component of per capita income. Transfer payments are composed largely of retirement income, unemployment compensation and other forms of personal aid (e.g., Medicaid). In Wakulla County, there are less individuals in retirement (i.e., less retirement income); more people employed (i.e., lower unemployment rate) and more income from earnings to avoid needed transfer payments from government. While Florida has a high ratio of capital to individual (i.e., they have accumulated assets for retirement) and a high percent of the population in retirement (i.e., more retirement income), Wakulla County is really an opposite picture for the population whom depends more on wages than on retirement income. Against this economic backdrop, we shall evaluate the relative economic importance of Wakulla Springs State Park to surrounding political area called Wakulla County.

Direct Economic Impact of Wakulla Springs: The Model

In Chapter 2 dealing with the economic importance of Ichetucknee Springs, we developed an economic model in which to calculate the spending, employment and wages generated by visitors coming from outside the area of economic impact. We wished to see how much economic activity and benefits are generated to the springs by having individuals visit the

area (e.g., county) surrounding the park. The model will be identical for all four springs considered in this report. The impact of visitors is based upon springs attendance and a sampling of the spending habits of these visitors to the springs in question. Spending or sales to these visitors were also broken down into the kinds of goods and services (i.e., industries) supported in the surrounding area by these purchases. Since the model or framework in which to develop these basic economic impact variables for the springs in question has been explained in some detail in Chapter Two, we shall not repeat it here. We advise the reader to return to Chapter Two if he/she needs a detailed discussion of the general model applied to Wakulla Springs in this Chapter. A reader not interested in the technical model may skip such sections and find the numbers reflecting the sales (expenditures); wages; employment and a breakdown of the kinds of industries benefiting from such spending in Wakulla Springs State Park and around the county.

Estimation of the Direct Economic Impact of Wakulla Springs

During 2002, a survey of non-resident visitors to Wakulla Springs State Park was initiated to meet the objectives this study. Residents were confined to anyone using the park that lived in Wakulla County. People attending the springs were first identified as either residents or non-residents. The latter were called “visitors” with reference to people coming from outside the economic area under consideration (i.e., Wakulla County). This was the same method employed in Chapter 2 dealing with the economic impact of Ichetucknee Spring State Park. In total, 340 visitors were interviewed to develop an economic profile to use in conjunction with attendance to obtain the total economic impact on Wakulla County discussed in some detail above. Consider Table 3.3.

Table 3.3
Estimation of the Direct Economic Impact of Visitors Associated with Wakulla Springs, Florida, Fiscal Year 2001-2002

	All People Attending Springs	X	Percent of Attendance Visitors	=	Estimated Outside Area Visitors
Non-Resident Visitors to the Springs	180,793		0.7		126,555

Percent of Visitors from Outside the Springs by Accommodation Mode & Other Statistics	Sample Size N	Percent (k)	Visitors (VIS)	Party Size (SP)	Length of Stay(LS)
Hotels and Motels	130	0.382	48,389	3.99	2.78
Condominiums	15	0.044	5,583	3.67	4.80
Friends and Family	161	0.474	59,928	4.48	1.40
Camping	2	0.006	744	4.00	2.50
Day Visitors	32	0.094	11,911	4.76	1.00
Total	**340**	**1**	**126,555**	**4.63**	**2.05**

Estimated Spending Per Party and Individuals by Accommodation Mode	$EPPD (Daily Spending Per Party)	$EPPED (Daily Spending Per Person)
Hotel and Motels	$453	$114
Condominiums	$337	$92
Friends and Family	$231	$52
Camping	$191	$48
Day Visitors	$291	$61
All	**$409**	**$89**

Estimated Spending, Wages and Employment	Spending (Mil $)	Wages (Mil $)	Employment
Hotel and Motels	15.3	2.98	246
Condominiums	1.8	0.31	31
Friends and Family	4.3	0.88	58
Camping	0.1	0.02	1
Day Visitors	0.7	0.14	11
Total	**22.2**	**4.33**	**347**

In fiscal year 2002, 180,793 individuals were attracted to the Wakulla Springs State Park. From our sampling, it was estimated that about 70% of these individuals could be designated as visitors from outside Wakulla County. Thus, in Table 3.3, it is estimated that nearly 127 thousand Wakulla Springs visitors injected money into the local economy. These visitors were divided into five classifications based primarily on accommodation mode with one category included especially for day visitors from outside of Wakulla County. According to our sample, the two prime accommodation modes were (1) staying with friends and family and (2) hotel and motels, constituting about 86% of all visitors sampled. The Wakulla Springs Lodge is primarily the one providing one of the most prominent amenities of the park. There was not much variance found in party size to Wakulla Springs averaging about 4-5 individuals shown in Table 3.3. Parties of visitors stayed from one to nearly five days (i.e., condominiums).

Of interest, spending per party day varied from $191 for those that camped to $453 for those staying in the hotels and motels in Wakulla County. It should be noted that to be included in the economic impact, a visitors' primary objective must be to see the amenities of the Springs. Thus, one could camp outside the Springs, but still be counted as a by-product of primarily attending the Springs. As a group, visitors spent about $409 per party and $89 per person day. It should be noted that spending per party and person by visitors is about double that found in Ichetucknee Springs in Chapter Two. This is a reasonable finding given that Wakulla Springs contains an historic lodge which is an attraction in itself. At the end of our economic analysis of the four springs in northern and central Florida, we shall compare the spending among the springs as well as our finding with other studies in this area.

The economic model used to estimate the economic impact of Wakulla Springs-related visitors on Wakulla County was described extensively in Chapter 2 dealing with Ichetucknee Springs. Table 3.3 contains the necessary information to estimate the economic impact defined as the estimated spending, wages, and employment generated by visitors to the Wakulla Springs State Park. Spending by visitors is a function of attendance, length of stay per visitor in the area and spending per individual. In addition, we must know what commodities are purchased by visitors in order to estimate tourist-related wages and employment. All of these computations are easily implemented by the use of a fairly complicated spreadsheet analysis which can be made available to park researchers.

At the bottom of Table 3.3, the end result of these rather complicated computations are shown by accommodation mode and also include day visitors. For the year 2002, it is estimated that Wakulla Springs-related visitors spent $22.19 million in Wakulla County. This is very close to our estimated total spending by visitors to Ichetucknee Springs (i.e., $22.7 million). The latter springs has about a third more visitors than Wakulla Springs; however, we have indicated that spending per visitor day is about twice that found by research presented in Chapter Two for Ichetucknee Springs. Based upon the kind of spending by visitors (e.g., shopping; restaurants; hotels, etc), it was estimated that this generated $4.33 million in salaries and wages supporting 347 jobs. Such jobs are largely part-time and low skilled based upon the kind of spending by visitors which is true throughout Florida where tourism is the number one industry in terms of employment and wages. Dividing wages by employment generated by visitors to Wakulla Springs, the annual wage rate of those working in the visitor sector averaged only $12,478 per year.

Table 3.4
Estimation of Wakulla Springs Visitors by Category in
Wakulla County, Florida, 2002

Spending Category	Spending (Mil $)	Related Employment	Related Wages (Mil $)
Lodging	4.01	81	0.96
Food & Beverages (Restaurants)	3.42	90	0.92
Food & Beverages (Groceries)	2.11	15	0.21
Admission Fees	1.21	13	0.21
Evening Entertainment	2.51	28	0.81
Ground Transportation	1.47	7	0.47
Shopping	3.59	30	0.37
All Other	3.99	83	0.38
Total	22.31	347	4.33

Note: Aggregate expenditures for all modes including Hotels/Motels; Friends/Families; Campgrounds; Condominiums plus Day Visitors to Wakulla Springs Park.

Table 3.4 shows the distribution of spending by all visitors based upon the overall spending pattern. Each visitor surveyed was asked to provide information about their spending according to the eight commodities shown in Table 3.4. These commodities, as expected, range from lodging to local shopping. The four largest categories of spending in Table 3.4 are lodging ($4.01 million); all other ($3.99 million); shopping ($3.59 million) and restaurants ($3.42 million) representing $15.01 million which computes to over two thirds of all spending. The existence of the Wakulla Lodge (i.e., hotel) probably stimulates the spending on this category of lodging. These spending categories represent the benefactors of having Wakulla Springs State Park in Wakulla County.

What is the relative contribution of Wakulla Springs to the economy of Wakulla County? In 2000, Wakulla County generated $126 million in wage and salary disbursements supporting 4,648 full and part time jobs. Wakulla Springs State Park contributes about 3.4% of wages and salaries ($4.33 milllion/$126 million), but 7.5% of total employment (347/4,648). In terms of jobs, Wakulla Springs is a fairly substantial part of the Wakulla County economy. As pointed out in the earlier discussion above, we indicated that the leading firm in Wakulla County or General Dynamics (i.e., Saint Marks Powder Division) employs about 275 persons, which would put this firm in second place in Wakulla County. Of course, jobs with General Dynamics probably pay considerably higher wage rates because of the highly technical skills demanded in this firm. In addition, such jobs with General Dynamics are likely to be fulltime rather than part time, which is obvious at Wakulla Springs by looking at Figure 3.2 showing the seasonal pattern of attendance at the park. Finally, the growth in Wakulla Springs State Park adds jobs to the economy of Wakulla County. Although largely part time and low wage jobs, they should be welcome to keep the entire labor force almost fully employed. There are many counties in the

Suwannee River Basis (e.g., Hamilton, Suwannee, Madison, etc), which would welcome such jobs to a labor force that is underemployed. This was discussed in Chapter Two where we pointed out that the participation rate in Suwannee County, for example, is evidence that this county needs more jobs of any nature to reduce "disguised unemployment" which is roughly measured by how low the participation rate is for a given labor force. This topic will be revisited in Chapter 6 on our comparison of the findings from all four Springs on the agenda.

CHAPTER 4

Direct Regional Economic Impact of Homosassa Springs State Park on Citrus County, Florida

Description of the Homosassa Springs

Homosassa Springs State Park offers a showcase of Florida wildlife and endangered species on 185 acres close to Florida's west coast of the Gulf of Mexico in Citrus County. The park was purchased from Citrus County in 1989. This county is bordered on the west and south by the Gulf of Mexico and on the east by the Withlacoochee River. The main entrance to Homosassa Springs is located on U.S. Highway 19 in Homosassa and is 75 miles north of Tampa and St. Petersburg and 90 miles from Orlando.

This park contains a spring plus a floating underwater observatory in 45-foot deep spring where one can view fresh and saltwater fish and endangered Florida manatees. A huge spring, of which millions of gallons of fresh clear water flows every hour, is the centerpiece of Homosassa Springs, which is the headwater of the Homosassa River. This river flows 9 miles west into the Gulf of Mexico providing a mixture of both fresh and saltwater fisheries. These fish are attracted to the "first-magnitude" spring with its constant year around water temperature of 72 degrees Fahrenheit. There are daily educational programs that focus upon the manatee, alligators and Florida snakes. Viewing the endangered manatee is difficult in the wild, but it is an every day occurrence at Homosassa Springs. In fact, the park is the only natural area in the world where many manatees may be observed 365 days a year. Wildlife displays include a Florida black bear, bobcat, alligators, foxes, deer, otter, and numerous native and migratory birds. Boat

transportation is provided from the Visitor Center on U.S. 19 to the Wildlife Park. Also, nature trails throughout the park encourage nature study and give visitors a chance to experience wetland and hydric hammock environments. Most of the birds and animals living in Homosassa Springs could not survive in the wild, but can only survive in the natural habitat and diet supplied by the personnel at the park. Also, visitors may picnic at the park and walk nature trails. Finally, the park has many other amenities such as the Wildlife Café, a snack bar located at the west entrance to the wildlife park and the Riverside Buffet House, featuring home cooking, Florida style, and is open daily for lunch and dinner at the park's Visitor Center off U.S. 19.

Once the park came under state control in 1989, substantial efforts were made and continue to be made to improve this natural asset. More specifically, there has been an emphasis to provide resource-related recreation while preserving, interpreting and restoring natural and cultural resources. According to Linley (2003), "the primary shifts were to move the exotic and farm animals out and bring wildlife from Florida in and shift the public programs from entertainment to environmental education/interpretation".

Natural Resource Protection

Research on the environmental issues facing the park at Homosassa Springs revealed that this park might be somewhat less adversely impacted by water quality than, for example, Wakulla Springs. The Friends of Homosassa Springs Wildlife Park along with the Florida Department of Environmental Protection do monitor environmental conditions at these springs. The public and government have developed a Master Site Plan to guide the direction of the park. The prime objective is to conserve and enhance the wildlife and other park resources. Contained in this is to provide living space for the wildlife that is as natural as possible while allowing observations for visitors. The water quality will continue to be monitored as it is in other natural

springs. The usual cause of diminished water quality is uncontrolled residential and commercial development in the surrounding area. One crude indicator of this possibility is the population density in Citrus County. In 2000, this county had 206 persons per square mile compared to 303 for the entire State of Florida. In terms of density, Citrus County is ranked 27th in population density among the 67 counties in the State of Florida. In addition, tourists are an emerging sector in Citrus County and are partially attracted by the appeal of Homosassa Springs State Park. The manatee does not have such problems in Homosassa Springs when compared to Blue Spring (i.e., see Chapter 5) where the drawing down of water levels could have mortality rendered to the population due to overcrowding. What is happening in other springs does not seem to be an immediate environmental problem in Homosassa Springs, but could be a problem if not factored into and acted upon in following the local comprehensive plan and Site Plan as Citrus and other surrounding counties expand.

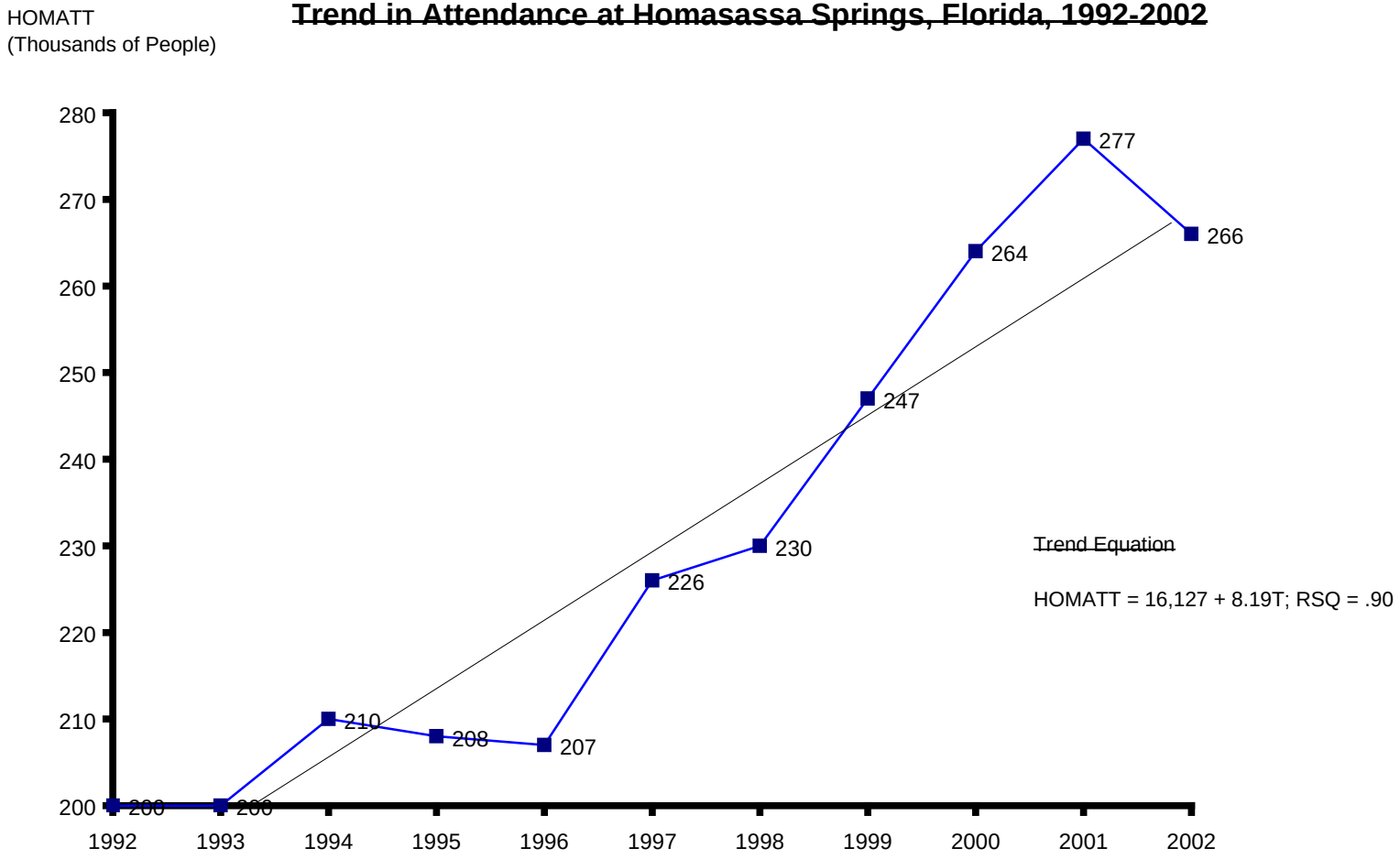
Annual Trend and Seasonal Use of Homosassa Springs State Park

In fiscal year 1992, slightly over 200 thousand people visited Homosassa Springs State Park. By fiscal year 2002, visitors numbered nearly 266 thousand people, a 33% increase over the last 11 years. In Figure 4.1, annual park attendance data are plotted over this time period to calculate the annual trend in people attending the park combined with year-to-year fluctuations in park attendance. The straight line through the attendance data indicates the annual trend in park attendance where the trend equation (i.e., HOMOATT) is given in the lower right hand part of Figure 4.1. All attendance data were obtained from the Division of Recreation and Parks, Florida Department of Environmental Protection (unpublished, 2002).

The trend equation for Homosassa Springs State Park attendance shown in Figure 4.1 indicates an annual growth in people attending this park by 8.2 thousand per year.

Figure 4.1

Trend in Attendance at Homasassa Springs, Florida, 1992-2002



Source: Division of Recreation and Parks, Florida Department of Environmental Protection, Unpublished Data.

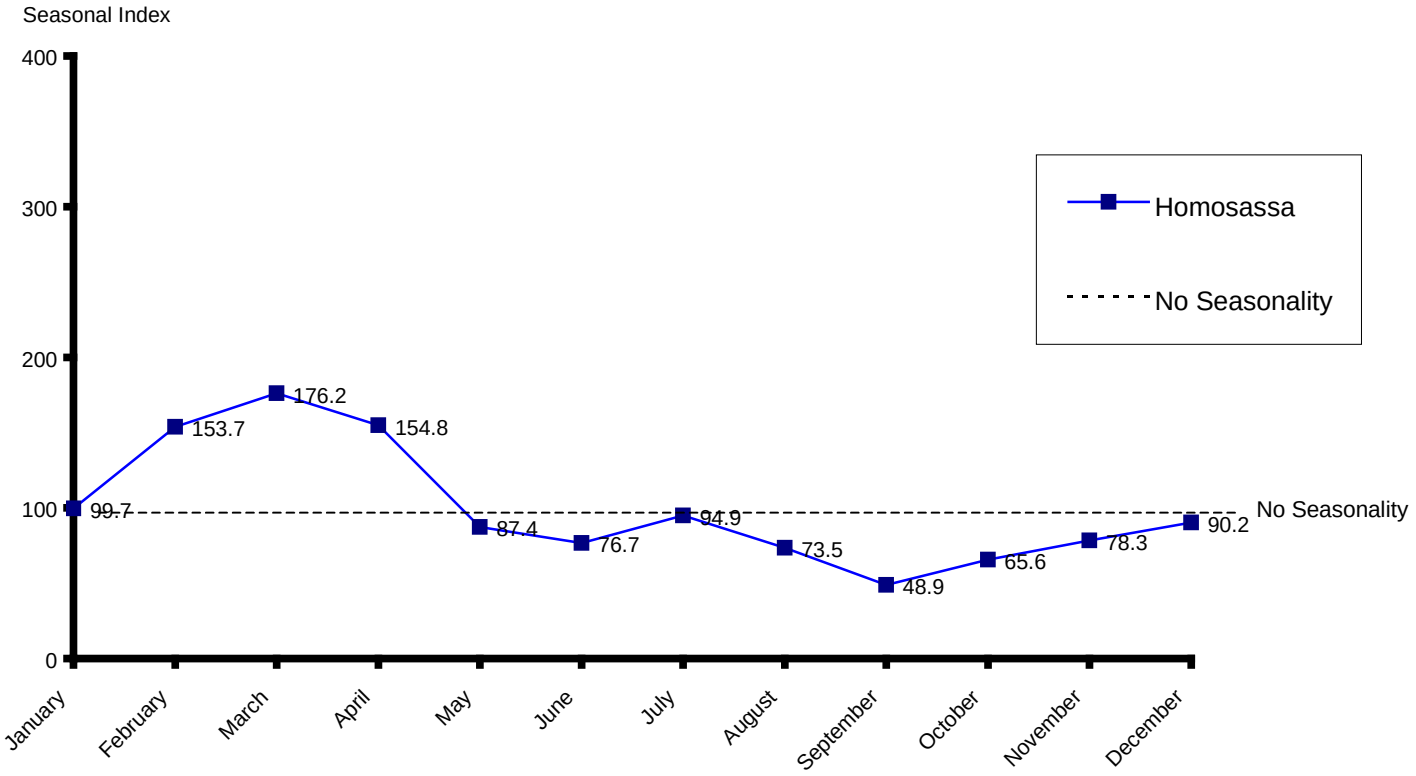
From the appearance of this graph, it would appear that growth in park attendance was linear, or on average, a constant number of additional attendees per year rather than exponential where annual growth is sustained by a constant percent per year. Of course, the reader should note that there is considerable fluctuation of attendance from year to year around the annual trend. Using the RSQ following the trend equation in Figure 4.1, indications suggest that the annual linear trend line explains about 90% the attendance at of Homosassa Springs State Park over the 1992-2002 period while the balance (i.e., 10%) is attributed to annual cycles. The RSQ is a widely used statistical measure that explains how much the linear trend "explains" attendance at the springs over the period of analysis. Subtracting RSQ from unity or one yields annual cycles or what is explained by national economic conditions, weather and possibly changes in environmental conditions at the springs themselves. Upon review of the trend equation, Linley (2002) felt that part of the upward trend may be due to improvement in the park itself ranging from repairs and new facilities such as new sidewalks, facelifts to various buildings, upgrading the gift shop, paving roads and renovation of the Visitor Center. Further, Linley (2002) feels that the change in policy to that based upon resource-based recreation and away from exotic animals and plants including those used on farms may also be responsible. In addition, tourism declined after September 11, 2002 and the slow economy is still continuing to have an impact on park attendance, thereby explaining the drop in attendance between 2001 and 2002. Also, Homosassa Springs had a special October 2000 event that may have pushed up attendance only for this period. One would expect that increases in the national and Florida populations plus rises in per capita disposable income yield more money to recreation would be the primary factors explaining the decidedly upward trend. In our economic analysis in this report, it is necessary to know the historical growth in attendance since such trends are likely to continue into the future and thereby adding more park-related spending in the study area. We cannot say how much each

factor may contribute to the annual growth in attendance without further study of the entire springs park system in Florida and is well beyond the scope of this study. In addition to this annual analysis, we can also look at the seasonality of park attendance.

Seasonal use of a park refers to the month-to-month variation, if any, in attendance. Seasonal variation may be due to the nature of the resource and/or man-made events that influence the demand for goods and services such as a water resource (e.g., most people do not want to go diving during winter months). We obtained monthly attendance data on Homosassa Springs State Park from the Division of Recreation and Parks, Florida Department of Environmental Regulations. This was analyzed from 1992-2002 for these springs. If there is no seasonality, then annual attendance placed on a monthly basis would be 1/12 of the annual figure. This was discussed with examples in the previous two chapters and will not be reviewed in great detail in this chapter. Consider Figure 4.2. If a month is 1/12 of the annual attendance, then we assign it a value of 100 (i.e., no seasonality). For Homosassa Springs, seasonality of attendance is at its peak from February through April. This coincides with the typical tourist season for Florida. Citrus County is considered in the Tampa Bay area where the typical visitors from northern states visit Florida. Linley (2002) states, " our (Homosassa Springs) seasonal trends are typical for tourism in this part of Florida". From May-December of each year, Homosassa Springs exhibits a trough in attendance as visitors exit Florida. Such seasonality is important for park management. For example, major renovations might take place in September, which is at seasonal ebb. Part time employment would be hired for the February-April peak seasonal period. Compared to Ichetucknee and Wakulla Springs, the seasonal pattern in Homosassa Springs is less pronounced. Generally speaking, extreme seasonality is associated with economic inefficiency since resources including labor, building and other attributes of a spring go idle for a good part of the year.

Figure 4.2

Seasonal Attendance Index for Homosassa Springs, Florida, 1992-2002*



* All Seasonal Figures: % above or below no seasonality or 1/12 of annual attentance for each month.

Source: Division of Recreation and Parks, Florida Department of Environmental Protection, Unpublished Data.

Economic Profile of the Areas Surrounding Homosassa Springs

The thrust of this report is to identify the direct economic impact visitors to the springs have upon a particular area. So, it is important to look at the economic setting in which the springs exists. As discussed above, Homosassa Springs is located in Citrus County, Florida. This is outlined in Tables 4.1 and 4.2.

Table 4.1 shows the growth in some strategic economic variables over the 1990 to 2000 in Citrus County. In terms of resident population, Citrus County expanded from a little under 95 thousand in 1990 to nearly 119 thousand, a 25.4% increase. This is slightly faster than the growth in population at the state level. The population growth in Citrus County is entirely due to in-migration from outside the county, which is very characteristic of Florida counties. The county is faced with managing such growth in terms of the pressure placed upon natural resources such as the fisheries, wetlands and other resources. The median age in Citrus County is nearly 53 years compared to only 39 years in the entire State of Florida, meaning that the in-migration is largely due to retirees to this coastal Gulf of Mexico county. In fact, Homosassa Springs in itself is an attraction to retirees and visitors from outside the county. The sustainability of the environment as argued in Chapter 1 is necessary in order to attract balanced and healthy economic growth as indicated by experience throughout many Florida counties.

Aggregate personal income in Citrus County grew by nearly 74% over the 1990-2000 period based upon the increase in population (i.e. bringing more people to the county receiving income from various sources) and rises in per capita income as the standard of living grew due to a rapid growth in technological change both in the U.S. and in Florida.

Table 4.1
Population, Income, Per Capita Income, Jobs and Earnings Per Job in Citrus Country, Florida Relating to Homosassa Springs State Park, 1990 and 2000

	1990	2000	%Change	Rank Among 67 Counties in Year 2000*
Population Growth				
Citrus County	94,545	118,680	25.4	30
Florida	13,033,307	16,054,328	23.2	N/A
Aggregate Income Growth (Thous $)				
Citrus County	1,468,252	2,551,242	73.8	34
Florida	258,479,049	445,739,968	72.4	N/A
Per Capita Income Growth ($)				
Citrus County	15,513	21,397	38.6	40
Florida	19,832	27,765	40.1	N/A
Employment / Job Growth				
Citrus County	23,253	30,466	31.1	34
Florida	5,802,287	7,566,198	30.4	N/A
Average Wages / Earnings Per Job ($)				
Citrus County	18,183	23,296	28.1	50
Florida	21,244	30,226	42.3	N/A

*Ranked in descending numerical order except for ascending where lower numbers are more "favorable".

SOURCE: REGIONAL ECONOMIC INFORMATION SYSTEM, U.S. BUREAU OF ECONOMIC ANALYSIS (CD ROM, 2002)

Table 4.2
Socioeconomic Characteristics of Citrus County, Florida
Containing Homosassa Springs State Park, 2000

Recorded Unemployment Rate	%	Rank Among 67 Counties in Florida*
Citrus County	4.7	23
Florida	3.8	N/A
Labor Force Participation Rate*	%	
Citrus County	58.8	52
Florida	78.5	N/A
Poverty Rate(% of Population)**	%	
Citrus County	15.3	38
Florida	15.2	N/A

Components of Per Capita Income ($)

	Income Per Capita	Income From		
		Earnings	Cap Inc	Trans Pay
Citrus County	21,497	8,153	7,281	6,063
Florida	27,764	16,560	7,005	4,199

*Ranked in descending numerical order except for ascending where lower number is more "favorable"
**Percent of population in the county between the ages of 15-64 who are employed.

SOURCE: FLORIDA STATISTICAL ABSTRACT 2001, BEBR, UNIVERSITY OF FLORIDA (2001)

This leads us to an investigation of the rise in per capita income in Citrus County, which is one of the best indicators of the economic health of an area (i.e., the unemployment rate might be another). In Table 4.1, we see that the per capita income in Citrus County is below the State of Florida average both in 1990 and 2000. Per capita income in Citrus County grew by almost 39% over this period, but did not catch up to that of Florida as a whole. This is most probably due to the industrial structure of the county, which appears to be based upon retirement and tourism, which generally produce an industrial base of part-time and low-skilled jobs. Employment growth matched the State of Florida rate of growth over the 1990-2000 period. However, the rise in earnings per job greatly trailed the state level as indicated at the bottom of Table 4.1. It would appear that Citrus County has remained on a course of economic expansion that was characteristic of Florida during the 1970's and l980's where in-migration and tourism were more pronounced. Since then, Florida has become more diversified into high-tech jobs paying a larger average annual wage.

Table 4.2 shows a different perspective on what has been said above under this section on the economic profile of the area. Citrus County has a measured unemployment rate that is comparable to the State of Florida. It would appear there is no problem in employing idle resources (e.g., labor). However, the reader should look at the "participation rate" which is the ratio of employable people (15-64 years of age) to total population. For Citrus County, this rate is only 58.8% compared to 78.5% for the State of Florida. This could be interpreted in two ways. In Chapter 1, we talked about Suwannee County also having a low participation rate and interpreted that as a lack of jobs for all that want to work. In many counties around the Suwannee River, Bell and Bonn (2002) have pointed out a second kind of unemployment called "disguised unemployment". The massive in-migration coupled with the age structure would indicate that

Citrus County's economy is heavily dependent on retirement income where people choose not to work. They have come to Florida or from elsewhere in Florida to retire, thereby explaining the low participation rate. We see no lack of jobs in this county as was true in Suwannee County.

Finally, Table 4.2 breaks down per capita income into its parts. Earnings per capita are decidedly below the state average indicating not only that the industrial structure is one based on low-income jobs, but that many of those Citrus County residents choose not to work, and remain retired. The retirement hypothesis is further reinforced by the fact that residents of Citrus County receive more "capital income" than the state average. This represents stocks, bonds and other assets yielding a flow of income primarily for retirement. Finally, transfer payments contain many things, but largely consists of retirement income from private companies and social security payments from the Federal government. The reader should note that transfer payments per capita are 50% higher than those received by the average resident in Florida while capital income per capita is about 4% above the state average. These income statistics are very consistent with our hypothesis that a pillar of the Citrus County economic based is directly dependent on the retirement sector. The fact that capital income per capita is only 4% above the State of Florida average would indicate that the average retiree to Citrus County is not overly affluent, but is typical of the economic status of most Florida retirees. Some counties such as Collier (i.e., Naples) and Palm Beach have capital income per capita 50 to over 100 percent above the state average and are a rough guide to the economic status of retirees. This completes the economic profile of Citrus County and now we shall move on to see how the income, employment and wages generated by Homosassa Springs fit into this profile.

Direct Economic Impact of Homosassa Springs: The Model

In Chapter 2 dealing with the economic importance of Ichetucknee Springs, we developed an economic model in which to calculate the spending, employment and wages generated by visitors coming from outside the area of economic impact. We wished to see how much economic activity and benefits are generated to the springs by having individuals visit the area (i.e., county) surrounding the park. The model is identical for all four springs considered in this report. The impact of visitors is based upon springs attendance and data generated from sampling visitors about their spending habits to the springs in question, and within the surrounding county. Spending or sales by these visitors were also broken down into the types of goods and services (i.e., industries) supported in the surrounding area by these purchases. Since the model or framework in which to develop these basic economic variables for the springs in question has been discussed in great detail in Chapter 2, we shall not repeat it here. We advise the reader to return to Chapter 2, if he/she has not read this chapter to get the exposition of the detailed model. A reader not interested in the technical model may skip Chapter 2 and find the numbers reflecting the sales (i.e., expenditures), wages and employment and a breakdown of the kinds of industries benefiting from such spending in and around Homosassa Springs State Park.

Estimation of the Direct Economic Impact of Homosassa Springs

During 2002 and 2003, a survey of visitors to Homosassa Springs State Park was initiated as a critical part of this study. Visitors were divided into residents and non-residents of Citrus County. Since the thrust of this study is to look at the economic impact of non-residents, 400 visitors from outside Citrus County were interviewed to ascertain critical information on such variables as party size, length of stay and spending patterns of these park attendees. This

was the same method employed in Chapters 2 and 3 dealing with the economic impact of Ichetucknee Springs State Park and Wakulla Springs State Park.

During fiscal year 2002, 265,977 individuals were attracted to Homosassa Springs State Park. From our sampling, it was estimated that 64% of these individuals could be designated as visitors from outside Citrus County. Thus, in Table 4.3, it is estimated that nearly 170 thousand Homosassa Springs visitors from outside Citrus County injected money into the local economy. These visitors were divided into five classifications based on their selected accommodation mode. One category was included for those day visitors traveling from outside of Citrus County. According to our sample, day visitors and those staying with friends and family, constituting about 75% of all visitors sampled. This is shown in Table 4.3. There were not many variations in party size ranging from 3.5 (i.e., day visitors) to 4.28 (campground users). A party of visitors stays from 1 (i.e., day visitors) to as many as 7 (i.e., campers) days as shown in Table 4.3.

Of interest, spending per party day varied from $46 for day visitors to $148 per party day for those staying in hotels and motels in Citrus County. It should be noted that to be included in the economic impact, a visitors primary objective must be to see the amenities connected to the springs. Thus, one could camp outside the springs, but still be counted as a by-product of primarily attending the springs. As one can see from Table 4.3, campers in the area constitute only 9% of all visitors to Homosassa Springs. As a group, visitors spent about $90 per party day and $25 per person day. These spending rates by visitors from outside Citrus County have a lower spending rate (e.g., per party day) for Citrus County than either Ichetucknee and Wakulla Springs analyzed in Chapters 2 and 3. A comparison for all four parks may be seen later in Chapter 6.

Table 4.3
Estimation of the Direct Economic Impact of Visitors Associated with Homosassa Springs, Fiscal Year 2001-2002

	All People Attending Springs	X	Percent of Attendance Visitors	=	Estimated Outside Area Visitors
Non-Resident Visitors to the Springs	265,977		0.64		169,962

Percent of Visitors from Outside the Springs by Accommodation Mode & Other Statistics	Sample Size N	Percent (k)	Visitors (VIS)	Party Size (SP)	Length of Stay (LS)
Hotels and Motels	62	0.155	26,344	3.65	5.14
Condominiums	2	0.005	850	5.60	3.50
Friends and Family	119	0.298	50,564	3.80	4.58
Camping	36	0.090	15,297	4.28	7.11
Day Visitors	181	0.453	76,908	3.50	1.00
Total	**400**	**1**	**169,962**	**3.69**	**3.27**

Estimated Spending Per Party and Individuals by Accommodation Mode	$EPPD (Daily Spending Per Party)	$EPPED (Daily Spending Per Person)
Hotel and Motels	$148	$40
Condominiums	$80	$20
Friends and Family	$70	$18
Camping	$107	$25
Day Visitors	$46	$13
All	**$90**	**$25**

Estimated Spending, Wages and Employment	Spending (Mil $)	Wages (Mil $)	Employment
Hotel and Motels	5.5	1.28	93
Condominiums	0.1	0.01	1
Friends and Family	4.3	0.98	57
Camping	2.6	0.64	40
Day Visitors	1.1	0.21	15
Total	**13.6**	**3.12**	**206**

The economic model used to estimate the economic impact of Homosassa Springs-related visitors on Citrus County was described extensively in Chapter 2 dealing with Ichetucknee Springs. Table 4.3 contains the necessary information to estimate the total economic impact defined as the estimated spending, wages and employment generated by visitors to Homosassa Springs State Park from outside Citrus County. Spending by accommodation mode and day visitors is a function of attendance, length of stay per visitor in the area and spending per individual. Multiplying these three factors together for motels and hotels as an example yields about $5.5 million spent by these Homosassa Springs-related visitors from outside Citrus County. In addition, we must know what commodities are bought by visitors to estimate visitor-related wages and employment generated by their expenditures. All of these computations are easily implemented by the use of a fairly complicated spreadsheet analysis which can be made available to park researchers.

At the bottom of Table 4.3, the end result of these rather complicated computations are shown by accommodation mode plus day visitors. For the year 2002, it is estimated that Homosassa Springs State Park-related visitors spend about $13.6 million in Citrus County. This is considerably lower than the expenditures generated by Ichetucknee or Wakulla Springs considered in Chapters 2 and 3 above. Based upon the kind of spending by visitors (shopping, restaurants, hotels), it was estimated that these expenditures generated $3.12 million in wages and 206 jobs. Such jobs as discussed before are largely part-time and low skilled based upon the kind of spending by visitors which is true throughout Florida where tourism is the number one industry in terms of employment and wages. Dividing wages by employment generated by visitors, the annual wage rate of those working in the visitor sector averaged only $15,146 per year. As shown in Table 4.1, the average annual earning per job in Citrus County is $23,296.

Table 4.4 shows the distribution of spending by all visitors based upon the overall spending pattern. Each visitor surveyed was asked to provide their spending according to eight commodities shown in Table 4.4. The four largest categories of spending in Table 4.4 are admission fees ($4.22 million); lodging ($3.43 million), evening entertainment ($2.36 million) and restaurants ($1.87 million) or $11.88 million which is 88% of all visitor spending. It should be pointed out that admission fees embrace a host of spending such as charter boats used in Citrus County while the primary purpose is to visit Homosassa Springs.

What is the relative contribution of Homosassa Springs to the economy of Citrus County? In 2000, Citrus County generated $758 million in wage and salaries supporting 30,466 jobs according to the U.S. Department of Commerce (2002), the most reliable source of data on wages and employment. Thus, Homosassa Springs State Park visitors contributed about .4% of wages and salaries ($3.13 million/$758 million), but .6% of total employment (206/30,466). In terms of wages and jobs, Homosassa Springs does not constitute a substantial part of the Citrus County economy. The trend in visitation to Homosassa Springs is decidedly upward based upon our analysis of the secular trend earlier in this chapter. Therefore, more jobs will be added by this attraction in the future. Finally, we have only measured the direct injection of money into this regional economy or what is called the “direct economic effect”. Such outside income injections are subject to a multiplier effect likely to be from 1.1 to 1.3 for a small regional economy. Thus, the primary or direct injection of spending of visitors to Homosassa Springs will probably produce from !0% to 30% more wages and jobs than shown in Table 4.4 of this report. Now, we shall continue on to our last spring to analyze. In Chapter 5, we shall consider the local economic impact of Blue Spring State Park in Volusia County.

Table 4.4:
Estimation of Homosassa Springs Visitors
Citrus County, Florida, 2002
Expenditures by Category, Florida, 2002

Spending Category	Spending (Mil $)	Related Employment	Related Wages (Mil $)
Lodging	3.43	70	0.82
Restaurants	1.87	49	0.51
Groceries	0.13	1	0.01
Admission Fees	4.22	47	0.74
Evening Entertainment	2.36	26	0.82
Ground Transportation	0.32	2	0.11
Shopping	1.08	9	0.11
All Other	0.11	2	0.01
Total	13.52	206	3.13

Note: Aggregate expenditures for all modes including Hotels/Motels; Friends/Families; Campgrounds; Condominiums plus Day Visitors to Homosassa Springs Park.

CHAPTER 5

Direct Regional Economic Impact of Blue Spring State Park, Florida on Surrounding Areas

Description of Blue Spring

Blue Spring State Park is located in Orange City in the Central East part of Florida. Orange City is in the western part of Volusia County, which has an east coast on the Atlantic Ocean. This county is important for tourists visiting the beaches of Florida whom are also attracted to auto racing. On the western side of Volusia County, springs have been a magnet for humans and wildlife for centuries. Timucuan Indians lived at the springs long before the Spaniards arrived. In the late 1800's, there was heavy steamboat traffic on the St. Johns River between Jacksonville and Orange City. This was the first path for settlers and visitors to Florida. The "blossoming" of Orange City was typical of the development that occurred all along the St.Johns River in the late 1800's and early twentieth century. This early regional growth, combined with tourism, provided the economic base for the Golden Age: the steamboat set the pace and style of the era. The "Thursby family" built a landing to receive these travelers. But, this golden age declined as visitors streaming to Florida headed south with the railroad that considerably cut traveling time and extended the travel distances possible in Florida.

Now, the spring is much more than a scenic wonder for swimming, canoeing, hiking and birding. Blue Spring is well known as a winter home for Florida's endangered manatee. One can view these mammals each winter between November and March. Blue Spring is one of only three areas in Florida in which a manatee may be "adopted" (i.e., others are at Homosassa

Springs Wildlife State Park and Tampa Bay). In 1972, the State of Florida purchased Blue Spring as a state park and manatee refuge. For certified cave divers, the spring provides an underwater adventure as another form of recreation. A limited number of fully equipped family cabins are located in the park. The spring maintains a year-around temperature of 72 degrees. However, Blue Spring and its recreational opportunities critically depend on the maintenance of the environment surrounding the area. This aspect will be briefly considered next.

Natural Resource Protection

Historically, many had said that Blue Spring "boils up with great force". However, dropping water levels in the aquifer have resulted in reduced water flow to Blue Spring. The amount of water discharging from the spring has been declining since the mid-1980's. The flow reduction threatens the future of Blue Spring as a manatee refuge and recreation area. Blue Spring's water comes from the same Floridian aquifer as our drinking water. Thus, suburban development within the Blue Spring Basin means more water is being pumped from the aquifer for household and commercial use. That is, increased water use means lower aquifer levels and reduced flow to the Blue Spring. This may produce manatee crowding and possibly death for this creature.

In addition, Blue Spring's water now carries about 87 tons of nitrates per year according the Florida DEP (2002). This increases the growth of algae and leads to ecological decline. Nitrates and other nutrients come from fertilizer and human waste. Nutrients and other pollutants are picked up by storm water as it flows over lawns, gardens, pastures, agricultural fields, and golf courses. Polluted storm water can flow into sinkholes or work it way through the soil to reach the aquifer. The survival of the delicate spring ecosystem requires good water quality and sufficient water quantity. Recreational visitors to Blue Spring will also be deterred from a

diminished water quality via its appearance, adverse impact on the ecosystem and deterrence of manatees from the springs area. A boardwalk and observation deck was built in 1974 to protect the shoreline while allowing visitors to view the manatees and the spring. On the positive side, a record 153 manatees took refuge in the warm spring water in 2001

To protect the environment, water consumption can be reduced; septic tanks can be better constructed and maintained; fertilizer and pesticides can be limited; and the St. John's River Water Management District should be encouraged to protect and restore the flow of Blue Spring Basin that covers 130 square miles in Volusia County.

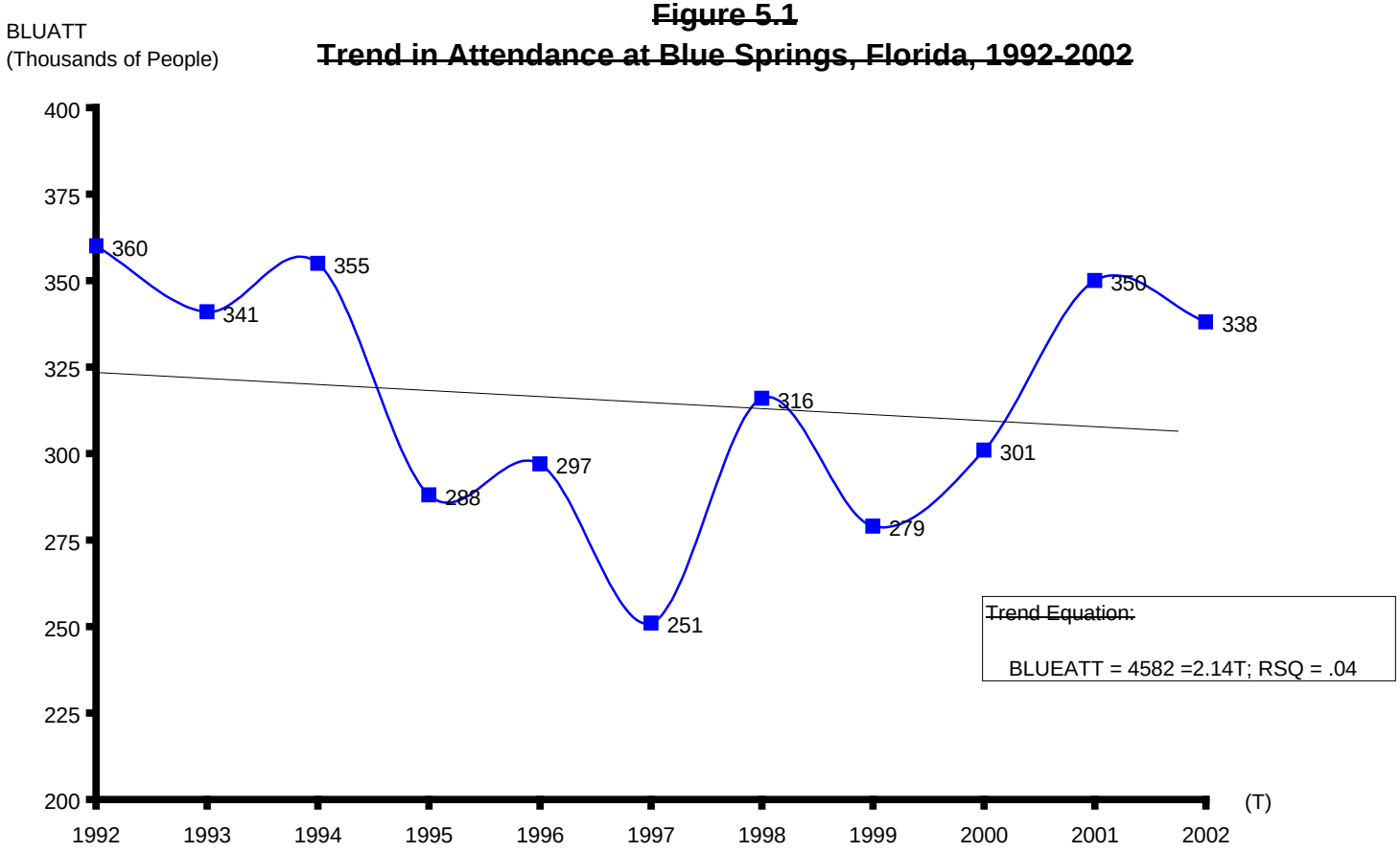
Annual Trend and Seasonal Use of Blue Spring State Park

In fiscal year 1992, a little over 360 thousand people visited Blue Spring State Park. However, by the fiscal year 2002, slightly more than 337 thousand people visited this park indicating a 6.4% decline in attendance over the last 11 years. In Figure 5.1. annual park attendance data are plotted over this time period to calculate the annual trend in people attending the park combined with the year to year fluctuations in park attendance. The straight line through the attendance data indicates the annual trend in park attendance where the trend equation (i.e., BLUEATT) is given in the lower right hand corner of Figure 5.1. All attendance data were obtained from the Division of Recreation and Parks, Florida Department of Environmental Protection (unpublished, 2002).

The trend equation for Blue Spring State Park attendance shown in Figure 5.1 indicates no annual growth in people attending the park. There is virtually no trend in park attendance. That is, there is really no correlation between park attendance and time.

~~Figure 5.1~~

~~Trend in Attendance at Blue Springs, Florida, 1992-2002~~



Source: Division of Recreation and Parks, Florida Department of Environmental Protection, Unpublished Data.

The RSQ measures how much the passage of time explains park attendance. Further, the attendance trend appears to be headed downward or static in nature. With population growth in the region and increasing tourism in the area over the last 11 years, it would be reasonable to conclude that the trend would be upward for Blue Spring State Park. But, this is clearly not the case. We have pointed out that there are many environmental problems associated with Blue Spring. Nitrates continue to create water quality problems while falling water levels threaten the manatee populations. Further, official are at a loss to explain the obvious flat behavior of park attendance over the last 11 years. The explanation for this finding is beyond the scope of this study, but it is consistent with the economic model which asserts that increasing environmental problems are related to a decline in economic activity as measured by park attendance. As in other chapters, there are considerable cyclical fluctuations in park attendance over the 1992-2002 period. In fact, there appears to be a downward trend in attendance from 1992 to 1997 while there appears to be an upward trend from 1997 to the year 2002. The fall off in attendance from 2001 to 2002 may be due to the terrorist events on September 11, 2001, combined with the poor performance of the U.S. economy. Cycles are usually created by oscillations in economic activity such as expansion in consumer spending or a drop in business spending or a combination of both. It is important to know the cyclical attendance in park attendance due to a need for proper facility planning such as hiring part-time workers, etc. Clearly, we have pointed out a problem at Blue Spring, and can offer a working hypothesis between environmental quality and economic activity.

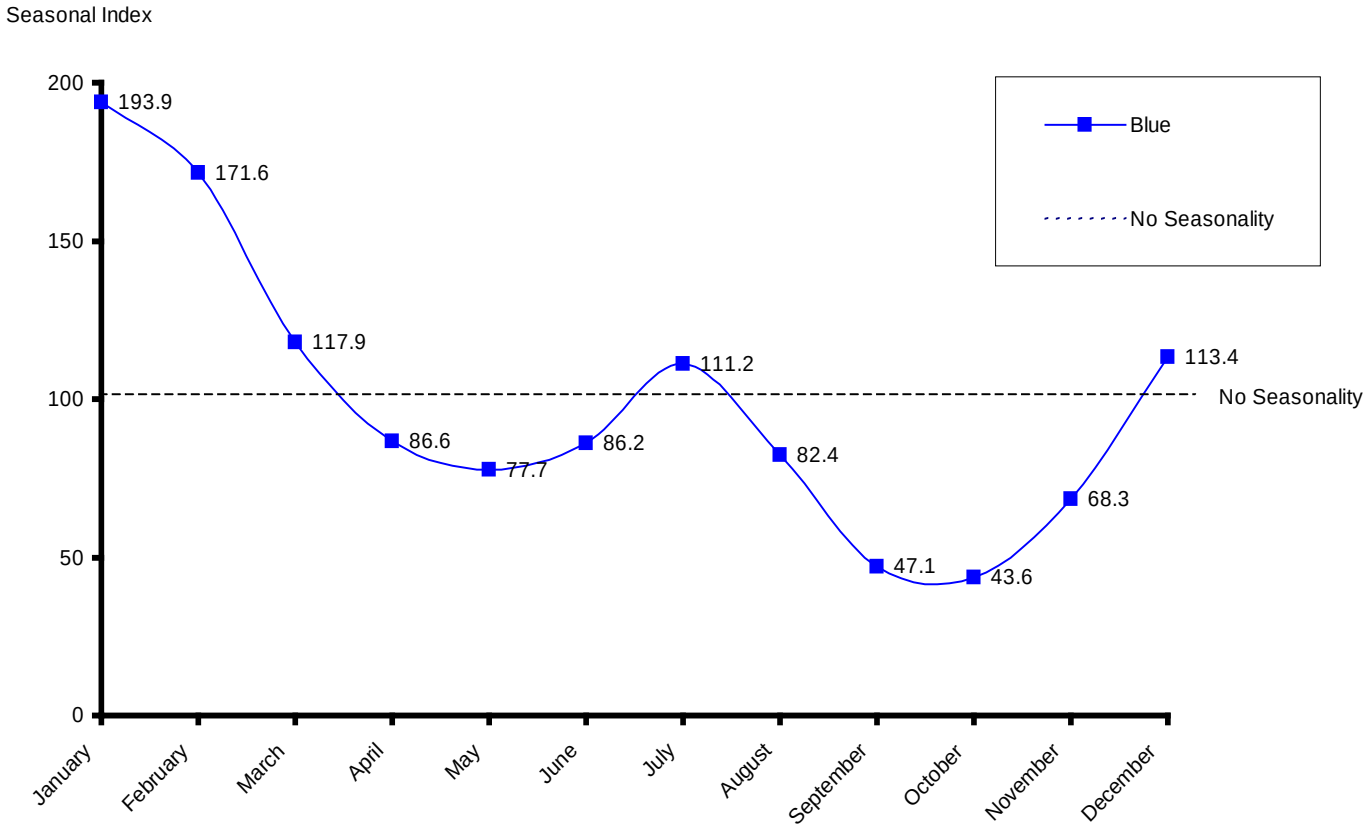
Seasonal use of a park refers to the month-to-month variation in attendance. Seasonal variation may be due to the nature of the resource and/or man-made events that influence demand for goods and services such as a water resource (e.g., cold versus warm water). We

obtained monthly data on Blue Spring State Park from the Division of Recreation and Parks, Florida Department of Environmental Protection. This was analyzed from 1992-2002 for Blue Spring. The analysis was done by assuming that no seasonal variation during a year would dictate 1/12 of annual demand (i.e., attendance). Deviations from the 1/12 in any month would identify a seasonal pattern. A detailed example of the calculation of a seasonal index can be read in Chapter 2 dealing with Ichetucknee Springs. For Blue Spring, the seasonal index in attendance is plotted in Figure 5.2. One should remember before we review the results that Blue Spring is close to Orlando and provides a haven for visitors to Florida not only for its beaches on the Atlantic Ocean, but NASCAR racing in Daytona. In addition, those seeking to view the manatees should remember that this animal migrates to warmer waters in Blue Spring during the winter months. According to Figure 5.2, the peak seasonal attendance at Blue Springs is December through March of each year. After that period, one other seasonal peak was identified in July. The rest of the months of the year exhibit seasonal "lows". The influx of tourists to the general area coupled with the seasonal peak in the flow of the manatees as they herd down the St. Johns River to Orange City or Blue Spring as an attractant to visitors may explain the seasonal pattern observed in Figure 5.2. The reader can read the index in the following manner. For example, in January of each year, attendance shows an index of 193.9. This means that attendance for January is 93.9%, higher or almost doubled the number of visitors if there were no seasonal peak (i.e., no seasonal peak would be a January attendance which is 1/12 of annual attendance).

Economic Profile of the Area Surrounding Blue Springs

The thrust of this report is to identify the direct economic impact of natural springs in particular areas. It is important to look at the economic setting in which springs exists. We have gathered such data available from the U.S. Department of Commerce (2002).

Figure 5.2
Seasonal Attendance Index for Blue Spring, Florida, 1992-2002*



*All Seasonal Figures: % above or below no seasonality or 1/12 of annual attentance for each month.

Source: Division of Recreation and Parks, Florida Department of Environmental Protection, Unpublished Data.

Consider Table 5.1. Volusia County in which Blue Spring State Park exists has experienced an 18.9% growth in population over the 1990-2000 period, which is slower than that for the State of Florida as a whole. This county's population is the 10th largest in the State of Florida. So the percentage growth may be, in part, a function of the relatively large population base in 1990. Today, nearly one-half million people live in Volusia County. Aggregate personal income changes with the number receiving income and the amount of income per person. Usually, over time, aggregate personal income increases because of growth in population and per capita income that will be discussed below. Total personal income in Volusia County increased by 61.5% over the 1990-2000, which was behind the growth of Florida as a whole.

Of special interest, the growth of income per capita over the 1990-2000 period in Volusia County was nearly 40% which is comparable to the growth in this indicator for the entire State of Florida. Thus, the level of affluence or per capita income has risen in Volusia County at about the state average. However, the level of per capita income in this county still remained nearly 23% below that of the State of Florida. As the state has grown on the shoulders of many high tech industries, Volusia County has relied more on retirement and tourism. Although still very important, such industries have not grown as rapidly as other sectors based on improvements in technology during the last decade. Finally, jobs in Volusia County have grown at about the rate of growth in population, but trailed the rate of growth for the state (19.9% versus 30.4%). Earnings per job in Volusia County has remained below the state average and grew at a slower pace than that in the State of Florida as shown in Table 5.1. The measured unemployment rate is comparable to that of the State of Florida. Of particular significance, the participation rate or the percent of the population potentially able to work is much lower for Volusia County than the state average.

Table 5.1
Population, Income, Per Capita Income, Jobs and Earnings Per Job
in Volusia County, Florida Containing Blue Spring State Park 1990 & 2000

	1990	2000	%Change	Rank Among 67 Counties in 2000
Population Growth				
Volusia County	374,200	445,067	18.9	10
Florida	13,033,307	16,054,328	23.2	N/A
Aggregate Income Growth (Thous $)				
Volusia County	6,219,227	10,046,808	61.5	13
Florida	258,479,049	445,739,968	72.4	N/A
Per Capita Income Growth ($)				
Volusia County	16,190	22,574	39.4	31
Florida	19,832	27,765	40.1	N/A
Employment / Job Growth				
Volusia County	129,660	155,494	19.9	11
Florida	5,802,287	7,566,198	30.4	N/A
Average Wages / Earnings Per Job ($)				
Volusia County	19,583	26,484	35.2	35
Florida	21,244	30,226	42.3	N/A

SOURCE: REGIONAL ECONOMIC INFORMATION SYSTEM, U.S. BUREAU OF ECONOMIC ANALYSIS (CD ROM, 2002)

Table 5.2
Socioeconomic Characteristics of Volusia County, Florida
Containing the Blue Spring State Park, 2000

Recorded Unemployment Rate	%	Rank Among 67 Counties in Florida
Volusia County	3.1	47
Florida	3.75	N/A
Labor Force Participation Rate*	%	
Volusia County	68.4	36
Florida	78.5	N/A
Poverty Rate (% of Population)	%	
Volusia County	14.8	40
Florida	15.2	N/A

Components of Per Capita Income

	Income Per Capita	Income From		
		Earnings	Cap Inc	Trans Pay
Volusia County	22,574	11,455	6,337	4,781
Florida	27,764	16,560	7,005	4,199

* Percent of population in the county between the ages of 15-64 who are employed.

SOURCE: FLORIDA STATISTICAL ABSTRACT 2001, BEBR, UNIVERSITY OF FLORIDA (2001)

From Chapter 4, we found this same pattern for Citrus County. We interpreted this as a reflection of retirees moving to Citrus County. This is probably true in Volusia County where the participation rate is 10 percentage points below the state average. Further, there is no difference in the poverty rate when this county is compared to the state of Florida.

Finally, at the bottom of Figure 5.2, we have a breakdown in per capita income that may tell us a lot. It tells us that earnings from labor in Volusia County are much lower than the state average, which reflects the industrial structure of this county (i.e., lower paying jobs in the visitor and retirement sectors). Capital income per capita reflects the amount of interest, dividends and rents flowing to residents. This is below the state average indicating that retirees from out of state and those retiring from jobs in Volusia County are somewhat below state averages. Finally, transfer payments that include social security and retirement income are much higher in Volusia County where the average age is over 42 years of age compared to about 39 years for the State of Florida. How does Blue Spring fit into this economic pattern? With substantial growth in Volusia County, it makes the amazing static attendance in Blue Springs even more puzzling. Adding to this, the influx of tourists to this county should have the usual fraction that wish to take this opportunity to see the manatee population which gathers at Blue Spring during the peak of the tourist season in the first quarter of the year (i.e., January-March). We have no answers to this riddle, but will have to wait for further research.

Direct Economic Impact of Blue Springs: The Model

In Chapter 2 dealing with the economic importance of Ichetucknee Springs, we developed an economic model in which to calculate the spending; employment and wages generate by visitors coming from outside the area of economic impact. We wished to see how much economic activity and benefits are generated by the springs from having individuals visit

the area (e.g., county) surrounding the park. The model is the same for all four springs considered in this report. The impact of visitors is based upon springs attendance and a sampling of the spending habits of those visitors to the spring in question. Spending or sales to these visitors are also broken down into kinds of good and services (i.e., industries) supported in the surrounding area by these purchases. The model or framework in which to develop these basic economic impact variables for the springs in question was extensively discussed in Chapter 2. We advise the reader to return to Chapter 2 if he/she has not read this previous chapter and is interested in greater detail. A reader not interested in the technical model may skip such sections and find the numbers reflecting the sales (i.e., expenditures); wages and employment and a breakdown of the kind of industries benefiting from such spending in Blue Spring State Park. It is the choice of the reader as to which way the results of our analyses may be absorbed.

Estimation of the Direct Economic Impact of Blue Spring

In the last part of 2002, a survey of attendees to Blue Spring State Park was conducted. The initial intent of the survey was first to determine what percentage of park attendance comes from outside Volusia County. The next step was to interview visitors from outside the immediate area of Volusia County in terms of size of party; length of stay during their trip and kinds of expenditures made during their visit to Blue Springs. This was the same method employed in Chapter 2 dealing with the economic impact of Ichetucknee Springs State Park. In total, 809 visitors were interviewed to get an economic profile to use in conjunction with attendance to obtain the total economic impact on Volusia County discussed in some detail above. Consider Table 5.3.

In fiscal year 2002, 337,356 individuals were attracted to Blue Spring State Park. From our sampling, it was estimated that about 65% of these individuals could be designated as from

outside Volusia County. Thus, in Table 5.3, it is estimated that 219,282 visitors injected money into the local economy. These visitors were divided into five classifications based primarily on accommodation mode. One category was included for day visitors coming to the spring from outside the county. According to our sample, the two primary modes were (1) hotels and motels and (2) day visitors, constituting 84.5% of all visitors from outside Volusia County. In Table 5.3, we can see that among these categories there was not too much variation in party size running from 2.63 (Condominiums) to 3.36 (Day visitors). There was a large variance in length of stay as camper stayed in and around the park for nearly 14 days compared to only a little over 5 days for those using hotels and motels. Of course, day visitors by definition stay in the area for only one day.

Of interest, spending per party day varied from $142 for those using condominiums to only $17 per day for day visitors in Volusia County. As a group, visitors spent only about $61 per party day which is the lowest found among the four springs in this study. Not only does Blue Spring State Park raise questions as to the trend in attendance discussed above, but for some reason it has the lowest spending per attendees observed among our four spring-parks examined in this study. At the end of our economic analysis of the four springs in northern and central Florida, we shall compare the spending among the springs and how our study compares with other similar studies. This will be presented in Chapter 6.

Table 5.3
Estimation of the Direct Economic Impact of Visitors Associated with Blue Springs, Florida, Fiscal Year 2001-2002

	All People Attending Springs	X	Percent of Attendance Visitors	=	Estimated Outside Area Visitors
Non-Resident Visitors to the Springs	337,356		0.65		219,282

Percent of Visitors from Outside the Springs by Accommodation Mode & Other Statistics	Sample Size N	Percent (k)	Visitors (VIS)	Party Size (SP)	Length of Stay(LS)
Hotels and Motels	130	0.160	35,237	3.08	5.09
Condominiums	24	0.030	6,505	2.63	7.71
Friends and Family	86	0.106	23,311	3.12	5.80
Camping	15	0.019	4,066	2.73	13.47
Day Visitors	554	0.685	150,163	3.36	1
Total	**809**	**1**	**219,282**	**3.26**	**2.60**

Estimated Spending Per Party and Individuals by Accommodation Mode	$EPPD (Daily Spending Per Party)	$EPPED (Daily Spending Per Person)
Hotel and Motels	$97	$32
Condominiums	$143	$55
Friends and Family	$28	$9
Camping	$74	$28
Day Visitors	$17	$5
All	**$61**	**$19**

Estimated Spending, Wages and Employment	Spending (Mil $)	Wages (Mil $)	Employment
Hotel and Motels	5.6	1.33	106
Condominiums	0.9	0.21	18
Friends and Family	1.2	0.29	16
Camping	1.5	0.38	23
Day Visitors	0.8	0.17	11
Total	**10.0**	**2.38**	**174**

The economic model used to estimate the economic impact of Blue Spring-related on Volusia County was described extensively in Chapter 2 dealing with Ichetucknee Springs. Table 5.3 contains the necessary information to estimate the economic impact defined as estimated spending; wages; and employment generated by visitor to Blue Spring State Park. Spending by visitors is a function of attendance; length of stay per visitor in the area and spending per individual per day. When these three factors are multiplied together it calculates the spending by any group or all visitors to the area under analysis. In addition, we must know what goods and service are bought by visitors to estimate visitor-related wages and employment. All these computations are implemented by the use of a fairly complicated spreadsheet analysis which can be made available to park researchers.

At the bottom of Table 5.3, the end result of these rather complicated computations are shown by accommodation mode plus day visitors. For the year 2002, it is estimated that the Blue Spring-related visitors spent $10 million in Volusia County. This is the lowest spending figure among our four springs under analysis in the report despite the fact that the total attendance for Blue Spring exceeds the other three springs. Much is due to the low percentage of attendees that live outside Volusia County coupled with the relatively low spending per person day as discussed above. Based upon the spending by good and services (e.g., shopping; restaurants; grocery stores, etc), it is estimated that this spending by visitors generated $2.38 million in salaries and wages and 174 full and par-time jobs. As discussed in earlier chapters, such jobs are largely part-time and low skilled based upon the kind of spending by visitors which is true throughout Florida where tourism is the number one industry in terms of employment and wages.

Dividing wages by employment generated by visitors to Blue Spring, the annual wage rate of those working in the visitor sector averaged only $13,678 per year.

Table 5.4 shows the distribution of spending by all visitors based upon the overall spending pattern. Each visitor surveyed was asked to give their spending by the eight categories shown in Table 5.4. The four largest categories of spending in Table 5.4 are lodging ($5.67 million); evening entertainment ($1.26 million); shopping ($.95 million) and restaurants ($.94 million) or 88% of all spending by visitors to Blue Spring. These spending categories represent the benefactors of having Blue Spring State Park located in Volusia County.

What is the relative contribution of Blue Spring to the economy of Volusia County? In 2000, Volusia County generated $3.9 billion in wages and salary disbursements supporting over 155 thousands jobs. Obviously, Blue Spring State Park is not going to be a major industry in such a large economy. This economy is several times the size of the other three or four counties we have considered in conjunction with the other three springs discussed in Chapters 2-4. Blue Springs constitutes only .061% of wages and .11% of employment in Volusia County's economy, which represents a relatively small contribution. Finally, the industries supported by Blue Spring is a rather low paid, averaging only $13,678 per year compared to $26,484 for Volusia County has a whole. This concludes our economic analysis for Blue Spring.

In the last chapter of this report, we shall compare and contrast the economic contribution of the four springs considered in Chapters 2-5. This will give us a composite of all four parks and form, if we assume these springs are reasonably representative of all springs in Florida, a general idea of the average economic contribution visitors to a springs-based park have upon rural economic development in an immediate surrounding area.

Table 5.4
Estimation of Blue Spring Visitors by Category in
Volusia County, Florida, Fiscal Year 2001-2002

Spending Category	Spending (Mil $)	Related Employment	Related Wages (Mil $)
Lodging	5.67	115	1.35
Food & Beverages(Restaurants)	0.94	24	0.25
Food & Beverages(Groceries)	0	0	0
Admission Fees	0.69	8	0.12
Evening Entertainment	1.26	14	0.44
Ground Transportation	0.34	2	0.11
Shopping	0.95	8	0.09
All Other	0.15	3	0.02
Total	10.00	174	2.38

Note: Aggregate expenditures for all modes including Hotels/Motels; Friends/Families; Campgrounds; Condominiums plus Day Visitors to Blue Spring Park.

CHAPTER 6

A Comparison and Conclusions of the Direct Economic Impact for the Four Springs State Parks In This Study

Introduction

In Chapters 1-5, we have presented extensive material related to the direct economic impact of springs-based parks on the local economies in which they exist. In this final chapter, we shall summarize this information so the reader can compare the relative results for the four spring-related state parks in Florida. This sample of such parks was determined by the Florida Department of Environmental Protection to be, in their opinion, representative of the nearly 70 percent springs-related state parks in Florida. We shall compare and contrast the estimated direct economic impact of the sample of four springs. Hopefully, this study will aid park management in evaluating the economic impact of other parks in Florida. We have also pointed out various situations that need further examination such as the static nature of attendance at Blue Spring State Park and the role of the environment (e.g., habitat for the manatee) in influencing the economic prosperity of a local area (i.e., state parks as a leading economic indicator of the development of the local economy). We also think that the Division of Recreation and Parks can use this report to better analyze how the park system serves the patrons and how much the park system adds to the local economy. Our analysis of attendance trends and seasonal behavior of attendance can be a management tool to evaluate where the parks have been, and to project future attendance so that planning may be implemented for facilities and services.

Comparison and Contrast

In Table 6.1, we have pulled together some of the prominent statistics that were developed in previous chapters. For 2002, estimated spending by visitors at the four springs-related state parks varied from nearly $23 million at Ichetucknee Springs in Suwannee County to only $10 million at Blue Spring. It is important to note that this is spending by visitors who live outside the economic area of economic impact. This kind of spending is an export industry that drives the local economy. Residents of the area not only benefit from having the park for their enjoyment, but also benefit by having visitors contribute to job creation in their area. Local resident spending is the result of this impact and not the impetus. This is true since bringing money into the local economy by selling good or providing services to tourists results in eventual multiplier effects which support income received by local residents. They, in turn, spend some of this money on attending the park. Of further interest, Table 6.1 shows that Ichetucknee Springs and Wakulla Springs have approximately the same level of spending at about $22 million and have about the same total attendance. However, Ichetucknee Springs has about one-third more estimated visitors (i.e., from outside the area) than Wakulla Springs as shown in the bottom of Table 6.1. As measured by spending per party and per person day, Wakulla Springs visitors spend much more than those visiting Ichetucknee Springs which account for the parity in overall spending between the two parks (e.g., spending per person day is $89 in Wakulla Springs compared to only $34 in Ichetucknee Springs). This is shown near the top of Table 6.1. We do not know why there is such a difference in spending. One working hypothesis may be found in the nature of the two springs-related parks. Ichetucknee Springs appeals to those desiring tubing down the river while Wakulla Springs is more “up-scale” with a grand lodge, an outstanding restaurant and glass bottom boats set against the history of being part of the Tarzan and Creature

Table 6.1
A Summary of the Direct Economic Impact of
Ichetucknee; Wakulla; Homosassa and Blue
Springs State Parks on the Local Economy, 2002

Springs	Ichetucknee	Wakulla	Homosassa	Blue	Average Per Spring
Spending Expenditures (Mil $)	22.7	22.2	13.6	10.0	17.13
Spend Per Party Day ($)	215	409	90	61	193.75
Spend Per Person Day ($)	34	89	25	19	45.50
Spending (Mil $)					
Hotel & Motel	4.1	15.3	5.5	5.6	7.63
Condos	1.5	1.8	0.1	0.9	1.08
Friends/Family	12.3	4.3	4.3	1.2	5.53
Campers	3.2	0.1	2.6	1.5	1.85
Day	1.6	0.7	1.1	0.8	1.05
Spending by Category (Mil $)					
Lodging	1.44	4.01	3.43	5.67	3.64
Restaurants	3.86	3.42	1.87	0.94	2.52
Groceries	1.76	2.11	0.13	0	1.00
Fees	4.34	1.21	4.22	0.69	2.62
Evening Enter	2.31	2.51	2.36	1.26	2.11
Transportation	2.95	1.47	0.32	0.34	1.27
Shopping	3.75	3.56	1.08	0.95	2.34
All other	2.27	3.99	0.11	0.15	1.63
Wages & Salaries (Mil $)	5.09	4.33	3.13	2.38	3.73
Employment	311	347	206	174	259.50
Other Characteristics					
Party Size	6.4	4.6	3.6	3.3	4.48
Length of Stay	2.7	2.1	3.3	2.6	2.68
Attendance	188,845	180,793	265,977	337,356	243,243
Visitors	169,962	126,555	169,962	219,282	171,441
Residents	18,883	54,238	96,015	118,074	71,802
Percent Visitors (%)	90	70	64	65	70.48

from the Black Lagoon traditions. Homosassa and Blue Spring are at the lower end of the total spending estimates with $13.6 million and $10 million respectively in 2002. These parks are more heavily attended by visitors as shown in the bottom of Table 6.1. But, here again, the spending per visitor party and per person day is relatively low for these two parks. In our sample of parks, Blue Spring exhibited the lowest spending per visitor, which was directly responsible for its relatively low economic impact (i.e., $10 million). Another working hypothesis is that springs located in relatively rural areas (e.g., Wakulla Springs) and immersed in varied natural resources may be more appealing to more affluent visitors wishing to spend more time in the area. In urbanized areas such as Blue Spring just a short distance from Orlando and Daytona Beach may attract a vast cross-section of tourists willing to spend only a fraction of their time in this area while in Florida. If the four springs this study are representative of other springs in Florida, it would appear that visitors spend a little over $17 million at the "typical spring" as shown in the simple average column of Table 6.1. Spring visitors average about $194 per party and about $46 per person day. The reader should remember the $46 per person day since it will be compared to an ad hoc study done by Gregory (2002) discussed below.

Among the accommodation modes and day visitors in Table 6.1, spending varied greatly. For example, the simple average of spending by those visitors using hotels and motels was more than $7.6 million which was only about one-half of that spent at Wakulla Springs with the $15.3 million in spending, mostly at the lodge and restaurant we suspect (i.e., sample respondents were not asked at what hotel or motel they stayed). Overwhelmingly, most of the spending by mode was done on hotels and motels or with friends and family (i.e., 77% of the total for all modes/day visitors). This does indicate that visitors to springs use friends and family as a mode of accommodation. Even though the hotels and motels do not benefit from this group, other

merchants in the area do.

In Table 6.1, we see a breakdown of spending by visitors. This varies considerably from spring to spring. Out of the eight categories, lodging, restaurants, admission fees and shopping constitute about two-thirds of all spending. Spending on these categories has a varied impact in terms of creating wages and employment. For example, restaurants are a very labor-intensive industry. This greatly contrasts with shopping where only a sales clerk is needed. The reason we mention this is that the economic impact of spending as measured by wages and employment will vary depending on how labor-intensive the pattern of spending happens to be. Also, how much is spent on each category is an important factor as well.

In terms of wages and salaries, Ichetucknee Springs generated the most wages as might be expected since spending was highest among this spring. Generally, the generation of wages was positively related to spending as the reader can see from Table 6.1. Note that employment generated by this spending from spring to spring generally followed this pattern, but more employment was generated in Wakulla Springs (i.e., 347) than in Ichetucknee (i.e., 311) due to spending pattern in the former being more labor intensive than the latter (e.g., lodging is very labor intensive with a restaurant, etc).

In general, springs exhibited visitors that had a party size of between 4-5 individuals and spending about 2-3 days as shown in the simple average column in Table 6.1.

Finally, the typical spring-related park in this study had more than 243 thousand visitors of which 172 thousand or about 70 percent of all visitors are from the outside of the area. In terms of important ratios that could be used to extrapolate to other springs, using the data in Table 6.1, there is one job created by $65,865 of spending by visitors from outside the area of economic impact. Or, $1 million in spending would create about 15.2 jobs based upon our

sample of parks. Wages average about 22% of all spending. That is, $1 million in spring-related spending would create $220,000 in wages and salaries. The annual wage rate per employee in the visitor sector was be about $14,474 or $220,000 divided by 15.2. Thus, if we knew the attendance for a particular spring, all we would need to know would be what percent of the attendees are from out of the area of economic impact. A sampling of license plates in the parking lot might be a rough indicator of what percent are from outside a particular county. However, the use of such "averages" may obscure differences between springs as explained and shown below.

A Comparison with Another Study

How much have we learned from the study of these four springs? It has raised some important policy questions, but has yielded a database that could be used by the Division of Recreation and Parks, DEP. Gregory (2002) of the DEP puts out estimates of the total direct economic impact of all of the parks in the Florida system. He uses attendance, expenditures per person day and a ratio of jobs to spending. This can be compared with our very specific study of four springs to see how close Gregory's study comes to on-site sampling. Of interest, he uses the same spending per person-day and jobs per $1 million in total spending among all parks in the system. He uses spending per person-day of $42.20 and employment generated per $1 million in spending of 20 jobs. Of great interest, with our on-site sample using just four springs in Florida, we find that the simple average of spending per person-day is $ 45.50. Spending at the $1 million level would create a little over 15 jobs. Thus, it would appear that this study comes strikingly close to those ratios used by Gregory (2002). He estimates out of area visitors represent 65% of all total park visitors, which is close to our finding of about 70%. Total spending between the two studies can be compared as follows:

Springs Study	Spending (Mil $)	Employment
Bell & Bonn (2003)		
Ichetucknee	22.7	311
Wakulla	22.2	347
Homosassa	13.6	206
Blue	10.0	174
Gregory (2003)		
Ichetucknee	7.4	160
Wakulla	4.9	150
Homosassa	7.3	184
Blue	9.2	194

By looking at the statistics, it is apparent that using overall averages may miss great individual variations at any site such as spending per party; size of the party or length of stay. Given that the sampling is done properly, it is apparent that on-site studies may be more accurate since variations in parameters may be great from spring to spring (see Table 6.1). Spending numbers from the Gregory study are lower since he limited all visitors to one day in the area. The Bonn and Bell (2003) study counted all days visitors stayed in the area because of the importance the springs had upon their trip purpose. This means that one cannot apply the average of the four springs in this study to other springs not studied in order to estimate the economic impact on an area. This is because there is too much variance in spending per party; size of the party and number of days spent in the area based upon the findings from this study. As we saw in the trend and seasonal analysis of attendance data, there is too much variation from spring to spring. Of course, each spring is so unique and has different factors that attract visitors. This completes our

summary of our spring studies and the discussion of our results. We have also compared our study to the approximation used by the Division of Recreation and Parks, Department of Environmental Protection.

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APPENDICES

Appendix A: Florida Springs Visitor Survey 2003

Appendix B: Ichetucknee Springs Visitor Study 2003

Appendix C: Wakulla Springs Visitor Study 2003

Appendix D: Homosassa Springs Visitor Study 2003

Appendix E: Blue Springs Visitor Study 2003

Appendix F: Springs Visitor Study Overall

Appendix A: Florida Springs Visitor Survey

Surveyor's Initials_____

Q01 Date: _____

Q02 Site (circle one): WS IS HS VB

Q03 Gender: 1=Male 2=Female

What is your:

Q04 City: _____

Q05 County: _____

Q06 State: _____ Country: _____

Q07 Zip Code: _____

Q08 What best describe your reason for today's visit? _____

Q09 Number of nights spent in the area during this trip: _____

Q10 Where did you stay overnight?
1= Locally
2= In another county
3= Other (specify)_____

Q11 Accommodations Used:
1= No nights spent in area
2= Hotel/Motel
3= Condominium
4= Private Home
5= Other _____

Q12 How many people are in your travel party? _____

Q13 How many in your travel party are **NOT** county residents? _____

Q14 Is this your first visit to this spring? Y N

Q15 If Y, how did you hear about this spring? _____

Q16 Will you come back to this spring in the near future? Y N

Q17 If Y, Within the next 6 months?
Y N
Within the next year?
Y N

During the past 24 hours, please indicate the amount **spent by your party:**

Q18 $_____ Lodging
Q19 $_____ Restaurant Meals/Beverages
Q20 $_____ Grocery/Convenience Stores
Q21 $_____ Admission Fees
Q22 $_____ Evening Entertainment
Q23 $_____ Ground Transportation
Q24 $_____ Shopping
Q25 $_____ All Other

Q26 Please rate your visit to this spring:
Poor 1 2 3 4 5 Excellent

Q27 Ethnicity:
1= Caucasian
2= African-American
3= Hispanic
4= Asian
5= Other_____

Q28 Education:
1= High School Graduate
2= Technical School
3= Some College/College Graduate
4= Post Graduate Degree

Q29 Total Household Income:
1=Under $20,000 2=$20,000-49,999
3=$50,000-$79,999 4=$80,000+

Q30 Marital Status:
1=Married 2=Single 3=Widowed/Divorced

Q31 How much more would you be willing to spend on the entrance fee for each visit if you knew the money would go to the maintenance and protection of this natural spring? $_____

Thank you for your help !!!

Date	Expenditures Per Party	Avg. Nights Spent	Avg. Party Size	# In Party Not Resident	Likely To Return: Next Year	6 Mos.	2 Years	Will Not Return	Is This Your First Visit?
04/02-07/02	$214.81	2.7	6.4	N/A	26.9%	55.6%	17.5	7.3%	N/A

Top Visitor Origins (Top 5)

Jacksonville	21.8%
Gainesville	13.4
Tallahassee	4.8
Valdosta	3.0
Lake City	2.6

Average Daily Expenditures

By Type	Total
Admission Fees	$41.10
Restaurants	36.56
Shopping	35.52
Ground Transportation	27.95
Evening Entertainment	21.88
Other Items	21.50
Groceries	16.67
Lodging	13.64
Total Avg. Daily Expenditure	$214.81

Main Purpose For Visit

Leisure Vacation	85.6%
Friends/Family	7.9
Other	5.0
Attend Meetings	1.0
Business	0.5

Where Stayed Overnight	Total
Locally	51.1%
No Overnight Stay	48.9

How Heard About Ichetucknee Spring	Total
Family/Friends	68.5%
Brochure/Newspaper	15.4
In Area	5.6
Other	4.8
Repeat Visitor	2.7
Internet	1.6
Travel Agent	1.4

Accommodations Used	Total
No Overnight Stay	48.9%
Private Home	18.8
Campground	18.5
Hotel/Motel	11.8
Condominium	2.0

Education	Total	Sex	Total	Marital Status	Total	Ethnicity	Total	Income	Total
Some College/College Grad	50.9%	Male	41.4%	Married	59.3%	Caucasian	87.4%	Under $20,000	10.1%
Post Graduate Degree	11.9	Female	58.6	Single	31.8	African-American	1.0	$20,000-$49,999	33.3
High School Graduate	25.3			Divorced/Widowed	8.9	Hispanic	5.3	$50,000-$74,999	25.2
Technical School	10.9					Asian	3.3	$75,000 or More	20.4
No Answer	0.5					Other	3.0	No Answer	10.9

Date	Expenditures Per Party	Avg. Nights Spent	Avg. Party Size	# In Party Not Resident	Likely To Return: Next Year	6 Mos.	Don't Know	Will Not Return	Is This Your First Visit?
09/02-03/03	$409.47	2.0	4.3	3.4	85.0%	74.2%	N/A	13.3%	Yes 47.2% No 52.8%

Top Visitor Origins (Top 5)

Tallahassee	17.0%
Panama City	6.0
Orlando	4.2
Tampa	3.7
Jacksonville	3.5

Average Daily Expenditures

By Type	Total
Lodging	$73.88
Other Items	73.51
Shopping	65.59
Restaurants	63.01
Evening Entertainment	46.24
Groceries	38.87
Ground Transportation	27.08
Admission Fees	21.29
Total Avg. Daily Expenditure	$409.47

Main Purpose For Visit

Manatees	14.2%
Eco-Tourism	9.7
Vacation	7.9
Wedding	7.2
Homecoming	6.2

Where Stayed Overnight	Total
Another County	59.9%
Locally	31.2
No Overnight Stay	9.0

How Heard About Wakulla Spring	Total
Family	63.8%
Brochure	17.5
Other	10.2
Travel Agent	2.8
In Area	2.3
Repeat Visitor	2.3
Internet	1.1

Accommodations Used	Total
Private Home	47.4%
Hotel/Motel	38.2
No Overnight Stay	9.4
Condominium	4.1
Campground	0.9

Education	Total	Sex	Total	Marital Status	Total	Ethnicity	Total	Income	Total
Some College/College Grad	63.9%	Male	56.5%	Married	68.3%	Caucasian	82.5%	Under $20,000	6.6%
Post Graduate Degree	17.2	Female	43.5	Single	23.5	African-American	3.8	$20,000-$49,999	32.5
High School Graduate	8.0			Divorced/Widowed	8.2	Hispanic	9.1	$50,000-$79,999	39.1
Technical School	10.9					Asian	4.6	$80,000 or More	21.9

Date	Expenditures Per Party	Avg. Nights Spent	Avg. Party Size	# In Party Not Resident	Likely To Return: Next Year	Likely To Return: 6 Mos.	Likely To Return: Don't Know	Will Not Return	Is This Your First Visit?
Jan-Feb 2003	$89.47	3.1	3.7	2.9	45.0%	19.0%	9.3%	17.8%	Yes 46.4% No 53.6%

Top Visitor Origins

New York	8.0%	England	2.5
Michigan	7.1	Miami	2.2
St. Petersburg	4.7	Orlando	2.2
New jersey	3.8	Sarasota	2.2
Illinois	3.8	Lakeland	2.2
Canada	3.6	Tennessee	2.2
Pasco	3.0	California	2.2
New Hampshire	3.0	Indiana	1.9
Virginia	2.7	Maryland	1.9
Jacksonville	2.5	Kentucky	1.9
Chiefland	2.5	South Carolina	1.6
Pennsylvania	2.5		

Average Daily Expenditures

By Type	Total
Admission Fees	$27.93
Lodging	22.70
Evening Entertainment	15.62
Restaurants	12.38
Shopping	7.15
Ground Transportation	2.11
Other Items	0.72
Groceries	0.86
Total Avg. Daily Expenditure	$89.47

Main Purpose For Visit

Manatees	43.7%	Wild Life	3.3
Vacation	21.4	To Take Pictures	0.8
Sightseeing	17.6		
Family Outing	5.5		
Grandchildren	3.8		
Entertaining Visitors	3.8		

Where Stayed Overnight	Total
No Overnight Stay	41.2%
Locally	30.5
Another County	25.5
Other	2.7

How Heard About Volusia Blue	Total
Repeat Visitor	44.2%
Family	26.6
Word of Mouth	13.2
In Area	6.0
Internet	4.4
Hotel	2.7
Brochure	2.5
No Answer	0.3

Accommodations Used	Total
No Overnight Stay	41.2%
Private Home	31.7
Hotel/Motel	17.0
Campground	9.6
Condominium	0.5

Education	Total	Sex	Total	Marital Status	Total	Ethnicity	Total	Income	Total
Some College/College Grad	40.1%	Male	36.0%	Married	79.4%	Caucasian	89.3%	Under $20,000	2.7%
Post Graduate Degree	30.8	Female	64.0	Single	11.0	Hispanic	3.3	$20,000-$49,999	25.3
High School Graduate	3.8			Divorced/Widowed	1.6	African-American	2.7	$50,000-$79,999	33.8
Technical School	18.1			No Answer	7.9	Other	3.3	$80.000 or More	20.9

Date	Expenditures Per Party	Avg. Nights Spent	Avg. Party Size	# In Party Not Resident	Likely To Return: Next Year	6 Mos.	Don't Know	Will Not Return	Is This Your First Visit?
Jan-Feb 2003	$61.00	3.7	3.2	2.6	40.4%	19.6%	9.7%	28.3%	Yes 52.3% No 47.7%

Top Visitor Origins

Canada	5.3%	Michigan	2.4
New York	5.1	Georgia	2.4
Massachusetts	3.9	Miami	2.2
New Jersey	3.6	Texas	2.2
England	3.6	Astor	1.9
Tampa	2.9	Virginia	1.9
Jacksonville	2.7	Orlando	1.7
Illinois	2.7	Indiana	1.7
New Hampshire	2.7	Boca Raton	1.5
Missouri	2.7	Connecticut	1.5
Ohio	2.4	California	1.5
Pennsylvania	2.4		

Average Daily Expenditures

By Type	Total
Lodging	$34.59
Evening Entertainment	7.69
Shopping	5.78
Restaurants	5.73
Admission Fees	4.21
Ground Transportation	2.07
Other Items	0.92
Groceries	0.00
Total Avg. Daily Expenditure	$61.00

Main Purpose For Visit

Manatees	65.6%	Entertaining Visitors	2.4
Vacation	11.1	To Take Pictures	1.2
Sightseeing	7.3	Grandchildren	0.5
Wild Life	7.3		
Family Outing	4.6		

Where Stayed Overnight	Total
Locally	52.1%
No Overnight Stay	38.5
Another County	6.5
Other	2.9

How Heard About Volusia Blue	Total
Repeat Visitor	44.8%
Family	20.6
Word of Mouth	10.9
Brochure	9.0
Hotel	8.5
Internet	4.4
In Area	1.9

Accommodations Used	Total
No Overnight Stay	38.5%
Hotel/Motel	30.3
Private Home	21.8
Condominium	5.8
Campground	3.6

Education	Total	Sex	Total	Marital Status	Total	Ethnicity	Total	Income	Total
Some College/College Grad	53.3%	Male	38.7%	Married	82.8%	Caucasian	93.9%	Under $20,000	3.6%
Post Graduate Degree	22.0	Female	61.3	Single	8.5	African-American	2.7	$20,000-$49,999	24.7
High School Graduate	5.6			Divorced/Widowed	1.7	Hispanic	2.4	$50,000-$79,999	47.7
Technical School	12.1			No Answer	7.0	Other	0.7	$80,000 or More	13.3
No Answer	7.0					No Answer	0.2	No Answer	10.7

Appendix F: Springs Visitor Study Overall 2003

	Ichetucknee	Wakulla	Homosassa	Blue	Overall
Gender (%)					
Male	41.4	56.5	36.0	38.7	43.1
Female	58.6	43.5	64.0	61.3	56.9
Ethnicity (%)					
Caucasian	87.4	82.5	89.3	93.9	88.3
African American	1.0	3.8	2.7	2.7	2.6
Hispanic	5.3	9.1	3.3	2.4	5.0
Asian	3.3	4.6	1.4	0.0	2.3
Other	3.0	0.0	3.3	0.7	1.7
Marital Status(%)					
Married	59.3	68.3	79.4	82.8	72.5
Single	31.8	23.5	11.0	8.5	18.6
Divorced/Widowed	8.9	8.2	1.6	1.7	5.1
Education (%)					
College Grad.	50.9	63.9	40.1	53.3	52.1
Post Graduate	11.9	17.2	30.8	22.0	20.5
High School	25.3	8.0	3.8	5.6	10.6
Tech. School	10.9	10.9	18.1	12.1	13.0
Income (%)					
<$20,000	10.1	6.6	2.7	3.6	5.7
$20K-$49,999	33.3	32.5	25.3	24.7	28.9
$50k-$79,999	25.2	39.1	33.8	47.7	36.5
>$80,000	20.4	21.9	20.9	13.3	19.1
Accommodation (%)					
No Overnight	48.9	9.4	41.2	38.5	34.5
Hotel/Motel	11.8	38.2	17.0	30.3	24.4
Private Home	18.8	47.4	31.7	21.8	29.9
Campground	18.5	0.9	9.6	3.6	8.1
Condominium	2.0	4.1	0.5	5.8	3.1
Daily Expenditures ($)					
Lodging	$13.64	$73.88	$22.70	$34.59	$41.17
Restaurant	36.56	63.01	12.38	5.73	28.50
Groceries	16.67	38.87	0.86	0.00	11.31
Fees	41.11	21.29	27.93	4.21	29.63
Eve. Entertainment	21.88	46.24	15.62	7.69	23.87
Transportation	27.94	27.08	2.12	2.07	14.36
Shopping	35.52	65.59	7.15	5.80	26.47
All Other	21.50	73.51	0.73	0.92	18.44
Total	$214.82	$409.47	$89.49	$61.01	$193.75