

# COMPREHENSIVE EVERGLADES RESTORATION PLAN CENTRAL AND SOUTHERN FLORIDA PROJECT



## E.1 REGIONAL ECONOMIC IMPACT E.1.1 SOCIO ECONOMIC EXISTING CONDITIONS

### EVERGLADES AGRICULTURAL AREA STORAGE RESERVOIRS – PHASE 1



US Army Corps of Engineers  
Jacksonville District



South Florida Water  
Management District

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*(SFWMD Consultant Task 4.1.1.2)*

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## **APPENDICES**

### Appendix E.1.1.1 WCA Boat Ramps

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### **E.1.1.1 BACKGROUND**

The Everglades Agricultural Area (EAA), composed of portions of both Palm Beach and Hendry Counties, began agricultural production in the early 20<sup>th</sup> century. However, it was not until the first dredging of Lake Okeechobee in 1919, the opening of the Palm Beach Canal, and the freeze of February 3, 1917 that farming emerged as an important economic activity in the area. The initial draining of the rich “muck” soils created opportunities for vegetable production.

At the time, the bulk of the land was owned by either the State of Florida or the Southern Land and Timber Company. Initially farmers were allowed to farm the land without purchasing the property or paying rent. This resulted in the development of agricultural settlements along the southern shore of Lake Okeechobee. These settlements evolved into the three municipalities of Pahokee, Belle Glade, and South Bay, with incorporations beginning as early as 1922.

On September 16, 1928, a hurricane occurred that had a monumental impact on the area, causing the death of an estimated 1,600 to 2,500 people and extensive physical damage. The storm was also catalytic to the federal government’s construction of the Herbert Hoover Dike around the Lake that included over 85 miles of levees in an attempt to control future flooding.

After construction of the Herbert Hoover Dike, farming activities significantly increased. The production of “winter” vegetables benefited from the moderate temperatures created by the Lake, resulting in less freeze damage. The EAA was formally created in the 1940s when one-half of the Everglades Economic Region, consisting of 1.6 million acres, was drained for agriculture and urban development.

Sugar cane production began its evolution in the EAA with the construction of the Clewiston Sugar Mill in 1929. The mill was originally owned and operated by Southern Sugar, which was acquired by Charles Stewart Mott in 1931, who transformed this and other activity into the U.S. Sugar Corporation.

Prior to the Cuban revolution of 1959, only 50,000 acres of the EAA was devoted to sugar cultivation. After the imposition of the Cuban Embargo in the early 1960s and the arrival of Cuban refugees skilled in sugar production, the industry began to expand rapidly. In 1974, the “Sugar Act” was abolished that had limited domestic production through quotas. The EAA emerged as the leading cane sugar production area in the United States supplemented by local mills and refineries. Since this time, the industry in the EAA has been consolidated into three major entities: the U.S. Sugar Corporation, Florida Crystals, and the Sugar Cane Growers Cooperative of Florida.

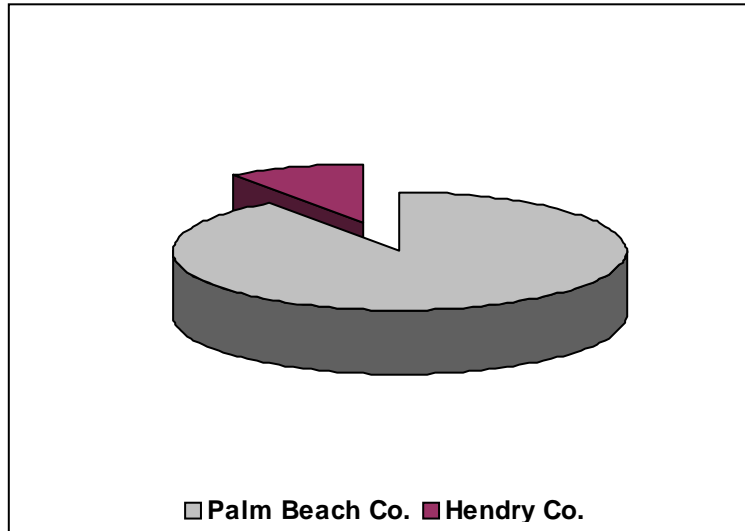
### **E.1.1.2 INTRODUCTION**

In 2002, the EAA or target area contained about 504,000 acres in agricultural products cultivation. Of this relatively large number of cultivation acres, about 90% lies in Palm Beach County and 10% in Hendry County in the western most portion of the EAA. In 2000-01 fiscal year, approximately \$1.2 billion in agricultural sales was produced in the EAA. This represents about one-seventh of Florida’s total agricultural sales equaling \$6.951 billion. According to the 2000 census, the area directly employs between 3,150 and 3,300 in agriculture and 2,200 in related businesses. Most of this is in the Palm Beach County section of the EAA.

In terms of agricultural sales, Palm Beach County is the largest producing county east of the Mississippi River and the sixth largest county in the United States. About 82% of all agricultural areas in cultivation in Palm Beach County lie within the EAA. The estimated \$1.2 billion in sales is believed to result in a total of \$2.8 billion in the two counties’ economies, based on applied multipliers.

**Table E.1.1.1 – Everglades Agricultural Acreage in 2002**

Area	Acreage	%
Palm Beach County	455,275	90.4
Hendry County	48,381	9.6
Total EAA	503,656	100



**Figure E.1.1.1 – EAA Acreage by County**

About nine out of every ten (86.8%) crop yielding acres in the EAA are associated with sugar cane. The remaining acreage is split between more than four other types of agricultural products and pasture lands, with none representing more than 6% of the agricultural use acreage.

**Table E.1.1.2 – Production Acreage By Crop Within the EAA (2002)**

Crop	Total EAA Acreage	% of all EAA Acreage
Sugar cane	436,856	86.8
Row	21,107	4.2
Sod	26,912	5.3
Nursery & Groves	2,345	0.5
Pastures	4,912	1.0
Miscellaneous	11,257	2.2
Total	503,389	100

\*Source: 2002 Palm Beach County and Hendry County Tax Appraisers Office.

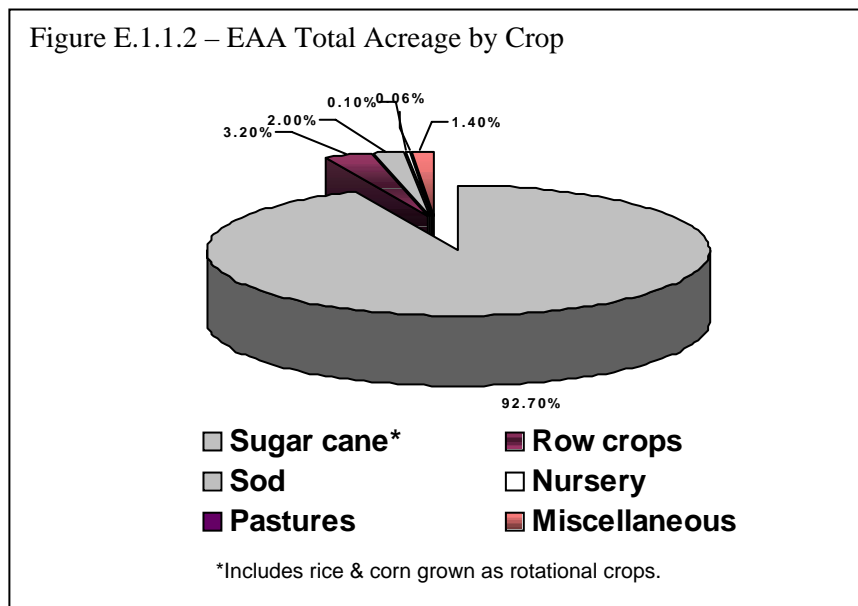


Figure E.1.1.2 – EAA Total Acreage by Crop

Table E.1.1.3 – Production Acreage By County and Crop Within the Everglades Agricultural Area in 2002

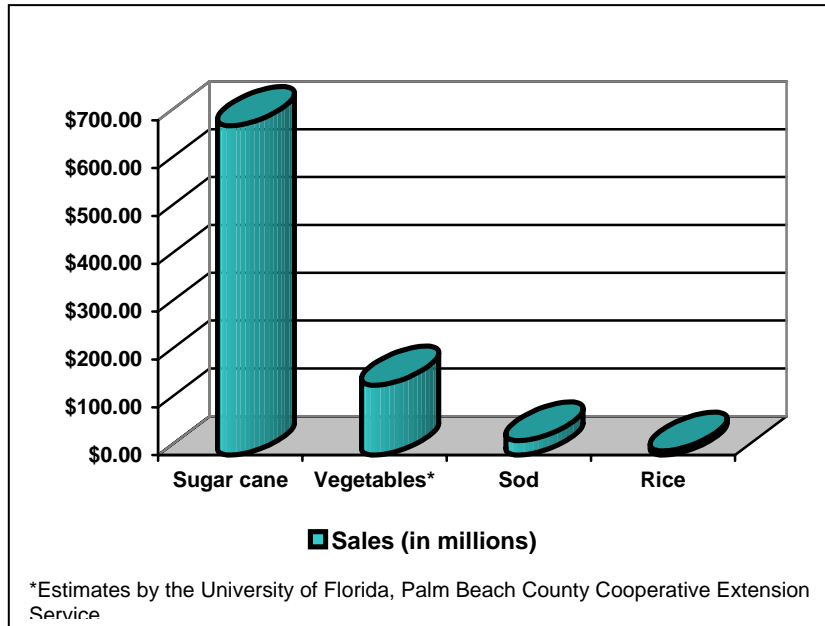
Crop	Palm Beach Co. Acreage	% of Palm Beach Co. Acreage	Hendry Co. Acreage	% of Hendry Co. Acreage	Total EAA Acreage	% of all EAA Acreage
Sugar cane**	423,358	93.0	45,442	90.5	468,800	92.7
Row***	16,347	3.6	-	-	16,347	3.2
Sod	9,846	2.2	-	-	9,846	2.0
Nursery	618	0.1	-	-	618	0.1
Pastures	1,075	0.2	1,884	3.7	2,959	0.6
Miscellaneous	4,031	0.9	2,939	5.8	6,970	1.4
Total	455,275	100	50,265	100	505,540	100

\*Source: 2002 Palm Beach County and Hendry County Tax Appraisers Office.

\*\*Includes rice and corn grown as "rotation" crops.

\*\*\*Includes 1,814 non-productive acres associated with service area for row crops.

Sugar cane is by far the crop generating the most agricultural sales as would be anticipated by the acreage estimates. While representing nearly 93% of all production acreage in Palm Beach County, sugar cane sales represent about 79% of all agricultural sales in the county. Vegetables represent close to 17% of all sales in Palm Beach County as found in Table E.1.1.4.



**Figure E.1.1.3 - Palm Beach Co. EAA Ag Sales for 2001**

**Table E.1.1.4 – EAA Agricultural Sales by Major Crop for 2001**

Geographic Area	2001 Sales (in millions)	% of Total
Palm Beach Co. Subtotal	\$874,586,000	100
Sugar cane	\$688,700,000	79.0
Vegetables	\$146,516,000	16.8
Sod	\$30,230,000	3.5
Rice	\$9,130,000	0.7
Sugar cane (Hendry Co.)**	\$73,922,773	100

\*Estimates from University of Florida, Palm Beach County Cooperative Extension Service.

\*\*Estimated based on Palm Beach County average sales of \$1,626.75.

### **E.1.1.3 MAJOR CROPS IN PRODUCTION**

The following is a review of the information on the major crops in production in the EAA.

#### **E.1.1.3.1 Sugar Cane**

As previously stated, sugar cane was the dominant agricultural product in the EAA in 2002. Sugar cane acreage has remained relatively constant since 1992 within the EAA. It is estimated that the EAA produced 22% of the total sugar produced in the United States (Lord & Suarez - 1997). Approximately three-fourths of the acreage designated for sugar cane cultivation is in sugar cane cultivation at any given time.

Multiple crops can be harvested from a single planting of sugar cane. The initial crop is harvested in approximately 16 months, followed by subsequent harvests (ratoons), beginning 11 months later. In general, there are three ratoons per planting. Some farms harvest up to four ratoons, but the productivity declines substantially for the fourth.

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It is estimated (Alvarez - 1997) that a typical EAA sugar cane farm at any given time has the following land utilization pattern:

- plant sugar cane - 25%
- first ratoon - 25%
- second ratoon - 25%
- fallow (may include rice or sweet corn) - 12.5%
- roads, canals, and ditches - 12.5%

Recoverable sugar by weight has increased from below 10% in 1984, to 11.6% in 2001. The raw sugar crop and molasses byproduct were valued at over \$700,000,000 in the EAA; with only citrus being of greater importance to Florida's agricultural production.

Sugar cane is harvested from late October through March. The harvesting process went through a transformation to mechanization in the early 1990s. Acreage that was machine harvested increased from 30% in 1987 to 100% in 1993. Prior to 1993, up to 10,000 cane cutters were imported from the Caribbean to harvest the crop. The elimination of these workers has allowed the industry to remain economically viable but has had a significant impact on the local economy due to the loss of consumer spending by the laborers.

Support services for the sugar industry are provided within the area by the United States Department of Agriculture, the University of Florida Everglades Extension Center in Belle Glade, and Palm Beach County. Research is also conducted by The Florida Sugar Cane League, the U.S. Sugar Corporation, the Florida Crystals Corporation, and the Sugar Cane Growers Cooperative of Florida.

The price of sugar is partially controlled by the U.S. government's imposition of import quotas on foreign sugar. Approximately 80% of United States' sugar demand is supplied domestically. Sugar produced overseas is significantly cheaper but is subject to import quotas and tariffs. The South Florida Water Management District anticipates a decline in sugar cane production within the EAA from 529,920 acres (1995 condition) to 491,520 acres (2050 condition) due to the purchase of agricultural land for restoration projects. Sugar cane production will also be directly related to future U.S. government import/export policies and relationship with Cuba.

There are six sugar mills and one refinery (South Bay) currently operating in the EAA, with an additional mill and refinery in Clewiston also serving the area. The combined capacity of these mills is over 17 million tons.

Below is a brief description of the three major entities that control almost all of the sugar cane production in the EAA.

### **U.S. Sugar Corporation**

The U.S. Sugar Corporation is one of America's largest and most diversified privately held agribusinesses. It has been headquartered in Clewiston, Florida since 1931. Indicative of its name, its primary business involves growing (some 800,000 tons annually) and refining sugar. Since 1998, with the addition of a sugar refinery, the company has the capacity to refine 540,000 tons of raw sugar per year. The company became the nation's first fully integrated sugar cane producer, taking the product from "the field to the bowl". The refinery, located adjacent to the company's flagship mill in Clewiston, has the capability of producing both raw and refined sugar, enabling the company to adjust production in

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response to shifts in market demand. The sugar is cultivated on 165,000 acres of company-owned or leased land within the EAA or target area.

It also operates the largest private agricultural railroad in the country and is the only sugar cane company that transports cane to its mill via its own rail system. U.S. Sugar's product accounts for 10% of the total U.S. sugar production. In total, the company has 2,500 employees with the majority involved in sugar-related activities.

### **Florida Crystals Corporation**

The Florida Crystals Corporation, headquartered in West Palm Beach, is also one of the leading sugar producers and marketers in the country. It grows sugar cane and rice on its 180,000 acres and produces granulated, baking, powdered, and large and fine-grained sugar under The Natural Sugars brand name. It also produces Sem-Chi Rice.

In 2002, Florida Crystals bought the majority of Tate and Lyles' North American sugar business, which included the well-known Domino sugar brand. This merged business is now one of the largest sugar marketers in the country. Florida Crystals, owned by the Fanjul family, was founded in 1960, after the family fled Cuba. They currently operate three sugar mills and one sugar refinery in the EAA.

### **Sugar Cane Growers Cooperative of Florida**

The Sugar Cane Growers Cooperative (SCGC) is headquartered in Belle Glade. The SCGC is composed of 56 small to medium-sized farms located in the target area. The cooperative was founded in the early 1960's by a group of 54 vegetable farmers. It has grown to 56 members and operates its own mill (Glades Sugar House), with a grinding capacity of 18,000 to 21,000 tons per day.

The SCGC is the largest single employer in Belle Glade, with 885 employees in 2001, of which 490 were full-time and 390 were seasonal. The University of Florida estimates that the cooperative has an economic impact of over \$285 million on the state's economy.

Its first significant sugar crop came in 1962 and was produced on 22,031 acres owned by its original members. During the 2001-02 harvest season, the SCGC produced 132.6 million tons of sugar cane on 71,457 acres on members' land. In 1998, the SCGC joined with Florida Crystals to acquire Refined Sugar, Inc. (RSI) of Yonkers, New York, with the capacity to produce 500,000 tons of refined sugar annually. In addition, the SCGC again joined with Florida Crystals in the acquisition of Tate and Lyle's North American operations (36% of this joint venture) in 2002.

The cooperative currently markets approximately 300,000 tons of raw sugar along with 15 million gallons of blackstrap molasses.

#### **E.1.1.3.2 Rice**

Among the non-sugar crops produced in the EAA, rice occupies the largest amount of harvested acreage, estimated to be between 25,000 and 27,000 acres. The rice cultivated in the Palm Beach County section of the EAA had an estimated sales value of \$9.14 million in 2001 and typically serves as a supplemental crop to sugar. Planting occurs between the last harvest (third or fourth ratoon) and the re-planting of sugar cane. The acreage devoted to rice cultivation is included in acreage designated for sugar.

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According to University of Florida studies, the cultivation of rice yields only marginal economic value from direct production. However, it has a significant residual value based on the following factors: 1) It retards soil subsidence, 2) reduces phosphorus loading into the Everglades, and 3) increases sugar cane yields following rice planting. A landowner can expect to realize a profit in growing rice only if they own the property, grow both main and ratoon sugar cane crops, and do not assume land cost in the profit equation. If a grower leases land for rice production, it is doubtful that a profit can be made. While efforts have been made to expand rice production for ecological reasons, production has remained fairly constant. It is anticipated that no significant increase will occur in the future due to price levels. Almost all the rice grown in the EAA is milled at an existing rice mill owned by Florida Crystals and located within the area.

#### **E.1.1.3.3 Sod**

Sod production involved 26,912 acres (5.3% of total EAA) in 2002. It represents over \$30 million in agricultural sales. For Palm Beach County, sod is almost exclusively grown in the EAA. Most frequently the sod is grown in the southern portion, which is characterized by greater subsidence and poorer soil conditions.

Sod production is both labor intensive and requires highly specialized turf equipment for production and harvesting. Capital investments for land, irrigation, and turf equipment are extremely costly.

Overall sod production in Palm Beach County has decreased by over 58% since 1992. The decline in sod is attributed to the gradual shift taking place from muck-grown sod to mineral-grown sod on sandy soils within the central and panhandle regions of the state. These locations are closer to the expanding out-of-state markets for this product. In general, sod grown in muck soil is cheaper to produce and lighter in weight and can be transported long distances at competitive prices.

#### **E.1.3.3.4 Row Crops (Vegetables)**

The EAA is a major producer of winter vegetables. In 2001, it was estimated that the acreage used for vegetable cultivation produced approximately \$146.6 million in sales. The predominant crops were sweet corn, celery, lettuce, radishes, beans, and cabbage.

Vegetable production is predominately found in the Palm Beach County portion of the EAA. Since 1992, there has been a decline in the acreage devoted to row crops within the EAA (Palm Beach County). It is estimated that there has been a loss of the total acreage between 1992 (24,810 acres) and 2002 (21,107 acres). Production is almost exclusive to winter crops. Winter crops bring higher prices, can be better controlled through irrigation, and benefit from the temperature moderation provided by Lake Okeechobee.

It is anticipated that vegetable production will not significantly increase in the future based on the following:

- J Increasing competition from imported winter agricultural products
- J Risks due to weather fluctuation

- J Control of the land by sugar producers who require a minimum amount of sugar production for the mills and refineries to remain profitable
- J Limitations placed on non-sugar production on leased land controlled by the sugar conglomerates

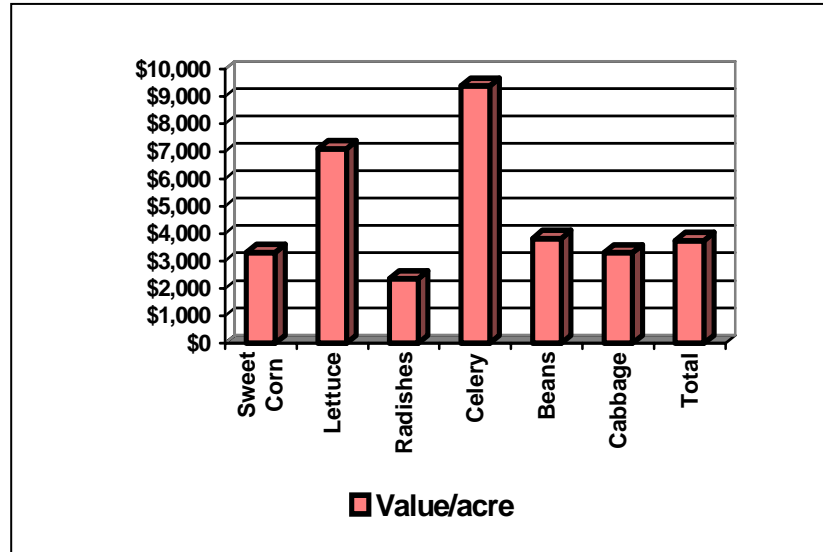


Figure E.1.1.4 – Palm Beach County EAA Row Crop Acreage and Sales for 2001

Table E.1.1.5 – Palm Beach County EAA Row Crop Acreage and Sales for 2001

Crop	Harvested Acres	Sales Estimates	Value/Acre
Sweet Corn	24,290	\$80,180,668	\$3,310
Lettuce	3,200	\$22,707,200	\$7,096
Radishes	7,850	\$18,545,645	\$2,360
Celery	1,800	\$17,529,750	\$9,379
Beans**	1,834	\$7,020,191	\$3,827
Cabbage**	175	\$577,500	\$3,300
Total	39,149	\$146,560,954	\$3,743

\*Source: University of Florida, Palm Beach County Extension.

\*\*Estimated based on 70% of Palm Beach County production.

Much emphasis is placed on comparing 1990 and 2000 census information in this socio-economic evaluation. The census is used because it represents a significant ten-year time frame and employs consistent estimating methodology for many demographic factors. The patterns that evolve are noted and are likely to continue into future years, unless there is a dramatic change in conditions in the area brought on primarily by external forces. External forces that could alter the patterns are beyond the scope of this work, but could range from geological and climate shifts, to national political policy changes, and to dramatic changes in technology. It is noted that the most dramatic technological changes that impacted farming itself are likely to have already occurred. Some of the salient internal demographic changes that have occurred in the past decade involve:

- J The racial and ethnic composition of the permanent resident population.

- 
- J The age composition of the resident population and loss of working age youth.
  - J Decline in the number of households.
  - J Decline in the number of families.
  - J Relative income levels of households, families and per capita.

Some of the stabilizing patterns are:

- J Population densities and concentrations in limited areas of the EAA.

In essence, the EAA is an aging area that is likely to continue to see a loss of working age, educated population. It is typical of patterns seen in many rural areas throughout the United States. To slow or discontinue the relative decline in the population's prosperity and contraction of its economic/employment activity for demand and supply of labor, the area must do the following:

- (a) attract a younger population base; or
- (b) generate new and different economic activity that spurs new employment growth

#### **E.1.1.4 EAA POPULATION DEMOGRAPHICS**

The EAA target area consists of the western part of Palm Beach County and a small part of eastern Hendry County. The larger area of interest that goes beyond the EAA surrounds the southern portion of Lake Okeechobee. There are eleven census tracts that are partially situated within the target area or EAA, with tracts 7903 in Palm Beach County and 0200 in Hendry County being only partially within the target area. There are three incorporated population centers within the EAA, as previously identified: the cities of Pahokee, Belle Glade, and South Bay. These centers have a significant impact on the demographics of certain tracts and the EAA as a whole. Given the low density of the EAA study area, there is not a statistical significant difference between tract and block data analysis.

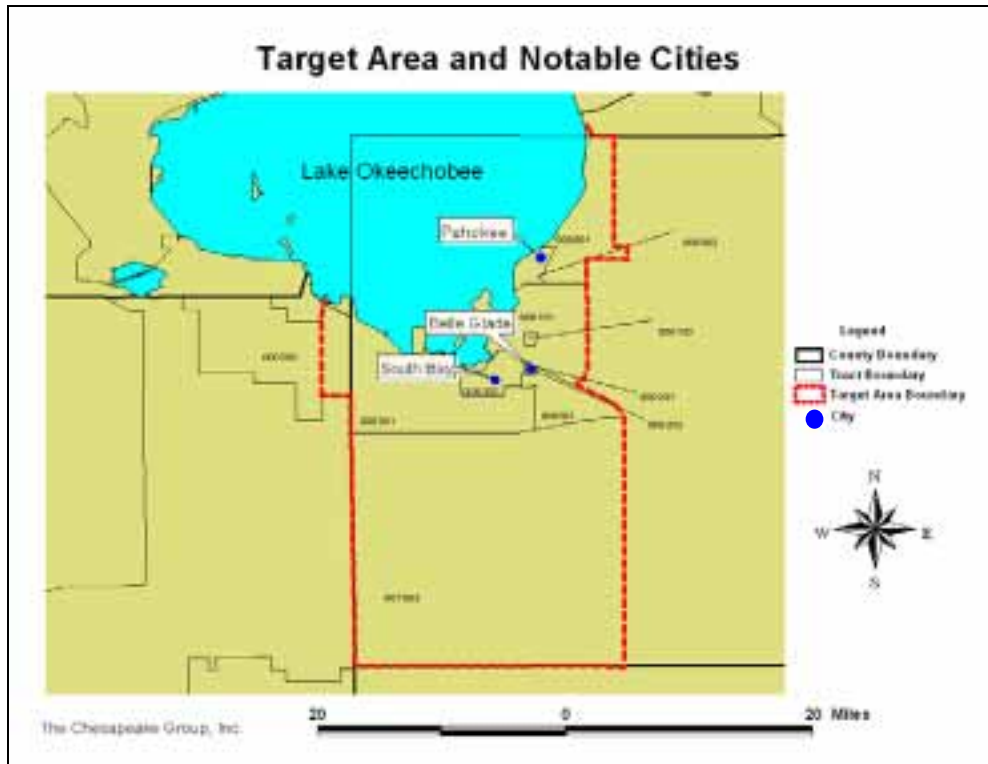
Because tracts 7902 and 0200 are not entirely in the target area, not all of the data gathered for these tracts can be confidently viewed as representative of the target area, as noted in the following data presentations. The eastern portion of tract 7903 is undergoing rapid development, so current demographics of this tract will not characterize the largely rural nature of the western section that falls in the target area or EAA. However, census block data gathered in 2000 was used to better understand the demographics of the section of tract 7903 that lies within the target area.

Furthermore, only a small section of tract 0200 is contained in the target area. While this tract is not undergoing the rapid urban development of tract 7903, full tract data may not be completely useful because a large proportion of this tract is not in the target area. Block data was obtained where available from the 2000 Census on tract 0200 inside the EAA. Thus, some figures for this tract are more accurate than others. Where the accuracy is in question, it is identified in the text.

From a socio-economic perspective this area is generally "very depressed," but has a significant community cohesion. The data indicative of the depressed conditions, but reasonable community cohesion include:

- J A high concentration of minority individuals, both African-Americans and Hispanics, with their numbers far exceeding non-minorities
- J Exceptionally low incomes well below state averages
- J One-third to one-half of the families living in poverty

- J Population declines
- J Poor educational attainment, with only one-half graduating from high school and less than 10% with educations beyond high school



**Figure E.1.1.5 – Target Area and Notable Cities**

The total number of properties or parcels within the total EAA, inclusive of both the Palm Beach and Hendry County sections, which are not owned by either government sources or Native Americans, is 12,290. Roughly 75% of these parcels, or 9,162, are currently assessed for tax purposes; 25% are not. Collectively, these 9,162 parcels have an assessed value of \$1.319 billion that computes to an average assessed value of \$144,011 per assessed parcel.

Total EAA land mass acreage within the two counties amounts to roughly 1.026 million acres. Total assessable acreage amounts to about 870,000 acres. Thus, while only 75% of the individual properties or parcels are assessed for tax purposes, a higher percentage of 85% of the actual land mass or acreage is assessable or covered in the property assessments.

**Table E.1.1.6– Total Parcels, Assessments & Acreage for EAA**

	Total	Assessed	Exempt
Parcels	12,290	9,162	3,128
Acreage	1,025,805	869,647	156,158

\* Developed by The Chesapeake Group, Inc., 2003.

The majority of the EAA related parcels within the two counties are located within Palm Beach County. The numbers of parcels within this jurisdiction total 12,136 and slightly less than three-quarters, 74%, or 9,008 properties are assessed for tax purposes. These parcels have a collective assessed value of \$1.219

billion. The average assessed value, per assessed property, is \$135,341. The average assessed value for non-exempt properties within Palm Beach County is less than the average for parcels within the two combined counties.

The total acreage with the Palm Beach portion of the EAA is 982,064. Total assessable acreage is 825,906 or 84% of the total acreage. This 84% of the EAA acreage is associated with 74% of the total number of properties or parcels. Therefore, the average parcel located within Palm Beach County's section of the EAA is 80.92 acres in size.

**Table E.1.1.7 – Total Parcels, Assessments & Acreage for Palm Beach County Section of EAA\***

Palm Beach County	Total	Assessed	Exempt
Parcels	12,136	9,008	3,128
Acreage	982,064	825,906	156,158
Average Parcel Size	80.92 acres	91.69 acres	49.92 acres

\* Developed by The Chesapeake Group, Inc., 2003

The number of EAA related parcels within Hendry County is 154, all of which have current assessed values. The total assessed value for these properties is \$100.28 million with the average assessed value for each property being \$651,172. This figure is considerably higher than the Palm Beach County average and 352% higher than the average for all assessed EAA related parcels within the two counties.

The average size of a non-exempt property within the EAA section of Hendry County is 284 acres. This is roughly 350% greater than the average size of an assessed parcel within the EAA section of Palm Beach County.

The average assessed value, per acre, of land within the EAA is \$1,517. The average within Palm Beach County is \$1,476 while the average within Hendry County is \$2,293. Thus, the average assessed value per acre of land is 55% greater in Hendry County than it is for similar land within the Palm Beach County portion of the EAA.

The following table presents data on the number of parcels, average size and assessed value for EAA related properties located within Hendry and Palm Beach Counties. The final column, Average Assessed Value per Acre, includes assessments related to both land and improvements.

**Table E.1.1.8 – Number of Parcels, Size and Assessed Value for EAA**

	Total EAA	Palm Beach	Hendry
Parcels	12,290	12,136	154
Avg. Size, Assessed Parcel	94.92	91.69	284
Assessed Value	\$1,319,429,057	\$1,219,148,537	\$100,280,520
Average Assessed Value	\$144,011	\$135,341	\$651,172
Avg. Assessed Value/Acre	\$1,517	\$1,476	\$2,293

\* Developed by The Chesapeake Group, Inc., 2003

A significant majority of the EAA related acreage within Hendry County is utilized for agricultural purposes. Slightly less than 400 acres of this land is used for residential purposes. This residential acreage includes single-family homes, manufactured or mobile homes, as well as vacant residential sites.

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The land uses associated with the EAA parcels within Palm Beach County are substantially more diversified:

- § 45% of all parcels are residential in use. Within the EAA approximately 46% of the non-exempt parcels are utilized residentially, including multi and single-family units, mobile homes, etc.
- § 29% of the assessed parcels are used agriculturally.
- § 2% of the assessed parcels are utilized to provide commercial goods and services to residents and visitors.
- § Manufacturing uses, both light and heavy, account for 7% of the assessed parcels within the County's portion of the EAA.
- § Open space, transportation and warehousing, utilities, and office buildings account for 3% of the total non-exempt parcels.
- § 13% of the total number of assessed parcels are currently vacant. This number includes approximately 270 commercial parcels and 69 industrial parcels.

#### **E.1.1.4.1 Population**

In 1990, the most populous tracts in the EAA or target area were 0200 and 8002. These are the only two areas with a population greater than 6,000. The least populous tracts in this year were 8102, 8301, and 7903, each with populations fewer than 2,200. These proportions remained fairly constant in the 2000 Census, except for the significant increase in tract 7903. Once again, this tract is an anomaly because of development in the eastern portion outside of the EAA. Both censuses also indicated that a large proportion of people in the EAA live in the three notable cities, with population being greatest in the city of Belle Glade.

While Florida has experienced a population increase of almost 25% in the ten years between censuses, the EAA as a whole has undergone a 5% decrease in population. There is a population increase within tracts 8001, 8101, 8203, and 8302, but this data is overshadowed by population declines in all other sections of the target area. Decreases are greatest in tracts 8002, 8201, and 8301, where population decline is greater than 15%. The population declines most likely reflect the "mechanization" of agricultural processes and "out-migration of youth, typical of rural areas."

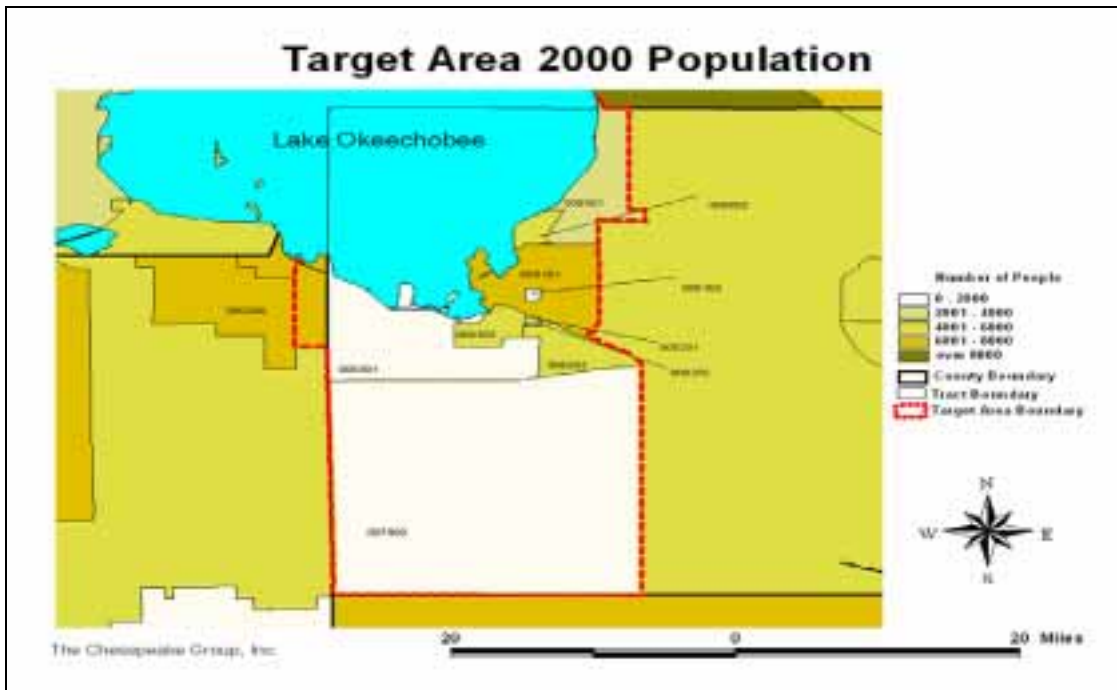
The city of South Bay enjoyed a modest population increase of about 10%, but the other two incorporated areas followed the trend of most of the EAA by losing some of their residents.

Figure E.1.1.6 below is another representation of the 2000 Census population. It is clear that the southern and central section of the EAA have a very low population, regardless of the size of these tracts. Tract 8101 is obviously the most populous tract in the target area while Tract 7903 has been split into sections inside and outside the target area to display the population figures of most concern.

**Table E.1.1.9 – EAA or Target Area Population in 1990 and 2000**

Area	1990 Population	2000 Population	% Change
Florida	12937926	15982378	23.5
Target Area or EAA	44700	42265	-5.4
Hendry County Tracts			
0200	8535	7506	-12.1
Palm Beach Co. Tracts			
7903	675	5629	733.9
8001	3459	3727	7.7
8002	6377	5360	-15.9
8101	5554	6229	12.2
8102	1137	1091	-4.0
8201	5433	4355	-19.8
8202	3295	2976	-9.7
8203	4626	4763	3.0
8301	2154	1737	-19.4
8302	4130	4521	9.5
Cities			
Belle Glade	16177	14999	-7.3
Pahokee	6822	5822	-14.7
South Bay	3558	3895	9.5

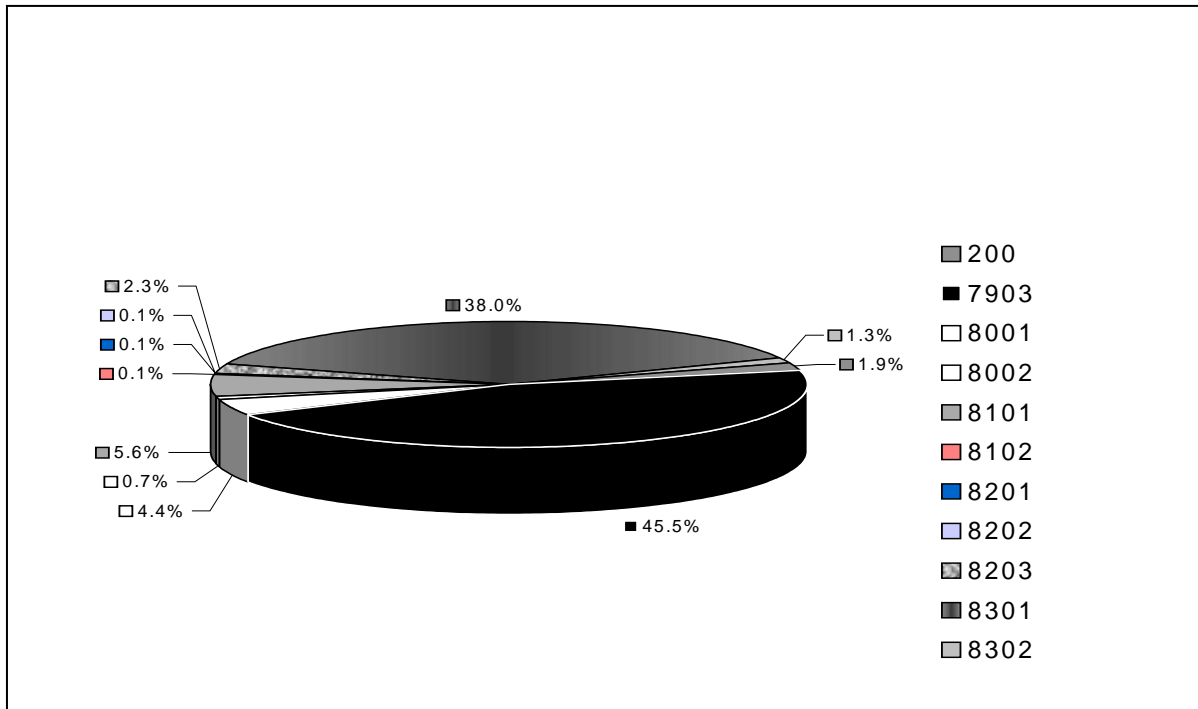
\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. Tract 8102 has no households or families.



**Figure E.1.1.6 – Target Area 2000 Population**

### E.1.1.4.2 Population Density

When looking only at the surface or land area of each portion of the EAA, a great majority of the land lies in tracts 7903 and 8301 with Tract 7903 encompassing almost half of the total area. Tract 7903 extends rather far from Lake Okeechobee, while the other census tracts within the target area are relatively close to the Lake. Tracts 8302, 200, 8001, and 8203 take up less than 3% of the total area each. No other tract contains more than 6% of the total land area. The noted cities also take up very little of the target area.



**Figure E.1.1.7 – Percent of Surface Area by Census Tract**

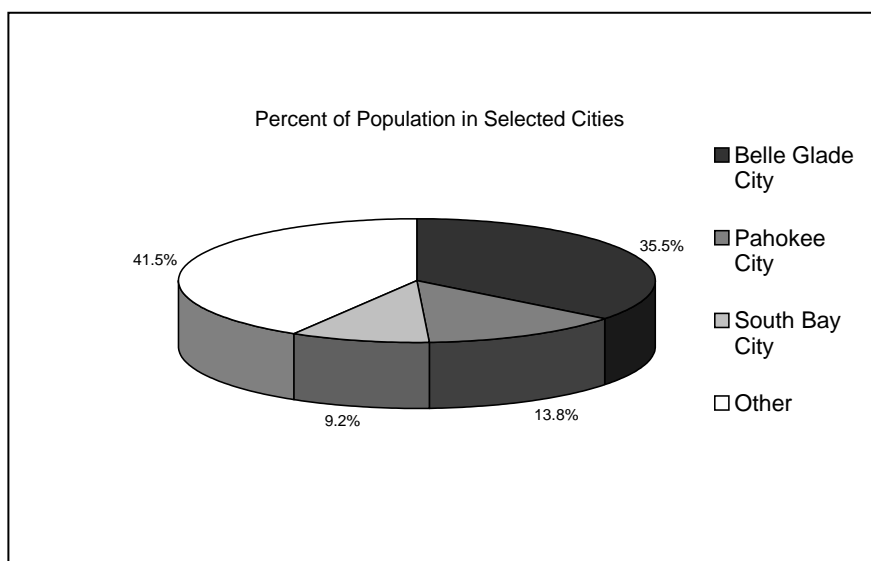
However, the distribution of population is much different. Together, the tracts that account for over 80% of the surface area contain just over 4% of the total population. The land in these areas is largely dominated by actual crop production. The greatest portion of the population is located in 8101. Tracts 8002, 0200, 8201, 8203, and 8302 have over 10% of the total population each. Tracts 8002, 8302, and 8202 contain the incorporated municipalities within their boundaries, accounting for the concentration of people in these particular sections.

Despite their small physical size, the three cities account for almost 60% of the population of the EAA or target area. Belle Glade has the largest percentage of the total target area population at 38.7%. South Bay and Pahokee together account for 25.1% of the total population. Therefore, the rest of the individuals living in the target area or EAA (36.2%) reside outside these centers. However, the amount of people living in these cities is highly significant because the cities account for very little of the land area of the EAA. The following table contains data on the density.

**Table E.1.1.10 – Proportions of Population Living in the EAA or Target Area**

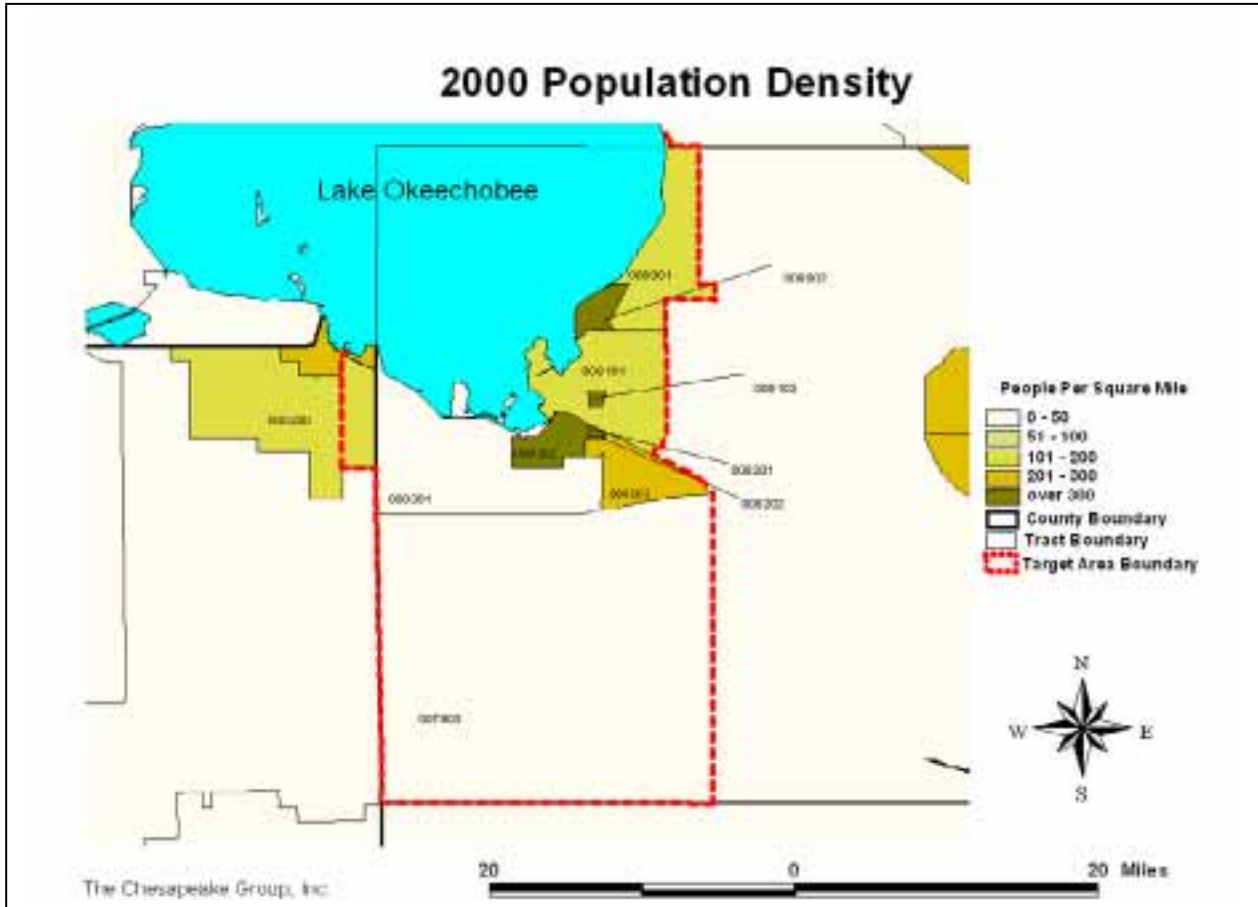
Target Area Population: 38719 people		
Target Area Surface Area: 816.1 square miles		
Area of Concern	% of Total Population	% of Surface or Land Area
<b>Hendry County Tracts</b>		
0200	10.2	1.9
<b>Palm Beach County Tracts</b>		
7903	0.1	45.5
8001	9.6	4.4
8002	13.8	0.7
8101	16.1	5.6
8102	2.8	0.1
8201	11.2	0.1
8202	7.7	0.1
8203	12.3	2.3
8301	4.5	38.0
8302	11.7	1.3
<b>Total</b>	<b>100</b>	<b>100</b>
<b>Cities</b>		
Belle Glade	38.7	0.6
Pahokee	15.0	0.6
South Bay	10.1	0.2
<b>Urban Total</b>	<b>63.8</b>	<b>1.4</b>

\*Derived from the U.S. Census 1990 and 2000. Not all of Hendry County Tract 0200 lies within the target area. Only the portions of Palm Beach County Tract 7903 and Hendry County tract 0200 that are inside the target area are used in this data.



**Figure E.1.1.8 - Percent Population in Selected Cities**

Figure E.1.1.9 displays the low population density in tracts 7903 and 8301, the largest tracts in the target area. Also shown, the most densely populated tracts are 8002, 8102, 8201, 8202, and 8302. Tracts 8201 and 8202 have about 9,600 and 8,500 people per square mile, respectively. Pahokee is inside tract 8002, South Bay lies within tract 8302, and Belle Glade spreads over tracts 8201 and 8202. The other tracts have more moderate population densities of between 100 and 300 people per square mile.

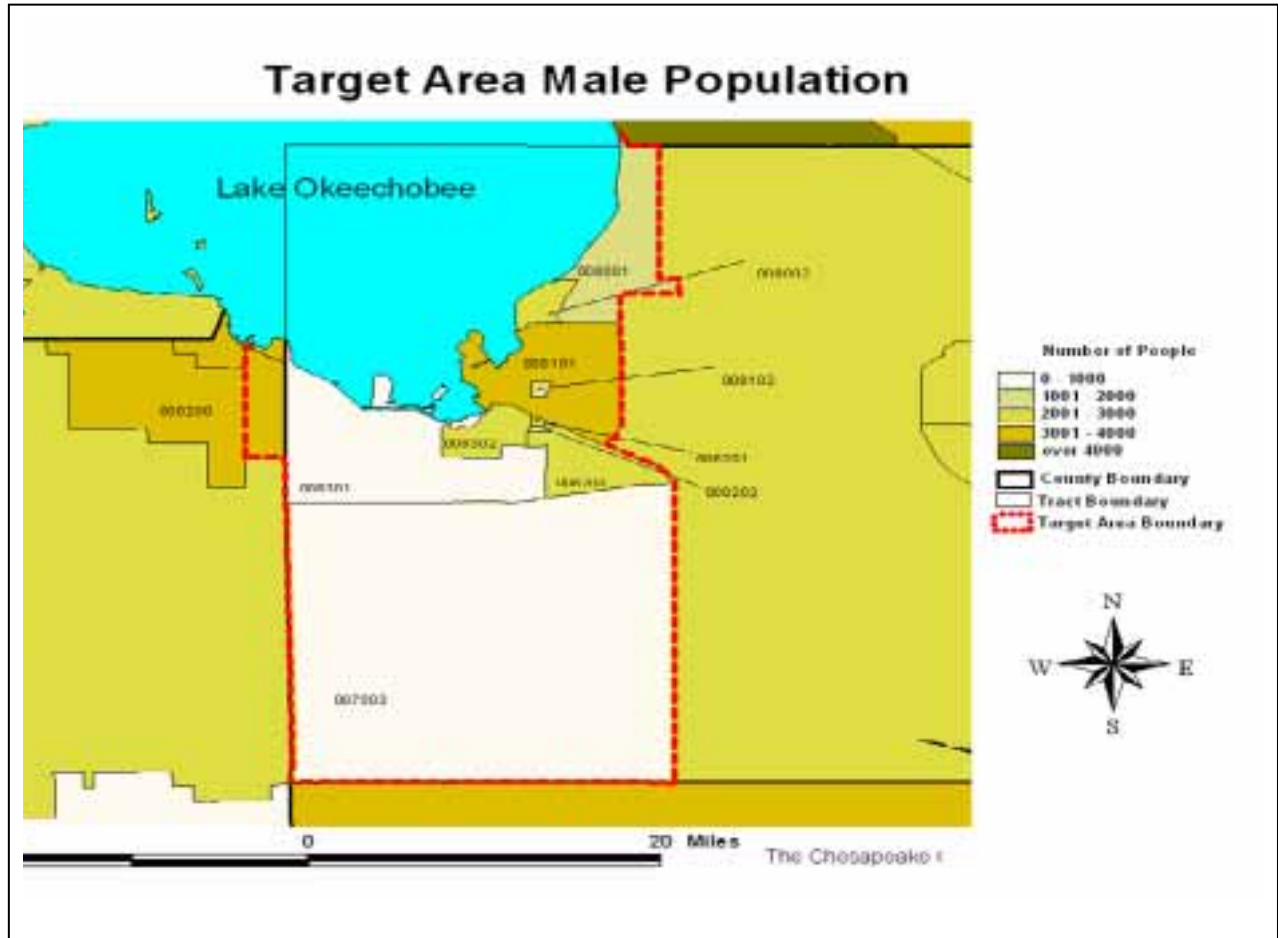


**Figure E.1.1.9 – 2000 Population Density**

#### **E.1.1.4.3 Composition of the Population – Sex**

Information from the 1990 Census shows that Florida had a greater number of females than males. However, the EAA or target area as a whole does not follow this trend. There is no large majority of males or females in any tract except 8102, which is almost entirely male. In fact, the full EAA had a larger number of males than females while tracts 8001 and 8002 had a female majority in 1990. The pattern is most likely reflective of the dominance of agricultural production and its labor force.

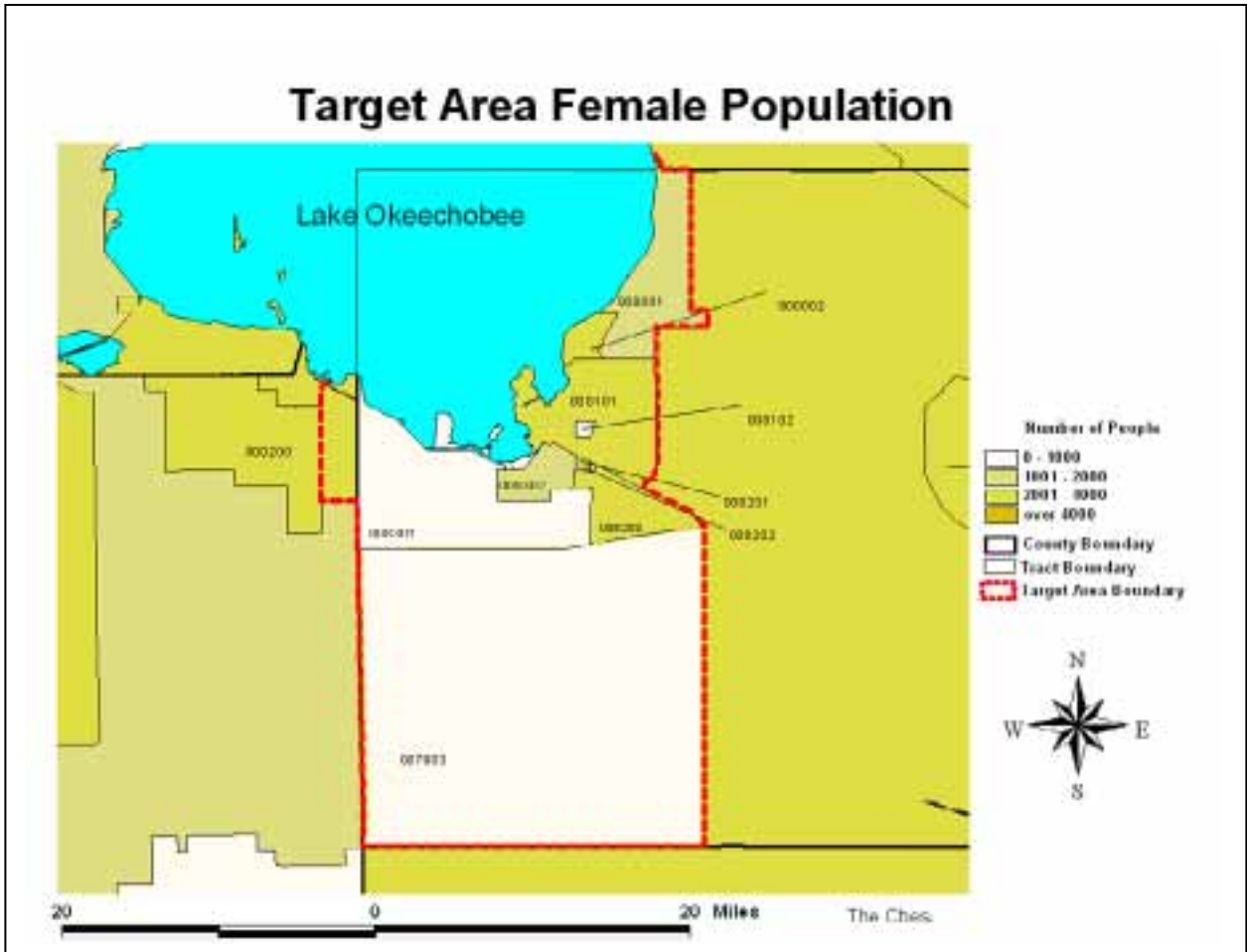
Data from the 2000 Census mostly follows the same patterns as the ten years prior, except that female majorities are now present in tracts 8203 and 8301.



**Figure E.1.1.10 – Target Area Male Population**

While both the male and female populations increased in Florida at a comparable rate to the total population, this is not true in the EAA. There is a slight decrease in male population as a whole, and female population experienced almost an 8% decline between the two censuses. Most tracts encountered an increase or decrease in both male and female population. Decreases occurred in tracts 0200, 8002, 8201, 8202, and 8301. Increases occurred in tracts 8001 and 8101. The decreases in population would be expected as a result of continued mechanization of agricultural production.

Tract 8203 is the only area that decreased in male population and increased in female population while tract 8302 did just the opposite. Belle Glade and Pahokee City have decreased across the board, but South Bay City has undergone a major increase in male population accompanied by a significant decrease in females.



**Figure E.1.1.11 – Target Area Female Population.**

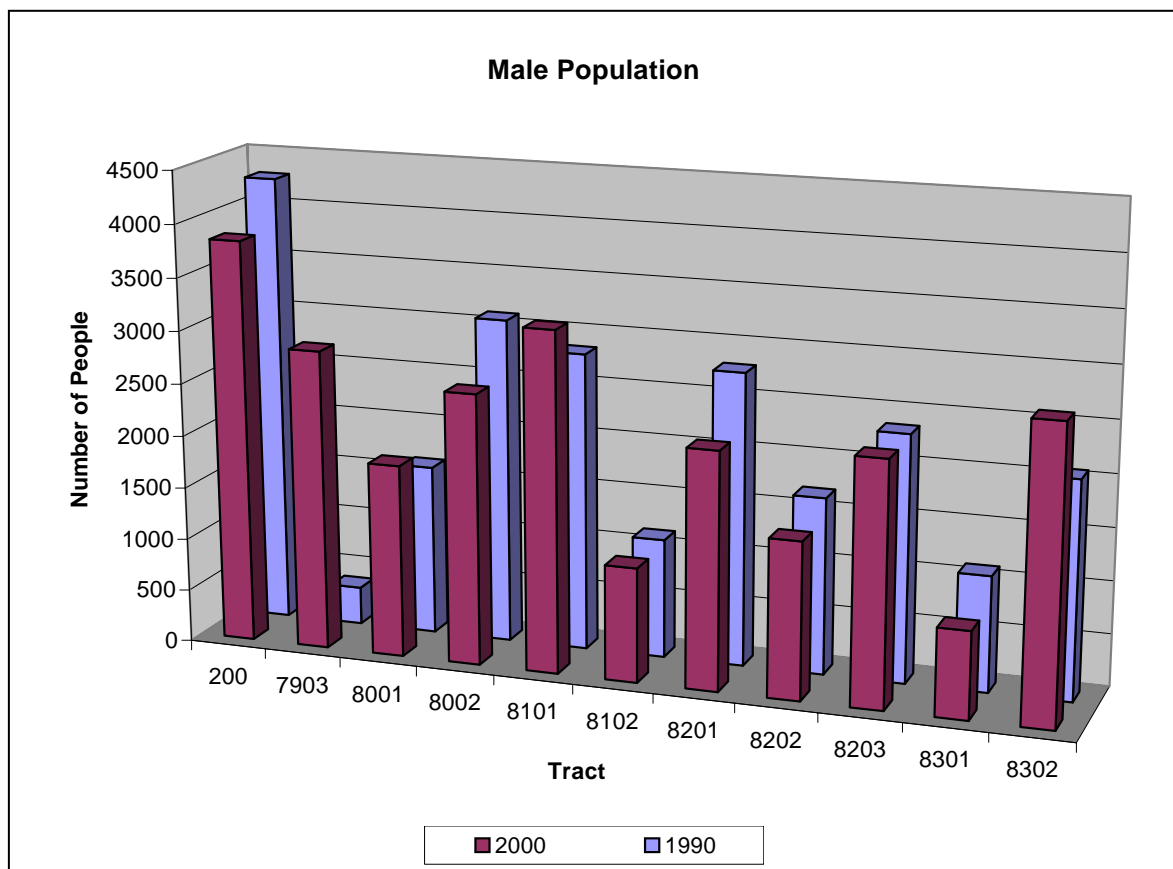
**Table E.1.1.11 – Population by Sex in the EAA**

Area of Concern	1990 Male Population	1990 Female Population	2000 Male Population	2000 Female Population	% Change in Male Population	% Change in Female Population
Florida	6261719	6676207	7797715	8184663	24.5	22.6
EAA	23321	21737	22255	20010	-4.6	-7.9
Hendry Co. Tracts						
0200	4284	4251	3837	3669	-10.4	-13.7
Palm Beach Co. Tracts						
7903	358	317	2858	2771	698.3	774.1
8001	1621	1838	1837	1890	13.3	2.8
8002	3099	3278	2579	2781	-16.8	-15.2
8101	2837	2717	3232	2997	13.9	10.3
8102	1136	1	1089	2	-4.1	100.0
8201	2785	2648	2255	2100	-19.0	-20.7

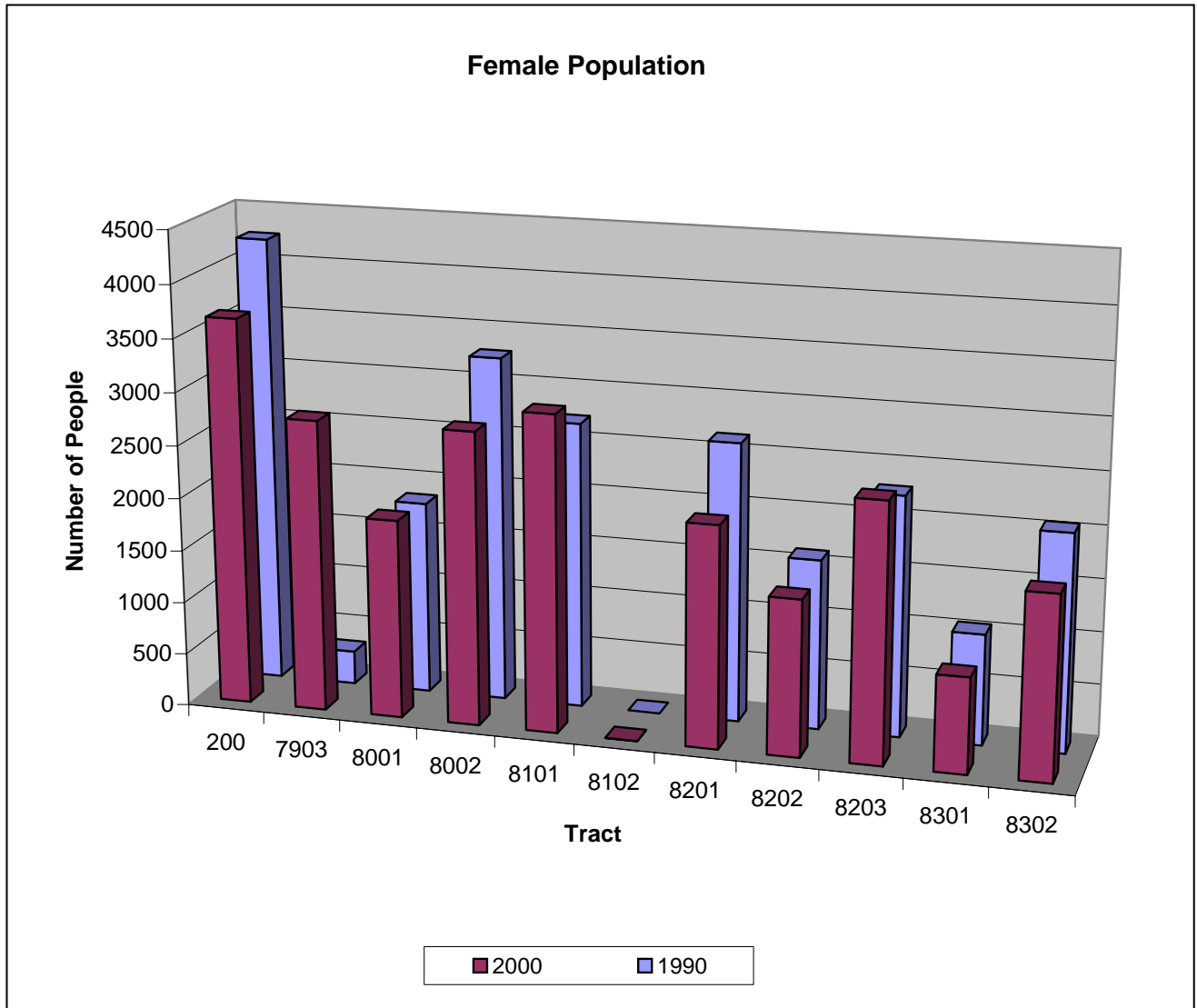
8202	1681	1614	1494	1482	-11.1	-8.2
8203	2347	2279	2317	2446	-1.3	7.3
8301	1103	1051	831	906	-24.7	-13.8
8302	2070	2060	2784	1737	34.5	-15.7
<b>Cities</b>						
Belle Glade	8257	7920	7467	7532	-9.6	-4.9
Pahokee	3359	3463	2858	2964	-14.9	-14.4
South Bay	1749	1809	2518	1377	44.0	-23.9

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. There are currently 10 males and 10 females in the portion of tract 7903 and 2183 males and 1802 females in the section of tract 0200 that is in target area.

The changes in male population can be observed in Figure E.1.1.12 below. It is easy to see that most of the tracts have undergone a decrease in male population from 1990 to 2000, with the only exceptions being tracts 7903, 8001, 8101, and 8302. This is reflective of the overall decrease in male population of the target area or EAA. The information on the female population in the EAA is illustrated in Figure E.1.1.13 below.



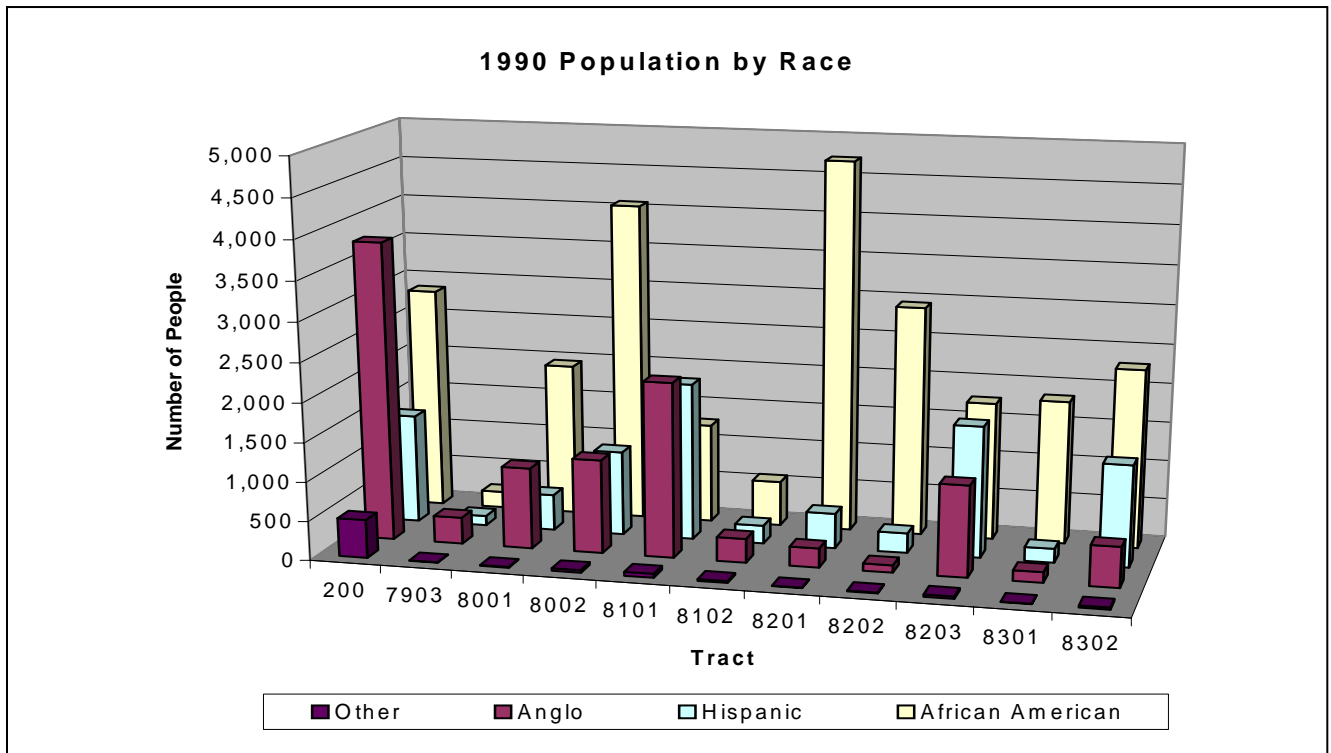
**Figure E.1.1.12 – Changes in Male Population**



**Figure E.1.1.13 – Changes in Female Population**

#### **E.1.1.4.4 Composition of the Population - Race**

As a whole, a large majority of the 1990 target area population was African American, with similar proportions of Anglo and Hispanic individuals, and a small number from other races. However, when observing the data by tract, each tract is either predominantly Anglo or predominantly African American and Hispanic. Tracts that fall into the former category include 0200, 7903, and 8101. Those in latter consist of tracts 8001, 8002, 8102, 8201, 8202, 8203, 8301, and 8302. All noted cities are largely African American and Hispanic. It can be concluded that within tracts there was community cohesion based on racial composition.



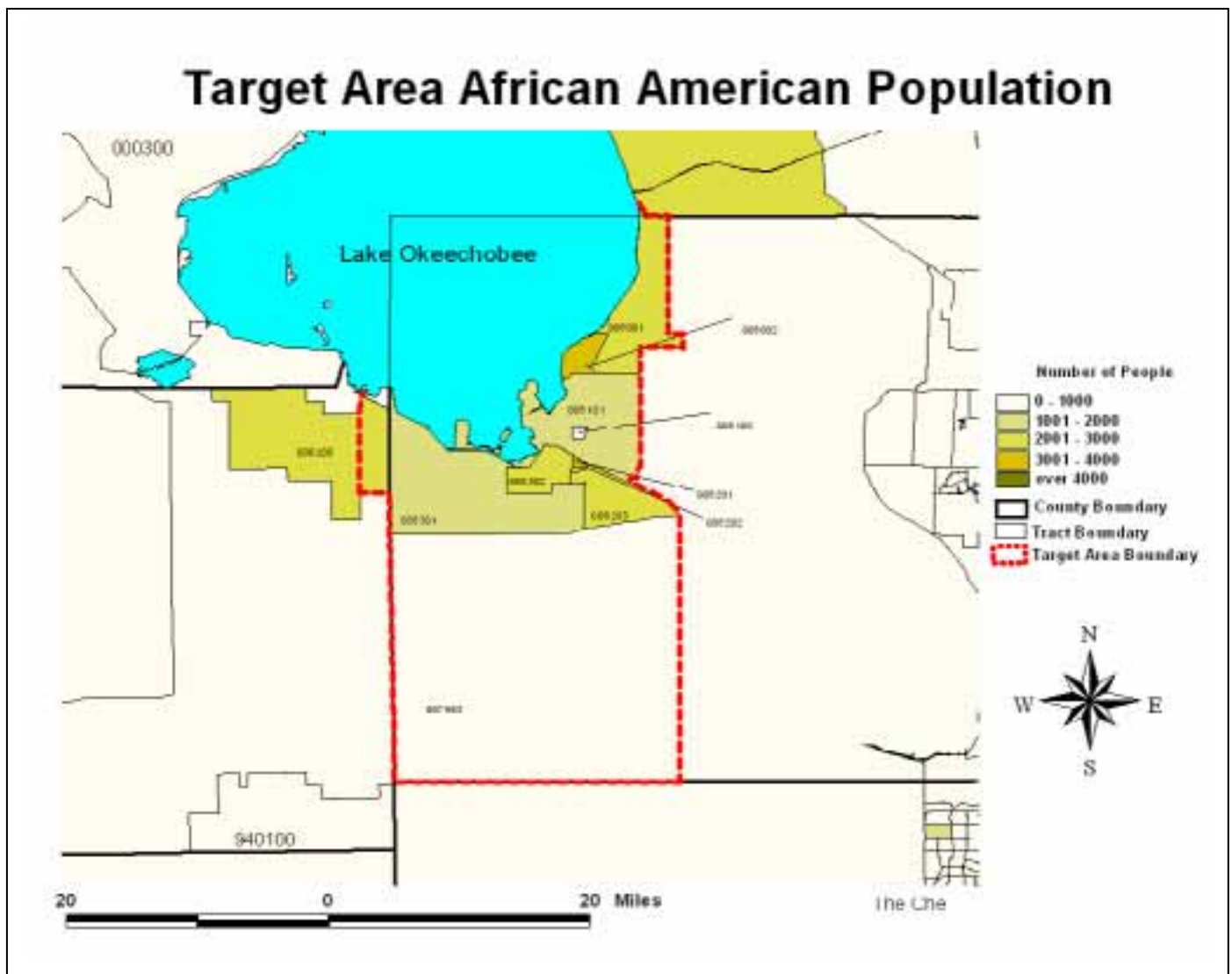
**Figure E.1.1.14 – 1990 Population by Race**

**Table E.1.1.12 – 1990 Census Population Estimates by Race for the Target Area or EAA**

Area of Concern	Anglo Population	African American Population	Hispanic Population	Other
Florida	9475326	1701103	1574143	187354
Target Area/EAA	10710	24275	9029	686
Hendry County Tracts				
0200	3798	2854	1394	489
Palm Beach County Tracts				
7903	338	208	122	7
8001	1035	1953	461	10
8002	1194	4072	1078	33
8101	2225	1271	2007	51
8102	306	575	233	23
8201	247	4731	448	7
8202	93	2937	254	11
8203	1160	1760	1677	29
8301	136	1834	178	6

8302	516	2288	1299	27
Cities				
Belle Glade	3441	9161	3489	86
Pahokee	1670	3746	1369	37
South Bay	295	2181	1061	21

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area.



**Figure E.1.1.15 – Target African American Population.**

The 2000 Census displays an even greater majority of African American and Hispanic individuals. The Anglo population is now distinctly less than the Hispanic population. The only tract that does not have a majority of African Americans followed by a relatively large population of Hispanics is 8101. However, even this tract has nearly as many African Americans as Anglos, and it is now more than 50% Hispanic. Tract 7903 does have a large majority of Anglo individuals, but it is not entirely in the target area. Thus, its data can be considered misleading. The three notable cities presented in Table E.1.1.13 follow the

same inclinations as the target area as a whole. People of “other” races are much more represented than in 1990, but their proportion of the total population of the target area is still very small.

**Table E.1.1.13 – 2000 Census Population Estimates by Race for the Target Area or EAA**

Area of Concern	Anglo Population	African American Population	Hispanic Population	Other
Florida	10456458	2244701	2680314	600905
Target Area/EAA	6479	22733	10904	1896
Hendry County Tracts				
0200	2266	2974	2148	135
Palm Beach County Tracts				
7903	4263	449	806	111
8001	494	2083	1018	132
8002	599	3453	1207	101
8101	1488	1325	3035	360
8102	199	676	237	0
8201	64	3511	364	416
8202	10	2363	179	424
8203	863	2525	1235	96
8301	133	1066	438	144
8302	633	2757	1043	88
Cities				
Belle Glade	2110	7658	4024	1207
Pahokee	806	3204	1712	100
South Bay	517	2537	794	47

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. The sections of these tracts within the target area are predominantly Anglo.

Both the EAA and Florida as a whole have decreased in terms of the number of Anglos while increasing in Hispanic and “other” (non-African American) races. However, the decrease in Anglos in the EAA is much more pronounced. Increases in Hispanics throughout Florida are generally greater than in the EAA. These changes are expressed by the facts that follow:

- J While Florida has experienced a large increase in the African American population from 1990 to 2000, the target area data actually shows a slight decrease in this race overall.
- J The direction of changes in the African American population is divided amongst the tracts in the target area. Increases occurred in 0200, 8001, 8101, 8102, 8203, and 8302, while decreases occurred in 8002, 8201, 8202, and 8301.
- J Increases in the Hispanic population exceed 100% in tracts 8001 and 8301. Some increases occurred in most other tracts as well.

J The cities of Belle Glade and Pahokee share decreases in Anglo and African American population along with increases in Hispanics and “other” races. South Bay increased in all categories with the exception of its Hispanic population.

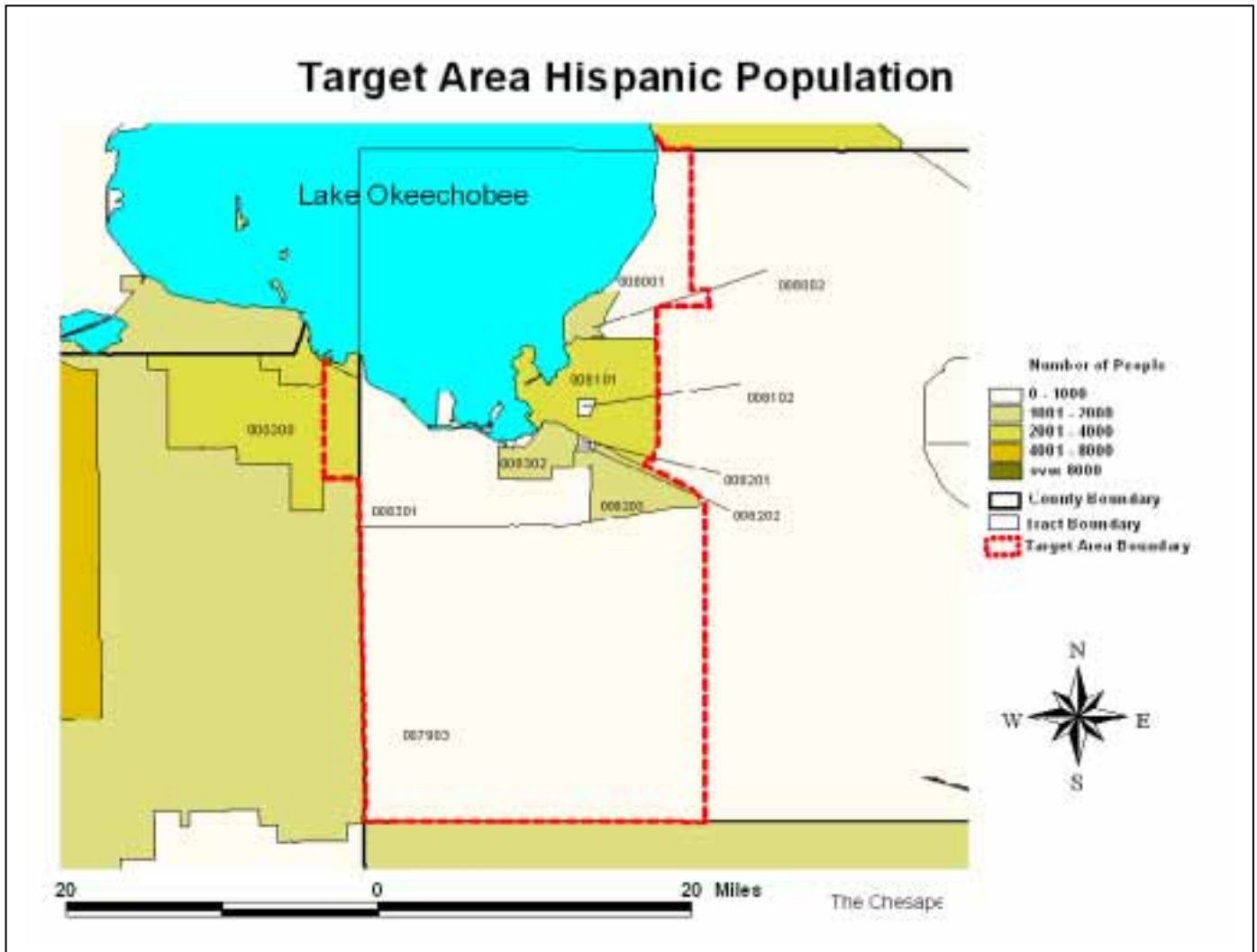


Figure E.1.1.16 – Target Area Hispanic Population

Table E.1.1.14 – Change in EAA Population by Race from 1990 to 2000 Census Years (by %)

Area of Concern	Anglo Population	African American Population	Hispanic Population	Other
Florida	-10.4	32.0	70.3	220.7
Target Area	-37.0	-6.4	20.8	176.4
Hendry Co. Tracts				
0200	-40.3	4.2	54.1	-72.4
Palm Beach County Tracts				

7903	1161.2	115.9	560.7	1485.7
8001	-52.3	6.7	120.8	1220.0
8002	-49.8	-15.2	12.0	206.1
8101	-33.1	4.2	51.2	605.9
8102	-35.0	17.6	1.7	-2300
8201	-74.1	-25.8	-18.8	5842.9
8202	-89.2	-19.5	-29.5	3754.5
8203	-25.6	43.5	-26.4	231.0
8301	-2.2	-41.9	146.1	2300.0
8302	22.7	20.5	-19.7	225.9
Cities				
Belle Glade	-38.7	-16.4	15.3	1303.5
Pahokee	-51.7	-14.5	25.1	170.3
South Bay	75.3	16.3	-25.2	123.8

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area.

#### E.1.1.4.5 Composition of the Population - Age

Florida's 1990 population breakdown by age shows the largest proportion of residents in the 65 and over age group, followed by those in the 5 to 17 and 30 to 39 age groups. The least represented age groups were the under 5 and 18 to 21 classifications.

The target area or EAA follows quite a different distribution, with a vast majority of its population being between 5 to 17 years old. The 30 to 39 age group was the second largest category with about 7,000 individuals. For the EAA, the smallest age group category was 65 and over, and the proportion under 5 was small.

All tracts except for 8102 show little departure from the trends of the total EAA. Tract 8102 had almost no individuals under 18 and had its greatest number of people between the ages of 22 and 39. The three urban areas also had comparable age distributions. The age distribution patterns probably reflect both a higher birth rate at the time and the previously noted out-migration of young adults seeking better opportunities associated with many rural areas.

**Table E.1.1.15 – 1990 Census Estimates for the EAA Population by Age Category**

Area of Concern	Under 5 Yrs	5 to 17 Years	18 to 21 Years	22 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 64 Years	65 Years & Above
Florida	849,596	2,016,641	692,024	1,575,739	2,021,566	1,551,051	1,861,878	2,369,431
EAA	4754	10882	2843	5715	6993	5118	5186	3209
Hendry Co Tracts								
0200	919	2219	552	1126	1278	905	971	565
Palm Beach Co Tracts								
7903	83	159	31	81	117	76	104	24
8001	419	987	212	322	527	374	319	299
8002	709	1710	379	667	896	663	750	603

8101	585	1213	380	766	854	699	665	392
8102	0	3	47	369	421	210	77	10
8201	608	1214	301	616	927	724	652	391
8202	385	690	169	396	547	376	437	295
8203	405	1110	339	650	713	513	635	261
8301	247	694	135	232	297	215	203	131
8302	477	1042	329	571	533	439	477	262
<b>Cities</b>								
Belle Glade	1688	3529	960	1993	2585	2022	2137	1263
Pahokee	716	1754	402	727	1013	769	824	617
South Bay	444	917	281	500	448	373	397	198

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area.

According to the 2000 Census, Florida’s most populous age group is still the 65 and over category, with the second greatest being ages 5 to 17, followed by 50 to 64, 30 to 39, and 40 to 49.

Age distribution within the EAA, its composite tracts, and the cities generally hold to the same patterns as in 1990.

- § People aged 5 to 17 are represented best, and those 65 and over or less than 5 comprise the lowest proportion of the total population.
- § Again, tract 8102 follows its departure from the overall data with only one person under age 18 and few 65 and over. The largest age category in this tract is 30 to 39.
- § South Bay, however, has changed in that its largest age group is 30 to 39, with 5 to 17 being a close second.

**Table E.1.1.16 – 2000 Census Estimates for the EAA Population by Age Category**

Area of Concern	Under 5 Years	5 to 17 Years	18 to 21 Years	22 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 64 Years	65 Years & Above
Florida	938,775	2,695,797	779,786	1,529,223	2,366,787	2,340,498	2,525,375	2,806,137
EAA	3753	11051	2526	4733	6162	5554	5322	3164
Hendry Co Tracts								
0200	649	2021	421	880	1111	876	954	594
Palm Beach Co Tracts								
7903	554	1413	187	390	1402	969	522	192
8001	387	1204	278	382	412	424	403	237
8002	527	1526	338	529	677	656	640	467
8101	601	1572	360	708	946	811	800	431
8102	0	1	32	230	412	273	135	8
8201	431	1133	278	446	509	613	592	348
8202	238	733	184	279	239	461	442	290
8203	455	1345	279	505	640	565	583	391

8301	166	546	112	171	246	203	187	106
8302	299	970	244	603	860	667	586	292
Cities								
Belle Glade	1300	3710	855	1619	2152	2075	1916	1372
Pahokee	562	1686	352	583	736	760	703	440
South Bay	284	786	249	580	807	505	438	246

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. Tract 0200 has the greatest number of its citizens in the 5 to 17 age group, followed by the 30 to 39 age group.

The population of Florida has increased fairly significantly in all age groups, with the one exception of a small decrease in the 22 to 29 year old category. The target area, however, displays its only notable increase in 40 to 49 year olds. It is also noted that:

- § Large declines have occurred in individuals from ages 18 to 39 and especially in those less than 5 years old. Only tracts 8203 and 8101 experienced increases in people under 5 years old.
- § While some of the EAA significant increases in the 5 to 17 age group, other tracts offset this trend with decreases ranging from about 6% to almost 70%.
- § Most tracts saw a decline in members of the 65 and over age group, with increases in only three tracts.

According to the 2000 Census, the occupations for residents of the EAA area are fairly diversified and split among the seven major categories defined by the Census Bureau. The table that follows contains the information for the county by tract for both occupations and employment industry. In tract 8102, almost two-thirds of those employed are in service occupations. The largest proportion of these are in education, health and social service industries. Census Tract 8202 has the largest proportion in farming and fishing.

**Table E.1.1.17 - Palm Beach County EAA Census Tract Information on Occupations and Employment by Industry**

	Palm Beach County									
Census Tract	7903	8001	8002	8101	8102	8201	8202	8203	8301	8302
<b>Occupation (in %)</b>										
Mgmt., Professional, Related	24.6	21.1	15.6	21.5	0	16.3	17.3	27.4	19.9	20.1
Service Occupations	14.4	17.8	25.4	16.9	65.8	18.5	16.1	22.0	18.0	20.0
Sales & Office Occupations	27.4	22.7	17.9	25.8	0	14.7	11.6	22.4	6.2	16.2
Farming, Fishing, Forestry	0.4	7.4	13.1	7.3	0	20.9	34.5	5.0	29.3	8.7
Construction, Extraction, Maintenance	22.8	8.0	8.6	10.8	15.2	11.9	7.8	10.1	0	12.3
Production, Transportation, Material Moving	10.2	23.1	19.4	17.8	19.0	17.8	12.7	13.0	26.6	22.6
<b>Industry</b>										
Agriculture, Forestry, Fishing, Hunting, Mining	1.1	14.4	15.9	10.3	0	27.1	37.3	8.8	33.6	12.1
Construction	15.5	5.4	6.4	5.5	0	5.6	6.3	6.2	0	9.8

Manufacturing	5.0	12.8	9.1	15.2	0	7.7	5.2	10.6	19.5	12.2
Wholesale Trade	3.3	4.0	2.2	4.4	0	3.0	4.9	4.5	5.4	1.3
Retail Trade	12.9	13.4	7.2	14.0	0	5.1	4.0	10.5	1.7	10.4
Transportation, Warehousing, Utilities	8.2	7.7	8.4	3.8	0	5.7	3.1	2.0	0	4.9
Information	2.8	2.2	0.7	2.0	0	1.7	0.8	1.6	0	2.1
Finance, Insurance, Real Estate, Rental, Leasing	7.6	1.5	3.6	4.4	0	3.5	1.4	2.7	1.5	1.4
Professional, Scientific, Mgmt., Admin., Waste Mgmt.	9.4	2.7	7.8	4.3	15.2	1.8	3.7	8.4	3.7	8.4
Educational, Health, Social Services	14.6	22.3	21.8	20.7	38.0	21.8	14.9	27.0	22.8	22.9
Arts, Entertainment, Rec., Accommodation, Food Svc.	6.5	5.2	6.6	4.7	27.8	7.5	7.7	4.6	8.3	7.5
Other Services (except public administration)	5.0	3.8	3.2	2.9	19.0	4.3	5.1	3.3	0	2.3
Public Administration	8.1	4.5	7.0	7.9	0	5.1	5.4	9.8	3.5	4.6

\*Source; US Census Bureau, 2000 Census.

The following table contains similar information for the EAA sections of Hendry and Palm Beach Counties as well as for the three municipalities where most of the population is based. The table indicate that:

- J Farming, fishing and forestry occupations account for 9.5% of the employed Hendry County population and 12.8% of the Palm Beach County.
- J While Management and related occupations and sales and office occupations are the two largest categories in Palm Beach County, service and production occupations do not trail by much.
- J Sales and office occupations as well as production related occupations are strongest in Hendry County.
- J Most likely reflective of the previously noted changes in agricultural production, current farming occupations represent a minority of the population while potential production, much likely related to agriculture is significant.
- J As an industry, Agriculture, Forestry, Fishing and related activities employs the second greatest proportion of people in Palm Beach County, with 16.72% of the labor force. It is the third largest industry in Hendry County.
- J In Hendry County, Manufacturing is the largest industry in terms of employment for residents, while it is third in Palm Beach.
- J In both counties, Education, Health and Social Services, most often either directly or indirectly related to schools or medical institutions, represent either the first or second largest industry for employment.

It is noted that the Census Bureau has not released income on a small area basis at this time. However, with the large proportion of employment associated with medical institutions, education institutions and public administration, it is reasonable to assume that significant proportions of the residents' incomes come from those sources.

**Table E.1.1.18 - EAA Census Tract Information on Occupations and Employment by Industry**

	Hendry County	Belle Glade	Pahokee	South Bay	Palm Beach Co.
Census Tract	0200				
Occupation (in %)					
Mgmt., Professional, Related	12.6	22.2	17.3	21.3	19.21
Service Occupations	16.7	15.3	21.8	18.2	18.67
Sales & Office Occupations	22.8	19.6	19.0	20.3	19.67
Farming, Fishing, Forestry	9.5	15.1	12.8	7.3	12.80
Construction, Extraction, Maintenance	16.7	11.5	9.3	10.3	11.07
Production, Transportation, Material Moving	21.7	16.2	19.8	22.6	18.58
Industry					
Agriculture, Forestry, Fishing, Hunting, Mining	13.5	18.9	16.5	12.3	16.72
Construction	5.9	6.9	7.2	5.0	6.22
Manufacturing	23.3	11.7	9.9	13.5	12.92
Wholesale Trade	3.1	4.2	1.7	1.1	3.40
Retail Trade	13.1	9.6	8.3	10.3	9.79
Transportation, Warehousing, Utilities	1.7	3.5	8.7	4.9	4.40
Information	1.6	1.5	0.6	2.8	1.47
Finance, Insurance, Real Estate, Rental, Leasing	3.8	2.6	3.7	1.8	2.99
Professional, Scientific, Mgmt., Admin., Waste Mgmt.	2.6	5.1	6.9	10.3	5.30
Educational, Health, Social Services	16.3	21.2	20.0	24.0	21.00
Arts, Entertainment, Rec., Accommodation, Food Svc.	6.0	5.1	6.8	6.5	6.10
Other Services (except public administration)	3.7	3.9	2.9	3.0	3.55
Public Administration	5.4	5.8	6.7	4.5	6.14

\*Source: US Census Bureau, 2000 Census.

- Reflective of the EAA, most age groups in Belle Glade and Pahokee fell in numbers, with only some minor increases in few categories.
- Once again, South Bay is very different from other area cities. Populations increased for all ages above 21, with very considerable rises in the 30 to 39 and 40 to 49 year old residents.

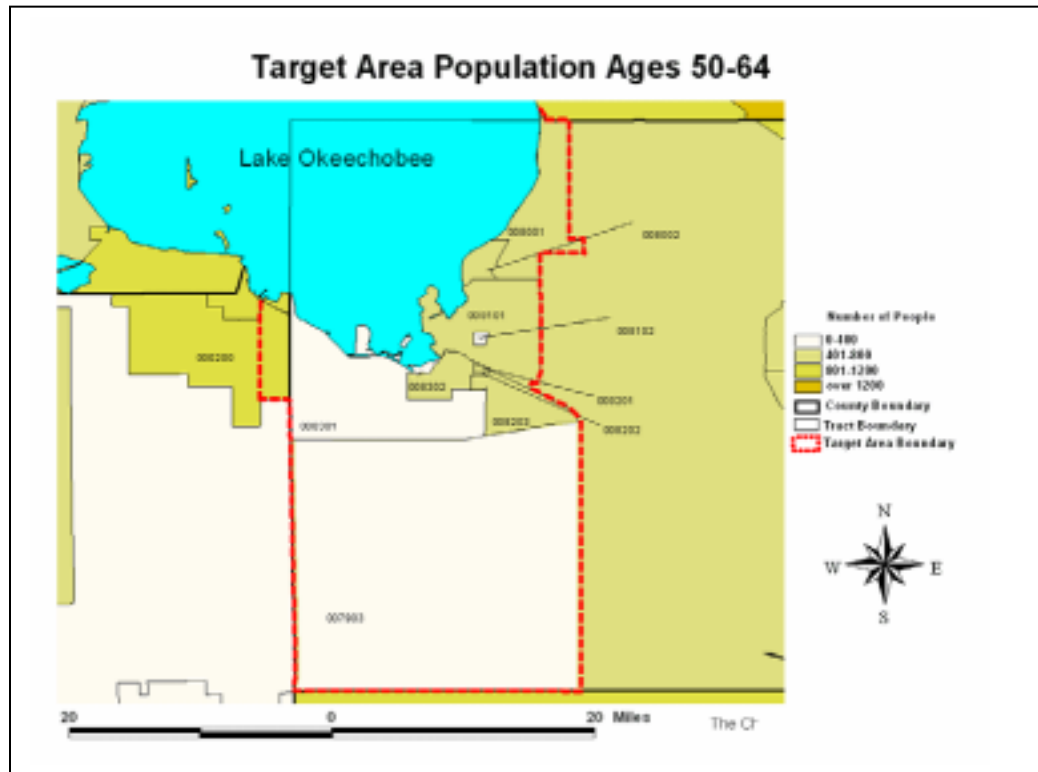


Figure E.1.1.17 – Target Area Population Ages 50-64

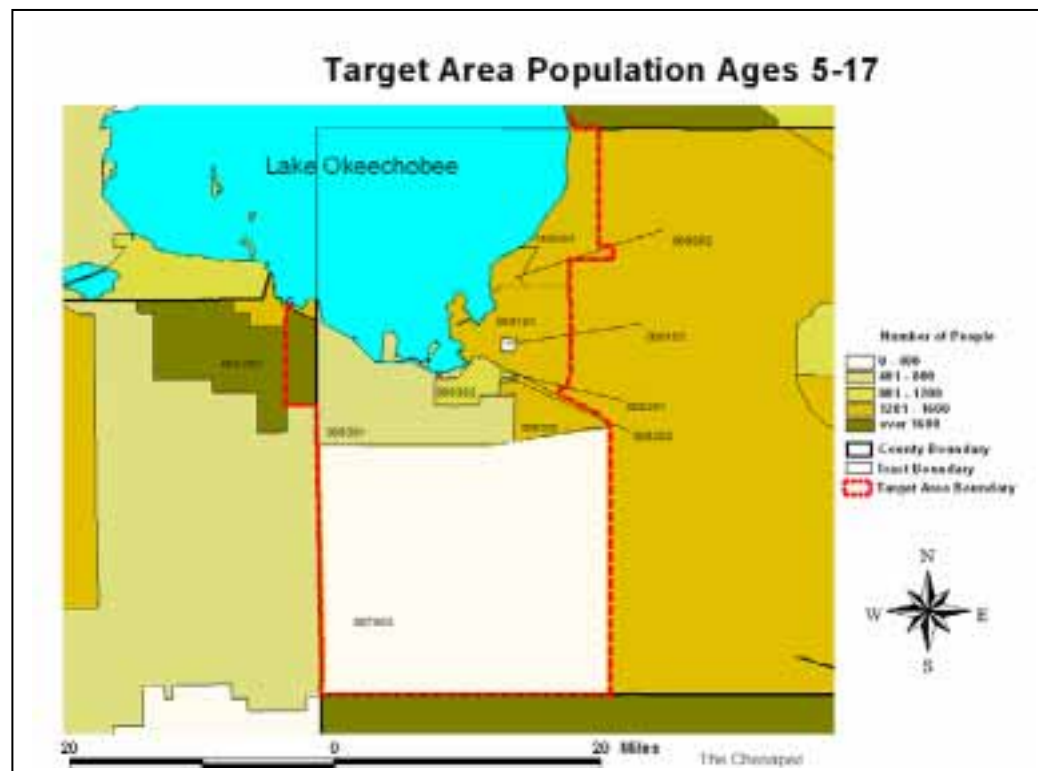


Figure E.1.1.18 – Target Area Population Ages 5-17

**Table E.1.1.19 – Percentage Change in Population by Age from the 1990 to 2000 Census**

Area of Concern	Under 5 Years	5 to 17 Years	18 to 21 Years	22 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 64 Years	65 Years & Above
Florida	10.5	33.7	12.7	-3.0	17.1	50.9	35.6	18.4
Target Area	-21.1	1.6	-11.1	-17.2	-11.9	8.5	2.6	-1.4
Hendry Co. Tracts								
0200	-29.4	-8.9	-23.7	-21.8	-13.1	-3.2	-1.8	5.1
Palm Beach Co. Tracts								
7903	567.5	788.7	503.2	381.5	1098.3	1175.0	401.9	700.0
8001	-7.6	22.0	31.1	18.6	-21.8	13.4	26.3	-20.7
8002	-25.7	-10.8	-10.8	-20.7	-24.4	-1.1	-14.7	-22.6
8101	2.7	29.6	-5.3	-7.6	10.8	16.0	20.3	9.9
8102	N/A	-66.7	-31.9	-37.7	-2.1	30.0	75.3	-20.0
8201	-29.1	-6.7	-7.6	-27.6	-45.1	-14.6	-9.2	-11.0
8202	-38.2	6.2	8.9	-29.5	-36.2	22.6	1.1	-1.7
8203	12.3	21.2	-17.7	-22.3	-10.2	10.1	-8.2	49.8
8301	-32.8	-21.3	-17.0	-26.3	-17.2	-5.6	-7.9	-19.1
8302	-37.3	-6.9	-25.8	5.6	61.4	51.9	22.9	11.5
Cities								
Belle Glade	-23.0	5.1	-10.9	-18.8	-16.8	2.6	-10.3	8.6
Pahokee	-21.5	-3.9	-12.4	-19.8	-27.3	-1.2	-14.7	-28.7
South Bay	-36.0	-14.3	-11.4	16.0	80.1	35.4	10.3	24.22

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area.

- J The tracts with the lowest median age, under twenty-five years, are 8301 and 8001. This is a result of these tracts having the larger or more families.
- J The tract with the oldest population is 8102, which has a median age of between thirty-five and forty-five years.
- J All other tracts have median ages between twenty-five and thirty-five years.

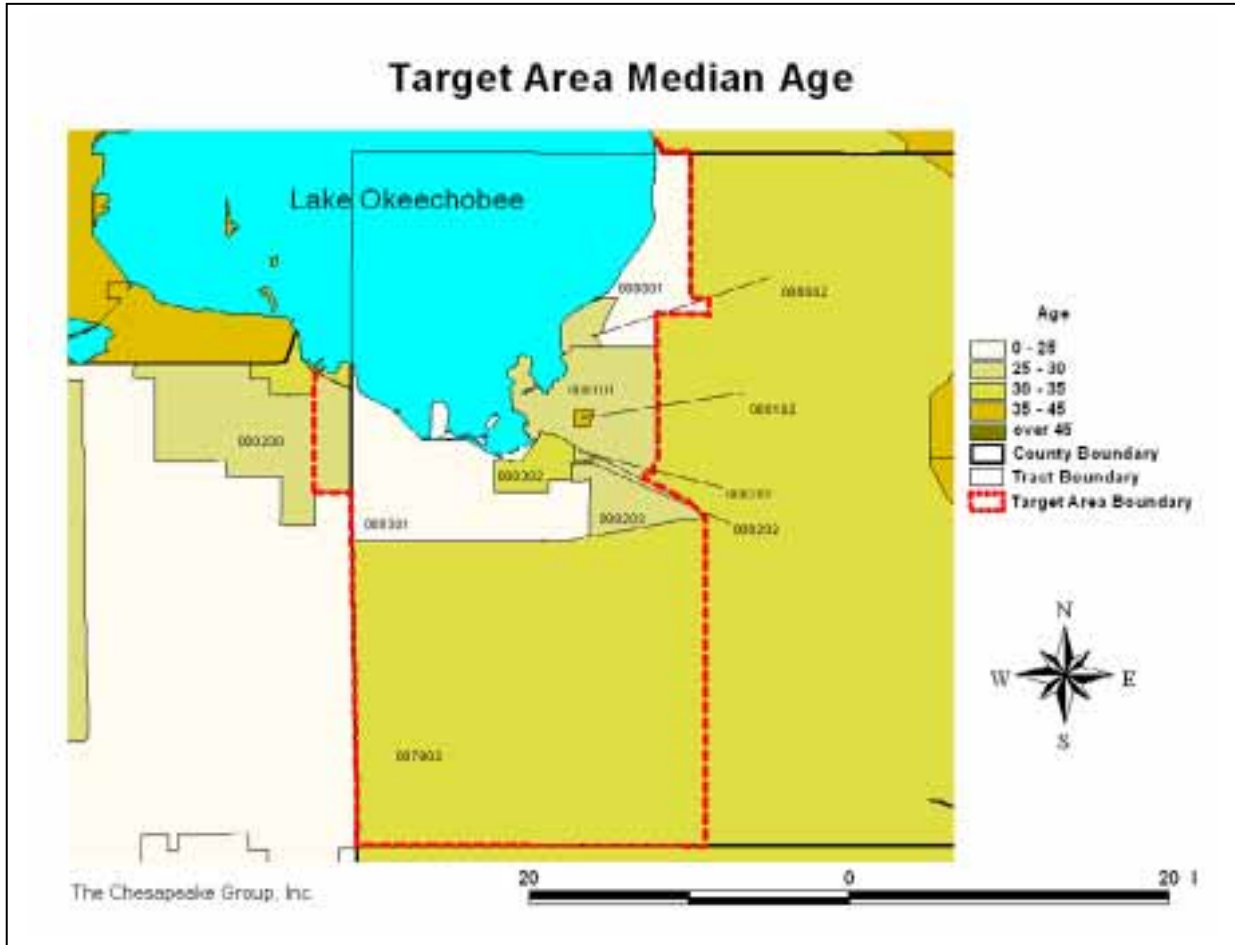


Figure E.1.1.19 – Target Area Median Age

### E.1.1.5 HOUSEHOLDS

According to the 1990 Census, most of the tracts within the target area had between 1000 and 2000 households. The exceptions to this are:

- § Tract 0200, with a large number of households
- § Tracts 7903 and 8301 with the relatively small number of households
- § Tract 8102 had no households in 1990 and still does not contain any

The 2000 Census displays similar figures, with the only major change evident within the 7903 census tract. Once again, that value is not useful because more than half of that particular census tract falls outside the target area.

While the total number of households in Florida has increased significantly between 1990 and 2000, only tract 8203 has a comparable increase to Florida's increase. All other tracts demonstrate a decrease in households from 1990 to 2000, except tracts 8101 and 8001, the two only small increases. Many of the tracts lost households at a rate of near or above 20%. The largest decline occurred in tract 8201, which lost more than a quarter of its households.

As expected from the population figures, the information also shows a concentration of households inside the municipalities of Belle Glade, Pahokee, and South Bay. As would be expected because of concentrations of population in those cities, they are losing households at a comparable rate to most of the census tracts.

**Table E.1.1.20 – 1990 and 2000 Census Estimated Households for the EAA or Target Area**

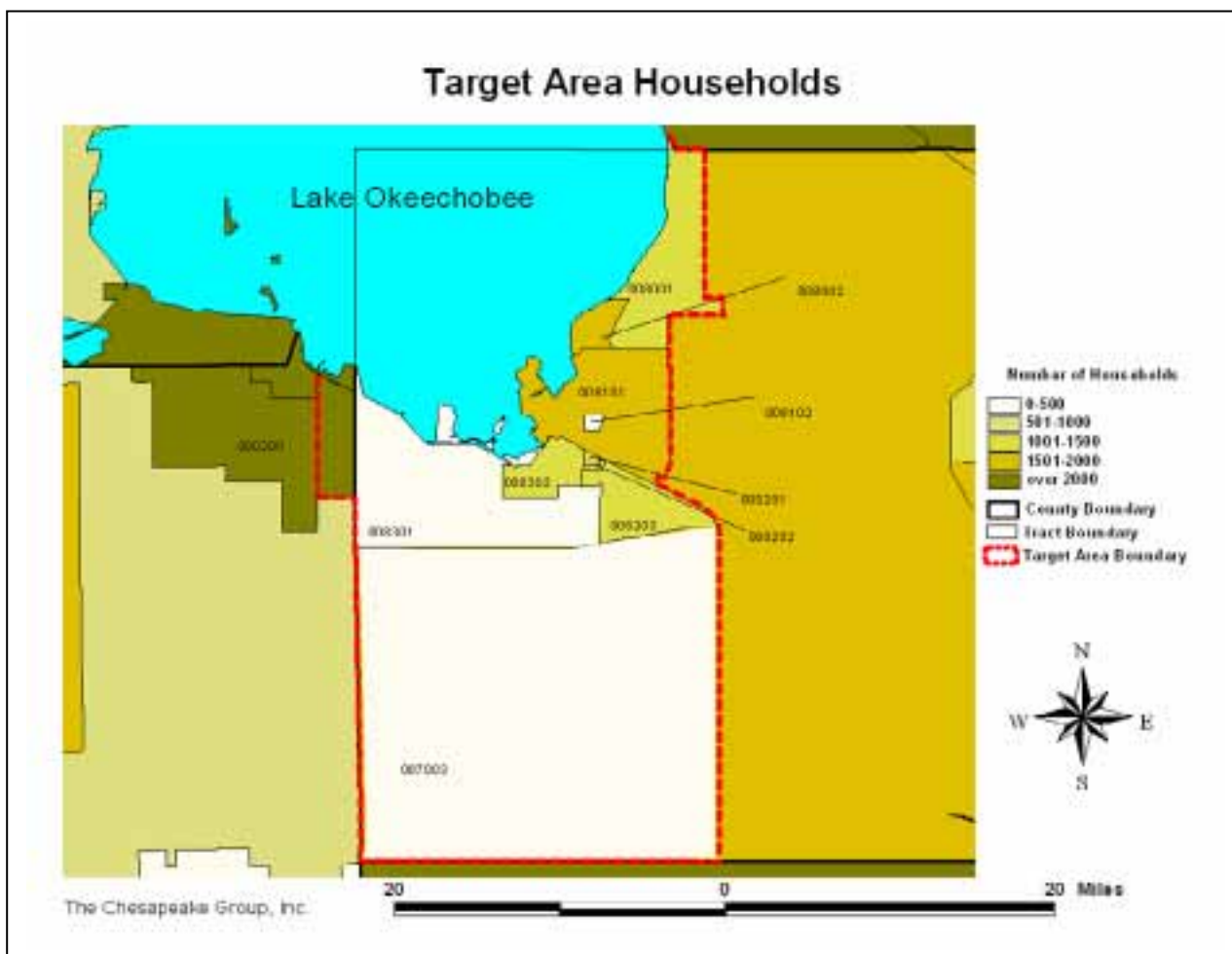
Area of Concern	1990 Households	2000 Households	% Change
Florida	5134869	6337929	23.4
Target Area/EAA	13382	12352	-7.7
<b>Hendry County Tracts</b>			
0200	2617	2318	-11.4
<b>Palm Beach Co. Tracts</b>			
7903	208	1717	725.5
8001	1061	1079	1.7
8002	1969	1610	-18.2
8101	1725	1882	9.1
8102	0	0	N/A
8201	1952	1450	-25.7
8202	1112	1035	-6.9
8203	1213	1488	22.7
8301	555	486	-12.4
8302	1178	1004	-14.8
<b>Cities</b>			
Belle Glade	5407	4902	-9.3
Pahokee	2107	1680	-20.3
South Bay	983	778	-20.9

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. There are currently 6 households in the portion of tract 7903 and 1032 households in the section of tract 0200 that is in target area.

Figure E.1.1.20 displays the number of households in the EAA or target area according to the 2000 Census. Tract 0200 as a whole seems to contain the most households, but the section of that tract within the target area actually holds just over 1,000 households. Tract 8101 has the most households, and it is easy to notice that tracts 7903, 8301, and 8102 have the fewest households among tracts in the target area.

Analyzing the percentages of the households as a fraction of the target area is another means of understanding which areas contain the bulk of the households in the EAA. It is noted that:

- J There is no one tract in either census that appears to have a significantly large portion of the households. Even the 19% found in tract 0200 in 1990 could be misleading because that value is for the entire tract, not just the section in the target area.
- J Tracts 7903, 8102, and 8301 have a very small percentage of the households existing in the target area in either year.
- J Total households are fairly evenly distributed between the other tracts, with percentages ranging from 8% to 17%.



**Figure E.1.1.20 – Target Area Households**

Both censuses display the concentration of households within incorporated municipalities, with nearly two-thirds of the total households located in one of the three noted cities.

**Table E.1.1.21 - Percentage Breakdown of Total Households for 1990 and 2000**

Target Area 1990 Households: 13590		
Target Area 2000 Households: 11072		
Area of Concern	% of 1990 Total Households	% of 2000 Total Households
<b>Hendry County Tracts</b>		
0200	19	9
<b>Palm Beach County Tracts</b>		
7903	2	0
8001	8	10
8002	15	15
8101	13	17
8102	0	0
8201	14	13
8202	8	9

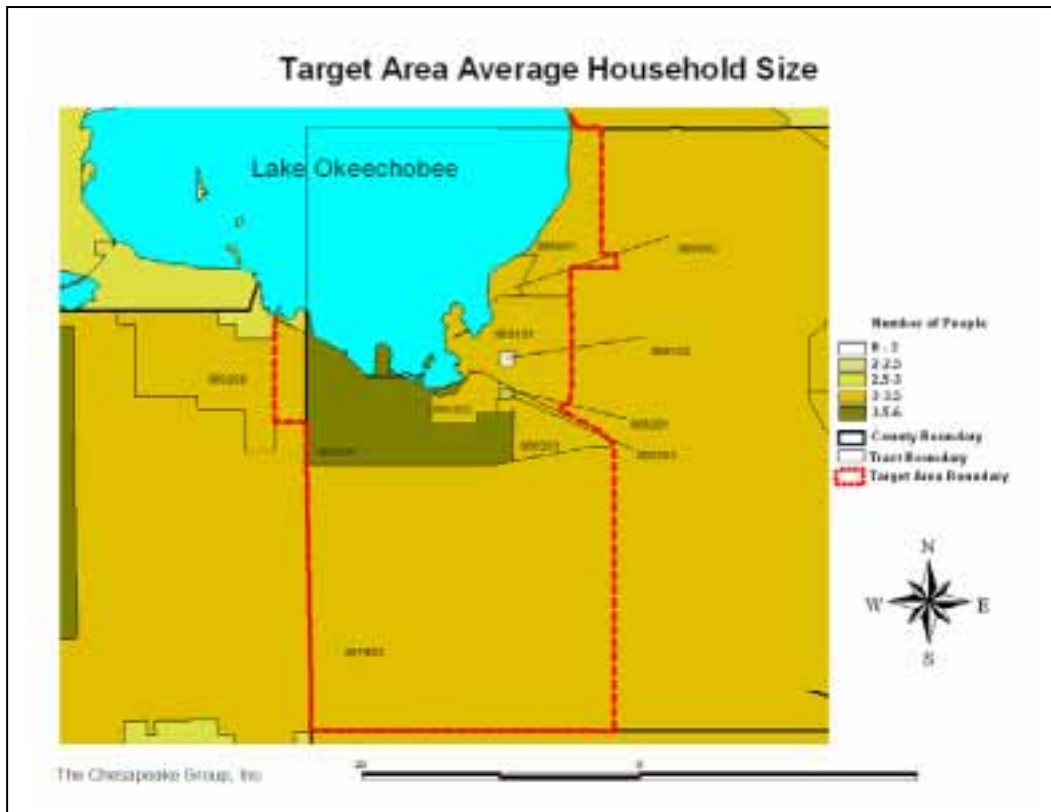
8203	9	13
8301	4	4
8302	9	9
<b>Total</b>	<b>100</b>	<b>100</b>
<b>Cities</b>		
Belle Glade	40	44
Pahokee	16	15
South Bay	7	7
<b>Urban Total</b>	<b>63</b>	<b>66</b>

\* Derived from the U.S. Census 1990 and 2000. Not all of Hendry County Tract 0200 lies within the target area. Only the portions of Palm Beach County Tract 7903 and Hendry County tract 0200 that are inside the target area are used in the 2000 data, but full tract data is used for 1990 information.

### Average Size

The average household size for the tracts in the target area primarily falls between 3 and 3.5 individuals. Tract 8301 is an anomaly, having an average household size larger than 3.5 people.

Perhaps more significant is the smaller household size of tracts 8201 and 8202, which are two more densely populated areas that have primarily populations in municipalities. There could be several reasons for this, but most likely the reason is the national out-migration from rural areas of young adults in search of better economic opportunities.



**Figure E.1.1.21 – Target Area Average Household Size**

### E.1.1.6 FAMILIES

In 1990 and 2000, the tracts with the greatest number of families were 8002, 8101, 8201, and 8203. Other tracts have at least 600 families during both census years except for 7903, 8301, and 8102. Many of the families that exist within the target area are living in the notable municipalities, especially in Belle Glade.

Florida has seen a healthy increase in the number of families within its borders from 1990 to 2000. On the other hand and reflective of the previously defined population and household information, the EAA as a whole displays a decrease in families.

Without considering tract 7903, the only tract with a notable increase in families is 8203. All other tracts show a decline in number of families ranging from 10% to 20%. Municipalities demonstrate declines. Only Belle Glade has a significantly slower rate of decrease.

**Table E.1.1.22 – Total Family Estimates from the 1990 and 2000 Census**

Area of Concern	1990 Families	2000 Families	% Change
Florida	3511825	4210760	19.9
Target Area	9838	9155	-6.9
Hendry County Tracts			
0200	2093	1791	-14.4
Palm Beach Co. Tracts			
7903	162	1466	804.9
8001	796	797	.1
8002	1389	1233	-11.2
8101	1355	1492	10.1
8102	0	0	N/A
8201	1113	900	-19.1
8202	721	646	-10.4
8203	1017	1133	11.4
8301	434	373	-14.1
8302	920	790	-14.1
Cities			
Belle Glade	3700	3538	-4.4
Pahokee	1527	1308	-14.3
South Bay	782	630	-19.4

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. There are currently 6 families in the portion of tract 7903 and 919 families in the section of tract 0200 that is in target area.

The number of families from the 2000 Census is represented in Figure E.1.1.22 below. Clearly the tracts with the fewest families are again tracts 7903 and 8301, as well as 8102. Most tracts have between 500 and 1,500 families within them. Tract 0200 is the only one that is higher, but many of these families live outside the EAA. There are only 919 families in the section of tract 0200 within the target area according to the 2000 Census.

The distribution of Target Area Families (Figure E.1.1.22) is similar to Target Area Households (Figure E.1.1.21). No tract value is much below 10% or much higher than 20%. However, the municipal centers account for a substantial percentage of the families. Furthermore, figures show that the proportion of families in the municipalities has increased from 1990 to 2000. Belle Glade itself is home to over 40% of the families in the target area. Pahokee and South Bay individually house as many families as an average tract.

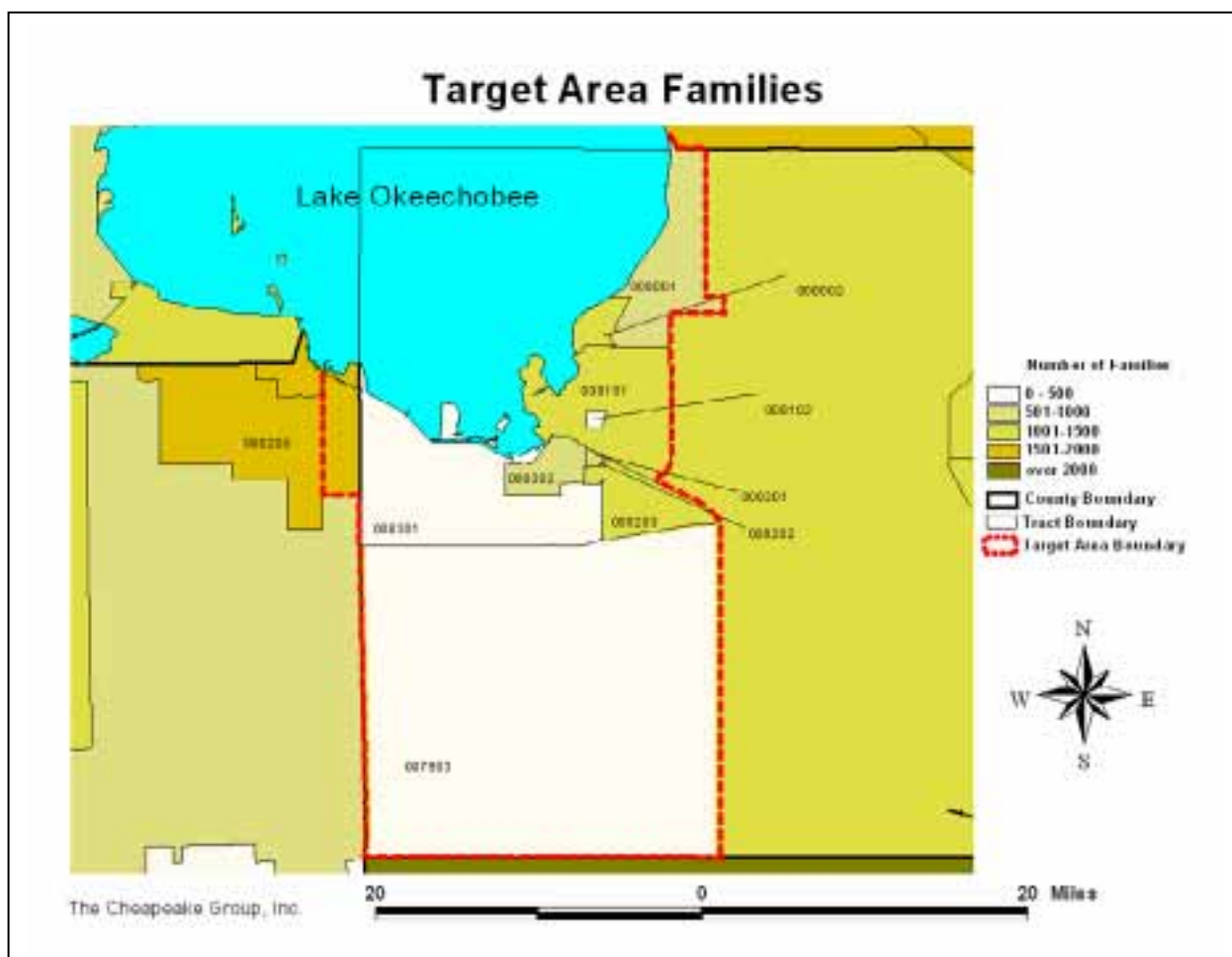


Figure E.1.1.22 – Target Area Families

Table E.1.1.23 – Percentage of Families from the 1990 to 2000 in the EAA

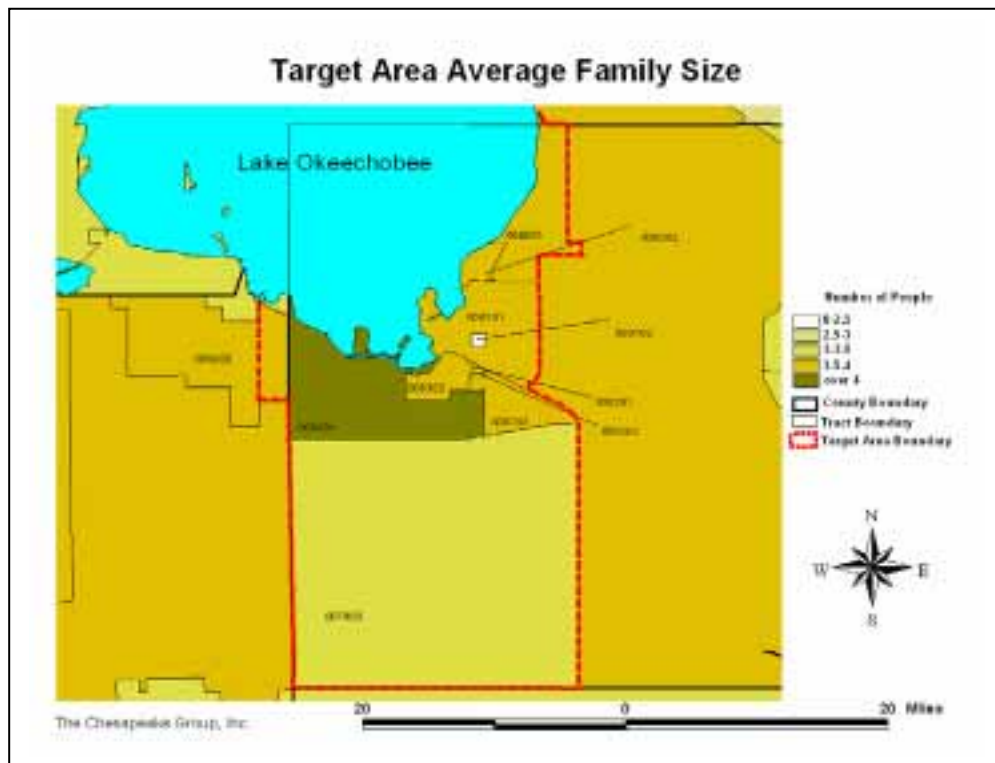
Target Area 1990 Families: 10000		
Target Area 2000 Families: 8289		
Area of Concern	% of 1990 Total Families	% of 2000 Total Families
Hendry County Tracts		
0200	21	11
Palm Beach County Tracts		
7903	2	0
8001	8	10
8002	14	15
8101	14	18
8102	0	0
8201	11	11

8202	7	8
8203	10	14
8301	4	4
8302	9	9
Total	100	100
Cities		
Belle Glade	37	43
Pahokee	15	16
South Bay	8	8
Urban Total	60	67

\* Not all of Hendry County Tract 0200 lies within the target area. Only the portions of Palm Beach County Tract 7903 and Hendry County tract 0200 that are inside the target area are used in the 2000 data, but full tract data is used for 1990 information.

### Family Size

As is virtually always the case in both rural and urban areas, the average family size is slightly higher than the average household size. The majority of the notable tracts contain families with between 3.5 and 4 people. Tract 8301 has the largest average family size at roughly 4.4. The only other divergence from the bulk of the census tracts is that of the section of tract 7903 that falls in the EAA or target area. It has a slightly smaller average family size, being between 3 and 3.5.



(Data for all of tract 0200 is used for this figure.)

**Figure E.1.1.23 – Target Area Average Family Size**

### E.1.1.7 INCOMES

The 1990 Census provided 1989 income statistics. Three types of incomes were provided: 1) median household income, 2) median family income, and 3) per capita income.

As would be expected because of the basic rural nature of the area, median household income for the EAA was below that for Florida in 1989. The following reflects the median income conditions in 1989:

- J All tracts in the EAA had lower median incomes than most of Florida, except tracts 7903, 8101, and 8203. Only tract 7903 has a significantly higher median household income than the Florida median. However and as previously noted, residents of the eastern portion of the tract may have been skewing the data.
- J Many of the tracts had a much lower median household income than the Florida average, with tracts 8201, 8202, and 8301 being only about one-half of the Florida median.
- J More populated tracts followed this trend of a low median household income, with the highest being less than 80% of Florida.

All tracts in the area reflected a median family income was slightly above median household income in 1989. However, most tracts were still below the Florida median.

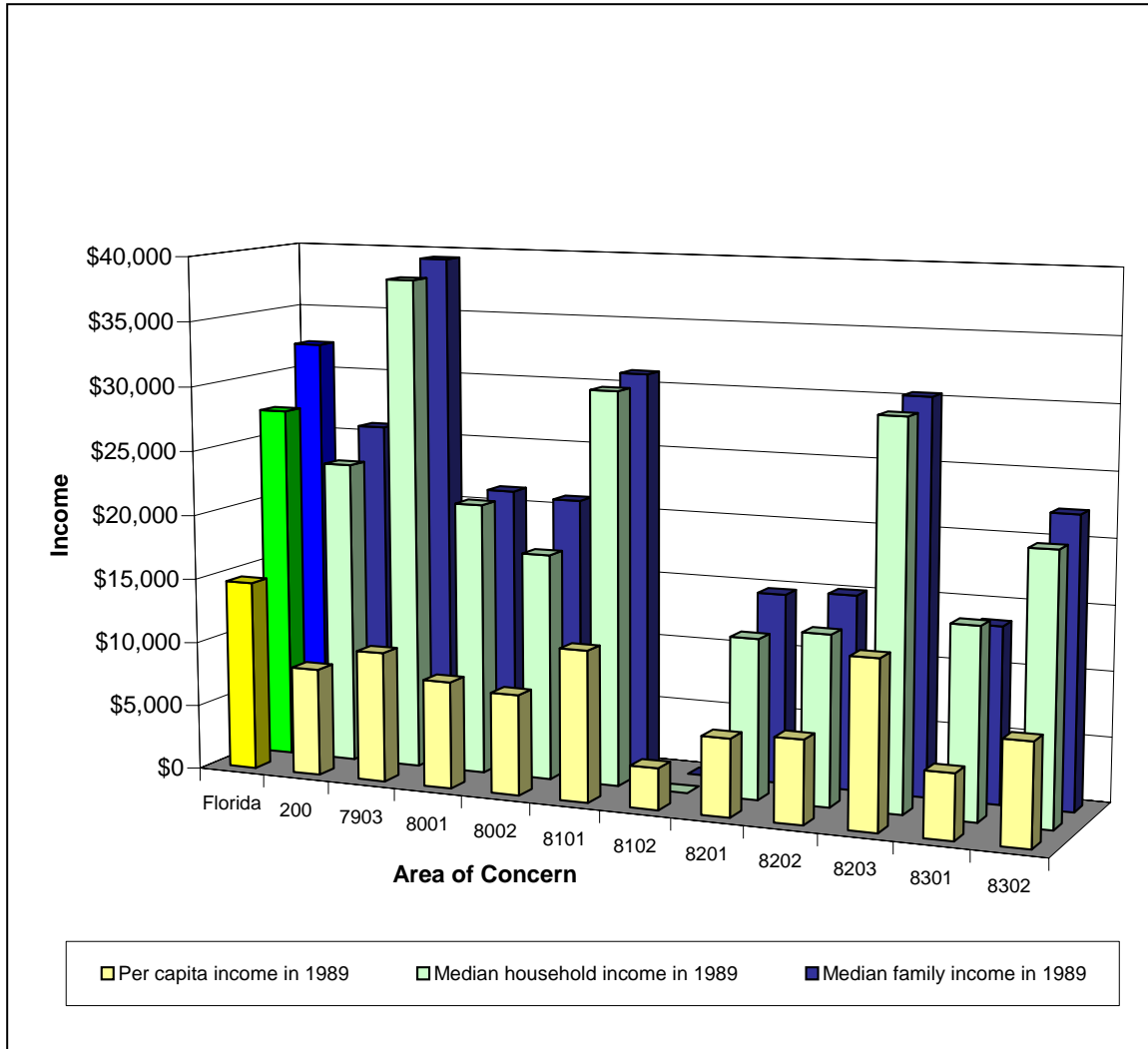
For per person or per capita incomes, all tracts encompassed by the target area had a per capita income lower than that of Florida as a whole in 1989. The per capita income of many tracts was a great deal lower than Florida's. Tracts 8301, 8202, 8201, and 8102 had a per capita income less than one-half that of Florida. No city had a per capita income more than two-thirds that of the Florida value. Table E.1.1.24 contains the income estimates for the EAA and Florida by tract for 1989.

**Table E.1.1.24 – Estimated Median Household & Family Income & Per Capita Income for EAA for 1989\***

Area	Median Household Income	Median Family Income	Per Capita Income
Florida	\$27483	\$32212	\$14698
Hendry County Tracts			
0200	\$23504	\$25833	\$8300
Palm Beach County Tracts			
7903	\$38125	\$39375	\$10045
8001	\$21020	\$21310	\$8241
8002	\$17488	\$20895	\$7733
8101	\$30333	\$31042	\$11575
8102	-	-	\$3184
8201	\$12308	\$14701	\$5938
8202	\$13083	\$15037	\$6384
8203	\$29516	\$30341	\$12828
8301	\$14593	\$13545	\$4968
8302	\$20534	\$22245	\$7805
Cities			
Belle Glade	\$19629	\$24692	\$9899
Pahokee	\$21468	25131	\$8694
South Bay	\$20561	22206	\$6572

\* Derived from the U.S. Census 1990. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. Tract 8102 has no households or families, so it has no median income values for those categories.

Figure E.1.1.24 helps illustrate the lack of prosperity of most tracts and the EAA when compared to Florida. It shows most income figures fell below that of Florida for all three data sets, often very dramatically. The few census tracts with values above the Florida medians in no way overcame the deficits resulting from the lower incomes of the other tracts.



**Figure E.1.1.24 - 1990 Census Income Demographics**

It is also noted for 1989 that:

- J Of the eleven tracts that are at least partially in the EAA or target area, seven had a median household income that was near or under 75% of Florida's income level.
- J Only tract 7903 had a higher 1990 median family income than Florida as a whole. Seven tracts had less than three-quarters of the Florida value. Tracts 8102, 8201, 8202, and 8301 had less than one-half the median family income of Florida.
- J Household and family incomes of the three cities were slightly closer to the Florida median than the tracts themselves, but they were still far under the statewide average.

J Per capita income for the EAA was even more depressed, with six tracts being close to or under one-half the Florida median. Of the rest of the tracts, only tract 8203 and 8101 came reasonably close to the Florida statewide average.

**Table E.1.1.25 – Estimated Median Household & Family Income & Per Capita Income for the Target Area or EAA for 1989 as a Percent of Florida Respective Incomes**

Area	Median Household Income as % of FL	Median Family Income as % of FL	Per Capita Income as % of FL
Florida	100	100	100
Hendry County Tracts			
0200	86	80	56
Palm Beach Co. Tracts			
7903	139	122	68
8001	76	66	56
8002	64	65	53
8101	110	96	79
8102	0	0	22
8201	45	46	40
8202	48	47	43
8203	107	94	87
8301	53	42	34
8302	75	69	53
Cities			
Belle Glade	71	77	67
Pahokee	78	78	59
South Bay	75	69	45

\* Derived from the U.S. Census 1990. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. Tract 8102 has no households or families, so it has no median income values for those categories.

The 2000 Census contains income data from the year 1999 and is the most recent reasonably reliable available information. Patterns noted for 1989 are similar to those observed in the 1990 Census, with the median household and family income of Florida being greater than that of all tracts except 7903. Also, the per capita income of Florida is higher than that of all tracts that exist within the target area.

The difference in the 2000 data is that the disparity between the Florida values and the individual tract values is much greater than in 1990. Furthermore:

- J Tracts 8001, 8002, 8102, 8201, and 8202 are more than \$15,000 under the median household income of Florida.
- J Tracts 8301 and 8302 are more than \$10,000 under.
- J All of these aforementioned tracts are more than \$15,000 under the median family income of Florida, with the three notable cities also following the same tendencies.
- J Only tracts 0200, 7903, 8101, and 8203 have a per capita income that is more than half that of Florida.

J Belle Glade is the only incorporated area that has a per capita income that is more than half that of Florida.

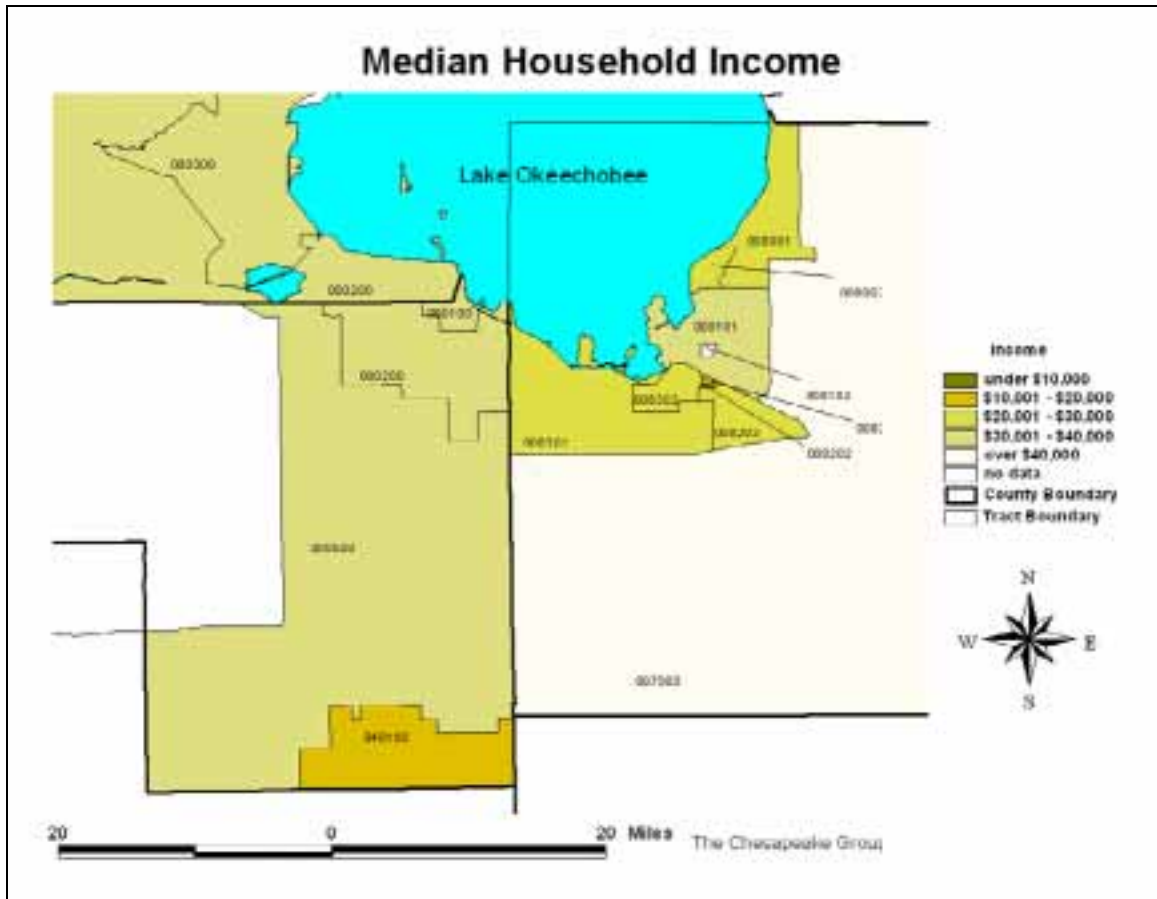
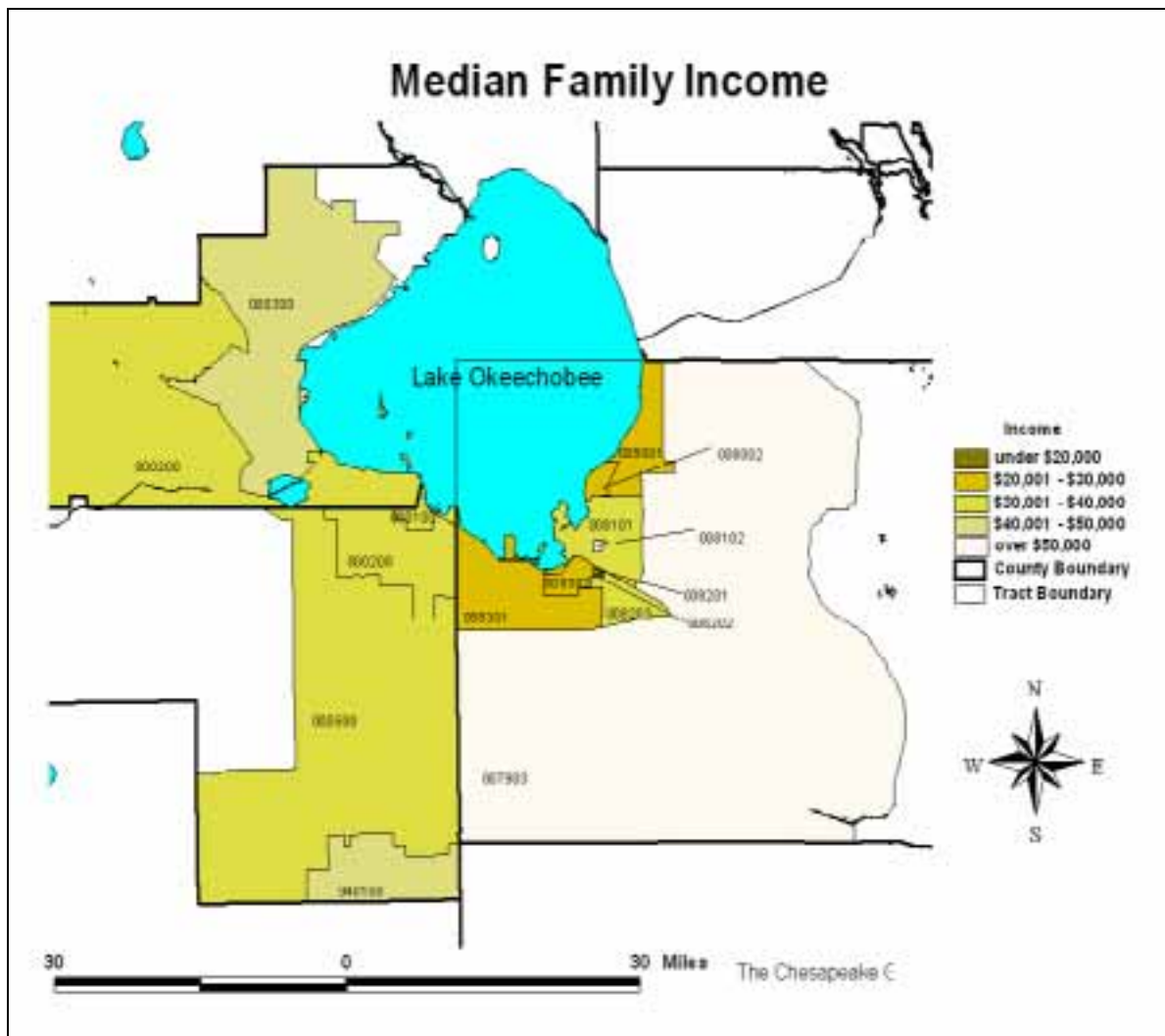


Figure E.1.1.25 – Median Household Income



**Figure E.1.1.26 – Median Family Income**

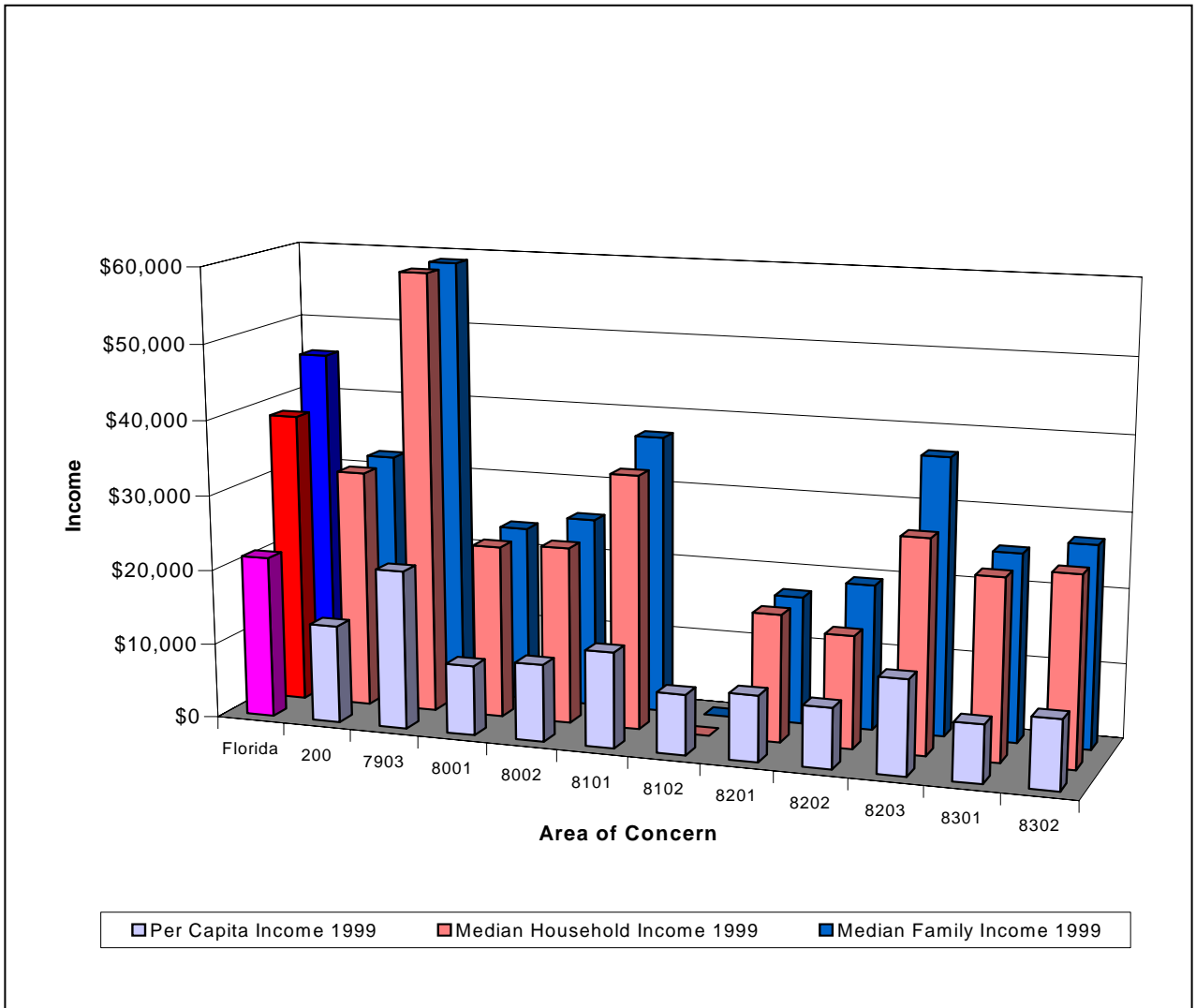
**Table E.1.1.26 – Estimated Median Household & Family Income & Per Capita Income for the EAA or Target Area for 1999**

Area	Median Household Income	Median Family Income	Per Capita Income
Florida	\$38819	\$45625	\$21557
Hendry County Tracts			
0200	\$31760	\$32194	\$13047
Palm Beach Co. Tracts			
7903	\$58770	\$58946	\$21177
8001	\$23081	\$23620	\$9303
8002	\$23625	\$25462	\$10301
8101	\$33906	\$37188	\$12756
8102	-	-	\$8022
8201	\$17004	\$17133	\$8776

8202	\$15000	\$19467	\$8056
8203	\$28409	\$36976	\$12592
8301	\$24125	\$25114	\$7676
8302	\$25227	\$26913	\$9239
Belle Glade	\$22715	\$26756	\$11159
Pahokee	\$26731	\$26265	\$10346
South Bay	\$23558	\$26944	\$9126

\* Derived from the U.S. Census 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. Tract 8102 has no households or families, so it has no median income values for those categories.

Figure E.1.1.27 illustrates that incomes in tracts in the EAA still fall below the standards of Florida for the most part. The marked performance of tract 7903 can be disregarded because it is most probable the citizens earning this high income do not likely live east of the target area. Otherwise, almost all other values are below the Florida averages.



**Figure E.1.1.27 – 2000 Census Income Demographics**

When comparing the income data of the 1990 Census to that of the 2000 Census, there is an increase in all types of income for every tract except the median household income and per capita income of tract 8203. Many of the increases, however, fell below those for Florida in general. It is noted that:

- § Only tract 8301 had an increase in all three categories that surpassed Florida. The change in median family income for this tract is especially significant at over 85%. (However, the actual incomes still fall below those for the state in general.)
- § Tracts 8001, 8101, and 8202 have lesser improvements in median household income, being below 15%.
- § The smallest increases in median family income occurred in tracts 8001, 8101, and 8201. However, tracts 8002, 8203, and 8302 have increases that are little more than half that of Florida.
- § The incorporated jurisdictions also show relatively little improvement in median household and family income.

The increases in per capita income of tracts 8301, 8201, 8102, and 0200 are greater than the Florida increase. Other tracts such as 8001, 8101, and 8302 show little improvement.

Belle Glade and Pahokee also did not increase a great deal in per capita income. However, South Bay's average is only slightly below the Florida value. Thus, it can be said that incomes rose in virtually all of the EAA, but at rates of increase nowhere near that of Florida in general or most other areas of the state.

**Table E.1.1.27 – Percentage Change in Incomes for the EAA (1989 – 1999)**

Area	% Change in Median Household Income	% Change in Median Family Income	% Change in Per Capita Income
Florida	41.2	41.6	46.7
Hendry County Tracts			
0200	35.1	24.6	57.2
Palm Beach Co. Tracts			
8001	9.8	10.8	12.9
8002	35.1	21.9	33.2
8101	11.8	19.8	10.2
8102	N/A	N/A	151.9
8201	38.2	16.5	47.8
8202	14.7	29.5	26.2
8203	-3.8	21.9	-1.8
8301	65.3	85.4	54.5
8302	22.9	21.0	18.4
Cities			
Belle Glade	15.7	8.4	12.7
Pahokee	24.5	4.5	19.0
South Bay	14.6	21.3	38.9

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. Tract 8102 has no households or families, so it has no median income values for those categories.

When viewing the 2000 income data as a percentage of Florida incomes, the relative poverty of the EAA population is very visible. The only tract that is near or above the median Florida household, family, or per capita income is tract 7903, and that data is very misleading. Eight tracts are now under three-quarters of the median household and family incomes of Florida. Three of these eight are less than one-half the Florida average. Per capita income differences is even more severe, with six of the tracts having less than one-half the per capita income of Florida on average.

Those living in the cities in the target area or EAA fare little better. The only municipality with income statistics that represent over 60% of Florida is South Bay City's median household income.

**Table E.1.1.28 – EAA or Target Area Incomes as a Percentage of Florida Incomes in 1999**

Area	Median Household Income	Median Family Income	Per Capita Income
Florida	100	100	100
Hendry County Tracts			
0200	82	71	61
Palm Beach Co. Tracts			
7903	151	129	98
8001	59	52	43
8002	61	59	48
8101	87	82	59
8102	0	0	61
8201	44	38	41
8202	39	43	37
8203	73	81	58
8301	62	55	36
8302	65	59	43
Cities			
Belle Glade	59	59	52
Pahokee	69	58	48
South Bay	61	59	42

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. Tract 8102 has no households or families, so it has no median income values for those categories.

### **E.1.1.8 EDUCATIONAL ACHIEVEMENT**

As can be seen in Table E.1.1.29 and based on the 2000 Census:

- J Less than 10% of the areas adults have any formal education beyond high school.
- J Only about one-half have graduated from high school.
- J Indicative of the incomes previously reported, more than one-fourth of the adult population ceased their formal education some time during high school and never received their diplomas.
- J About one-fourth of the adults did not complete ninth grade.

**Table E.1.1.29 – EAA or Target Area Educational Attainment in 1999**

EDUCATIONAL ATTAINMENT									
	Less Than 9 <sup>th</sup> Grade	9 <sup>th</sup> – 12 <sup>th</sup> No Diploma	High School Graduate	Some College No Degree	Associate Degree	Bachelor's Degree	Graduate Degree	% High School Graduate or Higher	% Bachelor's Degree or Higher
<b>Hendry Co.</b>									
0200	811	1,202	1,332	531	78	137	15		
%	19.8%	29.3%	32.4%	12.9%	1.9%	3.3%	0.4%	51%	3.7%
<b>Palm Beach</b>									
7903	69	443	1,225	829	341	343	150		
	2%	13%	36%	24.4%	10%	10.1%	4.4%	84.9%	14.5%
8001	425	380	458	269	41	103	28		
	24.9%	22.3%	26.9%	15.8%	2.4%	6%	1.6%	52.8%	7.7%
8002	802	748	738	260	88	124	34		
	28.7%	26.8%	26.4%	9.3%	3.1%	4.4%	1.2%	44.5%	5.7%
8101	989	612	1,002	474	82	209	123		
	28.3%	17.5%	28.7%	13.6%	2.3%	6%	3.5%	54.1%	9.5%
8102	52	318	402	192	37	67	0		
	4.9%	29.8%	37.6%	18%	3.5%	6.3%	0	65.4%	6.3%
8201	914	500	469	207	41	126	70		
	39.3%	21.5%	20.2%	8.9%	1.8%	5.4%	3%	39.2%	8.4%
8202	590	497	439	62	10	88	29		
	34.4%	29%	25.6%	3.6%	0.6%	5.1%	1.7%	36.6%	6.8%
8203	529	647	597	287	113	220	104		
	21.2%	25.9%	23.9%	11.5%	4.5%	8.8%	4.2%	52.9%	13%
8301	265	234	187	53	16	42	0		
	33.2%	29.4%	23.5%	6.6%	2%	5.3%	0	37.4%	5.3%
8302	499	810	828	457	24	149	47		
	17.7%	28.8%	29.4%	16.2%	0.9%	5.3%	1.7%	53.5%	7%
<b>Cities</b>									
Belle Glade	2,712	1,886	2,124	819	196	539	311		
	31.6%	22%	24.7%	9.5%	2.3%	6.3%	3.6%	46.5%	9.9%
Pahokee	839	795	784	333	86	145	48		
	27.7%	26.2%	25.9%	11%	2.8%	4.8%	1.6%	46.1%	6.4%
South Bay	386	686	757	375	18	127	47		
	16.1%	28.6%	31.6%	15.7%	0.8%	5.3%	2%	55.3%	7.3%

\* Derived from the U.S. Census 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area.

The proportion of current enrollment in institutions of higher learning is also small according to the 2000 Census. As seen in Table E.1.1.30, current enrollment in college is less than 10% in the EAA target area.

**Table E.1.1.30 – EAA or Target Area School Enrollment in 1999**

	SCHOOL ENROLLMENT					
	Pop. 3 yrs, enrolled	Preschool	Kindergarten	Grade 1-8	High School 9-12	College or Graduate School
<b>Hendry County Tract</b>						
0200	2,371	217	90	1,305	612	147
%		9.2%	3.8%	55%	25.8%	6.2%
<b>Palm Beach County</b>						
7903	1,656	175	105	873	361	142
		10.6%	6.3%	52.7%	21.8%	8.6%
8001	1,455	160	74	729	358	134
		11%	5.1%	50.1%	24.6%	9.2%
8002	1,859	100	117	1,002	506	134
		5.4%	6.3%	53.9%	27.2%	7.2%
8101	2,140	171	178	1,127	415	249
		8%	8.3%	52.7%	19.4%	11.6%
8102	129	0	0	0	24	105
					18.6%	81.4%
8201	1,484	134	105	725	432	88
		9%	7.1%	48.9%	29.1%	5.9%
8202	885	75	71	425	255	59
		8.5%	8%	48%	28.8%	6.7%
8203	1,704	140	112	907	383	162
		8.2%	6.6%	53.2%	22.5%	9.5%
8301	727	88	69	358	208	4
		12.1%	9.5%	49.2%	28.6%	0.6%
8302	1,305	162	76	573	387	107
		12.4%	5.8%	43.9%	29.7%	8.2%
<b>Cities</b>						
Belle Glade	4,791	372	390	2,371	1,224	434
		7.8%	8.1%	49.5%	25.5%	9.1%
Pahokee	1,954	68	112	1,117	494	163
		3.5%	5.7%	57.2%	25.3%	8.3%
South Bay	1,130	143	57	491	356	83
		12.7%	5%	43.5%	31.5%	7.3%

\* Derived from the U.S. Census 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area.

There is an aggressive effort/campaign in place to ensure that all youth and any adults in the area are equipped to become productive contributors of society. A large majority of the field/agriculture workers in the Glades are members of the older population who cannot read and have worked the fields for several years. Many have worked in agriculture the majority of their lives and know nothing other than agriculture. They understand the need to be educated and thus have instilled in their children the need to attend college (many of the field workers work to send their kids to college). Students who have opportunities to attend college do so and excel but very few

return to area because of the limited job opportunities and elect to either remain in their college town (sometimes to pursue additional degrees) or seek employment. Many who do return home often commute to the coast for work because the opportunities in their "hometown" are not consisted with their areas of study/expertise. This strains the community of its human resources because eventually, those that elect to commute eventually re-locate. Though there may be some jobs available in the agricultural industry in the area, the younger generation of the area is moving from the mindset of agriculture and more into technology. The current agriculture workers "preach" to them and stress the importance of them going to school and obtaining an education so they do not have to work in the fields. According to PBCC data, the student enrollment is constantly increasing and the enrollment at the BG branch is the highest it has ever been which suggests that the population is interested in obtaining training and education that makes them less likely of becoming agriculture workers.

### E.1.1.9 ECONOMIC STRUCTURE – EMPLOYMENT

The most telling information on the economic structure of the area is the employment data found in the 2000 Census. It is noted that:

- § Agricultural employment ranges from a high of 37.3% in tract 8202 to a low of 8.8% in 8203, with 7903 excluded.
- § Manufacturing and health and education combined services also support a significant share of the population as well. However, most of the manufacturing is likely to reflect the agricultural related production of sugar, rice or other grown products.
- § The changes in seasonal labor due to the dramatic increase in mechanized harvesting should be considered as a major contributor to decreased agricultural labor employment.
- § The amount of people who commute into or out of the EAA area between work and home may affect the actual employment figures.

Table E.1.1.31 contains the employment information for the EAA. The first number in each section of the table is the actual number employed, while the number below is the percentage.

**Table E.1.1.31 – EAA or Target Area Employment by Industry in 1999**

Industry	0200	7903	8001	8002	8101	8102	8201	8202	8203	8301	8302	Belle Glade	Pah-o-kee	S. Bay
Agri-culture	392 13.5	29 1.1	143 14.4	277 15.9	238 10.3	0	374 27.1	310 37.3	134 8.8	162 33.6	119 12.1	977 18.9	311 16.5	93 12.3
Con-struction	172 5.9	421 15.5	54 5.4	112 6.4	127 5.5	0	77 5.6	52 6.3	95 6.2	0	96 9.6	355 6.9	136 7.2	38 5.0
Manu-facturing	674 23.3	136 5.0	127 12.8	159 9.1	351 15.2	0	106 7.7	43 5.2	162 10.6	94 19.5	120 12.2	604 11.7	186 9.9	102 13.5
Whole-sale	91 3.1	89 3.3	40 4.0	39 2.2	103 4.4	0	41 3.0	41 4.9	69 4.5	26 5.4	13 1.3	216 4.2	32 1.7	8 1.1
Retail Trade	379 13.1	351 12.9	133 13.4	126 7.2	323 14.0	0	71 5.1	33 4.0	160 10.5	8 1.7	102 10.4	497 9.6	157 8.3	78 10.3
Trans., Util.	49 1.7	222 8.2	76 7.7	147 8.4	87 3.8	0	79 5.7	26 3.1	30 2.0	0	48 4.9	183 3.5	164 8.7	37 4.9
Inform-ation	46 1.6	77 2.8	22 2.2	12 0.7	46 2.0	0	23 1.7	7 .8	25 1.6	0	21 2.1	75 1.5	12 .6	21 2.8

F.I.R.E.	110 3.8	207 7.6	15 1.5	62 3.6	102 4.4	0	49 3.5	12 1.4	41 2.7	7 1.5	14 1.4	135 2.6	70 3.7	14 1.8
Profess- ional	76 2.6	255 9.4	27 2.7	136 7.8	100 4.3	24 15.2	25 1.8	31 3.7	129 8.4	18 3.7	83 8.4	261 5.1	131 6.9	78 10.3
Edu., health	472 16.3	396 14.6	221 22.3	381 21.8	479 20.7	60 38.0	301 21.8	124 14.9	412 27.0	110 22.8	225 22.8	1091 21.2	378 20.0	182 24.0
Enter., Arts	174 6.0	176 6.5	52 5.2	116 6.6	109 4.7	44 27.8	104 7.5	64 7.7	71 4.6	40 8.3	74 7.5	263 5.1	128 6.8	49 6.5
Other Services	106 3.7	136 5.0	38 3.8	55 3.2	67 2.9	30 19.0	60 4.3	42 5.1	50 3.3	0	23 2.3	201 3.9	55 2.9	23 3.0
Public Admin.	157 5.4	219 8.1	45 4.5	123 7.0	183 7.9	0	71 5.1	45 5.4	150 9.8	17 3.5	45 4.6	299 5.8	127 6.7	34 4.5

\* Derived from the U.S. Census 1990 and 2000. Data for census tracts 0200 and 7903 is not representative of the target area because large portions of these tracts lie outside the target area. The first number in each section of the table is the actual number employed, while the number below is the percentage.

Economic activity in the cities of Belle Glade/South Bay and Pahokee/Canal Point were assessed in terms of employees and sales by city (Table E.1.1.32) sales by industry (Table E.1.1.33), and largest taxable economic activity (Table E.1.1.34). Table E.1.1.32 demonstrates that Belle Glade/South Bay have the strongest sales/employee ratios of any city in the project area or of any other Lake Okeechobee Lake Rim city. Belle Glade/South Bay is more stable and shows less variability in sales per employee than Pahokee/Canal Point. Belle Glade/South Bay has its economic base in food and kindred products and in the wholesaling of non-durable goods whereas Pahokee/Canal Point has a higher percent of it's economy in crops and food and kindred products (Blasland, et al. 2003).

**Table E.1.1.32 - Employees and Sales by City.**

City	2000			2001		
	empls	sale(mil)	sales/emp	empls	sale(mil)	sales/emp
Pahokee/Canal Point	2,217	225	101,488	2,391	202	84,483
Belle Glade/South Bay	11,168	1,136	101,719	12,440	1,215	97,669

**Table E.1.1.33 - Industry Sales by City.**

Industry	Pahokee/Canal Point		Belle Glade/South Bay	
	empls	sales/emp	empls	sales/emp
Total-all industries	202	*	1215	*
Agricultural-crops	30	14.9%	19	1.6%
Agricultural-livestock	0	0.0%	0	0.0%
Agricultural services	0	0.0%	8	0.7%
Food and kindred products	18	8.9%	125	10.3%
W-sale Trade- nondurables	18	8.9%	340	28.0%
General Merchandise Stores	0	0.0%	11	0.9%
Food Stores	20	9.9%	67	5.5%
Eating and Drinking Places	2	1.0%	14	1.2%
Health Services	8	4.0%	73	6.0%
Educational Services	37	18.3%	104	8.6%
Social Services	2	1.0%	32	2.6%

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**Table E.1.1.34 - Largest Taxable Economic Activity by City.**

	Gross Revenue	% of City's Total
Pahokee/Canal Point		
Food Stores	13,166,469	37.5%
Home Maintenance	4,861,674	13.9%
Office Space	4,170,022	11.9%
General Merchandise	3,225,635	9.2%
Restaurants	2,084,858	5.9%
Belle Glade/South Bay		
Agricultural Support	71,426,640	18.1%
Automobile Support	60,914,200	15.5%
Automobile Dealers	59,089,227	15.0%
Food Stores	46,011,601	11.7%
Home Maintenance	37,521,484	9.5%

## **E.1.1.10 ENVIRONMENTAL JUSTICE CONSIDERATIONS**

### **E.1.1.10.1 Demographic**

Demographic factors are one of the key components of environmental justice. Race, ethnicity, and low-income status are some of the primary considerations of the environmental justice movement. However, numerous other demographic factors also may play vital roles in an environmental justice assessment. These include, but are not limited to:

- **Population Age**  
Older or younger populations may be more susceptible to risks, when taking into account special health concerns of the elderly and potential for greater exposure in younger populations (e.g., ingestion of soil). In addition, children's immature bodily defense systems may make them more susceptible to toxic effects.
- **Population Density**  
High population density may promote a synergistic effect between industrial pollutants and typical urban pollutants (e.g., ground level ozone), especially if industry is located in close proximity (5 miles or less) to high density populations. Low population density may lead the NEPA analyst to underestimate the actual environmental harm to the affected population when conducting a risk assessment.
- **Population Literacy**  
If documents are technically complex and not adequately explained communities with lower levels of education may encounter difficulty in its ability to understand or sufficiently identify and interpret risk and other factors.
- **Historical Population**  
Rapid or severe changes in population or economic growth rate may result in potential impacts to existing community or public services and infrastructure. Changes in growth rate may include: (1) an increase in low-income or minority population(s) in an area (e.g., migration), (2) high birth

rates, and (3) cumulative impacts due to multiple sources of population increases. See Table E.1.1.35 below for socio-economic vulnerability profile.

### **E.1.1.10.2 Geographic**

Certain communities may be at high risk from environmental hazards or exposed to substantial environmental hazards due to geographic factors that isolate them from other surrounding communities or that tend to allow pollutants to accumulate in the environment surrounding the community. Such factors include, but are not limited to:

- **Climate**  
Weather patterns (e.g., prevailing winds) may concentrate pollutants in a certain area, allow pollutants to migrate, increase certain exposure pathways (such as respiration), or cause pollutants to behave in a manner different than expected under normal weather conditions.
- **Geomorphic Features**  
Topography or other surface features, natural or human in origin, may affect pollutant dispersal and may focus or funnel pollutants in particular directions or to particular locations.
- **Hydrophic Features**  
Presence of surface water and/or aquifers may provide drinking water, subsistence fisheries, cultural significance and use, and recreational use.

**Table E.1.1.35 - Socio-Economic Vulnerability Profile**

County	Hendry	Palm Beach
White	72%	85%
Black	27%	12%
American Indian	2.1%	0.1%
Hispanic	22.3%	7.7%
Other	9.0%	2.5%
Population over 65	11%	24%
Unemployment Rate (1990)	11.2%	6.6%
Anticipated Annual Change in Employment (1990-2010)	2.2%	2.0%
1990 Per Capita Income	\$ 16,217	\$ 31,354
Anticipated Annual Change in Income (1990-2010)	1.1%	1.5%
Percent of Population Below Poverty Level	15.3%	6.2%

### **E.1.1.10.3 Economic**

Economic factors can be divided into two categories: the economic condition of the individuals in the community in question, and the overall economic base of the community. The economic condition of the individuals in the population, if poor, may exacerbate risk factors and may preclude avoidance of risk factors. The economic condition of the community at large may result in situations that preclude the local

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government's ability to adequately protect the population or may promote the acceptance of disproportionately high and adverse effects. Such factors include, but are not limited to:

- Individual Income Level/Health Care Access

This includes such issues as whether affordable or free quality health care is available and, whether any cultural barriers exist to seeking health care. Many low-income and/or minority communities lack adequate levels and quality of health care, often due to lack of resources or lack of access to health care facilities.

- Individual Infrastructure Conditions

Consideration should be given to whether existing infrastructure provides sufficient protection from adverse impacts (e.g., protection of domestic water supply, especially if the community relies on public or non-public drinking wells or surface water; adequacy of sewage facilities) and the effect that new facilities may have on the ability of existing infrastructure to be reliable and provide adequate protection. In many low-income and/or minority communities, historic allocation of resources has resulted in inadequate infrastructure development and maintenance.

- Individual Life-Support Resources

This includes subsistence living situations (e.g., subsistence fishing, hunting, gathering, farming), diet, and other differential patterns of consumption of natural resources. If a community is reliant on consumption of natural resources, such as subsistence fishing, an additional exposure pathway may be associated with the community that is not relevant to the population at large. Similarly, dietary practices within a community or ethnic group, such as a diet low in certain vitamins and minerals, may increase risk factors for that group.

- Individual Distribution of Costs

Consideration of the distribution of costs to pay for environmental projects to the extent that regulations and programs are paid for by user fees on necessary goods and services (e.g., sewer and water bills, garbage services, electric bills, gasoline taxes). These have a substantial negative effect on low-income families who must pay a disproportionate fraction of their income for these goods and services, the addition of user fees for another plant or facility may add to the disparate treatment of those individuals.

- Community Industries

Reliance on polluting industries for jobs and economic development. If the community is reliant on polluting industries for jobs and tax revenue, there may be reluctance to take actions that would avoid risk to health and the environment at a cost to the industry. In addition, minority or low-income communities may not enjoy other benefits in proportion to the risks or impacts they bear.

- Community Brownfields

Communities with low revenues may be unable to finance economic rehabilitation efforts that would improve the physical environment of a community.

- Community Natural Resources

Reliance on natural resources for economic base (e.g., tourism, crops; use of resources to create salable items, such as woven baskets among Native Americans; subsistence and commercial fisheries).

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- Community Other

Other indirect effects which a low-income or minority population, due to economic disadvantage, may not be able to avoid, that will have a synergistic effect with other risk factors (e.g., vehicle pollution, lead-based paint poisoning, existence of abandoned toxic sites, dilapidated housing stock).

#### **E.1.1.10.4 Human Health**

Evaluation of human health and risk factors relevant to environmental justice concerns may prove to be complicated when detailed technical analyses of risk factors and interaction of toxic chemicals are undertaken. However, the following include, but are not limited to, factors that allow for consideration of whether more detailed risk assessments or analyses specific to minority or low-income populations are appropriate:

- Emissions

Number of point and non-point sources of emissions including permitted and non-permitted (violations) releases.

- Toxins

Presence of or exposure to highly toxic pollutants.

- Exposures

Multiple exposure sources and/or paths for the same pollutant.

- Pollutants

Exposure to multiple pollutants.

- Pesticides

Exposure to pesticides by workers and to the misuse of pesticides.

- Locations

Exposure through multiple locations (e.g., workplace, home, school, ambient).

- Concentrations

Exposure to emissions from concentrated locations of the same type of industry (or industries).

- Health Data

Health data for population in question (e.g., abnormal levels of cancers, asthma, emphysema, birth defects, low birth weight, infant and childhood mortality blood-lead levels asbestosis). This data could indicate historical hazards and health risks which, in concert with the effects of the proposed action could cumulatively or indirectly raise environmental justice issues.

#### **E.1.1.10.5 Ethnic Differences and Communications**

When determining whether communities have been afforded opportunity for meaningful involvement, broad factors for consideration include the following.

- Public Access

Whether community members have access to the decision-making process (i.e., whether the community is fairly represented on commissions, boards, etc., and whether the community is fairly made aware of their role in the decision-making process).

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- Cultural Expectations

Cultural expectations and understanding of the decision-making process.

- Meaningful Information

Access to meaningful and understandable information, such as clear presentation of what a facility produces, what pollutants it releases, how these are managed, and the potential risk to the population.

- Job Security

Potential for fear within the community that participating in the process may jeopardize job security.

- Literacy Rate

If a low literacy rate exists, consideration should be given to the clarity and accuracy of presentations to the community and whether non-written materials, such as videos, have been considered for use in presentations.

- Translations

Consideration of non-English translations, both written and oral during community presentations or public meetings.

- Community Representation

Consideration should be given to whether representatives were selected by community decree or by outside sources without proper consultation with the community.

- Community Identification

Whether identification of minority and/or low-income communities took into account all potentially-impacted communities. If communities were geographically defined rather than culturally defined, certain communities that are impacted, given other cultural factors, may be unfairly excluded.

- Indigenous Populations

In addition, when projects or activities may affect tribal lands or resources or Native American communities, the NEPA analytical team should include one or more analysts familiar with Native American issues and culture, and the Agency should formally request the affected Indian Tribe(s) to seek participation as a cooperating agency. Specific factors to consider in such situations include, but are not limited to:

- The trust responsibility to and treaties, statutes and executive orders with federally-recognized Indian Tribes.
- Effect of insufficient financial and technical resources for the development and implementation of tribal environmental programs.

- Other considerations for public participation are discussed in Chapter 4 of the "Guidance on Environmental Justice in EPA's NEPA Compliance Analyses."

#### **E.1.1.10.6 Historical and Policy Issues**

Environmental justice assessments may require looking at historical conditions, existing conditions, and the impact of future actions. Many of the factors discussed above, such as cumulative risk, will necessarily address this question, but certain other factors may also require consideration, including:

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- **Industrial Concentrations**

Concentration of industries may create a high risk of exposure to environmental hazards for the community's economic base. Factors that may lead to such a result include government/industry arrangements that may reduce available public funding for adequate protection of low-income or minority populations (e.g., tax breaks provided to certain industries to encourage the location of such industries to a certain area).

- **Inconsistent Standards**

Non-uniformity in enforcement and site-selection standards across communities including methods for pursuing enforcement targeting, compliance actions and compliance initiatives.

- **Program Gaps**

Program gaps between tribal, state, and federal programs (such as asbestos worker protection programs) that may have subjected communities to high risk of exposure to environmental hazards. Such gaps include the lack of explicit Congressional authorization for tribal participation in and delegation/authorization of certain EPA programs and the sufficiency of funding and technical assistance for the development of tribal environmental programs.

- **Non-Inclusive Processes**

Decision-making and documentation processes were nonscientific, and/or non-inclusive in nature (e.g., selection of community representatives by potentially-affected industry rather than by community decree).

- **Past Practices**

Adequacy of past resource allocation practices.

- **Cultural Diversity**

Past and present cultural diversity or lack thereof on decision-making boards, within agencies, commissions, etc.

- **Obligations**

Adherence to prior agreements, such as treaties, statutes and executive orders with tribes. EPA should be particularly careful not to diminish tribal resources, including cultural and natural resources and treaty rights, without tribal concurrence and EPA should ensure the protection of such resources from environmental harm.

### **E.1.1.11 RECREATIONAL OPPORTUNITIES**

There are several existing recreational opportunities on public lands within the EAA, such as Holey Land Wildlife Management Area, Rotenberger Wildlife Management Area, and Lake Harbor Public Small Game Hunting Area, that offer significant recreational opportunities for visitors and tourists to the area. Each is different but likely shares a patron base interested in sports recreation and outdoors activity.

#### **Holey Land**

Primary recreational activities associated with Holey Land WMA include hunting and fishing (FWC 2003b). Current non-consumptive uses include camping, hiking, and bicycling along L-5 and Miami Canal levees (GFC 1997b). Future activities or development may focus on improved access, wildlife viewing and other non-consumptive activities (FWC 1997b).

The focus of Holey Land shifted over time with changes in the environment. Prior to rehydration under the Holey Land Restoration Project, it had been a popular deer hunting area. Since hydrologic restoration in 1991, Holey Land's recreational use shifted toward fishing in perimeter canals and waterfowl hunting (GFC 1997d). Fishing is also allowed at the G-204, G-205, and G-206 culverts (GFC 1997b). Access for motorboats and airboats is provided at the G-200 and G-201 pump stations.

In 1996, it was estimated by biologists from the Florida Fish and Wildlife Conservation Commission that recreational activity included 5,054 angler-days. This estimate, developed by counting vehicles at boat ramps using sampling techniques, is the only known estimate of fishing use. Most fishers use the G-200 and G-201 boat ramps. Based on this survey, it was concluded that fishing had become the primary recreational use in Holey Land (GFC 1997d). See Appendix E.1.1.1 WCA Boat Ramps.

Game species occurring in Holey Land include white-tailed deer, common snipe, hog, and marsh rabbit; blue-winged teal, mottled ducks, and other game waterfowl are found in sloughs in the NE corner of the WMA (GFC 1997b). Harvest data is not consistently available for game species other than white-tailed deer. However, a 2001 report by the FWC used hunter surveys conducted in 1999-2000 to estimate the total hunter days for all game species. Survey results estimated that in all probability there were no less than 1,000 to potentially 1,400 hunter-days from August 28, 1999 – March 5, 2000, likely to be the peak year (Linda 2001). The 2003 annual harvest report indicates that the average annual deer harvest from 1997 to 2003 summed across all seasons (archery, muzzle-loading gun, general gun-walk, and general gun-vehicle) was between 4 in 1997-98 to 12 deer in 1999-2000. The estimated average deer-hunting pressure during this same time period was estimated at roughly 468, with the range being between 300 and 637 man-days per year. See Table E.1.1.36 for totals of annual deer harvest data collected.

While limited, alligator hunting is currently administered on Holey Land WMA as part of the FWC's Public Waters Alligator Hunt program. From 2000-2002, an average of 7 alligators per year, with a range of between 3 and 11, were harvested from Holey Land WMA annually. The average (mean) annual value of this harvest was \$5,304, +/- \$3417.9. See Tables E.1.1.37 and E.1.1.38 for a summary of alligator harvest values and direct fee revenues associated with alligator harvests.

Reports indicate that the direct economic contribution on the economy by recreational use of the Holey Land WMA was estimated at \$137,606 for 2001. The net contribution in total consumer revenue of Holey Land during that same year was estimated at between \$65,659 and \$131,138.

**Table E.1.1.36 - Annual Deer Harvest Data.**

Year	Everglades WMA <sup>1</sup>			Holey Land WMA <sup>2</sup>			Rotenberger WMA <sup>3</sup>		
	Harvest	Pressure	Success	Harvest	Pressure	Success	Harvest	Pressure	Success
97-98	2	294	0.7%	4	257	1.6%	13	950	1.4%
98-99	10	354	2.8%	7	474	1.5%	7	662	1.1%
99-00	7	162	4.3%	12	627	1.9%	21	943	2.2%
00-01	6	768	0.8%	9	613	1.5%	7	652	1.1%
01-02	12	512	2.3%	9	575	1.6%	28	835	3.4%
02-03	17	605	2.8%	7	265	2.6%	6	329	1.8%
Average	9	449	2.3%	8	469	1.8%	14	729	1.8%
Std. Dev.	5.2	221.6	1.38%	2.7	169.4	0.46%	9.0	235.1	0.88%

Source: 1. FWC 2003a, 2. FWC 2003c, 3. FWC 2003d

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## **Rotenberger Wildlife Management Area**

Recreational activities associated with Rotenberger Wildlife Management Area include hunting, fishing, and camping (FWC 2003b). While Rotenberger is currently utilized primarily for hunting, current non-consumptive activities include camping along the Powerline levee and the Miami Canal levee (GFC 1997c). The FWC seeks to expand the range of public use in the future by improving access and informing the public of opportunities for wildlife viewing and other non-consumptive activities (FWC 1997b).

Deer hunting is the primary public use at Rotenberger. Other game species sought include wild hogs, snipe, and waterfowl. While harvest data is not consistently available for game species other than white-tailed deer, a 2001 report by the FWC used hunter surveys conducted in 1999-2000 to estimate the total hunter days for all game species. Survey results estimated the average likely number of hunter-days at 1,938, with a range between 1462 and 2,414 hunter-days, from August 28, 1999 to March 5, 2000 (Linda 2001). The 2003 annual deer harvest report indicates that the average annual deer harvest summed across all seasons (archery, muzzle-loading gun, general gun-walk, and general gun-vehicle) between July, 1997 and June 2003 was 13 deer. Harvests ranged from a minimum of six deer in 2002-03 to 28 deer harvested in 2001-02. The average deer-hunting pressure during this same time period was estimated at between roughly 500 and 1,000 person-days per year.

Because of short hydroperiods, much frogging and fishing is not possible, nor is it likely to be in the future. Fishing is generally limited to borrow pits along Powerline levee and Miami Canal bank. While hydropattern restoration may result in increased production of forage fish for wading birds, there will only be a few miles of distribution canal within the area, making fishing from motorboats limited. Fishing access is currently provided for motorboats and airboats from the L-4 North, Powerline, Miami Canal, and Manley Ditch levees, with public access allowed at various points along the north area boundary levee (GFC 1997c).

A 2003 FWC report indicated that the Rotenberger WMA contributed a total of \$127,425 to the state economy in 2001, with between \$54,993 and \$109,836 in surplus revenue generation.

## **Lake Harbor Public Small Game Hunting Area**

Recreational opportunities available within the Lake Harbor Hunting Area include waterfowl hunting, bird watching, nature study, and photography. Fishing at Lake Harbor is extremely limited because water in the rice fields is too shallow and temporary for sport fish. However, fishing opportunities do exist in the Miami Canal, directly east of the property. Public use of off-road vehicles, all-terrain vehicles, and airboats is prohibited.

During the waterfowl hunt season, other public activities are suspended. Annual harvest reports for Lake Harbor indicate that the average annual waterfowl harvest (excluding early teal) between 1997 and 2003 was 447. This harvest number excludes special youth hunts. Harvests ranged from a minimum of 144 ducks in 2001-02 to 847 ducks in 1999-2000. The average number of hunters permitted during this same time period was 561 annually.

In addition to the three aforementioned areas, other opportunities exist for resident and visitor recreation either within or near the EAA. A brief review of these follow.

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### **Stormwater Treatment Areas**

Within the EAA, there are a total of six Everglades Construction Project Stormwater Treatment Areas (STA's) in various stages of construction. These man-made wetlands, when completed, offer a potentially valuable recreational resource for the citizens of South Florida. To date, hunting has only been permitted in one STA (#5). The annual FWC report for 2002-03 waterfowl hunt season indicated that 500 hunters were permitted and 1,715 ducks were harvested.

**Table E.1.1.37 - Alligator harvest values for EWMA, Lake Okeechobee, and Holey Land WMA.**

Wholesale Value of Public Waters Harvest											
Area	Year	Alligators Harvested	Ave. Size (ft)	Hide Price	Est. Hide Value	Est. Meat Yield (lbs)	Est. Meat Value	Total Wholesale Value	Economic Impact Multiplier <sup>1</sup>	Total Economic Impact	Est. No. Jobs <sup>2</sup>
Everglades & Francis S. Taylor WMA	2000	71	9.36	\$27.25	\$18,109	58.2	\$0	\$18,109	1.73	\$31,329	0.6
	2001	86	9.39	\$28.25	\$22,813	58.9	\$0	\$22,813	1.73	\$39,466	0.7
	2002	89	8.42	\$18.00	\$13,489	40.3	\$0	\$13,489	1.73	\$23,336	0.4
	Mean	82	9.06	\$24.50	\$18,137	52.5	\$0	\$18,137	1.73	\$31,377	0.6
	Std. Dev.	9.6	0.552	\$5.651	\$4,662.1	10.52	--	\$4,662.1	--	\$8,065.5	0.15
	1998	740	8.21	\$16.89	\$102,614	36.9	\$136,707	\$239,320	1.73	\$414,024	7.8
Lake Okeechobee	1999	744	8.42	\$22.00	\$137,819	40.3	\$150,032	\$287,850	1.73	\$497,981	9.4
	2000	973	8.81	\$27.25	\$233,591	47.2	\$241,061	\$474,651	1.73	\$821,146	15.5
	2001	577	9.37	\$28.25	\$152,733	58.4	\$151,735	\$304,468	1.73	\$526,730	10.0
	2002	435	8.31	\$18.00	\$65,067	38.5	\$67,047	\$132,114	1.73	\$228,557	4.3
	Mean	694	8.62	\$22.48	\$138,365	44.3	\$149,316	\$287,681	1.73	\$497,688	9.4
	Std. Dev.	202.0	0.475	\$5.186	\$63,097.9	8.82	\$61,948.9	\$124,277.4	--	\$214,999.9	4.07
Holey Land WMA	2000	2	9.9	\$27.25	\$540	70.7	\$0	\$540	1.73	\$933	0.0
	2001	10	9.3	\$28.25	\$2,627	56.9	\$0	\$2,627	1.73	\$4,545	0.1
	2002	9	8.3	\$18.00	\$1,345	38.4	\$0	\$1,345	1.73	\$2,326	0.0
	Mean	7	9.2	\$24.50	\$1,504	55.3	\$0	\$1,504	1.73	\$2,602	0.0
	Std. Dev.	4.4	0.81	\$5.651	\$1,052.9	16.24	\$0.0	\$1,052.9	--	\$1,821.5	0.03

<sup>1</sup> Multiplier based on estimates of Public Waters Harvest in 1995 (Southwick Assoc. 1996)

<sup>2</sup> Based on one job per \$52,880 of total economic impact

**Table E.1.1.38 - Direct fee revenues associated with alligator harvests in EWMA, Lake Okeechobee, and Holey Land WMA**

Area	Year	Harvest Licenses		Agent License		Total License		Tags		Total Tag		Total PW Hunt		Egg Permits		Egg Permit		Total Egg		Total Direct	
		Sold	Fee	Sold	Fee	Revenue	Revenue	Sold	Fee	Revenue	Revenue	Sold	Fee	Revenue	Revenue	Sold	Fee	Revenue	Revenue	Revenue	Revenue
Everglades & Francis S. Taylor WMA	2000	63	\$250	69	\$50	\$19,215		73	\$10	\$1,260	\$20,475		4,794	\$5	\$23,970		\$44,445				
	2001	63	\$250	69	\$50	\$19,215		96	\$10	\$1,260	\$20,475		4,113	\$5	\$20,565		\$41,040				
	2002	63	\$250	69	\$50	\$19,215		98	\$10	\$1,260	\$20,475		7,957	\$5	\$39,785		\$60,260				
	Mean	63	\$250	69	\$50	\$19,215		89	\$10	\$1,260	\$20,475		5,621	\$5	\$28,107		\$48,582				
	Std. Dev.	--	--	--	--	--		13.9	--	--	--	--		2,051.2	--	\$10,256.0		\$10,256.0			
Lake Okeechobee	1998	300	\$250	330	\$50	\$91,500		740	\$10	\$7,400	\$98,900		12,912	\$5	\$64,560		\$163,460				
	1999	247	\$250	272	\$50	\$75,335		744	\$10	\$7,440	\$82,775		10,518	\$5	\$52,590		\$135,365				
	2000	828	\$250	911	\$50	\$252,540		973	\$10	\$9,730	\$262,270		14,682	\$5	\$73,410		\$335,680				
	2001	395	\$250	435	\$50	\$120,475		577	\$10	\$5,770	\$126,245		135	\$5	\$675		\$126,920				
	2002	623	\$250	685	\$50	\$190,015		435	\$10	\$4,350	\$194,365		6,762	\$5	\$33,810		\$228,175				
	Mean	479	\$250	526	\$50	\$145,973		694	\$10	\$6,938	\$152,911		9,002	\$5	\$45,009		\$197,920				
	Std. Dev.	242.6	--	266.9	--	\$73,999.0		202.0	--	\$2,020.1	\$74,540.5		5,776.9	--	\$28,884.5		\$86,652.8				
Holey Land WMA	2000	5	\$250	6	\$50	\$1,525		10	\$10	\$100	\$1,625		0	\$5	\$0		\$1,625				
	2001	5	\$250	6	\$50	\$1,525		10	\$10	\$100	\$1,625		0	\$5	\$0		\$1,625				
	2002	5	\$250	6	\$50	\$1,525		10	\$10	\$100	\$1,625		0	\$5	\$0		\$1,625				
	Mean	5	\$250	6	\$50	\$1,525		10	\$10	\$100	\$1,625		0	\$5	\$0		\$1,625				
	Std. Dev.	--	--	--	--	--		--	--	--	--	--		--	--	--		--			

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## **Everglades and Francis S. Taylor WMA**

The Everglades and Francis S. Taylor WMA (EWMA) is located downstream of the EAA, within Water Conservation Areas (WCA's) 2 and 3. The EWMA offers hunting, fishing, frogging, wildlife viewing, and camping opportunities.

Recreational users can access the EWMA from any one of the 37 boat ramps located along the canals running through and surrounding the area. Some ramps in WCA 3 provide access to nearly 500,000 acres of marsh and 100 miles of canals. There are four ramps situated along the L-5 canal, which runs along the boundary between the EAA to the north and the EWMA to the south. One of these boat ramps provides access to the Miami Canal, another allows access to the North New River Canal and EWMA marsh; the other two ramps provide access to the WCA marsh only. Some of the boat ramps are associated with recreational areas, such as Loxahatchee Recreational Area, Sawgrass Recreational Area, Everglades Holiday Park, Thompson Trail, and Mac's Fish Camp. These facilities, along with several along Tamiami Trail, provide boat ramps, camping facilities, boat rentals, airboat tours, fishing guides, bait and tackle supplies, and food. During 1997, commercial airboat tours out of Everglades Holiday Park transported 116,306 tourists into nearby Everglades canals and marsh (USACE and SFWMD 1999b).

Within the interior EWMA, there are approximately 65 camps, which are used as weekend retreats and hunting camps (GFC 1997a). These camps consist of permanent buildings constructed by private individuals on islands or on pilings over the water.

Freshwater fishing is an important public recreational activity, especially along the 258 miles of canals. The most popular sportfish are bass and sunfish; but other gamefish include black crappie, bullheads, and several exotic species. Other than Lake Okeechobee, the canal system within the EWMA has proven to be the most popular location for holding bass tournaments in South Florida. Excluding Lake Okeechobee, 117 of the 180, or 65% of the bass tournaments in the Everglades region were conducted within the canal system of the EWMA in Fiscal 1997-98. In the same fiscal year, an estimated 4,312 participants landed 6,759 bass, with a combined weight of 16,920 pounds (USACE and SFWMD 1999b). Approximately 95% of the WCA 3A tournaments originate at Everglades Holiday Park, with most fishing pressure likely concentrated in the L-67A canal.

Game species sought by hunters include waterfowl, deer, snipe, and wild hogs. Frogging and most hunting is done from airboats. As is the case in other areas, harvest data is not consistently available for game species other than white-tailed deer. However, a 2001 report by the FWC used hunter surveys conducted in 1999-2000 to estimate the total hunter days for all game species. Survey results estimated that there was roughly 2,190 hunter-days from August 28, 1999 – March 5, 2000. This estimate has a range is from just over 1,600 to potentially more than 2,700. The 2003 annual deer harvest report indicates that the average annual deer harvest summed across all seasons (archery, muzzle-loading gun, general gun-walk, and general gun-vehicle) was 9, between July, 1997 and June, 2003. Harvests ranged from a minimum of two deer in 1997-98 to 17 deer harvested in 2002-03. The average deer-hunting pressure during this same time period was estimated as 449 person-days per year, with a range of between 228 and 670.

Alligator hunting is allowed as part of the FWC's Public Waters Alligator Hunt program. Alligator egg collection is performed under regulations when alligator nest production and commercial market conditions allow. Between the years 1998 and 2002, a range of between 3,900 and 6,875 alligator eggs were harvested from the EWMA. The economic impact of this egg harvest was estimated at an average of \$916,953, with a range of between about \$600,000 and \$1.2 million per year. In the 2000 to 2002 hunt seasons, an estimated 89 alligators were harvested. The estimated economic impact of this harvest was

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between \$53,000 and \$88,000. For the 2000 to 2002 hunt seasons, 68 harvest licenses and 136 tags were sold as well as an average annual 5,621 eggs. The direct annual average fees from these is estimated at roughly \$46,000, with the range being between \$36,000 and \$56,000. See Table E.1.1.39 for economic impact of alligator egg harvest.

The previously noted report indicated that that the direct economic contribution of the EWMA to the state's economy was between \$46.46 million and \$114.46 for 2001.

### **Lake Okeechobee**

Lake Okeechobee provides numerous recreational opportunities, such as fishing, boating, airboating, picnicking, sightseeing, camping, swimming, hunting, biking, and hiking (USACE and SFWMD 1999a). In 1996, recreation levels at Lake Okeechobee were estimated at over 64,000 visitor-hours, with an annual value of over \$78 million (USACE 1998). As of 1987, there were 18 marinas on the Lake, supplying a total of 705 wet slips and 315 dry slips. Boat access is achieved through the use of 40 boat ramps with 65 lanes (Bell 1987).

Lake Okeechobee is recognized as supporting one of the best recreational fisheries in the nation, with the littoral zone along the Lake's western shore providing valuable habitat for the Lake's popular sport fishery. Sportfish include largemouth bass, black crappie, bluegill, and red ear sunfish. The sport fishing is believed to attract sports fishermen from around the country. See Table 1.1.40 Fish hours for angler hours and harvest values and Table 1.1.41 for permitted largemouth bass tournament applications.

**Table E.1.1.39 - Alligator egg harvest values for EWMA and Lake Okeechobee**

Area	Year	Eggs Retained	Value of Hatching	Hatch Rate	Value of Egg	Hatchlings Est. No.	Farm Survival Rate	Farm Gators Harvested	Ave. Value	Total		Economic		Est. No. Jobs <sup>2</sup>
										Value of Egg Harvest	Wholesale Value	Impact Multiplier <sup>1</sup>	Economic Impact	
Everglades & Francis S. Taylor WMA	1998	5,021	\$25.00	0.8	\$20.00	4,017	0.9	3,615	120	\$433,814	1.67	\$724,470	11.2	
	1999	5,072	\$25.00	0.8	\$20.00	4,058	0.9	3,652	120	\$438,221	1.67	\$731,829	11.3	
	2000	4,794	\$25.00	0.8	\$20.00	3,835	0.9	3,452	155	\$535,010	1.67	\$893,467	13.8	
	2001	4,113	\$25.00	0.8	\$20.00	3,290	0.9	2,961	154	\$456,049	1.67	\$761,603	11.7	
	2002	7,957	\$25.00	0.8	\$20.00	6,366	0.9	5,729	154	\$882,272	1.67	\$1,473,395	22.7	
	Mean	5,391	\$25.00	0.8	20.00	4,313	0.9	3,882	\$141	\$549,073	1.67	\$916,953	14.1	
	Std. Dev.	1,484.3	\$0.000	--	\$0.000	1187.4	--	1068.7	\$18.8	\$190,686.6	--	\$318,446.7	4.90	
Lake Okeechobee	1998	12,912	\$25.00	0.8	\$20.00	10,330	0.9	9,297	120	\$1,115,597	1.67	\$1,863,047	28.7	
	1999	10,518	\$25.00	0.8	\$20.00	8,414	0.9	7,573	120	\$908,755	1.67	\$1,517,621	23.4	
	2000	14,682	\$25.00	0.8	\$20.00	11,746	0.9	10,571	155	\$1,638,511	1.67	\$2,736,314	42.1	
	2001	135	\$25.00	0.8	\$20.00	108	0.9	97	154	\$14,969	1.67	\$24,998	0.4	
	2002	6,762	\$25.00	0.8	\$20.00	5,410	0.9	4,869	154	\$749,771	1.67	\$1,252,117	19.3	
	Mean	9,002	\$25.00	0.8	\$20.00	7,201	0.9	6,481	\$141	\$885,521	1.67	\$1,478,819	22.8	
	Std. Dev.	5776.9	\$0.000	--	\$0.000	4621.5	--	4159.4	\$18.8	\$590,922.6	--	\$986,840.8	15.20	

<sup>1</sup> Multiplier based on estimates of Alligator Farming in 1995 (Southwick Assoc. 1996)

<sup>2</sup> Based on one job per \$64,936 of total economic impact

**Table 1.1.40 - Angler hours, harvest , and fish per hour (success) estimated from creel surveys in Areas 1 and 2 of Lake Okeechobee.**

Year	Angler Hours			Harvest (numbers of fish)				Harvest (fish per hour)				
	Largemouth bass	Black crappie	Bluegill	Redear	Total	Largemouth bass	Black crappie	Bluegill	Redear	Total		
July 1998- June 1999	308,553	361,089	19,229	12,450	701,321	221,724 (0.72)	526,908 (1.46)	36,727 (1.91)	34,991 (2.81)	820,350 (1.17)		
July 1999- June 2000	218,249	443,196	23,123	5,503	690,071	170,270 (0.78)	979,247 (2.21)	75,091 (3.25)	18,245 (3.32)	1,242,853 (1.80)		
July 2000- June 2001	33,314	238,479	7,833	607	280,233	20,329 (0.61)	344,854 (1.45)	26,159 (3.34)	1,037 (1.71)	392,379 (1.40)		
Mean	186,705	347,588	16,728	6,187	557,208	137,441 (0.70)	617,003 (1.70)	45,992 (2.83)	18,091 (2.61)	818,527 (1.46)		
Std. Dev.	140,304.6	103,024.1	7,945.8	5,951.0	239,933.6	104,634.1 (0.086)	326,651.9 (0.437)	25,748.2 (0.800)	16,977.5 (0.822)	425,239.9 (0.319)		

**Table 1.1.41 - Summary of permitted largemouth bass tournament exemption applications for Lake Okeechobee (July 1998 - June 2001)**

Year	No. of tournaments	No. of tournament-days	Mean no. of anglers	Actual anglers	Total fish weight (lbs)
July 1998- June 1999	471	550	70	12,493	48,178
July 1999- June 2000	503	571	69	12,858	42,534
July 2000- June 2001	337	403	96	9,577	21,345
Mean	437	508	78	11,643	37,352
Std. Dev.	88.1	91.5	15.3	1,798.2	14,147.1

Lake Okeechobee is arguably the most important freshwater recreational fishery in the state of Florida, with an asset value assessed at nearly \$100 million in 1987 dollars and an annual economic impact of approximately \$28 million for the local economy. Creel survey results from July 1998 – June 2001 indicate that potentially between 317,000 and 797,000 annual angler-hours were spent on recreational fishing. It is also estimated that 96% of these hours were spent fishing for largemouth bass and black crappie.

Several major sport fishing tournaments are held on the Lake annually, bringing significant revenues to the marinas, fishing guides, hotels, and supporting industries along the Lake. Between July 1998 and June 2001, a range of between of 349 to 525 fishing tournaments were held, involving approximately roughly 10,000 and 13,350 anglers. The total annual catch for these tournaments is estimated to have averaged 37,352 pounds.

Lake Okeechobee also supports several commercial fishing endeavors, including fisheries for bullhead catfish, gizzard shad, striped mullet, and gar. The commercial fishing industry utilizes primarily haul seines to catch bluegill, red ear sunfish, and catfish. Bullhead, shad, gar, mullet, and tilapia are also caught, although since the net ban, mullet are no longer considered a commercial species. Commercial harvest data collected from July, 1998 through June, 2001 indicates that between 2.309 to 2.637 million fish were commercially harvested annually. Approximately 70% of this harvest consisted of catfish. The annual wholesale value of the commercial fishery was estimated at approximately \$2,326,932 in 1998. The industry employed about 210 fishermen and land side workers (USACE and SFWMD 1999a). See Table E.1.1.42 below for a summary of total commercial catch weights.

**Table E.1.1.42 - Lake Okeechobee commercial catch by weight (July 1998 - June 2001)**

<b>Year</b>	<b>Catfish</b>	<b>Bluegill &amp; Red ear Sunfish</b>	<b>Shad &amp; Gar</b>	<b>Tilapia</b>	<b>Total</b>
July 1998-June 1999	1,653,369	181,527	470,592	9,021	2,314,509
July 1999-June 2000	1,867,682	234,689	522,692	16,469	2,641,532
July 2000-June 2001	1,657,647	283,573	424,556	97,764	2,463,540
Mean	1,726,233	233,263	472,613	41,085	2,473,194
Std. Dev.	122,517.4	51,037.9	49,099.2	49,226.8	163,725.1

\*Weight is in kg. GFC 2001

There are also commercial fisheries on the Lake that harvest Florida soft-shelled turtle. Some individual yields in exceed 13,640 kg (30,000 lbs) annually. The majority of the harvest is prepared for shipment to Japan, or sold locally, primarily to the Miccosukee tribe (USACE and SFWMD 1999a).

The previously referenced 2003 economic impact report, released by the FWC, indicated that the direct economic contribution generated by freshwater fishing Lake activity was estimated at \$117.8 million in 2001.

The Lake Okeechobee scenic trail runs 40 miles along the Lake’s northwest rim and provides several opportunities for wildlife viewing, including the boardwalk at the Parrot Avenue Wayside Park, the Okee-Tanti Recreation Area, and the Indian Prairie and Harney Pond canal access areas. Hikers can traverse four contiguous sections of the Florida Trail, from 20 to 36 miles long, which run along the dike encircling the Lake.

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Heavy seasonal waterfowl utilization of the Lake attracts tourists and recreational enthusiasts, such as hunters. Common waterfowl species include ring-necked duck, American pigeon, Northern pintail, green-winged teal, blue-winged teal, lesser scaup, and Florida duck. Since 1989, 1,847 ducks have been banded on Lake Okeechobee. These includes 364 mottled ducks, 29 wood ducks, and 1,454 ring-necked ducks. Although waterfowl harvest data for Lake Okeechobee is not currently collect, document reports of banded waterfowl being harvested by hunters on or around the Lake is still done.

Alligator hunting is currently administered as part of the FWC's Public Waters Alligator Hunt program. Lake Okeechobee is divided into four alligator management units, and a set number of alligator harvest permits, based on annual alligator population survey data, are issued for the Lake each year.

Alligator egg collection is permitted when alligator nest production and commercial market conditions allow. Between the years 1998 and 2002, an average of 9,002, with a range of between 3,225 to 14,779, alligator eggs were harvested from Lake Okeechobee. The total economic impact of this egg harvest was estimated to average \$1.479 million annually. In the 1998-2002 hunt seasons, a range of between 492 and 896 alligators were harvested. The estimated economic impact of this harvest was \$497,688, with the range being between about \$300,000 and \$700,000. The harvest licenses, tags and egg permits sold yielded an average of \$171,600 annually, with a range from about \$98,000 to \$245,000.

### **St. Lucie and Caloosahatchee Estuaries**

The Caloosahatchee region's boating, diving, and fishing are very popular recreational activities. The Caloosahatchee River provides approximately 67 miles of navigable waterway with ten USACE recreation facilities that include boating, fishing, picnicking, and camping. Several other river bodies also offer recreational opportunities in the region (USACE and SFWMD 1999a). Recreational resource use is substantial and is expected to increase.

Diving and fishing are very popular in the St. Lucie estuary. The St. Lucie Canal provides approximately 34 miles of navigable waterway, with four USACE recreational facilities that include boating, fishing, camping, and day-use facilities. The upper east coast region as a whole contains four Aquatic Preserves, four state parks, and other recreational areas. Overall, recreational usage is heavy and is expected to increase in the future (USACE and SFWMD 1999a).

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## **INTERVIEWS**

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# **Appendix E.1.1.1**

## **WCA Boat Ramps**

