Lee County Board Of County Commissioners
Agenda Item Summary **Blue Sheet No. 20030175**

1. REQUESTED MOTION:

ACTION REQUESTED: Approve Draft Manatee Protection Plan for distribution to governmental agencies and public comment.

WHY ACTION IS NECESSARY: Distribution will formally request review and comments of the draft Plan.

WHAT ACTION ACCOMPLISHES: Solicits comments that will be considered by staff and incorporated as appropriate before bringing final Plan for Board adoption.

2. DEPARTMENTAL CATEGORY: COMMISSION DISTRICT #:		3. MEETING DATE:
C8B		02-25-2003

4. AGENDA:	5. REQUIREMENT/PURPOSE: (Specify)		6. REQUESTOR OF INFORMATION:	
X CONSENT	X STATUTE	370.12(2)(t)	A. COMMISSIONER	
ADMINISTRATIVE	ORDINANCE		B. DEPARTMENT	Public Works
APPEALS	ADMIN. CODE		C. DIVISION	Natural Resources
PUBLIC	OTHER		BY:	Roland Ottolini, P.E.
WALK ON				
TIME REQUIRED:				

7. BACKGROUND:

Florida Statutes requires Lee County to complete a comprehensive manatee protection plan. Staff has completed a draft plan that is consistent with the general statutory requirements. Prior to Board adoption, staff is recommending the plan be routed to the Florida Fish and Wildlife Conservation Commission for review and comment. The transmittal letter will ask that comments be returned to the County within 60 days if possible. This time period will also allow local municipalities to review the plan and discuss options for participating in this plan or complementary city plans. The general public is also expected to have comments regarding the plan and will have an opportunity to communicate with staff during this period.

Additionally, it has been suggested by US Fish and Wildlife Service officials that a comprehensive manatee protection plan is a critical step toward mitigating manatee impacts such that current permitting restriction can be lifted or modified. We will distribute a copy to USFWS asking them to review and provide comments within the same 60 day time frame.

After the comments are received, staff will prepare a report summarizing the issues and any substantive changes that have been made. It is anticipated that this would become a final draft that the Board would schedule for formal public hearings and adoption.

It should be recognized that the draft has numerous areas where graphics, typographical errors and dated materials will be corrected or updated over the comment period. We do not believe these corrections impede the review of the substance of the document.

8. MANAGEMENT RECOMMENDATIONS:

9. RECOMMENDED APPROVAL:

A Department Director	B Purchasing or Contracts	C Human Resources	D Other	E County Attorney	F Budget Services				G County Manager
					OA	OM	Risk	GC	
2.10.03				2/11/03	2/11/03	2/11/03	2/11/03	2/11/03	2.10.03

10. COMMISSION ACTION:

_____ APPROVED
_____ DENIED
_____ DEFERRED
_____ OTHER

Rec. by CoAtty
Date: 2/11/03
Time: 8:30 am
Forwarded To: Budget 2/11/03 9:20 am

RECEIVED BY COUNTY ADMIN.
2-11-03
10:45
COUNTY ADMIN. FORWARDED TO: PL
2/11/03
4:30 PM

LEE COUNTY
MANATEE PROTECTION PLAN

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Executive Summary

This Manatee Protection Plan is organized to present first a discussion of manatees and an analysis of manatee abundance in Lee County. An evaluation of boating activity patterns, and the identification of existing and potential sites for the development or expansions of boat facilities follow this. Finally, thresholds and policies are presented to outline Boat Facility sighting criteria in Lee County. Once finalized and approved by all parties, these thresholds and policies will explain how the plan is to be used and how preferred boat facility locations differ from non-preferred locations.

Lee County Manatee Protection Plan

1. Introduction

1.1 Setting

Manatees have been found in Lee County as long as records have been documented. There are three species of manatee in the genus *Trichechus*. Only one species occurs in Florida and it is recognized as a valid subspecies *Trichechus manatus latirostris*. There are morphological and genetic differences between the subspecies (Domning and Hayek, 1986). A biological basis for restricting gene flow (breeding of subspecies) may result from the cooler waters of the western Gulf of Mexico shoreline and the strong northward flow of the Florida Current through the Straits of Florida, both limiting interchange of individuals from each population.

Knowledge of critical habitats is essential to protecting this species. Manatees are dependent upon aquatic vegetation as a food source; must have access to fresh water; and are limited in range based on susceptibility to cold stress. They rarely travel through deeper waters and generally use such water only as migration routes between coastal regions (Hartman 1979).

The State of Florida prohibited the hunting or killing of manatees in 1893. The Florida Manatee was placed on the United States Endangered Species list in 1973 (USFWS 1989) and is also covered by the Marine Mammal Protection Act. The Florida Manatee Recovery Plan originally developed by the U.S. Fish and Wildlife Service in 1980, helps to identify and guide species recovery needs. Revisions were made to the plan in 1989 and 1996 and an updated version is currently being drafted. Manatees have received significant attention in Florida as the result of recent efforts by the State of Florida to expand protective zones in 13 "key" counties that limit boating speeds and access to certain manatee areas.

The cooperative State-County speed limit programs, a part of the long-range recovery goal for the species, are given authority under the Florida Manatee Sanctuary Act of 1978 (370.12(2) FS). The first local/state governmental efforts to locally protect manatees in Lee County began in February 1979 with a vessel speed zone in the Orange River and portions of the Caloosahatchee River. In November 1989 Lee County's Caloosahatchee River vessel speed zone plan to protect manatees became effective, and regulated vessel speeds from the Franklin Locks to the mouth of the Caloosahatchee River. The Florida Department of Environmental Protection (FDEP) contacted Lee County in December 1993 by letter to propose additional new countywide speed zones. The county held 27 public workshops during March and April 1994 to solicit comments on the proposed State plan and to develop its own speed zone proposal. This proposal was ultimately rejected and the State proposed new rule making in 1995. This 1995 proposal was disallowed as a result of an administrative challenge the state had to amend their countywide speed zone proposal and reinitiate rule making. During this time, the State Bureau of Protected Species Management was

moved from the FDEP to the Florida Fish and Wildlife Conservation Commission (FWC). The revised/amended countywide rule was finally adopted by the FWC in November 1999 (FWC Rule 68C-22.005 F.A.C.). (See Appendix II for the Boat Speed Zones)

1.2 Purpose

The purpose of this document is to provide for countywide, comprehensive protection of the West Indian Manatee. This document has been prepared in accordance with the directive from the Governor and Cabinet of Florida that each of 13 counties known to have a high population of manatees create a Manatee Protection Plan (MPP). The purpose of the Lee County Manatee Protection Plan is to reduce boat related manatee mortality, protect manatee habitat, promote boating safety, and increase public awareness of the need to protect manatees and their environment, specifically in Lee County. The MPP is also intended to satisfy the new requirements of Florida Statutes 370.12(2)(t) and may satisfy exemption prerequisites for marina developments of regional impact in accordance with Florida Statutes 380.06(24)(k).

1.3 Objectives

The long range recovery goal for the West Indian Manatee per the Marine Mammal Protection Act of 1972, is to maintain the "...health and stability of the marine ecosystem, "and their numbers at...optimum sustainable population," levels (USFWS 1989). Another goal of the Lee County MPP as outlined by the Florida Manatee Recovery Plan is to downlist the West Indian Manatee from 'endangered' to threatened'. Specific goals, objectives, and policies to achieve the reduction of manatee mortality and injury, the continued existence of suitable habitat, and minimization of harassment are contained in this plan.

2.0 Inventory of Existing Conditions

2.1 Manatee Habitat

Environmental requirements of the Florida manatee have been fairly well documented. Three critical manatee requirements include fresh water, warm-water in the winter months, and abundant submerged aquatic vegetation (SAV) for food (Reynolds et al. 1992). Manatees inhabit bays, estuaries, rivers and coastal areas where seagrasses and other vegetation are common (Reynolds and Odell 1991). Rather than any single environmental requirement other than minimum temperatures being critical to manatee survival in Florida, the interaction availability of aquatic vegetation, proximity to channels of at least 1.524 meters in depth and sources of freshwater probably best describe the critical combination for viable habitat.

2.1.1 Salinity and Fresh Water Sources

Natural freshwater sources in Lee County include most of the larger creeks and rivers. These sources include; Caloosahatchee River through the Franklin Locks, Trout Creek, Telegraph Creek, Orange River, Billy's Creek, Hancock Creek, Hendry Creek, Estero River, Spring Creek and the Imperial River. Artificial sources include the treated wastewater effluent sites in the Caloosahatchee River and freshwater discharge points of the Cape Coral Canal system, Ten Mile Canal, and many other drainage and residential canals.

2.1.2 Warm-Water Congregation Points

Manatees generally aggregate at warm-water discharges from December through February (and to a lesser extent in adjacent months) and then disperse to other areas during spring and summer months. The major warm-water refuge in Lee County is the Florida Power and Light plant with a cooling intake on the Caloosahatchee River and discharge into the Orange River (Packard *et al.*, 1984). The plant has an U.S. Environmental Protection Agency (EPA) National Pollution Discharge Elimination System (NPDES) variance for a once through discharge of cooling water. FPL has a state-approved manatee plan with prescribed actions to minimize the complete loss of warm-water during the winter months.

Several secondary warm-water sites are found within the general vicinity of the Caloosahatchee River and the Ft. Myers power plant. These include Matlacha Isles, Deep Lagoon, Cape Coral Canals, 10-Mile Canal, and the Franklin Locks. When the FPL power plant was down for repairs in January 1985, many manatees congregated at the Franklin Locks (Packard *et al.*, 1985). This phenomenon was repeated during temporary loss of warm water discharges during plant repowering in the winter of 2001/2002. Secondary treated wastewater discharged to the Caloosahatchee River may also serve as warm-water refuges as do some deeper quiet saltwater canals.

The Florida Power and Light (FPL) power plant warm-water discharge into the Orange and Caloosahatchee Rivers has been examined as part of the winter census taken by Bureau of Protected Species Management staff (Frohlich et al., unpublished).

2.1.3 Submerged Aquatic Vegetation

The SAV areas found in Matlacha Pass, San Carlos Bay and Estero Bay are very important to manatees as feeding areas. Although extensive SAV occur in Pine Island Sound, there is less apparent use by manatees, perhaps because of depth limtations.

Freshwater SAV also occurs in portions of the Caloosahatchee River. Water supply and flood management practices currently followed for Lake Okeechobee, however, can cause fluctuations in the distribution of SAV (and their elimination) periodically by causing significant and rapid changes in salinity and light transmission throughout the estuarine portions of the river. The greatest impact is on the upper estuarine portions of the river. This is the closest significant forage area to the FPL Power Plant. There has

been no significant SAV documented in the immediate area of the power plant discharge or the Orange River.

2.2 Patterns of Movements by Manatees in Lee County

The most detailed description of manatee abundance and distribution in Lee County is an unpublished manuscript by Frohlich *et al* (1994). They report on aerial survey data obtained during twice-monthly flights from January 1984 through December 1985. Based on the their observations, the annual use (distribution) of various water bodies by manatees was: Caloosahatchee River (including Orange River) 63%, Matlacha Pass 13%, Estero Bay 8%, Pine Island Sound 8%, and San Carlos Bay 7%. Frohlich *et al.* noted a greater disparity in manatee use between the Caloosahatchee River and the surrounding Bays in winter (December-February) compared to summer (June – August).

	Winter	Summer
Caloosahatchee River	80%	45%
Bays	20%	55%

In addition to aerial survey data, VHF tracking data have been used in GIS applications to show overall manatee distribution and use of Lee County waters. The western side of Pine Island above Regla Island and extending to Part Island in Pine Island Sound appears to be used very little, if at all by manatees. The principal reason for this may be that water depths (generally less than one meter) are too shallow for preferred manatee habitat (Frohlich *et al*). Matlacha Pass is highly used by manatees as a travel corridor between Charlotte Harbor and the Caloosahatchee River or other locations. Frohlich *et al* describe Matlacha Pass as being most heavily used by manatees in the summer and fall months. Estero Bay and Pine Island Sound also had higher use in the summer and fall months.

The electricity-producing power plant operated by Florida Power and Light (FPL) on the Caloosahatchee River produces a discharge of warm-water into the Orange River that is an important influence on manatee distribution as well as other estuarine life. Manatees aggregate near warm-water sources during cold weather events. A 1995-96 aerial survey conducted in the vicinity of the Fort Myers Power Plant produced the Lee County record high count of 434 manatees (Reynolds, 1996).

The power plant is expected to continue operations at this site and has just completed the process of replacing the old oil fueled generators with natural gas fired generators. With this repowering, a pipeline delivers natural gas, which should reduce threats to manatees and manatee habitat due to the elimination of the barge traffic that had delivered oil fuel from storage tanks located on Boca Grande (Charlotte Harbor). These fuel barges traversed important manatee foraging areas in Pine Island Sound, San Carlos Bay and the Caloosahatchee River.

3.0 Abundance and Distribution of Manatees in Lee County

Manatees are resident along the central part of the west coast of Florida in semi-isolated populations that are concentrated in rivers and estuaries that are of suitable depth and provide an adequate source of food and freshwater (Reynolds and Odell 1991). In Lee County, the largest concentration of manatees are found in the upper tidal reaches of the Caloosahatchee River near the Orange River and the warm-water outflow of the FPL power generating plant. Other areas of importance to manatees in Lee County include Matlacha Pass, Pine Island Sound, San Carlos Bay, and Estero Bay.

The following is an excerpt from the previously mentioned unpublished manuscript by Frohlich *et al.* This study confirms the importance of Lee County as manatee habitat in Florida.

> The best estimate of manatee population size in Florida at the time of the study was a minimum of 1200 (Ackerman, in prep). The high count of 238 in this study was 20% of that number. Even this is likely an underestimate since 338 manatees were counted (Reynolds and Wilcox 1985, 1994) in the Caloosahatchee and Orange Rivers alone on 19 January 1985, after the strongest cold front in several years. That was the largest single aggregation of manatees ever recorded to date. Using Reynolds' count, Lee County may account for as much as 38% of the 1200 estimate of the minimum population size.
>
> The striking change in the number and distribution of manatees from winter to summer is important. When manatees gather in relatively small areas like the FPL warm-water refuge, they are easier to detect and count than when dispersed in small groups over a wide area. However, we believe that the increase in numbers counted during the winter primarily reflects an influx of manatees into the study area. Most of the radio-tagged manatees left the study area at some time in summer; 77% of tagged manatees left at least once in June. Some tagged manatees went south to Collier County waters and some north to Charlotte Harbor, Sarasota Bay, and Tampa Bay. Winter cold fronts concentrated the year-round resident manatees from Lee County waters to the warm-water refuge, as well as attracting manatees from outside the study area.
>
> During winter, the effects of cold fronts, and the resulting lower water and air temperatures, apparently influenced manatee distribution. Conducting surveys immediately following cold fronts will maximize counts because manatees would be most tightly aggregated. During warm periods in winter, manatee counts are lower because the animals are dispersed in a variety of habitats, and possibly are traveling (Packard et al. 1989).

Manatees were not evenly distributed throughout the survey route. Year-round, the most manatees were seen in the Orange River and the Caloosahatchee from the S.R. 31 bridge to the U.S. 41 bridge, and the fewest were seen in the north and central portions of Pine Island Sound and the Caloosahatchee from the Franklin Locks to Alva. Distribution of manatees among the zones varied between winter (November-March) and summer (April-October). During winter, the FPL power plant effluent, the Orange River, and the Caloosahatchee River from I-75 to U.S. 41 had the highest counts. During summer, zones the FPL power plant effluent and Orange River had very low counts, while the Caloosahatchee from I-75 to U.S. 41 had the highest. Estero Bay and San Carlos Bay also had high counts in summer.

Significant seasonal differences in distribution existed between rivers and bays. During winter, there were significantly more manatees seen in the rivers than in the bays, while during the rest of the year there was no difference. In winter, the upper Caloosahatchee (including the Orange River) had significantly higher counts of manatees than all other water bodies. Over 42% of all sightings were in the Caloosahatchee River and 21% in the Orange River. This is a much greater proportion of the manatee sightings than would be expected based on the size of the two rivers alone.

Although counts of manatees in the Caloosahatchee and Orange Rivers were highest in winter, some manatees were present year-round. More manatees were seen in the rivers than the bays on 52 % of the surveys, despite the bays accounting for a much larger portion of the study area. Coastal areas such as Matlacha Pass, Estero Bay, and Pine Island Sound were most heavily used in the summer and fall months.

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Other areas in Lee County are also important to manatees as secondary warm-water refugia and feeding areas. Mezich (2000) states, in a draft report on the importance of the FPL Plant, that other warm-water areas include Deep Lagoon, Cape Coral Canals, Matlacha Isles, Ten Mile Canal and the Franklin Locks CHECK MAP. Feeding areas include seagrass beds, which are relatively abundant in the estuarine areas of Lee County.

Aerial survey data are used in GIS applications to illustrates locations of manatees and their relative abundance (Figures 1 – 4) UPDATE FIGURES. The FWC provided data for aerial surveys conducted over the entire County during 1984-85 (Figure X flight path), 1994-95 (Figure Y flight path) and 1997-98 (Figure Z flight path). The Estero Bay area was also surveyed during the 1986-88 period (Figure A flight path). It should be noted that points on the map indicate a sighting record that may contain one or more manatee.

Figure 1. Aerial Survey Manatee Sightings 1984-1985

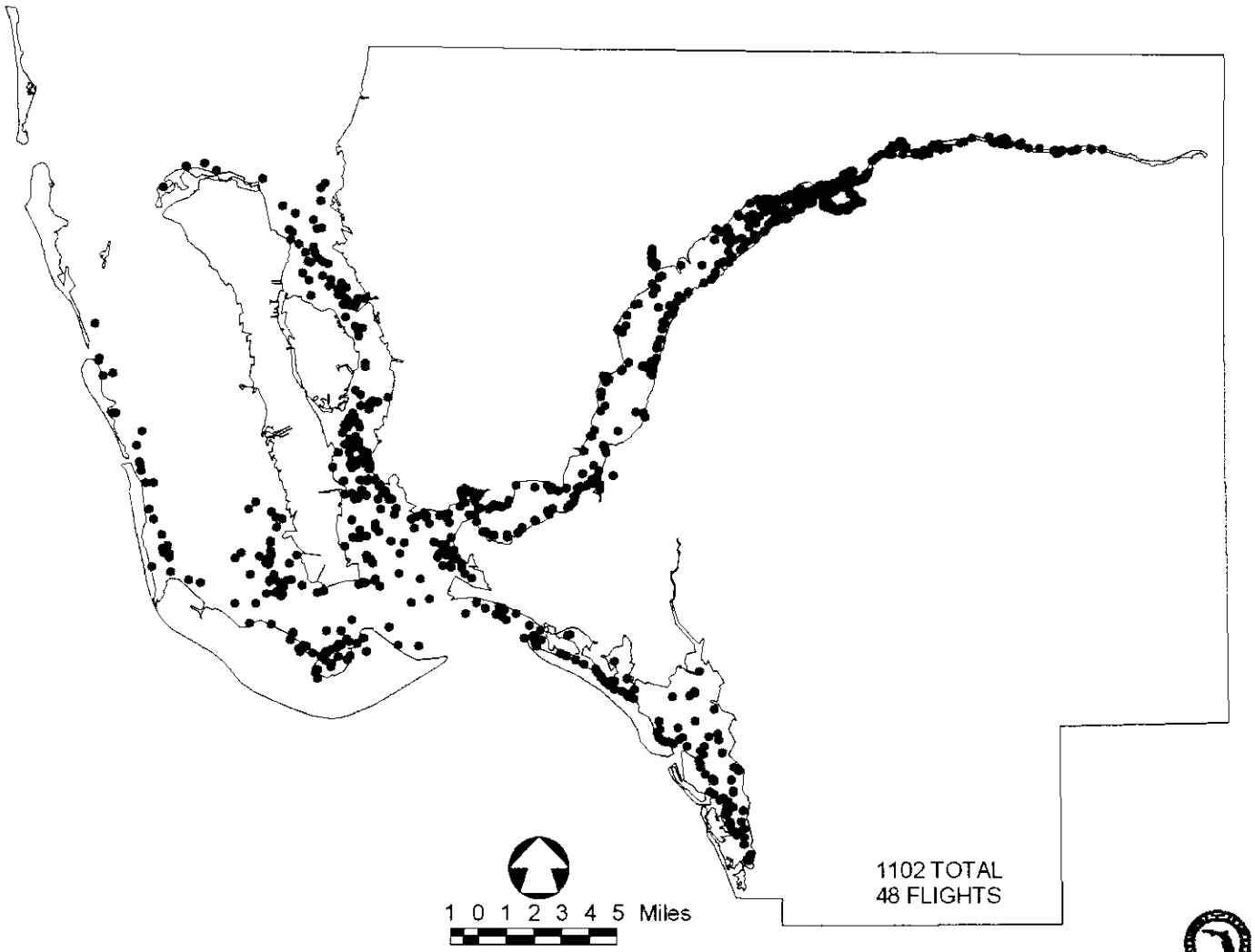


Figure 2. Aerial Survey Manatee Sightings in Estero Bay 1986-1988

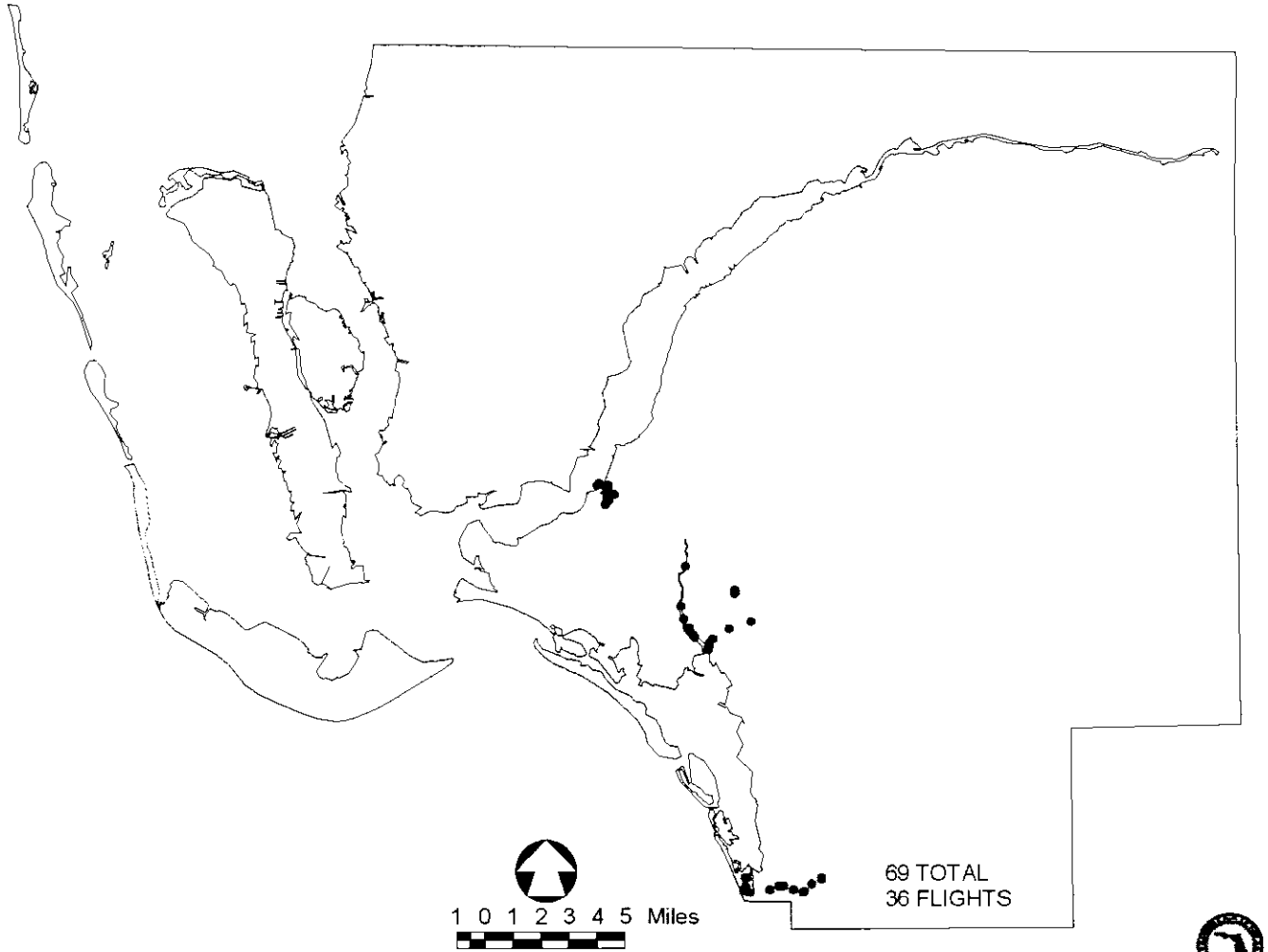
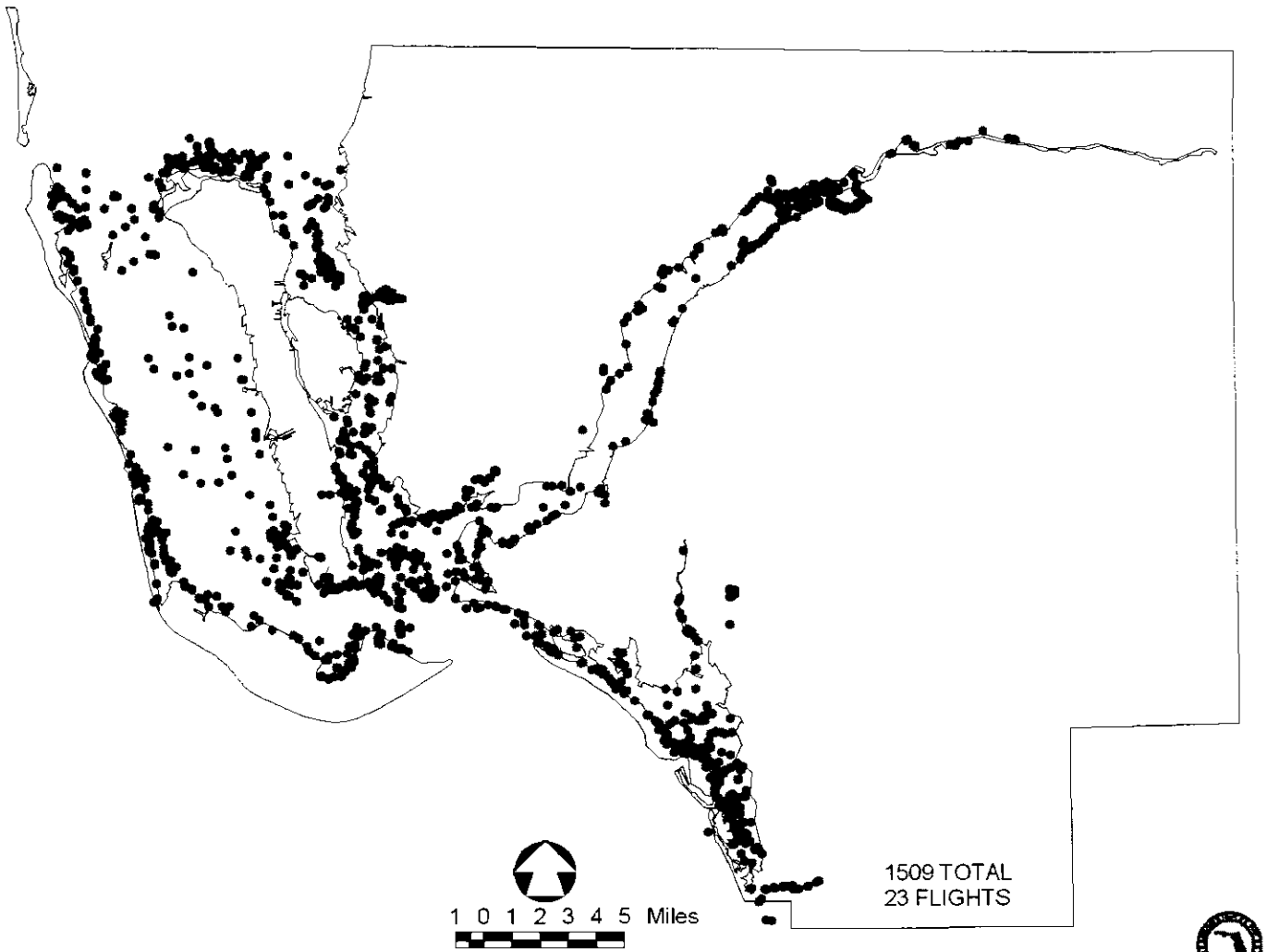
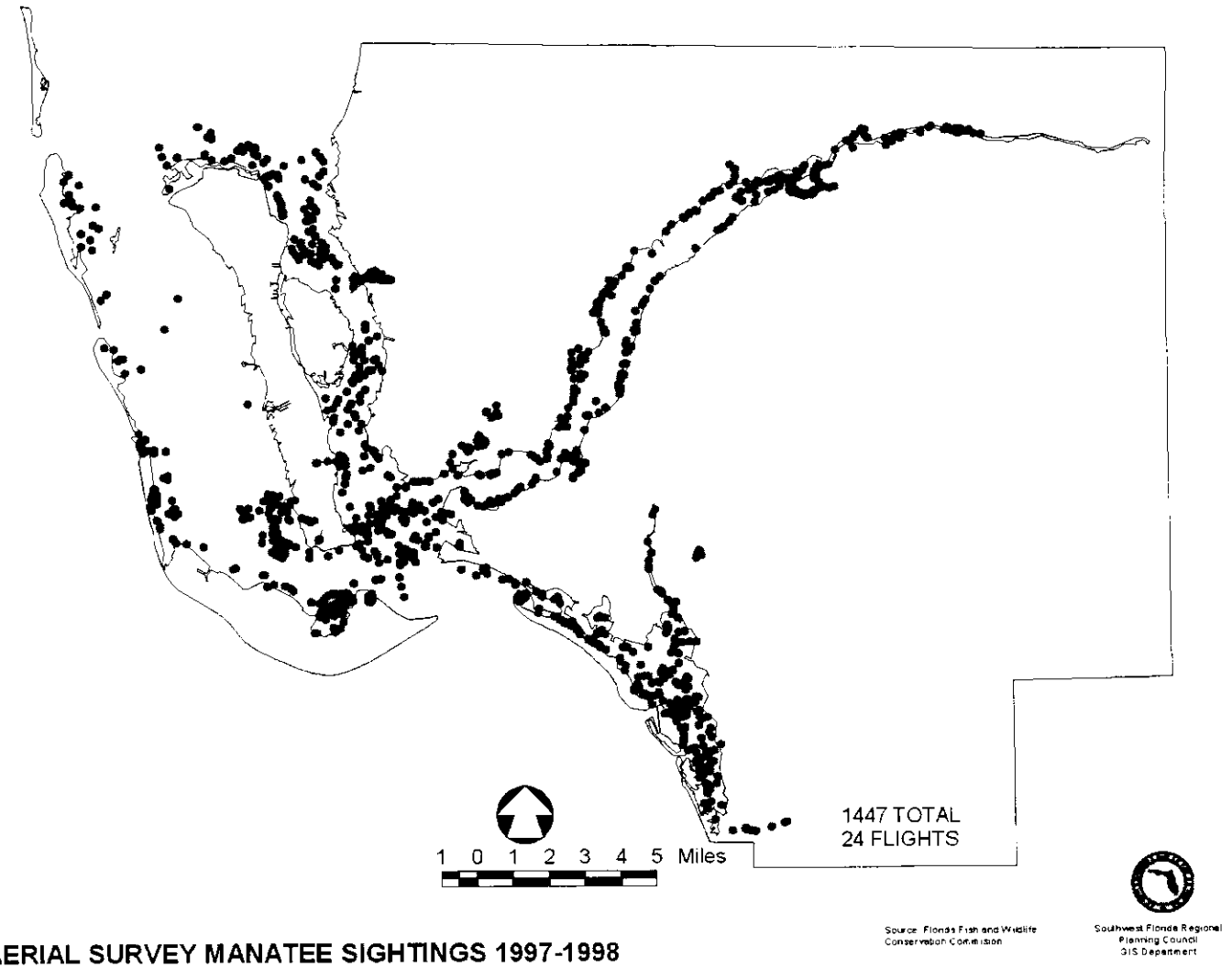


Figure 3. Aerial Survey Manatee Sightings 1994-95



AERIAL SURVEY MANATEE SIGHTINGS 1994-1995

Figure 4. Aerial Survey Manatee Sightings 1997-98



AERIAL SURVEY MANATEE SIGHTINGS 1997-1998

4.0 Mortality of Manatees in Lee County

Understanding where and how Florida manatees die is very important to the determination of management goals and program priorities. State manatee mortality data from 1974 through 2002 were obtained from FWC to accomplish this task. Table 1 presents Lee County Manatee Mortality by type for the reporting period and Table 2 presents Manatee Mortality by County for the reporting period. Data collection began about 1974 along the west coast of Florida by Federal and State agencies. The first recorded manatee death under this program for Lee County occurred in 1975.

The location of each manatee carcass found and reported to the FWC has been entered into a Geographic Information System (GIS). Carcass recovery location does not necessarily correspond with the exact location of death and almost certainly does not correspond exactly with the point of contact for watercraft mortality. Additional data are also available on the FWC web site at www.floridaconservation.org/manatee. Figure 5 shows the location of manatee carcasses recovered or verified by FWC staff. Dead manatees have been found in many areas of Lee County.

Mortality caused by watercraft tends to be of particular interest because it is a significant human caused source of mortality, and one that presents potential corrective management options in the form of vessel speed restrictions. Two areas, the Caloosahatchee River and Estero Bay have 54.4% and 24.6% of all watercraft deaths respectively. Together, these areas also have the largest number of total deaths from all causes (75.7%) with 61.7% from the Caloosahatchee River and 14% from Estero Bay. These data are very suggestive of the important role of the Caloosahatchee River for manatees particularly in the winter months. RECALCULATE THROUGH 2002

Natural death data provide some unusual information as the result of a high number of deaths, which occurred in the winter of 1982. The dinoflaggelate, which causes "red tide", appeared to be concentrated in small solitary filter-feeding tunicates of the family Mogulidae. Manatees were ingesting these tunicates while grazing for food near the mouth of the Caloosahatchee River (Buergelt *et al., 1984*). Thirty-seven manatees died in this manner according to FWC records. A red tide bloom also caused significant mortality in 1996.

Seasonally, overall west coast mortality is higher in the winter-spring (48.4% January - April). In Lee County, these months have 54.7% of manatee deaths. Seasonal summaries of deaths by categories illustrate strong contrasts in patterns of death. January - April corresponds to the period beginning with low temperature, which start rising in the spring and may also have high boating activities. June - September represent the wet high temperature season with slightly lower boating activity. Boat deaths in the winter-spring are higher than the summer (Figure 6-7) and highly concentrated in the Caloosahatchee River, however, a significant number of deaths also occur during the summer. This could be attributed to the increasing amount of year round residents in Lee County and summer boating activities. Perinatal deaths are

nearly twice as high in the summer than in the winter-spring (Figure 8-9). In all but a few cases, these perinatal individuals were found in sheltered waters. Deaths due to natural causes are extremely skewed to the winter-spring months when compared with the summer months (Figure 10-11). Those manatees with an undetermined cause of death are more than four times higher in the winter -spring than in the summer (Figure 12-13). RECALCULATE THROUGH 2002

As shown on Table 3, statewide watercraft mortality represents the highest percentage of mortality by cause. However, in Lee County the other natural category is the highest percentage of cause. Table 4 shows that overall, human related incidents caused the highest percentage of mortality statewide. In Lee County the undetermined category has the highest percentage reported, but it is understood that some of these deaths could also be related to human causes. RECALCULATE THROUGH 20

Table 1. Lee County Manatee Mortality by Type, 1975 -- 2000*

Year	Total	Watercraft	Flood Gate	Other Human	Dependant Calf	Cold Stress	Other Natural	Verified, Not Recovered	Undetermined Decomposed	Undetermined
75	1				1					
76	4	1			2			1		
77	11	2			2			2	2	3
78	9	2					2	2		3
79	4			1	1		1			1
80	7	2			2		1			2
81	19	4		1	3		4			7
82	48	3			1		38	3		3
83	15	1		1	4		3			6
84	19	1			6		2			10
85	16	5			4		3	2	1	1
86	15	3			2	1		2	6	1
87	10	3			2		1		3	1
88	19	8			5	1	1		4	
89	16				5		2		4	5
90	27	5			6	2	4		6	4
91	18	7			6		2		3	
92	19	2		1	4		3		8	1
93	17	5		1	5		3		3	
94	33	10		1	9		4		9	

Year	Total	Watercraft	Flood Gate	Other Human	Dependant Calf	Cold Stress	Other Natural	Verified, Not Recovered	Undetermined Decomposed	Undetermined
95	31	8		1	9		6		6	1
96	145	14			7	5	45	4	66	4
97	43	9			7	1	14		9	3
98	31	9		3	8	1	5		5	
99	33	10	1	1	6		6		9	
00	25	11			4	1	5	1	3	
Totals:	**635**	**125**	**1**	**11**	**111**	**12**	**155**	**17**	**147**	**56**

- Year 2000 Figures only through May 2000, Year 2000 numbers only through May 2000 should also be considered as preliminary.

Source: Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute (FMRI)

TABLE 2. MANATEE MORTALITY BY COUNTY, 1975 – 2000*

County	Total	Watercraft Related	Flood Gate	Other Human	Dependant Calf	Natural Cold Stress	Other Natural	Verified, Not Recovered	Undetermined Decomposed	Undetermined
Bay	3			1		2				
Brevard	758	193	14	18	206	46	81	16	106	88
Broward	117	42	6	4	28	2	4	3	13	15
Charlotte	130	34		1	18	3	30	2	27	15
Citrus	111	27	1	4	45	1	16		10	7
Clay	36	10			7	7	1	1	5	5
Collier	355	98		6	51	5	56	13	80	46
Dade	197	40	66	25	14		11	9	18	14
DeSoto	6				5				1	
Dixie	11	2			3		1	2	1	2
Duval	246	79		8	26	23	23	6	40	41
Flagler	31	5		1	16	2	5		1	1
Franklin	4			1					3	
Gilchrist	1				1					
Glades	71	24	23	1	3		4	1	10	5
Gulf	1						1			
Hendry	4	2					1		1	
Hernando	5	2			3					
Hillsborough	106	29	2	2	28	2	14	1	15	13
Indian River	76	23			25	3	6	1	13	4
Lake	12	6		1	4			1		
Lee	635	125	1	11	111	12	155	17	147	56
Levy	38	6	2	1	18		1	5	3	2
Manatee	69	14			24	5	9		12	5
Martin	125	37	26	2	22		9	2	14	13

County	Total	Watercraft Related	Flood Gate	Other Human	Dependant Calf	Natural Cold Stress	Other Natural	Verified, Not Recovered	Undetermined Decomposed	Undetermined
Monroe	123	18		1	8	2	7	13	38	36
Nassau	29	4			1	2	4		13	5
Okaloosa	1					1				
Okeechobee	15		12		2				1	
Palm Beach	103	40		8	13	1	17	2	12	10
Pasco	12	2		1	5		1		1	2
Pinellas	66	14			19	3	7	2	15	6
Putnam	52	10	10	2	4	2	2	3	9	10
Santa Rosa	1					1				
Sarasota	100	21			25	2	24	3	20	5
Seminole	5				3				2	
St. Johns	40	6			3	4	5		17	5
St. Lucie	56	15		2	5	3	9	2	9	10
Taylor	3	1						1	1	
Volusia	158	43		5	67	4	5	4	20	10
Wakulla	1					1				
Totals:	**3913**	**972**	**163**	**106**	**813**	**139**	**509**	**110**	**678**	**431**

- Year 2000 numbers include through May only. Year 2000 numbers should also be considered as preliminary.

Source: Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute (FMRI)

TABLE 3. COMPARISON OF PERCENTAGE OF MORTALITIES BY TYPE IN LEE COUNTY AND THE STATE, JANUARY 1974 THROUGH MAY 2000

Mortality Type	Lee County	Statewide
Watercraft	19.7%	24.8%
Flood Gate	0.16%	4.1%
Other Human	1.7%	2.7%
Dependant Calf	17.5%	20.7%
Cold Stress	1.9%	3.5%
Other Natural	24.4%	13.0%
Verified, Not Recovered	2.7%	2.8%
Undetermined Decomposed	23.1%	17.3%
Undetermined	2.3%	11.0%

Source: Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute (FMRI)

TABLE 4. COMPARISON OF GENERAL MORTALITIES FOR LEE COUNTY AND STATEWIDE, 1975 THROUGH MAY 2000

General Type	Lee County	Statewide
Human Related	21.6%	31.7%
Natural	26.3%	16.5%
Undetermined	34.6%	31.1%

Source: Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute (FMRI)

Figure 5. Manatee Mortality Carcass Recovery Locations by Type, Jan. 1975 – Oct. 1999

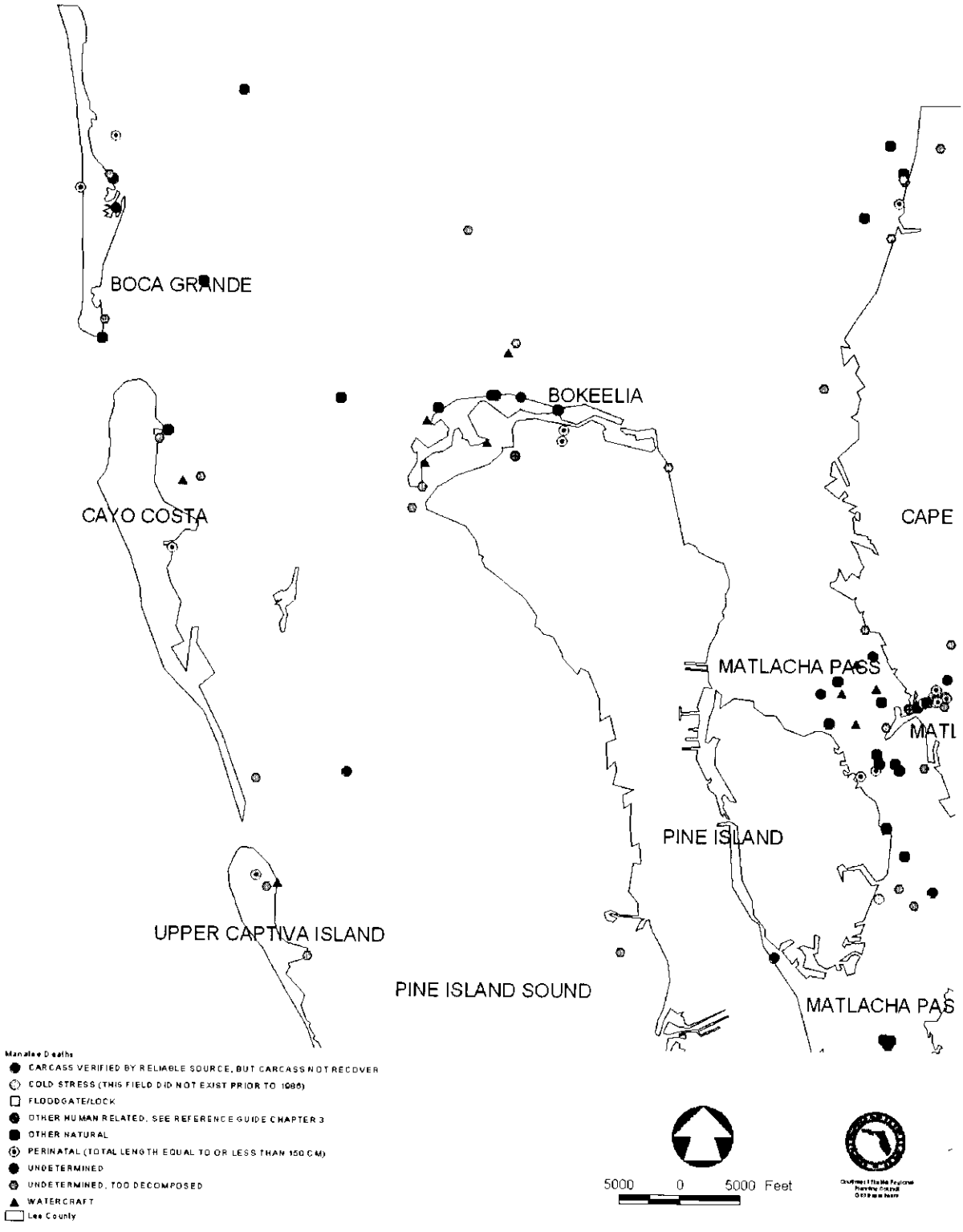
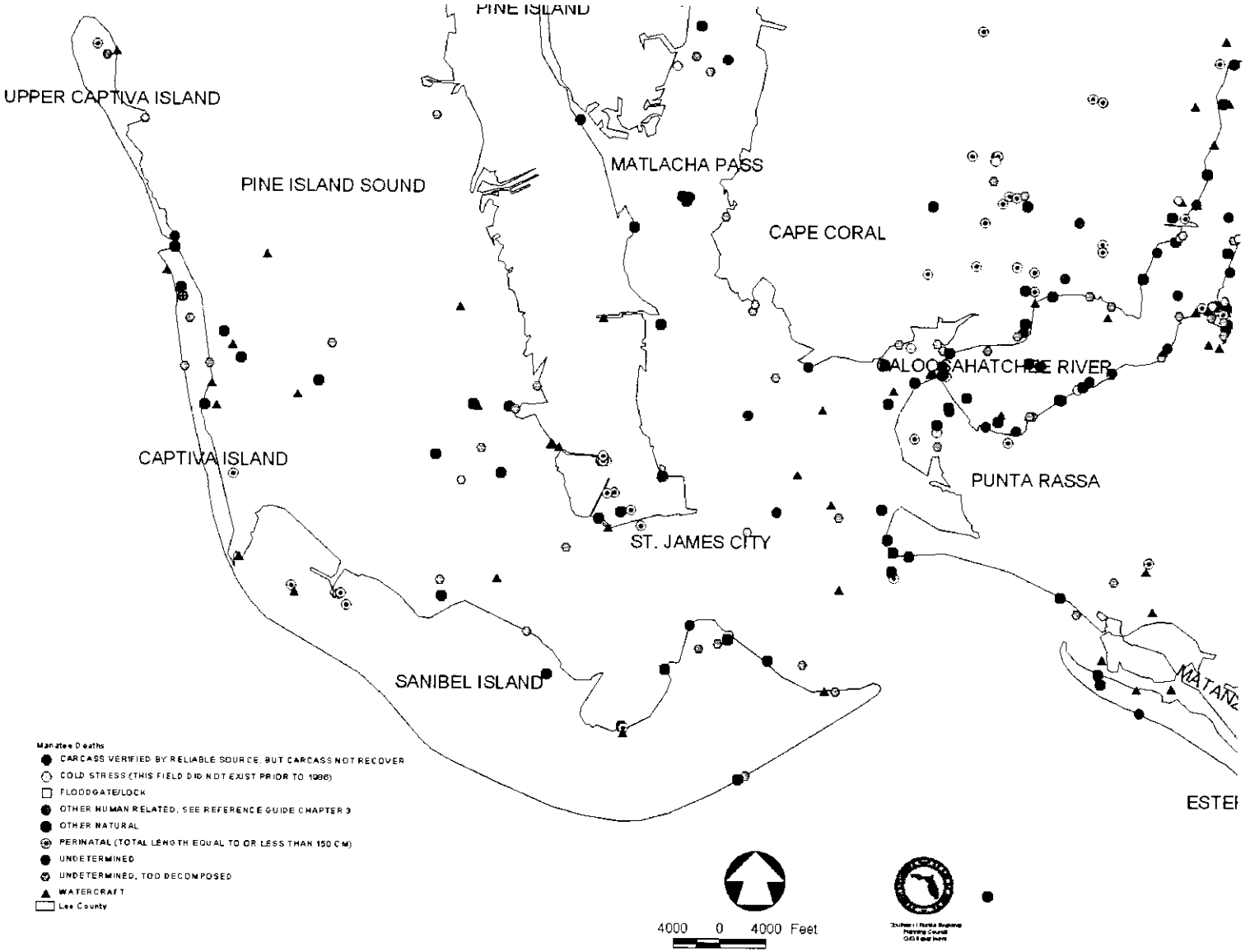


Figure 5. Continued



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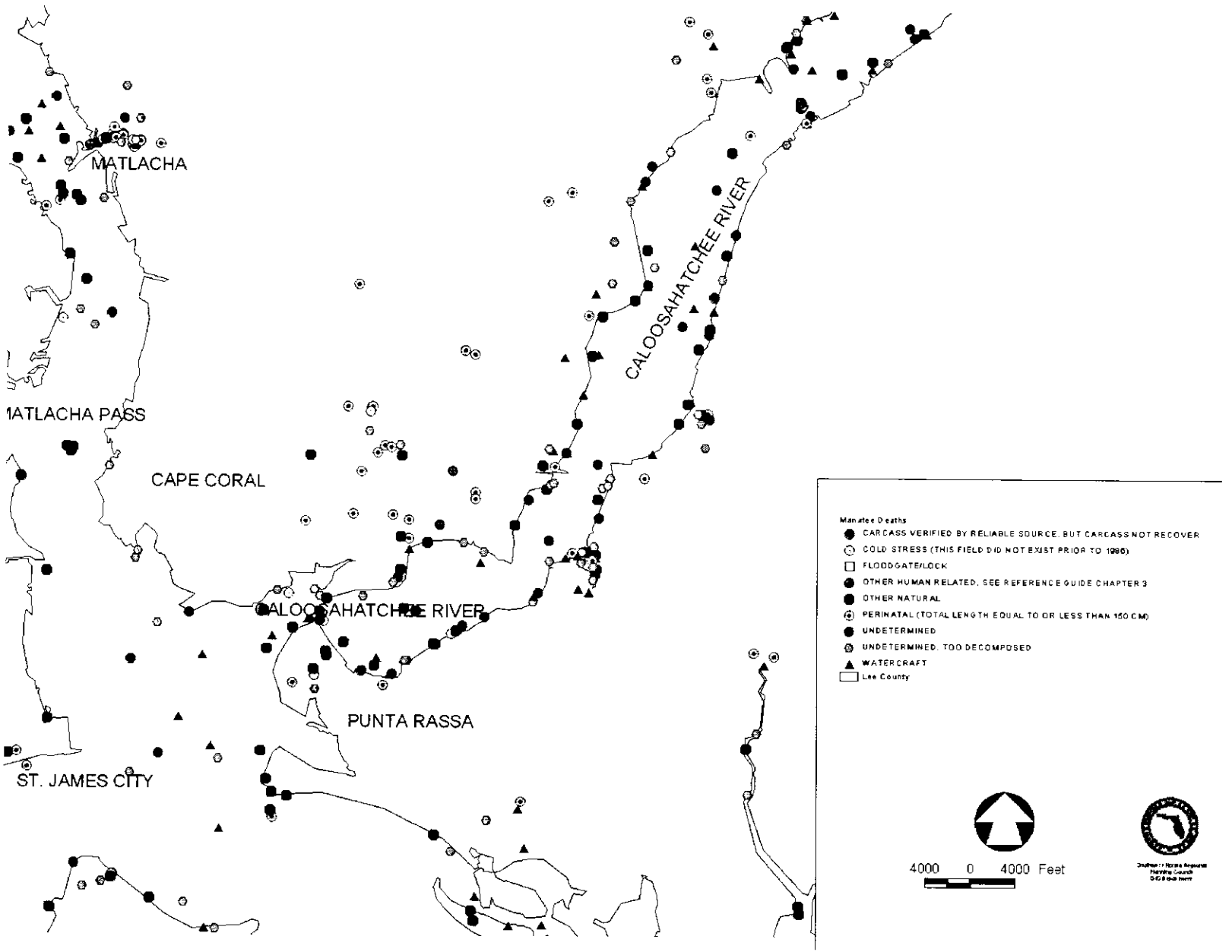

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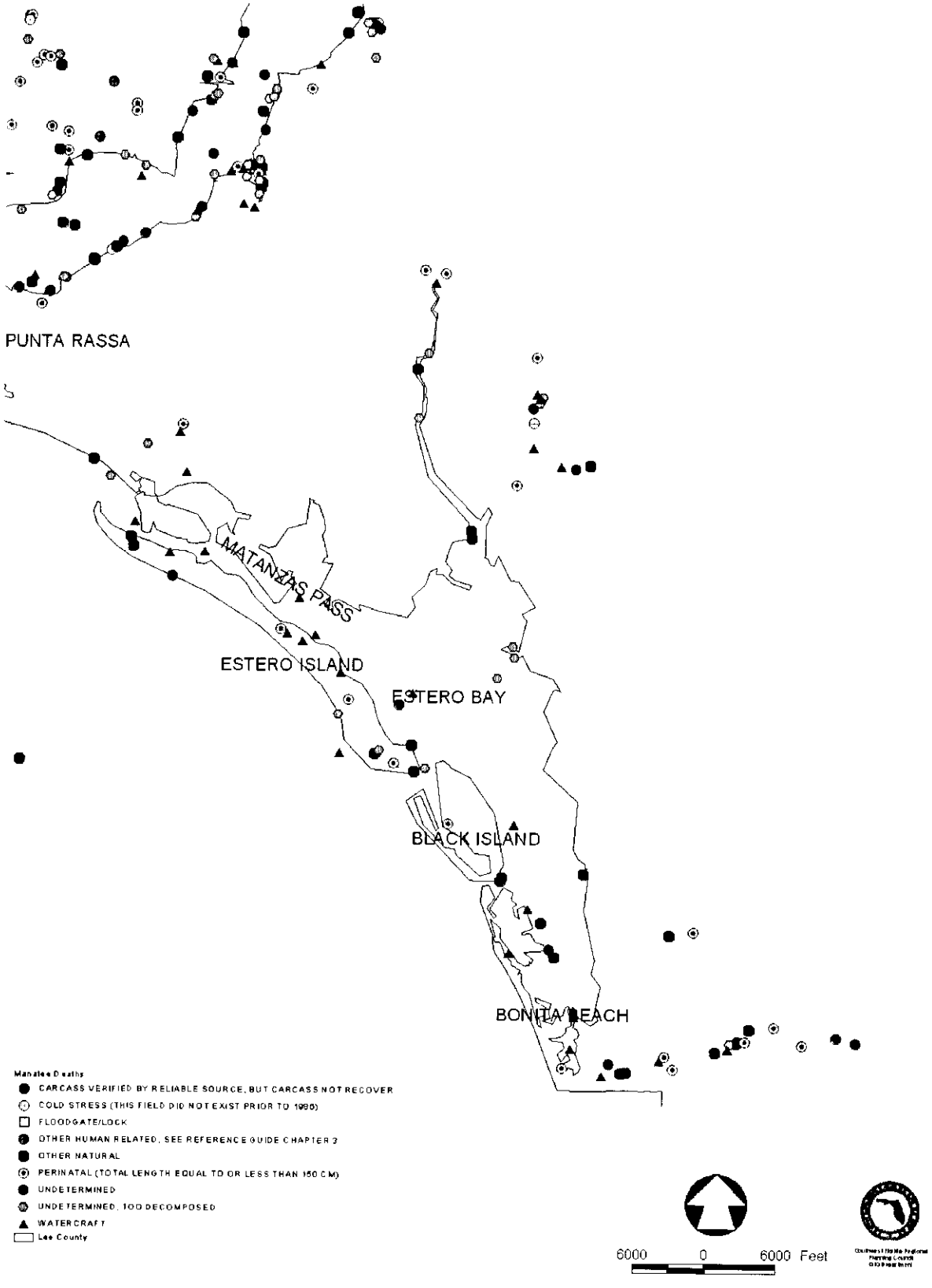

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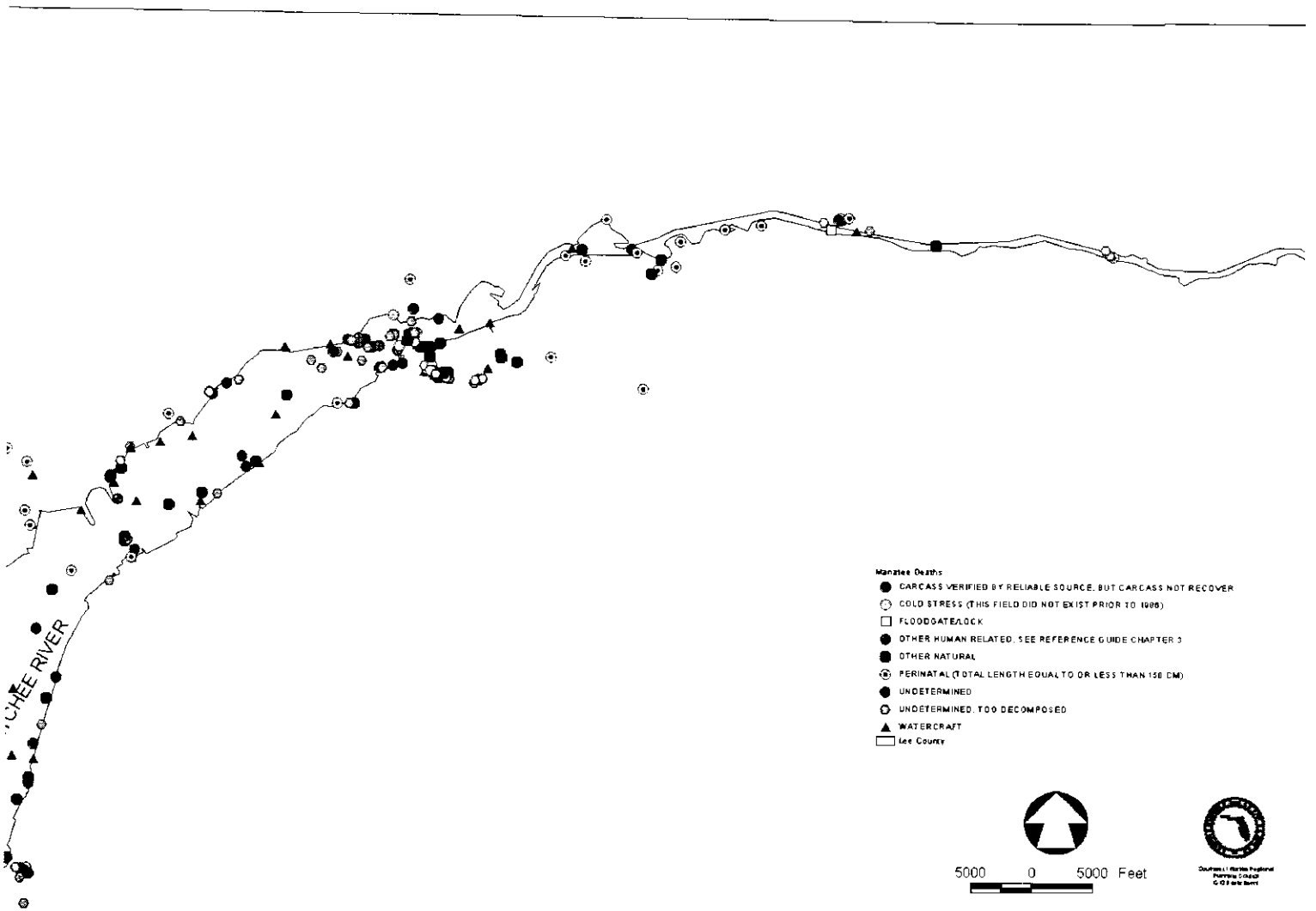
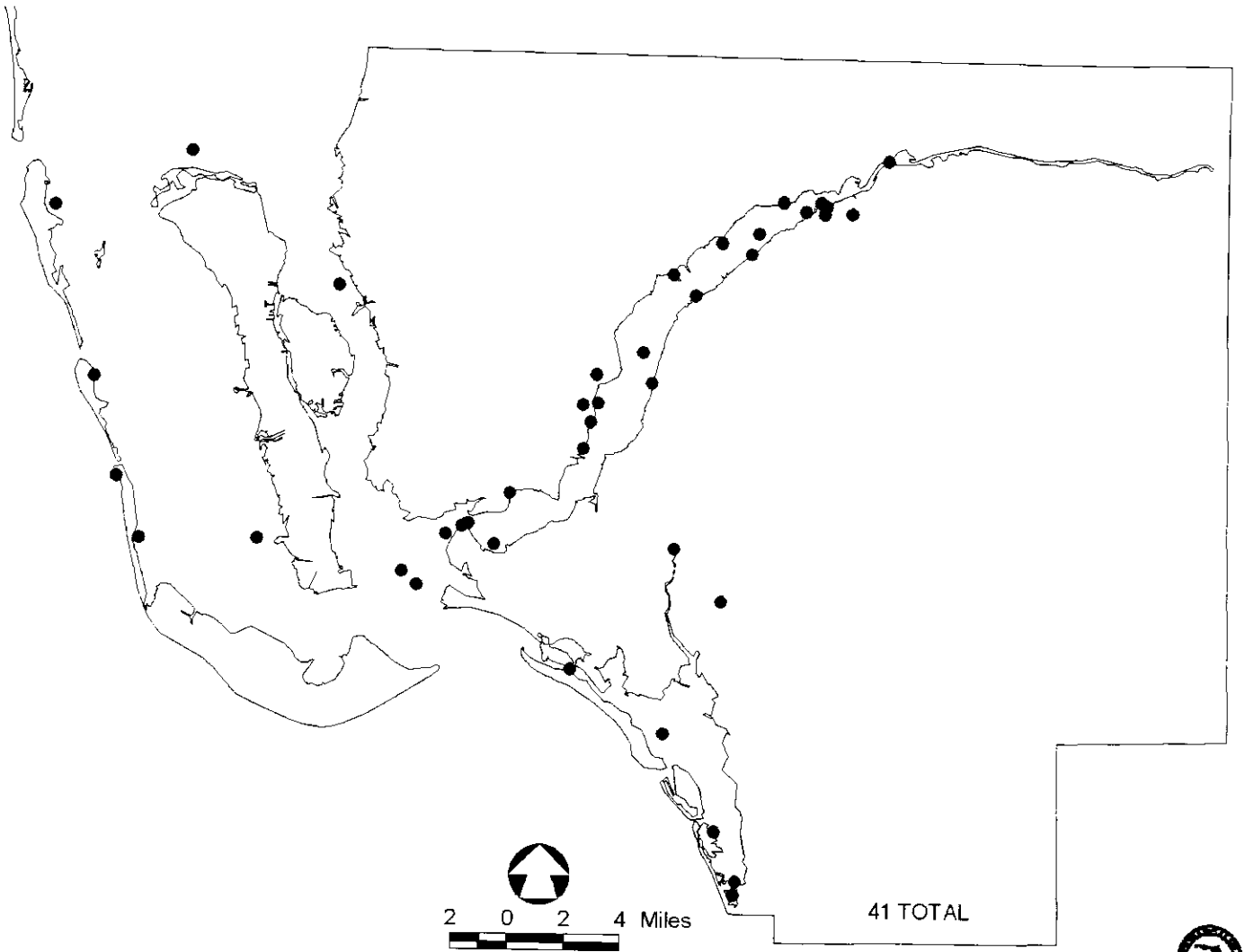


Figure 6. January-April Manatee Mortality by Watercraft



JAN-APR MANATEE DEATHS BY WATERCRAFT

Source: Florida Fish and Wildlife Conservation Commission

Southwest Florida Regional Planning Council GIS Department

Figure 7. June-September Manatee Mortality by Watercraft

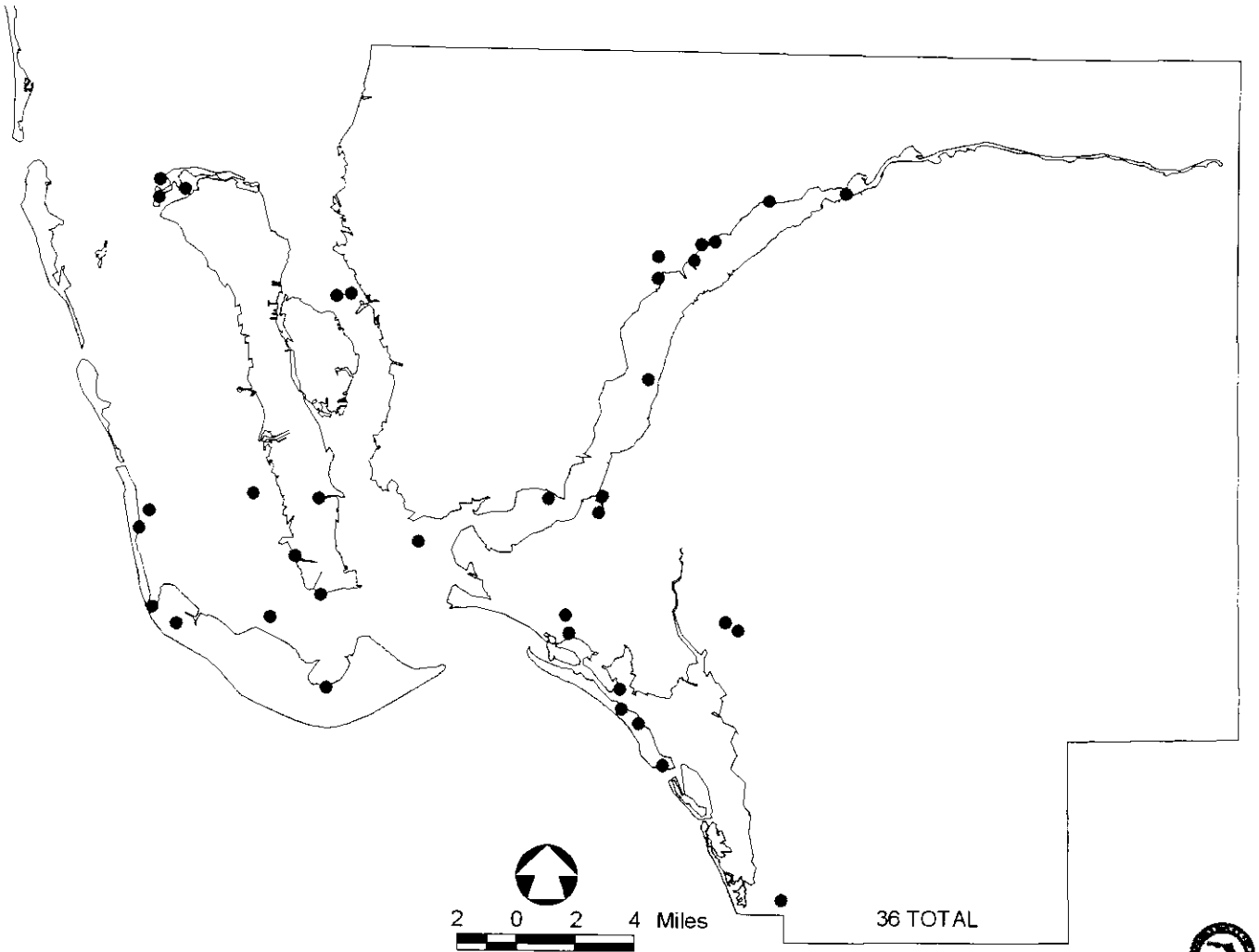
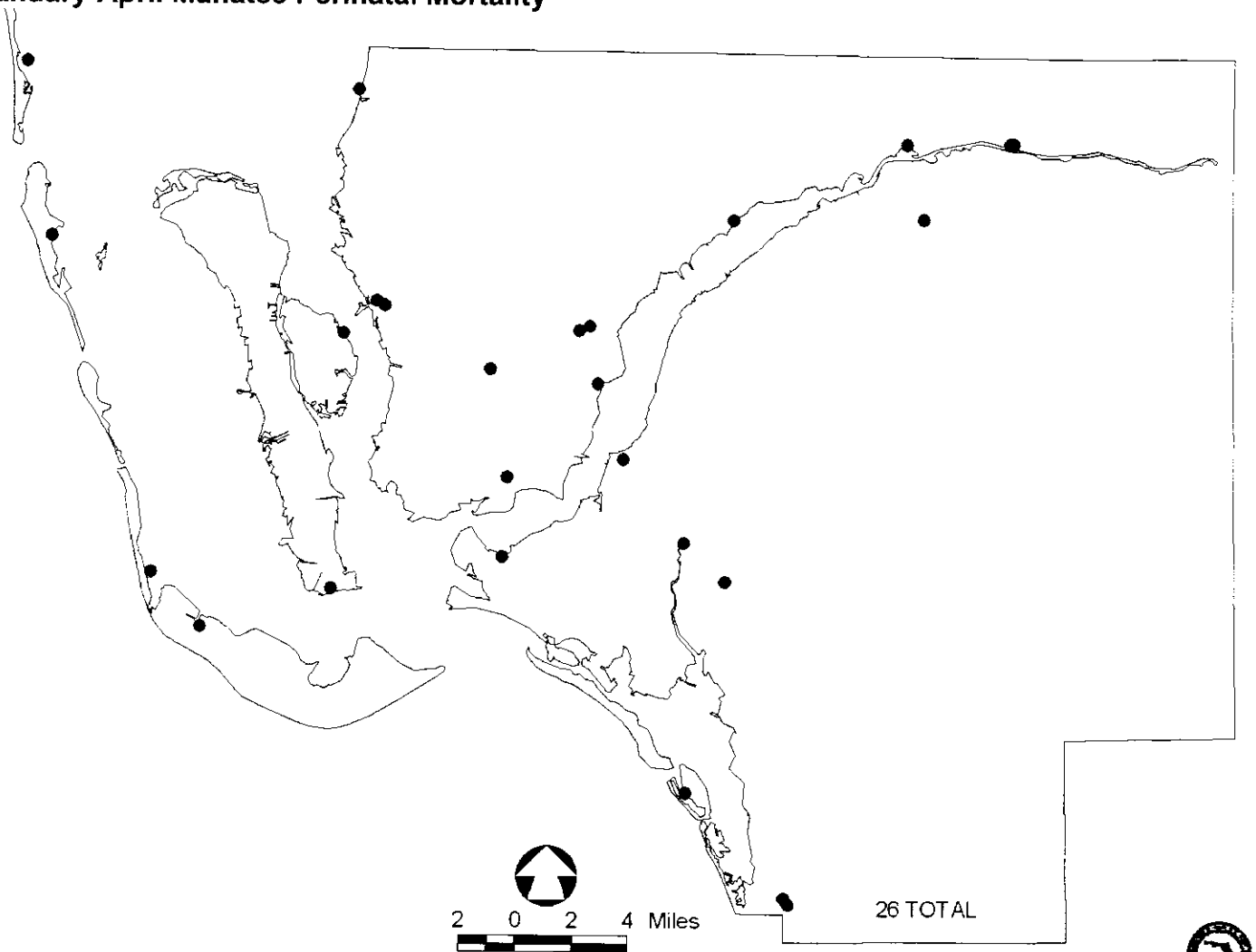


Figure 8. January-April Manatee Perinatal Mortality



JAN-APR MANATEE DEATHS BY PERINATAL

Source: Florida Fish and Wildlife Conservation Commission

Southwest Florida Regional Planning Council GIS Department

Figure 9. June-September Manatee Perinatal Mortality

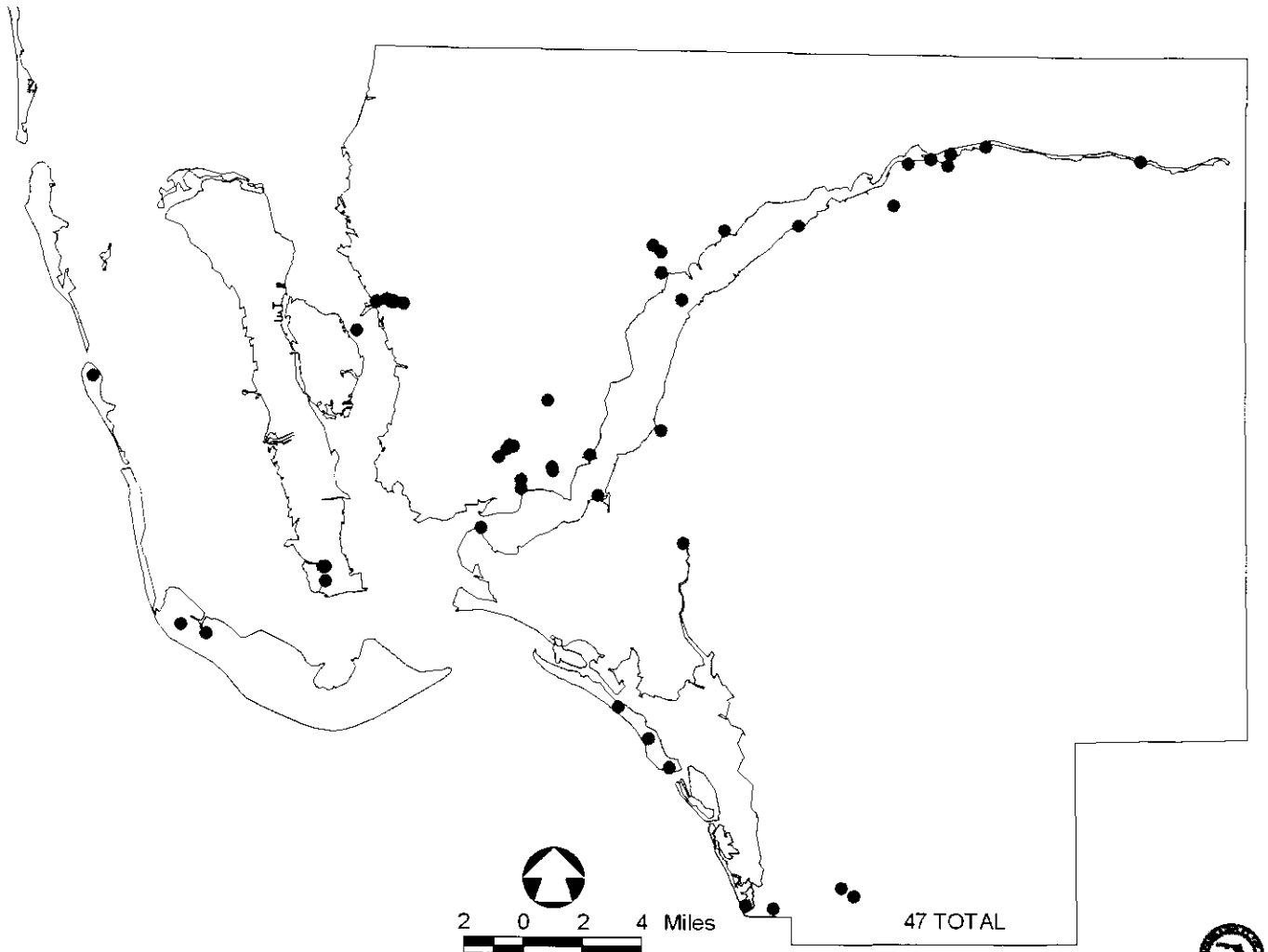


Figure 10. January-April Manatee Mortality by Natural Causes

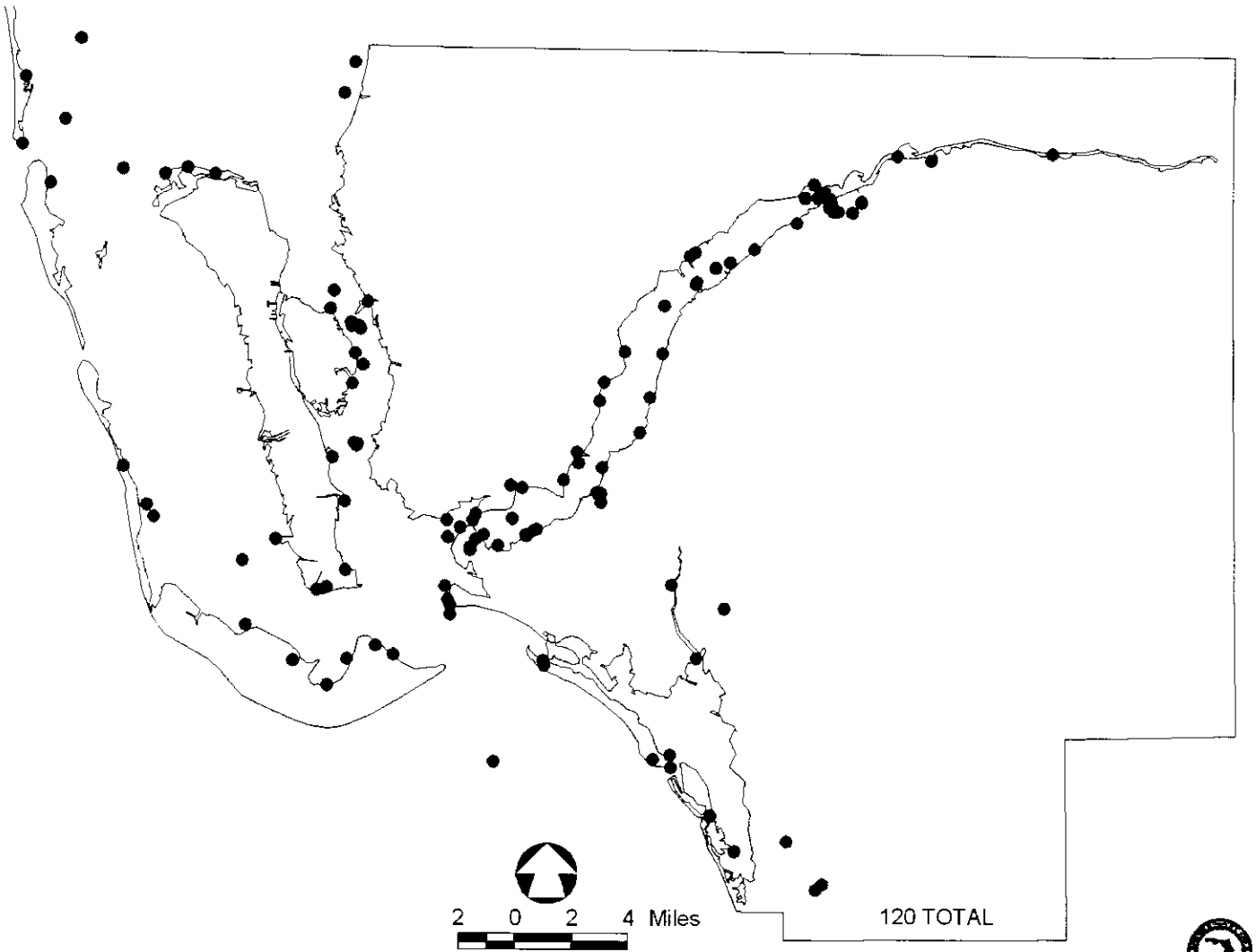
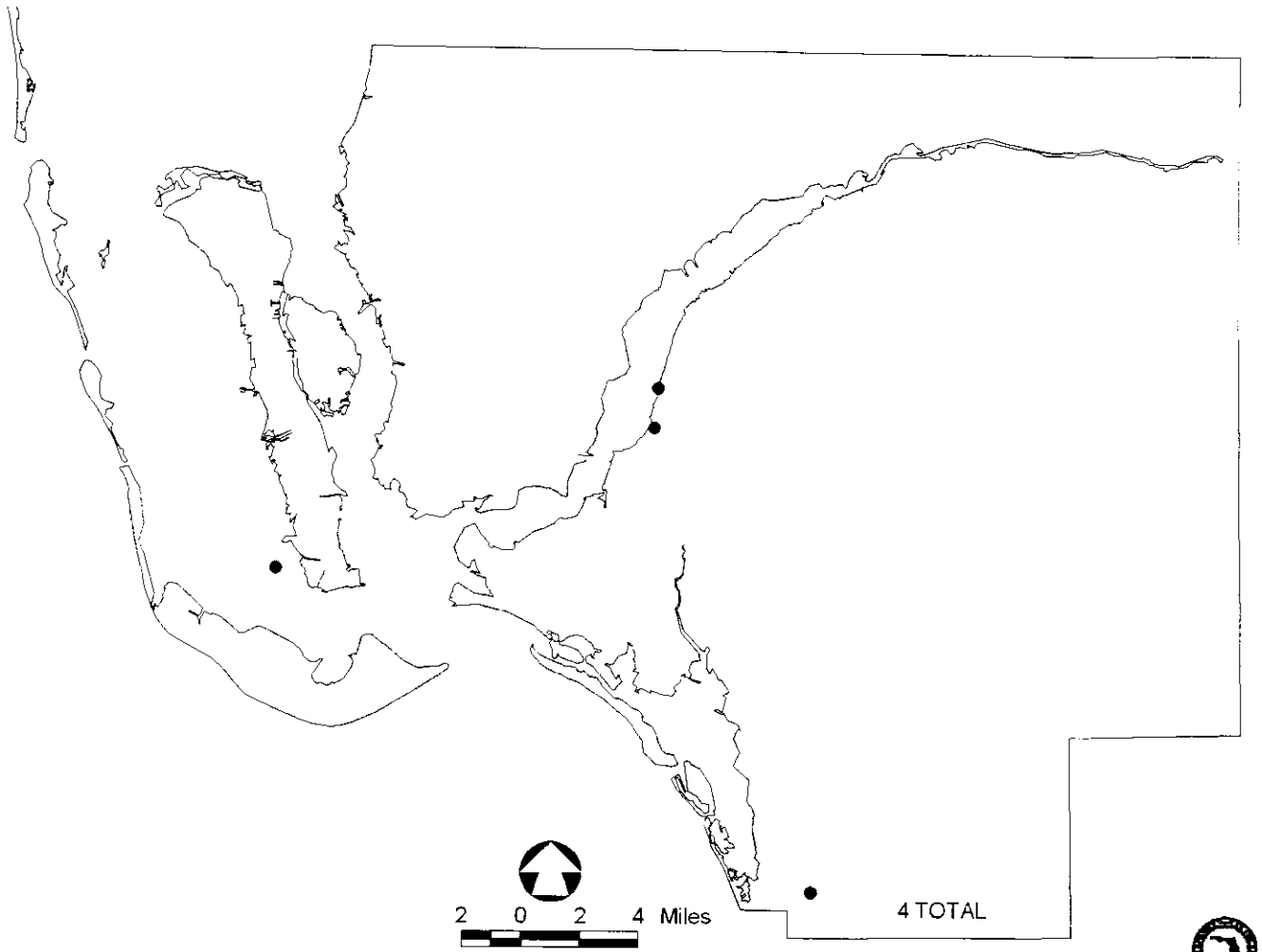


Figure 11. June-September Manatee Mortality by Natural Causes



JUNE-SEPT MANATEE DEATHS BY NATURAL CAUSES

Source: Florida Fish and Wildlife Conservation Commission

Southwest Florida Regional Planning Council GIS Department

Figure 12. January-April Manatee Mortality by Undetermined Causes

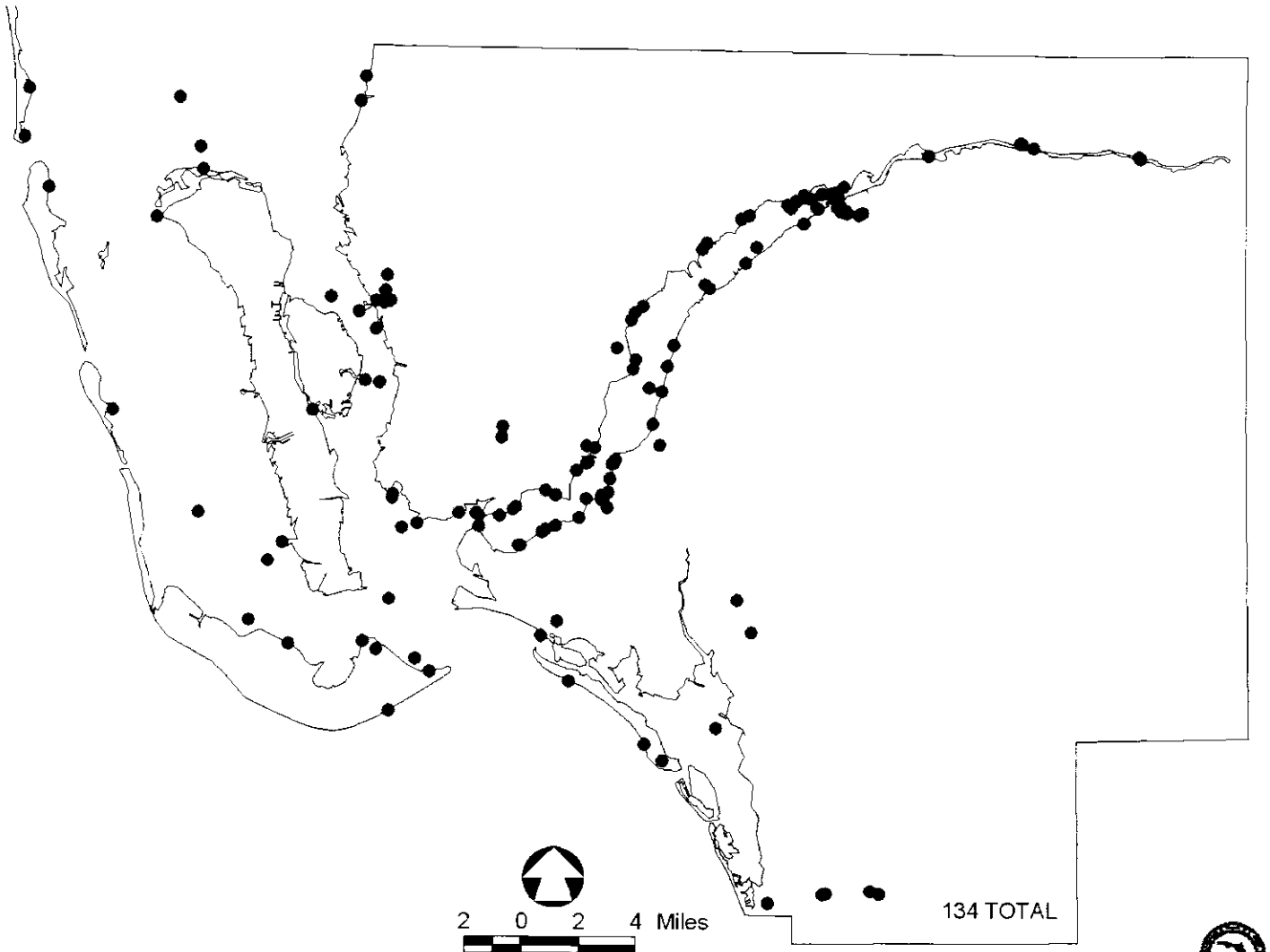
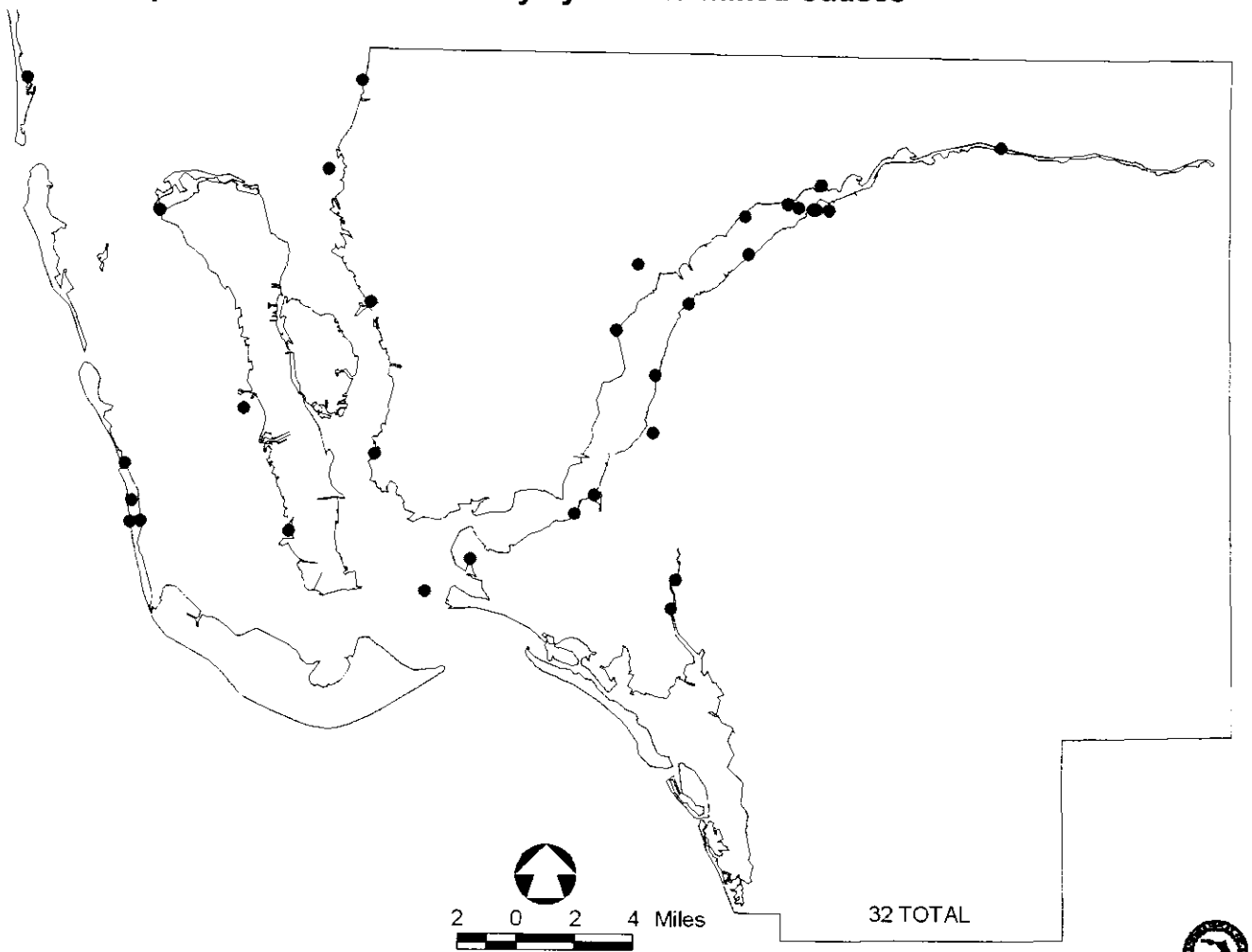


Figure 13. June-September Manatee Mortality by Undetermined Causes



JUNE-SEPT MANATEE DEATHS BY UNDETERMINED CAUSES

Source: Florida Fish and Wildlife Conservation Commission

Southwest Florida Regional Planning Council GIS Department

5.0 Boat Activity Patterns

Several boating studies have been conducted in Lee County. These studies have generally been limited to observations of boat type, size, relative speed, travel direction and compliance with posted speed restrictions if applicable. Later studies used a radar gun to try to give more accuracy to the speed determination. Mote Marine Laboratory conducted the studies referenced for this plan under contract with the now Florida Fish and Wildlife Conservation Commission. These studies included *"Evaluation of Boat Traffic Patterns and Boater Compliance in Lee County, Florida"*, October 2, 1998, *"Evaluation of Boat Traffic Patterns in Estero Bay, Florida"*, November 9, 1999, and *"Quantitative Analysis of Recreational Vessel Speeds Prior to the Establishment of Speed-Restricted Zones in Lee County, Florida"*, October 20, 1999. Mr. Jay F. Gorzelany, with Mote Marine Laboratory, prepared the three studies.

Excerpts from "Evaluation of Boat Traffic Patterns and Boater Compliance in Lee County, Florida", (Gorzelany, 1998):

> A one-year study was conducted in order to provide information on vessel abundance, traffic patterns, and boater compliance. More than 500 hours of field data from aerial surveys, land and boat-based traffic surveys, and land and boat-based compliance surveys were conducted. Observational data on 26,538 vessels in Lee County waters, including 9,309 vessels during aerial surveys, 13,553 vessels during traffic surveys, and 3,676 vessels during compliance surveys was collected. Significant findings from this study were as follows:
>
> Of the two aerial survey methods performed during the study, a method involving the video recording of vessels over a standard flight path was most effective, particularly when surveying highly congested areas such as tidal inlets and portions of the Intracoastal Waterway.
>
> For all survey flights combined, 7,337 vessels (78.8%) were identified as small powerboats (SP), 946 vessels (10.2%) were identified as large powerboats (LP), and 693 vessels (7.4%) were identified as sailboats (SA). The remainder (approximately 3.5%) was identified as a mixture of miscellaneous vessel types, including personal watercraft, inflatables, kayaks and canoes, and a variety of commercial vessels. The majority of vessels observed (7,448, 80%) were identified in the 16'-25' size class; 1,116 vessels (12%) were in the 26'-39' size class, and 298 vessels (3%) were in the 40'-64' size class. All remaining size classes comprised less than 5% of all vessels observed. Of the 9,309 total vessels observed, 5,095 (54.7%) were recorded as traveling, 4,104 (44.1 %) were recorded as anchored or drifting, and the remainder (1.1%) were engaged on other activities, including milling, water skiing, or other recreational activities. No noticeable variation in vessel type, size, or activity was observed between individual flights.

Highest one-day aerial survey counts in Lee County (1,713) occurred on Sunday, May 24, 1998 (Memorial Day Weekend). Lowest one-day survey counts (141) occurred on Monday, September 15, 1997. A difference in aerial survey counts between weekday and weekend flights, and between survey dates were statistically significant. Differences between morning and afternoon flights were not statistically significant. Though a clear seasonal trend was not evident, vessel counts in general were lower during the fall and winter, and higher during the spring and summer.

Aerial surveys identified eight high-use boating areas within Lee County. These areas were; 1) Boca Grande Pass (Charlotte Harbor), 2) Cabbage Key / Useppa Island area (Pine Island Sound), 3) Northern Captiva Island / Redfish Pass area (Pine Island Sound), 4) Eastern San Carlos Bay / Miserable Mile area, 5) the lower Caloosahatchee River, Shell Island to Redfish Point, 6) the southeast corner of San Carlos Bay, including the Sanibel Causeway and the Punta Rassa area, 7) Matanzas Pass, and 8) Big Carlos Pass. Several of these sites are seasonal high-use areas, while others are year-round high-use areas.

Boat and land-based traffic surveys determined that differences between weekend and weekday vessel counts to be statistically significant, with an approximate doubling of vessels in Lee County on weekends. Though afternoon vessel counts were somewhat higher than morning vessel counts, differences were not statistically significant. Similarly, differences between sampling quarters were not significant, though observations supported findings from aerial surveys, which indicated that vessel counts in general were higher during the spring/summer sampling period than the fall/winter sampling period.

Largest concentrations of vessels observed during boat traffic surveys were at the Miserable Mile Site (San Carlos Bay). As many as 1,273 vessels were counted at this site on a single day, with as many as 315 vessels in-use were observed during a one-hour survey period. Vessel counts at Miserable Mile accounted for 62% of all vessels surveyed during the Boat Traffic Survey Task.

The majority of vessels leaving the Caloosahatchee River (61.7%) traveled south toward the Sanibel Causeway and Gulf of Mexico. An additional 33.3% of vessels traveled west along Miserable Mile toward Pine Island Sound. The remainder of vessels (5%) traveled either north toward Matlacha Pass, or back toward the river or the adjacent shoreline.

Direction of travel was recorded for each vessel transitioning through the study area at each site, and the main traffic patterns were analyzed. From Centennial Park, 52.9% of all vessels observed traveled downriver, 27.7% traveled upriver, and 19.3% remained within the immediate area. From the Matlacha area, 66.1 % of all vessels traveled to the north, under the Matlacha Bridge toward Charlotte Harbor, 20.4% traveled to the south toward San Carlos Bay, 8.0% traveled west toward Little Pine Island, and the remainder (5.4%) stayed within the Matlacha

area. For vessels leaving the Caloosahatchee River (Miserable Mile Site), 61.7% traveled south toward the Sanibel Causeway and Gulf of Mexico, 33.3% continued to the west along Miserable Mile toward Pine Island Sound, 2.8% turned north toward Matlacha Pass, and the remainder (2.1 %) either turned back toward the river or turned towards the mangroves just south and east of the mouth of the river. Hourly observations of traffic entering and exiting the Caloosahatchee River were also taken. Observations confirmed that the majority of boat traffic exits the river in the morning and enters the river in the afternoon. For morning surveys (0900-1200 hrs.), an average of 22.5 vessels/hr. were observed leaving the river, while only 5.8 vessels/hr. were observed entering the river. For afternoon surveys (1300-1600 hrs.), an average of 18.6 vessels/hr. were observed exiting the river and 27.2 vessels/hr were observed entering the river. The amount of boat traffic entering and exiting the river was most similar between 1300-1359 hrs (24.4 vessels/hr exiting the river vs. 20.2 vessels/hr entering the river).

At the Miserable Mile Site, vessels entering and exiting the Caloosahatchee River comprised the largest volume and concentration of boat traffic of all areas in the study, particularly during weekends. By combining the total number of vessels observed entering the river (2,191) and the total vessels exiting the river (2,782), it was calculated that, on the average, a different vessel was either in the process of entering or exiting the mouth of the Caloosahatchee River every 34.7 seconds during a weekend day. For particularly busy weekend days, such as April 5, 1998, vessels were observed either entering or leaving the river every 18.9 seconds. Between 1400 and 1459 hours, on this date, a different vessel was observed at the mouth of the river every 11.4 seconds.

Excerpts from_"Evaluation of Boat Traffic Patterns in Estero Bay, Florida", (Gorzelany, 1998)

This report found that Boat traffic data from Estero Bay is consistent with findings from the 1997-98 Lee County boat traffic study *("Evaluation of Boat Traffic Patterns and Boater Compliance in Lee County, Florida")*. The aerial survey task of the 1997-98 study characterized Estero Bay as a relatively shallow water boating destination, comprised primarily of small, shallow draft vessels (Gorzelany, 1998). Big Carlos Pass was identified as one of eight high-use boating areas within Lee County. The current study similarly characterized Estero Bay with a boating population comprised of a relatively large proportion of small, shallow draft vessels. High-use boat traffic areas in this study were identified at Big Carlos Pass and New Pass. These two sites comprised more than 60% of the total boats surveyed. Vessel composition (size and type) was similar between these two sites, however the use of these two areas by recreational vessels was somewhat different.

New Pass appeared to be more of a travel corridor between Estero Bay and the Gulf of Mexico. This is demonstrated by a relatively high proportion of vessels

identified as "traveling", and by origin and destination data indicating that the majority of vessels are traveling through New Pass (95%), while only a small percentage remain within New Pass (<3%). Big Carlos Pass, in contrast, appears to function more as a recreational boating destination. A higher proportion of vessel activities identified as "pleasure" and "fishing" in this area demonstrates this. Origin and destination data also indicated a higher proportion of vessels whose destination was Big Carlos Pass itself (11 %). While aerial survey data did not identify New Pass as a high-use boat traffic area, data collected from this study suggests that it probably is. The fact that very few recreational vessels remain within the New Pass area may partially explain why fewer vessels were counted in New Pass during aerial surveys. Along with the large amount of boat traffic in the Big Carlos Pass / New Pass area, the relatively high proportion of fast-moving vessels (90%). makes these areas of particular importance in terms of manatee protection.

Because the four main areas of Lee County (Estero Bay, San Carlos Bay, Caloosahatchee River, and Matlacha Pass) were surveyed during different years and somewhat different sampling-periods, a limited number of direct comparisons can be made. Trends in seasonal, weekly, and daily variations boat traffic appear similar between Estero Bay and other Lee County survey areas. Boat surveys conducted during the spring, (primarily April and May) consistently provided the highest vessel counts at all survey sites.

Presumably, two factors determine the volume of vessel traffic in Lee County; 1) Favorable weather and boating conditions, and 2) The number of residents in the area (which varies seasonally). Both of these criteria are probably optimal during in the spring, since weather conditions are favorable, and the human population in Lee County is estimated to increase by approximately 16%, or approximately 67,000 seasonal residents (Lee County Economic Development Office data). Presumably, other seasons will likely have either optimal boating conditions with fewer residents (summer and fall) or less favorable boating conditions and more residents (winter). A similar seasonal trend in boat traffic abundance was observed at Venice Inlet (Gorzelany, 1996). Like other Lee County sites, greatest abundance of vessels in Estero Bay was observed later in the afternoon (1400 hrs to 1600 hrs). With regard to vessel size and type, the Caloosahatchee River and San Carlos Bay survey areas were the most similar, and in fact probably shared many of the same vessels, which transitioned between the river and San Carlos Bay. San Carlos Bay also had a relatively small percentage of small boats, primarily jon boats and personal watercraft, due to the fact that this was more of an unprotected, high traffic area. These two areas would be more appropriately characterized as travel corridors rather than travel destinations. The Estero Bay area, with a wider variety of vessel types, is appropriately characterized as a travel destination and recreational area. Presumably, the Matlacha area is more appropriately identified as a fishing area, with a high proportion of small powered vessels, primarily open fisherman or jon boat type. For all survey areas combined, the proportion of vessel sizes and types in Lee

County was shown to be similar to findings from other Florida boat traffic studies (Morris, 1990, Gorzelany, 1996, Tyson and Combs, 1999).

During the 1997-98 Lee County traffic study, a survey was conducted during a holiday weekend (Memorial Day). During the 1998-99 Estero Bay study, a survey was conducted during Labor Day weekend. While relatively large numbers of vessels were counted during these surveys, in neither instance did these surveys provide the highest single day vessel counts. This suggests that while a great deal of focus is placed upon the volume of vessel traffic during holiday weekends, the amount of boat traffic during non-holiday weekends may be equal or greater during certain times of the year.

Differences in recreational boat travel patterns with tide phase is unique to certain Estero Bay traffic sites. Unlike other boat traffic survey areas, which have been conducted in water depths that were navigable at all times, the relatively shallow portions of Estero Bay, particularly at the southern sites (Big Hickory Pass and Intrepid Waters), significantly changed travel patterns at times. The shallowness of these southern sites also explains why very few large, deeper draft vessels were observed at the southernmost sites. The similarity of vessel distribution between Intrepid Waters and Big Hickory Pass is not surprising, since these two sites were in close proximity to each other and probably shared many of the same boats. Along with their close proximity to each other, the Intracoastal Waterway connects both the Intrepid Waters and Big Hickory Pass survey sites, probably resulting in many of the same boats traveling through both areas. Observed vessel speeds at the Big Hickory Pass site were substantially slower, with only 11% of vessels observed at Planing Speed.

Statistical results indicated that there were significant differences between survey sites, along with significant relationships between numbers of vessels observed and vessel type, size, time of day, weekend versus weekday, and tide phase. A discussion of statistical significance versus statistical relevance has been addressed in previous studies (Gorzelany, 1996, 1998, 1999). In has been demonstrated that standard statistical testing of large data sets (more than 19,000 data for the Estero Bay study) tends to enhance, or distort, relatively small differences between data sets (Krebs, 1989). As a result, relatively minor variations or relationships may have no relevance to the goals of the study. For this reason, statistical results should be approached with caution, with perhaps more focus on the practical differences or relationships between data sets.

In spite of variations in quarterly, weekly, daily, and hourly observations of vessel traffic, the relative proportion of vessels remained fairly consistent between the five Estero Bay survey sites. New Pass, for example, consistently had between 2.5 and 3.5 times as many vessels as Intrepid Waters on any given day. Big Hickory Pass consistently had between 1 and 1.5 times as many vessels as Intrepid Waters. The number of vessel counts between Big Carlos Pass and

New Pass rarely varied by more than 10%. Similar relationships may be explored in future studies in order to predict vessel traffic in larger areas by sampling a smaller number of sites which may be representative of the level of boating activity in a given area as a whole.

Excerpts from_"Quantitative Analysis of Recreational Vessel Speeds Prior to the Establishment of Speed-Restricted Zones in Lee County, Florida", (Gorzelany, 1999)

According to the report, October 20, 1999, a total of 36 survey hours were conducted at three sites located in Lee County waters. Quantitative speed data was collected from 3,513 vessels during the study This number is slightly less than the final vessel count listed in the quarterly progress reports, because the following vessels were eliminated from the final data set:

- Vessels for which there was no numerical speed acquired
- Vessels which were not targeted within the Intracoastal Waterway
- Vessels that were not under power at the time, which they were observed.

Of the 3,513 vessels targeted, speeds of 799 vessels were acquired at the Caloosahatchee River site, speeds of 482 vessels were acquired at the Matlacha Pass site, and 1,872 vessels were acquired at the Estero Bay site. Boating conditions were evaluated as either "Good" or Excellent" during 93% of survey time (89% in the Caloosahatchee River, 92 % Matlacha Pass, and 99% in Estero Bay). Poor boating conditions were recorded for only 2 survey minutes at one site.

5.1 Vessel Type, Vessel Size, and Direction of Travel

In each of the three Lee County studies, vessels in the 16' to 25' size class comprised the largest proportion of vessels observed. A relatively higher proportion of larger vessels (greater than 26 feet in length) were observed at the Caloosahatchee River site, however, and a higher proportion of smaller vessels, primarily personal watercraft, were observed at the Estero Bay site. Large powerboats identified as yacht/cruisers comprised the largest proportion of vessels at the Caloosahatchee River site, while smaller powerboats, primarily open fisherman-type were more abundant at Matlacha Pass and Estero Bay. A noticeably higher proportion of other shallow draft vessels such as pontoon boats, deck boats, and personal watercraft were also observed at the Estero Bay site. The Estero Bay site also had the largest proportion of vessels identified as rental boats. Differences in both vessel size and vessel type between sampling sites was determined to be statistically significant. Direction of travel along the ICW at each sampling site was not statistically significant, and the number of vessels traveling in each direction was similar.

Table YXZ. Summary of boat activity studies in Lee County.

Location/Study	Vessel Size					Vessel Type					Travel Direc
	A	1	2	3	4+	PWC	Power	Sail	Other	Rental	Inbound
Matlacha/1999	12%	74%	8%	5%	1%	5%	90%	2%	11%	3%	50%

Vessel size in feet: A = <16; 1 = 16–26; 2 = 26-40; 3 = 40-65; 4+ = >65

5.2 Qualitative Speed Analysis

In each of the three Lee County studies, "planing" was identified as the predominant qualitative speed, comprising 75.3% of all vessels in the Caloosahatchee River, 89.2% of all vessels in Matlacha Pass, and 82.1% of all vessels in Estero Bay. Vessels traveling at Idle or Slow speeds comprised only a small percentage of recorded vessels (8.3% in the Caloosahatchee River, 2.9% in Matlacha Pass, and 2.6% in Estero Bay). Larger yachts and other powerboats traveling to and from the upper portions of the Caloosahatchee River probably account for the somewhat higher proportion of vessels traveling at slower speeds at this site. At the Estero Bay and Matlacha Pass sites, the proportion of vessels identified as "cruising" were predominantly pontoon-type boats. At the Caloosahatchee River Site, the proportion of vessels identified as Cruising were a mixture of pontoon-type boats and larger yacht/cruiser-type boats.

Statistical analyses in this study provided some curious results. In spite of apparently close similarities between certain data sets, significant differences were found. When comparing mean vessel speeds between morning and afternoon surveys, for instance, one-way ANOVA identified a statistically significant difference between morning and afternoon vessel speeds. This was determined in spite of the fact that the differences in mean vessel speeds were less than 1 mph (25.62 mph for morning surveys vs. 24.96 mph for afternoon surveys). Similar statistical results were found in previous studies (Gorzelany, 1995, 1998). Because statistical significance derived from large data sets may tend to enhance relatively small variations in data (Krebs, 1989), results should be interpreted cautiously. Instead, the statistical relevance should be considered. While there may be a calculated statistical significance between morning and afternoon vessel speeds, the practical differences may be insignificant.

Because this study is designed to provide a baseline of information on existing vessel speed in Lee County, a limited number of comparisons have been attempted, and only appear as an overall characterization of vessel speeds in Lee County. Spatial comparisons between the three sampling locations, in spite of apparent statistical significance, appear to be minimal. Similarly, differences between morning and afternoon surveys, though statistically significant, do not appear to be statistically relevant. Of particular interest will be the comparison of this data set to future studies conducted after the establishment of Rule 68C-22.005 F.A.C. including the posting of speed-restricted signs, and the distribution of updated information on the new speed zones to the Lee County boating community.

6.0 Inventory of Boating Facilities

Although marinas and boating facilities are generally defined as docks or basins, which provide mooring and launching facilities for boats, some distinctions and elaboration are necessary. Public service marinas should be distinguished from other types of marinas, which often do not provide public services. Public service marinas generally lease wet storage to the general public on a first come, first served basis, and also offer services such as provision of supplies (gas, bait, fishing tackle), sewage pump out, repair of boats, and wet or dry storage. Other types of private marinas may not provide these services, or may only provide limited service (such as mooring).

For these purposes, marinas will be defined as commercial marinas with various services provided, and docking facilities will be defined as common facilities with five slips or more. Utilizing these criteria, not only are public service marinas encompassed by these definitions, but many private marinas and other facilities are included as well. Condominiums, which have at least 5 slips, would also be defined as docking facilities. Dry storage is included if wet storage of 5 slips or more is provided. The following inventory was complied by Lee County staff and was further integrated with the Southwest Florida Regional Planning Council Support Services document, which inventories existing marinas and boat ramps. This information is listed in Table 5 and illustrated in Figure 14 CREATE FIG 14.

Characteristics of marinas vary widely. Some are located on freshwater while others are found on saltwater. Some are publicly owned and operated while many are privately owned and/or operated. A wide range of services may be provided, ranging from mooring only to full provision of facilities and services. All types of marinas are located in Southwest Florida.

According to the document *"Where Do They Come From?, An Analysis of the Origination of Boat Traffic and How It Relates to Manatee Mortality in Lee County, Florida, Riley and Stead, 1999,:*

> Single Family Docks and Multi-Family Docks represent the second most popular storage method in Lee County. Property owners with boats realize both an economic and convenience advantage by storing the boat on a single-family dock in their riparian waterfront. The sizes of vessels run from 12 feet to 50 feet and beyond. The average size is less than 30 feet.
>
> Single-family docks are exempt from permitting with the FDEP or the U.S. Army Corps of Engineers, if they fit specific criteria. Briefly, the dock must be less than 1000 sq. ft or 500 sq. ft. depending on its location in Class III waters or an Aquatic Preserve. A single-family dock is allowed two slips under exempt status from permitting; therefore two vessels may moor at a single-family dock. The second vessel is often smaller and many times is personal watercraft (PWC).

There are no vessel size or type restrictions. The construction of a single family or multifamily dock does require a building permit from the local government. There is no manatee review criterion with the local government ordinances.

The City of Cape Coral is an area of special interest in the analysis of existing boating facilities. The City of Cape Coral could be considered as a large area of potential boating facilities due to its design as a boater-friendly subdivision. Each saltwater access waterway lot in the city has the potential of at least one boat (and potentially up to two) per buildable lot. Cape Coral staff has estimated that up to 40,589 saltwater and freshwater single-family lots occur within the city. Of this total, 23,000 lots exist on salt-water accessible canals. At buildout, these saltwater accessible lots could potentially accommodate approximately 46,000 boats.

A wide range of boat types occurs in Lee County. Table 6 lists the size class of vessels Registered in Lee County for Fiscal Year 1998-99 and as of January 31, 2002. As shown on this table the largest category of vessel registered in Lee County are boats in the 16' to 25' 11" category, comprising almost 57% of all boats registered. Boats of this size and smaller can generally be towed on a trailer and launched at a boat ramp, although launching may also occur at other types of facilities. Not much is known about the types of vessels that impact manatees most severely, however, vessels smaller than 26' have the ability to navigate throughout many of the shallow waters of the county, increasing the likelihood of manatee encounters. Vessels of larger classes generally require wet slip facilities, however these vessels comprise only about 10% of the vessels registered in the county. Seasonal boat visitors registered in other counties or states will add to this number. If related to seasonal residents this number may find a 10% to 15% increase during tourist season. Vessels of these size classes also generally need to stay within designated channels, but due to their size and displacement also present a potential conflict to manatees within these channels, should an encounter occur.

Table 7 presents the number of total vessels registered in Lee County by Fiscal Year since 1986. During the 1988-89 to 1998-99 period, Lee County saw an 18% increase in the number of boats registered in the county. This growth trend is expected to continue into the future and mirrors the general growth trend of population for Lee County.

Table 8 presents the 1998 Boat Sales of New Boats, by size category. This table also illustrates that boats in the 16' to 25' 11" range comprise the majority of boats sold, totaling approximately 88% of all boats sold in the county for that period.

TABLE 5. INVENTORY OF MARINAS AND RAMPS

Facility No.	Type	Name	Address		Wet Slips	Dry Slips
1	RAMP	St. James City				
2	RAMP	Tropical Point				
3	MARINA	Tarpon Point Marina	1430	Rose Garden Rd.	175	N
4	MARINA	York Road Marina	0		10	open yard
5	DOCKS	Island Hardware & Marine Supply	3187	Stringfellow Rd.	10	2
6	MARINA	North Captiva Island Club	4421	Bartlett Parkway	16	N
7	MARINA	South Seas Plantation Resort & Yacht Harbour	5400	Plantation Rd.	3,800 feet of longside tie-ups	
8	MARINA	Jensen's Twin Palms Resort and Marina	15107	Captiva Dr.	24	N
9	MARINA	The Green Flash (aka Timmy's Nook)	15183	Captiva Dr	short term only	
10	MARINA	Tween Waters Marina	15951	Captiva Dr.	35 - 50 wet slips	N
11	MARINA	Big Hickory Fishing Nook Marina	26107	Hickory Blvd SW	12	N
12	MARINA	Bonita Bay Marina	27598	Marina Pointe Drive	80	348
13	RAMP	Imperial River				
14	MARINA	Mullock Creek Marina	18501	Mullock Creek Ln.	14	
15	RAMP	Koreshan State Park				
16	RAMP	Weeks Fish Camp				
17	RAMP	Spring Creek (removed)				
18	RAMP	Carl Johnson				
19	DOCKS	Deebold's Marina	18500	San Carlos Blvd	4	N
20	MARINA	Getaway Marina	18400	San Carlos Blvd.	38	N
21	MARINA	Island Bay Marina	290	Pearl St.	18	
22	MARINA	Gulf Star Marina (aka #95)	708	Fisherman's Wharf	39	180
23	MARINA	Ft. Myers Beach Marina	703	Fisherman's Wharf	40	100
24	MARINA	Moss Marine of Fort Myers Beach	450	Harbor Ct.	Y	Y
25	MARINA	Mid Island Marina	4765	Estero Blvd.	68	200
26	MARINA	Fish Tale Marina	7225	Estero Blvd.	100	200
27	RAMP	Fort Myers Beach				
28	MARINA	Compass Rose Marina	1195	Main St.	34	132

Facility No.	Type	Name	Address		Wet Slips	Dry Slips
29	MARINA	Olsen Marine Services, Inc.	1100	Main St.	Temporary use	N
30	MARINA	Adventures in Paradise Port Sanibel Marina	14311	Port Comfort Rd.	124	currently building an indoor storage facility
31	MARINA	Salty Sams Marina	2500	Main St.	50	open yard also constructing an indoor facility
32	MARINA	Castaways Marina, The	6460	Sanibel-Captiva Rd.	8	N
33	RAMP	J.N. Ding Darling				
34	RAMP	Sanibel				
35	MARINA	Sanibel Marina	634	N. Yachtsman	86	N
36	RAMP	Punta Rassa				
37	MARINA	Sanibel Harbour Marina fka Punta Rassa Marina	15051	Punta Rassa Rd.	N	250
38	RAMP	Alva				
39	MARINA	Owl Creek Boat Works & Storage	18251	Owl Creek Rd.	Has wet/dry slips unwilling to give info re: the number or cost.	
40	RAMP	Ft. Myers Shores				
41	MARINA	Jack's Marine South fka One-O-Seven Marina	2200	Marina Park Dr.	400 ft of seawall	40 - 50 long-term
42	RAMP	Olga				
43	RAMP	Franklin Locks South				
44	RAMP	Franklin Locks North				
45	DOCKS	Cabbage Key Inc.			short term only	N
46	MARINA	Boca Grande Pass Marina	881	Belcher Rd.		
47	MARINA	Whidden's Marine	190	1st St E (Boca Grande)	Y	Y
48	MARINA	Miller's Marina Inc.	220	Harbor Dr.	Y	
49	MARINA	Inn Marina	891	E. 8th St		
50	MARINA	Bocilla Island Club	8115	Main St.		
51	MARINA	Mattson Marine fka Pineland Marina & Campgrounds	13921	Waterfront Dr.	40	180
52	MARINA	Jug Creek Marina	16498	Tortuga St.	19	N
53	MARINA	Harbor Hideaway	7290	Barrancas Av. NW	Y	Y
54	MARINA	Burnt Store Marina	3090	Matecumbe Key Rd.	425	127

Facility No.	Type	Name	Address		Wet Slips	Dry Slips
55	RAMP	Matlacha				
56	RAMP	Matlacha Park				
57	RAMP	Cape Coral				
58	MARINA	Paradise Yacht Club aka Harbour Village Marina	3900	Orange Grove Blvd.	70	N
59	MARINA	Fish Tale at Caloosa Isle Marina - fka Island Club Marina	1687	Inlet Rd	20	300
60	MARINA	Hancock Creek			24	
61	MARINA	Royal Palm Yacht Club	2360	W. First St.	32	N
62	MARINA	Scottie's North Bay Marina	1016	N. Tamiami Trail	50	N
63	MARINA	Marina Town Marina	3444	Marinatown Ln.	144	N
64	RAMP	Cape Coral Freshwater				
65	RAMP	Judd Park				
66	RAMP	Scotties North				
67	RAMP	Big Still				
68	RAMP	Davis Road Park				
69	MARINA	Marina 31 Boat and Motor Sales	16991	Hwy 31	38	20 in do-it yourself yard, 25 outside slips, 80 indoor slips
70	MARINA	Manatee World Inc. DBA Coastal Marine Mart	5605	Palm Beach Blvd.	20	60 (storage)
71	MARINA	Hansen Marine Ways	5415	Palm Beach Blvd.	60 in use (100 total)	None at this time
72	MARINA	Ft Myers Yacht	2901	Frierson		Both inside 8.50ft/mon and out 3 ft /month; long term
73	RAMP	Powell Creek				
74	RAMP	Ft. Myers Yacht Basin				
75	MARINA	Ft Myers Yacht Basin	2414	Edwards Dr.	276 (commercial dockage - less than 100' - is available- pricing listed after wet slip prices)	N
76	MARINA	Caloosa Yacht Club	9854	Caloosa Yacht Rd	44	N
77	MARINA	Landings Yacht and Golf Club	4420	Flagship Dr	192	60 trailer boats

Facility No.	Type	Name	Address		Wet Slips	Dry Slips
78	MARINA	Cape Coral Community Park Yacht Club	5819	Driftwood Pkwy	93	N
79	RAMP	Cape Coral Park				
80	RAMP	Everest Parkway				
81	MARINA	Gulfwind - Deep Lagoon Marina	14070	McGregor Blvd	50	120 (80 indoor, 40 outdoor)
82	MARINA	Peppertree Pointe Marina fka Hideaway Yacht & Racquet Club	14801	Laguna Dr.	42	unknown - outdoor storage
83	RAMP	Cape Coral (freshwater)				
84	MARINA	Existing Port Facility Bonita Springs	5211	Draine St		
85	RAMP	Harbor Hideway				
86	RAMP	Pineland				
87	MARINA	Amtel Marina	2500	Edwards Dr		
88	MARINA	Bay Pointe Yacht & Racquet Club	16150	Bay Pointe Blvd.	Y	Unknown
89	MARINA	Centenial Harbor Marina	2100	W. First St.	46	N
90	MARINA	Coconut Point (aka Roy Johnson Fish Co.)	5450	Coconut Rd	12	Y
91	MARINA	Fish Trap Marina	4794	Bonita Beach Rd.	13	N
92	MARINA	Four Winds Marina	16501	Stringfellow Rd.	89	315
93	MARINA	Gulf Harbour Yacht & Country	14500	Vista River Dr.	190	
94	MARINA	St. Charles Harbour & Yacht Club	15900	St. Charles Harbour Blvd.	65	N
95	MARINA	Harbour Isles	12250	Iona Rd.		
96	MARINA	Mainsail Marina	2825	Palm Beach Blvd.	25	20-25 (dry storage)
97	MARINA	Olde Fish House Marina / Quality Seafood Inc.	4530	Pine Island Rd. NW	26	30
98	MARINA	Rialto Harbor Docks	1901	Balsey Rd.	12	N
99	MARINA	Useppa Island Club Marina			40	N
100	DOCKS	Admiralty Yacht Club	15476	Admiralty Cir.	40	N
101	DOCKS	Alva Supply & Marina	17261	Broadway St.	N	N

Facility No.	Type	Name	Address		Wet Slips	Dry Slips
102	DOCKS	Boardwalk Caper I-II-III Community Services Association	18120	San Carlos Blvd.	206 slips on one side, basin with 52	N
103	DOCKS	Bonita Beach Resort Motel	26395	Hickory Blvd.	7 (for rental boats)	N
104	DOCKS	Coon Key Marina aka Hancock Creek Marina	3480	Hancock Bridge Pkwy	Y	Y (storage)
105	DOCKS	Dobby's Place Ed's Storage	4440	Pine Island Rd. NW		
106	DOCKS	Dolphin Marina	1506	SE 46th St.	N	Dry rack storage- open; approx. 40
107	DOCKS	Existing FPL Facility	10650	Palm Beach Blvd		
108	DOCKS	Fishin' Fever Marina	3105	Stringfellow Rd.	N	N
109	DOCKS	Hancock Bridge Marina	3436	Marinatown Ln.	Y	
110	DOCKS	Marine Fisherman's Supply	1148	Main St.	N	N
111	DOCKS	Mariner's Lodge & Marina Guesthouse Inn	17990	San Carlos Blvd.	Y	N
112	DOCKS	Matanzas Fishing Center	416	Crescent St.	Y	N
113	MARINA	Matlacha Marina Inc. & Matlacha Bait & Tackle	3922	Pine Island Rd NW	Y	Y
114	DOCKS	McCarthy's Marina & Cottages (aka #48)	15041	Captiva Dr	9 total: 5 full time rented for fishing guides	N
115	DOCKS	Old Bonita Fish Docks	702	Fisherman's Wharf	17	N
116	DOCKS	Orange Harbor MH Park Docks	5749	Palm Beach Blvd.	docks are for residents only	N
117	DOCKS	Pine Bay Marina - fka San Carlos Marina	4330	Pine Island Rd. NW	just one dock for boats to pull up to, to purchase from the store	N
118	DOCKS	River Tower Condominium Docks	4280	SE 20th Pl.	18	N
119	DOCKS	Snook Harbour Inn	4445	Pine Island Rd NW		
120	DOCKS	St James Marina	3157	Stringfellow R.	6	N
121	DOCKS	Tad's Marine Service, Inc.	1510	SE 46th St.	4	N
122	DOCKS	Tarpon Bay	900	Tarpon Bay Rd.	N	N
123	DOCKS	Waterfront Marina	2131	Oleander St.	Y	

Facility No.	Type	Name	Address		Wet Slips	Dry Slips
124	DOCKS	Fishing Terminal / Fishing Cruises / Ships Store	700	Fisherman's Wharf		
125	DOCKS	Rivers Boat Basin Property Owner's Association Inc.	0	SE 20th Pl		
126	DOCKS	Charlotte Harbor Resort	8491	Main St.		
127	MARINA	South Seas Plantation Resort & Yacht Harbour	2800	SS Plantation Rd	49 wet slips / 55 longside docking	
128	DOCKS	Marina Towers & Yacht Club	8401	Estero Blvd.	Y	N
129	DOCKS	Jonathan Harbour Yacht			34	
130	DOCKS	Bay Beach			530	

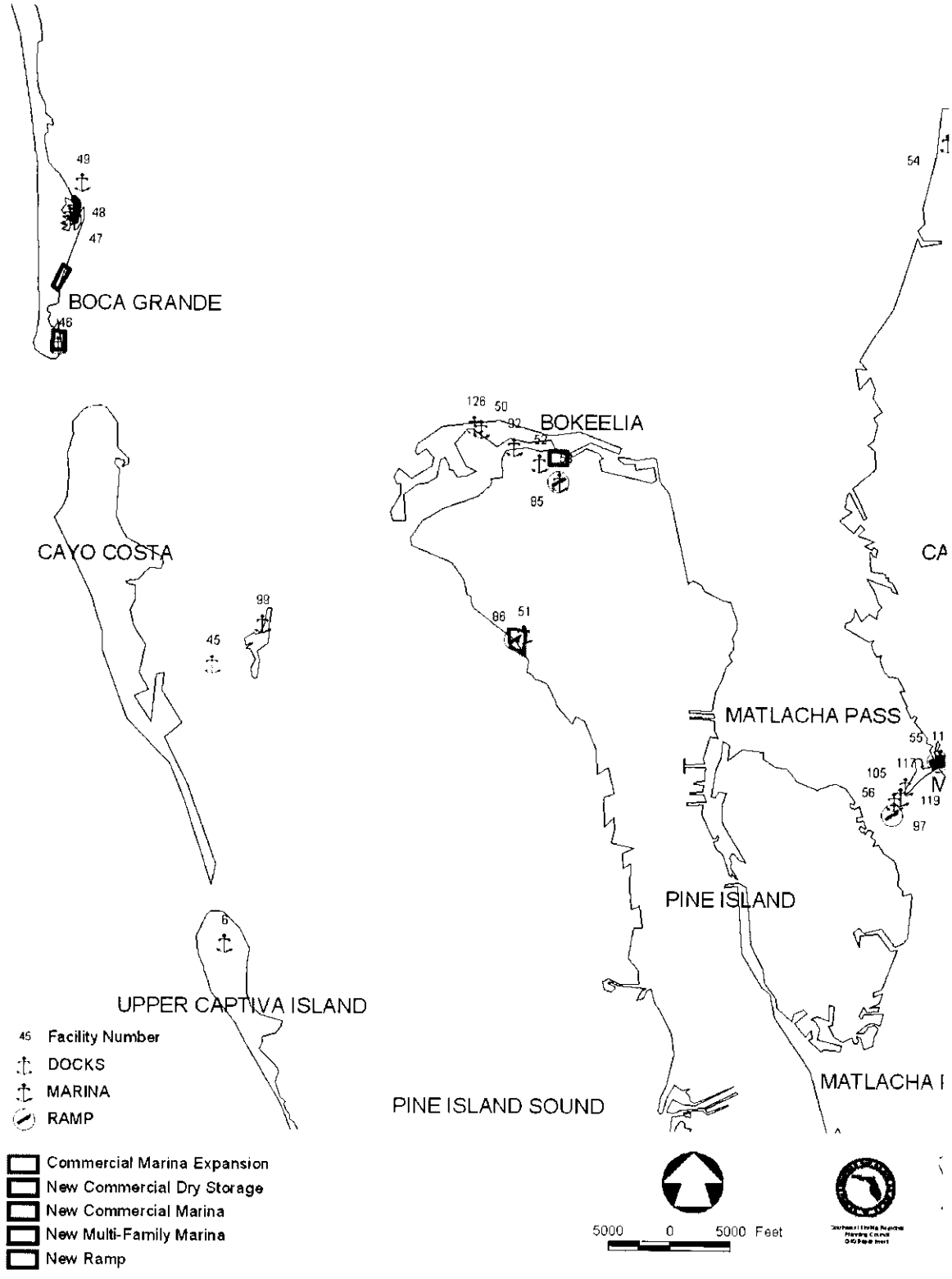


Figure 14. Inventory of Marinas and Boat Ramps

Figure 14. Inventory of Marinas and Boat Ramps Continued

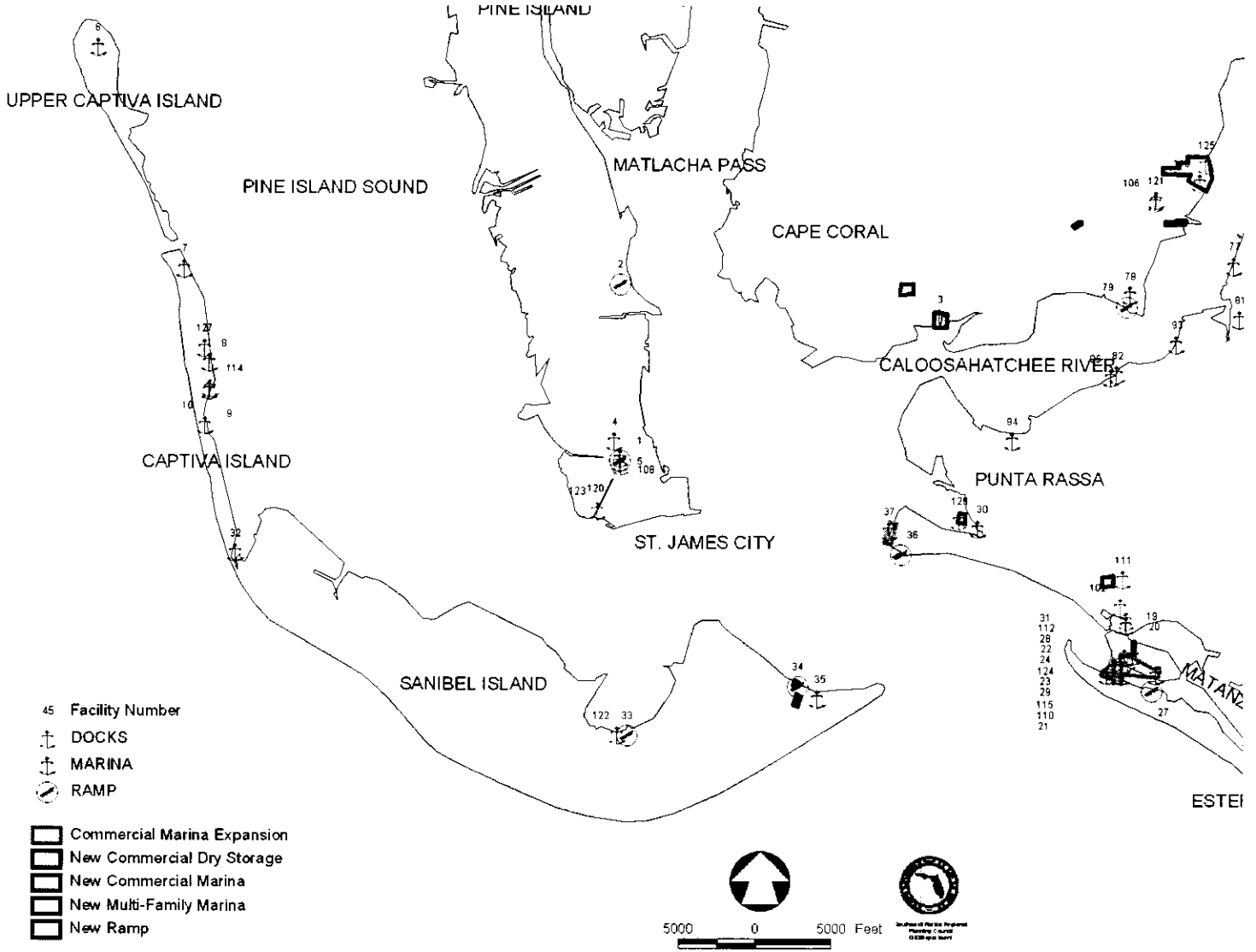


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Figure 14. Inventory of Marinas and Boat Ramps Continued

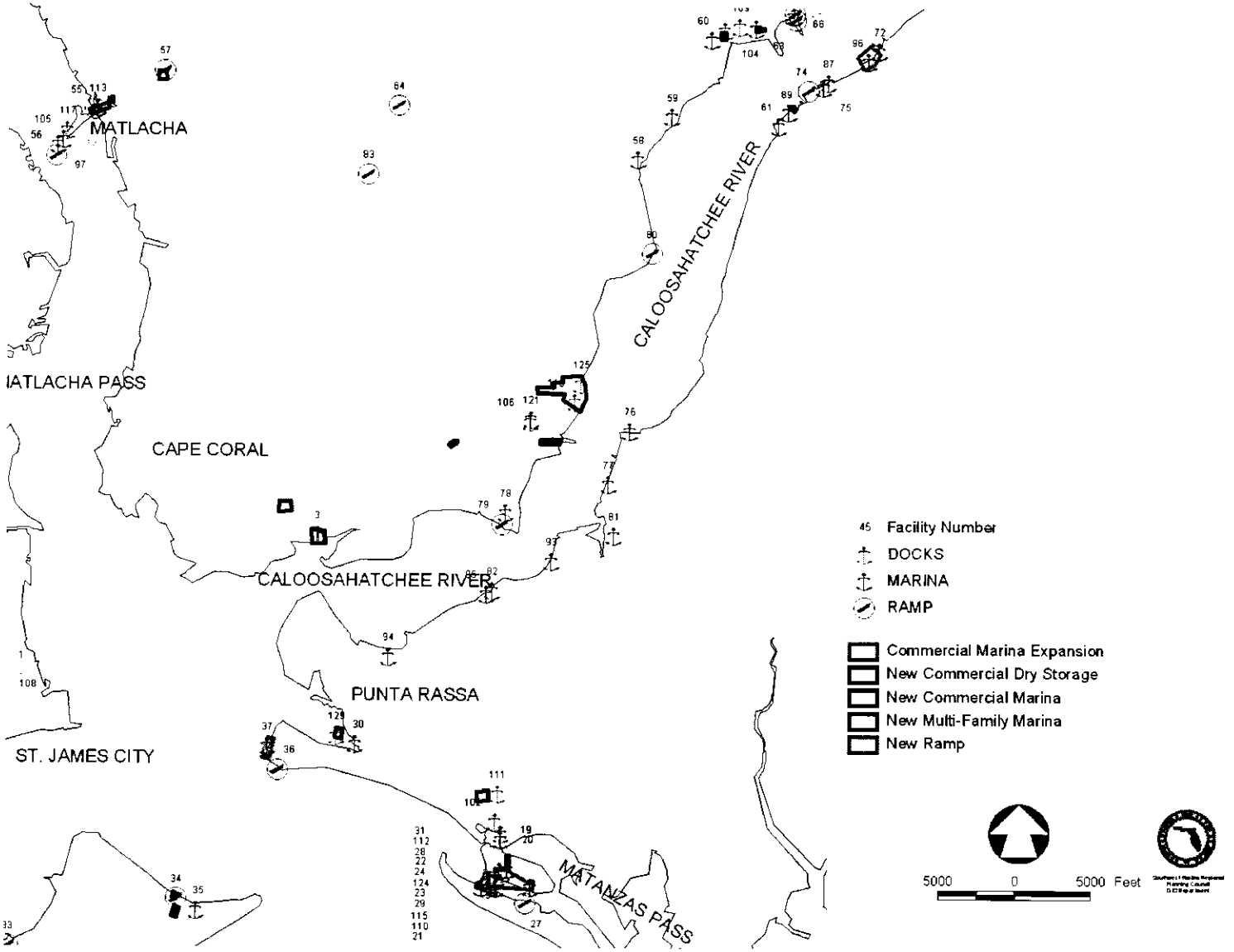


Figure 14. Inventory of Marinas and Boat Ramps Continued

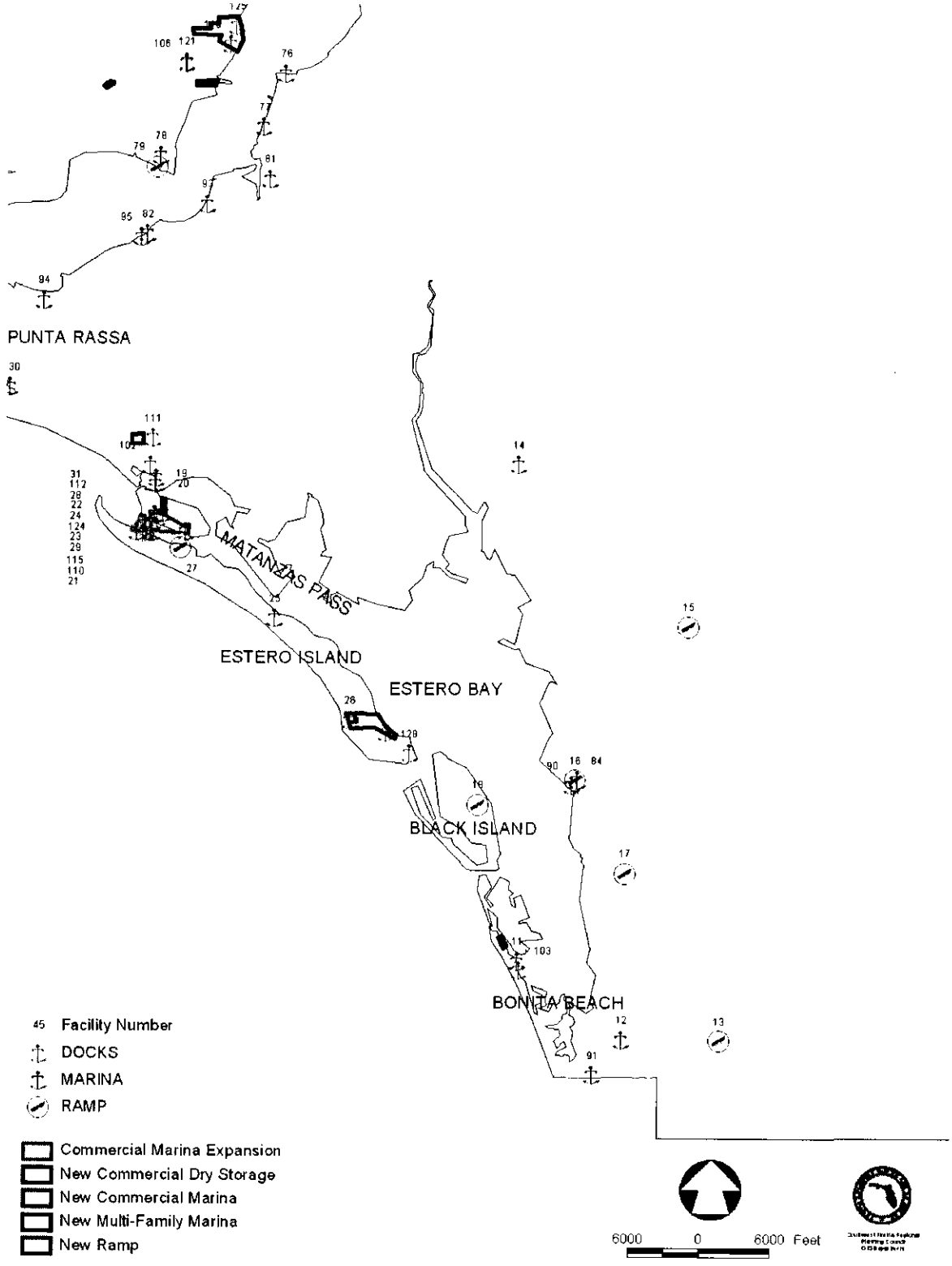


Figure 14. Inventory of Marinas and Boat Ramps Continued

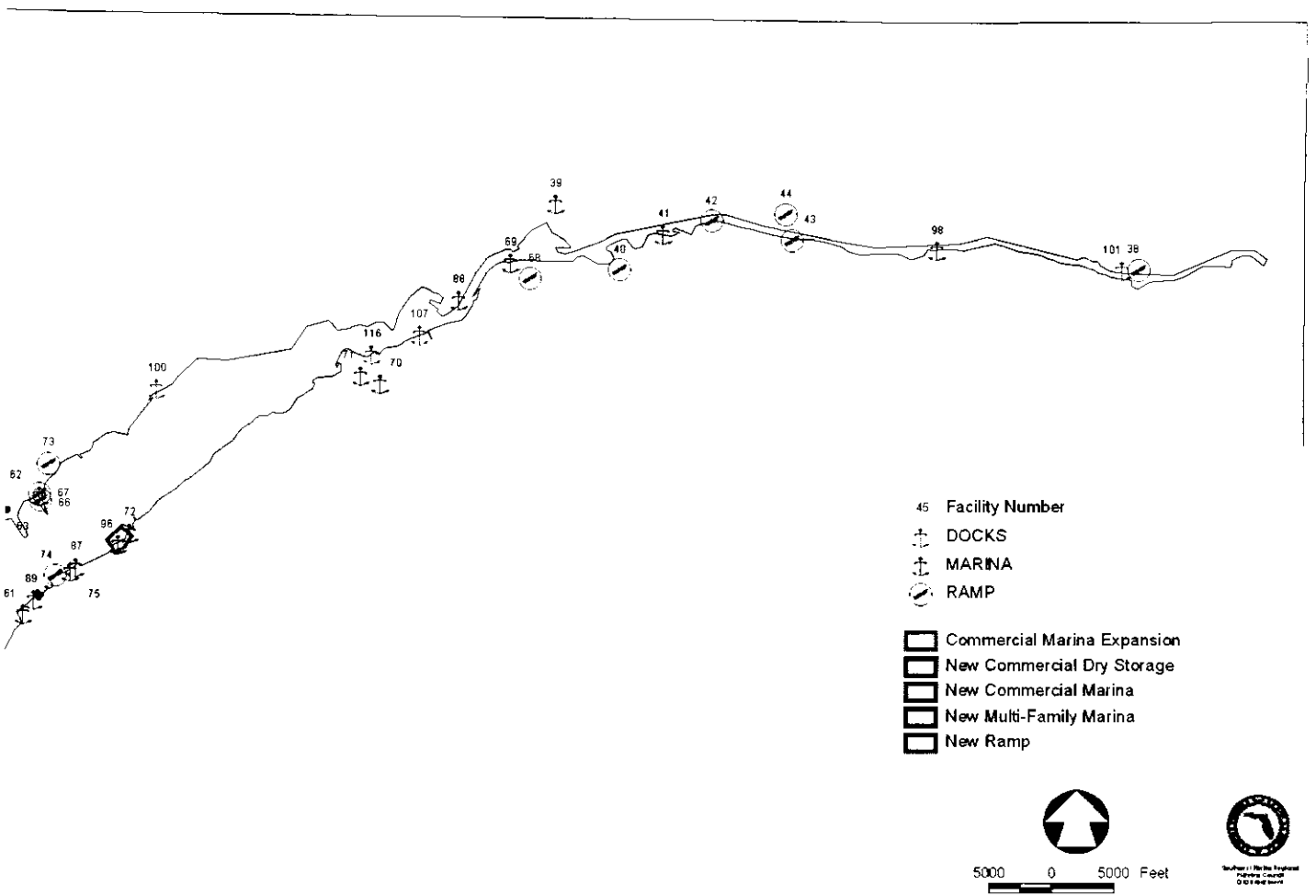


Table 6. Vessels Registered in Lee County BY CLASS

CLASS TYPE	NUMBER OF BOATS			
	Fiscal Yr 1998/99		**January 31, 2002**	
CLASS A-1, Less than 12'				
Pleasure	4,763	%		
Commercial	204			
CLASS A-2, 12' – 15'11"				
Pleasure	6,382			
Commercial	149			
CLASS 1, 16' – 25'11"				
Pleasure	20,421			
Commercial	837			
CLASS 2, 26' – 39'11"				
Pleasure	3,254			
Commercial	208			
CLASS 3, 40' – 64'11"				
Pleasure	342			
Commercial	89			
CLASS 4, 65' – 109'11"				
Pleasure	2			
Commercial	56			
CLASS 5, Over 110'				
Pleasure	0			
Commercial	0			
CANOES				
Pleasure	301			
Commercial	31			
DEALERS	231			
TOTALS				
Pleasure Craft	35,485			
Commercial Craft	1,632			
GRAND TOTAL	37,328			

Source: Florida Fish and Wildlife Conservation Commission, 1998/99; Lee County Tax Collector 2002.

TABLE 7. TOTAL VESSELS REGISTERED BY FISCAL YEAR

Fiscal Year	Number of Boats
86-87	**25,570**
87-88	**27,548**
88-89	**30,581**
89-90	**31,450**
90-91	**31,719**
91-92	**31,381**
92-93	**31,190**
93-94	**32,222**
94-95	**16,410***
95-96	**34,178**
96-97	**36,157**
97-98	**36,255**
98-99	**37,328**

Source: Florida Fish and Wildlife Conservation Commission

- ❖ unexplained anomaly in the data most likely caused by transition of records to Department of Motor Vehicles and modification from all annual renewals to monthly based on owners birthday.

TABLE 8. NEW BOAT COMPOSITION BY SIZE, 1998 SALES

Boat Size (ft)	**Number of Boats**	**% of Total New Boats**
16-20'	17,203	63.2
21-25'	6,468	24.8
26-30'	2,190	8.0
31-35'	673	2.5
36-40'	280	1.1
41-45'	129	0.4
46'+	146	0.5
Total	**27,086**	

Source: Where Do They All Come From, An Analysis of Boat Traffic and How It Relates to Manatee Mortality in Lee County, Florida

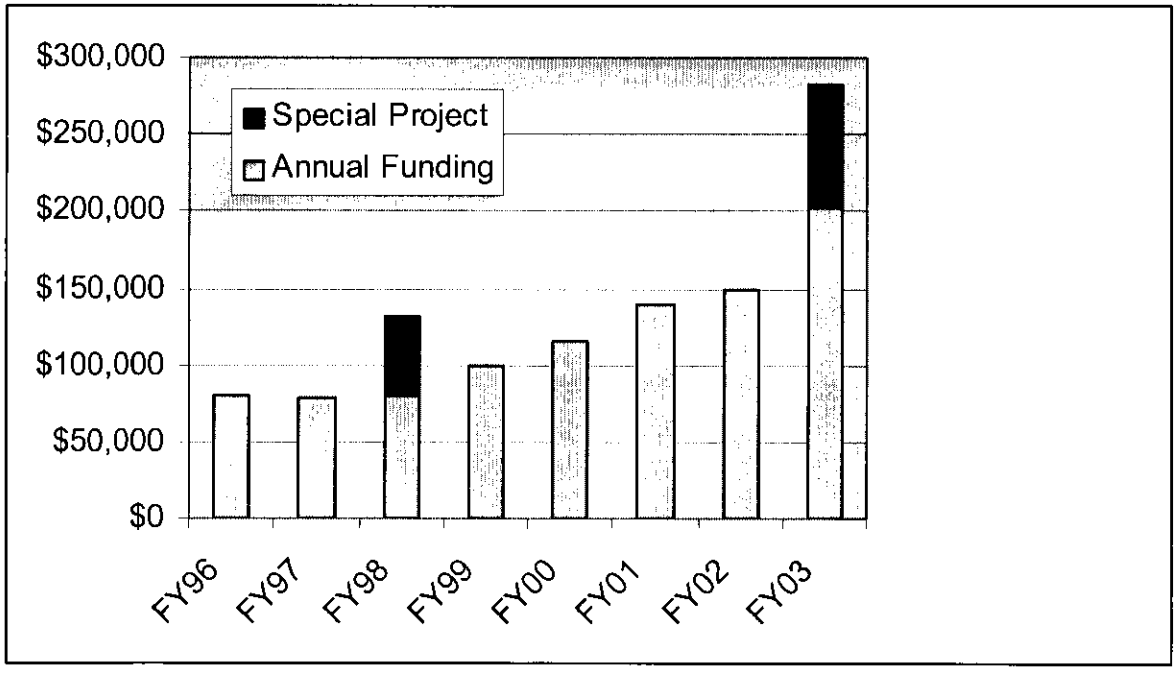
7.0 Current Manatee Protection Measures

Lee County is constantly seeking ways to protect the West Indian Manatee, and its habitat. For many years there have been several ongoing programs designed to protect the manatee directly or indirectly through various initiatives supported by Lee County. These initiatives take many forms and are outlined below.

7.1 Law Enforcement Efforts

Each year, Lee County invests significant resources to enhance marine law enforcement activity. Lee County has shown a strong, continued commitment to sustaining and increasing the level of marine enforcement. Local option boat registration surcharges were instituted by ordinance in 1985 and continue to be directed solely for marine law enforcement. This revenue varies annually as a function of boat registration. Twenty percent of the funding secured from the West Coast Inland Navigation District is allocated annually for marine enforcement (see Figure hgf). Revenues from these two sources totaled over $570,000 for local marine law enforcement enhancements in Fiscal year 2001-2002 alone; over 1.6 million dollars in the past four fiscal years.

Figure Hgf – Increase In Law Enforcement Funding from WCIND



In conjunction with the award, the County has set up procedures to track activity for all local agencies that receive County funding. Table X shows the number of hours of Marine law enforcement provided by the local law enforcement entities for fiscal years 1996 through 2001.

Table x Local Law Enforcement Activity. Citations are a combined total and include infractions unrelated to manatees. CORRECT HOUR TABLES

Dept.		Fiscal Year 1996/1997	Fiscal Year 1997/1998	Fiscal Year 1998/1999	Fiscal Year 1999/2000	Fiscal Year 2000/2001
		TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
LCSO	hours - water	2706	2711	5001		
	citations	180	66	106		
SPD	hours - water	527.5	375	504		
	citations	28	20	2		
CCPD	hours - water	2008	1486	1823		
	citations	2036	95	40		
FMPD	hours - water	142	205.5	625		
	citations	19	21	132		
FMBch	hours – water		226.5	1367		
	citations		17	10		

LCSO = Lee County Sheriff's Office; SPD = Sanibel Police Department; CCPD = Cape Coral Police Department; FMPD = Fort Myers Police Department; FMBch = LCSO activity done under contracted detail for the Town of Fort Myers Beach.

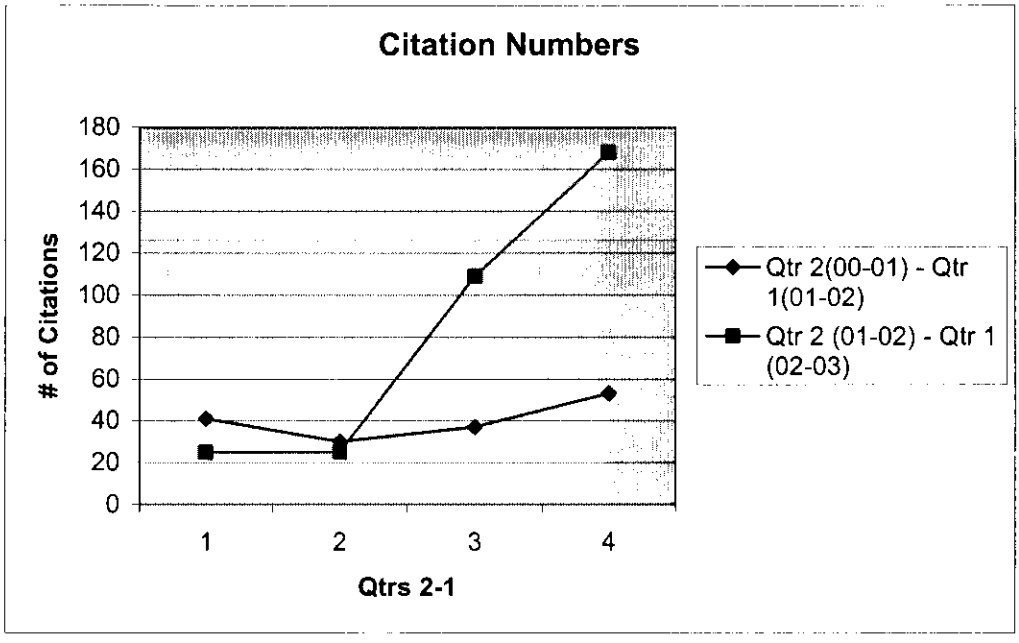
Through reports submitted to the County, the County is advised of the local law enforcement effort each month by agency. The county has recently refined the reporting system to correspond with four zones based upon the US Army Corps reach designations. Activity is reported by zone and includes manatee zone citations, total citations, manatee zone warnings, and manatee sightings.

The County is now planning to bring law enforcement coordination to an even higher level introducing the use of GPS positioning equipment to automate the tracking process starting in fiscal year 2002/2003. The County is planning to implement this locally due to the continued emphasis at the state and federal levels confirming the importance of directed law enforcement efforts. This effort is funded, and test equipment installation has begun. When fully operational, every enforcement unit receiving funding through WCIND will include a transmitter that will allow GIS analysis of enforcement patterns, density, gaps and coordination between participating agencies. This information will be used in correlation with manatee sighting, mortality, speed zone area, and boat use pattern information to help allocate resources to maximize benefits for manatee protection and boating safety. In initial discussion with the FWC, it appears that they will allow Lee County to place the GPS data units on the FWC vessels operating in Lee County as well. This will give a full, comprehensive analysis tool for all of Lee County.

Table y – Increase in Law Enforcement Activity (Lee County and Cape Coral PD), hours on water and citations issued, second quarter of FY2000/2001 through the first quarter of FY2002/2003.

Citations By Department

	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
LCSO	21	19	20	1	7	7	27	120
#2	1	6	0	12	0	1	57	22
#3	0	0	0	24	13	1	14	7
CCPD	19	5	17	16	5	16	11	19
Total=	41	30	37	53	25	25	109	168



Water Hours By Department

	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
LCSO	817.5	1063	646	903.3	1102	1042	993	821.5
#2	365	486	343.5	141	452	307	352	324
#3	0	0	0	490.5	134.5	195	204	100.5
CCPD	328	404	468	396	424.5	630.5	475	141
Total=	1510.5	1953	1457.5	1930.8	2113	2174.5	2024	1387

Lee County is the only local government to date that has gone through the complete process of having a supplemental funding plan developed and approved to implement the terms of the USFWS Draft Interim Guidance. We have a contract signed by the Lee County Sheriff and account mechanisms in place. While recent state and federal actions have resulted in the Federal Interim Guidance suggesting that additional fees for marina enforcement are no longer necessary, this tool is still available should it become

useful in the future or for additional conservation measures proposed by larger marine developments.

Lee County also hosted a training seminar on manatee speed zones and manatee procedures for law enforcement from all state and local agencies. In attendance were officers from the City of Ft. Myers, City of Cape Coral, U.S. Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission, U.S. Coast Guard, Florida Department of Environmental Protection (Parks Division), and Lee County Sheriff's Office. This first session was very well received and Lee County plans to make this seminar a semi-annual event. In addition to helping coordinate enforcement efforts, the seminar is designed to keep officers up to date with manatee issues and educate new officers to the complexities of manatee enforcement.

State law enforcement as provided by the Florida Fish and Wildlife Conservation Commission Division of Law Enforcement has increased in Lee County. The first new positions approved in over ten years are expected to be fully operational in early 2003. The State has previously and is expected to continue making manatee enforcement a priority.

Additionally, local law enforcement entities are in the process of creating a Manatee Task Force in order to coordinate manatee protection efforts within Lee County. Included in the formation of this task force are Lee County SO, Cape Coral PD, Ft. Myers PD, Sanibel PD, and the Florida Fish and Wildlife Conservation Commission – Division of Law Enforcement. As a function of this task force, the Lee County Sheriff has agreed to deputize officers of Cape Coral's Marine Unit, effectively making additional law enforcement presence available and present throughout the Caloosahatchee River. The additional coordination will maximize the potential enforcement benefits for manatee protection.

7.2 Manatee Speed Zones

Some of the first boat speed restrictions for manatee protection were implemented to protect the wintering herd that gathered near the Florida Power and Light (FPL) power plant in Fort Myers. The plant uses water drawn from the Caloosahatchee River just east of I-75 for cooling, and discharges the warm water to the Orange River. In 1979, this area was regulated with slow and idle speed zones effective each year from November 15 through March 31.

In 1989, year round speed zones were established for major portions of the Caloosahatchee River from the Franklin lock and dam to the mouth of the river at Shell and Sword Points. The primary features were: ¼ mile slow speed shoreline buffers from the mouth of the river to the Caloosahatchee (New US 41) Bridge; slow speed outside most of the ICW channel from the Edison (Business 41) Bridge to the Seaboard Coastline Railroad Tressel (adjacent to the 1979 zones); slow speed within ¼ mile of the Franklin Lock structures.

In 1990, state staff began the process of developing additional speed zones to cover all Lee County areas used by manatees on a regular or frequent basis. Lee County reviewed several draft concepts for these new zones. In an effort to develop a locally acceptable set of speed zones and eliminate the need for additional state intervention, the County adopted several special management areas by way of local ordinance in 1990 (Ord. 90-51). These areas several slow speed zones as well as a zone prohibiting combustion engine operation to protect manatees and seagrass habitat near York Island and MacKeever Keys. The no-motor zones were ultimately never posted or enforced because of federal agency objections during the permit process that said the zones created undue interference on navigational rights.

The Lee County ordinance was not deemed sufficient by the state agencies and they continued countywide rule development. In 1994, County staff took the advanced copy of the state rule being considered, and conducted a series of public workshops to solicit input and suggestions. Throughout the workshops, public comments consistently objected to another expansion of state regulations perceived as limiting the boating freedoms in Lee County. The County was unsuccessful in trying to convince the state to reduce the scope of their proposed rule and joined in an administrative challenge. The rule was found to be "arbitrary and capricious", deficient in the Economic Impact Statement requirements, and was invalidated in December 1995.

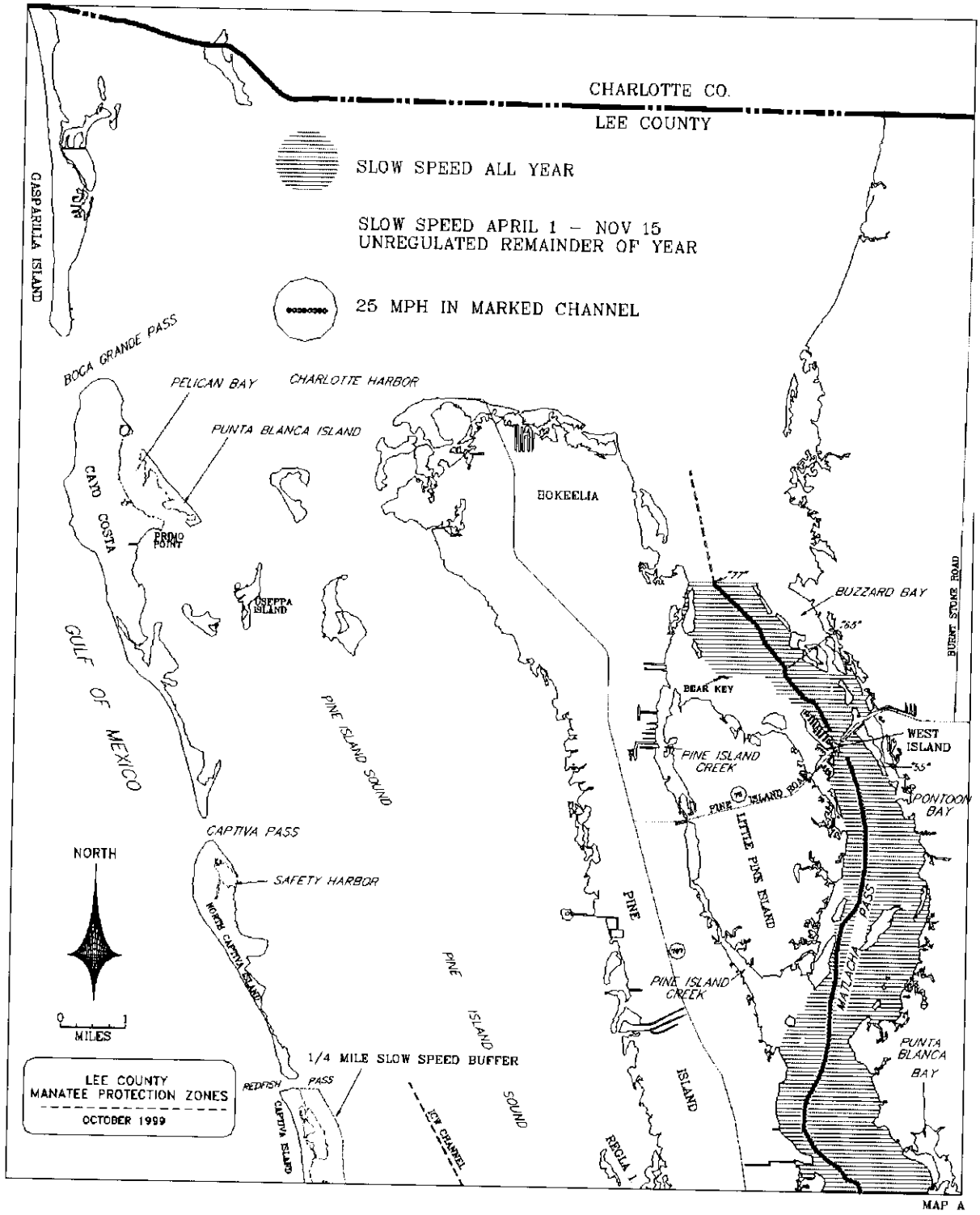
State staff worked between 1996 and 1998 to conduct surveys and complete a more detailed economic analysis. They also continued to refine the evaluation of new and historic manatee data as it related to the potential creation of protective boat speed restrictions. In August 1998, the state published a notice of proposed rulemaking for countywide speed zones. This proposal was also subject to several administrative challenges, all of which were settled without going to hearing.

Lee County supported the FDEP and then FWC through the process of adopting the latest amendment to the Florida Administrative Code creating vessel speed restrictions for the purpose of Manatee protection (FAC 68C-22.005). Once the code had been adopted, Lee County planned, permitted, and installed all the necessary signs to mark the zones, thereby making them enforceable. The County also assumed the ongoing responsibility for inspection and maintenance of the signs, as well as semiannual sign changes at seasonal zones.

As the result of settlement agreements for recent lawsuits, both FWC and FWS may be implementing new speed zones in Lee County. The FWS recently adopted a slow speed refuge in the ICW channel at Shell Point and may consider further actions as required to protect manatees under the ESA and MMPA. The FWC committed to evaluate the effectiveness of zones in the Caloosahatchee (2002) and then the balance of the county (2003) as part of their settlement, but made no definitive commitment to change the existing regulations.

In addition to the State zones, the Lee County Vessel Control and Water Safety Ordinance 02-14 (Appendix XX) establishes more restrictive idle speed zones within 500 feet of developed shorelines. These often correspond to areas used by manatees and boaters and provide an additional level of protection. In addition to routine sign posting and maintenance, there is an ongoing program in place to coordinate signage improvements with local Law Enforcement agencies, and to coordinate posting to be compatible with the more restrictive local boating ordinances.

FIGURE 15. BOAT SPEED ZONES



MAP A

FIGURE 15. BOAT SPEED ZONES –CONTINUED

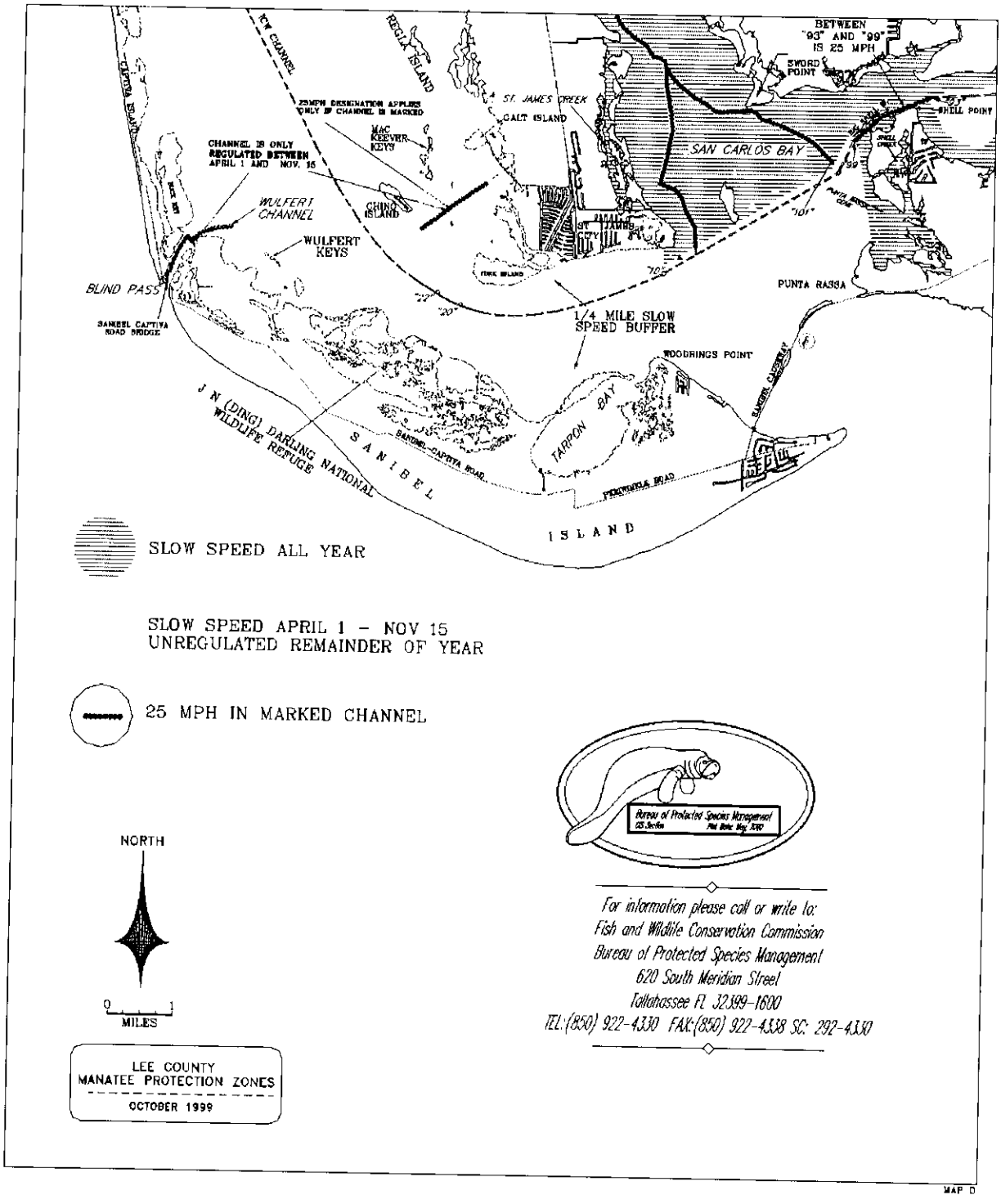


FIGURE 15. BOAT SPEED ZONES –CONTINUED

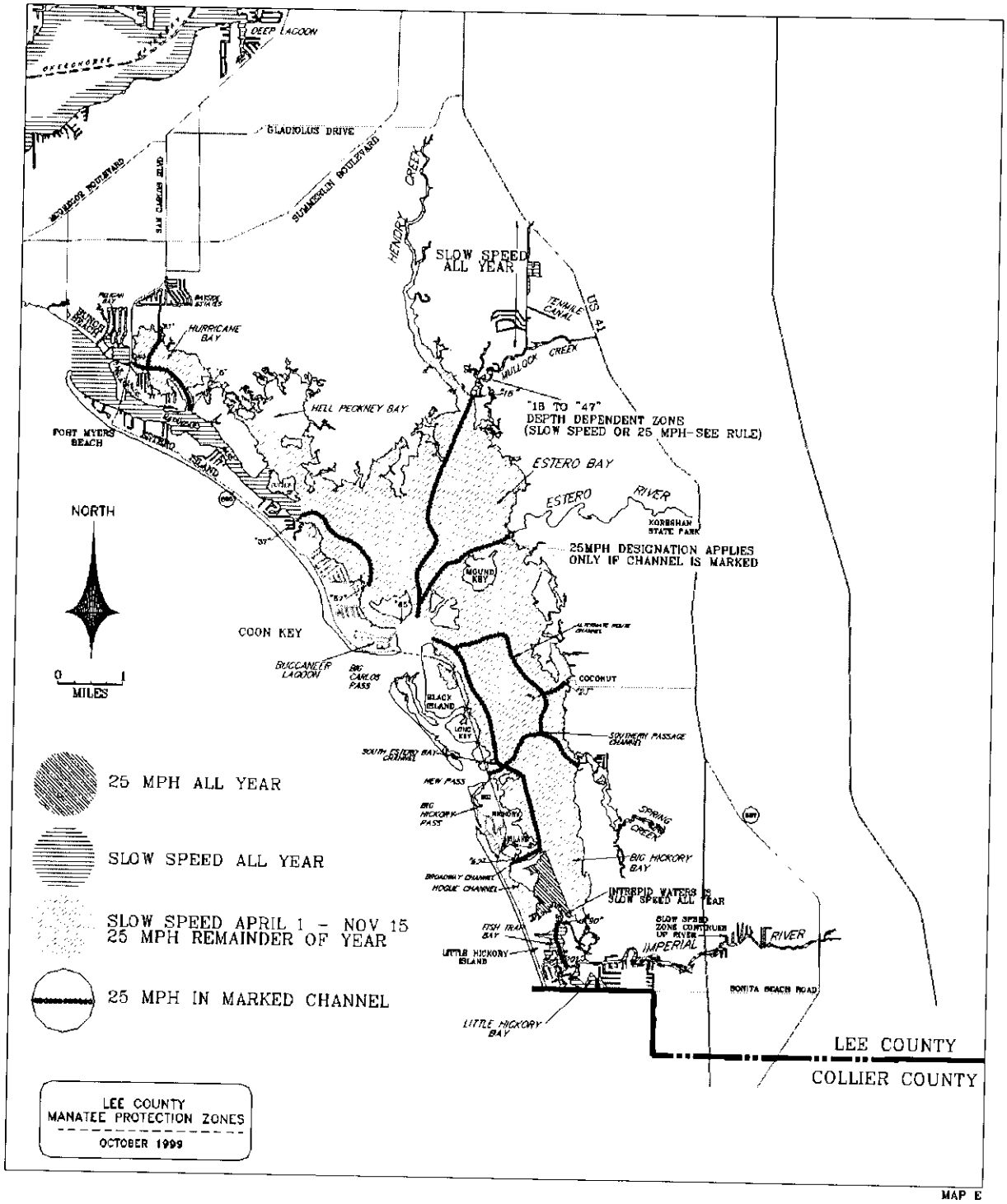


FIGURE 15. BOAT SPEED ZONES –CONTINUED

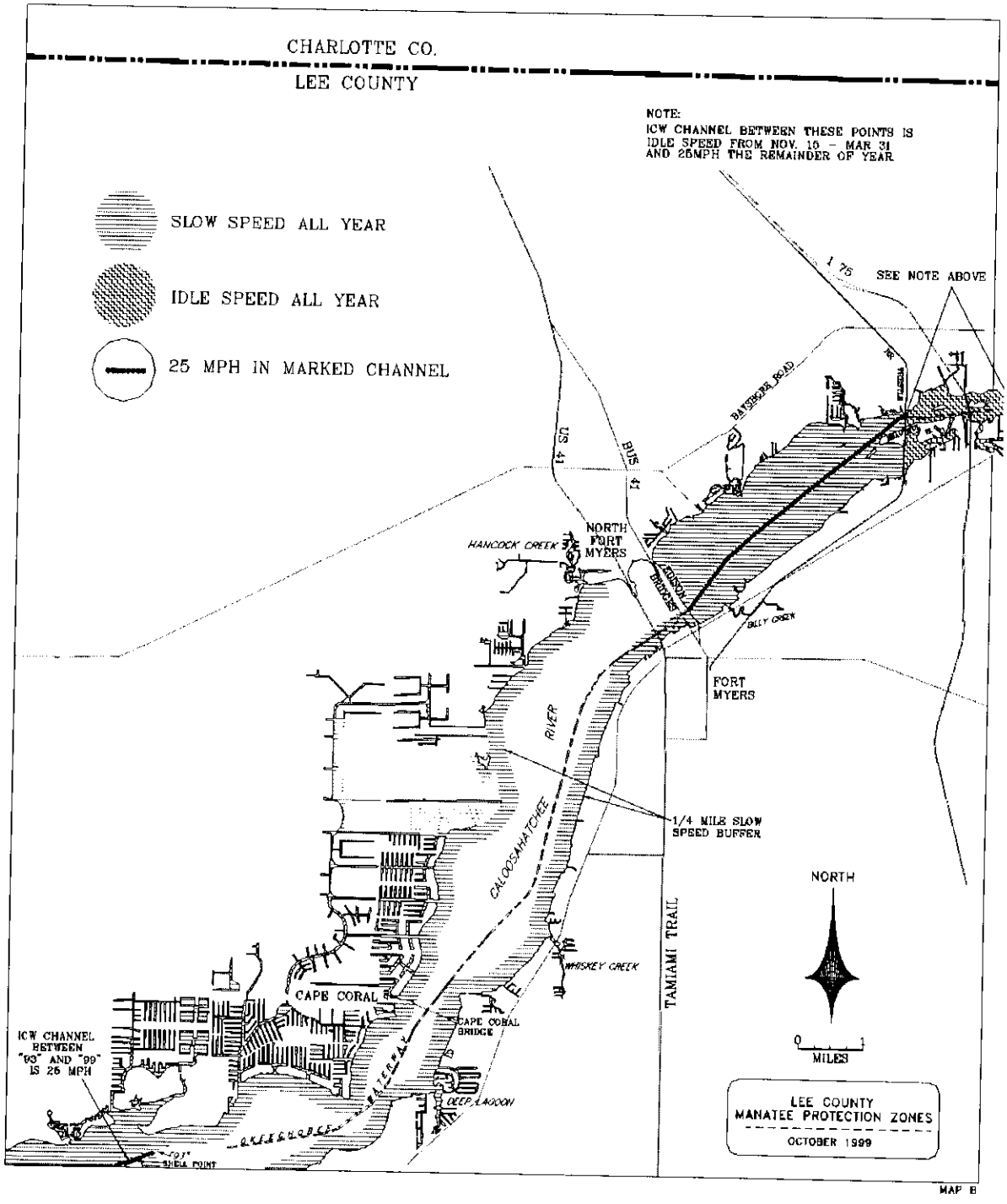
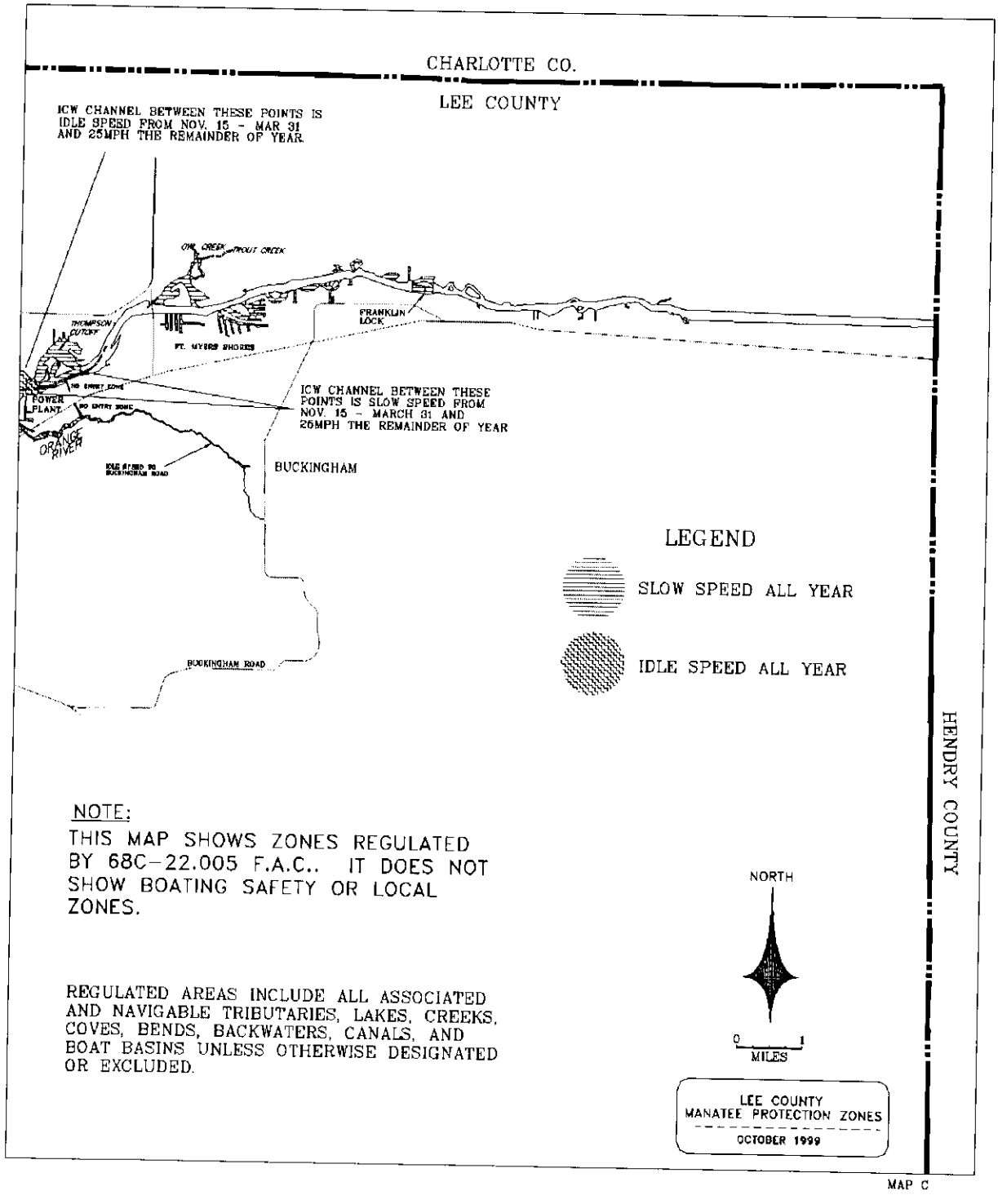


FIGURE 15. BOAT SPEED ZONES –CONTINUED



7.3 Habitat Preservation

Virtually all Manatee habitat in Lee County is owned by the State of Florida (i.e. sovereign submerged lands) and as such the County's ability to directly preserve manatee habitat is severely limited. There are several state Preserves, Reserves, State Parks, Save Our Rivers Projects (SFWMD), and Aquatic Preserve Buffer Zones (DEP) located throughout the County. Please refer to **Figure 16: Regionally Significant Natural Resources** for a depiction of current protected areas. Lee County does work towards preservation of Manatee Habitat in several ways.

In efforts that directly impact the boating public and County waterways, the County has included specific information about seagrass protection in the Lee County Boater's Guide. In addition to information provided in the maps, Natural Resources staff has begun conducting seagrass education seminars for area boaters groups. To date programs have been given to the Imperial River Conservancy, Bonita Bay Captain's Club, and the Bonita Bay Fishing Club. Both efforts help to keep boaters in the best water for navigation and minimize the potential for prop scarring. Methods are being examined that would allow the program to be expanded to additional boating groups.

Lee County works indirectly to protect manatee habitat through regulation and management of water quality. Water quality and the deterioration thereof have potentially devastating implications for manatee food sources. As water quality declines and light penetration is reduced, there will be a direct negative impact to SAV abundance. This impact will affect the deepest edge of grass beds first, areas which are more easily accessible by manatees.

Specifically, Lee County has the NPDES MS4 stormwater permit. This has several conditions which assist in promoting good water quality. The educational component requires education of engineers, contractors and the general public. They are to be educated in construction site management, illicit discharge identification and reporting of suspected discharges. This reduces the amount of silts and sediments in the receiving waters and other potential runoff pollutants. Education is also conducted using the Enviroscape educational tool at group gatherings and other public events. This illustrates the benefits of reducing herbicides, pesticides and other pollutants in daily life.

Lee County has also distributed several hundred placards for installation on stormdrains to notify the public that they should not "dump" pollutants as the drain goes to the bay. We have tried to illustrate the potential effects by supplementing the text with a graphic image of estuarine life, including a version depicting a manatee. Installation has been accomplished through the combined efforts of public employees and volunteer labor.

Vessels abandoned on waters of the state are a potential source of debris and water quality pollution that could negatively affect manatees. Lee County is very involved in derelict vessel removal. During fiscal years 1999 through 2001, Lee County removed ninety-six vessels at a cost of over two hundred and twenty thousand dollars. Lee

County has a very aggressive, very active derelict vessel removal program that works with the FWC to remove vessels that pollute the waters of Lee County.

The Lee County Solid Waste Department collects hazardous waste quarterly from homeowners and sponsors used oil collection sites throughout Lee County. This is another important method to keep deleterious substances from impacting manatee habitat. In the business community, the Pollution Prevention Program inspects and verifies small quantity generators through out the County, providing proper education on tools for managing hazardous waste and alternative practices to eliminate the use of hazardous substances that generate hazardous waste. The Lee County Extention Service is also working to educate licensed pesticide and herbicide applicators.

In addition to working with homeowners and businesses in Lee County, Lee County also participates with other governmental entities on important water quality issues. Of paramount importance is the management of Lake Okeechobee and the associated flood control practices that result in changes to Caloosahatchee River water quantity, quality, and timing. The Caloosahatchee is a focal point for manatee activity in Lee County. In addition to potential impacts to fresh water drinking supplies and general estuarine disruption, recent fresh water releases were observed to decimate SAV in proximity to the FPL power plant, the primary winter use area for manatees. Lee County attempted legal action to stop these damages. That effort was unsuccessful, but the interest has been maintained to develop a proactive stance to prevent future such damages. A coalition of interests along the Caloosahatchee has been formed to try to influence better management practices of Lake Okeechobee.

Lee County has actively worked with FMRI in their ongoing investigation of harmful algal blooms. The County is prepared and collects water samples for analysis as requested by FMRI. The presence of red tide is a risk to manatees because of direct toxicity problems as well as implications of reduced motor function causing an increased threat to secondary problems such as watercraft impact. Knowledge of red tide bloom boundaries can provide an important management tool. When red tide is present in manatee areas, increased emphasis should be placed on public education and enforcement of existing speed zones. The public should be made aware of the increased risk to manatees and reporting procedures if they see distressed animals. Strictest compliance with vessel speed restriction must also be achieved to prevent watercraft collisions with impaired manatees.

It is also possible to indirectly influence manatee habitat through management of adjacent uplands. The County has a very active conservation land acquisition and management program that gives emphasis to riparian and wetland properties that could have benefits to manatees by precluding development in these areas and protecting water quality. Lee County Ordinance No. 96-12 (See Appendix V), created the Lee County Conservation Land Acquisition and Stewardship Advisory Committee, (CLASAC), comprised of fifteen citizens. The CLASAC held its first meeting on February 20, 1997 and has been meeting regularly (usually once a month) to review real property nominated for potential purchase by Lee County. The CLASAC has formulated an

official nomination form entitled Lee County Conservation 2020 (See Appendix VI). This is a willing seller acquisition program. Lands purchased and identified as potential purchases are shown in Figure 16.

As of August 2002, Lee County has acquired 7,928 acres of property for preservation. A significant portion of this property is riparian. While each parcel will have a management plan developed that may allow for passive recreation, over 37 miles of shoreline has been placed under preservation through County acquisition. The Caloosahatchee Creeks Preserve in particular, is a parcel that had been slated for intense development including marina facilities in an important area of the Caloosahatchee for manatee use (Figure aaa).

In addition to direct purchases, the Conservation 2020 program fosters partnerships with other federal, state, and private conservation land programs. The combined efforts create a significant network of conservation areas throughout the county (Figure xxx).

Figure 16. Lands acquired by Lee County Conservation 2020 program between 1998 and August 2002.

Figure xxx. Caloosahatchee Creeks Preserve. Main parcel acquired by Lee County on December 2000.

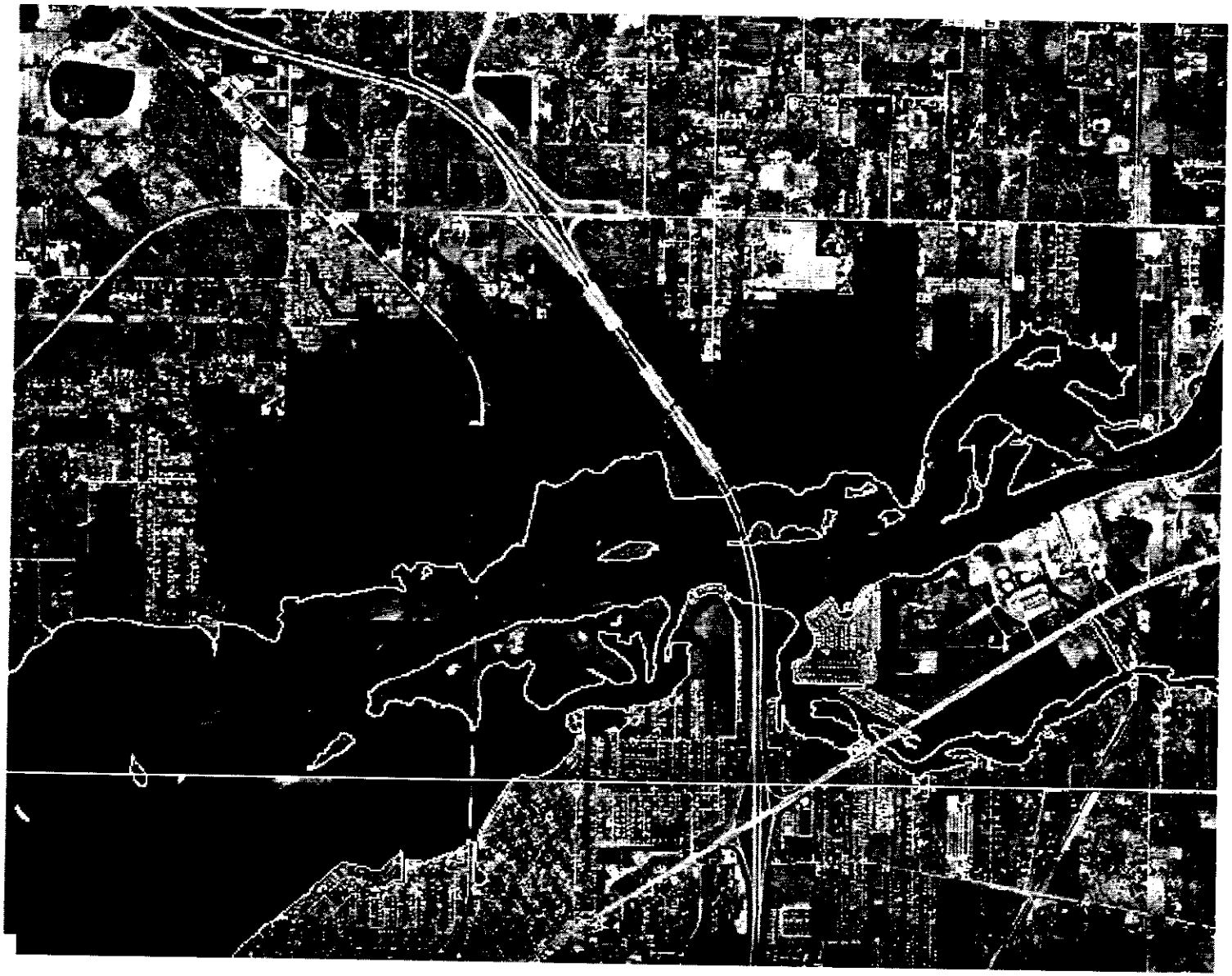


Figure xxx. – Conservation land holdings in Lee County as of August 2002.

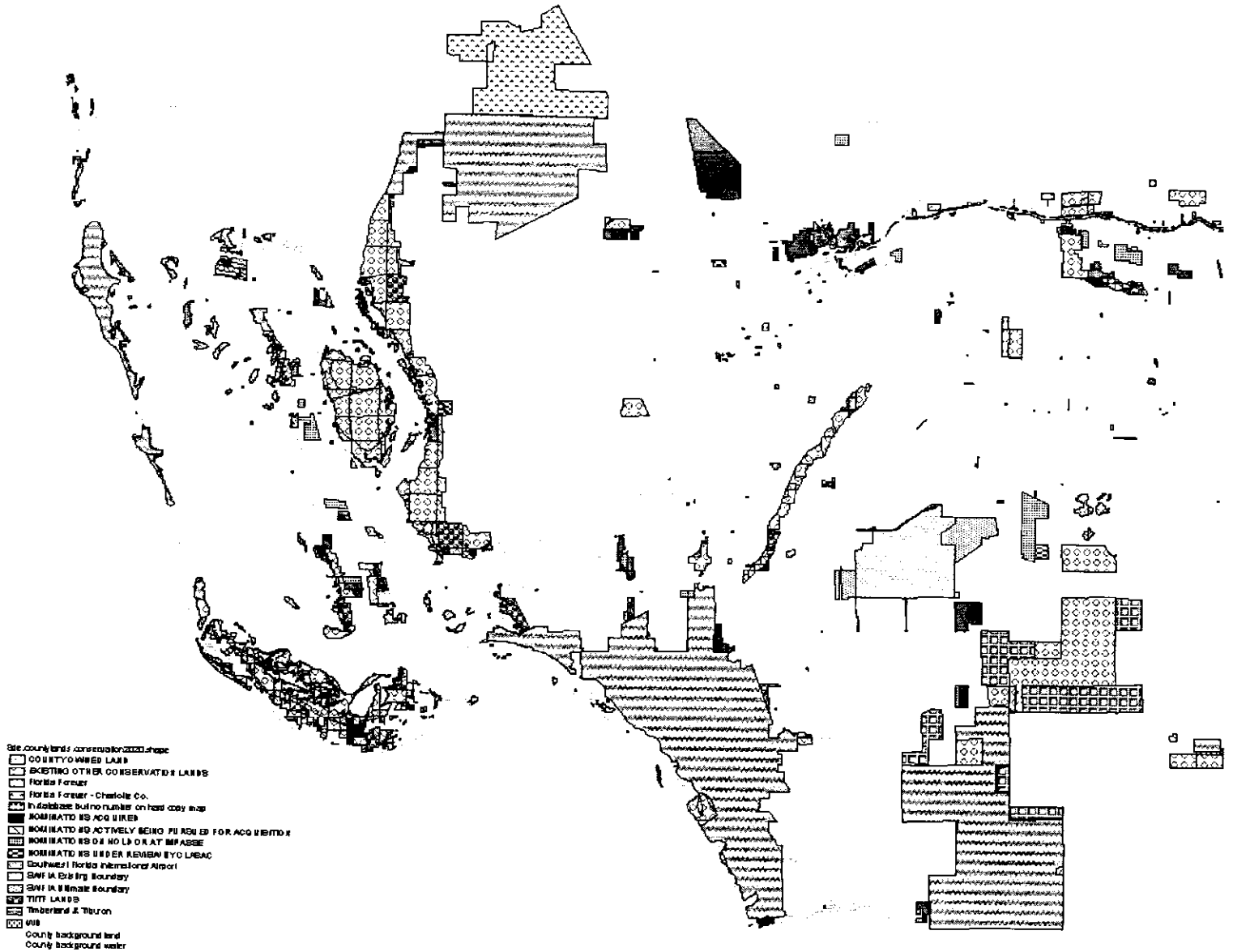
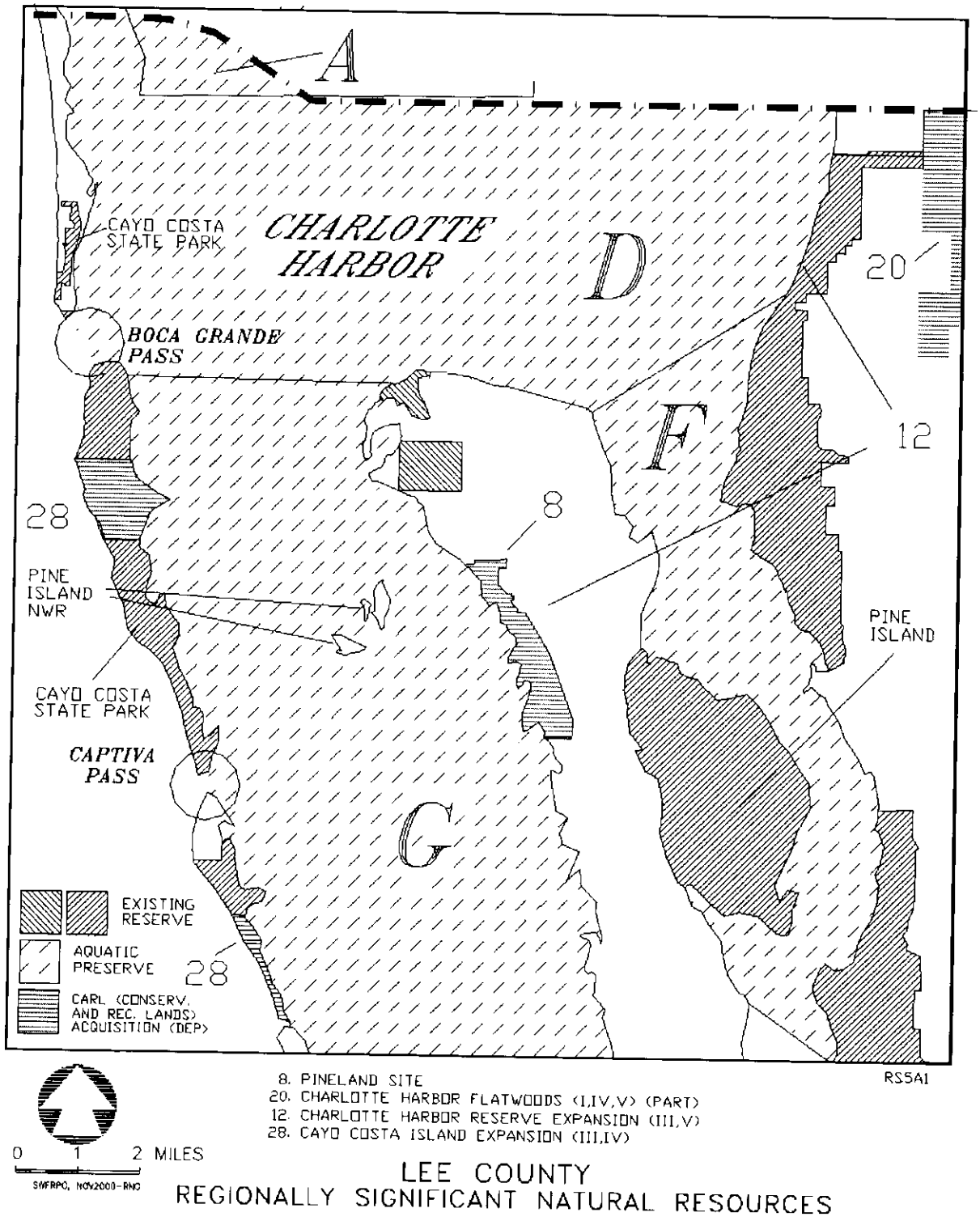
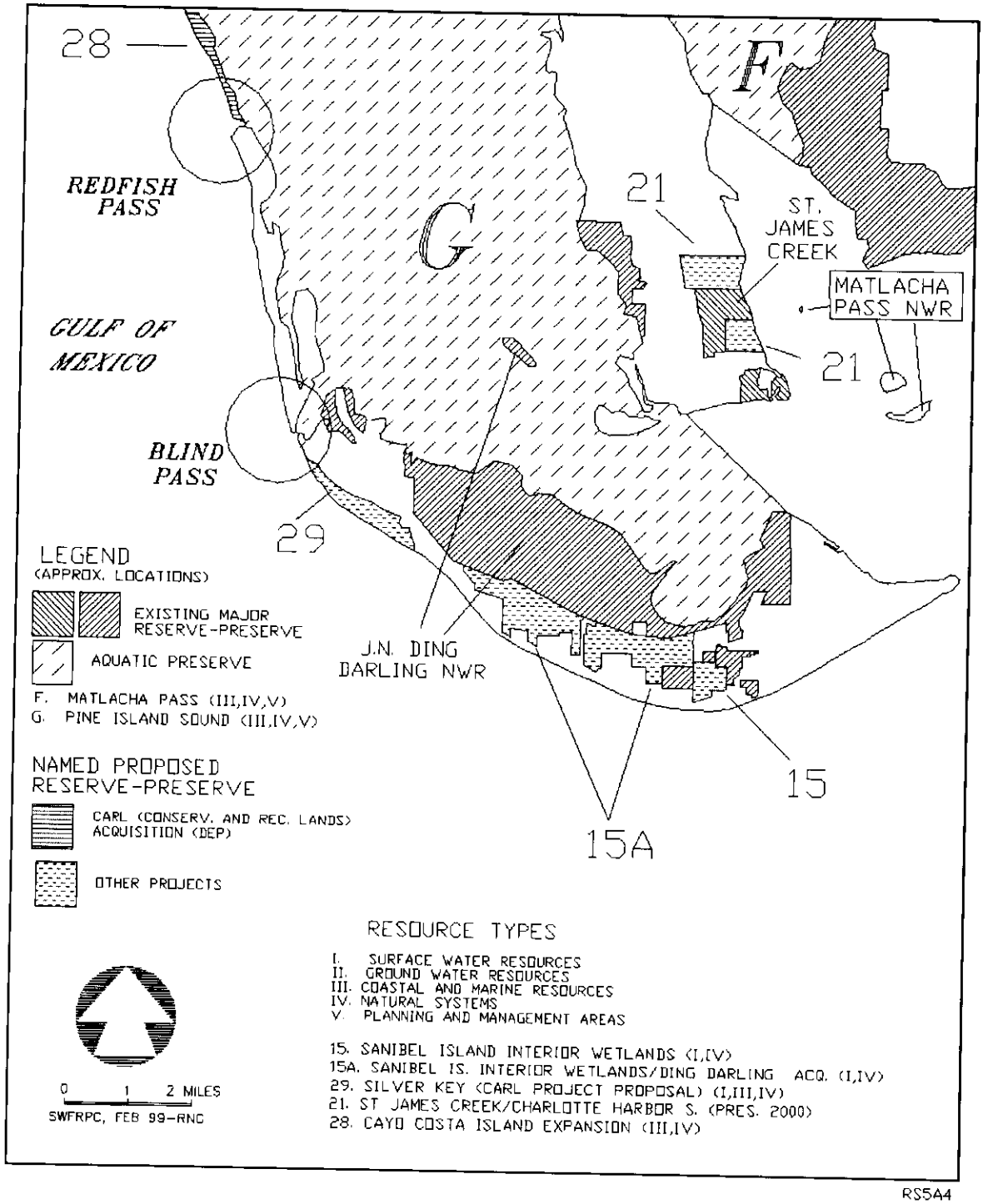


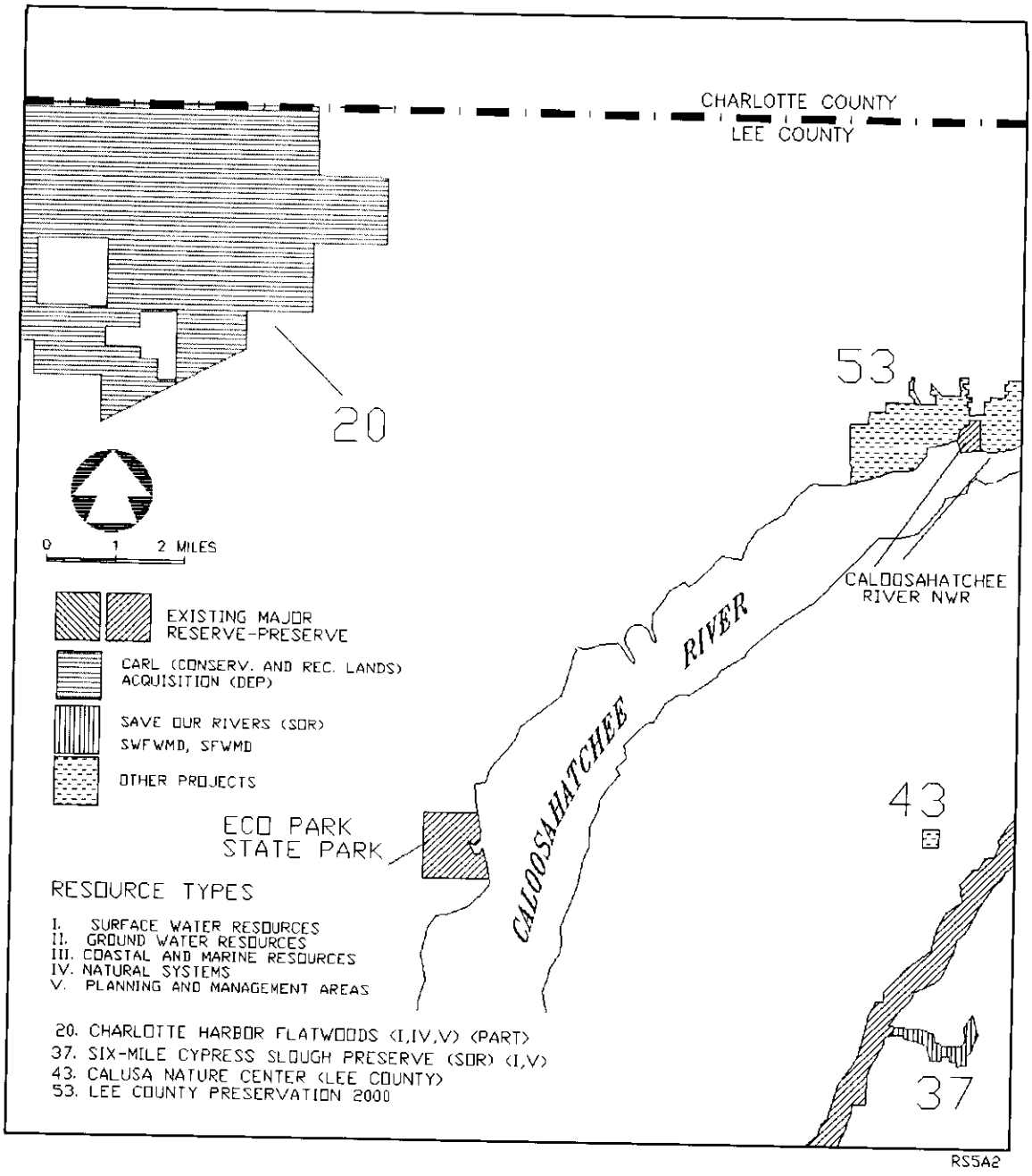
Figure 16. Regionally Significant Natural Resources





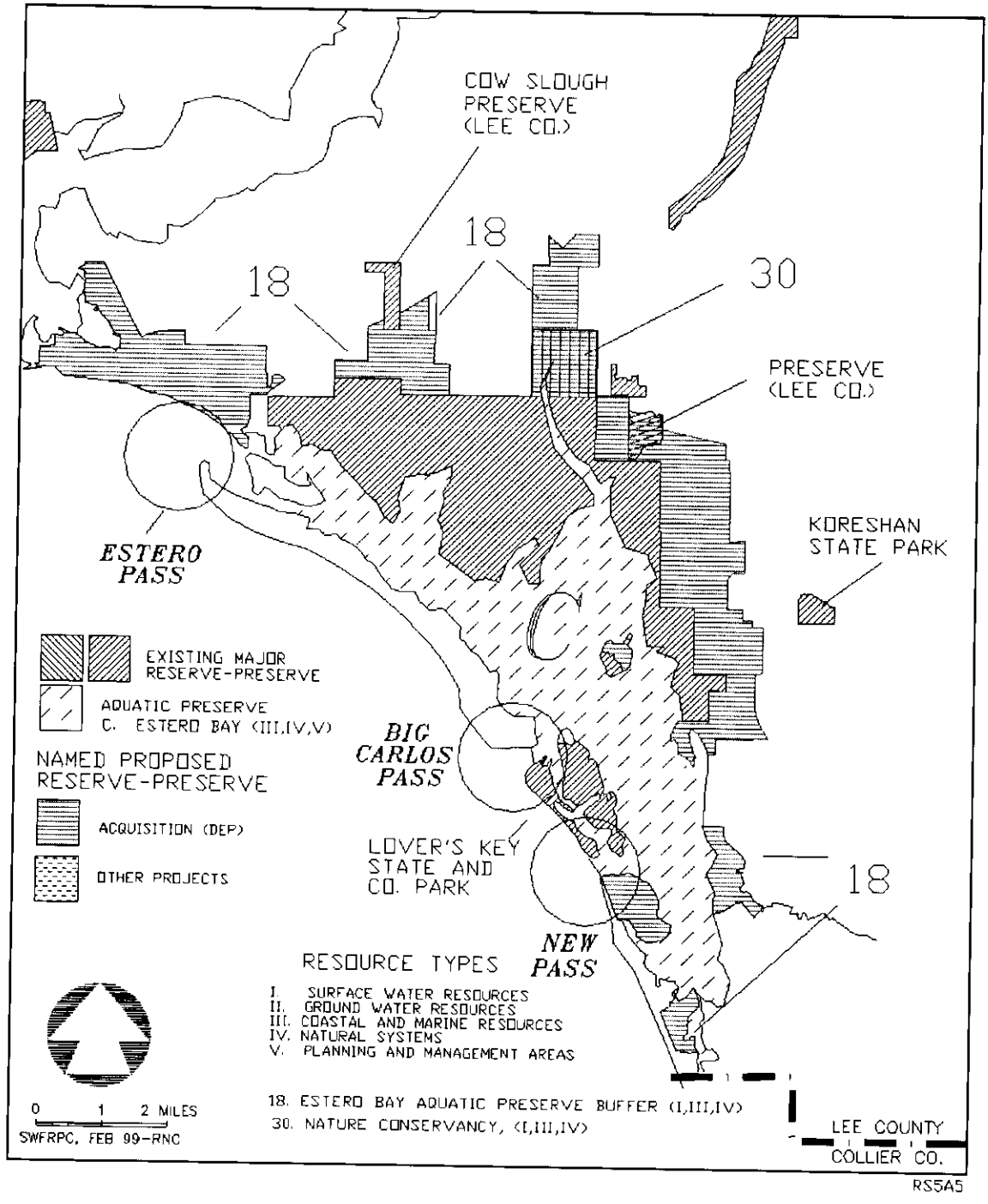
LEE COUNTY
REGIONALLY SIGNIFICANT NATURAL RESOURCES

Figure 16. Regionally Significant Natural Resources Continued



LEE COUNTY
REGIONALLY SIGNIFICANT NATURAL RESOURCES

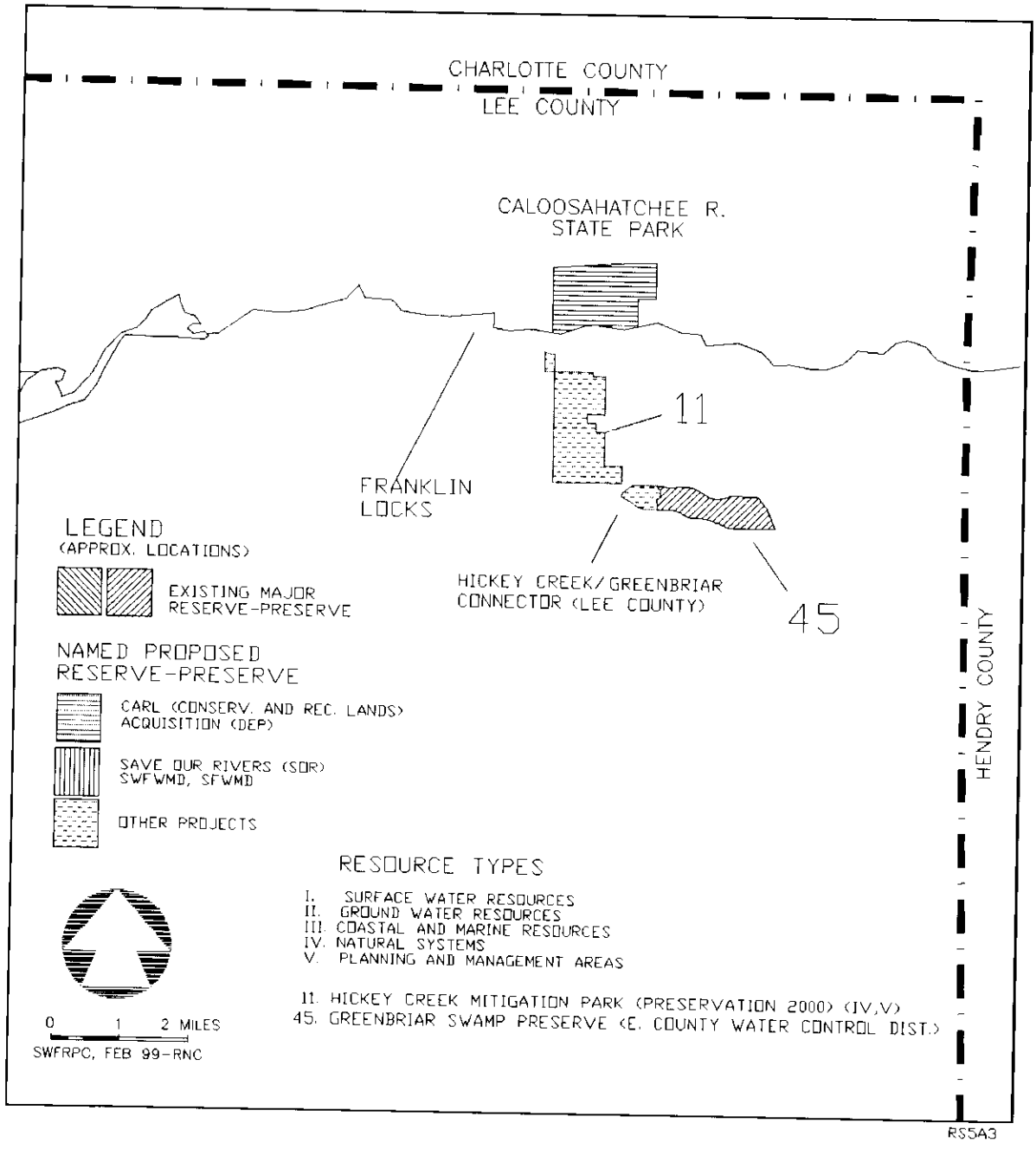
Figure 16. Regionally Significant Natural Resources Continued



LEE COUNTY
REGIONALLY SIGNIFICANT NATURAL RESOURCES

Figure 16. Regionally Significant Natural Resources Continued

Figure 16. Regionally Significant Natural Resources Continued



LEE COUNTY
REGIONALLY SIGNIFICANT NATURAL RESOURCES

7.4 Education Initiatives

Education is an integral part of Lee County's manatee protection efforts. Initiatives are taken on many fronts to reach a variety of demographic groups. Most recently, Lee County finished the latest reprinting of the Lee County Boater's Guide (copy enclosed). Over 30,000 boater's guides were mailed to each person who has registered a vessel in Lee County for the current fiscal year. Total distribution to date is over 270,000 since 1997. This guide is continually upgraded to show the latest information on manatee protection and vessel speed regulations and is the only comprehensive source for this information available to the public in Lee County. These guides are distributed to all area marinas, bait shops, boat dealers, realtors, and chambers of commerce. Funding for development and printing of updated versions is secured through grant funds obtained from the West Coast Inland Navigation District (WCIND).

Excerpts from the Boater's Guide have been used in newly developed signs, which have been placed at all local public boat ramps (see Exhibit 1) within the last three months at a total cost of over $28,000. These signs show an overview of Lee County and its speed zones as well as a detailed view of the area particular to the location it is installed. Funding is currently being sought to place these signs at all water access points, public and private.

Lee County has worked extensively with WCIND to not only develop the Boaters Guide, but to find a mechanism to supplement manatee education, particularly for new boaters. We are implementing a cooperative project with the Calusa Nature Center and Planetarium, a local nonprofit organization, to produce a Boaters Environmental Education Module. This presentation will be a combination of power point and video. The expectation is to make this module and the presentation equipment available for use by all groups conducting boater education classes, including the local Power Squadrons and Coast Guard Auxiliaries.

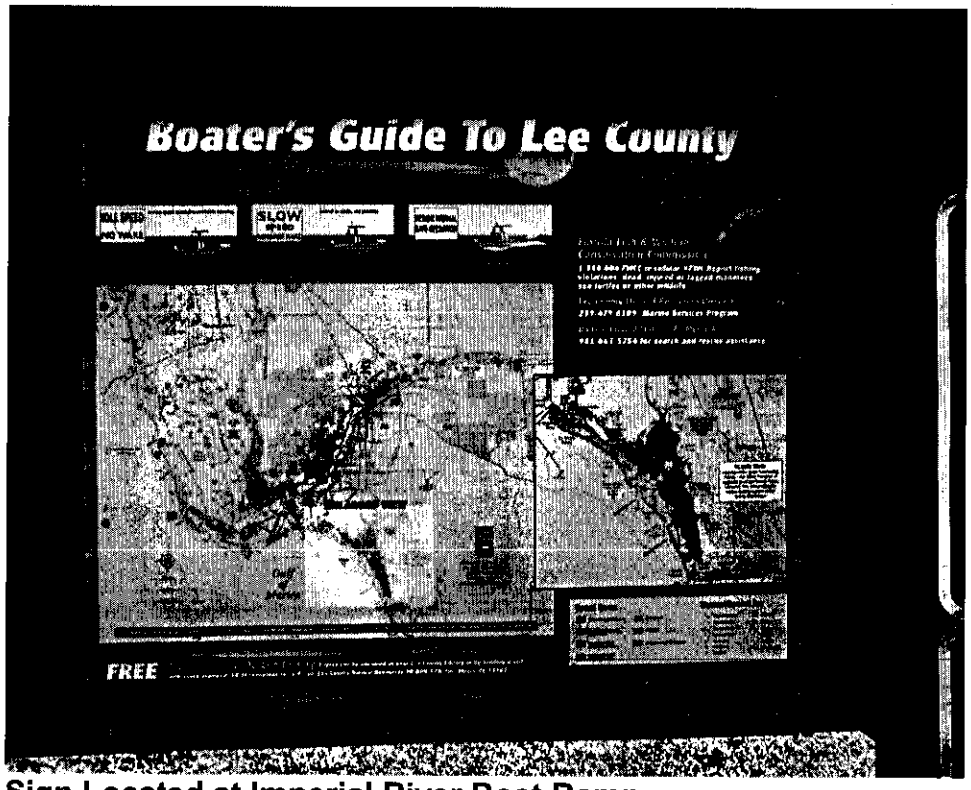
Another video has just been created through the Lee County Sheriff's Department Marine Enforcement Division to educate new boaters and visitors about Lee County speed zones and manatee protection. Groups participating in the creation of this video included the Lee County Sheriff's Office, Lee County Division of Natural Resources, Save the Manatee Club, and the Florida Fish and Wildlife Conservation Commission. This video will be used as part of a traveling enforcement display at boat shows and other public events and includes a mock enforcement vessel and sample signage.

Additionally, Lee County has secured funding for expansion and upgrade of the manatee exhibit at the Calusa Nature Center and Planetarium. The current exhibit, a cooperative effort including the County, FWC, and WCIND, reaches more than 100,000 visitors annually. The new funding will be used to double the exhibit venue sites,

upgrade existing exhibit elements at the museum facility and create a portability dimension to the exhibit that will be used to bring portions of the exhibit into areas schools. Another element of the portability component will be availability for use at boater education classes in conjunction with the video presentation.

Exhibit 1 – Boat Ramp Signage

Sign located at Centennial Park Boat Ramp.



Sign Located at Imperial River Boat Ramp

Education in the local school system has been and will continue to be supported. In 1998, a 5th Grade curriculum was developed to provide education about manatees and their habitats. The curriculum was designed to useful in the classroom, but had particular emphasis on materials and activities to be completed in conjunction with a fieldtrip to Lee County Manatee Park. County staff continues to work closely with the Lee County School District to implement this ongoing project. In fiscal year 2002/2003 a student from FGCU is working in cooperation with Lee County to evaluate existing curriculum components and design additional teacher materials. The work will include training workshops to educate teachers about the manatee curriculum.

Division of Natural Resources staff has been accompanying Florida Marine Research Institute (FMRI) staff on aerial flights of Lee County during synoptic surveys. Lee County DNR desires to have at least one staff member accredited by the state as an official 'Manatee Spotter'. This staff member would then be able to conduct aerial surveys of Lee County, taking note of the various areas in which manatees are congregating. This information will be used in several ways. First, the information will be translated to the local Manatee Task Force (see enforcement section) for use in allocation of resources in patrol and enforcement situations. Second, the information will be translated into a weekly 'Manatee Report' to be distributed on Thursday and Friday for use by local media outlets, in much the same manner as the weekend fishing and boating forecasts. This provides an outlet to inform the boating public of the

movements of manatees in Lee County, thereby increasing awareness and decreasing the potential for vessel/manatee interactions.

7.5 Intergovernmental Coordination

In addition to efforts to coordinate local law enforcement as previously described, Lee County has specifically attempted to coordinate with FWC and FWS. This has been increasingly important as issues related to dock permitting, refuges, sanctuaries and MMPA rule making.

In 2001, a coalition of environmental organizations sued the Army Corps of Engineers and the FWS alleging that they failed to adequately protect manatees as required by the ESA and MMPA. Dock permitting regulations at the federal level have changed several times as a result of the evolving direction of legal settlements. In an effort to educate the public and the local marine construction industry, representatives from the permitting agencies were assembled for a public meeting to discuss dock permitting. Presentations were made and time was allocated for questions and answers. A large number of positive comments resulted, and it is expected that similar meetings will be hosted on an annual or as needed basis.

Internally, local government staff has also had difficulty understanding how the permitting process has changed. As the final step in permitting, local governments generally serve as a compliance check to be sure all other state and federal requirements have been met. This function had become complicated with the February 2002 FWS designation of "Areas of Inadequate Protection" (AIP). To clarify this issue, Lee County hosted an all-day meeting with representatives from the US Fish and Wildlife Service, Florida Fish and Game Conservation Commission Bureaus of Protected Species and Law Enforcement, US Army Corps of Engineers, Lee County Community Development, and Lee County Natural Resources staff. The purpose of the meeting was to discuss current Manatee issues and AIP designations. This meeting was held on May 16th, 2002. Issues including manatee mortality, speed zone effectiveness, and permitting were addressed. Similar meetings will be hosted as necessary to continue productive dialogue between these agencies as it relates to manatee protection in Lee County.

8.0 Marine Facility Sighting Requirements

It is the county's opinion that the Florida Fish and Wildlife Conservation Commission's requirements for Manatee protection relating to marine facilities sighting currently exist within existing County, State, and Federal regulatory programs. State and Federal rules and regulations as well as Lee County's policies, all include extremely rigorous protection for the West Indian Manatee, their habitats, and water quality. Each of these layers requires stringent permit review for both marina and dock development. In

particular the objectives and policies listed under the Lee Plan Goals 77 and 98 (See Appendix I, and III) apply to marine facility development. The following section outlines permit requirements and review processes placed upon permitees by the Federal, State and County permitting processes.

8.1 Federal Permitting

At the Federal level, marinas and other boating facilities are regulated by a variety of different laws. These laws include:

- Clean Water Act of 1972
- Rivers and Harbors Act of 1899
- Marine Protection, Research and Sanctuaries Act of 1972
- Federal Coastal Management Act
- Fish and Wildlife Coordination Act
- National Environmental Policy Act
- Coastal Zone Management Act
- Wild and Scenic Rivers Act
- Endangered Species Act
- Marine Mammal Protection Act
- Magnuson-Stevens Act (Essential Fish Habitat)

The primary Federal agency responsible for issuing permits for marine facilities is the US Army Corps of Engineers (USACE). Federal permits for marine facilities will require either an individual permit (single family dock permit) or a joint permit which is filed with both the US Army Corps of Engineers and the Florida Department of Environmental Protection. In many instances, the US Army Corps of Engineers will also require a dredge and Fill Permit application, especially for large marina facilities.

There are six examples of marine facilities operations that may be exempt from the Federal permit review process. They are as follows.

Nationwide permits:

NW-2	Structures in artificial canals (for single family docks)
NW-3	Maintenance (for previously authorized structure)
NW-28	Modification of existing Marinas (no expansion, additional slips, or dredging)

The US Army Corps of Engineers, Jacksonville District, also issues regional permits in which the permitee may be exempt from the full permit review process. To qualify for these permits, applicants must follow the Standard Construction Precautions and the project must be determined to Not Likely to Adversely Affect the manatee. The regional permits are as follows:

SAJ-17 Minor Structures in Florida
SAJ-20 Private Single-Family Piers in Florida
SAJ-33 Private Multi-Family and Government Piers

In the past, the USACE has also issued State Programmatic General Permits (SPGP) to the Florida Department of Environmental Protection. Through this, the Corps has delegated the authority to issue federal permits for certain activities to the state of Florida. Projects that impact seagrasses, marshes, or mangroves, impact manatees or their critical habitat, or are located near the Intracoastal Waterway or Federal Channels do not qualify for the SPGP and must therefore go through the full Federal Permitting Process.

Submission of a permit application to the USACE initiates the Federal permitting process. Under the Settlement Agreement of January 5, 2001, the USACE is reviewing permits more thoroughly, they have revised their Manatee Key, and have begun consultation with the FWS on permits on a regular basis. The Corps reviews each permit application using their Manatee Key as well as their Manatee Biological Evaluation for projects involving dredging, filling, in-water construction, construction of docks, marinas, boat ramps, boat slips, dry storage, or any other watercraft access structure. The proposed project is then evaluated based upon its potential effect upon the manatee and its habitat and given one of three designations: No Affect, Not Likely To Adversely Affect, and May Affect. Both the Not Likely to Adversely Affect and the May Affect designations mandate that the Corps consult with the FWS. The U.S. Fish and Wildlife Service then evaluates each permit application and provides its opinion to the USACE on the effects of the proposed project on the West Indian Manatee. Based on this opinion, the Corps will either approve or deny the permit application.

It should also be noted that the USACE has determined that all Nationwide Permit authority and Regional Permits for activity in Lee County may not be utilized because the County is designated as an area of enhanced scrutiny for manatee protection. This effective revocation now means that all permits for boating access facilities in Lee County, including single family docks and seawalls, even in manmade canals, must now undergo the full Federal permitting process as described above. Additionally, FWS has issued a policy directive that such consultation will be completed via a formal Biological Opinion until such time as MMPA Incidental Take regulations are adopted and implemented.

8.2 State Permitting

At the State level, boating and Marina activities are regulated by several different State agencies through a variety of law and code. The following is a listing of the laws under which Marina facilities are currently regulated:

- Chapter 373, Part IV Florida Statues, Florida's Water Resources Act

- Chapter 376, Florida Statutes: Coastal Protection
- Chapter 403, Florida Statutes: Environmental Control
- Section 370.12(2), Florida Statutes, the Florida Manatee Sanctuary Act
- Chapter 253, Florida Statutes: State Lands
- Chapter 258, Florida Statutes: Aquatic Preserves

Under these laws currently in place construction or revision of marina facilities requires an Environmental Resource Permit be submitted to the state of Florida. Either the Florida Department of Environmental Protection or the appropriate Water Management District, dependent upon the type of project proposed then reviews this application. The applicant must submit all or most of the following information during the review process:

- **Avoidance and Minimization of Impacts plan**: Applicants must demonstrate that environmental impacts have been minimized to the greatest extent possible.
- **Mitigation Plan for Unavoidable Impacts**: Applicants must provide plans for mitigating and adverse impacts to water quality, natural resources, and other environmental characteristics.
- **Habitat Assessment**: Applicants provide a survey and maps of existing habitats, vegetation, soils, wetland limits, submerged resources (seagrasses, etc.).
- **Protected Species Survey**: Applicant must provide a survey of protected species that are using or likely to use the site and/or adjacent waters.
- **Cumulative and Secondary Impacts Assessment**: Applicants must provide an assessment of cumulative impacts of the proposed project as well as existing and future projects in the vicinity may affect environmental resources, and how the proposed project will affect environmental resources through its operations (indirect impacts).
- **Water Quality and Sediment Quality Analysis**: Applicants may be required to perform extensive testing of water and sediments.
- **Navigation, Bathymetry, and Hydrographic Surveys**: Applicants must provide maps of existing marked and unmarked channels, channel markers, manatee and other signage, water depths at the proposed project site and to the nearest navigational channel, location of the nearest Federal Channel, and potentially a hydrographic or flushing study of the waterbody at the proposed site.
- **Manatee Protection Plan**: Applicants must propose a plan to protect manatees in accordance with state guidelines.
- **Signage Plan**: Applicants may be required to provide a plan to improve navigational signage in the area.
- **Construction Methodology, Turbidity and Erosion Control Plan**: Applicants must provide detailed plans regarding construction, including type of materials to be used, draft of fully-loaded barge if construction will occur

from the water, types and locations of turbidity screening, turbidity monitoring plan, etc.

- **Engineered dock and Upland Facilities Plan**: All plans must be detailed and signed and sealed by a professional engineer licensed in the state of Florida.
- **Long-Term Marina Management Plan**: Applicants must provide a detailed operational plan which includes methods for reducing impacts to various environmental factors such as water quality from users of the marinas facility as well as its operational management.
- **Draft Dockage Agreement Language**: Applicants must include language in their proposals that includes prohibitions against overboard dumping, use of non-biodegradable boat cleaners, noise generation, etc. Requirements must also be included which cover use of upland pumpouts for marine sanitation, use of bathing and laundry facilities to reduce gray water discharges, use of approved bilge absorbent pads to reduce oily discharges, etc.
- **Trash, sewage, fuel, and Gray water management plans**.

The State of Florida currently not only regulates the construction and placement of Marina facilities, but actively regulates Florida Waters to protect the West Indian Manatee. Both The Florida DEP and The FWC have the ability to establish manatee habitat speed and no-entry zones, enforce the speed limits, and reduce manatee deaths from other human factors. The state of Florida recognized that limiting the speed that boats travel in manatee habitat helps prevent deadly collisions between boaters and manatees. Consequently, the Legislature provided for the designation of manatee habitat speed zones, motorboat-prohibited zones, and no-entry zones. Speed zones restrict the speed of boats and limit their wakes; motorboat-prohibited zones restrict the use of engine-powered boats; and no-entry zones prevent any human disturbance of a designated manatee habitat. The State of Florida is given a specific charge to regulate the construction of new Marina facilities under Florida Statutes in Saltwater Fisheries, Marine Animal; regulation Section 370.12(f) as follows:

> (f) In order to protect manatees or sea cows from harmful collisions with motorboats or from harassment, the Fish and Wildlife Conservation Commission shall adopt rules under chapter 120 regarding the expansion of existing, or construction of new, marine facilities and mooring or docking slips, by the addition or construction of five or more powerboat slips, and regulating the operation and speed of motorboat traffic, only where manatee sightings are frequent and it can be generally assumed, based on available scientific information, that they inhabit these areas on a regular or continuous basis.

8.3 County/Local Permitting

On January 1983 the Governor's Blue Ribbon Marina Committee issued their final report, which contained recommended siting criteria that formed the basis for future policies regarding marina siting. The Lee County Comprehensive Plan (Lee Plan) contains Objectives and Policies that have incorporated the Recommendations of the Governor's Blue Ribbon Marina Committee and has expanded on these issues. These Objectives and Policies are included in Appendix I. Following are some of the most pertinent Objectives and Policies from the Lee Plan relating to impacts to manatees and impacts to manatee habitat.

OBJECTIVE 98.5: MARINA SITING CRITERIA. The county shall consider the following marina siting criteria in evaluating requests for new and substantially expanded marinas, other wet slip facilities, and boat ramps in order to make efficient use of limited shoreline locations and to minimize environmental impacts.

POLICY 98.5.1: Proposed marinas (and expansion of wet slips at existing marinas and new boat ramps) in the following areas face a variety of technical, legal, or environmental obstacles which must be addressed during the review process:

- Aquatic Preserve (DEP)
- Outstanding Florida Waters (DEP)
- Class I Waters (DEP)
- Marine or Estuarine Sanctuaries (NOAA)
- Manatee Sanctuaries or Critical Manatee Habitats (DEP, USFWS, USACE)
- Approved or conditionally approved shellfish harvesting areas (DEP)
- Federal navigation channel setbacks (USCG, USACE)
- Bridge/road right-of-way easement (County DOT, State DOT)
- Other Endangered/Threatened Species Habitat (USFWS, DEP, USACE)

Extra caution and consideration shall be given prior to authorizing use of areas with high environmental values. (Amended by Ordinance No. 94-30)

POLICY 98.5.2: Cumulative effects of several marinas and/or boat ramps in a small area shall be considered in the review of proposed marina projects.

POLICY 98.5.3: Marina and/or boat ramp siting shall be consistent with the appropriate aquatic preserve management plan where applicable.

POLICY 98.5.4: Marina and boat ramp siting shall be consistent with the following recommendations of the DNR Blue Ribbon Marina Committee (Final Report, January 1983):

POLICY 98.5.6: Marina and boat ramp siting preference shall be given to those properties which are located in proximity to large navigable water bodies outside areas of critical manatee concern.

POLICY 98.5.7: Marinas, multi-slip docking facilities, and boat ramps which would disturb or destroy wetlands or grassbeds must demonstrate a pressing need for the proposed facility and must provide for continued use by the general public.

POLICY 98.5.8: New marinas should be located in areas of maximum physical advantage (e.g. adequate water depth). Adequate existing water depths between the proposed facility and any navigational channel, inlet, or deep water, are preferred, as only minimal dredging may be considered.

POLICY 98.5.9: Marina and boat ramp locations which minimize natural shoreline disruption are preferred.

POLICY 98.5.11: Proposed marinas and boat ramps shall demonstrate that the marina site has adequate uplands to provide support facilities for all activities proposed on site without damaging or removing wetlands or rare and unique upland systems.

POLICY 98.5.12: Rezoning and DRI applications for marinas and boat ramps shall be evaluated in the context of cumulative impacts on manatees and marine resources. (Relocated by Ordinance No. 94-30)

OBJECTIVE 98.6: MARINA DESIGN CRITERIA. The county shall utilize the following criteria in evaluating the design of new marinas (or expansion of wet slip facilities at existing marinas) in order to minimize negative impacts; detailed regulations on these subjects may be contained in the county's development regulations.

POLICY 98.6.8: Marina design shall incorporate natural wetland vegetative buffers near the docking area and in ingress/ egress areas for erosion and sediment control, runoff purification, and habitat purposes.

POLICY 98.6.10: Piling construction and other non-dredge-and-fill techniques shall be utilized where possible to minimize habitat destruction.

POLICY 98.6.11: Mitigation or restoration to offset proposed adverse environmental effects will be required as a condition of approval for any new or expanded marina facilities. Mitigation/restoration is not preferred over preservation of existing resources.

POLICY 98.6.12: To reduce dredging, docks should extend to naturally deep waters when possible. County regulations shall specify the criteria for such extensions.

8.4 Facility Screening for Manatee Protection

In addition to the existing Comprehensive Plan language, Lee County has developed the following screening process to be implemented specifically as a way to evaluate potential impacts to manatees from the development of new boating facilities. This marine facilities sighting element (MFSE) is an integral part of Lee County's Manatee Protection Plan. The goal of this section is to reduce vessel/manatee interaction that could lead to manatee injury or death. The MFSE pertains to development of new sites, and includes the rehabilitation and reconfiguration of existing sites.

Lee County has developed a scored matrix system to evaluate potential marine facilities sites. The evaluation matrix is comprised of a variety of criteria upon which each proposed facility will be evaluated. Proposed marine facilities will be evaluated against each one of the outlined criteria and given a score based upon suitability. These scores are then used in the initial screening process only. Based upon this initial score, a recommendation will be made for the project to proceed or be denied. Projects are to be evaluated based upon their total score, the sum of the parts, not against each individual criterion. It is the entire score of a proposed project, which will be used in the evaluation process. It is important to recognize that this process is distinct from the permit review processes administered by state, federal, and additional local agencies.

There are several instances in which the MFSE review process will not apply. These instances are as follows:

- New projects located in the No-Build Zones, delineated in MAP X. These zones are not recommended for new marine facility development. However, projects shall be reviewed if the activity proposed is a redevelopment. Areas designated as No-Build Zones are available for redevelopment provided that the rehabilitation creates no net addition of powerboat slips and the project meets the requirements set forth in the MFSE.

- Projects that have been previously permitted, and/or currently hold Chapter 380 vested status which allows for construction of slips (wet or dry) that may not be constructed at the time in which the Lee County Manatee Protection plan is adopted by the Board of County Commissioners, shall be exempted from the MFSE screening process. Projects that fall under this exemption must provide proof of the vesting of these non-constructed slips through official correspondence from the State of Florida in the form of a Chapter 380 agreement, or a DRI update from the Florida Department of Community Affairs. Proof of the vesting of these slips must be shown to be prior to the date of adoption of the

Manatee Protection Plan by the Lee County Board of County Commissioners.

CRITERIA FOR SCREENING SITES

The FWC has identified a number of factors to be considered in determining the suitability of sites for marine facilities. These factors are: 1) proximity to inlets; 2) proximity to the ICW; 3) proximity to popular boating designations; 4) proximity to manatee aggregation sites; 5) water depth; 6) presence of sea grass beds; 7) extent of manatee use; and 8) amount of overlap in patterns of use by manatees and boats. Other factors that should be considered when evaluating sites include 9) Number of slips the proposed facility will create; 10) existing land use; 11) potential for redevelopment; 12) land use and zoning classification; 13) recreational need; 14) economic impact of facility.

It is not appropriate or practical for Lee County to incorporate all of the factors that the FWC has identified into our screening matrix. Several factors are not pertinent to Lee County, and there are several where there is insufficient data to evaluate sites objectively. The five criteria which will be used to evaluate proposed marine facilities in Lee County are 1) project proximity to slow speed zones; 2) project proximity to major travel channel; 3) project proximity to suitable manatee habitat (sea grass beds); 4) depth of water in project area; 5) Density of slips (powerboat only) per linear foot of shoreline of project area. These five factors were chosen for several reasons. Firstly, these criteria were deemed to be of high value and importance to the protection of the manatee. Second, each is applicable to nearly all areas of Lee County where it is anticipated that projects will be proposed. In addition to the temporal equality, there is also an evaluative equality in the sense that these criteria can be applied to each proposed site in equal measure.

SCREENING METHODOLOGY

The general screening process as described above will be used to identify desirable locations for new marine facilities, as well as evaluate the rehabilitation and or expansion of existing sites. A scoring system was devised that provided equal weight to each of the criteria. Each project will be evaluated against each of the six criteria. Each of the criteria will be assigned a score of 1, 2, or 3, dependant upon how appropriate the site is to that specific criterion.

Speed Zones

Proposed project locations will be evaluated for their proximity to existing speed zones in Lee County. Specifically, the projects will be evaluated through prospective vessels' most direct route to a travel channel, and the speed zones encountered while traversing this route. Many of the speed zones located in Lee County are seasonal zones as

designated by the State of Florida. As the State of Florida has designated these zones and used their best judgment in the protection of the manatee, these seasonal zones will be evaluated in the same manner. County Ordinance 02-14 also creates several types of speed zones. While these zones may not cite manatee protection specifically, there is a benefit to the animal from these speed zones. Thus, County designated speed zones are also taken into account in the screening process. Projects located in areas that have no speed zones in this route will receive a score of 3. Projects that have less than 100%, but more than 1% of the route designated as slow speed or idle speed will receive a score of 2. Projects whose most direct route to the nearest channel is 100% covered by speed zones will receive a score of 1.

Channel Proximity

Analysis of boating characteristics show that the most desirable locations for Lee County boaters are in-shore, in Pine Island Sound, Estero Bay, and in and around the various passes (Sidman & Flamm, 2001). It is also shown that fishing is the predominant primary activity of boaters in Lee County. This primary activity is conducted in both in-shore and offshore areas of the County. While the Intracoastal Waterway (ICW) is present in Lee County, it does not provide superior access to preferred activity locales. Due to the parity between in-shore and offshore fishing, and the fact that the ICW is not a 'preferred' channel when boaters select travel routes, Lee County has chosen to use the designation of 'main channel' in scoring distance vessels must travel going to and from proposed projects. The distance a vessel must travel in more shallow waters, outside of main channels in passing to and from a project location has a potential to reduce risk of a manatee/vessel interaction. The distance is also a factor in travel times. Even if there is an adequately marked channel providing ingress and egress to the project, the longer the distance between the project and main travel channel has a direct effect on the number of vessels that will jump outside of the marked channel in hopes of reaching their destination in a shorter time frame.

A 'main channel' is defined as a channel which: provides public access to multiple user groups; is appropriately marked with Coast Guard approved signage; has a minimum - 2.5 MLLW depth; is maintained and/or monitored by a public entity such as a state or local agency (MAP). Projects that have a distance of less than 1 mile from the proposed location to a main channel shall receive a score of 1. Projects that have a distance of between 1 mile and two miles from the proposed location to a main channel shall receive a score of 2. Projects that have a distance greater than 2 miles from the proposed location to a main channel shall receive a score of 3.

Habitat proximity

Seagrass beds, fresh water vegetation forage areas, and warm-water refuge areas are key habitat components for the manatee. Areas such as these have greater potential to attract manatees. Projects located in close proximity to these habitats could increase the potential for manatee/vessel interaction. In the absence of more creditable data, Lee County will use the seagrass mapping completed for FWC and SFWMD in May

2001 (CITATION) as well as the a list of primary and secondary warm water refuges identified by Mezich (2000) in its scoring process (MAPS). Projects where 0 to 25% of the most direct travel route is surrounded by sea grass and is not located within 1 mile of a warm water refuge area shall be assigned a score of 1. Projects where 25% to 75% of the most direct travel route is surrounded by sea grass and is not located within 1 mile of a warm water refuge area shall be assigned a score of 2. Projects where 75% to 100% of the most direct travel route is surrounded by sea grass and is not located within 1 mile of a warm water refuge area shall be assigned a score of 3. Projects that are located within one mile of a designated warm-water refuge area shall automatically be assigned a score of 2, regardless of sea grass abundance. Projects that are located less than 1000 feet of a designated warm-water refuge area shall automatically be assigned a score of 3, regardless of sea grass abundance.

Water Depth

Depth of water contributes to the presence of manatees and the potential for vessel/manatee interaction in several ways. Most varieties of the seagrass beds in which manatees forage are depth dependant. Studies also show that manatees typically feed, loaf, and mate in relatively shallow areas. These areas are also where vessel/manatee interaction is at its most dangerous. Protecting seagrass beds is a priority for Lee County, as a part of its manatee protection efforts. Areas of shallow water that are not identified as seagrass beds may still have potential for seagrass bed expansion, and will be treated with similar care. Shallow water also provides less opportunity for a manatee to react to and avoid approaching vessels. Projects whose surrounding water en-route to the main travel channel is over 2.5 feet in depth at 0.0 MLLW shall receive a score of 1. Projects whose surrounding water en-route to the main travel channel is between 2.5 and 0.5 feet in depth at 0.0 MLLW shall receive a score of 2. Projects whose surrounding water en-route to the main travel channel is less than 0.5 feet in depth at 0.0 MLLW shall receive a score of 3. If the proposed project has a fully dredged, appropriately marked, existing channel, directing vessels to the main travel channel, the project will receive a score of 1.

Density of Development

The number of slips in an area contributes to the amount of traffic. Logically, increased boat traffic contributes to the potential for vessel/manatee interaction. The density thresholds described here are based upon slips per feet of shoreline owned and operated by the proposed project. Density will be based upon the number of powerboat slips divided by feet of shoreline operated by the proposed project, thereby creating a decimal number. This number will be the basis for scoring the proposed project. In the case of a boat ramp, each dedicated parking place for vehicles with trailers shall be counted as a slip. Projects with a slip to shoreline ratio equal to or less than 0.02 will be given a score of 1. Projects with a slip to shoreline ratio between 0.02 and 0.05 will be given a score of 2. Projects with a slip to shoreline ratio equal to or greater than 0.05 shall be given a score of 3.

RESULTS OF SCREENING PROCESS

Prior to issuance of any and all applicable Lee County permits, each project will be evaluated based upon the aforementioned criteria. The following scoring matrix will be used:

CRITERION	SCORE ACHIEVED
1. Speed Zones	1,2,3
2. Channel Proximity	1,2,3
3. Habitat Proximity	1,2,3
4. Depth of Surrounding Area	1,2,3
5. Density of Development	1,2,3
	Total = 5 to 15

The possibility exists for scores to range from 5 to 15, based upon evaluation of their suitability against each criterion. For purposes of characterizing potential impact to manatees for each site, potential scores have been broken down into the following three categories:

Score	Potential Impact to Manatees	Project Designation
5-8	Low	Preferred
9-12	Medium	Conditional
13-15	High	Non-preferred

DISCUSSION

The MFSE as defined in this document is an initial screening process. Once each project has been assigned a project designation score (preferred, conditional, etc), the project shall be reviewed in detail for its potential impacts to manatees and manatee habitat. The following is a discussion of how each of the three designation shall be evaluated, and what actions shall be taken in the review process for typical projects proposed within Lee County.

Project Designation: Preferred

Most projects identified as preferred will not undergo any additional review by Lee County Natural Resources Staff in regards to impacts for manatees as it relates to the MFSE and the Manatee Protection Plan. However, the project must still undergo review and approval from all applicable state and federal agencies, potentially including but not limited to the Florida Department of Environmental Protection, FWC, the US Army Corps of Engineers, US Fish and Wildlife Service, and appropriate Water Management Districts. Exception to this would be a project that has scored 3 in one specific

category. Staff shall review the category in which the score of 3 was achieved and examine the project proposal for potential mitigating measures for that specific criterion.

Project Designation: Conditional
Projects identified as conditional shall come under further review by Lee County Natural Resources Staff. Projects that have reached this designation shall be considered for approval only if mitigating measures are incorporated as part of project design specifications and conditions. For projects to score in the conditional range, one or more of the evaluation criterion have achieved a score of 2 or 3. In order to consider these projects, it will be necessary for the applicant to prove mitigating measures in order to offset the potential impact to manatees and/or manatee habitat. Mitigation proposals will be supplied at the time of application. Mitigation measures should be tailored to fit the specific criterion that has achieved the score of 2 or 3. Below are several examples of acceptable mitigation measures that could potentially offset high impact scores for the various criteria, allowing for projects to move forward.

Project Designation: Non-Preferred
Projects identified as non-preferred shall come under further review by Lee County Natural Resources Staff. These sites must overcome a large disadvantage due to their poor score. Each project that falls under this designation will be evaluated on a case-by-case basis by County staff. These projects will have scored a 3 in at least three categories and it is expected that adequate mitigation may not be possible in all cases.

POTENTIAL MITIGATION MEASURES

Speed Zones
As the crux of this criterion is regulated through federal and state law, or county ordinance, applicants are unable to create new speed zones in areas that do not currently contain them. Increasing compliance in existing zones is an area that applicants can affect. Applicants have several options to increase compliance in the speed zones that are currently in place near their project area. Funds can be allocated for signage and/or buoys to help delineate the zones, or applicants may provide funds for additional law enforcement to provide sheriff's office patrols of the zones. A fund has been established at the County level for contribution of funds such as these for use in manatee protection measure. Much like signs, targeted education can also help boaters understand the speed zones and increase compliance.

Channel Proximity
Aside from the initial choice of location of the project, applicants can do several things to mitigate a project that is a great distance from main travel channels. Similar to the citeria of Speed Zones, signage and additional enforcement are measures that have the potential to improve compliance with speed zones. Additional measures could include

designation and maintenance of an appropriate channel that provides the best route for traffic to the main travel channel.

Habitat Proximity
Options for the applicant on protecting suitable manatee habitat that may be located close to their proposed project can take several forms. If the habitat is in a protected or regulated area, signage and enforcement may be options for protection. If the habitat is not regulated or protected, education is an alternative that applicants can pursue. Boater education about sea grass protection is a positive measure in manatee protection. Habitat restoration projects would also be appropriate mitigation measures. Programs such as the state "Clean Marina" designation can help minimize potential water quality impacts.

Water Depth
Mitigation options for this criterion are very similar to those suggested for channel proximity and habitat proximity. Educational measures such as those suggested for mitigating habitat proximity are also appropriate for issues related to water depth.

Density of Development
Potential mitigation options for this criterion encompass every previously mentioned option for the other criteria. Of higher priority for this criterion will be funds allocated for additional marine law enforcement. Additionally, the applicant can work to improve the shoreline to slip ratio through a variety of means. These include limiting number of powerboat slip available at the site, and purchasing additional shoreline in order to lower the aforementioned ratio.

EXAMPLE PROJECTS

In this section, three projects are selected and hypothetically run through the MFSE matrix as described above. The results and reasoning are then discussed for each example.

Example #1 – Pineland Marina

Pineland Marina is located on the western edge of Pine Island, whose main water body is Pine Island Sound. Pineland Marina has 270 powerboat slips, 40 wet and 180 dry, plus 50 parking spots for their boat ramp acess. There is a dredged, well-marked channel leading to and from the marina, locally known as Wilson's Cut. Wilson's cut provides direct access to the main travel channel, which is, in this case, the Intra-Coastal Waterway. The ICW is approximately 3.5 miles from Pineland Marina. There is a 500-foot slow speed zone in the immediate area of the marina stemming from Lee County Ordinance 02-14. This zone is adequately marked with several signs and several buoys, maintained by Lee County. The area surrounding the Marina is extremely shallow. Outside of the designated channel, depths can reach less than one

foot during MLLW. These shallow areas also contain large amounts of seagrass, and other suitable habitat for manatees. The density of Pineland Marina was calculated as: 270slips/2600ft = 0.10. Based upon the information, Pineland Marina, if proposed as constructed would score as follows in the MFSE matrix:

CRITERION	SCORE ACHIEVED
1. Speed Zones	2
2. Channel Proximity	3
3. Habitat Proximity	2
4. Depth of Surrounding Area	1
5. Density of Development	3
	Total = 11

Based upon the matrix score, Pineland Marina would be designated as a conditional project. Potential mitigation measures that could be pursued by the applicant could include sea grass education efforts, law enforcement funding, and habitat restoration.

Example #2 – Bonita Bay Marina

Bonita Bay Marina is located in Estero Bay, off of the Imperial River. Bonita Bay Marina has a total of 421 powerboat slips, with 330 dry and 91 wet. There is a dredged, well-marked channel leading away from the marina to the main channel, which is the Intrepid Waters/Government Cut channel. It is approximately 1150 feet from the marina to the Intrepid/Government cut channel. There is approximately 3300 feet of shoreline under the Bonita Bay Marina Project, giving the marina a slip to shoreline density ratio of 421slips/3300feet = 0.1275. The channels, including the main travel channels (Intrepid Waters/Government Cut) are covered by year-round slow and idle speed zones. While there are no sea grass beds or warm water refuges directly adjacent to the marina, seagrass beds are identified further up the main travel channel. However, the distance from these beds to the marina do not qualify for a score higher than 1. Depth of the surrounding area is greater than –2.5 ft at zero MLLW, up through the Intrepid Waters channel, due to recent dredging projects. The area surrounding the main travel channel is shallow, but the appropriately marked main travel channel allows for a score of 1. Bonita Bay Marina, if proposed as constructed would score as follows in the MFSE matrix:

CRITERION	SCORE ACHIEVED
1. Speed Zones	1
2. Channel Proximity	1
3. Habitat Proximity	1
4. Depth of Surrounding Area	1
5. Density of Development	3
	Total = 7

Based upon the matrix score, Bonita Bay Marina would be designated as a preferred project. The preferred mitigation measure that could offset the score of three in the density of development criteria would be law enforcement funding.

A second stage of the Bonita Bay Marina scenario would be an addition to the current facilities. The potential exists for Bonita Bay Marina to submit for expansion of their existing facilities. For instance, an application could be submitted for the addition of 20 dry and 30 wet slips. In the case of this addition, the Bonita Bay Marina would be exempt from the MFSE screening and review process due to the fact that they have a previously approved DRI with the state of Florida for a facility with 350 dry slips and 125 wet slips. As these numbers have been previously, but simply not built, the County would not subject the project addition to review under the MFSE.

Example #3 – Chantrey Canal Boat Ramp

The potential exists for construction of a public boat ramp at the property owned by the City of Cape Coral at Chantrey Canal. The area is covered by idle speed in the canal and a slow speed buffer within ¼ mile of shore. The distance to the main channel (ICW) is approximately 9000 feet. There is no SAV documented in the area and it is over 1 mile from the nearest warm water refuge. All shallow areas within the slow speed zone and deeper than 2.5 feet at MLLW. There are 20 existing wet slips and 120 dedicated parking spaces proposed. The boat ramp parcel has approximately 2600 feet of shoreline giving a density of 140/2600=0.054.

CRITERION	SCORE ACHIEVED
1. Speed Zones	2
2. Channel Proximity	2
3. Habitat Proximity	1
4. Depth of Surrounding Area	1
5. Density of Development	3
	Total = 9

Based upon the matrix score, Chantrey Canal Boat Ramp would be designated as a conditional project. The preferred mitigation measure to offset the density could be documentation of enhanced law enforcement presence in the area. Addition of a marked channel and educational signage at the ramp could also provide sufficient mitigation to recommend the project move forward.

9.0 SUMMARY OF FINDINGS

As stated previously, it is the County's opinion that there is currently enough regulation provided within established Federal Law, State Administrative Code, and County

mandates with regard to oversight of marina facilities sighting that additional regulation is not necessary. If one examines all aspects of law enforcement activity, educational initiatives, habitat preservation, and permit regulation currently in place in Lee County it becomes readily apparent that there are multiple layers of protection with regards the aforementioned aspects of manatee protection. The details of the various topics as listed are outlined in the body of the Lee County Manatee Protection Plan. New initiatives outlined in the MPP will further the cause of manatee protection beyond what currently exists. There is always room for improvement and reevaluation is necessary as conditions or our knowledge base changes. As such, Lee County will continue to evaluate all elements of the MPP and related Comprehensive Plan elements at regular intervals to ensure that the best possible protection for manatees is being afforded.

10.0 RECOMMENDATIONS

Goal:
Objective:
Policy:

SPECIFIC LANGUAGE REFLECTIVE OF MPP ITEMS TO BE WRITTEN AFTER INITIAL ROUND OF PUBLIC AND AGENCY REVIEW AND COMMENTS

11.0 LITERATURE CITED

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APPENDIX I. LEE COUNTY COMPREHENSIVE PLAN OBJECTIVES AND POLICIES CONCERNING MARINA SITING AND DESIGN (EXCERPTS FROM THE LEE PLAN)

OBJECTIVE 98.5: MARINA SITING CRITERIA. The county will consider the following marina siting criteria in evaluating requests for new and substantially expanded marinas, other wet slip facilities, and boat ramps in order to make efficient use of limited shoreline locations and to minimize environmental impacts. (Amended by Ordinance No. 00-22)

POLICY 98.5.1: Proposed marinas (and expansion of wet slips at existing marinas and new boat ramps) in the following areas face a variety of technical, legal, or environmental obstacles which must be addressed during the review process:

- Aquatic Preserve (DEP)
- Outstanding Florida Waters (DEP)
- Class I Waters (DEP)
- Marine or Estuarine Sanctuaries (NOAA)
- Manatee Sanctuaries or Critical Manatee Habitats (DEP, USFWS, USACE)
- Approved or conditionally approved shellfish harvesting areas (DEP)
- Federal navigation channel setbacks (USCG, USACE)
- Bridge/road right-of-way easement (County DOT, State DOT)
- Other Endangered/Threatened Species Habitat (USFWS, DEP, USACE)

Extra caution and consideration shall be given prior to authorizing use of areas with high environmental values. (Amended by Ordinance No. 00-22)

POLICY 98.5.2: Cumulative effects of several marinas and/or boat ramps in a small area shall be considered in the review of proposed marina projects. (Amended by Ordinance No. 00-22)

POLICY 98.5.3: Marina and/or boat ramp siting shall be consistent with the appropriate aquatic preserve management plan where applicable. (Amended by Ordinance No. 00-22)

POLICY 98.5.4: Marina and boat ramp siting shall be consistent with the following recommendations of the DNR Blue Ribbon Marina Committee (Final Report, January 1983):

- Priority should be given to the expansion of existing facilities, if environmentally sound, over new facilities.
- Marinas are encouraged in previously disturbed areas and in areas that have historically been used for marina-related activities.
- Marinas should be located as close as possible to boating demand.
- Marinas should be encouraged where adequate uplands are available to develop related support activities and to allow for possible future expansion.
- Location of marinas in highly productive marine habitats should be discouraged.
- Location of marinas in or near well-flushed, deep-water areas should be encouraged.

- Impacts upon state-designated manatee sanctuaries should be considered. Particular marina locations or design features which threaten manatees in these sanctuaries should be discouraged. (Amended by Ordinance No. 00-22)

POLICY 98.5.5: New marinas shall be designed to avoid erosion on adjacent shorelines. (Amended by Ordinance No. 00-22)

POLICY 98.5.6: Marina and boat ramp siting preference shall be given to those properties which are located in proximity to large navigable water bodies outside areas of critical manatee concern. (Amended by Ordinance No. 00-22)

POLICY 98.5.7: Marinas, multi-slip docking facilities, and boat ramps which would disturb or destroy wetlands or grassbeds must demonstrate a pressing need for the proposed facility and must provide for continued use by the general public.

POLICY 98.5.8: New marinas should be located in areas of maximum physical advantage (e.g. adequate water depth). Adequate existing water depths between the proposed facility and any navigational channel, inlet, or deep water, are preferred, as only minimal dredging may be considered.

POLICY 98.5.9: Marina and boat ramp locations which minimize natural shoreline disruption are preferred.

POLICY 98.5.10: Marina and boat ramp construction in dead-end canals are discouraged due to difficulty in meeting state water quality standards.

POLICY 98.5.11: Proposed marinas and boat ramps shall demonstrate that the marina site has adequate uplands to provide support facilities for all activities proposed on site without damaging or removing wetlands or rare and unique upland systems.

POLICY 98.5.12: Rezoning and DRI applications for marinas and boat ramps shall be evaluated in the context of cumulative impacts on manatees and marine resources. (Relocated by Ordinance No. 94-30)

OBJECTIVE 98.6: MARINA DESIGN CRITERIA. The county shall utilize the following criteria in evaluating the design of new marinas (or expansion of wet slip facilities at existing marinas) in order to minimize negative impacts; detailed regulations on these subjects may be contained in the county's development regulations.

POLICY 98.6.1: Boat maintenance activities in new or expanded marina sites shall be located as far as possible from open water bodies in order to reduce contamination of water bodies by toxic substances common to boat maintenance. Runoff from boat maintenance activities must be collected and treated prior to discharge.

POLICY 98.6.2: Open wet slips shall be preferred to covered wet slips in marina design to reduce shading of water bodies which results in lowered biological productivity.

POLICY 98.6.3: Fuel and/or oil containment facilities or contingency plans shall be required at all new marina sites and in marina expansion proposals.

POLICY 98.6.4: All marinas serving the general public or live-aboards must provide pump-out facilities if sanitary sewer service is available.

POLICY 98.6.5: All parking, dry storage, and non-water-dependent facilities must be built on existing uplands.

POLICY 98.6.6: Marinas and multi-slip docking facilities shall prepare hurricane plans with the assistance of the county which describe measures to be taken to minimize damage to marina sites, neighboring properties, and the environment; this hurricane plan is subject to county approval.

POLICY 98.6.7: Fueling facilities associated with marinas must be designed to preclude spills and shall be prepared to contain any spills which reach the water.

POLICY 98.6.8: Marina design shall incorporate natural wetland vegetative buffers near the docking area and in ingress/ egress areas for erosion and sediment control, runoff purification, and habitat purposes.

POLICY 98.6.9: New fuel facilities shall be located on the uplands of a marina site. Proper use and maintenance of fuel pump hoses and other fueling equipment is required.

POLICY 98.6.10: Piling construction and other non-dredge-and-fill techniques shall be utilized where possible to minimize habitat destruction.

POLICY 98.6.11: Mitigation or restoration to offset proposed adverse environmental effects will be required as a condition of approval for any new or expanded marina facilities. Mitigation/restoration is not preferred over preservation of existing resources.

POLICY 98.6.12: To reduce dredging, docks should extend to naturally deep waters when possible. County regulations shall specify the criteria for such extensions.

POLICY 98.6.13: Dry storage of small boats should be encouraged, with dry storage structures located inland as far as feasible.

POLICY 98.6.14: Marina designs shall not reduce water quality in adjacent natural water bodies in order to accommodate an increase in water quality in the marina basin itself.

POLICY 98.6.15: Existing navigational channels shall be used to access new marina sites where possible.

POLICY 98.6.16: Expansion of dry storage capabilities shall be strongly encouraged to reduce dredging.

APPENDIX II.

LEE COUNTY ORDINANCE NO. 02-014

REPLACE WITH SIGNED VERSION

AN ORDINANCE ~~READOPTING~~ AMENDING AND RESTATING THE LEE COUNTY VESSEL CONTROL AND WATER SAFETY ORDINANCE, ~~NO. 90-51 AS AMENDED BY NOS. 90-63 AND 91-16;~~ NO. 96-22 RELATING TO VESSEL CONTROL AND WATER SAFETY; PROVIDING FOR TITLE, PURPOSE AND AUTHORITY; PROVIDING FOR DEFINITIONS; PROVIDING FOR AREAS OF ENFORCEMENT AND MEANS OF ENFORCEMENT; PROVIDING FOR VESSEL REGULATION INCLUDING SPEED, CAREFUL AND PRUDENT OPERATION REQUIRED, AREAS OF PROHIBITED WATER ACTIVITY, AREAS OF REGULATED WATER ACTIVITY, AREAS OF SPECIAL MANAGEMENT ~~AND REGULATIONS FOR OPERATION OF PERSONAL WATERCRAFT;~~ PROVIDING FOR REGULATIONS FOR PERSONAL WATERCRAFT RENTALS; ~~RELATING TO PROHIBITED PERSONAL WATERCRAFT ACTIVITY WITHIN WATERS OF CAPTIVA ISLAND~~ ; PROVIDING FOR PROCEDURES TO DESIGNATE AREAS; PROVIDING FOR EXEMPTIONS; PROVIDING FOR PENALTY; PROVIDING FOR REPEALER, CONFLICTS AND SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE ~~AND SUNSET PROVISION~~.

WHEREAS, the recreational use of the waters and public beaches is an asset of this County which is afforded the public at large, including residents and visitors to the County; and,

WHEREAS, it is not the intent of the County in this Ordinance to either regulate or post speed limits for motorized vessels in all of the waters that may be subject to the County's jurisdiction, nor to unduly interfere with traditional waterway uses for commercial and recreational purposes by boaters and fishermen; and

WHEREAS, the manner, mode, type and degree of uses to which the waters adjoining beaches are placed by the public affects the health, safety and welfare as well as the right to enjoyment by individuals using the beaches or waters for recreational purposes as well as those residing nearby; and,

WHEREAS, the operation of vessels in certain known swimming areas and in excess of idle speed poses a threat to the health, safety and welfare of swimmers and others located offshore from beaches; and,

WHEREAS, regulations which reduce vessel wakes and regulate vessel speeds will aid in reducing turbidity along and erosion to grass beds, mangroves and shorelines that serve as habitat for manatees, wading birds and other flora and fauna within Lee County; and,

~~WHEREAS, the Lee County Board of County Commissioners finds that Captiva Island is unique in that a majority of the shoreline is developed for residential use; and,~~

~~WHEREAS, the use of personal watercraft is continuous in a limited area and creates persistent noise which is a nuisance to a residential area; and,~~

~~WHEREAS, it is in the interest for safety and welfare of the public to establish certain regulations for commercial vessel activity and limited areas of personal watercraft activity.~~

~~WHEREAS, the Lee County Board of County Commissioners recognizes the need for standards for location of personal watercraft rentals to ensure that such operations are located and utilized within commercially zoned areas to preserve residentially zoned areas and to ensure that personal watercraft are operated with a high degree of safety standards to protect the renter and the public; and,~~

~~WHEREAS, the Lee County Board of County Commissioners finds that personal watercraft rentals have a greater impact on land areas than other types of water oriented activities because personal watercraft create a persistent noise from continuous use in limited areas and the numbers of watercraft that could be rented from one source which serves to multiply the noise; and,~~

WHEREAS, the use of personal watercraft floating vendors in Lee County has been found to create an intrusion of commercial activity into residentially zoned areas; and,

WHEREAS, it is in the interest of protecting residential neighborhoods, preserving the County's natural resources and limiting intrusion into public bathing areas that this Ordinance is further amended to set forth specific standards for the location and operation of commercial personal watercraft rentals and to regulate the use of personal watercraft floating vendors in the waters of Lee County; and,

~~WHEREAS, the operation of personal watercraft in areas used for other water activities poses a threat to the safety of swimmers and the control of other water vessels; and,~~

~~WHEREAS, the manner in which personal watercraft are used continuously in a limited area, such persistent noise causes a nuisance to adjoining residential areas and disrupts the habitat of wildlife; and~~,

WHEREAS, it is in the interest for safety and welfare of the public and the County's natural resources to establish certain regulations for speed control and limited areas of watercraft activity to reduce injury to the public and ensure the continuation of our natural resources for the public benefit and welfare; and

~~WHEREAS, the re-adoption and restatement of this Ordinance will safeguard the citizens of Lee County by having vessel control and water safety legislation during the procedural attack on the validity of the enactment of Lee County Ordinance No. 90-51, as amended~~.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF LEE COUNTY, FLORIDA:

SECTION ONE: TITLE

This Ordinance shall be known and may be cited as the Lee County Vessel Control and Water Safety Ordinance.

SECTION TWO: PURPOSE AND AUTHORITY

A. The purpose of this Ordinance shall be to promote safety in and between boating, swimming and other water related activities in Lee County and to preserve and protect our natural resources.

B. The County does hereby declare that the public health, safety and welfare of the citizens of the County and others requires designation of specific areas within which the operation of vessels ~~and personal watercraft~~ may be regulated or prohibited, and in which swimming, waterskiing, skindiving and other water activity, or any of them, may be prohibited or regulated.

C. The County is hereby authorized to designate specific areas prescribing the water activities that may be conducted and the operation of vessels therein, and the regulations for the conduct thereof. The County may, in the interest of safety, prohibit vessels ~~including personal watercraft~~ from operating within such designated area and may prohibit swimming, waterskiing, skindiving and other water activities, or any of them, from being conducted in such areas.

SECTION THREE: DEFINITIONS

For the purposes of this Ordinance, the following terms, phrases, words and derivations shall have the meaning given herein. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular number, and the words in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

A. "Bather" means any person who is in the same water as a vessel, whether said person is swimming, wading or engaged in any other activity in the water.

B. "Beach" means the soft sand portion of land lying seaward of a seawall or line of permanent vegetation and seaward of the mean high water line.

C. "Floating Vendor" means a vessel represented as a place of business, a professional or other commercial enterprise which is used to solicit, conduct, or canvass for the sale or rental of any merchandise, services, goods or property of any kind or character. This term does not include the following types of vessels:

1. A vessel which in and of itself is rented;
2. Any parasail operation using self contained operational equipment so that launching or landing does not occur on land;
3. A vessel maintained in a permanent location over privately owned or leased submerged bottomlands; or,

4. A vessel used for hire (i.e., charter boat, dive boat, dinner cruise boat, tour boat, etc.).

D. "Idle speed" means the lowest speed at which a vessel can operate and maintain steering control. The actual speed will depend upon the design of the vessel and on the vessel's load, wind direction and speed, and the sea conditions. Generally, it will be between 1 and 3 miles per hour for outboard and inboard/outboard vessels, between 2 and 5 miles per hour for fixed shaft/rudder vessels, and the minimum speed merely necessary to effectively traverse breaking water for personal watercraft. For a non-motor propelled vessel, idle speed means that speed necessary for steerageway.

E. "Littoral Waters" means that part of the ocean or sea which abuts the shoreline and includes the shore to the ordinary high watermark. For purposes of this ordinance, the littoral right to use such waters shall be limited to the waters within the boundaries of the land-based site as those boundaries extend into the water at right angles from the shoreline. See attached Exhibit "A".

F. "Operate" means to navigate or otherwise use any vessel in, on or under the water.

G. "Person" means any individual, partnership, firm, corporation, association or other entity.

H. "Personal watercraft" means a small class A-1 or A-2 vessel as defined by state law which uses an outboard motor, or an inboard motor powering a water jet pump, as its primary source of motive power and which is designated to be operated by a person sitting, standing, or kneeling on, or being towed behind the vessel, rather than in the conventional manner of sitting or standing inside the vessel.

I. "Site" means the plot or parcel of land or combination of contiguous lots or parcels of land.

J. "Slow speed" means no speed greater than that which is reasonable and prudent to avoid either intentionally or negligently disturbing, colliding with, or injuring manatees and which comports with the duty of all persons to use due care under the circumstances. A vessel in a slow speed zone that:

1. is operating on a plane is not proceeding at slow speed;
2. that is in the process of coming off plane and settling into the water, which action creates more than no or minimum wake, is not proceeding at slow speed;
3. that produces no wake or minimum wake is proceeding at slow speed;
4. that is completely off plane and which has settled into the water and is proceeding without wake or with minimum wake is proceeding at slow speed.

K. "Slow speed zone" means a designated area within which all vessel operators shall proceed at slow speed not on a plane and producing no or minimum wake.

L. "Steerageway" means the minimum rate of motion required for the helm of the vessel to have effect.

M. "Vessel" means an engine ~~motor~~-propelled or artificially-propelled vehicle and every other description of boat, watercraft, barge, and air boat other than a seaplane on the water, used or capable of being used as a means of transportation on water including personal watercraft. This term shall not include unpowered rafts, floats or floatation devices, whether of canvas, vinyl, rubber, styrofoam or other substance, intended or capable of assisting in the floatation of a person on or in the water.

N. "Water-oriented structure" shall mean and include without limitation, any fishing pier, pier, wharf, observation walkway, platform, boathouse, mooring pile, riprap, revetment, seawall, bulkhead, retaining wall, jetty, platform, boat lift, davit, boat ramp, or any other obstacle, obstruction or protrusion used primarily for the landing or launching of watercraft, erosion control and shoreline stabilization, or for water oriented activities.

SECTION FOUR: AREA OF ENFORCEMENT

The area of enforcement of the provisions of this Ordinance shall be all public navigable waters, creeks, bayous, canals and channels, whether natural or man-made, located within the unincorporated areas of Lee County, including all public waters within the jurisdiction of the County in which the tide ebbs and flows. This Ordinance does not apply to the Florida Intracoastal Waterway and West Coast Inland Navigation District Waterway.

SECTION FIVE: MEANS OF ENFORCEMENT

The provisions of this Ordinance shall be enforced by members of all duly authorized law enforcement agencies within the County. Section Seven of this Ordinance shall also be enforced by the appropriate Lee County Department, Division or Agency.

SECTION SIX: VESSEL REGULATION

A. SPEED

Vessel speed shall not exceed reasonable speed under existing conditions. Nothing contained in this Ordinance shall be construed to authorize or approve any speed greater than is reasonable and proper in consideration of local conditions, other water traffic, fishermen, water skiers or bathers in the area, or other hazards.

B. CAREFUL AND PRUDENT OPERATION REQUIRED

Every person operating any vessel in, on or under any waters within the area of enforcement as set forth above shall do so in a careful and prudent manner, taking into consideration the weather conditions and range of visibility, water turbulence, proximities to fishermen, bathers, water skiers and other boats and watercraft, and all other attendant circumstances so as not to endanger the life, limb or property of any person. Failure to operate a vessel in such a careful and prudent manner shall constitute careless boating in violation of this Ordinance.

C. AREAS OF PROHIBITED WATER ACTIVITY

No owner, operator or person in command of any vessel shall permit or operate a vessel within 500 feet of a County-park beach on littoral waters adjacent thereto and designated by ~~posting~~ proper signage as a "Swimming Only" zone - vessel exclusion area, or any other area that may be so designated by the Lee County Board of County Commissioners pursuant to the procedures set forth in this Ordinance.

D. AREAS OF REGULATED WATER ACTIVITY

No owner, operator or person in command of any vessel shall permit or operate said vessel at a speed greater than, or in excess of, idle speed whenever the vessel is in an Area of Regulated Water Activity except as to those prohibited areas set forth in Section Six C. of this Ordinance. Ingress and egress to the beaches shall be as nearly perpendicular to the shoreline as possible and parallel cruising of the shoreline shall be prohibited. The following areas are hereby designated as Areas of Regulated Water Activity:

1. All waters within 500 feet offshore from all beaches whether or not so designated with appropriate signs;
2. All waters within 500 feet from any water-oriented structure, whether or not designated for such purpose by appropriate signs;
3. Any area designated as an official "NO WAKE - IDLE SPEED ONLY" area which is so posted in such a manner and place that it may be reasonably expected to be seen and read by a person in operation of a vessel within the area;
4. The Great Calusa Blueway Paddling Trail is intended for recreational use solely by canoeists and kayakers, except in those areas where a boating channel crosses the paddling trail or is a part of the paddling trail. In those areas of the paddling trail where gasoline-engine powered vessels may operate, certain parts may be marked as "no wake-idle speed only" areas for safety of all boaters in that area.

5. All waters within 100 feet inshore and offshore of the Bascule bridge span of the Sanibel Causeway whether or not so designated with idle speed signs; and

~~5.~~ 6. Any other area that may be so designated by the Lee County Board of County Commissioners according to the procedures set forth in this Ordinance;

E. AREAS OF SPECIAL MANAGEMENT

No owner, operator or person in command of any vessel shall permit or operate a vessel at a speed greater than, or in the excess of, either idle speed, slow speed or under engine ~~motor~~ power, whichever is applicable, whenever the vessel is in an Area of Special Management except as to those prohibited areas or regulated areas as set forth in Sections Six C. and D., respectively. These Areas are so designated to provide increased protection of the manatees and other natural resources. ~~The following areas are hereby designated as Areas of Special Management~~:

~~1. Any area designated as an official "No Wake/Idle Speed Only" or "Slow Speed Zone" which is so posted in such a manner and place that it may be reasonably expected to be seen and read by a person in operation of a vessel in the area. Such areas are identified on attached Exhibit "A"; or,~~

~~2. Any area designated as an official "No Motor Power" zone which is so posted in such a manner and place that may be reasonably expected to be seen and read by a person in operation of a vessel in the area. Operation of a vessel in these areas shall be without motor power. Poling, rowing or wind power is permissible. Such areas are identified on attached Exhibit "B"; or,~~

~~3. Any other area that may be so designated by the Lee County Board of County Commissioners pursuant to the procedures set forth in this Ordinance.~~

~~F. AREAS OF PROHIBITED PERSONAL WATERCRAFT ACTIVITY~~

~~No owner or operator shall operate any personal watercraft within the following areas of prohibited personal watercraft activity:~~

~~1. All waters within 500 feet of the shoreline of the west side of Captiva Island between Blind Pass and Redfish Pass; and~~

~~2. All waters between the shoreline of the east side of Captiva Island and a line commencing at the tripod marker and extending due south to Blind Pass. This area shall include Roosevelt Channel~~.

~~E.~~ F. REGULATIONS FOR OPERATION OF PERSONAL WATERCRAFT

~~In addition to the regulations set forth above~~, all personal watercraft shall ~~also~~ be operated in the following manner:

1. A person may not operate a personal watercraft unless each person riding on or being towed behind such vessel is wearing a type I, type II, type III or type V personal flotation device approved by the united States Coast Guard.

2. A person operating a personal watercraft equipped by the manufacturer with a lanyard type engine cutoff switch must attach such lanyard to his person, clothing or personal flotation device as is appropriate for the specific vessel.
3. No person under the age of 14 shall operate a personal watercraft on the waters of this County.
4. It is unlawful for the owner of any personal watercraft or any person having charge over or control of a personal watercraft to authorize or knowingly permit the same to be operated by a person under 14 years of age in violation of this section.
5. A person shall not operate a personal watercraft at any time between sunset to sunrise.
6. A personal watercraft must at all times be operated in a reasonable and prudent manner. Maneuvers which unreasonably or unnecessarily endanger life, limb, or property, including, but not limited to, weaving through congested vessel traffic, jumping the wake of another vessel unreasonably or unnecessarily close to such other vessel or when visibility around such other vessel is obstructed, and swerving at the last possible moment to avoid collision shall constitute reckless operation of a vessel. Failure to operate a personal watercraft in such a careful and prudent manner shall constitute careless boating in violation of this Ordinance.

~~7.~~ ~~Subsection F. shall not apply to a performer engaged in a professional exhibition or a person participating in a regatta, race, marine parade, tournament or exhibition held in compliance with this Ordinance and Section 327.48, Florida Statutes.~~

SECTION SEVEN: REGULATIONS AND LOCATIONS FOR PERSONAL WATERCRAFT RENTALS

Any person engaged in the rental, leasing, bailment for consideration or otherwise providing transportation for remuneration, of personal watercraft for use by the public on any waters of Lee County, must meet the following requirements as of the effective date of this Ordinance including any new and already existing rental operations:

A. A person is required to obtain a county occupational license which shall be issued to the personal watercraft rental operations office.

1. The operations office shall be located at a land-based site; and,
2. The land-based site shall have direct access to the beach. Direct access shall not include public rights-of-way, County-owned beach access, or any residentially zoned land that must be traversed to gain beach access; and,
3. All business transactions such as the exchange of consideration or remuneration for the rental, leasing, bailment or any other type of transaction between the commercial rental operator and customer shall occur on the land-based site for which the occupational license is issued; and,

4. The personal watercraft shall only be rented or operated on the littoral waters offshore of the land-based site for which the occupational license is issued until the personal watercraft travels beyond the 500 feet offshore idle speed limit.
A floating vendor of personal watercraft rentals may operate within the littoral waters of a land-based site as long as the floating vendor has an occupational license issued at that land-based site.

B. A person must have and maintain a telephone and an operable marine radio at its land-based operations office.

C. A person must have a manned, motorized chase vessel with operational marine radio in good running condition that meets all United States Coast Guard safety requirements and is within vision of where the personal watercraft are being operated during all hours of the persons operations.

D. A person must have and maintain comprehensive general liability insurance with coverage not less than $500,000.00 combined single limits. A copy of the current insurance policy shall be kept at the rental operations office.

E. A person shall register each personal watercraft and have a Florida vessel registration number affixed thereon.

F. A person may not lease, hire or rent a personal watercraft to any person who is under 16 years of age.

SECTION EIGHT: PROCEDURES TO DESIGNATE AREAS

By Resolution adopted at a public hearing upon at least ~~fifteen (15)~~ ten (10) days notice (excluding Sundays and legal holidays) published in a newspaper of general circulation in Lee County, Florida, the Board of County Commissioners of Lee County may designate additional specific areas as an "Area of Prohibited Water Activity" as described in Section Six. C., an "Area of Regulated Water Activity" as described in Section Six. D., or an "Area of Special Management" as described in Section Six.

E. In designating such areas, the Board of County Commissioners shall hear all testimony presented and make a finding that the designation is necessary for the safety and/or welfare of the citizens of the County. Upon the adoption of such a Resolution, the Board of County Commissioners shall publish the Resolution one time in a newspaper of general circulation in Lee County, Florida, after which the designation of the area shall be complete and binding; provided, however, no person shall be convicted of a violation of this Section relating to such specified areas until signs designating the boundaries of the area so designated have been posted in such a manner and place that they may reasonably be expected to be seen and read by a person operating a vessel in that area; provided however that no signs will need to be posted for areas described in Sections Six. C. and D. unless so designated as a requirement.

SECTION NINE: EXEMPTIONS

A. The provisions of this Ordinance shall not be construed to prohibit the running of racing or exhibition boats or personal watercraft during a publicly announced, properly authorized and supervised, and adequately patrolled regatta or speed trial or exhibition. "Properly authorized" shall require approval by the Lee County Board of County Commissioners.

B. Florida ~~Marine Patrol rescue~~ Fish and Wildlife Conservation Commission craft, Lee County Sheriff's Department craft, other official craft and craft operating under emergency conditions shall be exempted from the provisions of this Ordinance while performing their official duties or operating in an emergency.

C. Commercial vessels are exempted from the provisions of this Ordinance while conducting fish netting operations, provided the operations are conducted under the safety constraints of Sections Six. A., SPEED and Six. B., CAREFUL AND PRUDENT OPERATION REQUIRED; but at no time shall vessels be operated at greater than slow speed within 500 feet of bathers. This exemption is consistent with the "commercial watercraft" exemption set forth in the Lee County Caloosahatchee River Vessel Operation and Manatee Protection Ordinance. Such commercial vessels will also be exempt from State regulations if they comply with the conditional exemption requirements set forth in Section 16N-22.003, F.A.C.

SECTION TEN: PENALTY

Violation of the provisions of this Ordinance, or failure to comply with any of the requirements, shall constitute a misdemeanor. Any person who violates this Ordinance or fails to comply with any provisions shall upon conviction thereof be fined or imprisoned, or both, as provided by law, and in addition shall pay all costs and expenses involved in the case. In the alternative, a citation may be issued pursuant to the procedures set forth in Sections 327.73 and 327.72, Florida Statutes.

SECTION ELEVEN: REPEALER

Lee County Ordinance numbers 83-30 and 84-3 are hereby repealed and shall be null and void on the effective date of this ordinance.

SECTION TWELVE: CONFLICT

In the event that any provision of this Ordinance is found to be contrary to any other Lee County Ordinance which regulates the same subject matter, then in said event, the more restrictive Ordinance shall apply.

SECTION THIRTEEN: SEVERABILITY

The provisions of this Ordinance are severable, and it is the intention to confer the whole or any part of the powers herein provided for. If any of the provisions of this Ordinance shall be held unconstitutional by any Court of competent jurisdiction, the decision of such Court shall not affect or impair any remaining provisions of this Ordinance. It is hereby declared to be the legislative intent that this Ordinance would be adopted had such unconstitutional provision not been included therein.

SECTION FOURTEEN: EFFECTIVE DATE ~~AND SUNSET PROVISION~~

This Ordinance shall take effect immediately upon receipt of official acknowledgment from the Secretary of State of Florida that it has been filed with that office.

~~This Ordinance specifically re-adopts and restates the Lee County Vessel Control and Water Safety Ordinance, No. 90-51, as amended, to provide Lee County with an enforceable Ordinance during the litigation and ensuing appeals on the issue of the validity of the enactment procedures of said ordinance. This Ordinance shall be deemed repealed and of no further force or effect upon a final appellate court's ruling that Lee County Ordinance No. 90-51 was validly enacted.~~

Appendix III. Lee County Comprehensive Plan Objectives and Policies Concerning Resource Protection and the West Indian Manatee (excerpts from the Lee Plan)

GOAL 77: RESOURCE PROTECTION. To manage the county's wetland and upland ecosystems so as to maintain and enhance native habitats, floral and faunal species diversity, water quality, and natural surface water characteristics.

OBJECTIVE 77.1: RESOURCE MANAGEMENT PLAN. The county will continue toimplement a resource management program that ensures the long-term protection and enhancement of the natural upland and wetland habitats through the retention of interconnected, functioning, and maintainable hydroecological systems where the remaining wetlands and uplands function as a productive unit resembling the original landscape. (Amended by Ordinance No. 94-30, 00-22)

POLICY 77.1.1: County agencies implementing the natural resources management program will be responsible for the following:

1. Identifying upland and wetland habitats/systems most suitable for protection, enhancement, reclamation, and conservation.

2. Recommending standards to the Board of County Commissioners for Board approval for development and conservation that will protect and integrate wetlands (as defined in Objective 84.1) and significant areas of Rare and Unique upland habitats (as defined in Objective 74.1).

3. Preparing standards for wetland and rare and unique upland mitigation.

4. Conducting a sensitive lands acquisition program, which will consist of the following elements (see also Policy 77.2.8):

a. A comprehensive inventory of environmentally sensitive lands will be maintained and expanded as new data becomes available.

b. Environmentally sensitive lands will include wetlands (as defined in Objective 84.1); important plant communities (as identified by Objective 77.2); critical habitat for listed wildlife species (see also Objective 77.8 and Policies 77.4.1, 77.4.2, 77.10.4, and 77.11.2); environmentally sensitive coastal planning areas (as defined in Policy 83.1.5); natural waterways; important water resources (as defined in Policy 87.1.1); storm and flood hazard areas; and Rare and Unique uplands (as defined in Objective 74.1).

c. Beginning in 1997, the county will adopt and implement a program to acquire and manage lands critical to water supply, flood protection, wildlife habitat, and passive recreation. The program will be funded by an ad valorem tax of up to 0.50 (1/2) mil annually for a period not to exceed seven years. A fifteen member advisory group to be called the Conservation Lands Acquisition and Stewardship Advisory Committee (CLASAC) will develop and implement the program. Ten percent of the funds will be used to manage the lands acquired.

d. The county will take full advantage of opportunities to cooperatively acquire and manage sensitive lands and to leverage other funding sources by working with state land acquisition and land management agencies such as the Florida Communities Trust and the Florida Game and Fresh Water Fish Commission and by participating in state land acquisition programs such as the Save Our Rivers program and the Conservation and Recreational Lands program.

e. The county (or other appropriate agency) will prepare a management plan for each acquired site for the long term maintenance and enhancement of its health and environmental integrity. The management plan will address any necessary people management (e.g., fences and signage to prevent incompatible uses such as off road vehicle use and hunting); surface water management and restoration; ecosystems restoration; litter control; fire management; invasive exotic plant and animal control; and, where appropriate, compatible recreational use facilities. The plan will also address how maintenance will be funded.

f. The county will encourage the establishment of and provide assistance to community-based land trusts, whose purpose is the preservation and protection of Lee County's natural resources.

5. Maintaining a central clearinghouse for all environmental studies and recommendations by both public and private organizations.

6. Compiling, maintaining and regularly updating county mapping of vegetation communities; listed species habitat and sitings; and water resources including watersheds, floodplains, wetlands, aquifers, and surface water features.

7. Preparing recommendations for maintaining or restoring the desired seasonal base flows and water quality after reviewing monitoring data.

8. Coordinating in the preparation of plans with the municipalities, South Florida Water Management District, and Southwest Florida Water Management District

to better control flows of freshwater and reduce pollutant discharges into the Lee County coastal waters.

9. Providing an annual progress report to the county commission on the resource management program. The report should address the adequacy of the program and land use regulations to protect and enhance these natural systems.

10. Providing an annual report to the County Commission on the status of wetlands and rare and unique uplands by 1996. (Amended by Ordinance No. 94-30, 98-09, 00-22)

OBJECTIVE 77.4: ENDANGERED AND THREATENED SPECIES IN GENERAL. Lee County will continue to protect habitats of endangered and threatened species and species of special concern in order to maintain or enhance existing population numbers and distributions of listed species.

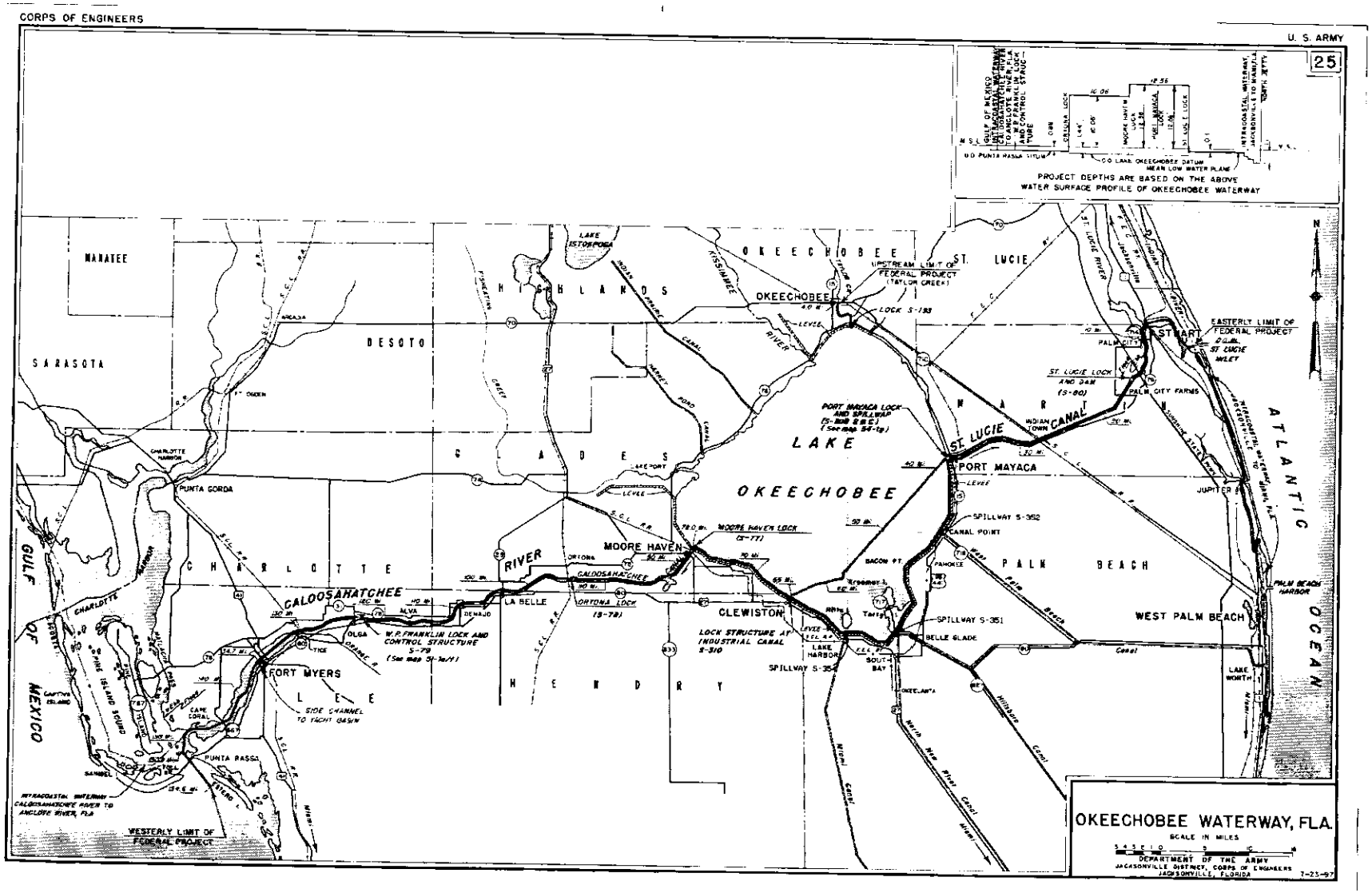
POLICY 77.4.1: Identify, inventory, and protect flora and fauna indicated as endangered, threatened, or species of special concern in the "Official Lists of Endangered and Potentially Endangered Fauna and Flora of Florida," Florida Game and Freshwater Fish Commission, as periodically updated. Lee County's Protected Species regulations will be enforced to protect habitat of those listed species found in Lee County that are vulnerable to development. There will be a funding commitment of one full-time environmental planner to enforce this ordinance through the zoning and development review process. (Amended by Ordinance No. 92-48, 94-30, 00-22)

POLICY 77.4.2: Conserve critical habitat of rare and endangered plant and animal species through development review, regulation, incentives, and acquisition.

POLICY 77.4.3: Require detailed inventories and assessments of the impacts of development where it threatens habitat of endangered and threatened species and species of special concern.

POLICY 77.4.4: Restrict the use of protected plant and wildlife species habitat to that which is compatible with the requirements of endangered and threatened species and species of special concern. New developments must protect remnants of viable habitats when listed vegetative and wildlife species inhabit a tract slated for development, except where equivalent mitigation is provided. (Amended by Ordinance No. 94-30, 00-22)

APPENDIX IV. OKEECHOBEE WATERWAY



APPENDIX V – Lee County Ordinance 96-12

INSERT COPY

APPENDIX VI – Conservation 2020 Nomination Form

INSERT COPY