

## 6. Pine Island Sound/Matlacha Pass

This chapter presents a compilation and synthesis of information regarding the Pine Island Sound/Matlacha Pass Basin portion of the CHNEP area (Figure 6-1). The following sections provide:

- a characterization of the physical setting, including topographic, geologic, soils, and land use descriptions of the basin;
- a review of the rainfall and hydrologic characteristics of the basin;
- a review of the water management practices and water uses within the basin;
- a summary of current and historical water quality conditions; and
- an estimation of pollution potential from nonpoint and point sources within the basin.

### 6.1 Physical Setting

The Pine Island Sound/Matlacha Pass Basin comprises the southern portion of Charlotte Harbor, including the open waters and bay within Pine Island Sound, San Carlos Bay, and Matlacha Pass. This basin includes the series of coastal barrier islands of Cayo Costa, North Captiva, Captiva, and Sanibel. The central portion of the Pine Island Sound/Matlacha Pass Basin includes all of Pine Island and Little Pine Island. The eastern boundary of the basin includes those areas in the City of Cape Coral, northern Lee County and southern Charlotte County which drain into Matlacha Pass.

#### 6.1.1 Physiography

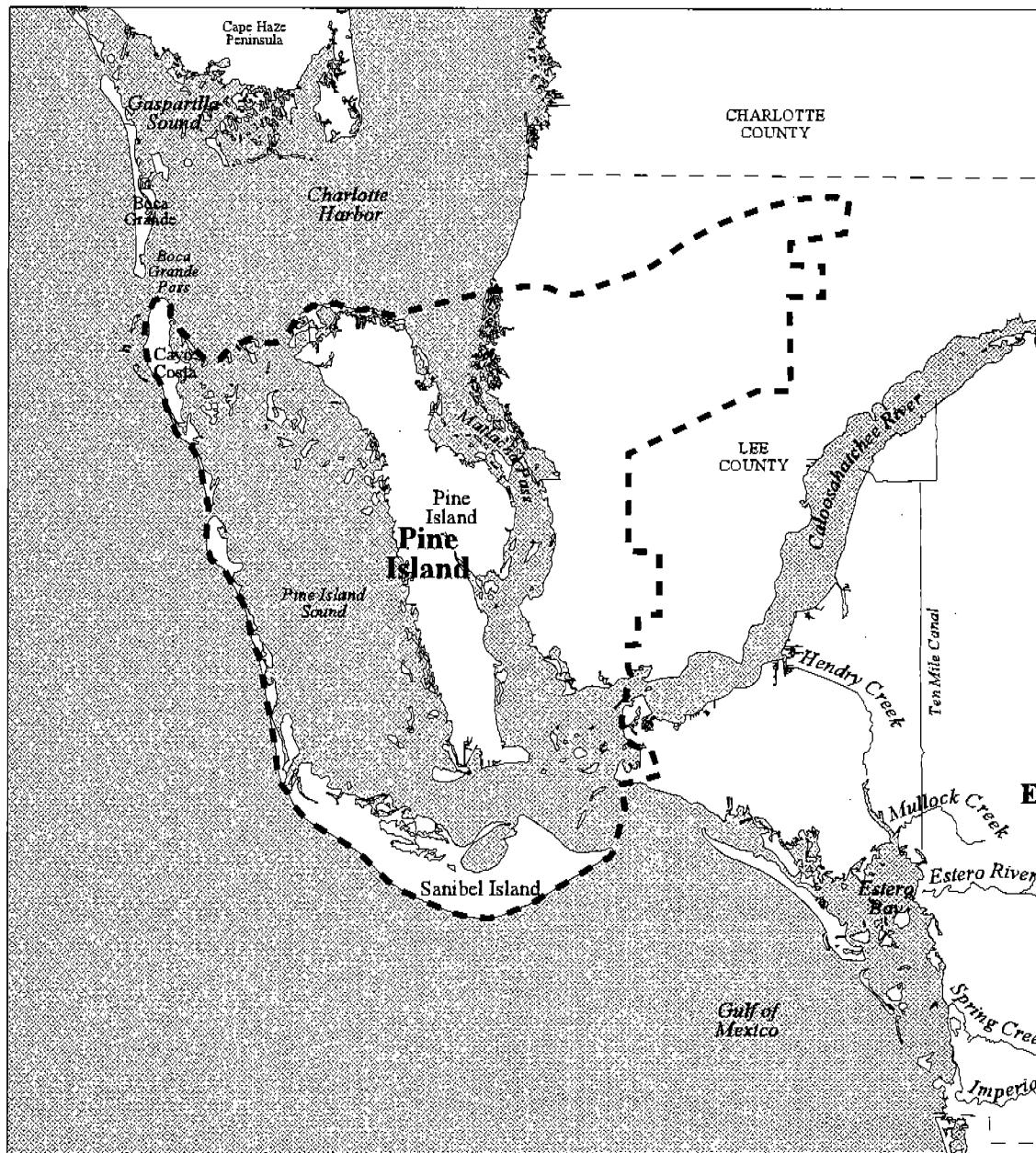
This section describes the topography, geology, and land use in the Pine Island Sound/Matlacha Pass Basin.

##### 6.1.1.1 Topography

The long, narrow basin has minor topographic relief, interrupted by canals. Topography in the Pine Island Sound/ Matlacha Pass basin ranges from sea level to no greater than 10 feet along the barrier islands and coastal mainland.

##### 6.1.1.2 Geology

Pine Island is believed to be a remnant of the original mainland that was isolated by a southerly shift



LOCATION  
Pine Island Basin

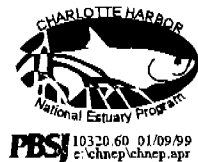
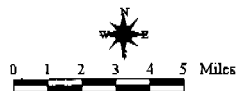


Figure 6-1. Location of the Pine Island/ Matlacha Pass Basin in the Charlotte Harbor NEP study area.

in the river flow. Then, as sediments built up at the present location of Little Pine Island and the evolving shape of Sanibel Island restricted water flow, the estuary broke through to the Gulf, creating a deep channel near the present Boca Grande Pass. This pass eventually shifted to its present position. Other passes have been opened and closed by storm events and other natural forces that are still acting on the system today. Both Cayo Costa and North Captiva Island have had new cuts through them in the early 1980's.

The parent materials underlying the islands and coastal mainland of the Pine Island Sound/Matlacha Pass basin consist of beds of sand and clay materials transported and deposited by sea waters during the Pleistocene period. During high sea levels, the Miocene-Pliocene sediments were eroded and redeposited or reworked on the shallow sea bottom to form marine terraces which now lie beneath the land.

The Pine Island Sound/Matlacha Pass basin includes Gulf Coastal Lowlands and Gulf Barrier Chain physiographic provinces. The Gulf Barrier Chain consists of a string of barrier islands from Long Key to Cape Romano. These islands likely formed as dune ridges and spits as sand from coastal headlands, rivers, and formerly emergent areas of the continental shelf was deposited. When sea level rise slowed approximately four to five thousand years ago, the sand was shaped into islands parallel with the shoreline by wind and water currents.

In contrast, Sanibel Island is believed to have formed from deltaic deposits composed primarily of mollusk shells. As sediments built up at Little Pine Island and the newly evolving Sanibel Island restricted water flow, the estuary opened to the Gulf, creating a deep channel near the present Boca Grande Pass. This pass eventually shifted to its present position as other passes presently do in response to storm events and other natural forces.

The mainland portion of the basin is in the Gulf Coastal Lowlands and is similar in geology to coastal Charlotte Harbor basin described earlier.

#### **6.1.1.3 Soils**

Soils within the Pine Island Sound/Matlacha Pass Basin include about 70% artificially created soils of shell and limestone fragments in the southeast portion of the watershed, contiguous with those same soils in the adjacent Charlotte Harbor basin. The interior of Pine Island is made up of flatwoods soils of the Immokalee-Myakka complex.

The tidal areas and barrier islands complexes of the basin are poorly to moderately well-drained soils over marine sands and shells. The flats along the perimeter of Pine Island are Peckish-Estero-Isles soils made up of mucky sands over limestone with 0-1% slopes. These soils are characteristic of marshes and swamps. The east side of Sanibel Island on the intercoastal waterway is composed of more organic and flooded Wulfert-Kesson-Captiva soils characteristic of mangrove swamps. In

contrast, the Gulf Coast Sanibel Island and Captiva and Gasparilla islands include fine sand soils and ridges of the Canaveral-Captiva-Kesson series.

There are no soils designated as A (very well-drained) under the HSG classification system in the Pine Island Sound/Matlacha Pass Basin (Table 6-1 and Figure 6-2). Unlike the other basins, percentages of soils were more evenly distributed, and only 41.4% of the soils are classified in the B (well-drained) soils grouping, 30.5% in C (less well-drained), and 28.1% in D (poorly drained).

Soil Type	Acres	%
A	0	0.0
B	36,338	41.4
C	26,815	30.5
D	24,694	28.1
TOTAL	87,848	100.0

### 6.1.2 Rainfall

The mean annual rainfall for 33 years of record is about 53 inches for this area. About 30% of summer days on the beaches include thunderstorms, compared with inland areas which have thunderstorms about 60% of the days. Regional long-term rainfall data were available from 16 rain gauges for calculating rainfall in Pine Island Sound/ Matlacha Pass basin (Figure 6-3). Evaporation and rainfall have been reported to be equal (Vishner and Hughes, 1969) in the basin and there are generally no recharge areas.

Total annual precipitation and average monthly precipitation (Figure 6-4) were plotted for the basin. In addition, total and average monthly precipitation were calculated for the entire basin. Appendix A presents a summary of the rainfall data from this basin.

Rainfall data are similar to other basins in the watershed. Minimum total annual precipitation (for years with twelve months data) ranged from approximately 32 inches of rain in 1964 to approximately 74 inches of rain in 1983.

Average monthly precipitation was highest during the summer months June to September and average rainy season monthly values ranged from 8.4 to 9.2 inches. Average monthly rainfall was lowest in November (approximately 2.4 inches), and average values did not exceed 3.8 inches through May.

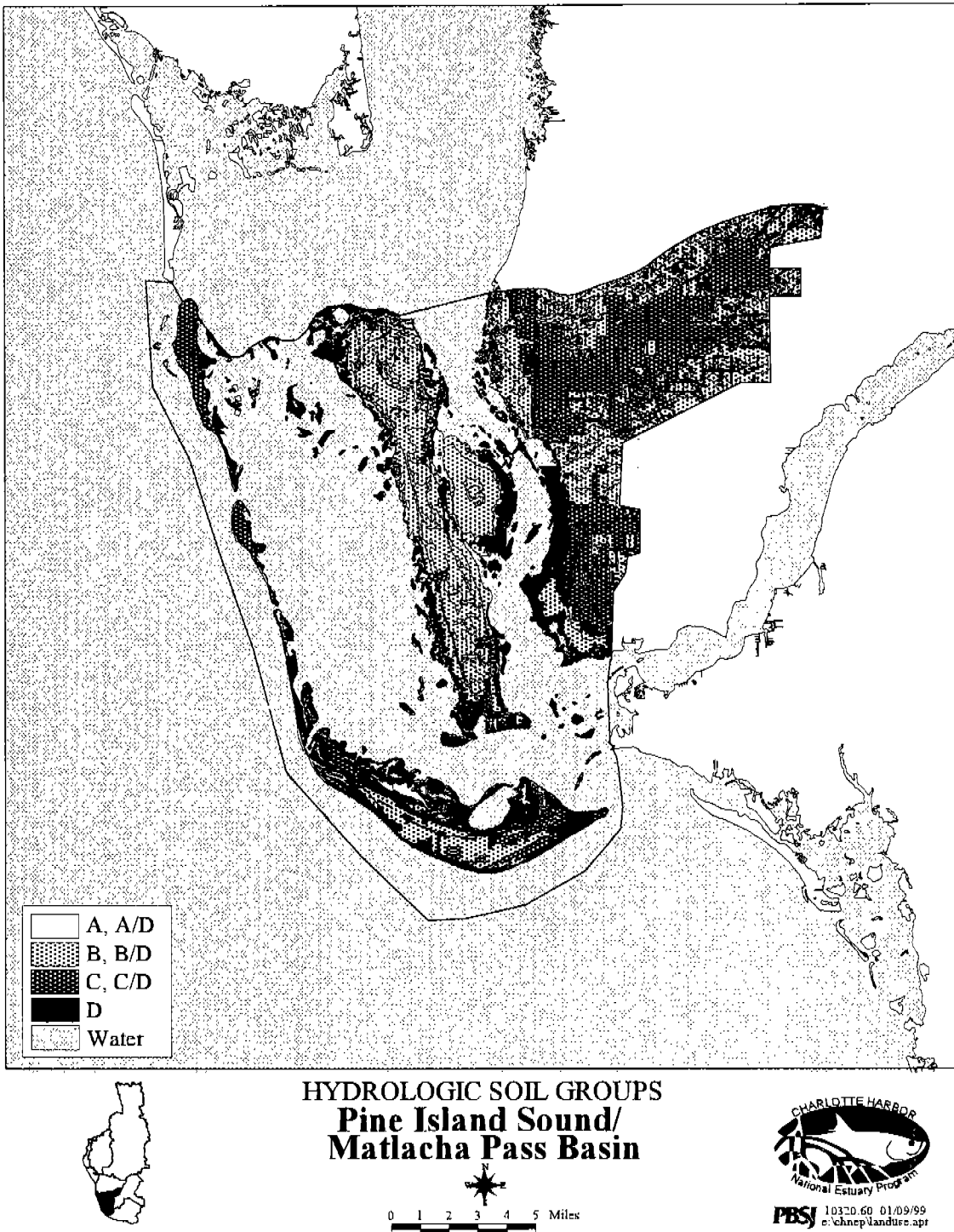
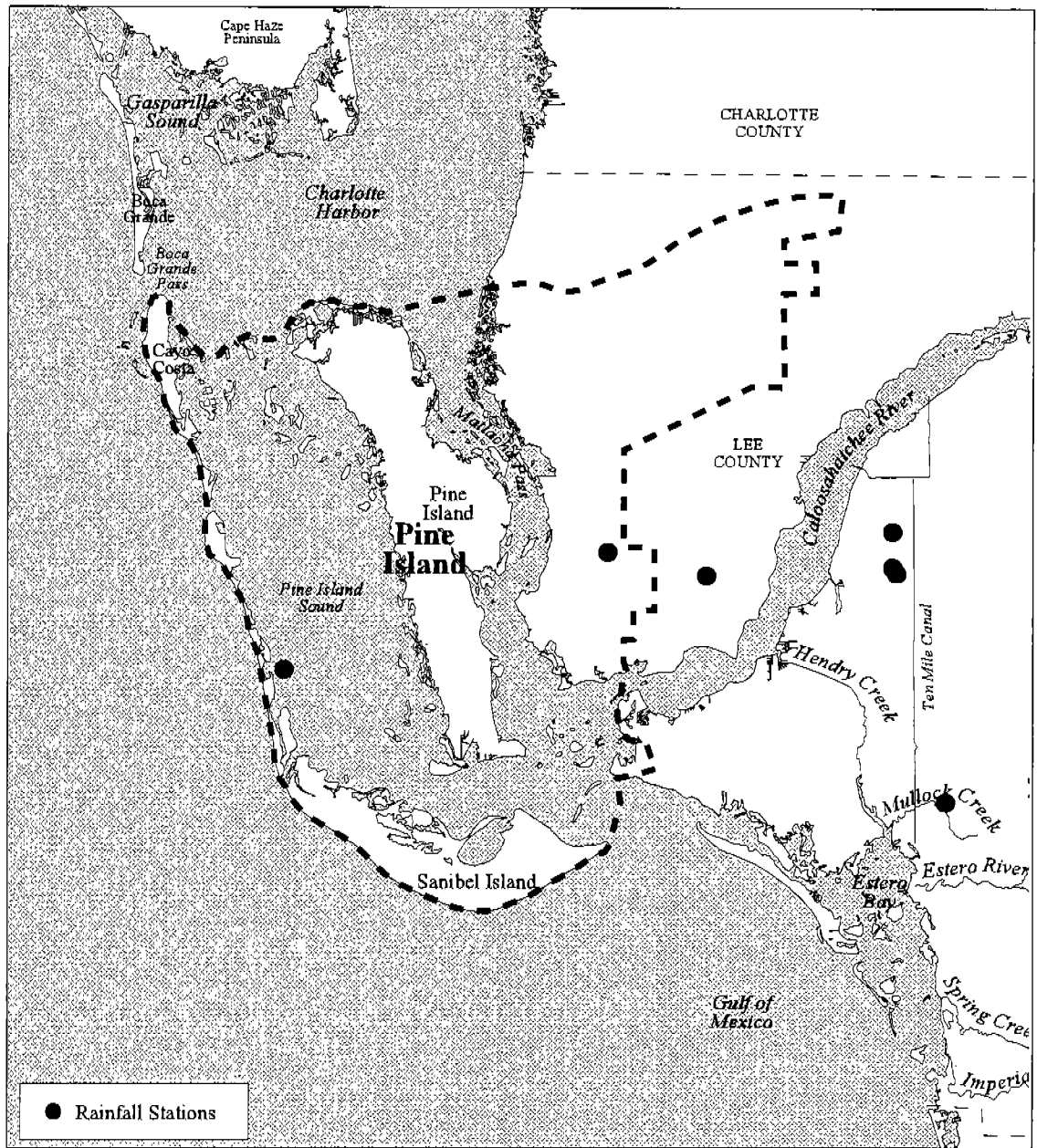


Figure 6-2. Hydrologic soil groups in the Pine Island/ Matlacha Pass Basin.



● Rainfall Stations



**RAIN MONITORING STATIONS  
Pine Island Basin**

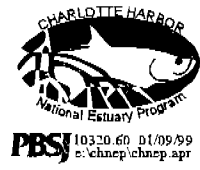


Figure 6-3. Rain station locations in the Pine Island/ Matlacha Pass Basin.

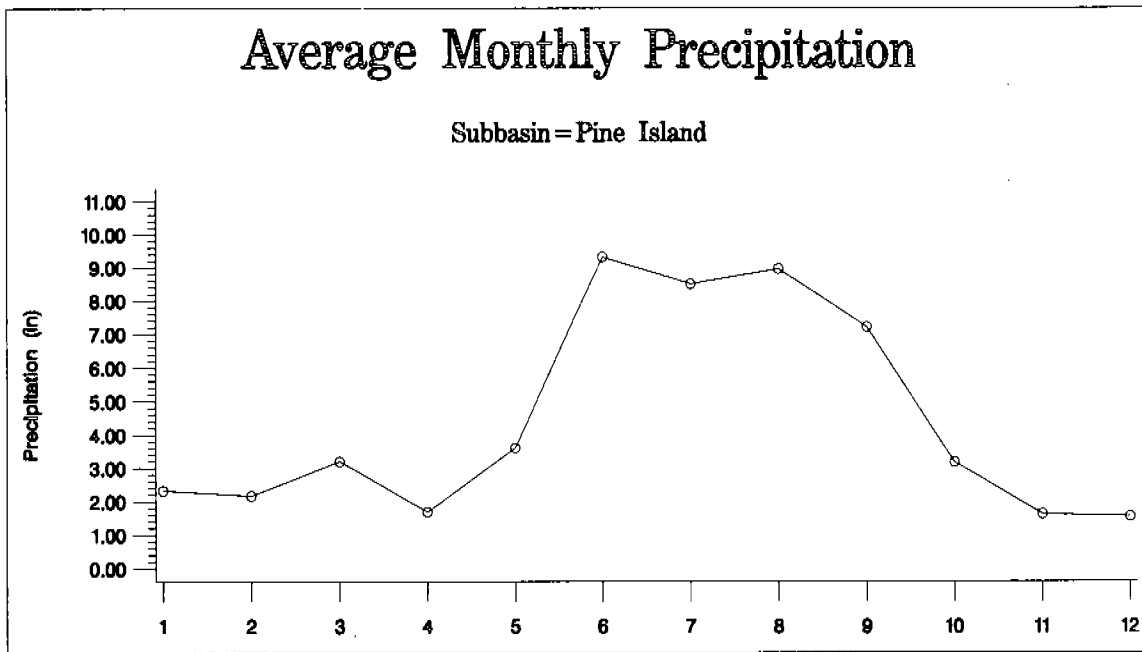
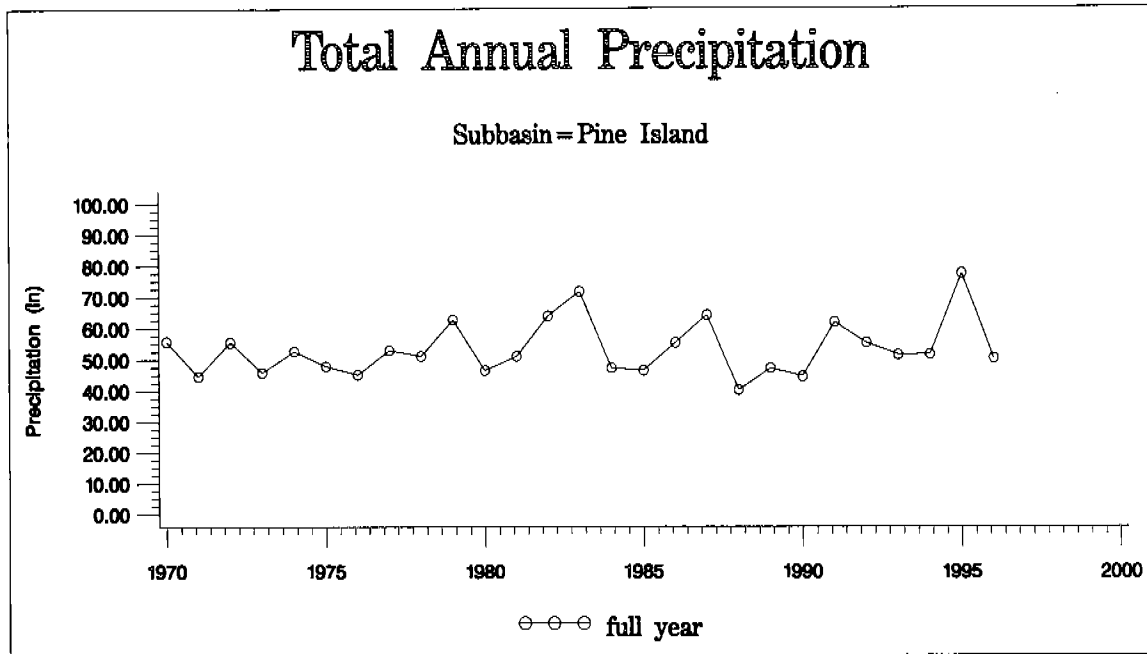


Figure 6-4. Total annual and monthly rainfall plots for the Pine Island/ Matlacha Pass Basin.

### 6.1.3 Existing and Future Land Use

Existing and future land use acreages are presented in Tables 6-2 and 6-3. Existing and future land use maps are presented in Figures 6-5 and 6-6.

Land use classification systems for existing and future land use GIS coverages for the Charlotte Harbor NEP area are not consistent. Existing Land Use Coverage presented in this document is a combination of 1990 Southwest Florida Water Management District (SWFWMD) and 1988 South Florida Water Management District (SFWMD) land use data. Land Use data from SWFWMD was based on Florida Department of Transportation (FDOT) "Florida Land Use and Cover Classification System" (FLUCCS), Levels II and III (Appendix E). The SFWMD land use categories, however, were identified using the District's own classification system (not FLUCCS). We assigned new codes which make the SFWMD and SWFWMD land use classification systems comparable for this project.

Future Land Use Coverages for the Charlotte Harbor NEP were developed by Southwest Florida Regional Planning Council (SWFRPC). SWFRPC obtained future land use maps from all RPCs in the state, and digitized the maps to develop a state-wide coverage. The future land use maps (FLUMs) are general and intended to guide future growth. They are not based on present conditions, nor do they recognize many features that will probably be present in the future (such as smaller wetlands). Importantly, FLUMs provide a 100% build-out scenario which does not take into account areas which will not be developed as result of land use regulations and restrictions.

The FLUM uses a different and much simpler, land use classification system than either of the existing land use coverages and does not identify existing developed urban land use or land cover. A geographic area designated for future residential growth on the FLUM might encompass existing commercial, institutional, or wetland areas (Rains et al. 1993). As a result, residential areas may increase tremendously under future scenarios because existing development is not taken into account. Direct comparisons between acreages of a particular type of land use for existing and future conditions cannot be made without evaluating the criteria used to develop that land use category.

#### 6.1.3.1 Existing Land Use

Existing land use in the basin is primarily urban (14%) and non-agricultural land use such as range lands (34%), forested uplands (17%), and saltwater wetlands (22%). Agricultural land use makes up only 3% of the existing land use acreage in the basin. Existing residential land use comprises only about 8% of the basin. Barren lands (0.6%) and mining (0.2) make up very little of the land use in the Pine Island/ Matlacha Pass Basin.

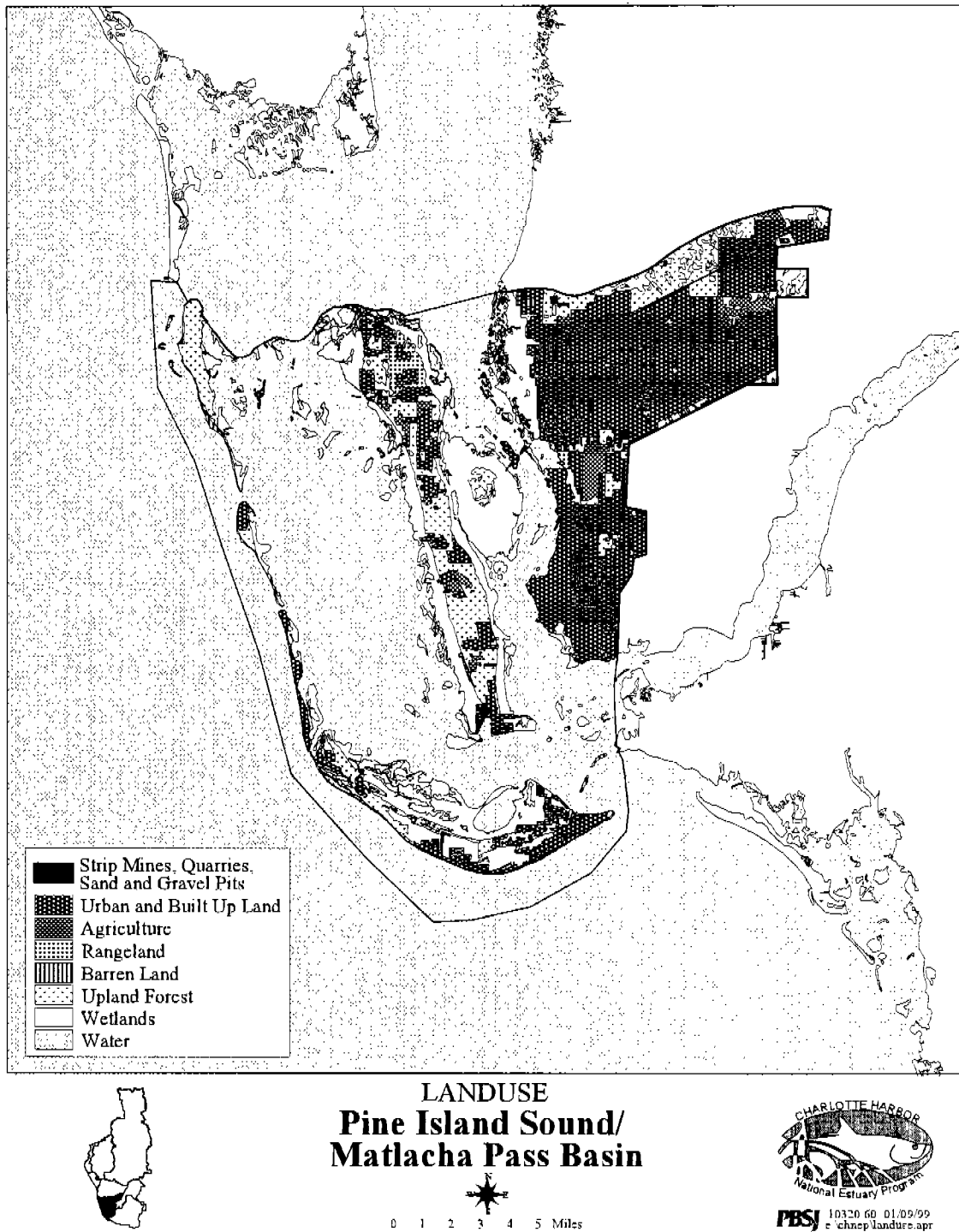


Figure 6-5. Existing land use map (SWFRPC, 1990) for the Pine Island/ Matlacha Pass Basin.

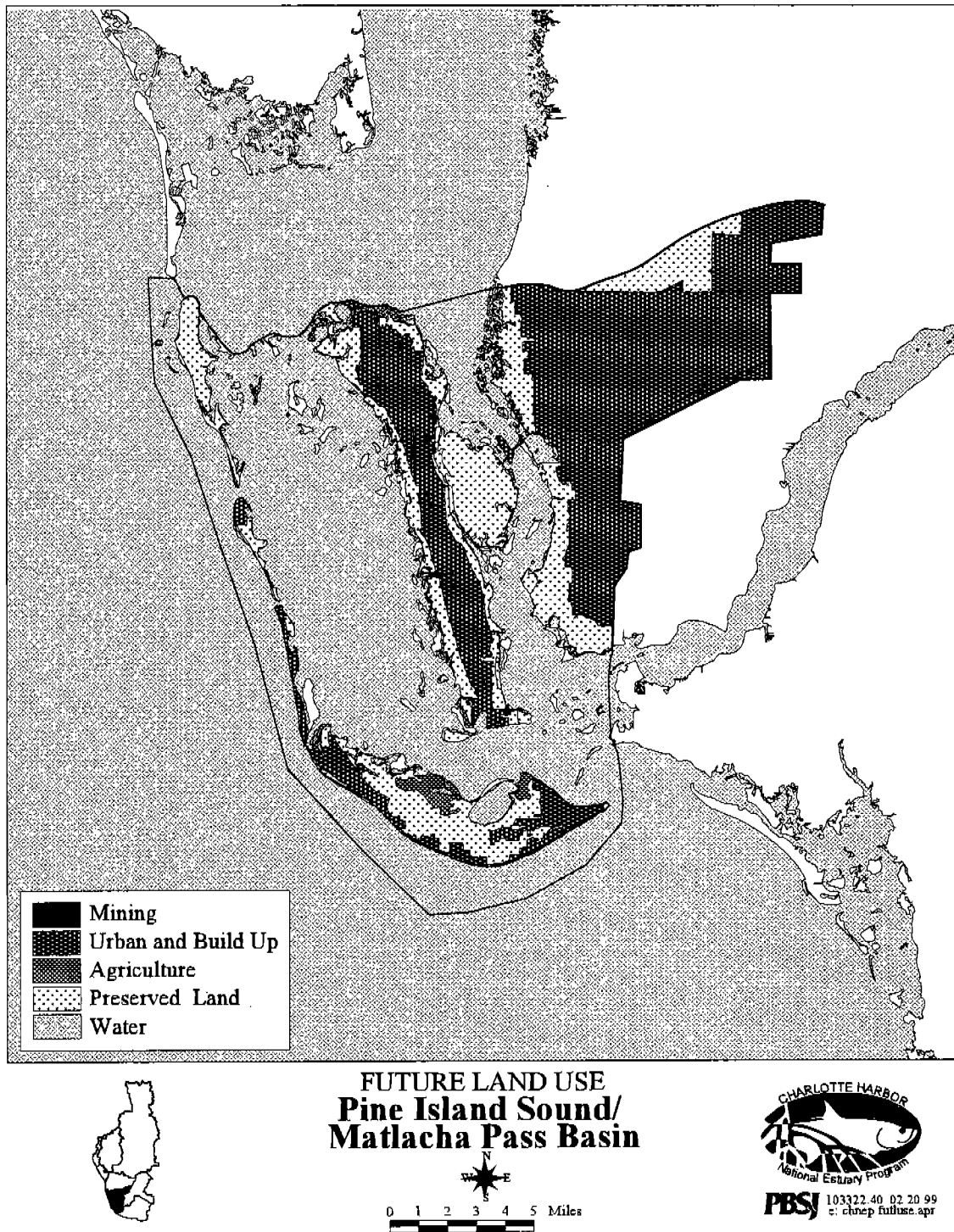


Figure 6-6. Future land use map (SWFRPC, 1990) for the Pine Island/ Matlacha Pass Basin.

**Table 6-2. Current (1990) land use/cover in the Pine Island/Matlacha Pass Basin.**

Land Use/Cover	Acres	%
Single Family Residential	3,506	4.0
Medium Density Residential	2,888	3.3
Multi-family Residential	834	0.9
Commercial	374	0.4
Industrial	4,559	5.2
Mining	167	0.2
Institutional	263	0.3
Range Lands	29,736	33.8
Barren Lands	541	0.6
Pasture	1,997	2.3
Groves	417	0.5
Feedlots	12	< 0.1
Nursery	130	0.1
Row and Field Crops	157	0.2
Upland Forested	14,591	16.6
Freshwater - Open Water	4,502	5.1
Saltwater - Open Water	0	0.0
Forested Freshwater Wetland	1,652	1.9
Saltwater Wetland	19,107	21.8
Non-forested Freshwater Wetland	2,415	2.7
Tidal Flats	0	0.0
<b>TOTAL</b>	<b>87,848</b>	<b>100.0</b>

### 6.1.3.2 Future Land Use

The predominant change in the basin under future land use plans include an increase to 51% urban land use from non-agricultural land use such as those described above. Conversions to urban are almost completely predicted to result from increases in single family residential (48%). No change in agricultural land use is predicted by the SWFRPC future land use maps.

Land Use/Cover	Acres	%
Single Family Residential	44,511	48
Multi-family Residential	354	< 1
Rural Residential	3,121	3
Commercial	3,159	3
Industrial	7,749	8
Mining	0	0
Agricultural	0	0
Protected Resource	33,811	36
TOTAL	93,100	100

### 6.1.4 Surface Water Hydrology and Water Management

There are no streamflow gages in the Pine Island Sound/ Matlacha Pass Basin. Hydrologically, runoff and rainfall provide the major freshwater inputs directly to the Pine Island Sound area.

#### 6.1.4.1 Urban Management Practices

The urbanized areas of the Pine Island Sound/Matlacha Pass Basin are found primarily on Sanibel Island and in the Cape Coral region, with some urban land uses on Pine Island. The discussion of urban management practices is divided into urban water uses and urban water discharges, including reuse. The water uses and water discharges are tabulated in the following descriptions.

#### Water Use

Urban water uses include public water supply, mining facilities, industrial operations, and recreational uses. Discussion of water use is limited to facilities with an average permitted quantity greater than 0.5 MGD. Water use information for those parts of the CHNEP study area within the borders of the SFWMD is from SFWMD (1994). The Pine Island Sound/Matlacha Pass Basin is entirely within the SFWMD.

### - Public Supply

Table 6-4 shows the public water supply facilities in the Pine Island Sound/Matlacha Pass Basin with permitted withdrawals of more than 0.5 MGD, as well as the withdrawal sources for the facilities. A discussion of the populations served by each plant, withdrawal amounts, and withdrawal methods follows.

Facility	Permitted Average Withdrawal (MGD)	Source
Cape Coral	11.59	Lower Hawthorn aquifer
Greater Pine Island Water Assoc.	1.31	Lower Hawthorn aquifer
Island Water Association	4.08	Lower Hawthorn, Suwannee aquifer

The Cape Coral water treatment plant withdraws from the Lower Hawthorn aquifer via 23 wells having depths of 642-900 feet, located between SR 78 and Cape Coral Blvd. The wells have individual withdrawal capacities of 200 to 850 GPM, and provide the permitted average of 11.59 MGD. An additional well was to be drilled in 1993, and is already covered by the permit for the utility. Average flow during 1990 was 8.44 MGD (SFWMD, Vol III, 1994).

The Greater Pine Island Water Association withdraws from the Lower Hawthorn aquifer, with three wells having depths between 737 and 770 feet. The wells have individual capacities of 825 GPM. The permitted average withdrawal is 1.31 MGD, with an average flow of 0.88 MGD in 1990 (SFWMD, Vol III, 1994).

The Island Water Association withdraws from the Lower Hawthorn and Suwannee aquifers via 19 wells on Sanibel Island. The wells have depths of 574-770 feet, and capacities of 30-525 GPM. Three of the wells are reserves, with another described as standby. The permitted average withdrawal is 4.08 MGD. In 1990, average flow was 3 MGD, with 0.53 MGD of this coming from the Lower Hawthorne aquifer, and the remainder from the Suwannee aquifer. Three additional wells were permitted, and drilling was to occur in 1995 (SFWMD, Vol III, 1994).

### - Mining

Mining makes up very little of the land use (0.2%) in the Pine Island/ Matlacha Pass Basin.

### - Industrial

There are 4,559 acres of industrial land use found in the Pine Island Sound/Matlacha Pass Basin, according to the SFWMD 1988 land use coverage. This accounts for 5% of the total basin area. The total water demand for industrial self-supplied facilities was 31.3 MGD for 1990 (SFWMD, 1994), although the locations of the facilities are unknown.

#### - Recreational

In Lee County, landscape water demand for 1990 was 23.5 MGD, and golf course water use was 17.2 MGD, for a total water use demand of 40.7 MGD (SFWMD, 1994) for the entire county.

### Water Discharge and Reuse

There are two major domestic waste water treatment plants in the Pine Island Sound/Matlacha Pass Basin. The Cape Coral Southwest WWTP is a 7.0 MGD AWT plant with reclaimed water disposal via the Water Independence for Cape Coral (WICC) program. The WICC program distributes water throughout Cape Coral for residential lawn and other green space irrigation, with approximately 10,000 properties connected to the system (SFWMD, Vol III, 1994). The Sanibel Island WWTP is a 1.25 MGD with effluent used for golf course irrigation and discharged to percolation ponds. Reclaimed water is used by the Beachview and Dunes Golf Club courses. Average flows for 1990 were 0.56 MGD.

#### 6.1.4.2 Agricultural Management Practices

The Pine Island Sound/Matlacha Pass Basin consists mainly of range lands (34%), saltwater wetlands (22%), and forested uplands (17%) (Table 6-2). Agricultural land uses found are pasture (1997 acres), groves (417 acres), row and field crops (157 acres), nurseries (130 acres), and confined feeding operations (12 acres). The basin contains approximately 87,848 acres (137 square miles), all in Lee County.

Agricultural land use estimates for all major crops for 1990 in Lee County are shown in Table 6-5, as well as estimates of irrigated acreages for each of these crops and estimated water use.

Crop	Acreage	Irrigation Type - Acreage		Water Use (MGD)
Citrus	9,692	Overhead	4,846	28.5
		Seepage	4,846	
Tropical Fruit	1,680	Seepage	1,512	4.8
Vegetables	9,785	Seepage	9,785	23.0
Nursery	606	Overhead	606	2.8

**Table 6-5. 1990 estimated crop acreages, irrigation types, and water use in Lee County.**

Crop	Acreage	Irrigation Type - Acreage	Water Use (MGD)
Sod	650	Seepage 650	3.0
Pasture	118,000	Cattle Watering	0.2
Totals	140,413	Overhead 5,452 Seepage 16,793	62.3

## 6.2 Water Quality Conditions

No comprehensive data were identified which allowed a comprehensive assessment of long-term and current water quality conditions either during the development of the "Compendium of Existing Information" or while compiling background data for this subsequent report.

## 6.3 Estimation of Pollution Potential

Nonpoint source loading of runoff, total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS) was estimated for each major basin and subbasin by computing nonpoint source pollution loads based on estimated rainfall, land use, and soil cover. The pollution load potential was estimated in order to assign priority to major basins and subbasins. Thus, the method of development was focused on estimating relative loads in a consistent manner among subbasins to avoid biasing the basin or subbasin evaluation.

The detailed rainfall, 1988 SFWMD land cover, SFWMD 1990 land cover, and USDA soil data were used to estimate relative runoff discharge rates for the subbasins. Using a surface-fitting approach, rainfall values for each month were computed for the years 1970 to 1996. Runoff was calculated by multiplying the rainfall estimate by a literature-based runoff coefficient value for each parcel in the land cover and soil database. Runoff coefficients used for these analyses were specific for south Florida, varied by land use/cover and hydrologic soil group, and were adjusted for wet or dry season conditions. Hydrologic loadings were estimated on an "off the land" basis, and it was assumed that all runoff entered the estuary, regardless of whether pumps or gravity flow was used to discharge it from the basin.

Monthly-specific pollutant loading estimates for TN, TP, and TSS were computed for each individual parcel of unique land use and soil within a subbasin. Loadings were computed using land use specific pollutant concentration estimates specific for south Florida. Pollutant concentrations reported in the literature have widely varying values, and this resulted in an increased level of uncertainty in the absolute values of the load estimates. However, more intensively developed land uses such as medium and high density residential and intensive agriculture clearly have a higher

potential for TN, TP and TSS loading to the estuary, and the pollutant load prioritization of subbasins for this study reflects these load source patterns. Existing domestic and industrial point sources within the basin are also listed and their potential impacts discussed.

Unless otherwise indicated, the following estimates were rounded to the nearest 1 thousand acres, 1 million cubic meters of discharge, and ton of pollutant load. For purposes of discussion, urban land uses were operationally defined as residential, commercial, industrial, mining, institutional, transportation, and utilities. Agricultural land uses were operationally defined as pasture, groves, feedlots, row and field crops, and nursery. Undeveloped land uses were defined as range lands, barren lands, upland forests, and wetlands.

### 6.3.1 Load Estimates Pine Island Sound/Matlacha Pass Basin

This basin was estimated to have one of the smallest contributing areas among the major basins of the study area. The 88,000 acres contributed a total estimated annual runoff discharge of 96 million cubic meters. The estimated annual pollutant loads were 260 tons of TN, 76 tons of TP, and 4,528 tons of TSS.

Most (75%) of the hydrologic load from this subbasin was estimated to be discharged from undeveloped lands. In particular, these loads were from upland forests. Table 6-6 presents the loads from runoff by land use.

Developed urban and agricultural lands contributed the remaining 25% of the total hydrologic load. The 12,000 acres of urban land contributed 39 million cubic meters of runoff, 77 tons of TN, 12 tons of TP, and 2,935 tons of TSS. The 3,000 acres of agricultural land contributed 3 million cubic meters of runoff, 10 tons of TN, 3 tons of TP, and 53 tons of TSS. These lands were primarily comprised of medium and low density residential land uses.

**Table 6-6. Total nitrogen, total phosphorus, total suspended solids, and hydrologic load by land use type within the Pine Island Sound Basin.**

Land Use Type	TN		TP		TSS		Hydrologic Load	
	tons/yr	% of subbasin	tons/yr	% of subbasin	tons/yr	% of subbasin	m <sup>3</sup>	% of subbasin
Low Density Residential	10	4%	2	2%	99	2%	4,965,225	5%
Medium Density Residential	16	6%	2	3%	234	5%	6,269,347	7%
High Density Residential	6	2%	1	1%	188	4%	2,649,170	3%
Commercial	3	1%	0	1%	138	3%	1,696,843	2%
Industrial	40	15%	7	9%	2,239	50%	21,673,867	23%
Mining	1	0%	0	0%	27	1%	486,604	1%
Institutional, Transport., Util.	1	0%	0	0%	9	0%	766,570	1%

**Table 6-6. Total nitrogen, total phosphorus, total suspended solids, and hydrologic load by land use type within the Pine Island Sound Basin.**

Range Lands	102	39%	51	67%	513	11%	35,603,243	37%
Barren Lands	2	1%	0	0%	21	1%	1,900,059	2%
Pasture	6	2%	2	3%	20	1%	2,165,346	2%
Groves	1	0%	0	0%	5	0%	449,747	1%
Feedlots	1	1%	0	0%	3	0%	56,442	0%
Nursery	1	0%	0	0%	14	0%	229,480	0%
Row and Field Crops	1	0%	0	1%	10	0%	272,084	0%
Upland Forests	69	27%	10	13%	1,006	22%	16,542,563	17%
TOTAL	260	100%	76	100%	4,528	100%	95,726,592	100%

### 6.3.2 Pollution Source Inventory

The purpose of this compilation of a point source inventory for the Pine Island Sound/Matlacha Pass Basin is to describe the numbers, locations, and discharge capacities of domestic and industrial point sources within the Pine Island Sound/Matlacha Pass Basin. The inventory provides a relative assessment of the pollution potential from point sources within the basin. Point source inventory information was obtained from the Florida Department of Environmental Protection (FDEP) databases for domestic and industrial point sources, as discussed previously.

Wastewater treatment plant discharges for those plants in the Pine Island Sound/Matlacha Pass Basin with greater than 0.5 MGD in the SFWMD (SFWMD, 1994) were previously discussed. The following discussion uses only the FDEP databases, as previously described.

The FDEP databases list 57 domestic point sources and seven industrial point sources within the basin (Tables 6-7 and 6-8). All of the domestic and industrial point sources are in Lee County (Figure 6-7).

Domestic point sources discharge capacities total 10.63 MGD, with 3.65 MGD of this sent to reuse. Of the total 10.63 MGD, 6.6 MGD from one water reclamation plant has no receiving body listed. Industrial point sources have a total discharge capacity of 3.34 MGD, with 0.04 MGD for reuse and 1.8 MGD disposed of 600 feet offshore in the Gulf of Mexico.

**Table 6-7. Domestic point sources in the Pine Island Sound Basin.**

Facility Name	County	Discharge Capacity (MGD)	Receiving Waterbody
MATLACHA PACKAGE PLANT	Lee	0.15	Percolation Ponds
MARINER HIGH SCHOOL	Lee	0.05	Percolation Ponds
PINE ISLAND ELEM./MIDDLE SCHOOL	Lee	0.01	Drainfield
DONAX WATER RECLAMATION FACILITY	Lee	1.6	Spray Irrigation

Facility Name	County	Discharge Capacity (MGD)	Receiving Waterbody
SOUTHWEST WATER RECLAMATION FAC.	Lee	6.6	
SUMMERLIN GATEWAY/SUMMERLIN SQUARE	Lee	0.05	
VILLAS APARTMENTS OF SANIBEL	Lee	0.01	Drainfield
JERRY'S RESTAURANT	Lee	0.01	
PLAZA CENTRAL/TIMBERS RESTAURANT	Lee	0.01	Drainfield
PINE ISLAND SHOPPING CENTER	Lee	0.02	Percolation Ponds
LAKE FAIRWAYS/FFEC-SIX	Lee	0.3	Percolation Ponds/Spray Irrigation
SUNSET CAPTIVA W. W. T. P.	Lee	0.03	Drainfield
PUNTA RASSA CONDOMINIUMS	Lee	0.05	Drainfield
JANTHINA CONDOMINIUMS	Lee	0	Drainfield
CAPTIVA SHORES CONDOMINIUM	Lee	0.01	Drainfield
CORALWOOD VILLAGE	Lee	0.01	Percolation Ponds
FISHERMAN'S WHARF CONDOMINIUM	Lee	0.01	Drainfield
FOUNTAINVIEW R.V. CONDO PARK	Lee	0.07	Percolation Ponds
BOCILLA ISLAND CLUB	Lee	0.03	
CAPE CORAL MOOSE LODGE, #2199	Lee	0.01	
USEPPA INN & DOCK CO.	Lee	0.03	Percolation Ponds
TARA WOODS	Lee	0.1	Percolation Ponds
TWISTEE TREAT	Lee	0.03	
FOUR WINDS MARINA	Lee	0.01	
BELLINI'S RESTAURANT	Lee	0.02	
NORTH CAPE INDUSTRIAL PARK	Lee	0.02	Percolation Ponds
BLUE CRAB KEY	Lee	0.04	Absorption Fields
VILLAGES OF PINE ISLAND	Lee	0.04	Percolation Ponds
ISLES OF PINES SUB-DIVISION	Lee	0.01	
SEA OATS S/D	Lee	0.02	Percolation Ponds
SAFETY HARBOR CLUB VILLAGE	Lee	0.02	
PINE ISLAND COVE	Lee	0.05	Percolation Ponds
BREAKER'S WEST CONDO.	Lee	0.01	Drainfield
JONATHAN HARBOUR	Lee	0.04	
WEST WIND INN	Lee	0.02	Drainfield
SANIBEL CENTER BUILDING	Lee	0	Percolation Ponds
TAHITIAN GARDENS SHOPPING CENTER	Lee	0.01	Drainfield
SANIBEL BAYOUS UTILITIES, INC.	Lee	0.08	Percolation Ponds
TROPIC ISLES RV RESORT	Lee	0.02	Percolation Ponds
GULF PINES SUBDIVISION	Lee	0.03	Retention Pond

**Table 6-7. Domestic point sources in the Pine Island Sound Basin.**

Facility Name	County	Discharge Capacity (MGD)	Receiving Waterbody
RAINTREE R. V. RESORT	Lee	0.03	Spray Irrigation/ Dual Absorption
SEA SHELLS OF SANIBEL	Lee	0.02	Drainfield
TWEEN WATERS INN	Lee	0.04	Drainfield
CAPTAIN'S COVE	Lee	0.03	Drainfield
SUNSEEKERS R. V. PARK	Lee	0.05	Drainfield
NUTMEG VILLAGE	Lee	0.02	Drainfield
SEAGULL BAY	Lee	0.01	
WULFERT POINT AWWT	Lee	0.13	
ATRIUM CONDO.	Lee	0.01	
ISLAND INN	Lee	0.01	Drainfield
ENVIRONMENTAL SYSTEMS OF PINE ISLAND	Lee	0.1	Percolation Ponds
JOLLY ROGER RESORT MOTEL	Lee	0.01	Drainfield
GUMBO LIMBO ENTERPRISES	Lee	0.01	Retention Pond
PINE ISLAND KOA	Lee	0.03	Percolation Ponds
SOUTH SEAS PLANTATION	Lee	0.45	Percolation Ponds/Spray Irrigation
SHALIMAR	Lee	0.03	Percolation Ponds
PINK CITRUS TRAILER PARK	Lee	0.02	Drainfield

**Table 6-8. Industrial point sources in the Pine Island Sound Basin.**

Facility Name	County	Discharge Capacity (MGD)	Receiving Waterbody
THE CENTER, INC.	Lee	.	Percolation Ponds
ISLAND WATER ASSOC-SANIBEL ISL	Lee	1.8	Gulf 600 ft offshore
CAPE CORAL REV OSMOSIS WTP	Lee	1.2	
GREATER PINE ISLAND R/O TREATMENT PLANT	Lee	0.27	
U AUTO WASH	Lee	0.04	None -Recycled
USEPPA INN & DOCK	Lee	0.03	
BURGESS ISLAND ASSOCIATES, INC	Lee	0	

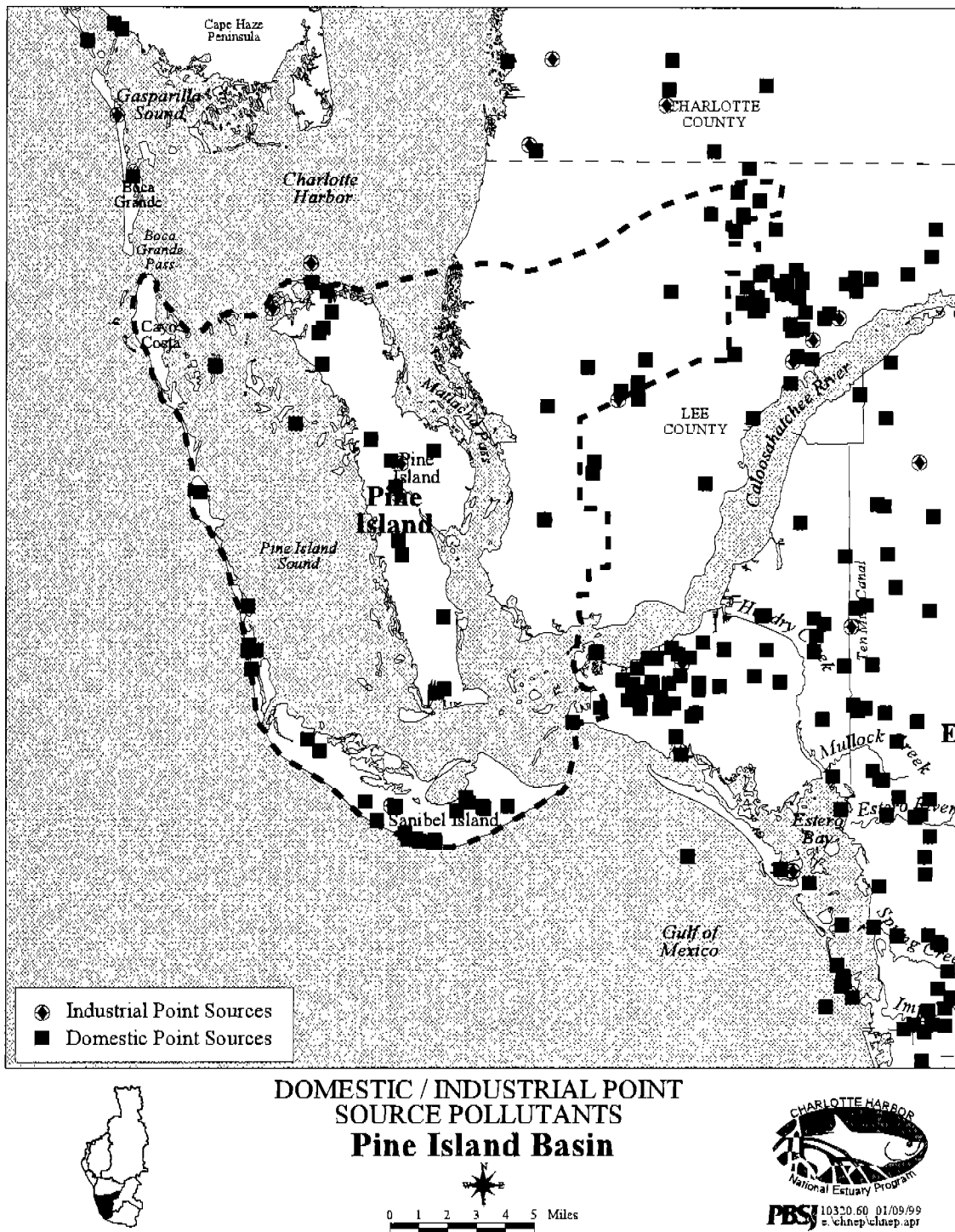


Figure 6-7. Location of domestic and industrial point sources in the Pine Island Sound/Matlacha Pass Basin.